



ALTO MAIPO HYDROELECTRIC PROJECT

HYDROLOGIC BALANCE OF THE MAIPO RIVER BASIN

FINAL REPORT

(Rev. C)

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1. Introduction

1.1. Study Objectives and Scope

The objective of this study is to develop a hydrologic balance of the upper basin of the Maipo River and some of its main tributaries, in order to determine available water resources for different sections of the area's waterways.

The study focuses, first, on generating historical monthly flow data for selected sections of interest to AES Gener within the area of the Maipo River basin, relative to the natural flow regime and the period between hydrological years 1950/51 and 2004/2005. These data series will then be used to develop seasonal variation curves for different exceedance probability levels.

The information available for the study includes data from previous studies, flow measurements registered by the General Water Service (*Dirección General de Aguas – DGA*) in eight measurement stations located in the study area, operational data from the El Yeso Reservoir, and information on water flows used by the Andean hydroelectric plants. The latter was provided by AES Gener.

1.2. Available Information Requested for the Study

This hydrological study is based on fluviometric information from DGA records, and statistical data gathered and corrected by previous studies focusing on the study area, including the following:

- “Estudios Hidrológicos. Complejo Hidroeléctrico Alfalfal II – Las Lajas”. BF Ingenieros, 1991.
- “Evaluación de Caudales Afluentes a la Central Hidroeléctrica Alfalfal”. Harambour, 2000.
- “Evaluación de Caudales Afluentes a la Central Hidroeléctrica Maitenes”. Harambour, 2000.
- “Bases para la formulación de un plan director para la cuenca del Río Maipo”. CONIC-BF, 2007. For the *Dirección General de Aguas*, M.O.P.
- “Estudio de Factibilidad Proyecto Hidroeléctrico Alto Maipo”. CONIC-BF, 2005. In collaboration with Arcadis Geotecnica.

After a thorough review of the above-mentioned studies, it was decided to adopt the statistical data gathered and generated in the study ‘Basis for Developing a Maipo River Watershed Management Plan’ (*Bases para la formulación de un plan director para la*

cuenca del Río Maipo) as the basis for this study. Additionally, the study would build on the water flow measurements taken in some sections of the waterways involved, which were first used for the Alfalfal II – Las Lajas Hydroelectric Complex studies conducted by BF Ingenieros in 1991. (*Estudios Hidrológicos. Complejo Hidroeléctrico Alfalfal II – Las Lajas.*)

Taking into account the characteristics of the information obtained from the mentioned studies and the current fluviometric data available from the DGA for the area's flow stations, it was decided that the study would cover the period between hydrological years 1950/51 and 2004/05, and use data from the fluviometric stations listed in Table 1.1 below.

Table 1.1: Fluviometric Data Sources

Name of Station	East [m]	North [m]	Altitude [masl]
Río Maipo en El Manzano	372023	6281962	850
Río Maipo en San Alfonso	379639	6266811	1108
Río Colorado antes junta con Maipo	373148	6282685	890
Río Colorado antes junta con Olivares	394633	6293757	1500
Río Olivares antes junta con Colorado	394398	6294001	1500
Río Volcán en Queltehues	388100	6258689	1365
Río Maipo en Las Melosas	389339	6253999	1527
Estero Arrayán en la Montosa	-	-	880

To develop the hydrologic balance for the Maipo River basin, the natural flow data from all the fluviometric stations located upstream from the 'Maipo en El Manzano' station had to be updated. To do this, the following information was requested from the DGA or the Project Owner, as appropriate:

- Inflow data from the Colorado abstraction point, Alfalfal power plant.
- Inflow data from the Olivares abstraction point, Alfalfal power plant.
- Volcán canal inflow data.
- Maipo Canal for Queltehues inflow data.
- El Yeso Reservoir regulation flows (inflow, outflow, and reservoir status).

1.3. Report Structure

This report is structured in a way that enables readers to fully understand the distribution of the waterways of the Maipo River basin, and their respective fluviometric stations, and the different procedures conducted with the average monthly flows measured in those stations. These measurements are the basis for developing the general hydrologic balance.

Chapter 1 sets forth the general objectives of the study and reviews background information.

Chapter 2 is a general description of the hydrologic balance, including the basis on which it was developed and the specific points under study.

Chapter 3 contains an evaluation of the water resources available in the Maipo River and its main tributaries. More specifically, this chapter discusses the implementation of certain flow data transposition and synthesis methods, used to develop natural flow time series for different points of the watershed under study.

To ensure the clarity of the review of the above-mentioned procedures, Chapter 3 is internally structured according to the main river systems contributing flows to the Maipo River, i.e. the Volcán system, the El Yeso system and the Colorado system.

2. Overall Framework and Basis for the Hydrologic Balance

2.1. General Aspects

The hydrologic balance is calculated based on the monthly flow measurements registered by the DGA at the fluviometric stations in the study area (see Table 1.1); the alterations of flow regimes due to El Yeso Reservoir operations; and, the flow extractions and restitutions by hydroelectric power plants in the region (Andean power plants). The study covers the period between hydrological years 1950/51 and 2004/05. Available statistical data was complemented with information requested from the DGA and Project Owner, as mentioned in section 1.2 above.

After completing the natural flow data of the measuring stations for the selected time period, this information becomes the basis for developing the study area's hydrologic balance. This balance is primarily focused on obtaining flow series for the sections of interest (see Table 2.1) of the region's main waterways, based on different transposition and synthesis methods.

2.2. Fluviometric Data Correction and Consistency

In order to obtain reliable data and eliminate anomalous values that could alter the balance, annual, seasonal and monthly corrections were made to natural flow data from the different stations involved, based on the data of the Maipo en El Manzano and Maipo en San Alfonso measuring stations.

The data correction procedure started by identifying average annual flow data that were obviously different from their respective correlations. The corresponding seasonal correlations were then observed (Apr – Sep and Oct – Mar) to identify the values that could be causing the annual differences. Subsequently, considering the monthly correlations for the anomalous seasonal period –winter or thaw period- the specific monthly values causing the imbalance were identified and corrected, based on regression results. It should be mentioned that when more than three specific values are corrected, the seasonal value should also be calculated, and based on this, the specific values calculated corrected, distributing the difference proportionally so that the average adjusts to the theoretical value. If this is the case for both seasonal periods, the calculated winter and thaw values should be adjusted to the annual value, in order to subsequently correct monthly differences.

The consistency of the data was also examined, considering as a minimum, the continuity that should exist between stations located at different points of the same waterway ($Q_{Downstrm} \geq Q_{Upstrm}$). Where appropriate, controlled tributaries located in the middle areas were taken into account. Thus, three main balances were simultaneously developed to evaluate natural flow data consistency, verifying that there were no negative flows after subtracting from the data of a downstream station, the measurements taken in the corresponding tributaries.

The general procedure followed to evaluate data consistency and correct the basic data of the series used, is described below.

In the first balance, the sum of the flows measured in Volcán en Queltehues, Maipo en Las Melosas and El Yeso Reservoir inflow was subtracted from the Maipo en San Alfonso data.

Balance 1:

$$Q_{Middle\ basin\ 1} = Q_{San\ Alfonso} - (Q_{Las\ Melosas} + Q_{Volcán} + Q_{Yeso\ inflow})$$

The second balance, involving the Colorado River basin, considered the Colorado in the outlet, Colorado before Olivares and Olivares before Colorado stations.

Balance 2:

$$Q_{Middle\ basin\ 2} = Q_{Colorado\ en\ Desembocadura} - (Q_{Colorado\ antes\ Oli\ var\ es} + Q_{Oli\ var\ es\ antes\ Colorado})$$

Based on the identification of the months presenting significantly negative values, the monthly data of the correlations developed between the different stations were identified, in order to correct the anomalous values, outside the correlations, that were causing the imbalances. It should be noted that the anomalous values that were obviously outside the correlation were also corrected, whether or not the monthly balance was negative.

For the final balance, the flows of the Maipo en San Alfonso and Colorado en Desembocadura stations were subtracted from the Maipo en El Manzano flow data.

$$\text{Balance 3: } Q_{\text{Middle basin 3}} = Q_{\text{El Manzano}} - (Q_{\text{San Alfonso}} + Q_{\text{Colorado en Desembocadura}})$$

The correction and consistency evaluation process is difficult and time-consuming, as it requires individually reviewing the monthly data producing anomalous balances. To a certain extent, it is also iterative, because three middle basins that share the same stations are evaluated simultaneously. The result is that the third balance, once it is calculated, will alter the balances calculated for upstream points.

The procedure described above produced consistent data for the first two balances. However, in spite of the fact that the majority of anomalous values were identified and corrected for the last middle basin, some smaller negative values still remained, and had to be corrected at a later stage of the process.

This last step was based on the development of monthly correlations among corrected flow station data, without considering the remaining negative values from the Maipo en San Alfonso and Maipo en El Manzano (excluding the Colorado contribution) stations, in order to produce, based on the San Alfonso data, a consistent value for the contribution of the middle basin in the remaining anomalous cases (see Annexes IV and V for the correlations). The regression slopes provide a factor of more than one. After subtracting one from this value and weighting it by the San Alfonso flow, the corrected contribution of the middle basin is obtained. Finally, the corrected flow data for the Maipo en el Manzano station is equal to the sum of the Colorado en Desembocadura and Maipo en San Alfonso flow data, and the middle basin synthetic data.

Data from the Maipo en Las Melosas station for the study period were significantly incomplete, due to the irregular functioning of this station. This was addressed using correlations with the time series reported by the stations of the area. More specifically, flow data from the Volcán River (Volcán en Queltehués) and the Yeso River (Reservoir inflow) were subtracted from the Maipo en San Alfonso statistics, in order to correlate this fluviometric pattern with the data reported by the Maipo en Las Melosas station.

The correlations were developed based on measurements that were actually observed, taking into account that the flows of the fluviometric pattern had to be at least equal to the ones measured at the Maipo en Las Melosas station, and that for this type of regressions, the slope tends to follow a cyclical order for the different months. (See Annex IV for the correlations).

2.3. Sections of Interest

The sections of interest defined by AES Gener (Table 2.1), for which water resource availability is to be determined, are distributed throughout the upper basin of the Maipo River. These sections are either part of the Maipo River itself or part of one of its main tributaries, i.e. Volcán, Yeso or Colorado. The areas where the sections are

located, as well as the methodologies used are described below, according to the river to which each point belongs.

Table 2.1: Sections of Interest

Point	Name of Section	East [m]	North [m]	Alt. [masl]
1	Maipo at Queltehués powerhouse discharge	387332	6258320	1293
2	Maipo at confluence with Volcán	387350	6259060	1248
3	Maipo at confluence with Yeso	385939	6261274	1097
4	Maipo at AES Gener intake (75 m ³ /s) (Case File # ND-1302-27)	376225	6272150	1001
5	Maipo at Las Lajas Hydropower Plant discharge	368082	6284050	818
6	Colorado at Maitenes Hydropower Plant discharge	382550	6289520	1131
7	Yeso at reservoir discharge	399588	6274547	2500
8	Yeso at confluence with Cortaderas	394555	6267607	1880
9	Volcán at AES Gener intake (12.7 m ³ /s) (Case File # ND-1302-11b)	405800	6258700	2150
10	Volcán at AES Gener restitution (13.1 m ³ /s) (Case File # ND-1302-11a)	399500	6256800	1700
11	Yeso at confluence with Maipo.	385939	6261274	1097
12	Colorado at Alfalfal Hydropower Plant discharge	389079	6292541	1320
13	Volcán at AES Gener intake (13.1 m ³ /s) (Case File # ND-1302-11a)	403200	6257000	1850

As already mentioned, in order to clearly review procedures and fully understand the basin under study, the methodology is structured according to the main river systems contributing to the Maipo river, i.e. the Volcán, El Yeso and Colorado river systems.

The sections of interest are listed below, by river system.

- Volcán system:

- Point 9: Volcán at AES Gener intake (12.7 m³/s).
- Point 10: Volcán at AES Gener restitution (13.1 m³/s).
- Point 13: Volcán at AES Gener intake (13.1 m³/s).

- El Yeso System:
 - Point 7: Yeso at reservoir discharge
 - Point 8: Yeso at confluence with Cortaderas
 - Point 11: Yeso at confluence with Maipo.

- Colorado System:
 - Point 6: Colorado at Maitenes Hydropower Plant discharge
 - Point 12: Colorado at Alfalfal Hydropower Plant discharge

- Maipo System:
 - Point 1: Maipo at Queltehués discharge
 - Point 2: Maipo at confluence with Volcán
 - Point 3: Maipo at confluence with Yeso.
 - Point 4: Maipo at AES Gener intake (75 m³/s)
 - Point 5: Maipo at Las Lajas Hydropower Plant discharge.

The geographic distribution of the sections of interest, their basins and the location of the fluviometric stations used in the study are shown in the general map attached to this report.

3. Water Resource Availability Assessment

3.1. Volcán River System Sections

3.1.1. Description of the Area

The Volcán River system is part of the upper basin of the Maipo River, located in the eastern part of Chile's Metropolitan Region. The Volcán River originates at the top of the San José volcano (5,856 m), and receives water from Estero Colina, which starts in the most western slope of the San José volcano and Cerro Marmolejo (6,100 m). The entire system covers a total surface of some 530 km², from the river source to its mouth in the Maipo River.

The basin has two main sub-basins: Colina and the first section of the Volcán River, which meet at an altitude of approximately 2,150 m, originating the main section of the Volcán River¹.

The basin exhibits a proglacial and nival flow regime, controlling approximately 36 km² of glaciers, including Marmolejo and Loma Larga, as well as other slopes of the San José volcano where snow lies.

Currently, the only regulated intake that alters flow measurements considered in the study, is the Volcán Canal of the Queltehues power plant. The flow of the canal discharges directly into the Maipo River, upstream from the confluence with the Volcán River.

The Volcán River has only one flow measurement station, Volcán en Queltehues, which belongs to the DGA. The station is located downstream from the Volcán Canal intake, a few kilometers upstream from the river mouth in the Maipo River.

3.1.2. Flow Series Calculation for the Points of Interest

The methodology used to determine historical time series for each of the area's points of interest is based on the records of the Volcán en Queltehues flow measurement station. This data is based on a natural flow regime, i.e. considering the water flowing into the Volcán Canal for hydroelectric power generation purposes. Additionally, to obtain data that is more representative of the flows in the upper basin, AES Gener measurements for some of the years included in the study period were used.

Point 10, Volcán at AES Gener Restitution (13.1 m³/s)

This section is located in the main segment of the flow of the Volcán River (1,700 m), 450 m lower than the point of confluence with Estero Colina. The sub-basin contributing water to this point, which coincides with the Volcán Canal intake point, covers a surface of approximately 455 km², representing 86% of the base station's tributary area.

¹ In this study and the previous studies conducted for AES Gener to which it refers, the waterway designated with the name "Estero Colina" comprises the flows of the streams La Engorda, Las Placas, El Morado and Colina until they reach the confluence with the Volcán River. The official IGM cartography designates this as La Engorda.

In view of the proximity of this section to the base station selected for the area, and the small percentage difference between the areas contributing to both basins, the methodology used consisted of transposing the flows from the fluviometric station to the intake point, and applying a weight factor equal to the ratio of the respective areas.

$$Q_{P10} = \frac{A_{P10}}{A_{V.Queltehues}} \cdot Q_{V.Queltehues}$$

The natural flow regime series for this particular point of interest is obtained following the above procedure for all the average monthly flows of the historical time series collected for the station (see Annex I).

Point 9, Volcán at AES Gener Intake (12.7 m³/s):

This section is located at an altitude of 2,150 m, immediately downstream from the confluence of the Colina (which includes flows from La Engorda Canyon, Las Placas mountain stream and El Morado Canyon) and Volcán rivers. The contributing area, covering a total surface of 377 km², includes some glacier-type sectors, more specifically 18.7 km² distributed in the upper parts of the waterways flowing into Estero Colina.

In addition to the statistical data generated for Point 10 above, the calculation of this flow series was also based on measurement data and methodologies used in the hydrological studies carried out by BF Ingenieros for the Alfalfal II – Las Lajas Hydroelectric Complex, and CONIC-BF's 2005 Alto Maipo Hydroelectric Project Feasibility Study

The procedure incorporates into the analysis, a series of flow gauging taken by Chilgener (1990) in three sections located within the Volcán River basin. Two of these sections belong to the Volcán River, one near the Volcán Canal intake, A₁, (P10 in this study), and another upstream from the confluence of the Volcán and Estero Colina, A₃, while the third section is located on Estero Colina, A₂, also upstream from the mentioned confluence. The series of flow gauging, homogenized for this study, are shown in Figure 2.1 below.

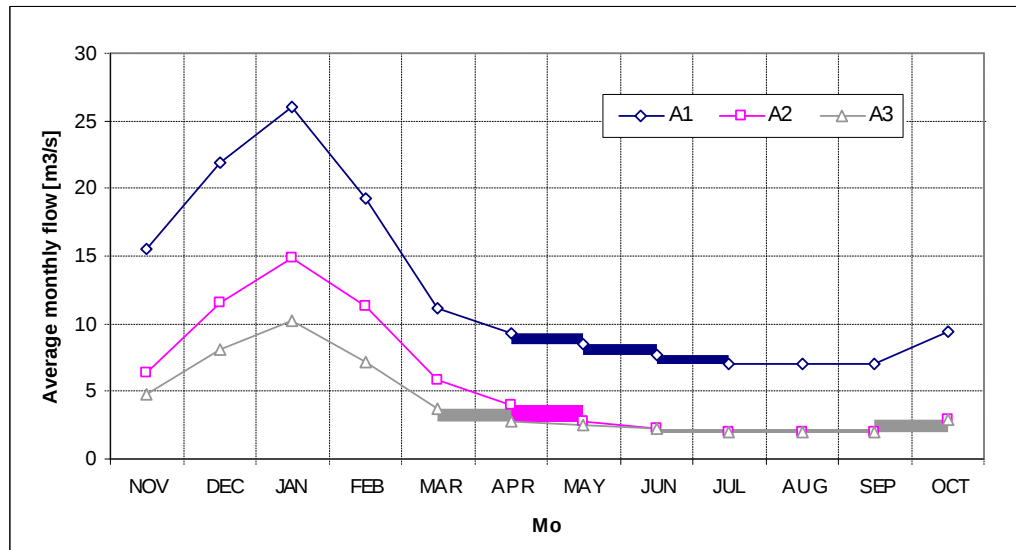


Fig 2.1: Series of flow gauging in sections A₁, A₂ & A₃.

The flows were homogenized so that the flow of the Volcán River, before intake A₁, would always be higher than the sum of the flows of Estero Colina and the Volcán River, before the confluence with Estero Colina. This was done because of the contribution by the existing middle basin, formed mainly by the Yesillo and El Salto mountain streams. Also, basins A₂ and A₃ exhibit a water regime that is somewhat different from the water regime of basin A₁. This is due to the existence of the lower middle basin, where snow melt occurs earlier than in the higher areas, thus increasing the flow differences between the months of November and January.

As already mentioned, during the winter, basins A₂ and A₃ exhibit similar behaviors; however, once the thawing period begins, differences start to arise in the flows of both series. These differences, which increase until the month of January and then decrease to virtually zero, can be attributed to the large presence of glaciers in the sub-basin of Estero Colina.

With the homogenized data from the series of flow gauging, and considering that the 18.7 km² of glaciers of the total surface of Point 9 are part of the Colina sub-basin, and that both sub-basins (Colina and Volcán before the confluence) cover similar surface areas (A₂=186.1 km² and A₃=191.3 km²), a flow originating from glaciers can be calculated as the subtraction of both series of monthly gauging, which, given their sources, are assumed to be invariable for all the years considered in the study. Furthermore, taking into account the similarity between the non-glacier areas of both basins, it is safe to say that their specific outputs are approximately the same. The following water balance equations are based on these approximations.

$$Q(i)^g = Q(i)_{Af.Colina} - Q(i)_{Af.Volcán} = q(i)^g \cdot A_{Af.Colina}^g$$

$$Q(i)_{Af.Colina} = A_{Af.Colina}^{sg} \cdot q(i)^{sg} + A_{Af.Colina}^g \cdot q(i)^g$$

$$Q(i)_{Af.Volcán} = A_{Af.Volcán}^{sg} \cdot q(i)^{sg}$$

Where $Q(i)_{Af.Colina}$ and $Q(i)_{Af.Volcán}$ are the total flows measured at the points located upstream from the confluence in month i , and $q(i)^g$ and $q(i)^{sg}$ are the specific outputs of the glacier and non-glacier areas, respectively, which are assumed to be homogenous. Additionally, the areas of the basins involved are incorporated into the balance equations, distinguishing between glacial and nival areas, A^g and A^{sg} , respectively.

By removing the glacier contribution to the flow gauging (there are no glaciers in the basin of the Volcán River before the confluence point), and adding both flows up to the point of confluence, the non-glacier flows can be calculated for Point 9. Monthly factors relating these flows to the respective gauging in P10 can then be determined.

$$Q(i)^{sg}_{Af.P9} = Q(i)^{sg}_{Af.Colina} + Q(i)^{sg}_{Af.Volcán}$$

$$Q(i)^{sg}_{Af.P10} = Q(i)_{Af.P10} - Q(i)^g$$

$$F(i) = \frac{Q(i)^{sg}_{Af.P9}}{Q(i)^{sg}_{Af.P10}}$$

The non-glacier flow series can then be obtained by weighting the historical flow series for Point 10 by the monthly factors obtained from the gauging, which are assumed to be valid for the entire study period. Glacier flows are subsequently added to calculate the total natural flow regime.

$$Q(i)_{P9} = Q(i)_{10}^{sg} \cdot F(i) + Q(i)^g$$

Point 13, Volcán at AES Gener Intake (13.1 m³/s):

This section is located in the middle basin, between points P9 and P10, and covers a surface area of 78 km². Of this, 15 km² contribute to the P9-P13 segment, and are associated mainly with the Las Rubillas brook. To calculate the historical time series of the average monthly flows for this point, the middle basin flow, weighted by the relevant surface area percentage, was added to the statistics calculated for P9, using the following equation:

$$Q_{P13} = Q_{P9} + (Q_{P10} - Q_{P9}) \frac{A_{P13} - A_{P9}}{A_{P10} - A_{P9}}$$

3.2. Yeso River System Sections

3.2.1. Description of the Area

The Yeso River basin, stretching out from the summits of the Andes to the confluence of the Yeso and Maipo Rivers, covers a surface area of approximately 627 km². It includes three large water reservoirs. Two of these are natural reservoirs (Negra and Lo Encañado), and the third, the Yeso Reservoir, is an artificial reservoir, currently operated by the local water utility, Aguas Andinas S.A.

The Yeso Reservoir controls a basin of approximately 350 km², significantly altering the natural water regime of the sections located downstream from its point of discharge. This stretch of the river, located downstream from the reservoir dam, and subject to the operating and discharge conditions of the reservoir, has the following tributaries Cortaderas, Manzanito and San Nicolás.

3.2.2. Flow Series Calculation for the Points of Interest

The methodology used to determine historical time series for each of the area's points of interest is based on the statistical data collected at the Yeso en Embalse measurement station, and the pertinent operating records (outflow data are included in the observed statistics of this report), when operational. With this information, the affluent flow, under a natural regime, can be calculated for the dam site.

In order to represent the intermediate contributions from the lower areas of the Yeso River basin, it was decided to consider as representative, the specific output per unit area, provided by the first balance developed for the consistency assessment described in section 2.2, that is:

$$Q_{Middle\ basin\ 1} = Q_{San\ Alfonso} - (Q_{Las\ Melosas} + Q_{Volcán} + Q_{Yeso\ Reservoir\ Affluent})$$

By using this methodology, the consistency of the flows of the sections located in this waterway was maintained, as well as the consistency of these with the sections of the Maipo River, downstream from the confluence of the Maipo and Yeso Rivers.

It should be mentioned that although the water from Laguna Negra, Laguna Lo Encañado and Estero San Nicolás should flow naturally into the Yeso River, these water flows are captured for drinking water supply by the Laguna Negra aqueduct, and are not recorded by the fluviometric stations located downstream. In view of this, it was decided not to include this region in the analysis, and assume that the flows from the middle basin obtained from Balance 1, originate in a smaller area (determined by subtracting the 162 km² of the excluded region), thus increasing the specific output of the sectors actually monitored.

Point 7, Yeso at Reservoir Discharge

This section is located at the discharge point of the Yeso Reservoir, a little bit downstream from the dam, and covers a surface area of approximately 350 km².

Considering its proximity to the base station selected for this area, it is clear that a representative methodology is transposing flows from the dam site to the discharge point, directly weighting the flows by the ratio between the respective areas, which, in this case, is close to one.

$$Q_{P7} = Q_{Reservoir} + \frac{A_{P7} - R_{Rmba}}{A_{Middle\ basin\ 1}} Q_{Middle\ basin\ 1}$$

$$A_{P7} \approx A_{Reservoir} \Rightarrow Q_{P7} = Q_{Reservoir}$$

Point 8, Yeso at Confluence with Cortaderas

As already mentioned, the Cortaderas is one of the main tributaries of the second section of the Yeso River (downstream from the reservoir of the same name). It has a contributing area of approximately 28.8 km² and its mouth is located at 1,880 m.

As this point is located in the middle basin defined by Balance 1, the contribution of the segment up to and including the confluence with Cortaderas, can be calculated by directly transposing the flows, and adding this to the inflow of the Yeso Reservoir to obtain the historical time series for the point of interest. The drainage area of the middle basin corresponding to this section is approximately 54 km².

$$Q_{P8} = Q_{P7} + \frac{A_{P8} - A_{P7}}{A_{Middle\ basin\ 1}} \cdot Q_{Middle\ basin\ 1}$$

Point 11, Yeso at Confluence with Maipo

The methodology used for P8 above, was also used to calculate the natural flow series for this point of interest. As the stretch of the Yeso River from the point of discharge of the reservoir of the same name to the Maipo River is located in the mentioned middle basin, the contribution of this area is calculated by directly transposing the flows, adding the result to the flow of the Yeso Reservoir to obtain the historical time series for the point of interest. The estimated drainage area of the middle basin corresponding to this section is 117 km².

$$Q_{P11} = Q_{P7} + \frac{A_{P11} - A_{P7}}{A_{Middle\ basin\ 1}} \cdot Q_{Middle\ basin\ 1}$$

3.3. Colorado River System Sections

3.3.1. Description of the Area

The Colorado River, located east of the Metropolitan Region, originates at the top of the Tupungato volcano (6,570 m). Its main tributary is the Olivares River, originating from the glacier of the same name, and Cerro El Plomo (6,050 m). After the confluence between these two rivers, the Colorado flows into the Maipo, 890 m above sea level, leaving an area of approximately 340 km² between both points.

Two hydropower plants, Alfalfal and Los Maitenes, are located in the basin of the Colorado River.

The Alfalfal Hydropower Plant, in operation since 1992, has two main water intake points, one in the Colorado River, and one in the Olivares River, before the confluence of both rivers. The water is channeled through tunnels to the powerhouse, located in Alfalfal. Water flow is restituted to the Colorado River a few meters downstream from the main intake of the Maitenes Hydropower Plant.

3.3.2. Flow Series Calculation for the Points of Interest

The methodology used to determine the flow series for the sections of interest located in the Colorado River system is based on statistical data from the Olivares antes de Colorado, Colorado antes de Olivares and Colorado en Desembocadura measuring stations. The fluviometric records from the Olivares antes de Colorado and Colorado antes de Olivares stations were naturalized, taking into account the flows captured by the Alfalfal Hydropower Plant for power generation.

The balance developed between the three mentioned stations produces the flow data for the middle hydrographic basin located between the confluence of the Olivares and Colorado rivers, and the mouth of the Colorado River in the Maipo River. This area includes the points where water availability is to be determined. This middle basin, of approximately 340 km², is considered as the basis for the flow transposition and synthesis processes for this river system.

Point 6, Colorado at the Maitenes Discharge

The discharge of the Maitenes Hydropower Plant into the Colorado River is located at an altitude of 1,131 m, in a section of the river with a 1,480 km² drainage area.

Of the total area of the basin corresponding to this section, 149 km² correspond to the main section of the Colorado River (downstream from the confluence with the Olivares), to which the same specific output of the entire middle basin can be assigned.

The time series is made up of the sum of the Colorado antes de Olivares and Olivares antes de Colorado flows, and the flow from Balance 2, to which a weight factor equal to the area percentage corresponding to the 149 km² is applied.

$$Q_{P6} = Q_{Oli\ vares + Colorado} + \frac{A_{P6} - A_{Oli\ vares + Colorado}}{A_{Middle\ basin\ 2}} \cdot Q_{Middle\ basin\ 2}$$

Point 12, Colorado at Alfalfal Discharge

The discharge of the Alfalfal Hydropower Plant into the Colorado River is located at an altitude of 1,320 m, in a section of the river with a 1,377 km² drainage area.

Of the total area of the basin corresponding to this section, 45 km² correspond to the main section of the Colorado River (downstream from the confluence with the Olivares), to which the same specific output of the entire middle basin (Balance 2) can be assigned.

The time series is made up of the sum of the Colorado antes de Olivares and Olivares antes de Colorado flows, and the flow from the corresponding middle basin, to which a weight factor equal to the area percentage corresponding to the 45 km² is applied.

$$Q_{P12} = Q_{Oli\ vares + Colorado} + \frac{A_{P12} - A_{Oli\ vares + Colorado}}{A_{Middle\ basin\ 2}} \cdot Q_{Middle\ basin\ 2}$$

3.4. Maipo River System Sections

3.4.1. Description of the Area

The basin of the Maipo River is located between 32°55' and 34°15' S latitude. Some of the highest peaks of the Andes mountain range are found in this basin, including the Juncal (6,110 m), the Tupungato (6,750 m) and several others of more than 5,000 m. Three different geographical regions can be seen in the Maipo River basin: the Andes, the Intermediate Depression or Central Valley and the Coastal Range.

The Maipo River originates in the Maipo volcano, at an altitude of 5,623 m, and travels 250 km before emptying into the Pacific Ocean near the locality of Llolleo, south of the port of San Antonio in Region V.

As already mentioned, in its upper course, the Maipo receives three major tributaries: the Volcán, Yeso and Colorado rivers. This is a nival river system.

The lower part of the study area is the section of interest designated as “Maipo at the Las Lajas discharge”, located at an altitude of 818 m, some 5 km downstream from the Maipo en El Manzano station.

3.4.2. Flow Series Calculation for the Points of Interest

The methodology used to determine the flow series for the sections of interest of the Maipo River system is based on data from virtually all the fluviometric stations included in this study.

For the points located upstream from the Maipo en San Alfonso station, the basis for transposing flows contributed by the intermediate areas is Balance 1, calculated with data from the Maipo en San Alfonso, Maipo en Las Melosas, Volcán en Queltehues and El Yeso Reservoir Affluents stations.

Balance 3, described in section 2.2 above, is considered representative for the section between Maipo en San Alfonso and Maipo en El Manzano. In addition to data from these two stations, Balance 3 also considers data from the Colorado en Desembocadura station.

Finally, for the middle basin, located downstream from the Maipo en El Manzano station, the specific output of Estero Arrayán, monitored by the Estero Arrayán en La Montosa station, was considered representative. This basin, presenting geomorphological characteristics similar to those of the intermediate basin of interest, is located in the hydrological basin of the Mapocho River.

Point 1, Maipo at Queltehues Discharge

This section is part of the first segment of the Maipo River. At an elevation of 1,293 m, it is located 5 km downstream from the Maipo en Las Melosas station. This section has a drainage area of 1,498 km², of which 23 km² are included in the middle basin of Balance 1, described in section 2.2 above.

In view of the above, it was decided to calculate the flow series for this section by adding the direct transposition of the middle basin flows taken to the point of interest to the Maipo en Las Melosas data.

$$Q_{P1} = Q_{Las\ Melosas} + \frac{A_{P1} - A_{Las\ Melosas}}{A_{Middle\ basin\ 1}} \cdot Q_{Middle\ basin\ 1}$$

Point 2, Maipo at Confluence with Volcán

This section is located at the confluence of the Volcán and Maipo rivers, incorporating both waterways at 1,248 m above sea level, and covering a total contribution area of approximately 2,030 km², of which 25 km² are included in the middle basin determined by Balance 1, described in section 2.2 above.

Due to the proximity of the Volcán en Queltehues station and the confluence with the Maipo, and the proximity of the Maipo en Las Melosas station and the confluence with the Maipo, it was decided to generate the flow series by transposing both sets of statistics to the point of confluence, and adding the data recorded.

$$Q_{P2} = Q_{Las\ Melosas} + Q_{Volcán} + \frac{A_{P2} - (A_{Las\ Melosas} + A_{Volcán})}{A_{Middle\ basin\ 1}} \cdot Q_{Hoya\ intermedia\ 1}$$

Point 3, Maipo at Confluence with Yeso

The flow series for this point are obtained by transposing flows from the middle basin to the section of interest, located at 1,097 m above sea level on the Maipo River (upstream from the Maipo en San Alfonso station), at the confluence with the Yeso River. The natural flow data from the stations located upstream are then added to the contribution from the 149 km² intermediate sub-basin, in order to obtain the section's total flow.

$$Q_{P3} = Q_{Las\ Melosas} + Q_{Volcán} + Q_{Afluyente\ Yeso} + \frac{A_{P3} - (A_{Las\ Melosas} + A_{Volcán} + A_{Yeso\ affluent})}{A_{Middle\ basin\ 1}} \cdot Q_{Hoya\ intermedia\ 1}$$

Point 4, Maipo at AES Gener Intake (75 m³/s)

This section is located downstream from Maipo en San Alfonso, and is part of the middle segment between the Maipo en San Alfonso and Maipo en El Manzano stations. The total drainage area for this point, located at an altitude of 1,001 m., is 2,882 km², of which 72 km² correspond to the middle basin established as the basis for this section. The middle basin flow data are transposed and added to the Maipo en San Alfonso station data to calculate the flow series for this point.

$$Q_{P4} = Q_{San\ Alfonso} + \frac{A_{P4} - A_{San\ Alfonso}}{A_{Middle\ basin\ 3}} \cdot Q_{Middle\ basin\ 3}$$

Point 5, Maipo at Las Lajas Discharge

The Las Lajas Hydropower Plant discharge is estimated at an altitude of 818 m., some 5 km downstream from the Maipo en El Manzano station. The total area contributing to this section covers a surface of 4,960 km², of which 87 km² discharge downstream from the station.

The procedure used to generate the time series for this point involves adding the contribution from the middle basin corresponding to the section located between the Maipo en El Manzano station and the site of the section of interest, section where the main affluent is Estero El Manzano, to the flow measurement data of the Maipo en El Manzano station. As already mentioned, because of the lack of information on this small area in particular, and the similarity between the basins of Estero El Manzano and Estero Arrayán, data from the Arrayán en La Montosa station is used as representative of the intermediate area, assuming that specific outputs are the same, and that, weighted by the respective areas, provide the missing flows.

$$Q_{P5} = Q_{El\ Manzano} + \frac{A_{P5} - A_{El\ Manzano}}{A_{Arrayán}} \cdot Q_{Arrayán}$$

Table 3.1 below shows the names, elevations and drainage areas for the sections of interest.

Table 3.1: Details of the Sections of Interest

Point	Section Name	Alt. [masl]	Area [km ²]
1	Maipo at Queltehués Hydropower Plant Discharge	1293	1498
2	Maipo at Confluence with Volcán River	1248	2030
3	Maipo at Confluence with Yeso River	1097	2667
4	Maipo at AES Gener Intake (75 m ³ /s)	1001	2882
5	Maipo at Las Lajas Hydropower Plant Discharge	818	4960
6	Colorado at Los Maitenes Hydropower Plant Discharge	1131	1480
7	Yeso at Reservoir Discharge	2500	351
8	Yeso at Confluence with Estero Cortaderas	1880	405
9	Volcán at AES Gener Intake (12.7 m ³ /s)	2150	377
10	Volcán at AES Gener Restitution (13.1 m ³ /s)	1700	455
11	Yeso at Confluence with Maipo River	1097	467 (*)
12	Colorado at Alfalfal Hydropower Plant Discharge	1345	1377
13	Volcán at AES Gener Intake (13.1 m ³ /s)	1850	393

(*) The Estero San Nicolás, Laguna Negra and Laguna Lo Encañado areas are not included.

The historical flow data series generated for the study are included in the annexes to this report.

3.5. Frequency Analysis

After calculating the historical data series for all the points of interest, the seasonal variation of water flows was assessed.

As seasonal variation curves must show flows for different exceedance probability levels, a frequency analysis of the synthetic series generated was carried out.

In the frequency analysis, conducted separately for each month, and each section of interest, the following distribution techniques were used: Normal, Log-Normal, Pearson, Log-Pearson and Gumbel. The probability graphs and the chi-squared tests for each monthly series showed different better-fitted distributions between the different months of the year, but some clear trends were also observed for the autumn-winter and spring-summer seasons.

For the April-September period, the most observed distribution for the majority of series analyzed was the Pearson distribution. The same was true regarding the Log-Pearson distribution for summer months. Therefore, it was decided to use the Pearson distribution as representative for the April-September period and the Log-Pearson distribution for the October-March period.

Based on the adjustments made for each monthly series (Pearson or Log-Pearson, depending on the station), the flows for the different exceedance probability levels are obtained. These values are then used to build the seasonal variation curves.

The seasonal variation curves for exceedance probabilities of 5, 10, 20, 50, 85 and 95 per cent are presented in Annex III.

ANNEXES

ANNEX I

NATURAL FLOW STATISTICAL DATA

A1. 1: Maipo River at El Manzano

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

A [km²] = 4873

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	54.7	45.9	40.7	37.5	37.6	49.1	71.6	102.0	174.0	140.0	109.6	86.3	44.25	113.92	79.08
1951/52	59.0	49.3	53.0	55.6	58.0	57.9	76.7	135.0	186.7	193.6	114.1	94.5	55.47	133.43	94.45
1952/53	58.4	55.8	50.0	51.0	55.0	62.9	76.5	101.0	163.0	135.0	129.7	81.5	55.50	114.46	84.98
1953/54	60.0	48.6	46.4	47.6	67.0	89.1	115.0	206.0	305.0	262.0	197.0	133.2	59.78	203.03	131.41
1954/55	83.3	56.2	58.9	68.3	72.2	75.6	100.5	172.0	160.0	158.0	113.7	79.2	69.07	130.56	99.82
1955/56	56.6	49.0	40.7	36.4	37.8	42.1	59.2	113.0	129.6	117.9	102.0	66.2	43.76	97.99	70.88
1956/57	56.5	61.4	45.5	48.7	53.2	57.9	69.1	134.8	119.7	119.4	100.2	74.2	53.86	102.89	78.38
1957/58	56.0	40.7	42.1	43.3	41.0	45.7	72.0	135.4	185.5	203.3	126.7	103.9	44.79	137.79	91.29
1958/59	69.0	58.4	54.6	50.0	40.3	61.7	127.6	135.0	167.8	124.0	108.9	89.1	55.67	125.40	90.53
1959/60	66.3	57.7	50.3	59.7	61.3	69.2	89.9	167.5	256.1	185.9	116.0	85.3	60.75	150.12	105.43
1960/61	60.8	52.2	57.1	55.4	58.1	66.5	93.5	171.0	205.0	149.0	115.2	114.0	58.35	141.29	99.82
1961/62	76.9	62.3	74.7	47.6	74.8	60.6	120.4	200.4	300.0	237.5	164.0	122.0	66.15	190.72	128.43
1962/63	73.4	57.0	56.9	48.4	58.6	58.3	91.4	176.0	187.0	146.2	115.5	84.4	58.77	133.43	96.10
1963/64	61.9	47.6	45.6	51.1	57.9	69.3	106.3	129.0	337.0	360.0	224.0	139.8	55.57	216.02	135.79
1964/65	81.9	59.3	64.5	48.3	42.3	49.9	62.0	84.3	98.9	115.0	102.1	85.7	57.70	91.32	74.51
1965/66	60.9	45.7	46.5	43.9	71.0	72.9	115.0	198.0	216.0	278.0	182.0	116.0	56.81	184.17	120.49
1966/67	75.1	54.1	58.6	57.0	53.4	72.2	95.4	145.0	188.5	167.0	153.7	87.9	61.74	139.59	100.67
1967/68	64.3	51.6	35.6	34.5	34.6	37.7	70.8	88.5	143.9	126.2	114.2	68.1	43.05	101.94	72.49
1968/69	54.4	42.7	36.9	34.3	31.1	28.8	39.4	60.5	57.1	70.1	82.0	62.7	38.02	61.98	50.00
1969/70	31.9	34.3	42.7	31.5	35.9	41.1	55.1	101.7	247.9	156.1	128.7	80.5	36.22	128.33	82.27
1970/71	57.8	44.5	37.2	40.7	36.5	41.6	74.0	100.3	126.9	93.0	80.6	57.0	43.04	88.63	65.84
1971/72	40.7	34.7	31.4	37.4	38.2	47.9	91.9	181.6	184.7	155.2	99.0	68.0	38.39	130.05	84.22
1972/73	44.9	82.4	111.5	70.1	95.0	102.7	128.7	193.8	318.4	497.3	272.8	215.4	84.43	271.06	177.75
1973/74	117.6	74.0	66.3	70.6	60.2	54.3	72.5	159.7	188.1	196.5	131.6	96.2	73.84	140.76	107.30
1974/75	61.8	50.5	49.1	57.6	54.2	57.9	115.9	184.2	219.4	245.0	147.9	99.5	55.21	168.63	111.92
1975/76	67.3	46.2	43.1	41.6	52.0	53.4	67.2	102.2	162.3	142.6	105.3	73.7	50.60	108.88	79.74
1976/77	48.1	38.4	44.5	37.4	36.0	47.0	59.4	119.8	142.0	129.5	88.7	75.8	41.90	102.54	72.22
1977/78	52.0	44.3	47.1	71.1	69.3	91.3	166.5	227.1	339.5	252.0	167.6	102.6	62.50	209.22	135.86
1978/79	69.7	54.6	48.1	95.8	73.1	77.1	121.4	214.7	418.8	401.4	219.2	134.1	69.74	251.59	160.67
1979/80	81.5	68.2	52.1	47.4	63.1	68.0	102.0	138.1	200.8	279.3	173.7	123.6	63.39	169.59	116.49
1980/81	123.3	117.0	91.3	89.8	76.9	86.3	111.6	174.7	351.0	251.0	207.1	131.9	97.42	204.52	150.97
1981/82	80.7	80.0	70.5	55.6	52.4	53.7	77.4	138.8	165.2	167.5	122.4	73.9	65.48	124.21	94.85
1982/83	55.1	52.4	104.0	110.9	100.1	144.4	148.3	239.8	549.5	606.0	459.1	261.0	94.48	377.27	235.87
1983/84	147.4	101.7	78.9	81.1	79.3	73.9	147.0	225.7	314.3	252.2	202.8	119.2	93.72	210.19	151.96
1984/85	71.2	57.4	49.1	63.3	60.1	71.8	131.3	178.3	313.0	307.4	217.4	149.7	62.15	216.18	139.17
1985/86	87.2	76.0	65.9	55.9	57.3	53.3	67.8	152.7	188.0	168.6	133.7	87.5	65.94	133.04	99.49
1986/87	61.8	61.2	176.9	80.1	70.1	74.1	114.3	170.9	326.5	354.3	272.0	160.8	87.36	233.12	160.24
1987/88	96.9	66.8	69.0	105.4	124.0	102.4	148.2	289.8	410.0	394.8	279.9	184.7	92.41	284.55	188.48
1988/89	115.3	72.4	58.4	51.3	56.0	53.2	78.7	145.7	145.9	148.6	148.0	102.3	67.75	128.20	97.97
1989/90	63.5	53.2	43.0	38.3	71.5	84.9	122.4	225.9	241.7	186.8	121.8	83.5	59.09	163.70	111.39
1990/91	63.3	53.2	46.5	44.6	49.0	59.4	77.6	123.2	144.3	138.4	110.9	78.4	52.65	112.13	82.39
1991/92	73.3	79.3	78.2	98.4	76.4	102.1	120.2	213.3	229.1	278.7	204.2	151.5	84.62	199.48	142.05
1992/93	89.4	78.1	74.9	66.3	60.5	77.8	135.1	204.9	245.7	281.8	192.2	116.9	74.50	196.08	135.29
1993/94	103.0	79.9	90.3	81.4	71.1	72.8	108.5	149.3	230.1	266.1	153.2	109.3	83.09	169.40	126.24
1994/95	64.6	56.9	54.8	70.7	67.2	77.2	96.4	172.1	280.3	188.3	134.7	103.3	65.22	162.52	113.87
1995/96	76.7	58.8	56.6	51.5	52.6	73.6	86.6	177.9	224.6	139.0	115.1	93.0	61.64	139.38	100.51
1996/97	63.0	47.0	39.1	37.6	34.9	34.2	47.0	83.9	90.9	86.1	77.5	69.0	42.65	75.72	59.19
1997/98	47.8	32.7	65.6	59.7	79.4	119.8	117.6	212.1	341.0	421.5	236.3	137.6	67.48	244.36	155.92
1998/99	102.8	71.8	57.1	47.0	40.3	35.6	58.7	82.7	108.9	113.6	100.9	68.6	59.10	88.91	74.00
1999/2000	45.3	36.8	33.4	32.4	35.5	57.2	86.9	145.2	165.2	153.3	98.3	66.3	40.11	119.19	79.65
2000/01	52.5	43.3	78.1	80.4	65.6	61.1	142.5	195.1	376.0	330.0	233.3	130.1	63.50	234.51	149.00
2001/02	88.4	73.8	55.5	79.9	90.4	85.9	124.5	177.7	338.3	221.5	164.7	119.8	78.98	191.09	135.04
2002/03	71.2	64.5	76.3	66.2	94.0	75.3	112.0	179.6	305.5	338.9	259.7	181.9	74.57	229.57	152.07
2003/04	105.6	73.6	73.2	68.3	69.3	65.6	103.6	161.7	172.0	182.2	139.3	103.2	75.94	143.64	109.79
2004/05	70.5	53.0	44.7	41.8	45.6	63.2	68.0	104.5	148.8	159.4	116.1	84.3	53.13	113.53	83.33
2005/06															
AVERAGE	71.1	58.3	59.3	57.8	60.0	66.7	97.1	158.2	227.9	217.7	156.1	106.7	62.21	160.61	111.41
STD DEV	22.0	16.3	23.7	19.3	19.1	21.5	29.4	47.3	96.4	108.2	68.1	39.7	15.31	59.71	35.82
CV	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.25	0.37	0.32
MAX	147.4	117.0	176.9	110.9	124.0	144.4	166.5	289.8	549.5	606.0	459.1	261.0	97.42	377.27	235.87
MIN	31.9	32.7	31.4	31.5	31.1	28.8	39.4	60.5	57.1	70.1	77.5	57.0	36.22	61.98	50.00

A1. 2: Colorado River at Mouth

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

STATION : RIO COLORADO EN DESEMBOCADURA

A [km²] = 1671

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	17.4	14.3	12.9	12.7	11.4	12.3	21.4	20.9	46.1	43.3	35.0	30.9	13.50	32.93	23.22
1951/52	18.7	15.1	12.4	14.8	15.0	14.5	19.7	31.3	57.7	84.2	44.8	33.3	15.09	45.17	30.13
1952/53	17.5	14.4	13.7	13.2	12.7	17.7	20.7	30.7	44.1	47.7	45.0	28.2	14.86	36.06	25.46
1953/54	18.6	14.3	16.0	15.4	16.6	22.2	28.4	47.7	65.1	69.7	58.7	42.9	17.17	52.08	34.62
1954/55	28.3	17.8	15.9	15.3	15.2	15.4	17.2	36.7	41.4	36.6	36.7	24.4	17.98	32.17	25.07
1955/56	17.5	12.7	12.3	11.3	11.0	12.7	15.0	30.5	35.2	40.1	30.1	23.4	12.91	29.05	20.98
1956/57	15.0	13.7	13.1	10.4	11.9	14.8	18.5	26.8	27.3	39.6	37.0	28.0	13.16	29.53	21.34
1957/58	17.5	12.6	12.6	11.2	11.0	13.2	16.4	25.4	52.5	62.0	43.5	32.6	13.02	38.73	25.87
1958/59	18.9	14.6	13.9	13.5	11.8	14.6	24.7	36.5	45.7	41.1	38.8	29.9	14.55	36.11	25.33
1959/60	17.4	14.5	12.3	17.7	12.8	23.4	24.9	39.5	46.5	52.1	42.8	36.2	16.35	40.33	28.34
1960/61	21.0	16.3	14.0	14.4	15.2	16.4	27.1	54.5	72.5	50.4	48.7	36.5	16.22	48.29	32.25
1961/62	22.6	17.1	19.8	15.7	15.8	18.6	33.7	58.1	72.1	63.5	50.7	39.6	18.27	52.95	35.61
1962/63	22.7	16.0	14.9	12.6	13.9	15.6	29.4	52.9	57.6	54.4	41.8	29.3	15.95	44.23	30.09
1963/64	19.7	14.5	12.9	14.2	19.1	23.8	36.3	31.2	80.2	91.9	86.4	48.3	17.36	62.40	39.88
1964/65	24.9	17.7	13.8	12.1	14.4	12.1	12.5	19.3	19.0	31.5	29.9	28.7	15.82	23.48	19.65
1965/66	16.3	12.9	10.9	10.4	18.7	15.2	29.4	53.1	58.7	75.8	51.5	33.3	14.07	50.29	32.18
1966/67	20.7	15.8	13.8	15.3	13.2	18.7	23.5	36.3	37.5	51.3	60.3	30.6	16.23	39.89	28.06
1967/68	20.4	15.3	12.8	10.2	9.8	10.9	14.6	15.1	32.9	36.6	38.7	22.7	13.24	26.77	20.00
1968/69	13.8	6.8	11.8	9.4	8.3	7.4	8.5	16.4	25.1	31.9	32.9	23.0	9.59	22.96	16.28
1969/70	10.0	7.9	9.0	8.6	8.2	9.5	11.0	22.4	55.9	45.8	45.6	27.8	8.87	34.73	21.80
1970/71	17.0	14.2	12.8	13.6	14.1	11.7	21.3	20.5	34.3	31.8	29.6	21.3	13.91	26.47	20.19
1971/72	11.7	10.9	9.6	13.0	12.5	15.6	24.5	42.7	51.4	49.6	38.8	22.2	12.23	38.21	25.22
1972/73	13.8	15.1	21.6	16.0	23.0	25.8	31.1	49.8	94.4	107.4	88.3	59.8	19.22	71.81	45.51
1973/74	34.6	24.3	19.7	20.8	17.2	19.6	18.7	33.9	39.9	60.6	45.9	31.7	22.69	38.45	30.57
1974/75	19.7	15.0	16.6	16.8	15.4	17.1	27.8	37.5	53.3	72.5	46.6	31.2	16.77	44.82	30.79
1975/76	18.9	13.4	12.7	12.3	12.5	13.9	18.8	20.8	35.4	40.9	27.0	19.0	13.94	26.96	20.45
1976/77	15.8	12.9	12.3	10.5	9.6	10.6	14.1	23.5	28.7	33.6	29.2	26.8	11.94	25.97	18.96
1977/78	16.0	13.7	14.1	19.1	15.6	22.8	36.0	59.8	80.7	66.7	51.4	32.2	16.86	54.46	35.66
1978/79	22.3	17.0	14.6	22.4	17.9	20.9	35.2	55.2	98.8	98.2	56.9	42.5	19.19	64.46	41.82
1979/80	26.0	18.6	14.7	13.2	15.5	16.4	22.2	28.5	40.3	63.4	45.6	37.7	17.39	39.61	28.50
1980/81	33.2	30.5	18.2	23.3	21.5	22.6	29.8	42.7	84.9	74.4	71.0	45.1	24.88	57.96	41.42
1981/82	24.0	21.8	17.3	17.2	17.4	15.6	21.4	33.1	44.1	56.7	41.4	22.1	18.86	36.44	27.65
1982/83	17.9	16.3	28.9	33.4	27.5	33.1	36.9	61.9	115.5	114.0	97.5	61.2	26.15	81.18	53.66
1983/84	38.4	26.4	21.6	22.4	19.7	18.6	33.4	63.4	89.9	90.7	75.4	34.9	24.52	64.60	44.56
1984/85	22.3	16.3	12.9	17.9	18.4	20.4	34.7	47.7	61.1	81.6	54.6	43.9	18.04	53.92	35.98
1985/86	25.1	19.2	16.1	15.6	13.9	13.0	17.9	40.4	55.2	60.2	50.0	32.1	17.15	42.63	29.89
1986/87	18.1	16.3	38.6	26.3	18.7	19.2	27.4	44.2	82.8	102.4	79.9	47.1	22.87	63.96	43.41
1987/88	25.7	21.5	17.7	35.2	31.4	28.7	30.7	71.4	95.3	98.8	94.0	60.5	26.69	75.13	50.91
1988/89	38.1	23.0	17.2	14.4	14.4	13.6	19.3	36.2	47.7	57.4	64.4	34.4	20.12	43.23	31.68
1989/90	19.8	14.6	12.5	11.7	19.9	22.3	34.8	63.8	69.3	61.4	48.2	30.3	16.80	51.30	34.05
1990/91	19.2	15.0	12.6	11.7	12.2	15.6	19.6	34.2	40.2	48.6	43.6	27.5	14.38	35.63	25.00
1991/92	20.6	21.5	19.3	28.3	21.6	29.4	34.0	54.8	62.3	73.9	64.6	46.6	23.45	56.03	39.74
1992/93	25.4	20.8	20.6	18.0	17.4	22.4	33.9	46.0	63.3	89.1	56.6	36.7	20.77	54.27	37.52
1993/94	26.6	24.1	24.0	21.6	19.1	20.7	27.9	40.3	54.9	74.1	49.5	37.2	22.69	47.32	35.00
1994/95	18.0	16.0	14.8	17.6	15.7	17.5	22.1	44.3	69.9	61.0	43.7	30.0	16.60	45.17	30.88
1995/96	20.8	17.0	15.5	14.2	13.8	18.5	20.3	40.0	56.6	42.0	38.8	31.0	16.63	38.12	27.38
1996/97	17.8	13.7	11.7	10.6	10.5	10.0	9.7	14.4	24.2	38.6	30.8	22.2	12.38	23.31	17.85
1997/98	13.5	10.4	19.6	13.1	17.7	30.1	32.1	53.9	78.9	122.2	54.4	33.0	17.38	62.41	39.89
1998/99	25.1	18.5	15.1	14.1	11.1	10.7	13.9	20.9	37.9	41.7	37.4	24.0	15.77	29.28	22.53
1999/2000	13.2	11.4	10.4	8.9	13.2	12.0	22.0	35.3	41.9	49.4	35.2	22.1	11.53	34.30	22.91
2000/01	15.2	12.2	19.5	17.9	14.0	17.6	36.1	45.4	86.1	97.9	59.2	36.2	16.05	60.15	38.10
2001/02	23.3	17.6	15.0	20.1	23.1	23.5	34.9	44.4	85.2	67.1	49.9	37.8	20.44	53.22	36.83
2002/03	17.3	15.8	17.4	21.4	18.2	27.8	37.2	44.2	85.8	99.5	76.3	53.6	19.63	66.10	42.86
2003/04	33.0	24.1	21.0	17.5	17.6	16.6	26.4	40.1	47.2	58.2	45.1	34.5	21.64	41.90	31.77
2004/05	20.8	15.1	13.0	10.4	9.9	15.2	14.8	25.4	38.5	46.2	40.1	24.5	14.07	31.58	22.82
2005/06															
AVERAGE	20.9	16.3	15.8	16.0	15.6	17.8	24.6	39.0	57.3	63.3	50.2	33.9	17.05	44.70	30.88
STD DEV	6.1	4.4	4.9	5.7	4.5	5.7	8.0	13.9	22.0	23.4	16.9	10.0	3.99	14.12	8.63
CV	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.23	0.32	0.28
MAX	38.4	30.5	38.6	35.2	31.4	33.1	37.2	71.4	115.5	122.2	97.5	61.2	26.69	81.18	53.66
MIN	10.0	6.8	9.0	8.6	8.2	7.4	8.5	14.4	19.0	31.5	27.0	19.0	8.87	22.96	16.28

A1. 3: Colorado River Before Joining Olivares River

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

STATION : RIO COLORADO ANTES JUNTA OLIVARES

A [km²] = 793

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	11.5	9.3	8.2	7.3	7.2	7.6	10.9	11.7	24.5	20.6	14.8	15.2	8.51	16.31	12.41
1951/52	12.1	9.8	8.5	7.7	8.1	8.8	9.6	15.7	22.1	32.4	19.6	18.5	9.17	19.64	14.41
1952/53	11.3	10.4	8.5	7.8	7.6	8.7	10.1	15.0	27.4	25.5	21.4	16.2	9.04	19.27	14.16
1953/54	12.4	10.2	9.0	8.4	8.8	11.2	13.8	23.2	34.4	37.3	29.7	24.6	10.01	27.16	18.59
1954/55	18.3	11.7	9.7	8.1	8.2	8.2	9.1	17.4	21.8	19.4	15.7	14.4	10.69	16.30	13.50
1955/56	11.3	8.9	8.3	7.6	6.7	6.2	7.6	13.5	15.4	18.4	15.0	13.2	8.16	13.84	11.00
1956/57	10.3	9.0	7.9	7.1	7.0	7.6	10.3	15.2	17.1	15.0	14.7	15.8	8.13	14.67	11.40
1957/58	10.7	8.8	8.1	7.3	7.1	7.4	8.9	13.3	19.5	22.5	18.2	18.2	8.23	16.77	12.50
1958/59	12.2	9.7	8.7	7.8	7.6	8.2	11.6	15.4	20.5	17.0	16.4	17.2	9.02	16.34	12.68
1959/60	11.6	9.6	8.3	8.1	8.1	9.2	11.3	16.6	23.7	24.7	19.6	18.6	9.15	19.08	14.11
1960/61	13.6	10.3	8.7	7.9	8.2	8.3	12.9	22.1	31.9	30.3	20.5	22.2	9.50	23.31	16.41
1961/62	14.6	10.7	9.9	8.6	8.3	9.1	14.7	21.9	31.8	32.0	24.6	22.7	10.19	24.61	17.40
1962/63	15.7	11.0	8.6	7.9	7.8	8.6	13.6	26.4	31.0	30.0	22.3	15.2	9.93	23.09	16.51
1963/64	12.6	8.5	7.8	7.1	6.9	8.7	17.1	16.0	49.3	56.7	37.8	26.6	8.60	33.91	21.26
1964/65	16.0	11.4	9.2	8.0	8.1	8.7	8.0	11.4	7.5	17.4	15.9	14.2	10.22	12.38	11.30
1965/66	10.7	8.4	7.1	6.9	9.3	8.4	17.1	29.5	39.9	48.1	33.7	23.3	8.45	31.93	20.19
1966/67	15.4	11.7	9.9	8.6	7.6	9.2	13.1	20.7	16.9	30.3	26.4	17.3	10.38	20.78	15.58
1967/68	12.5	9.9	9.0	6.6	6.8	6.8	7.9	9.1	17.3	16.7	16.8	12.1	8.58	13.29	10.93
1968/69	9.2	3.7	6.1	5.1	4.8	4.5	4.3	7.7	8.0	11.9	11.5	9.6	5.55	8.82	7.19
1969/70	5.9	5.4	5.1	4.1	4.3	4.9	5.9	12.8	33.2	16.2	25.2	16.4	4.95	18.28	11.62
1970/71	10.4	8.8	7.7	7.0	6.9	6.9	10.2	11.0	16.4	12.9	13.1	10.9	7.95	12.42	10.18
1971/72	7.4	7.1	6.7	6.9	7.1	8.9	11.8	19.3	20.1	20.4	15.6	11.4	7.34	16.42	11.88
1972/73	9.3	9.5	10.3	9.5	9.8	10.6	12.6	19.9	54.3	48.2	50.3	33.0	9.86	36.40	23.13
1973/74	23.0	16.6	11.2	9.0	8.6	8.7	9.9	16.9	21.3	30.5	21.1	18.2	12.83	19.65	16.24
1974/75	12.9	9.9	9.0	8.4	8.2	8.8	13.1	18.3	27.6	36.5	21.4	17.9	9.54	22.46	16.00
1975/76	12.5	9.2	8.2	7.6	7.5	7.8	10.0	12.0	19.1	20.5	12.7	11.0	8.81	14.21	11.51
1976/77	10.2	8.3	8.1	7.2	6.7	6.7	8.2	13.0	15.8	16.9	12.0	12.9	7.86	13.12	10.49
1977/78	10.6	8.5	7.9	7.3	6.8	10.4	16.9	28.1	46.7	34.3	20.9	15.3	8.59	27.01	17.80
1978/79	12.5	10.2	8.6	8.7	9.0	8.6	16.5	23.1	40.4	49.4	25.1	24.4	9.61	29.81	19.71
1979/80	17.6	13.9	11.1	9.3	8.8	9.1	11.9	14.7	20.1	29.8	23.7	19.9	11.62	20.01	15.81
1980/81	17.5	13.2	10.8	10.7	9.8	9.7	15.1	21.9	43.7	42.2	33.3	23.0	11.95	29.87	20.91
1981/82	13.3	9.8	10.4	9.3	9.6	9.5	10.3	14.8	17.9	20.9	16.5	11.7	10.32	15.35	12.83
1982/83	10.3	9.7	16.2	10.7	11.3	14.9	16.4	29.7	57.6	59.6	54.9	35.9	12.16	42.37	27.27
1983/84	27.5	17.8	12.7	14.8	12.9	8.8	13.5	23.3	48.9	47.7	40.6	19.6	15.74	32.27	24.01
1984/85	15.5	11.7	8.0	9.6	9.6	10.4	16.5	23.0	38.4	34.6	33.3	24.4	10.80	28.37	19.58
1985/86	14.8	12.1	10.6	9.3	8.3	7.5	9.4	20.8	34.2	31.4	25.1	17.9	10.44	23.13	16.78
1986/87	12.4	11.3	14.4	12.8	11.1	11.6	12.1	26.3	46.5	56.9	41.1	29.7	12.28	35.44	23.86
1987/88	19.3	14.3	10.1	15.3	12.9	12.1	14.8	46.6	49.1	52.8	52.7	36.9	14.00	42.16	28.08
1988/89	26.6	12.5	8.6	6.9	6.2	6.4	12.1	20.0	21.4	23.5	24.8	14.5	11.19	19.38	15.29
1989/90	11.0	9.3	8.1	7.5	8.2	9.2	13.1	29.7	35.1	31.0	22.9	16.8	8.88	24.77	16.82
1990/91	11.9	9.8	8.7	8.1	7.8	8.1	10.0	19.1	20.7	17.5	17.0	14.3	9.07	16.43	12.75
1991/92	10.4	10.2	11.0	13.0	10.4	10.7	13.6	26.8	36.5	38.0	33.6	28.4	10.96	29.47	20.21
1992/93	14.1	10.9	9.8	8.4	8.1	9.4	15.0	23.3	37.6	46.8	31.1	18.7	10.11	28.73	19.42
1993/94	14.8	16.0	11.1	9.4	8.6	9.1	12.3	19.0	23.6	29.3	26.0	20.4	11.53	21.75	16.64
1994/95	10.7	8.2	7.3	6.7	7.2	7.7	10.0	22.6	38.0	33.3	26.7	16.4	7.95	24.49	16.22
1995/96	11.0	8.4	7.6	6.7	6.3	8.1	9.5	20.3	33.2	26.0	22.2	17.2	8.04	21.39	14.71
1996/97	9.7	7.5	6.5	5.8	7.5	4.8	4.8	7.5	11.2	16.7	14.1	11.5	6.96	10.96	8.96
1997/98	7.0	5.1	10.9	5.5	9.0	9.9	11.4	24.7	47.5	64.2	36.1	18.7	7.89	33.79	20.84
1998/99	15.9	12.1	10.1	8.6	7.2	5.4	7.1	10.7	16.3	12.8	12.8	11.8	9.88	11.92	10.90
1999/2000	9.2	7.5	6.4	6.1	5.7	6.0	8.9	14.5	21.1	26.0	16.4	11.1	6.80	16.32	11.56
2000/01	8.3	7.3	7.1	7.7	7.0	7.3	13.6	20.3	53.2	51.9	31.5	20.1	7.45	31.75	19.60
2001/02	13.5	11.2	9.5	9.0	8.9	9.7	14.1	23.2	52.6	31.3	23.2	15.2	10.28	26.59	18.44
2002/03	11.2	10.3	10.2	8.3	9.2	9.4	14.0	22.0	57.6	56.8	44.3	31.9	9.75	37.76	23.76
2003/04	18.3	16.0	13.9	8.6	12.9	9.5	15.0	23.0	26.6	25.5	14.4	16.4	13.20	20.15	16.67
2004/05	11.4	8.7	7.1	6.7	6.4	8.0	9.4	11.7	18.3	19.8	17.7	13.4	8.06	15.04	11.55
2005/06															
AVERAGE	13.1	10.2	9.1	8.2	8.2	8.5	11.6	19.2	30.2	31.2	24.5	18.6	9.57	22.56	16.06
STD DEV	4.2	2.7	2.0	2.1	1.8	1.8	3.1	6.9	13.5	13.9	10.6	6.4	1.96	8.17	4.62
CV	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.3	0.20	0.36	0.29
MAX	27.5	17.8	16.2	15.3	12.9	14.9	17.1	46.6	57.6	64.2	54.9	36.9	15.74	42.37	28.08
MIN	5.9	3.7	5.1	4.1	4.3	4.5	4.3	7.5	7.5	11.9	11.5	9.6	4.95	8.82	7.19

A1. 4: Olivares River Before Joining Colorado River

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

STATION : OLIVARES ANTES JUNTA CON COLORADO

A [km²] = 538

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	5.2	3.6	3.0	2.8	2.9	3.3	5.5	5.9	13.9	14.7	14.4	9.5	3.46	10.65	7.06
1951/52	5.4	3.8	3.1	2.8	3.3	4.1	4.7	8.4	12.7	20.4	17.0	11.2	3.75	12.39	8.07
1952/53	5.1	4.0	3.1	2.9	3.1	4.0	5.0	8.1	15.4	17.1	17.8	10.0	3.69	12.22	7.96
1953/54	5.6	4.0	3.3	3.0	3.5	5.7	7.4	13.5	18.8	22.6	21.6	14.4	4.16	16.37	10.26
1954/55	8.0	4.5	3.4	2.9	3.3	3.7	4.4	9.5	12.5	14.4	15.0	9.0	4.31	10.81	7.56
1955/56	5.1	3.5	3.1	2.8	2.7	2.5	3.5	7.1	9.2	13.5	14.4	8.4	3.27	9.34	6.30
1956/57	4.7	3.5	3.0	2.7	2.8	3.3	5.1	8.1	10.1	11.7	14.4	9.8	3.32	9.87	6.59
1957/58	4.4	3.4	3.0	2.8	2.9	3.2	4.3	6.9	11.4	15.7	16.3	11.0	3.27	10.93	7.10
1958/59	5.5	3.8	3.2	2.9	3.1	3.7	6.3	8.2	11.9	12.8	15.3	10.5	3.66	10.85	7.25
1959/60	5.2	3.7	3.1	2.9	3.2	4.3	5.8	9.0	13.5	16.8	17.0	11.3	3.75	12.22	7.98
1960/61	6.0	4.0	3.2	2.9	3.3	3.9	6.8	12.7	17.5	19.4	17.4	13.1	3.88	14.51	9.19
1961/62	6.5	4.2	3.5	3.0	3.3	4.2	8.1	12.5	17.5	20.3	19.3	13.4	4.11	15.18	9.64
1962/63	6.9	4.3	3.2	2.9	3.1	3.9	7.4	15.7	17.9	20.6	18.9	10.8	4.04	15.21	9.63
1963/64	5.8	3.3	2.9	2.8	2.9	4.0	11.5	12.7	23.2	27.8	22.8	12.1	3.62	18.34	10.98
1964/65	7.2	4.6	3.1	2.6	2.8	2.9	3.1	3.9	7.7	11.5	14.0	11.4	3.85	8.61	6.23
1965/66	4.6	2.8	2.7	3.2	2.7	4.0	8.1	12.4	14.4	22.0	15.4	9.3	3.33	13.60	8.46
1966/67	4.9	3.9	3.6	3.4	3.3	4.0	5.5	9.1	11.3	15.3	18.2	9.9	3.84	11.55	7.70
1967/68	6.5	3.9	3.1	2.6	2.4	2.7	3.3	4.3	12.3	18.4	18.2	8.7	3.53	10.87	7.20
1968/69	3.8	2.4	2.2	2.1	2.0	1.9	2.0	5.5	11.4	17.4	17.4	7.9	2.40	10.27	6.33
1969/70	3.5	2.2	2.1	2.3	2.0	2.2	2.8	6.8	15.6	12.6	17.5	9.8	2.40	10.84	6.62
1970/71	6.5	3.9	3.1	3.5	3.9	4.7	5.6	7.5	10.6	10.6	12.1	8.1	4.28	9.08	6.68
1971/72	3.9	2.7	2.4	2.4	2.4	3.0	6.7	11.8	18.5	23.6	19.5	8.0	2.81	14.69	8.75
1972/73	4.1	4.0	2.8	2.7	3.5	5.2	8.0	12.3	24.1	30.7	26.8	17.9	3.71	19.96	11.84
1973/74	9.3	6.0	4.1	3.1	3.4	4.0	4.9	9.2	12.3	19.5	17.6	11.0	4.98	12.43	8.70
1974/75	5.8	3.8	3.3	3.0	3.3	4.1	6.9	10.1	15.5	22.3	17.7	10.9	3.86	13.89	8.88
1975/76	5.6	3.6	3.0	2.8	3.0	3.5	5.0	6.1	11.2	14.6	13.2	7.6	3.58	9.61	6.59
1976/77	4.6	3.2	3.0	2.7	2.7	2.8	3.8	6.8	9.5	12.6	14.7	9.3	3.18	9.43	6.31
1977/78	5.1	3.9	3.4	3.7	4.0	7.1	10.8	15.7	22.7	22.4	20.2	11.0	4.54	17.12	10.83
1978/79	6.7	4.8	3.8	4.3	4.5	4.4	8.4	15.2	24.2	28.9	20.8	10.8	4.75	18.06	11.41
1979/80	6.6	4.6	3.6	3.0	2.9	3.0	5.5	8.3	14.7	19.0	15.2	13.9	3.95	12.77	8.36
1980/81	7.3	5.0	4.6	4.6	5.0	5.1	5.8	9.3	22.1	20.2	22.4	15.4	5.25	15.85	10.55
1981/82	5.3	4.0	3.2	3.7	3.2	3.2	3.9	7.4	13.1	22.3	20.8	9.3	3.76	12.79	8.27
1982/83	7.0	4.3	3.6	6.7	4.0	9.1	9.1	15.3	25.2	37.1	30.4	14.8	5.79	21.97	13.88
1983/84	7.5	5.1	4.9	4.9	4.0	4.4	8.2	12.7	24.5	28.2	22.8	12.3	5.13	18.11	11.62
1984/85	3.7	3.2	2.6	3.6	3.9	4.7	8.7	12.2	18.4	23.0	19.4	13.0	3.62	15.78	9.70
1985/86	6.2	4.8	4.1	3.7	3.3	3.2	5.1	11.4	17.5	23.6	18.9	13.3	4.21	14.97	9.59
1986/87	4.8	3.5	5.3	4.5	3.5	4.8	6.9	8.5	22.6	29.4	27.6	15.8	4.40	18.47	11.43
1987/88	6.1	5.0	4.6	5.0	5.5	6.1	8.2	23.7	24.7	30.0	26.7	16.4	5.39	21.61	13.50
1988/89	9.0	6.2	3.1	2.7	2.7	3.5	5.1	9.7	13.7	18.2	22.5	10.3	4.52	13.25	8.88
1989/90	6.3	2.9	2.2	3.9	4.3	5.9	8.2	19.3	18.4	21.8	18.7	11.5	4.25	16.32	10.29
1990/91	4.1	3.0	2.8	3.2	3.7	4.7	5.8	9.8	16.7	16.0	24.4	10.2	3.58	13.81	8.70
1991/92	4.8	6.3	2.9	3.1	3.0	7.0	9.0	12.2	18.0	24.9	21.8	17.5	4.53	17.24	10.89
1992/93	9.1	7.5	6.2	5.5	5.3	6.2	9.4	12.1	18.6	27.7	19.3	14.9	6.62	17.02	11.82
1993/94	8.2	7.8	6.6	6.0	5.7	5.9	7.5	11.2	13.9	21.2	18.6	12.2	6.69	14.11	10.40
1994/95	7.1	5.6	5.0	5.0	4.9	5.4	6.5	12.5	21.4	18.8	16.7	11.8	5.49	14.62	10.05
1995/96	7.7	5.8	5.0	4.5	4.2	5.3	6.1	12.4	17.6	14.9	15.6	12.1	5.42	13.11	9.26
1996/97	6.1	4.9	4.1	3.7	2.2	3.5	3.7	5.8	10.3	15.5	13.9	10.1	4.08	9.89	6.99
1997/98	5.1	3.6	5.0	3.9	4.2	6.1	8.1	13.6	23.3	39.7	18.0	11.6	4.65	19.03	11.84
1998/99	8.9	4.7	3.7	4.9	3.2	4.0	5.0	7.9	15.6	19.4	22.0	10.7	4.88	13.44	9.16
1999/2000	3.7	3.0	2.8	2.2	2.7	3.5	5.4	9.1	14.9	20.2	16.9	8.5	2.96	12.51	7.74
2000/01	5.2	3.3	3.1	3.4	3.1	4.5	8.7	10.9	25.3	30.5	21.1	12.1	3.77	18.09	10.93
2001/02	5.0	3.5	3.0	3.0	3.5	4.0	6.7	8.9	26.9	21.1	22.1	13.2	3.67	16.47	10.07
2002/03	4.9	3.9	3.7	3.4	3.6	7.5	11.4	16.1	22.4	35.4	28.7	16.6	4.51	21.76	13.13
2003/04	9.2	5.7	4.6	3.9	4.1	4.3	6.3	9.5	13.2	25.2	21.1	12.3	5.28	14.59	9.94
2004/05	5.9	4.1	3.8	3.2	3.2	3.7	4.0	5.7	11.6	23.1	21.1	10.3	3.97	12.63	8.30
2005/06															
AVERAGE	5.9	4.2	3.5	3.4	3.4	4.3	6.3	10.4	16.6	21.0	19.1	11.6	4.14	14.17	9.15
STD DEV	1.5	1.1	0.9	1.0	0.8	1.4	2.1	3.7	5.0	6.6	4.0	2.5	0.89	3.41	1.95
CV	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.21	0.24	0.21
MAX	9.3	7.8	6.6	6.7	5.7	9.1	11.5	23.7	26.9	39.7	30.4	17.9	6.69	21.97	13.88
MIN	3.5	2.2	2.1	2.1	2.0	1.9	2.0	3.9	7.7	10.6	12.1	7.6	2.40	8.61	6.23

A1. 5: Maipo River at San Alfonso

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

STATION: MAIPO EN SAN ALFONSO

A [km²] = 2810

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	36.6	31.1	24.5	24.6	23.8	29.8	45.2	71.1	123.5	89.4	67.9	51.7	28.39	74.80	51.59
1951/52	35.6	29.8	33.7	34.0	35.3	35.0	49.5	86.4	126.0	101.0	62.4	60.7	33.90	80.99	57.45
1952/53	36.3	33.3	32.0	34.2	34.2	38.0	41.1	67.5	116.0	86.5	76.8	47.5	34.67	72.57	53.62
1953/54	39.7	30.7	29.8	30.1	38.7	55.7	61.6	149.0	214.0	179.2	127.6	80.8	37.44	135.36	86.40
1954/55	50.9	37.6	37.8	44.2	46.6	49.3	71.4	124.0	118.0	90.5	70.1	51.6	44.39	87.60	65.99
1955/56	34.6	32.6	24.8	21.5	21.1	23.2	32.3	81.2	86.8	76.5	65.7	40.6	26.31	63.85	45.08
1956/57	37.0	36.7	29.2	32.7	33.5	34.7	44.9	99.1	88.9	72.3	57.1	43.4	33.97	67.62	50.79
1957/58	36.9	26.8	23.3	28.0	23.8	28.4	48.2	101.0	130.0	132.0	82.7	63.9	27.86	92.97	60.41
1958/59	44.7	40.9	39.1	31.7	25.4	41.1	81.1	93.8	119.0	76.7	63.5	52.8	37.15	81.15	59.15
1959/60	36.6	36.2	34.1	36.5	40.3	42.7	54.1	117.0	189.0	122.0	64.0	45.3	37.73	98.57	68.15
1960/61	38.0	35.6	32.8	31.7	34.3	39.8	54.5	107.0	127.0	87.2	59.5	73.2	35.37	84.73	60.05
1961/62	42.7	42.3	46.7	30.1	48.3	36.1	70.8	136.1	209.2	159.0	112.0	72.4	41.03	126.58	83.80
1962/63	48.3	38.3	33.0	30.8	32.3	36.2	54.7	110.0	115.0	82.6	66.7	54.2	36.48	80.54	58.51
1963/64	37.3	31.6	28.7	33.7	31.6	43.4	55.9	86.1	254.0	258.8	134.6	81.5	34.39	145.15	89.77
1964/65	51.5	40.1	45.0	30.1	27.2	36.5	45.6	63.8	74.0	83.5	66.0	50.8	38.39	63.95	51.17
1965/66	44.3	31.9	30.6	28.6	37.2	43.7	72.7	144.0	152.0	184.7	129.0	74.4	36.05	126.14	81.10
1966/67	52.0	35.5	34.2	35.6	27.4	35.7	65.8	99.2	148.0	105.0	91.4	51.0	36.74	93.40	65.07
1967/68	38.8	32.4	22.3	22.8	23.1	21.7	46.8	67.4	102.5	81.6	68.5	40.5	26.85	67.88	47.37
1968/69	36.2	27.3	21.5	22.7	17.7	17.8	25.7	40.0	28.6	38.1	44.2	35.2	23.86	35.32	29.59
1969/70	19.6	19.7	27.4	21.1	21.5	25.5	39.4	79.0	177.3	101.0	75.3	46.9	22.47	86.49	54.48
1970/71	36.2	28.8	20.8	23.2	20.8	27.1	42.9	75.6	85.1	55.3	46.1	31.6	26.13	56.10	41.12
1971/72	25.7	21.2	18.7	24.2	23.9	28.9	61.8	122.8	122.4	95.8	59.9	43.4	23.78	84.34	54.06
1972/73	27.5	54.2	73.1	43.8	52.2	59.0	78.0	123.8	218.4	335.4	174.4	138.1	51.62	177.99	114.81
1973/74	73.7	44.1	42.5	40.7	34.2	33.8	49.0	100.4	128.0	130.9	84.8	57.7	44.85	91.78	68.31
1974/75	37.2	31.8	30.8	37.0	28.0	35.7	75.9	134.9	153.1	164.0	98.5	61.2	33.42	114.59	74.00
1975/76	43.1	29.0	27.6	26.7	26.5	31.5	45.2	74.5	122.3	86.2	71.9	49.5	30.72	74.93	52.83
1976/77	29.6	22.9	25.1	24.6	23.6	29.5	38.5	80.5	104.9	92.3	57.7	43.6	25.89	69.59	47.74
1977/78	31.9	30.6	30.3	43.9	39.2	54.5	94.8	150.4	214.5	160.0	108.5	66.5	38.40	132.45	85.42
1978/79	44.5	36.2	32.5	58.8	43.4	46.6	61.0	127.7	286.6	267.6	134.2	78.6	43.67	159.28	101.48
1979/80	51.1	38.8	29.4	34.1	35.3	40.9	61.5	99.8	133.8	192.3	119.7	79.0	38.27	114.33	76.30
1980/81	76.9	77.0	63.6	57.8	49.6	56.5	69.5	121.7	243.8	171.3	134.0	84.6	63.56	137.49	100.52
1981/82	53.3	47.9	41.3	34.3	34.5	37.2	55.4	102.7	111.4	100.3	73.6	50.5	41.42	82.30	61.86
1982/83	35.9	33.6	65.4	68.0	59.0	83.9	87.7	170.8	383.5	436.0	292.5	163.0	57.64	255.57	156.61
1983/84	90.7	66.2	49.6	47.9	45.1	41.5	77.0	147.1	196.3	157.2	115.0	75.8	56.84	128.06	92.45
1984/85	46.2	36.7	31.4	34.8	34.2	42.1	80.5	122.3	212.0	224.4	149.6	95.1	37.59	147.29	92.44
1985/86	55.4	51.1	43.3	38.3	33.4	32.3	46.6	107.7	130.0	105.2	81.3	54.8	42.31	87.59	64.95
1986/87	40.7	38.7	119.2	45.3	39.9	51.9	78.7	98.6	227.2	220.3	167.5	103.1	55.96	149.24	102.60
1987/88	56.2	44.9	42.5	64.7	58.3	56.6	85.2	191.8	286.7	267.6	185.4	111.0	53.86	187.96	120.91
1988/89	68.1	48.2	38.5	33.4	34.3	35.6	54.7	102.0	97.8	87.7	80.3	60.5	43.00	80.51	61.76
1989/90	34.7	29.9	25.8	24.1	40.6	49.7	63.1	138.9	158.1	113.6	64.5	48.0	34.15	97.72	65.94
1990/91	39.8	32.7	28.6	28.3	27.1	33.9	46.7	84.9	97.2	84.9	66.2	50.1	31.74	71.67	51.70
1991/92	46.9	51.9	48.1	58.9	40.1	56.5	71.7	148.3	159.1	199.7	138.2	98.5	50.38	135.90	93.14
1992/93	56.3	47.6	47.4	43.9	39.1	49.1	86.8	140.9	180.7	174.8	123.2	78.7	47.24	130.85	89.04
1993/94	65.3	49.8	59.8	50.1	40.4	51.2	66.1	98.9	161.6	177.3	94.4	64.2	52.76	110.41	81.59
1994/95	45.6	38.5	36.6	46.6	38.2	45.3	59.4	120.4	192.3	126.6	82.8	65.9	41.79	107.92	74.86
1995/96	49.8	41.7	39.7	34.1	32.8	46.5	55.3	130.9	158.0	93.1	71.9	53.8	40.78	93.83	67.31
1996/97	35.3	28.4	24.1	22.7	23.0	20.7	35.8	66.8	61.3	42.1	45.7	41.9	25.71	48.93	37.32
1997/98	30.5	18.6	42.4	37.5	44.6	67.4	70.9	144.7	245.9	280.3	167.4	92.7	40.16	166.99	103.57
1998/99	64.5	49.6	39.0	31.4	25.7	24.1	42.7	57.1	70.7	64.7	57.3	39.7	39.04	55.39	47.21
1999/2000	28.5	24.0	22.1	20.6	20.6	32.7	58.6	106.9	113.6	94.2	62.5	42.8	24.74	79.77	52.26
2000/01	34.2	27.3	50.7	51.4	34.0	35.9	88.5	141.1	270.7	211.3	163.3	86.3	38.91	160.18	99.55
2001/02	57.4	50.1	35.6	50.5	56.0	58.0	81.1	120.5	244.0	145.9	104.8	73.4	51.29	128.28	89.78
2002/03	45.5	41.7	46.5	39.1	51.7	42.4	59.9	109.4	193.3	204.9	146.7	103.3	44.50	136.27	90.38
2003/04	66.1	48.4	49.7	45.7	40.0	46.8	63.9	110.8	121.4	116.1	85.8	61.3	49.45	93.20	71.32
2004/05	45.8	33.9	31.1	28.7	30.0	42.2	51.5	74.2	109.7	103.1	69.0	53.7	35.29	76.86	56.07
2005/06															
AVERAGE	44.9	37.6	37.9	36.4	35.0	40.8	60.1	108.6	158.1	141.6	97.5	65.8	38.73	105.29	72.01
STD DEV	13.7	11.0	16.2	11.5	10.1	12.5	16.1	30.6	67.6	77.4	45.8	25.4	9.60	40.17	23.54
CV	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.25	0.38	0.33
MAX	90.7	77.0	119.2	68.0	59.0	83.9	94.8	191.8	383.5	436.0	292.5	163.0	63.56	255.57	156.61
MIN	19.6	18.6	18.7	20.6	17.7	17.8	25.7	40.0	28.6	38.1	44.2	31.6	22.47	35.32	29.59

A1. 6: El Yeso Reservoir

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

STATION: AFLUENTES AL EMBALSE EL YESO

A [km²] = 350

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	5.3	3.4	3.4	3.1	2.4	2.7	3.3	4.8	10.0	12.9	7.0	7.1	3.37	7.51	5.44
1951/52	5.2	3.8	3.5	3.3	3.5	3.3	4.3	9.5	12.4	12.4	9.6	9.1	3.78	9.55	6.67
1952/53	6.7	4.6	4.1	3.9	3.3	3.9	4.6	6.7	14.2	12.5	11.3	6.8	4.42	9.37	6.89
1953/54	3.7	5.8	3.8	3.4	3.7	5.4	5.9	13.4	22.1	27.5	20.6	14.7	4.29	17.36	10.82
1954/55	9.0	6.2	5.0	4.5	4.4	4.2	5.3	12.3	13.5	14.8	10.9	8.4	5.53	10.86	8.20
1955/56	4.6	4.1	3.3	3.5	2.6	2.9	3.8	9.1	11.0	11.6	10.0	5.9	3.50	8.58	6.04
1956/57	5.2	4.6	4.3	3.2	2.9	3.7	4.8	7.4	8.6	8.5	8.5	6.3	4.00	7.35	5.67
1957/58	3.7	3.6	3.4	3.7	3.1	3.4	4.6	7.6	13.2	18.9	11.3	6.8	3.48	10.41	6.95
1958/59	4.7	3.3	4.2	2.5	2.2	3.2	7.1	10.0	12.3	10.6	9.8	7.4	3.35	9.54	6.45
1959/60	5.4	4.6	4.0	3.9	3.8	4.2	5.4	10.5	19.5	16.1	9.9	7.8	4.34	11.54	7.94
1960/61	5.6	4.6	3.9	3.5	2.9	3.7	5.4	9.6	13.1	12.2	9.3	10.2	4.03	9.97	7.00
1961/62	6.3	5.4	4.6	3.4	4.5	3.7	6.5	12.2	24.1	20.4	16.0	10.7	4.64	14.98	9.81
1962/63	8.7	6.8	4.8	3.4	3.2	3.7	5.3	11.2	13.8	11.8	11.0	7.9	5.10	10.17	7.64
1963/64	6.0	4.5	3.4	4.4	3.1	4.3	7.4	6.0	21.7	34.4	17.9	12.3	4.30	16.61	10.45
1964/65	8.7	6.0	5.5	3.4	2.8	3.9	4.1	5.4	6.5	9.1	9.1	7.0	5.04	6.86	5.95
1965/66	5.3	4.1	3.7	3.0	3.6	4.3	6.7	14.7	13.7	22.1	16.5	10.8	4.00	14.09	9.04
1966/67	9.1	4.6	4.0	3.3	2.8	3.6	6.1	8.7	15.3	14.2	13.4	7.8	4.57	10.92	7.74
1967/68	5.7	4.2	3.6	3.0	2.4	2.4	4.9	4.8	8.7	8.4	8.1	5.8	3.56	6.79	5.18
1968/69	4.0	2.9	2.3	2.0	1.7	2.1	2.1	3.5	3.5	5.6	5.5	4.4	2.48	4.11	3.30
1969/70	3.1	2.5	2.5	2.2	1.9	3.2	6.1	6.8	18.8	16.2	12.2	7.5	2.57	11.27	6.92
1970/71	5.1	3.6	3.1	3.5	2.4	3.1	4.6	6.6	8.8	8.0	8.0	5.0	3.47	6.83	5.15
1971/72	3.9	2.9	2.2	2.8	2.4	3.2	5.6	12.0	14.5	13.2	9.4	5.6	2.90	10.06	6.48
1972/73	6.1	4.6	5.4	2.4	4.5	4.8	5.5	9.2	24.4	40.7	23.5	16.0	4.61	19.88	12.25
1973/74	13.1	5.6	5.4	4.8	3.8	4.2	6.0	10.3	13.1	17.8	13.5	9.1	6.13	11.65	8.89
1974/75	5.9	5.2	5.2	3.5	3.1	2.8	7.1	11.4	12.9	19.4	12.8	8.8	4.29	12.08	8.18
1975/76	6.5	5.0	3.4	3.5	3.2	4.4	6.6	7.2	12.6	12.0	9.6	7.2	4.34	9.20	6.77
1976/77	4.8	3.7	3.2	2.9	2.5	3.0	3.1	6.8	8.9	11.2	8.6	6.3	3.35	7.48	5.42
1977/78	5.4	4.0	3.5	3.2	2.9	3.7	7.4	15.5	26.6	22.8	15.2	9.9	3.79	16.23	10.01
1978/79	6.5	4.8	3.9	4.7	3.8	3.5	6.0	12.2	28.7	35.4	17.8	12.4	4.55	18.75	11.65
1979/80	7.1	5.9	4.8	3.7	3.4	2.9	4.9	7.3	12.2	23.4	16.6	13.2	4.61	12.94	8.77
1980/81	8.9	7.7	6.1	5.7	5.3	6.2	7.5	12.5	27.9	23.5	20.3	13.1	6.63	17.48	12.05
1981/82	7.8	5.9	4.3	3.9	3.7	4.0	5.9	8.8	12.1	13.4	11.2	7.5	4.93	9.80	7.37
1982/83	5.4	4.4	5.3	6.8	5.4	7.8	5.7	14.1	33.1	46.3	37.5	22.1	5.82	26.46	16.14
1983/84	12.8	8.0	6.2	6.0	5.1	3.8	6.7	12.9	22.0	20.3	15.1	8.5	6.98	14.24	10.61
1984/85	5.0	4.2	5.2	3.7	4.2	4.5	7.9	11.7	20.2	24.3	18.9	13.9	4.47	16.15	10.31
1985/86	9.0	7.5	6.1	4.2	3.7	3.4	6.1	10.8	14.6	14.8	12.0	8.8	5.65	11.16	8.40
1986/87	6.6	4.7	8.1	5.0	3.9	4.8	7.4	11.3	28.2	31.0	24.0	14.2	5.51	19.36	12.44
1987/88	8.9	6.9	6.1	7.1	6.1	5.7	7.0	18.8	31.2	35.0	24.2	16.3	6.80	22.09	14.44
1988/89	10.5	7.7	5.8	4.6	3.7	4.5	6.8	9.0	10.8	10.0	11.0	6.5	6.15	9.01	7.58
1989/90	6.0	4.2	3.0	2.7	3.2	3.0	5.2	10.6	12.8	11.8	9.0	6.5	3.68	9.32	6.50
1990/91	4.6	2.7	3.0	1.9	2.4	2.9	3.7	7.4	11.1	11.5	9.0	6.5	2.92	8.20	5.56
1991/92	3.8	5.2	4.4	4.5	4.2	5.9	4.9	10.9	16.7	26.8	20.7	13.7	4.67	15.61	10.14
1992/93	7.9	5.4	3.7	2.7	2.1	3.2	6.7	12.2	17.3	20.6	15.6	10.5	4.17	13.80	8.99
1993/94	7.2	6.3	6.2	2.7	4.7	5.0	5.1	9.3	16.1	18.7	11.2	8.4	5.34	11.49	8.42
1994/95	5.1	4.1	2.0	4.7	3.8	2.6	4.0	12.4	19.8	15.3	10.3	6.5	3.73	11.40	7.57
1995/96	4.1	3.2	2.1	3.7	3.2	4.6	3.5	10.2	16.0	12.4	8.5	5.0	3.49	9.28	6.39
1996/97	5.2	2.4	1.7	1.6	1.4	1.3	4.0	5.7	7.3	7.9	7.1	6.1	2.27	6.36	4.31
1997/98	2.6	2.1	2.4	1.8	4.2	6.4	3.9	9.2	17.9	32.4	21.8	9.0	3.24	15.70	9.47
1998/99	6.3	4.3	3.2	2.1	1.7	1.8	3.2	4.0	7.2	8.1	7.7	4.5	3.24	5.78	4.51
1999/2000	2.3	1.7	1.2	1.2	1.4	1.8	4.3	8.6	10.9	12.2	7.3	6.2	1.60	8.25	4.93
2000/01	2.8	1.3	2.7	3.6	1.8	2.1	6.9	10.8	23.2	30.0	21.3	10.0	2.37	17.05	9.71
2001/02	5.9	4.6	2.5	3.9	3.8	3.4	4.0	12.0	23.1	18.8	13.4	9.5	4.02	13.46	8.74
2002/03	4.7	5.0	5.1	3.4	3.8	2.6	4.4	11.4	20.0	25.4	20.4	13.2	4.09	15.79	9.94
2003/04	7.1	5.4	4.3	2.8	2.8	2.5	5.0	10.1	11.2	12.8	9.6	6.2	4.15	9.15	6.65
2004/05	3.8	2.5	2.0	1.3	1.3	2.7	2.4	5.2	9.3	11.8	9.5	5.7	2.29	7.32	4.81
2005/06															
AVERAGE	6.1	4.6	4.0	3.5	3.3	3.7	5.3	9.7	16.0	18.2	13.4	9.0	4.19	11.94	8.07
STD DEV	2.3	1.5	1.4	1.2	1.1	1.2	1.4	3.1	6.7	9.1	6.0	3.5	1.16	4.47	2.57
CV	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.28	0.37	0.32
MAX	13.1	8.0	8.1	7.1	6.1	7.8	7.9	18.8	33.1	46.3	37.5	22.1	6.98	26.46	16.14
MIN	2.3	1.3	1.2	1.2	1.3	1.3	2.1	3.5	3.5	5.6	5.5	4.4	1.60	4.11	3.30

A1. 7: Volcán River at Queltehues

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

STATION: RÍO VOLCÁN EN QUELTEHUES

A [km²] = 530

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	9.4	7.4	6.4	5.7	5.9	6.6	9.8	14.1	28.8	25.1	19.0	14.7	6.89	18.59	12.74
1951/52	9.0	7.8	7.5	7.4	7.4	7.2	9.8	16.5	26.9	25.4	18.2	13.7	7.71	18.40	13.06
1952/53	9.3	7.6	7.5	7.4	7.2	7.5	10.1	14.8	26.8	25.8	21.0	14.3	7.77	18.79	13.28
1953/54	10.0	7.8	7.8	7.5	8.0	9.8	11.1	25.1	38.3	39.0	31.8	21.2	8.46	27.76	18.11
1954/55	11.7	9.8	9.9	8.9	8.4	8.5	11.0	18.5	24.2	23.7	20.7	15.3	9.52	18.90	14.21
1955/56	9.6	7.1	5.9	5.2	5.3	5.6	7.5	17.5	21.9	22.2	17.6	13.4	6.46	16.66	11.56
1956/57	7.7	7.8	6.9	6.4	6.7	6.8	9.3	20.9	24.5	27.3	25.4	16.4	7.06	20.64	13.85
1957/58	9.6	6.8	6.7	6.3	6.7	7.2	10.2	19.0	29.3	22.8	14.6	11.5	7.22	17.88	12.55
1958/59	8.6	7.6	7.3	7.1	6.8	9.1	13.7	30.0	31.0	24.9	20.0	13.0	7.76	22.10	14.93
1959/60	10.6	8.7	8.0	8.1	8.6	9.6	13.1	28.9	39.5	34.6	30.2	18.8	8.93	27.50	18.21
1960/61	9.1	7.6	6.8	6.9	6.9	9.7	10.3	22.7	30.5	23.5	17.5	13.8	7.84	19.71	13.78
1961/62	11.3	8.4	8.0	7.6	7.4	7.6	14.9	31.8	47.5	34.7	27.1	23.1	8.36	29.82	19.09
1962/63	10.7	8.6	8.1	7.6	7.2	7.8	10.2	21.5	27.6	18.4	17.0	11.9	8.32	17.74	13.03
1963/64	8.6	7.1	6.9	7.0	6.4	8.4	10.8	15.4	42.4	56.0	42.7	26.3	7.42	32.24	19.83
1964/65	17.5	11.1	9.6	8.0	7.2	7.2	8.9	15.2	18.7	21.5	20.3	13.3	10.09	16.30	13.19
1965/66	10.2	8.3	8.0	7.7	9.5	10.1	14.9	24.8	28.6	43.7	28.3	19.5	8.97	26.59	17.78
1966/67	12.8	9.6	9.2	9.4	8.0	8.7	12.7	22.5	25.1	22.3	20.6	13.4	9.61	19.42	14.51
1967/68	9.8	7.9	9.6	6.0	5.4	5.6	7.9	12.5	22.6	18.9	15.9	11.1	7.39	14.81	11.10
1968/69	7.6	6.7	6.6	5.4	5.1	4.8	5.7	9.8	14.0	17.5	14.9	10.5	6.05	12.05	9.05
1969/70	5.6	5.1	6.3	5.7	5.5	6.7	7.7	11.9	33.5	26.1	19.2	11.4	5.83	18.29	12.06
1970/71	8.8	6.6	5.7	5.3	5.4	6.2	10.9	18.6	27.4	10.4	11.7	14.2	6.35	15.51	10.93
1971/72	9.3	5.2	5.0	6.0	6.2	7.0	11.8	23.7	25.1	21.3	16.1	12.8	6.43	18.47	12.45
1972/73	8.1	13.4	10.9	7.9	9.1	10.2	12.3	17.3	33.7	42.2	33.7	23.6	9.92	27.12	18.52
1973/74	19.5	12.2	8.7	7.9	6.8	7.4	14.4	19.7	21.8	30.5	21.0	14.6	10.40	20.32	15.36
1974/75	9.0	7.5	7.5	8.8	8.0	8.1	15.6	25.0	32.1	47.0	24.6	16.3	8.15	26.77	17.46
1975/76	10.2	6.9	6.5	6.2	6.2	6.8	9.2	15.5	28.3	21.7	26.7	14.0	7.13	19.22	13.18
1976/77	7.7	6.5	6.4	6.2	6.0	6.3	7.4	16.1	23.7	25.0	16.3	13.6	6.54	17.03	11.79
1977/78	9.0	7.2	7.0	9.6	10.0	10.7	15.7	27.6	41.1	33.4	25.1	16.2	8.90	26.53	17.71
1978/79	11.8	7.1	7.9	9.1	9.2	8.9	12.5	19.9	41.8	40.0	24.3	17.6	8.98	26.02	17.50
1979/80	14.0	11.3	8.7	7.3	8.2	7.2	8.7	13.5	27.8	32.6	25.0	18.7	9.43	21.06	15.25
1980/81	17.8	16.0	13.1	11.7	9.4	9.9	12.7	23.2	49.2	41.1	34.3	21.3	12.98	30.30	21.64
1981/82	12.7	10.5	9.0	7.6	7.4	7.2	10.5	19.5	24.1	24.2	22.0	14.4	9.05	19.11	14.08
1982/83	9.0	8.1	9.1	14.6	12.2	14.3	13.7	22.3	56.9	68.0	56.3	37.0	11.22	42.35	26.78
1983/84	23.4	14.5	11.1	9.8	9.1	8.9	13.3	25.5	41.4	36.9	29.7	19.9	12.80	27.78	20.29
1984/85	13.0	9.3	8.1	7.9	8.3	9.6	15.9	21.8	38.3	43.7	31.6	24.8	9.37	29.36	19.36
1985/86	15.3	3.0	10.3	9.5	8.5	7.9	8.6	20.8	27.8	24.8	18.9	13.9	9.07	19.15	14.11
1986/87	10.6	9.3	18.0	11.8	8.7	9.7	13.1	20.2	42.5	45.5	35.9	23.6	11.35	30.13	20.74
1987/88	13.8	10.7	10.4	13.2	11.0	10.1	15.1	31.9	54.9	50.6	38.6	25.7	11.53	36.13	23.83
1988/89	16.6	11.3	9.1	8.0	7.8	5.9	10.7	19.8	23.5	24.1	22.5	14.2	9.77	19.11	14.44
1989/90	9.1	7.3	6.4	5.8	7.6	8.9	12.6	27.9	33.6	29.7	19.4	13.1	7.51	22.73	15.12
1990/91	9.5	7.7	6.9	6.3	6.3	7.5	8.9	16.9	22.6	22.9	18.7	14.3	7.38	17.35	12.36
1991/92	9.3	11.5	12.8	12.8	9.7	12.1	13.9	22.4	22.9	43.9	30.3	24.1	11.37	26.24	18.80
1992/93	13.9	11.6	10.9	10.3	9.1	10.7	15.9	24.0	37.1	41.0	30.2	21.0	11.10	28.20	19.65
1993/94	15.7	14.5	13.8	13.7	10.8	10.9	17.2	23.6	32.1	36.5	23.3	18.6	13.21	25.22	19.21
1994/95	11.7	9.4	8.7	8.4	8.8	8.0	12.2	30.1	39.8	31.5	21.1	15.8	9.17	25.08	17.12
1995/96	11.9	9.0	8.2	7.5	7.2	9.4	11.5	23.1	33.8	23.0	19.2	15.0	8.85	20.91	14.88
1996/97	10.1	7.9	6.2	6.3	5.9	5.7	6.4	8.8	12.2	17.8	13.6	10.6	7.02	11.56	9.29
1997/98	7.4	6.3	8.8	8.5	10.0	15.2	11.0	23.4	40.9	51.7	28.6	21.0	9.38	29.44	19.41
1998/99	16.8	12.5	9.4	8.2	6.8	6.3	9.1	13.7	14.2	16.3	16.4	10.9	9.99	13.44	11.71
1999/2000	7.3	6.3	5.9	5.6	5.7	6.4	11.0	19.0	24.4	19.5	16.8	11.0	6.21	16.93	11.57
2000/01	9.3	7.7	8.0	9.3	8.1	8.2	15.8	22.4	45.7	41.3	31.3	20.4	8.42	29.46	18.94
2001/02	12.9	10.3	9.1	9.0	10.4	11.2	15.3	23.9	46.0	36.7	27.1	18.9	10.47	27.97	19.22
2002/03	12.8	11.2	9.6	10.4	14.2	13.1	15.9	26.0	40.0	43.7	33.8	24.1	11.89	30.60	21.24
2003/04	15.6	11.5	10.6	9.5	9.2	9.7	14.3	20.8	23.7	25.8	11.9	16.4	11.01	18.83	14.92
2004/05	10.5	8.1	7.3	6.9	7.1	9.0	10.9	14.9	24.6	24.2	18.6	12.9	8.13	17.67	12.90
2005/06															
AVERAGE	11.3	8.9	8.5	8.1	7.9	8.5	11.7	20.7	31.6	31.3	23.9	16.9	8.87	22.68	15.78
STD DEV	3.4	2.5	2.3	2.2	1.8	2.1	2.8	5.4	10.0	11.6	8.3	5.2	1.84	6.24	3.72
CV	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.21	0.27	0.24
MAX	23.4	16.0	18.0	14.6	14.2	15.2	17.2	31.9	56.9	68.0	56.3	37.0	13.21	42.35	26.78
MIN	5.6	3.0	5.0	5.2	5.1	4.8	5.7	8.8	12.2	10.4	11.7	10.5	5.83	11.56	9.05

A1. 8: Maipo River at Las Melosas

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

STATION: RÍO MAIPO EN LAS MELOSAS

A [km²] = 1475

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	17.8	14.6	10.1	10.5	10.9	14.5	24.6	45.0	78.2	47.7	38.5	27.8	13.07	43.66	28.36
1951/52	17.4	13.0	15.6	15.5	17.0	17.4	27.2	52.1	80.1	58.7	31.8	35.2	16.00	47.52	31.76
1952/53	16.6	15.1	13.9	15.2	16.5	18.9	20.3	39.7	69.3	44.8	40.9	24.5	16.05	39.90	27.98
1953/54	21.2	12.2	12.5	12.8	18.8	28.9	34.2	95.3	141.8	104.7	69.2	41.7	17.74	81.16	49.45
1954/55	24.7	15.5	15.7	20.5	23.6	26.0	42.3	80.4	74.1	48.3	35.4	26.0	21.00	51.09	36.04
1955/56	16.7	15.4	10.6	8.5	9.2	10.4	16.1	47.1	49.8	39.7	35.1	19.8	11.81	34.59	23.20
1956/57	19.7	17.4	12.4	15.3	16.6	17.2	23.7	61.1	51.5	33.9	21.3	19.2	16.43	35.11	25.77
1957/58	19.3	11.8	9.0	11.9	9.8	12.6	25.7	64.2	80.8	84.0	52.3	42.3	12.40	58.20	35.30
1958/59	25.6	21.5	18.9	14.7	11.5	20.5	46.3	46.4	69.9	38.3	31.0	30.1	18.77	43.66	31.21
1959/60	16.8	16.4	15.1	16.3	19.4	20.5	27.4	66.9	120.0	66.3	22.0	18.5	17.44	53.52	35.48
1960/61	19.0	16.8	15.2	14.1	17.1	18.8	29.8	64.4	77.0	48.0	30.1	45.7	16.83	49.14	32.99
1961/62	20.4	20.5	23.4	12.7	25.4	17.7	38.0	79.4	127.1	96.6	63.4	35.9	20.02	73.40	46.71
1962/63	23.6	16.4	13.8	13.2	15.3	17.6	30.1	66.7	68.0	40.4	31.1	32.0	16.64	44.72	30.68
1963/64	18.5	14.3	12.6	14.8	15.4	21.9	23.8	48.3	175.4	165.4	68.1	39.9	16.24	86.81	51.53
1964/65	20.7	16.5	20.4	12.4	14.1	16.5	25.1	37.4	45.1	49.1	33.7	29.6	16.76	36.66	26.71
1965/66	26.0	14.0	12.9	11.9	16.8	20.8	39.3	91.6	96.6	110.6	80.7	41.0	17.07	76.63	46.85
1966/67	24.6	15.3	14.4	15.2	11.6	16.6	41.1	58.7	86.3	63.7	52.8	27.6	16.29	55.05	35.67
1967/68	19.0	14.6	6.3	9.2	12.7	9.7	24.3	42.7	66.3	43.7	38.5	21.9	11.90	39.57	25.73
1968/69	17.8	13.3	11.2	10.1	9.4	9.1	9.8	23.1	10.3	13.9	21.8	18.9	11.81	16.30	14.06
1969/70	8.9	8.7	12.8	10.6	10.7	13.4	16.6	48.6	115.5	54.6	33.3	26.1	10.85	49.10	29.97
1970/71	17.4	14.2	8.2	11.4	11.5	12.9	19.7	37.9	45.0	34.4	24.3	11.8	12.59	28.84	20.72
1971/72	10.2	9.4	8.9	10.2	12.4	16.9	37.1	82.9	75.7	56.9	31.7	23.2	11.34	51.24	31.29
1972/73	10.9	26.0	37.0	19.4	25.6	31.3	43.4	77.5	148.0	234.6	107.8	93.7	25.03	117.51	71.27
1973/74	33.5	18.9	19.5	18.5	16.5	15.8	21.9	60.7	85.9	76.7	46.3	31.6	20.49	53.85	37.17
1974/75	18.2	13.7	12.4	16.5	11.7	17.6	40.8	85.0	99.9	90.7	59.3	33.5	15.02	68.18	41.60
1975/76	21.5	12.2	12.1	11.3	11.9	14.4	22.6	42.9	79.3	48.8	32.7	26.3	13.92	42.10	28.01
1976/77	13.9	9.1	10.6	10.3	10.5	14.4	21.5	49.6	57.7	52.1	30.2	22.0	11.46	38.87	25.17
1977/78	14.3	13.9	13.6	20.7	18.4	27.6	60.2	92.5	135.5	96.4	58.5	37.5	18.08	80.12	49.10
1978/79	21.8	18.5	16.5	20.8	20.1	24.4	36.4	77.9	199.6	178.7	84.7	43.7	20.36	103.48	61.92
1979/80	24.6	15.5	10.9	15.3	17.4	22.0	30.0	68.1	88.8	124.3	73.5	43.7	17.61	71.40	44.50
1980/81	41.0	38.3	30.4	26.9	20.5	28.7	40.7	84.7	161.1	99.2	73.1	46.6	30.96	84.23	57.60
1981/82	26.8	22.7	19.2	15.1	16.3	18.5	30.0	64.2	69.5	58.2	37.1	26.5	19.76	47.60	33.68
1982/83	17.6	15.1	35.0	31.0	28.9	44.0	52.5	116.0	271.1	299.0	182.7	96.5	28.59	169.61	99.10
1983/84	44.4	31.4	22.1	21.3	21.5	20.5	43.8	93.8	122.7	92.9	64.6	44.0	26.89	76.97	51.93
1984/85	23.0	16.7	12.4	15.4	15.2	19.9	43.5	76.5	141.7	145.3	91.1	52.4	17.10	91.77	54.43
1985/86	25.4	29.2	18.4	16.3	14.8	14.9	24.5	65.6	80.9	60.9	46.4	29.8	19.85	51.36	35.60
1986/87	19.2	17.7	63.8	18.9	19.0	26.7	44.7	57.9	144.5	133.6	98.9	60.7	27.55	90.05	58.80
1987/88	27.3	19.6	17.8	29.4	28.8	29.0	48.4	121.8	185.3	169.2	112.8	64.0	25.33	116.91	71.12
1988/89	33.4	20.9	16.2	13.8	15.9	17.9	28.6	63.2	58.7	49.8	43.1	37.0	19.69	46.73	33.21
1989/90	16.1	13.2	11.3	10.3	20.8	26.9	34.7	86.6	103.2	60.5	33.3	26.9	16.44	57.52	36.98
1990/91	19.1	15.8	13.6	12.1	12.3	16.5	28.4	55.6	60.2	46.9	33.0	23.9	14.90	41.33	28.11
1991/92	27.5	22.7	21.1	30.4	18.3	29.1	37.1	99.2	108.7	118.8	83.7	56.5	24.87	84.01	54.44
1992/93	29.4	23.4	21.3	19.0	17.8	21.9	48.2	92.6	114.7	101.4	72.0	43.8	22.12	78.79	50.46
1993/94	34.5	20.9	27.3	22.4	17.4	25.1	33.6	56.9	104.6	113.5	55.0	34.6	24.61	66.37	45.49
1994/95	23.4	17.9	17.8	22.2	17.8	24.7	33.2	67.2	122.5	74.2	47.3	40.5	20.65	64.14	42.40
1995/96	27.5	21.2	20.2	15.2	15.6	23.2	31.0	84.2	99.9	53.6	40.6	31.5	20.49	56.79	38.64
1996/97	16.3	13.0	11.1	9.9	11.0	9.7	19.5	45.2	38.6	16.2	22.9	23.3	11.83	27.63	19.73
1997/98	16.7	7.4	21.4	18.0	21.2	32.6	43.0	96.7	172.8	182.3	107.6	58.2	19.54	110.10	64.82
1998/99	33.7	23.5	18.1	14.0	12.0	11.4	23.3	34.1	45.5	37.5	30.6	22.6	18.79	32.26	25.53
1999/2000	15.4	11.5	10.2	9.1	9.4	17.4	33.2	68.5	72.3	58.2	35.3	23.8	12.18	48.54	30.36
2000/01	18.1	13.2	27.5	25.5	16.9	18.2	50.5	93.1	186.3	134.7	101.8	51.9	19.88	103.06	61.47
2001/02	31.5	25.3	16.5	25.0	29.3	30.9	47.4	74.2	161.5	84.0	59.1	41.9	26.39	78.03	52.21
2002/03	22.8	18.4	21.8	16.8	23.5	19.0	30.4	62.1	123.1	126.2	85.1	61.3	20.39	81.37	50.88
2003/04	35.4	22.6	23.9	22.2	19.5	24.6	34.2	68.9	79.9	72.1	59.0	36.0	24.70	58.33	41.52
2004/05	25.7	16.7	14.9	13.6	15.1	21.7	29.3	46.7	69.9	62.4	37.6	32.7	17.96	46.43	32.19
2005/06															
AVERAGE	22.4	17.3	17.4	16.2	16.7	20.4	33.0	67.4	101.8	85.4	55.2	37.0	18.41	63.30	40.85
STD DEV	7.3	5.7	9.0	5.6	5.1	6.8	10.5	21.2	48.4	54.5	30.5	16.6	4.86	27.50	15.46
CV	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.6	0.4	0.26	0.43	0.38
MAX	44.4	38.3	63.8	31.0	29.3	44.0	60.2	121.8	271.1	299.0	182.7	96.5	30.96	169.61	99.10
MIN	8.9	7.4	6.3	8.5	9.2	9.1	9.8	23.1	10.3	13.9	21.3	11.8	10.85	16.30	14.06

ANNEX II

NATURAL FLOW SERIES

SECTIONS OF INTEREST AND INTERMEDIATE BASINS

A2. 1: Maipo River at Queltehues Hydropower Plant Discharge

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

Point 1: Maipo at Queltehues Hydropower Plant Discharge

A [km²] = 1498

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	18.13	15.01	10.45	10.91	11.27	15.00	25.22	45.58	78.73	48.01	38.79	27.95	13.46	44.05	28.75
1951/52	17.74	13.42	16.12	16.11	17.60	17.96	27.83	52.71	80.62	59.09	32.04	35.40	16.49	47.95	32.22
1952/53	16.87	15.58	14.43	15.79	17.10	19.50	20.76	40.18	69.70	45.04	41.18	24.64	16.55	40.25	28.40
1953/54	21.60	12.61	12.97	13.26	19.46	29.77	35.04	96.52	142.74	105.32	69.63	41.91	18.28	81.86	50.07
1954/55	25.12	15.97	16.26	21.30	24.35	26.84	43.29	81.39	74.60	48.59	35.64	26.14	21.64	51.61	36.62
1955/56	16.96	15.82	11.03	8.85	9.53	10.75	16.50	47.71	50.10	39.90	35.29	19.90	12.16	34.90	23.53
1956/57	20.02	17.92	12.82	15.92	17.20	17.71	24.25	61.82	51.86	34.09	21.44	19.28	16.93	35.46	26.19
1957/58	19.61	12.16	9.34	12.39	10.10	13.02	26.29	64.95	81.32	84.46	52.60	42.57	12.77	58.70	35.73
1958/59	26.06	22.19	19.54	15.23	11.83	21.15	47.35	47.02	70.31	38.52	31.19	30.26	19.33	44.11	31.72
1959/60	17.14	16.92	15.68	16.92	20.07	21.17	28.03	67.75	120.80	66.66	22.15	18.59	17.98	54.00	35.99
1960/61	19.35	17.30	15.70	14.65	17.70	19.36	30.48	65.21	77.45	48.24	30.26	45.95	17.34	49.60	33.47
1961/62	20.79	21.10	24.23	13.18	26.29	18.25	38.86	80.37	127.96	97.14	63.80	36.14	20.64	74.04	47.34
1962/63	24.00	16.91	14.29	13.67	15.80	18.13	30.82	67.51	68.44	41.33	31.69	32.17	17.13	45.33	31.23
1963/64	18.82	14.76	13.03	15.35	15.93	22.55	24.88	49.57	176.48	165.63	68.60	40.11	16.74	87.54	52.14
1964/65	21.02	17.05	21.13	12.87	14.34	17.18	25.67	37.81	45.42	49.43	33.88	29.67	17.27	36.98	27.12
1965/66	26.22	14.39	13.38	12.32	17.39	21.49	40.17	92.60	97.62	111.22	80.97	41.28	17.53	77.31	47.42
1966/67	25.06	15.78	14.88	15.79	11.99	17.16	41.55	59.47	87.94	64.09	53.19	27.77	16.77	55.67	36.22
1967/68	19.33	15.03	6.49	9.53	12.90	9.99	25.09	43.28	66.68	44.52	38.96	21.99	12.21	40.08	26.15
1968/69	18.29	13.65	11.33	10.46	9.51	9.25	10.38	23.37	10.33	14.01	21.98	19.04	12.08	16.52	14.30
1969/70	9.03	8.98	13.21	10.78	10.98	13.60	17.26	49.50	116.24	54.87	34.12	26.23	11.10	49.70	30.40
1970/71	17.74	14.51	8.48	11.63	11.58	13.31	20.28	38.87	45.30	34.55	24.49	11.85	12.88	29.22	21.05
1971/72	10.39	9.71	9.07	10.65	12.62	17.04	37.66	83.23	76.25	57.24	31.88	23.31	11.58	51.59	31.59
1972/73	11.08	26.80	38.53	20.49	26.61	32.25	44.70	79.03	148.97	236.02	108.49	94.08	25.96	118.55	72.25
1973/74	34.13	19.52	20.20	19.27	17.08	16.33	22.42	61.47	86.48	77.18	46.59	31.74	21.09	54.31	37.70
1974/75	18.56	14.13	12.82	17.10	12.14	18.17	41.76	86.02	100.50	91.21	59.43	33.67	15.48	68.77	42.12
1975/76	21.91	12.61	12.55	11.74	12.33	14.86	23.08	43.59	79.47	49.12	32.93	26.45	14.33	42.44	28.39
1976/77	14.14	9.40	10.96	10.70	10.88	14.81	22.02	50.25	58.82	52.42	30.45	22.14	11.81	39.35	25.58
1977/78	14.55	14.35	14.05	21.50	19.00	28.56	61.08	93.65	136.41	97.01	59.27	37.75	18.67	80.86	49.76
1978/79	22.17	18.94	16.85	22.69	20.91	25.14	36.87	79.27	200.83	179.70	85.22	44.08	21.12	104.33	62.72
1979/80	24.99	15.98	11.30	15.93	17.85	22.65	31.38	68.97	89.19	125.22	73.85	43.92	18.12	72.09	45.10
1980/81	41.67	39.43	31.51	27.92	21.61	29.65	41.36	84.79	161.53	99.79	73.56	46.87	31.97	84.65	58.31
1981/82	27.25	23.36	19.85	15.72	16.87	19.09	30.67	65.01	69.92	58.59	37.39	26.70	20.35	48.05	34.20
1982/83	17.91	15.59	36.21	32.17	29.85	45.36	53.70	117.39	272.81	300.75	183.95	97.04	29.52	170.94	100.23
1983/84	45.22	32.36	22.93	22.15	22.24	21.14	44.79	94.93	123.52	93.49	64.99	44.30	27.67	77.67	52.67
1984/85	23.43	17.20	12.79	16.01	15.70	20.56	44.55	77.49	142.64	146.18	91.70	52.69	17.61	92.54	55.08
1985/86	25.85	30.07	19.07	16.96	15.32	15.41	25.06	66.43	81.45	61.29	46.71	29.96	20.45	51.81	36.13
1986/87	19.58	18.27	66.06	19.61	19.64	27.51	45.73	58.64	145.38	134.41	99.57	61.08	28.45	90.80	59.62
1987/88	27.81	20.23	18.44	30.55	29.75	29.93	49.58	123.27	186.45	170.17	113.52	64.42	26.12	117.90	72.01
1988/89	34.03	21.57	16.73	14.33	16.45	18.45	29.32	63.94	59.08	50.04	43.35	37.27	20.26	47.17	33.71
1989/90	16.36	13.60	11.65	10.75	21.49	27.78	35.54	87.67	103.85	61.36	33.49	27.02	16.94	58.15	37.55
1990/91	19.57	16.33	13.98	12.75	12.76	17.03	28.84	55.95	60.45	47.22	33.44	24.29	15.40	41.70	28.55
1991/92	28.03	23.66	21.88	31.26	18.92	29.85	38.33	100.44	109.53	119.63	83.97	56.83	25.60	84.79	55.19
1992/93	29.79	23.91	22.23	19.88	18.53	22.93	49.48	93.53	115.60	102.32	72.40	44.09	22.88	79.57	51.22
1993/94	35.14	21.49	28.25	23.28	18.02	25.92	34.38	57.57	105.28	114.17	55.39	34.80	25.35	66.93	46.14
1994/95	23.85	18.50	18.39	23.04	18.44	25.52	33.99	68.03	123.29	74.61	47.58	40.75	21.29	64.71	43.00
1995/96	28.03	21.85	20.88	15.79	16.17	23.89	31.69	85.23	100.56	53.91	40.89	31.64	21.10	57.32	39.21
1996/97	16.59	13.42	11.48	10.24	11.39	9.99	19.94	45.71	38.87	16.25	23.10	23.46	12.18	27.89	20.04
1997/98	16.96	7.59	22.11	18.74	21.94	33.58	44.00	97.85	173.91	183.38	108.33	58.58	20.15	111.01	65.58
1998/99	34.32	24.25	18.78	14.52	12.41	11.71	23.89	34.48	45.81	37.71	30.78	22.71	19.33	32.56	25.95
1999/2000	15.65	11.89	10.61	9.51	9.70	17.95	34.01	69.29	72.74	58.54	35.53	23.93	12.55	49.01	30.78
2000/01	18.40	13.58	28.43	26.52	17.42	18.76	51.73	94.26	187.46	135.14	102.46	52.21	20.52	103.88	62.20
2001/02	32.03	26.03	17.06	25.93	30.23	31.90	48.53	75.02	162.58	84.50	59.52	42.12	27.20	78.71	52.95
2002/03	23.23	18.92	22.53	17.45	24.32	19.63	31.13	62.90	123.89	126.93	85.64	61.66	21.01	82.03	51.52
2003/04	35.99	23.27	24.71	23.07	20.19	25.41	35.02	69.70	80.37	72.50	59.42	36.18	25.44	58.86	42.15
2004/05	26.14	17.23	15.47	14.12	15.60	22.38	30.03	47.26	70.39	62.74	37.85	32.85	18.49	46.85	32.67
AVERAGE	22.8	17.9	18.1	16.9	17.2	21.0	33.7	68.3	102.5	85.9	55.5	37.3	18.97	63.87	41.42
STD DEV	7.5	5.9	9.4	5.8	5.3	7.0	10.7	21.4	48.7	54.8	30.7	16.7	5.07	27.96	15.77
CV	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.6	0.4	0.27	0.44	0.38
MAX	45.2	39.4	66.1	32.2	30.2	45.4	61.1	123.3	272.8	300.8	184.0	97.0	31.97	170.94	100.23
MIN	9.0	7.6	6.5	8.8	9.5	9.3	10.4	23.4	10.3	14.0	21.4	11.8	11.10	16.52	14.30

A2. 2: Maipo River at Confluence with Volcán River

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

Point 2: Maipo at Confluence with Volcan

A [km²] = 2030

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	27.59	22.41	16.83	16.66	17.15	21.64	35.04	59.69	107.55	73.18	57.85	42.69	20.38	62.67	41.52
1951/52	26.80	21.26	23.68	23.51	25.01	25.18	37.68	69.30	107.51	84.51	50.21	49.11	24.24	66.39	45.31
1952/53	26.18	23.23	22.01	23.25	24.36	27.07	30.86	54.97	96.55	70.88	62.24	38.93	24.35	59.07	41.71
1953/54	31.64	20.40	20.77	20.76	27.53	39.60	46.24	121.69	181.14	144.39	101.51	63.11	26.78	109.68	68.23
1954/55	36.84	25.79	26.21	30.22	32.83	35.39	54.37	99.97	98.86	72.34	56.36	41.40	31.21	70.55	50.88
1955/56	26.59	22.93	17.00	14.07	14.89	16.40	24.03	65.22	71.99	62.14	52.89	33.27	18.65	51.59	35.12
1956/57	27.72	25.80	19.74	22.39	23.96	24.59	33.54	82.80	76.43	61.40	46.89	35.71	24.03	56.13	40.08
1957/58	29.21	18.98	16.09	18.74	16.81	20.28	36.51	84.04	110.61	107.25	67.21	54.08	20.02	76.62	48.32
1958/59	34.73	29.84	26.92	22.35	18.65	30.32	61.13	77.02	101.39	63.44	51.21	43.30	27.13	66.25	46.69
1959/60	27.71	25.64	23.73	25.04	28.76	30.82	41.13	96.71	160.36	101.24	52.36	37.40	26.95	81.53	54.24
1960/61	28.45	24.98	22.51	21.63	24.65	29.14	40.84	87.98	108.02	71.71	47.80	59.72	25.23	69.34	47.29
1961/62	32.16	29.53	32.25	20.80	33.73	25.87	53.80	112.27	175.47	131.89	90.88	59.20	29.05	103.92	66.49
1962/63	34.74	25.57	22.41	21.26	23.05	25.93	41.03	89.07	96.03	59.80	48.69	44.04	25.49	63.11	44.30
1963/64	27.48	21.93	19.99	22.42	22.40	30.96	35.75	65.03	218.97	221.65	111.29	66.38	24.20	119.84	72.02
1964/65	38.52	28.18	30.75	20.93	21.56	24.43	34.57	53.00	64.10	70.96	54.20	42.99	27.40	53.30	40.35
1965/66	36.40	22.73	21.45	20.10	26.94	31.62	55.11	117.43	126.25	154.92	109.25	60.75	26.54	103.95	65.25
1966/67	37.85	25.42	24.15	25.24	20.00	25.86	54.31	81.98	113.18	86.37	73.77	41.21	26.42	75.14	50.78
1967/68	29.14	22.93	16.07	15.59	18.36	15.65	33.00	55.78	89.31	63.48	54.93	33.13	19.62	54.94	37.28
1968/69	25.97	20.39	17.93	15.93	14.58	14.10	16.10	33.15	24.30	31.55	36.92	29.53	18.15	28.59	23.37
1969/70	14.65	14.11	19.52	16.51	16.54	20.32	25.04	61.48	149.75	80.95	53.38	37.61	16.94	68.04	42.49
1970/71	26.54	21.17	14.22	16.99	17.00	19.57	31.24	57.51	72.71	44.94	36.20	26.00	19.25	44.77	32.01
1971/72	19.71	14.93	14.03	16.65	18.82	24.07	49.50	106.98	101.38	78.57	47.99	36.13	18.03	70.09	44.06
1972/73	19.19	40.22	49.55	28.45	35.75	42.56	57.14	96.43	182.75	278.32	142.20	117.68	35.95	145.75	90.85
1973/74	53.68	31.72	28.94	27.25	23.92	23.74	36.86	81.24	108.32	107.75	67.56	46.32	31.54	74.68	53.11
1974/75	27.60	21.62	20.39	25.90	20.21	26.30	57.46	111.12	132.60	138.29	84.06	49.95	23.67	95.58	59.62
1975/76	32.12	19.52	19.09	17.97	18.56	21.73	32.35	59.15	107.74	70.80	59.66	40.42	21.50	61.69	41.59
1976/77	21.86	15.96	17.43	16.97	16.92	21.16	29.48	66.44	82.65	77.47	46.72	35.76	18.38	56.42	37.40
1977/78	23.55	21.62	21.06	31.11	29.02	39.33	76.90	121.32	177.62	130.46	84.40	54.01	27.61	107.45	67.53
1978/79	33.95	26.07	24.81	31.90	30.14	34.07	49.44	99.30	242.74	219.77	109.55	61.73	30.16	130.42	80.29
1979/80	39.00	27.31	19.99	23.31	26.04	29.88	40.23	82.51	117.02	157.88	98.91	62.68	27.59	93.20	60.40
1980/81	59.56	55.52	44.71	39.67	31.13	39.57	54.14	108.03	210.78	140.93	107.85	68.20	45.03	114.99	80.01
1981/82	39.99	33.86	28.91	23.34	24.33	26.30	41.21	84.57	94.07	82.78	59.42	41.09	29.46	67.19	48.32
1982/83	26.91	23.74	45.42	46.86	42.16	59.76	67.46	139.77	329.81	368.90	240.38	134.03	40.81	213.39	127.10
1983/84	68.67	46.90	34.12	32.06	31.41	30.07	58.16	120.53	164.98	130.42	94.77	64.19	40.54	105.51	73.02
1984/85	36.48	26.54	20.97	23.96	24.00	30.22	60.52	99.40	181.02	189.93	123.39	77.48	27.03	121.96	74.49
1985/86	41.15	33.11	29.42	26.52	23.87	23.33	33.72	87.34	109.29	86.14	65.61	43.91	29.57	71.00	50.28
1986/87	30.18	27.59	84.26	31.51	28.41	37.24	58.86	78.85	187.99	180.01	135.56	84.67	39.87	120.99	80.43
1987/88	41.60	30.93	28.93	43.87	40.79	40.14	64.73	155.32	241.41	220.84	152.15	90.18	37.71	154.11	95.91
1988/89	50.64	32.93	25.88	22.36	24.26	24.38	40.04	83.81	82.56	74.20	65.85	51.44	30.08	66.31	48.20
1989/90	25.43	20.93	18.09	16.60	29.16	36.72	48.24	115.70	137.49	91.14	52.88	40.17	24.49	80.94	52.71
1990/91	29.10	24.10	20.89	19.13	19.13	24.57	37.72	72.88	83.08	70.09	52.14	38.58	22.82	59.08	40.95
1991/92	37.37	35.26	34.75	44.14	28.65	41.97	52.34	122.92	132.50	163.61	114.28	80.92	37.02	111.09	74.06
1992/93	43.75	35.52	33.22	30.28	27.71	33.74	65.48	117.61	152.73	143.35	102.65	65.15	34.04	107.83	70.93
1993/94	50.91	36.00	42.08	37.01	28.82	36.87	51.66	81.26	137.46	150.73	78.70	53.38	38.61	92.20	65.41
1994/95	35.62	27.90	27.14	31.54	27.30	33.53	46.20	98.18	163.17	106.17	68.72	56.54	30.50	89.83	60.17
1995/96	39.96	30.89	29.13	23.36	23.39	33.30	43.22	108.44	134.36	76.94	60.07	46.61	30.00	78.27	54.14
1996/97	26.72	21.31	17.73	16.56	17.30	15.75	26.41	54.51	51.07	34.00	36.70	34.12	19.23	39.47	29.35
1997/98	24.42	13.93	30.95	27.32	32.03	48.86	55.09	121.38	214.86	235.17	136.98	79.64	29.59	140.52	85.05
1998/99	51.16	36.81	28.21	22.76	19.23	18.03	33.02	48.21	60.08	54.01	47.16	33.66	29.37	46.02	37.69
1999/2000	23.01	18.23	16.53	15.12	15.44	24.42	45.05	88.34	97.17	78.03	52.37	34.90	18.79	65.98	42.38
2000/01	27.72	21.26	36.48	35.89	25.58	27.01	67.59	116.71	233.26	176.43	133.79	72.67	28.99	133.41	81.20
2001/02	44.93	36.43	26.16	35.03	40.69	43.13	63.90	98.99	208.62	121.27	86.67	60.99	37.73	106.74	72.23
2002/03	36.10	30.13	32.18	27.91	38.60	32.78	47.08	89.01	163.97	170.70	119.51	85.82	32.95	112.68	72.82
2003/04	51.68	34.87	35.40	32.59	29.39	35.14	49.43	90.61	104.08	98.30	71.39	52.63	36.51	77.74	57.13
2004/05	36.70	25.36	22.79	21.01	22.69	31.40	40.98	62.15	95.03	86.93	56.49	45.76	26.66	64.56	45.61
2005/06															
AVERAGE	34.1	26.8	26.6	25.1	25.2	29.6	45.5	89.0	134.1	117.3	79.5	54.2	27.89	86.59	57.24
STD DEV	10.6	7.8	11.3	7.8	6.8	8.9	13.0	25.4	57.9	65.2	37.9	21.1	6.80	33.79	19.30
CV	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.5	0.4	0.24	0.39	0.34
MAX	68.7	55.5	84.3	46.9	42.2	59.8	76.9	155.3	329.8	368.9	240.4	134.0	45.03	213.39	127.10
MIN	14.7	13.9	14.0	14.1	14.6	14.1	16.1	33.2	24.3	31.6	36.2	26.0	16.94	28.59	23.37

A2. 3: Maipo River at Confluence with Yeso River

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

Point 3: Maipo at Confluence with Yeso

A [km²] = 2667

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	34.69	27.48	21.59	21.26	20.66	25.60	40.09	66.50	121.88	91.39	68.04	52.14	25.21	73.34	49.28
1951/52	33.75	26.88	28.71	28.60	30.19	29.95	43.94	81.61	124.51	102.14	63.59	60.83	29.68	79.44	54.56
1952/53	34.88	29.84	27.82	29.12	29.20	32.55	37.49	63.95	115.65	88.64	77.91	48.09	30.57	71.96	51.26
1953/54	36.88	28.53	26.18	25.92	32.99	47.12	54.61	139.29	210.64	182.04	129.54	82.00	32.94	133.02	82.98
1954/55	48.44	34.57	33.25	37.02	39.28	41.42	62.10	115.72	116.94	92.80	71.51	52.42	39.00	85.25	62.12
1955/56	32.86	28.89	21.66	19.13	18.59	20.47	29.42	77.16	86.86	78.48	66.68	41.30	23.60	63.32	43.46
1956/57	34.57	32.47	25.68	27.27	28.35	29.79	40.35	93.12	88.64	74.33	59.45	44.44	29.69	66.72	48.21
1957/58	34.45	24.17	20.86	24.21	21.33	25.13	43.14	94.46	128.81	132.82	82.39	63.05	25.02	90.78	57.90
1958/59	41.07	34.85	32.92	26.44	22.11	35.06	71.37	90.97	118.59	78.74	64.95	52.99	32.07	79.60	55.84
1959/60	35.01	32.38	29.44	30.99	34.45	36.90	49.00	111.25	186.88	124.30	66.99	47.16	33.20	97.60	65.40
1960/61	35.89	31.55	28.05	26.95	28.98	34.54	48.54	100.98	126.18	88.85	60.70	72.81	30.99	83.01	57.00
1961/62	40.61	37.23	38.80	25.96	40.18	31.08	63.23	129.04	208.01	160.31	112.92	73.55	35.64	124.51	80.08
1962/63	45.93	35.05	29.06	26.52	27.77	31.22	48.61	103.77	114.72	76.33	63.78	54.28	32.59	76.91	54.75
1963/64	35.32	28.35	24.87	28.97	26.99	37.03	46.01	73.54	248.43	269.13	136.86	82.89	30.25	142.81	86.53
1964/65	50.28	36.78	38.53	26.13	25.67	29.95	40.49	60.45	73.36	84.17	67.10	52.26	34.56	62.97	48.76
1965/66	43.48	28.78	26.79	24.78	32.36	37.85	64.85	136.41	145.10	186.23	131.89	74.97	32.34	123.24	77.79
1966/67	49.66	32.12	29.66	30.57	24.25	31.11	63.01	93.84	133.86	105.99	92.01	51.47	32.95	90.03	61.49
1967/68	36.77	28.99	21.30	20.11	21.90	19.14	39.91	62.43	101.55	75.79	66.35	40.82	24.70	64.48	44.59
1968/69	31.42	24.70	21.27	19.11	17.08	17.10	19.39	38.02	29.64	39.97	44.93	35.50	21.78	34.58	28.18
1969/70	18.82	17.76	23.25	19.88	19.48	24.72	33.34	70.48	174.89	103.41	70.24	47.30	20.65	83.28	51.96
1970/71	33.39	26.33	18.57	22.09	20.49	23.90	37.92	66.83	85.41	55.82	47.02	33.00	24.13	54.33	39.23
1971/72	25.12	19.05	17.23	20.92	22.34	28.55	57.49	122.59	120.73	96.87	60.93	43.77	22.20	83.73	52.96
1972/73	27.02	47.39	57.51	32.57	42.39	49.48	65.31	108.76	214.62	332.93	174.06	138.34	42.73	172.34	107.53
1973/74	70.84	39.98	36.41	34.41	29.32	29.52	45.59	94.75	125.76	132.56	85.95	58.17	40.08	90.46	65.27
1974/75	35.33	28.93	27.49	31.37	24.89	30.54	67.80	126.41	150.67	166.47	101.81	61.62	29.76	112.46	71.11
1975/76	40.70	26.54	23.96	23.14	23.22	27.67	41.36	68.77	124.97	87.61	73.71	50.01	27.54	74.40	50.97
1976/77	28.23	21.23	21.99	21.34	20.65	25.47	33.99	75.66	95.52	93.57	58.64	44.27	23.15	66.94	45.05
1977/78	30.68	27.39	26.06	36.30	33.67	45.01	87.50	141.48	212.68	161.77	105.36	66.89	33.19	129.28	81.23
1978/79	42.69	32.92	30.33	39.46	35.87	39.19	57.95	115.19	280.47	267.48	133.59	77.70	36.74	155.40	96.07
1979/80	48.56	35.86	26.68	28.87	31.03	34.14	47.40	92.19	133.82	190.00	121.44	79.63	34.19	110.75	72.47
1980/81	71.66	66.97	53.54	48.33	38.81	48.12	64.58	124.08	247.87	173.71	135.77	85.30	54.57	138.55	96.56
1981/82	50.32	42.41	35.13	29.23	29.71	31.88	49.48	96.38	110.42	101.58	75.00	51.04	36.44	80.65	58.55
1982/83	34.05	30.14	53.03	57.27	50.12	70.72	75.98	158.01	374.15	432.68	291.36	162.97	49.22	249.19	149.20
1983/84	85.89	58.50	42.81	40.90	38.75	35.62	67.81	137.58	194.59	158.87	115.83	75.78	50.41	125.08	87.74
1984/85	43.50	32.76	28.16	29.66	30.07	36.60	71.80	114.77	208.31	224.07	149.35	95.75	33.46	144.01	88.73
1985/86	53.15	43.08	37.95	33.03	29.28	28.17	42.05	101.52	128.93	106.73	81.94	55.27	37.44	86.07	61.76
1986/87	38.85	34.48	96.38	39.26	34.22	44.03	69.38	93.54	225.07	222.62	168.18	103.18	47.87	147.00	97.43
1987/88	53.32	40.73	37.45	54.63	49.56	48.04	74.94	179.63	283.16	268.90	185.29	111.36	47.29	183.88	115.58
1988/89	64.52	43.85	33.91	29.23	29.63	30.48	49.40	95.85	97.32	88.76	81.28	60.21	38.61	78.80	58.70
1989/90	33.26	26.97	22.41	20.73	33.99	41.33	55.92	130.33	155.57	108.58	65.58	48.83	29.78	94.13	61.96
1990/91	35.46	28.32	25.24	22.33	22.78	28.84	43.13	82.75	98.11	86.38	64.85	47.44	27.16	70.44	48.80
1991/92	42.75	43.11	41.42	51.34	34.86	50.27	59.90	137.49	154.37	200.80	142.24	98.88	43.96	132.28	88.12
1992/93	54.30	43.45	38.90	35.00	31.34	38.85	75.36	133.69	176.45	172.69	124.40	79.11	40.31	126.95	83.63
1993/94	60.86	45.34	51.08	41.97	35.67	44.02	59.60	93.98	159.37	177.21	94.53	64.75	46.49	108.24	77.36
1994/95	42.71	34.00	30.55	38.69	32.93	37.58	52.40	114.94	190.07	127.97	83.21	65.51	36.08	105.68	70.88
1995/96	45.96	35.83	32.61	29.00	28.16	39.81	48.71	122.24	156.22	94.41	72.20	53.70	35.23	91.25	63.24
1996/97	33.76	25.11	20.50	19.25	19.60	17.90	32.02	61.91	60.73	45.28	46.59	42.12	22.69	48.11	35.40
1997/98	28.23	17.12	34.90	30.56	38.28	58.09	61.09	134.15	239.66	280.13	166.37	91.92	34.53	162.22	98.37
1998/99	60.16	43.54	33.05	26.38	22.01	20.84	37.87	53.94	69.85	65.53	58.04	39.77	34.33	54.17	44.25
1999/2000	26.35	20.96	18.64	17.27	17.77	27.33	51.49	99.91	112.20	94.86	62.80	43.07	21.39	77.39	49.39
2000/01	31.81	23.64	40.75	41.73	28.61	30.37	77.74	131.11	264.84	217.36	162.77	86.05	32.82	156.64	94.73
2001/02	53.14	43.31	30.20	41.17	46.52	48.44	70.45	114.73	239.99	147.82	105.46	73.65	43.80	125.35	84.58
2002/03	42.75	37.52	39.50	33.46	44.73	37.12	54.04	104.24	191.06	206.22	147.45	103.23	39.18	134.37	86.78
2003/04	61.49	42.88	41.75	37.28	33.88	39.22	57.00	104.02	119.43	116.44	84.32	61.20	42.75	90.40	66.58
2004/05	42.20	29.35	26.06	23.50	25.08	35.65	45.02	69.47	108.20	103.78	69.73	53.48	30.31	74.95	52.63
2005/06															
AVERAGE	42.3	33.5	32.4	30.6	30.0	34.9	53.2	101.9	155.7	142.6	98.1	66.1	33.95	102.96	68.45
STD DEV	12.9	9.5	12.7	9.2	8.1	10.2	14.3	28.9	66.3	77.3	45.7	25.3	8.08	39.62	22.63
CV	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.24	0.38	0.33
MAX	85.9	67.0	96.4	57.3	50.1	70.7	87.5	179.6	374.1	432.7	291.4	163.0	54.57	249.19	149.20
MIN	18.8	17.1	17.2	17.3	17.1	17.1	19.4	38.0	29.6	40.0	44.9	33.0	20.65	34.58	28.18

A2. 4: Maipo at AES Gener Intake

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

Point 4: Maipo at AES Gener Intake (75 m³/s).

A [km²] = 2882

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	36.72	31.18	25.06	24.64	24.26	31.07	46.10	72.93	124.30	90.74	69.12	52.38	28.82	75.93	52.37
1951/52	36.47	30.60	34.96	35.25	36.71	36.54	50.87	89.57	126.55	102.53	63.67	60.74	35.09	82.32	58.71
1952/53	37.15	34.78	32.79	34.86	35.67	39.32	43.79	68.00	116.54	86.65	78.26	48.56	35.76	73.64	54.70
1953/54	40.01	31.32	29.95	30.44	40.84	57.75	66.18	150.70	218.74	181.59	129.60	82.50	38.39	138.22	88.30
1954/55	51.66	37.72	38.73	45.80	48.50	51.29	73.58	126.07	118.11	96.16	71.37	52.18	45.62	89.58	67.60
1955/56	35.45	33.27	25.45	22.16	22.15	24.33	34.48	81.45	88.18	76.74	66.84	41.00	27.14	64.78	45.96
1956/57	37.82	38.70	29.82	33.73	34.93	36.24	45.94	100.74	89.53	73.68	58.22	43.90	35.21	68.67	51.94
1957/58	37.19	27.04	24.40	28.72	24.93	29.16	49.55	102.64	130.55	133.70	82.79	65.26	28.57	94.08	61.33
1958/59	45.70	41.42	39.39	32.59	25.99	42.20	85.09	94.66	119.57	77.84	64.71	53.96	37.88	82.64	60.26
1959/60	38.85	37.48	34.81	37.51	41.80	43.27	56.10	119.02	192.78	124.15	65.69	46.00	38.95	100.62	69.79
1960/61	38.33	35.65	34.71	33.39	35.89	41.69	56.68	108.74	128.01	89.29	60.78	73.95	36.61	86.24	61.43
1961/62	44.82	42.82	48.20	30.38	50.27	37.22	73.70	137.22	212.62	161.75	112.24	74.23	42.29	128.63	85.46
1962/63	48.74	38.79	34.65	31.72	34.57	37.39	56.04	112.40	117.64	84.29	67.99	54.38	37.64	82.12	59.88
1963/64	38.20	31.87	29.43	34.30	32.97	43.79	58.48	88.23	254.52	260.49	135.17	83.32	35.09	146.70	90.90
1964/65	52.52	40.37	46.04	31.18	27.33	36.75	46.32	64.02	75.07	83.51	67.14	51.92	39.03	64.66	51.85
1965/66	44.36	32.06	31.52	29.50	39.96	46.26	75.07	144.16	152.98	187.92	129.27	75.96	37.28	127.56	82.42
1966/67	52.45	36.02	36.13	36.76	29.75	38.96	66.93	100.96	148.55	106.96	91.78	52.15	38.35	94.55	66.45
1967/68	39.73	33.07	22.40	23.11	23.40	22.64	48.52	68.54	104.05	83.05	69.79	41.36	27.39	69.22	48.30
1968/69	37.03	28.86	22.15	23.10	18.60	18.46	26.68	40.79	29.24	38.12	45.08	36.06	24.70	35.99	30.35
1969/70	20.02	20.97	28.56	21.40	22.61	26.60	40.26	79.05	179.99	102.70	76.73	48.00	23.36	87.79	55.57
1970/71	37.01	29.10	21.44	23.87	21.06	27.61	44.68	76.37	86.43	56.41	47.04	32.35	26.68	57.21	41.95
1971/72	26.33	21.65	19.28	24.25	24.28	29.51	62.78	125.78	124.37	97.56	59.99	43.82	24.21	85.72	54.97
1972/73	28.15	56.59	76.16	45.65	55.82	62.27	81.59	127.46	219.42	345.34	176.20	141.28	54.11	181.88	118.00
1973/74	75.43	45.16	43.25	42.35	35.83	33.98	49.85	105.06	131.67	131.80	84.93	58.93	46.00	93.71	69.85
1974/75	38.14	32.45	31.11	37.73	29.98	36.63	78.13	137.08	155.47	165.55	98.97	62.46	34.34	116.28	75.31
1975/76	44.04	29.65	28.14	27.16	28.92	32.92	45.78	75.76	123.15	89.05	73.06	50.47	31.81	76.21	54.01
1976/77	30.05	23.40	26.39	25.03	24.13	30.79	39.74	83.38	106.44	92.96	58.04	44.63	26.63	70.87	48.75
1977/78	32.64	30.63	30.76	45.38	41.89	57.03	101.32	153.51	222.63	164.60	109.90	67.25	39.72	136.54	88.13
1978/79	45.03	36.48	32.69	61.50	45.55	48.35	65.61	133.57	292.72	274.12	139.30	80.97	44.93	164.38	104.66
1979/80	51.95	40.79	30.84	34.11	37.52	42.88	64.82	101.59	138.69	196.58	121.25	80.23	39.68	117.19	78.44
1980/81	79.31	78.77	65.30	59.39	50.62	57.81	71.72	123.55	247.92	172.26	134.42	85.03	65.20	139.15	102.18
1981/82	53.95	49.83	43.46	35.01	34.60	37.36	55.50	103.29	113.20	102.19	74.92	50.71	42.37	83.30	62.84
1982/83	36.18	34.07	67.19	69.75	61.46	88.92	92.03	172.08	392.78	446.23	305.13	169.71	59.60	262.99	161.29
1983/84	94.05	67.87	51.01	49.89	47.72	44.07	83.70	149.89	201.46	157.96	117.26	77.36	59.10	131.27	95.19
1984/85	46.69	37.53	32.28	36.79	35.61	43.83	83.41	123.83	219.31	224.63	151.99	97.03	38.79	150.03	94.41
1985/86	56.67	52.14	44.49	38.71	35.25	33.73	47.18	108.55	130.52	105.78	81.73	54.87	43.50	88.11	65.80
1986/87	41.27	39.83	122.69	46.85	41.99	52.49	80.18	103.78	230.19	226.12	171.99	105.06	57.52	152.89	105.20
1987/88	57.07	45.00	44.15	65.67	64.57	59.73	91.09	196.70	291.84	272.81	185.48	113.42	56.03	191.89	123.96
1988/89	69.74	48.43	38.99	34.05	35.59	36.30	55.59	103.38	97.87	88.33	80.90	61.88	43.85	81.33	62.59
1989/90	36.37	31.48	26.69	24.57	42.62	52.11	67.56	143.18	160.75	115.80	66.21	48.95	35.64	100.41	68.02
1990/91	40.61	33.74	29.56	29.13	28.84	35.73	48.76	85.61	98.48	85.78	66.42	50.27	32.94	72.55	52.74
1991/92	47.93	52.97	50.03	60.93	42.80	59.50	74.32	150.16	160.48	200.66	138.42	99.64	52.36	137.28	94.82
1992/93	57.72	49.38	48.67	44.72	39.79	50.30	89.47	144.19	180.98	178.11	125.43	78.98	48.43	132.86	90.64
1993/94	67.30	50.91	60.95	51.90	42.52	51.39	68.74	100.73	164.05	180.01	96.06	65.67	54.16	112.54	83.35
1994/95	45.76	38.89	37.27	47.76	40.61	47.98	62.16	121.74	195.60	126.77	84.32	67.29	43.04	109.65	76.35
1995/96	50.92	41.71	39.98	34.71	33.92	48.09	57.33	132.23	159.80	93.82	72.66	55.33	41.55	95.19	68.37
1996/97	37.12	29.30	24.74	23.50	23.29	21.32	36.11	67.32	62.26	43.10	45.84	42.76	26.54	49.57	38.05
1997/98	31.21	19.30	43.04	39.14	47.76	71.45	73.57	147.20	248.83	283.77	170.08	94.90	41.98	169.73	105.85
1998/99	66.90	50.30	39.54	31.65	26.32	24.22	43.09	57.99	70.80	66.06	58.45	40.61	39.82	56.17	47.99
1999/2000	29.11	24.30	22.24	21.10	20.90	35.02	59.74	107.48	115.36	96.00	62.62	43.05	25.45	80.71	53.08
2000/01	34.78	27.99	52.17	53.42	37.24	37.27	91.79	142.65	274.18	215.07	165.25	87.70	40.48	162.78	101.63
2001/02	58.80	51.23	36.52	52.20	58.10	58.83	82.63	122.84	245.67	147.45	106.64	75.01	52.62	130.04	91.33
2002/03	47.03	43.00	48.77	40.18	56.13	43.35	62.65	114.18	198.11	211.25	153.40	107.90	46.41	141.25	93.83
2003/04	67.29	48.61	50.16	46.62	42.12	47.23	66.35	112.73	122.00	117.51	87.30	62.67	50.34	94.76	72.55
2004/05	46.55	34.61	31.24	29.16	31.03	43.28	51.81	75.09	109.79	104.96	70.28	54.85	35.98	77.80	56.89
2005/06															
AVERAGE	45.9	38.4	38.9	37.4	36.7	42.3	62.4	110.5	160.4	144.0	99.1	67.1	39.91	107.24	73.57
STD DEV	14.1	11.2	16.7	12.0	11.0	13.1	17.1	31.2	69.1	79.1	47.1	26.3	10.02	41.65	24.48
CV	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.25	0.39	0.33
MAX	94.1	78.8	122.7	69.7	64.6	88.9	101.3	196.7	392.8	446.2	305.1	169.7	65.20	262.99	161.29
MIN	20.0	19.3	19.3	21.1	18.6	18.5	26.7	40.8	29.2	38.1	45.1	32.3	23.36	35.99	30.35

A2. 5: Maipo at Las Lajas Hydropower Plant Discharge

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

Point 5: Maipo at Las Lajas Hydropower Plant Discharge

A [km³] = 4960

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	54.93	46.28	41.00	37.73	37.95	49.61	72.42	103.12	175.49	140.49	109.86	86.56	44.58	114.66	79.62
1951/52	59.25	49.60	53.45	55.98	58.57	58.44	77.58	136.16	187.56	194.08	114.48	94.77	55.88	134.11	94.99
1952/53	58.65	56.17	50.41	51.41	55.36	63.65	77.24	102.15	164.05	135.47	130.04	81.82	55.94	115.13	85.54
1953/54	60.29	48.89	46.78	47.93	67.98	90.44	116.23	208.37	307.19	263.25	197.70	133.73	60.39	204.41	132.40
1954/55	83.77	56.58	59.38	68.70	72.63	76.03	101.08	172.65	160.69	158.43	114.02	79.46	69.51	131.06	100.29
1955/56	56.89	49.30	41.00	36.74	38.13	42.38	59.65	113.99	130.32	118.29	102.29	66.48	44.07	98.50	71.29
1956/57	56.72	61.58	45.75	48.89	53.61	58.20	69.51	135.47	120.05	119.64	100.38	74.38	54.13	103.24	78.68
1957/58	56.18	40.95	42.41	43.57	41.26	45.99	72.45	136.12	186.26	203.63	126.96	104.17	45.06	138.26	91.66
1958/59	69.24	58.59	55.41	50.37	40.62	62.25	128.27	135.85	168.39	124.44	109.18	89.30	56.08	125.90	90.99
1959/60	66.56	57.99	50.65	60.26	61.77	69.78	90.53	168.40	257.41	186.53	116.35	85.57	61.17	150.80	105.98
1960/61	61.06	52.48	57.75	55.89	58.57	73.00	94.43	172.53	205.91	149.40	115.51	114.36	59.79	142.02	100.91
1961/62	77.19	62.52	75.17	47.87	75.24	61.01	122.38	201.10	300.54	237.82	164.35	122.36	66.50	191.42	128.96
1962/63	73.70	57.32	57.37	48.77	58.95	58.62	92.12	177.31	187.85	146.79	115.91	84.73	59.12	134.12	96.62
1963/64	62.23	47.91	45.93	51.48	58.66	70.22	108.06	130.42	339.94	361.34	224.37	140.28	56.07	217.40	136.74
1964/65	82.26	59.68	64.83	48.65	42.64	50.20	62.33	84.64	99.19	115.25	102.20	85.77	58.04	91.56	74.80
1965/66	61.14	46.02	46.80	44.12	71.72	73.57	116.51	200.64	217.56	278.91	182.51	116.40	57.23	185.42	121.32
1966/67	75.41	54.38	58.90	57.27	53.71	72.64	96.22	146.95	189.31	167.35	154.00	88.08	62.05	140.32	101.19
1967/68	64.56	51.81	35.99	34.86	34.85	37.97	71.07	88.79	144.12	126.35	114.37	68.25	43.34	102.16	72.75
1968/69	54.53	42.89	37.06	34.43	31.23	28.95	39.56	60.66	57.21	70.23	82.15	62.84	38.18	62.11	50.14
1969/70	31.97	34.47	42.86	31.57	35.99	41.19	55.21	101.90	248.08	156.24	128.82	80.57	36.34	128.47	82.41
1970/71	57.89	44.65	37.36	40.79	36.64	41.79	74.36	101.06	127.35	93.25	80.86	57.20	43.19	89.02	66.10
1971/72	40.84	34.84	31.54	37.57	38.43	48.17	92.29	182.47	185.01	155.29	99.14	68.06	38.57	130.38	84.47
1972/73	44.99	82.84	112.03	70.88	95.71	103.46	130.73	195.12	320.16	499.44	273.79	216.04	84.98	272.55	178.77
1973/74	117.97	74.32	66.51	71.14	60.50	54.86	73.08	160.55	188.80	197.53	131.90	96.44	74.22	141.38	107.80
1974/75	62.29	50.88	49.51	58.18	54.63	58.37	117.04	185.33	220.41	245.53	148.20	99.69	55.64	169.37	112.50
1975/76	67.54	46.36	43.37	41.86	52.41	53.77	67.77	102.54	162.63	142.92	105.59	73.94	50.89	109.23	80.06
1976/77	48.30	38.62	44.75	37.62	36.22	47.19	59.68	120.66	142.30	129.70	88.93	76.02	42.12	102.88	72.50
1977/78	52.12	44.53	47.35	71.73	69.75	92.44	167.63	227.98	340.80	252.63	168.01	103.03	62.98	210.01	136.50
1978/79	70.09	55.01	48.51	96.58	74.02	78.07	122.74	216.35	420.87	402.72	219.68	134.66	70.38	252.84	161.61
1979/80	81.97	68.64	52.52	47.73	63.37	68.34	102.75	138.91	201.67	279.64	174.01	123.82	63.76	170.13	116.95
1980/81	123.95	118.09	91.78	90.44	77.54	86.86	112.79	176.31	352.81	251.88	207.56	132.21	98.11	205.59	151.85
1981/82	81.02	80.55	71.09	56.03	52.78	54.03	77.79	139.39	165.60	167.78	122.59	74.07	65.92	124.54	95.23
1982/83	55.36	52.75	104.78	111.81	101.53	146.01	150.51	243.19	554.13	608.87	460.44	261.78	95.37	379.82	237.60
1983/84	148.05	102.25	79.42	81.90	79.92	74.60	148.42	227.57	315.86	252.92	203.29	119.66	94.36	211.29	152.82
1984/85	71.56	57.79	49.47	63.99	60.78	72.69	132.90	179.98	315.28	308.57	217.93	150.24	62.71	217.48	140.10
1985/86	87.68	76.41	66.26	56.37	57.69	53.61	68.18	153.29	188.37	168.81	133.87	87.63	66.34	133.36	99.85
1986/87	61.99	61.40	178.57	80.68	70.46	74.72	115.36	172.64	328.41	354.97	272.32	161.28	87.97	234.16	161.07
1987/88	87.21	67.21	69.90	106.24	125.96	103.85	150.04	293.54	413.75	397.02	280.97	185.50	93.40	286.80	190.10
1988/89	115.91	72.92	58.88	51.76	56.42	53.57	79.22	146.23	146.26	148.87	148.25	102.47	68.24	128.55	98.40
1989/90	63.77	53.49	43.29	38.56	72.21	85.61	123.30	227.68	242.83	187.25	122.14	83.75	59.49	164.49	111.99
1990/91	63.51	53.42	46.71	44.79	49.18	59.67	78.04	123.66	144.61	138.57	111.09	78.59	52.88	112.42	82.65
1991/92	73.43	79.77	78.60	99.07	77.04	103.31	121.27	215.31	230.69	279.69	204.68	151.83	85.20	200.58	142.89
1992/93	89.76	78.60	75.72	66.99	61.04	78.57	136.38	206.51	246.83	282.44	192.60	117.26	75.11	197.00	136.06
1993/94	103.41	80.37	90.99	81.95	71.56	73.31	109.20	150.19	230.81	266.57	153.50	109.54	83.60	169.97	126.78
1994/95	64.85	57.14	55.13	71.07	67.62	77.72	97.08	173.18	280.94	188.70	135.00	103.58	65.59	163.08	114.33
1995/96	76.91	59.04	56.88	51.75	52.86	73.98	87.07	178.53	224.97	139.30	115.29	93.20	61.90	139.73	100.82
1996/97	63.21	47.19	39.30	37.79	35.08	34.35	47.21	84.01	90.96	86.25	77.60	69.06	42.82	75.85	59.33
1997/98	47.90	32.80	66.50	60.26	80.34	121.12	118.92	214.25	344.06	423.58	237.25	138.01	68.15	246.01	157.08
1998/99	103.22	72.25	57.48	47.29	40.58	35.88	58.93	82.93	109.11	113.83	101.11	68.83	59.45	89.13	74.29
1999/2000	45.53	37.00	33.52	32.50	35.82	57.81	87.74	146.14	165.73	153.74	98.62	66.58	40.36	119.76	80.06
2000/01	52.82	43.53	78.75	81.23	66.13	61.75	143.91	196.91	377.99	330.76	233.71	130.42	64.03	235.62	149.83
2001/02	88.53	74.03	55.77	80.36	91.04	86.47	125.46	179.15	339.71	221.94	165.07	120.11	79.36	191.91	135.64
2002/03	71.51	65.01	77.59	66.64	95.17	76.11	113.23	181.75	307.48	340.16	260.45	182.36	75.34	230.90	153.12
2003/04	106.20	74.01	73.64	68.76	69.55	65.86	104.16	162.52	172.41	182.44	139.52	103.39	76.34	144.07	110.21
2004/05	70.77	53.19	44.90	42.06	45.89	63.63	68.47	105.24	149.38	159.79	116.40	84.60	53.41	113.98	83.69
2005/06															
AVERAGE	71.4	58.7	59.8	58.2	60.5	67.4	97.9	159.4	229.0	218.3	156.5	107.0	62.65	161.36	112.01
STD DEV	22.1	16.5	23.9	19.5	19.4	21.9	29.8	47.9	97.3	108.7	68.3	39.8	15.60	60.72	36.45
CV	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.25	0.38	0.33
MAX	148.1	118.1	178.6	111.8	126.0	146.0	167.6	293.5	554.1	608.9	460.4	261.8	98.11	379.82	237.60
MIN	32.0	32.8	31.5	31.6	31.2	29.0	39.6	60.7	57.2	70.2	77.6	57.2	36.34	62.11	50.14

A2. 6: Colorado at Maitenes Hydropower Plant Discharge

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

Point 6: Colorado at Maitenes Hydropower Plant Discharge

A [km²] = 1480

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	16.95	13.52	11.96	11.21	10.66	11.54	18.61	19.08	41.79	38.79	31.78	27.39	12.64	29.57	21.11
1951/52	18.05	14.26	11.97	12.38	12.96	13.61	16.64	27.25	44.82	66.54	40.20	31.27	13.87	37.79	25.83
1952/53	16.81	14.39	12.56	11.76	11.55	14.93	17.54	26.43	43.39	44.81	41.73	27.05	13.67	33.49	23.58
1953/54	18.26	14.21	13.90	13.14	14.19	19.20	24.33	41.51	58.39	64.17	54.53	40.68	15.48	47.27	31.38
1954/55	27.16	16.94	14.32	12.85	13.10	13.43	15.15	31.18	37.42	35.01	33.34	23.84	16.30	29.32	22.81
1955/56	16.84	12.48	11.77	10.82	10.11	10.45	12.82	24.92	29.24	35.44	29.67	22.38	12.08	25.75	18.91
1956/57	15.00	13.00	11.81	10.07	10.69	12.62	16.76	24.81	27.24	32.33	32.53	26.64	12.20	26.72	19.46
1957/58	16.13	12.35	11.77	10.55	10.44	11.71	14.61	22.50	40.32	48.60	38.45	30.69	12.16	32.53	22.34
1958/59	18.15	13.94	12.74	11.91	11.17	13.04	20.88	29.23	38.20	34.79	34.81	28.65	13.49	31.09	22.29
1959/60	17.06	13.83	11.78	13.96	11.98	17.82	20.46	31.70	41.26	46.18	39.31	32.62	14.41	35.26	24.83
1960/61	20.21	15.18	12.81	12.37	13.14	14.05	22.98	43.41	59.53	50.02	42.61	35.87	14.63	42.40	28.51
1961/62	21.74	15.84	16.19	13.40	13.42	15.61	27.57	44.78	59.31	57.17	46.88	37.60	16.03	45.55	30.79
1962/63	22.64	15.56	13.15	11.57	12.25	13.87	24.64	46.81	52.70	52.25	41.50	27.48	14.84	40.90	27.87
1963/64	18.98	13.00	11.64	11.79	13.86	17.56	32.01	29.78	75.86	87.70	71.93	42.90	14.47	56.70	35.58
1964/65	23.89	16.71	12.94	11.27	12.41	11.78	11.65	17.08	16.90	30.02	29.86	26.96	14.84	22.08	18.46
1965/66	15.67	11.99	10.28	10.22	14.90	13.64	27.00	46.82	56.20	72.62	50.14	32.88	12.78	47.61	30.20
1966/67	20.43	15.67	13.61	13.42	11.88	15.62	20.69	32.63	32.27	48.08	51.47	28.68	15.10	35.64	25.37
1967/68	19.62	14.46	12.37	9.64	9.42	10.09	12.68	14.12	31.04	35.74	36.60	21.64	12.60	25.30	18.95
1968/69	13.34	6.41	9.84	8.13	7.43	6.85	7.25	14.64	21.85	30.46	30.67	19.85	8.67	20.79	14.73
1969/70	9.69	7.70	8.00	7.38	7.14	8.18	9.68	20.80	51.90	36.20	43.98	26.88	8.02	31.57	19.80
1970/71	16.97	13.39	11.70	11.83	12.21	11.65	18.21	19.38	30.24	27.08	27.13	20.01	12.96	23.68	18.32
1971/72	11.48	10.27	9.36	10.91	10.83	13.52	21.15	36.18	44.20	46.43	36.70	20.64	11.06	34.22	22.64
1972/73	13.58	14.22	16.84	13.86	17.54	20.21	25.21	39.91	85.40	91.36	82.05	54.82	16.04	63.12	39.58
1973/74	33.30	23.28	17.21	15.91	14.29	15.69	16.55	29.50	36.37	54.65	41.83	30.28	19.95	34.86	27.41
1974/75	19.14	14.26	14.18	13.73	13.19	14.73	23.41	32.37	47.55	64.78	42.37	29.85	14.87	40.05	27.46
1975/76	18.45	13.03	11.88	11.25	11.36	12.43	16.64	19.24	32.49	37.63	26.36	18.79	13.06	25.19	19.13
1976/77	15.23	12.14	11.64	10.16	9.48	9.96	12.90	21.40	26.79	31.25	27.78	24.17	11.44	24.05	17.74
1977/78	15.83	12.97	12.50	14.51	12.90	19.84	31.26	50.75	74.34	61.06	45.63	28.88	14.76	48.65	31.71
1978/79	20.58	15.89	13.40	17.10	15.38	16.49	29.41	45.67	79.57	87.00	50.75	38.41	16.47	55.14	35.80
1979/80	24.98	18.55	14.71	12.69	13.33	13.94	19.50	25.44	37.20	55.21	41.78	35.50	16.37	35.77	26.07
1980/81	28.48	23.58	16.63	18.77	17.72	18.18	24.80	36.23	74.12	67.65	62.35	41.32	20.56	51.08	35.82
1981/82	20.93	17.33	15.21	14.84	14.81	13.91	17.34	26.91	36.69	49.10	39.11	21.50	16.17	31.78	23.97
1982/83	17.55	14.97	23.78	24.39	20.60	27.95	30.51	52.42	97.12	104.26	90.68	55.30	21.54	71.72	46.63
1983/84	36.45	24.46	19.35	20.92	18.13	15.55	26.83	48.00	80.61	82.37	68.66	33.19	22.48	56.61	39.54
1984/85	20.59	15.54	11.60	15.20	15.66	17.44	29.34	40.65	58.68	68.10	53.53	40.25	16.00	48.43	32.22
1985/86	22.81	17.91	15.30	14.11	12.62	11.71	15.99	35.77	53.23	57.28	46.63	31.59	15.74	40.08	27.91
1986/87	17.59	15.48	28.00	21.24	16.42	17.60	22.70	38.92	75.10	93.34	73.59	46.20	19.39	58.31	38.85
1987/88	25.55	20.23	16.06	26.84	24.11	22.73	26.36	70.79	83.21	89.83	85.81	56.45	22.59	68.74	45.66
1988/89	36.69	20.57	14.09	11.66	11.31	11.51	18.12	32.56	40.61	48.56	54.80	28.99	17.64	37.27	27.46
1989/90	18.37	13.27	11.25	11.50	15.78	18.26	27.22	55.48	60.45	56.54	44.48	29.20	14.74	45.56	30.15
1990/91	17.38	13.78	12.00	11.48	11.83	13.98	17.47	31.21	38.65	40.10	42.36	25.83	13.41	32.60	23.01
1991/92	17.55	18.69	16.28	21.44	17.04	22.84	27.58	45.95	57.89	67.69	59.42	46.24	18.97	50.79	34.88
1992/93	24.20	19.43	18.01	15.65	15.10	18.60	28.54	40.04	59.34	80.88	53.12	34.93	18.50	49.48	33.99
1993/94	24.58	23.99	20.46	18.08	16.43	17.51	23.32	34.58	45.16	60.83	46.75	34.62	20.18	40.88	30.53
1994/95	17.89	14.79	13.36	14.28	13.64	15.00	18.97	39.14	63.99	55.97	43.50	28.99	14.83	41.76	28.29
1995/96	19.66	15.42	13.83	12.53	12.00	15.65	17.63	35.92	53.34	41.35	38.22	30.03	14.85	36.08	25.46
1996/97	16.67	12.95	11.08	9.97	10.04	9.06	8.99	13.79	22.68	35.01	29.24	21.84	11.63	21.93	16.78
1997/98	12.70	9.46	17.52	10.97	15.13	22.16	25.01	45.11	74.34	111.91	54.24	31.49	14.66	57.02	35.84
1998/99	24.90	17.59	14.37	13.70	10.70	9.95	12.88	19.62	34.56	36.37	35.94	23.11	15.20	27.08	21.14
1999/2000	13.03	10.84	9.74	8.58	10.45	10.56	17.66	28.70	38.58	47.60	34.14	20.67	10.53	31.22	20.88
2000/01	14.19	11.29	14.28	14.07	11.83	14.35	28.31	37.38	81.81	89.15	55.47	34.00	13.33	54.35	33.84
2001/02	20.62	15.96	13.57	15.54	17.10	17.94	26.93	37.48	81.96	58.86	47.36	32.47	16.79	47.51	32.15
2002/03	16.63	14.87	15.40	15.96	15.16	21.64	30.54	40.79	82.55	95.36	74.44	50.71	16.61	62.40	39.50
2003/04	29.90	22.77	19.59	14.69	17.25	14.97	23.48	35.85	43.01	54.01	39.70	31.21	19.86	37.88	28.87
2004/05	18.83	13.86	11.78	10.13	9.77	13.20	13.99	20.88	33.65	44.37	39.33	24.06	12.93	29.38	21.15
2005/06															
AVERAGE	19.8	15.2	14.0	13.6	13.3	15.0	20.9	33.7	51.4	57.1	46.5	31.8	15.17	40.22	27.69
STD DEV	5.6	3.8	3.5	3.9	3.1	4.1	6.3	11.7	19.7	21.2	15.0	9.2	3.18	12.66	7.45
CV	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.21	0.31	0.27
MAX	36.7	24.5	28.0	26.8	24.1	27.9	32.0	70.8	97.1	111.9	90.7	56.5	22.59	71.72	46.63
MIN	9.7	6.4	8.0	7.4	7.1	6.8	7.2	13.8	16.9	27.1	26.4	18.8	8.02	20.79	14.73

A2. 7: Yeso at Reservoir Discharge

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

Point 7: Yeso at Reservoir Discharge

A [km²] = 351

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	5.30	3.41	3.38	3.07	2.35	2.73	3.31	4.84	10.00	12.90	6.96	7.05	3.37	7.51	5.44
1951/52	5.21	3.84	3.47	3.29	3.54	3.34	4.28	9.50	12.40	12.40	9.64	9.07	3.78	9.55	6.67
1952/53	6.69	4.62	4.12	3.89	3.28	3.89	4.62	6.73	14.20	12.50	11.30	6.84	4.42	9.37	6.89
1953/54	3.66	5.83	3.79	3.37	3.71	5.35	5.87	13.40	22.08	27.50	20.60	14.70	4.29	17.36	10.82
1954/55	8.95	6.19	4.95	4.46	4.43	4.22	5.30	12.30	13.50	14.80	10.90	8.37	5.53	10.86	8.20
1955/56	4.59	4.13	3.32	3.48	2.55	2.92	3.80	9.13	11.00	11.60	10.00	5.93	3.50	8.58	6.04
1956/57	5.21	4.63	4.29	3.19	2.94	3.72	4.79	7.39	8.55	8.54	8.50	6.33	4.00	7.35	5.67
1957/58	3.70	3.57	3.37	3.69	3.12	3.44	4.57	7.60	13.24	18.90	11.30	6.84	3.48	10.41	6.95
1958/59	4.67	3.29	4.24	2.54	2.24	3.15	7.15	10.00	12.30	10.59	9.81	7.37	3.35	9.54	6.45
1959/60	5.40	4.64	4.00	3.90	3.84	4.24	5.38	10.53	19.52	16.14	9.87	7.06	4.34	11.42	7.88
1960/61	5.61	4.57	3.94	3.50	2.89	3.67	5.41	9.63	13.13	12.15	9.29	10.22	4.03	9.97	7.00
1961/62	6.31	5.39	4.60	3.37	4.49	3.68	6.46	12.25	24.05	20.39	16.04	10.66	4.64	14.98	9.81
1962/63	8.67	6.81	4.78	3.43	3.19	3.73	5.32	11.20	13.80	11.80	11.00	7.92	5.10	10.17	7.64
1963/64	5.99	4.50	3.41	4.44	3.14	4.30	7.36	6.02	21.70	34.40	17.87	12.30	4.30	16.61	10.45
1964/65	8.70	5.95	5.53	3.37	2.78	3.92	4.08	5.36	6.47	9.12	9.10	7.02	5.04	6.86	5.95
1965/66	5.26	4.13	3.71	2.99	3.59	4.33	6.71	14.70	13.70	22.10	16.50	10.80	4.00	14.09	9.04
1966/67	9.05	4.55	4.00	3.35	2.80	3.64	6.14	8.65	15.29	14.19	13.39	7.84	4.57	10.92	7.74
1967/68	5.73	4.17	3.59	3.00	2.45	2.45	4.91	4.80	8.70	8.41	8.12	5.80	3.56	6.79	5.18
1968/69	3.96	2.88	2.27	2.00	1.65	2.14	2.13	3.52	3.54	5.59	5.50	4.37	2.48	4.11	3.30
1969/70	3.12	2.49	2.51	2.18	1.94	3.17	6.07	6.82	18.77	16.24	12.23	7.50	2.57	11.27	6.92
1970/71	5.11	3.56	3.10	3.53	2.43	3.08	4.57	6.61	8.77	8.00	7.99	5.02	3.47	6.83	5.15
1971/72	3.92	2.85	2.23	2.80	2.37	3.23	5.59	12.00	14.50	13.20	9.41	5.64	2.90	10.06	6.48
1972/73	6.06	4.59	5.37	2.38	4.48	4.79	5.48	9.18	24.40	40.70	23.52	16.02	4.61	19.88	12.25
1973/74	13.10	5.59	5.35	4.82	3.76	4.18	6.04	10.30	13.10	17.80	13.50	9.13	6.13	11.65	8.89
1974/75	5.87	5.19	5.20	3.49	3.14	2.83	7.14	11.40	12.90	19.40	12.80	8.84	4.29	12.08	8.18
1975/76	6.49	5.01	3.44	3.47	3.24	4.37	6.60	7.18	12.60	12.00	9.61	7.23	4.34	9.20	6.77
1976/77	4.82	3.67	3.20	2.86	2.52	3.04	3.05	6.81	8.92	11.20	8.58	6.33	3.35	7.48	5.42
1977/78	5.38	3.99	3.50	3.17	2.93	3.74	7.37	15.50	26.60	22.80	15.20	9.88	3.79	16.23	10.01
1978/79	6.54	4.84	3.91	4.74	3.80	3.45	5.99	12.20	28.70	35.40	17.82	12.40	4.55	18.75	11.65
1979/80	7.05	5.91	4.80	3.66	3.35	2.87	4.88	7.34	12.20	23.40	16.60	13.20	4.61	12.94	8.77
1980/81	8.86	7.71	6.05	5.65	5.27	6.21	7.50	12.50	27.90	23.47	20.34	13.14	6.63	17.48	12.05
1981/82	7.78	5.90	4.30	3.90	3.70	4.00	5.86	8.80	12.06	13.41	11.16	7.51	4.93	9.80	7.37
1982/83	5.37	4.41	5.27	6.76	5.35	7.78	5.70	14.09	33.12	46.26	37.45	22.14	5.82	26.46	16.14
1983/84	12.82	7.98	6.16	5.96	5.13	3.84	6.71	12.89	22.00	20.28	15.06	8.51	6.98	14.24	10.61
1984/85	4.96	4.18	5.23	3.73	4.22	4.49	7.87	11.73	20.20	24.31	18.88	13.89	4.47	16.15	10.31
1985/86	9.04	7.45	6.13	4.24	3.67	3.37	6.07	10.80	14.57	14.81	11.96	8.75	5.65	11.16	8.40
1986/87	6.56	4.70	8.09	5.02	3.94	4.77	7.43	11.33	28.20	31.02	24.00	14.17	5.51	19.36	12.44
1987/88	8.89	6.91	6.11	7.14	6.09	5.65	7.02	18.75	31.23	35.00	24.22	16.31	6.80	22.09	14.44
1988/89	10.50	7.74	5.82	4.64	3.68	4.53	6.75	8.99	10.78	10.03	11.00	6.49	6.15	9.01	7.58
1989/90	5.96	4.20	3.00	2.70	3.20	3.00	5.20	10.60	12.80	11.80	9.00	6.50	3.68	9.32	6.50
1990/91	4.60	2.70	3.00	1.90	2.40	2.90	3.70	7.40	11.10	11.50	9.00	6.50	2.92	8.20	5.56
1991/92	3.80	5.20	4.40	4.50	4.20	5.90	4.90	10.90	16.70	26.77	20.70	13.67	4.67	15.61	10.14
1992/93	7.91	5.37	3.67	2.74	2.11	3.24	6.66	12.21	17.27	20.61	15.59	10.46	4.17	13.80	8.99
1993/94	7.21	6.28	6.19	2.72	4.67	5.00	5.12	9.34	16.15	18.68	11.24	8.42	5.34	11.49	8.42
1994/95	5.10	4.08	2.03	4.74	3.80	2.61	4.04	12.40	19.80	15.32	10.32	6.54	3.73	11.40	7.57
1995/96	4.15	3.15	2.10	3.71	3.23	4.59	3.51	10.22	15.99	12.44	8.53	5.00	3.49	9.28	6.39
1996/97	5.22	2.39	1.74	1.57	1.37	1.32	4.03	5.74	7.27	7.89	7.12	6.10	2.27	6.36	4.31
1997/98	2.64	2.06	2.43	1.76	4.19	6.38	3.88	9.24	17.86	32.42	21.84	8.99	3.24	15.70	9.47
1998/99	6.32	4.32	3.16	2.13	1.69	1.81	3.20	3.95	7.21	8.12	7.72	4.45	3.24	5.78	4.51
1999/2000	2.26	1.66	1.23	1.21	1.42	1.83	4.31	8.61	10.91	12.15	7.32	6.22	1.60	8.25	4.93
2000/01	2.75	1.28	2.69	3.64	1.75	2.08	6.90	10.78	23.24	30.05	21.34	9.99	2.37	17.05	9.71
2001/02	5.94	4.57	2.54	3.90	3.75	3.39	4.01	11.96	23.10	18.78	13.40	9.51	4.02	13.46	8.74
2002/03	4.65	4.97	5.15	3.44	3.79	2.56	4.43	11.36	19.96	25.45	20.35	13.18	4.09	15.79	9.94
2003/04	7.09	5.40	4.25	2.78	2.84	2.52	5.01	10.11	11.22	12.76	9.63	6.16	4.15	9.15	6.65
2004/05	3.82	2.49	2.04	1.34	1.32	2.74	2.38	5.22	9.32	11.84	9.48	5.69	2.29	7.32	4.81
2005/06															
AVERAGE	6.1	4.6	4.0	3.5	3.3	3.7	5.3	9.7	16.0	18.2	13.4	9.0	4.19	11.94	8.06
STD DEV	2.3	1.5	1.4	1.2	1.1	1.2	1.4	3.1	6.7	9.1	6.0	3.5	1.17	4.51	2.59
CV	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.28	0.38	0.32
MAX	13.1	8.0	8.1	7.1	6.1	7.8	7.9	18.8	33.1	46.3	37.5	22.1	6.98	26.46	16.14
MIN	2.3	1.3	1.2	1.2	1.3	1.3	2.1	3.5	3.5	5.6	5.5	4.4	1.60	4.11	3.30

A2. 8: Yeso at Confluence with Estero Cortaderas

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

Point 8: Yeso at Confluence with Estero Cortaderas

A [km²] = 405

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	6.05	4.47	4.24	4.06	3.22	3.83	4.69	6.17	11.20	13.57	7.58	7.45	4.31	8.45	6.38
1951/52	5.94	4.79	4.80	4.75	4.91	4.65	5.81	11.04	13.63	13.23	10.16	9.57	4.97	10.57	7.77
1952/53	7.39	5.72	5.31	5.32	4.61	5.31	5.76	7.90	15.27	13.13	11.96	7.19	5.61	10.20	7.91
1953/54	4.55	6.72	4.86	4.57	5.22	7.53	7.79	16.22	24.26	28.98	21.72	15.29	5.58	19.04	12.31
1954/55	9.99	7.32	6.29	6.39	6.32	6.18	7.67	14.67	14.64	15.48	11.47	8.74	7.08	12.11	9.60
1955/56	5.29	5.25	4.23	4.28	3.29	3.71	4.70	10.52	11.77	12.16	10.57	6.21	4.34	9.32	6.83
1956/57	6.03	5.90	5.34	4.63	4.28	5.01	6.12	9.19	9.34	9.02	8.85	6.60	5.20	8.19	6.69
1957/58	4.51	4.43	4.14	4.81	3.90	4.39	6.01	9.49	14.49	20.08	12.15	7.44	4.36	11.61	7.99
1958/59	5.74	4.86	5.85	3.92	3.16	4.69	9.74	11.37	13.38	11.13	10.31	7.80	4.70	10.62	7.66
1959/60	6.11	5.84	5.29	5.43	5.40	5.79	6.92	12.50	21.36	17.08	10.23	7.23	5.64	12.55	9.10
1960/61	6.41	5.79	5.23	4.83	4.26	5.09	7.08	11.53	14.31	12.83	9.78	10.88	5.27	11.07	8.17
1961/62	7.16	6.88	6.60	4.56	6.53	5.01	8.59	14.59	26.01	21.75	17.07	11.18	6.12	16.53	11.33
1962/63	9.66	8.01	5.96	4.67	4.42	5.05	7.01	13.17	14.85	14.03	12.42	8.38	6.29	11.64	8.97
1963/64	6.77	5.55	4.48	5.83	4.38	5.95	9.95	9.07	24.40	34.95	18.98	12.87	5.49	18.37	11.93
1964/65	9.57	7.16	7.29	4.53	3.36	5.57	5.49	6.46	7.16	9.81	9.65	7.18	6.25	7.63	6.94
1965/66	5.79	5.15	4.81	4.10	4.94	5.90	8.91	17.10	16.14	23.66	17.16	11.39	5.12	15.73	10.42
1966/67	10.08	5.67	5.23	4.77	3.73	4.90	7.22	10.39	19.24	15.09	14.25	8.24	5.73	12.41	9.07
1967/68	6.52	5.23	4.13	3.86	2.91	3.18	6.71	6.19	9.61	10.37	9.23	6.11	4.30	8.04	6.17
1968/69	5.24	3.69	2.53	2.97	1.94	2.45	3.65	4.20	3.70	5.79	5.85	4.64	3.14	4.64	3.89
1969/70	3.49	3.13	3.60	2.66	2.54	3.58	7.75	8.98	20.55	17.01	14.19	7.87	3.17	12.72	7.95
1970/71	6.02	4.39	3.80	4.06	2.70	3.98	6.00	8.93	9.49	8.48	8.38	5.14	4.16	7.74	5.95
1971/72	4.35	3.54	2.73	3.76	2.93	3.55	6.94	12.78	15.81	14.01	9.92	5.97	3.48	10.91	7.19
1972/73	6.52	6.49	9.05	5.00	6.90	7.15	8.59	12.85	26.68	44.01	25.27	16.90	6.85	22.38	14.62
1973/74	14.51	6.97	7.01	6.56	5.09	5.37	7.27	12.09	14.42	18.88	14.25	9.58	7.59	12.75	10.17
1974/75	6.63	6.19	6.25	5.04	4.08	4.16	9.43	13.91	14.44	20.68	13.12	9.32	5.39	13.48	9.44
1975/76	7.39	5.90	4.47	4.53	4.20	5.46	7.87	8.83	13.00	12.69	10.14	7.61	5.33	10.02	7.67
1976/77	5.40	4.34	4.10	3.83	3.36	4.12	4.26	8.28	11.62	11.93	9.07	6.65	4.19	8.63	6.41
1977/78	5.98	5.01	4.66	5.11	4.40	6.05	9.50	18.25	28.69	24.16	17.00	10.42	5.20	18.00	11.60
1978/79	7.35	5.92	4.68	9.23	5.71	5.29	7.12	15.49	31.77	37.92	19.19	13.30	6.36	20.80	13.58
1979/80	8.08	7.04	5.73	5.10	4.54	4.52	8.19	9.35	13.13	25.62	17.45	13.82	5.84	14.59	10.21
1980/81	10.58	10.50	8.64	8.18	7.94	8.38	9.08	12.73	28.94	24.87	21.53	13.80	9.04	18.49	13.76
1981/82	8.90	7.56	5.93	5.32	5.01	5.39	7.54	10.70	13.13	14.23	11.76	7.89	6.35	10.87	8.61
1982/83	6.11	5.51	8.25	9.67	7.67	11.09	8.64	17.51	37.29	50.47	40.41	23.52	8.05	29.64	18.85
1983/84	14.68	10.27	8.05	7.96	6.86	5.38	9.17	15.66	23.89	21.59	16.11	9.14	8.87	15.92	12.40
1984/85	5.93	5.40	6.28	5.18	5.44	5.99	10.31	13.99	22.38	26.36	20.36	14.64	5.70	18.01	11.85
1985/86	10.11	9.58	7.70	5.77	4.86	4.49	7.44	12.74	15.82	15.67	12.71	9.17	7.08	12.26	9.67
1986/87	7.37	5.99	13.52	6.79	5.47	6.78	9.94	13.04	30.42	32.90	25.60	15.04	7.65	21.16	14.41
1987/88	10.04	8.34	7.63	9.90	8.40	7.84	9.74	22.35	34.08	37.38	26.05	17.22	8.69	24.47	16.58
1988/89	11.90	9.27	7.20	5.94	4.96	5.88	8.36	10.86	11.68	10.73	11.70	7.02	7.52	10.06	8.79
1989/90	6.63	5.16	3.96	3.67	4.87	5.03	7.15	13.16	14.39	13.97	9.54	6.77	4.89	10.83	7.86
1990/91	5.84	3.90	3.95	3.37	3.52	4.21	4.77	8.33	11.72	12.16	10.03	7.52	4.13	9.09	6.61
1991/92	4.95	7.51	6.20	6.57	5.67	7.65	7.82	13.83	18.70	28.66	21.34	14.46	6.43	17.47	11.95
1992/93	8.85	6.73	5.80	4.94	3.97	5.70	9.63	14.45	19.43	22.82	16.59	11.09	6.00	15.67	10.83
1993/94	8.66	7.80	8.52	4.83	6.07	6.89	7.00	11.01	17.76	20.28	12.14	8.91	7.13	12.85	9.99
1994/95	6.08	5.39	3.55	6.82	5.23	4.48	5.90	14.39	21.69	16.36	11.08	7.12	5.26	12.76	9.01
1995/96	5.30	4.70	3.82	5.14	4.49	6.34	5.25	12.71	17.53	13.19	9.19	5.45	4.96	10.55	7.76
1996/97	5.90	3.34	2.68	2.50	2.25	2.05	5.12	7.07	7.86	7.93	7.49	6.43	3.12	6.98	5.05
1997/98	3.34	2.60	4.25	3.46	5.89	8.84	6.29	12.09	20.52	34.99	23.59	9.82	4.73	17.88	11.31
1998/99	7.73	6.04	4.71	3.44	2.65	2.67	4.51	4.96	7.91	8.65	8.22	4.77	4.54	6.50	5.52
1999/2000	2.90	2.50	2.10	2.07	2.17	3.14	6.17	10.63	12.02	12.97	7.89	6.56	2.48	9.38	5.93
2000/01	3.51	2.24	5.03	6.04	3.10	3.45	9.74	13.53	26.11	31.02	22.99	10.73	3.90	19.02	11.46
2001/02	7.26	6.41	3.94	6.25	6.10	5.72	6.68	13.90	25.59	19.96	14.36	10.10	5.95	15.10	10.52
2002/03	5.61	6.31	7.00	5.02	5.68	3.99	6.14	13.20	21.85	27.23	21.73	14.05	5.60	17.37	11.48
2003/04	8.57	7.05	6.28	4.87	4.40	4.37	6.93	12.14	12.45	13.77	10.59	6.67	5.93	10.43	8.18
2004/05	4.90	3.71	3.32	2.61	2.53	4.38	4.03	6.60	10.39	12.72	10.09	6.15	3.58	8.33	5.95
2005/06															
AVERAGE	7.0	5.8	5.5	5.1	4.6	5.2	7.2	11.7	17.6	19.4	14.4	9.5	5.54	13.31	9.42
STD DEV	2.5	1.8	2.0	1.7	1.5	1.7	1.7	3.5	7.4	9.8	6.4	3.7	1.48	4.97	2.98
CV	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.4	0.5	0.4	0.4	0.27	0.37	0.32
MAX	14.7	10.5	13.5	9.9	8.4	11.1	10.3	22.3	37.3	50.5	40.4	23.5	9.04	29.64	18.85
MIN	2.9	2.2	2.1	2.1	1.9	2.0	3.6	4.2	3.7	5.8	5.9	4.6	2.48	4.64	3.89

A2. 9: Volcán at Intake (12.7 m³/s).

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

Point 9: Volcan at Intake (12.7 m³/s).

A [km²] = 377

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	5.97	3.97	3.25	2.76	2.87	3.19	5.17	8.86	22.19	20.84	15.77	10.78	3.67	13.94	8.80
1951/52	5.73	4.20	3.85	3.55	3.61	3.47	5.19	10.33	20.73	21.05	15.04	10.05	4.07	13.73	8.90
1952/53	5.88	4.10	3.86	3.59	3.54	3.64	5.33	9.27	20.70	21.39	17.40	10.47	4.10	14.09	9.10
1953/54	6.31	4.18	3.98	3.61	3.93	4.72	5.90	15.42	29.41	32.24	26.24	15.33	4.45	20.76	12.61
1954/55	7.30	5.23	5.08	4.28	4.13	4.10	5.82	11.50	18.75	19.68	17.13	11.15	5.02	14.00	9.51
1955/56	6.07	3.82	3.04	2.51	2.62	2.72	3.97	10.88	16.96	18.44	14.57	9.82	3.46	12.44	7.95
1956/57	4.92	4.21	3.53	3.10	3.29	3.31	4.90	12.94	18.98	22.61	21.01	11.97	3.73	15.40	9.56
1957/58	6.05	3.67	3.44	3.05	3.28	3.49	5.38	11.81	22.55	18.88	12.12	8.50	3.83	13.21	8.52
1958/59	5.49	4.09	3.76	3.42	3.32	4.41	7.25	18.32	23.90	20.65	16.55	9.58	4.08	16.04	10.06
1959/60	6.63	4.66	4.11	3.90	4.24	4.64	6.91	17.69	30.31	28.57	24.90	13.65	4.69	20.34	12.52
1960/61	5.75	4.11	3.47	3.35	3.38	4.70	5.45	14.00	23.52	19.45	14.53	10.09	4.13	14.51	9.32
1961/62	7.10	4.50	4.07	3.66	3.61	3.66	7.87	19.43	36.32	28.69	22.32	16.65	4.43	21.88	13.16
1962/63	6.72	4.63	4.14	3.65	3.53	3.75	5.37	13.29	21.26	15.31	14.06	8.76	4.40	13.01	8.71
1963/64	5.49	3.85	3.55	3.40	3.15	4.04	5.71	9.63	32.50	46.18	35.09	18.91	3.91	24.67	14.29
1964/65	10.73	5.92	4.90	3.88	3.53	3.48	4.69	9.50	14.53	17.85	16.80	9.79	5.41	12.19	8.80
1965/66	6.40	4.46	4.12	3.74	4.66	4.87	7.87	15.22	22.02	36.04	23.31	14.11	4.71	19.76	12.23
1966/67	7.94	5.14	4.73	4.55	3.91	4.19	6.73	13.85	19.41	18.47	17.00	9.87	5.08	14.22	9.65
1967/68	6.17	4.23	4.90	2.92	2.67	2.73	4.16	7.90	17.52	15.72	13.22	8.24	3.94	11.13	7.53
1968/69	4.90	3.63	3.38	2.62	2.48	2.34	3.00	6.29	10.98	14.59	12.40	7.78	3.23	9.18	6.20
1969/70	3.70	2.79	3.21	2.76	2.72	3.24	4.09	7.58	25.73	21.59	15.90	8.41	3.07	13.88	8.48
1970/71	5.57	3.59	2.93	2.58	2.65	3.01	5.78	11.53	21.14	8.72	9.76	10.37	3.39	11.22	7.30
1971/72	5.89	2.83	2.54	2.89	3.03	3.39	6.24	14.61	19.40	17.70	13.36	9.43	3.43	13.46	8.44
1972/73	5.17	7.11	5.58	3.80	4.44	4.95	6.53	10.77	25.92	34.84	27.72	17.02	5.17	20.47	12.82
1973/74	11.94	6.47	4.45	3.83	3.33	3.56	7.62	12.22	16.91	25.27	17.33	10.66	5.60	15.00	10.30
1974/75	5.71	4.02	3.86	4.23	3.94	3.91	8.27	15.38	24.67	38.81	20.33	11.87	4.28	19.89	12.08
1975/76	6.41	3.72	3.34	3.00	3.04	3.30	4.89	9.72	21.80	17.99	22.04	10.23	3.80	14.44	9.12
1976/77	4.94	3.54	3.30	3.02	2.95	3.05	3.93	10.09	18.38	20.75	13.49	9.99	3.47	12.77	8.12
1977/78	5.70	3.90	3.57	4.62	4.89	5.17	8.33	16.91	31.55	27.62	20.70	11.85	4.64	19.49	12.07
1978/79	7.34	3.83	4.06	4.38	4.50	4.28	6.63	12.34	32.05	33.03	20.06	12.82	4.73	19.49	12.11
1979/80	8.66	6.02	4.44	3.54	4.00	3.47	4.63	8.50	21.45	26.95	20.67	13.61	5.02	15.97	10.50
1980/81	10.95	8.48	6.72	5.64	4.62	4.76	6.74	14.32	37.66	33.94	28.21	15.42	6.86	22.71	14.79
1981/82	7.90	5.58	4.62	3.66	3.64	3.47	5.55	12.09	18.66	20.05	18.20	10.54	4.81	14.18	9.50
1982/83	5.70	4.36	4.67	7.06	6.00	6.91	7.23	13.74	43.45	56.04	46.28	26.46	5.78	32.20	18.99
1983/84	14.25	7.69	5.70	4.76	4.47	4.29	7.04	15.67	31.74	30.48	24.52	14.40	6.86	20.64	13.75
1984/85	8.09	4.98	4.17	3.82	4.05	4.65	8.41	13.49	29.41	36.06	26.08	17.87	4.96	21.89	13.42
1985/86	9.42	1.67	5.27	4.60	4.17	3.81	4.56	12.89	21.45	20.58	15.64	10.23	4.83	14.23	9.53
1986/87	6.64	4.97	9.23	5.72	4.28	4.67	6.91	12.48	32.61	37.58	29.60	17.01	5.92	22.70	14.31
1987/88	8.53	5.69	5.35	6.40	5.37	4.90	7.97	19.50	41.94	41.74	31.75	18.54	6.04	26.91	16.47
1988/89	10.20	6.03	4.67	3.86	3.81	2.85	5.65	12.27	18.16	20.01	18.58	10.37	5.24	14.18	9.71
1989/90	5.74	3.93	3.29	2.81	3.73	4.29	6.69	17.12	25.83	24.59	16.04	9.66	3.96	16.66	10.31
1990/91	6.00	4.16	3.52	3.06	3.11	3.62	4.69	10.55	17.52	18.96	15.46	10.44	3.91	12.94	8.42
1991/92	5.89	6.14	6.57	6.19	4.75	5.83	7.36	13.81	17.74	36.25	24.97	17.37	5.89	19.59	12.74
1992/93	8.63	6.16	5.60	4.99	4.47	5.18	8.42	14.77	28.46	33.83	24.92	15.23	5.84	20.94	13.39
1993/94	9.70	7.68	7.05	6.60	5.27	5.26	9.11	14.55	24.72	30.18	19.24	13.48	6.93	18.55	12.74
1994/95	7.33	5.01	4.46	4.07	4.32	3.84	6.43	18.39	30.55	26.08	17.46	11.52	4.84	18.41	11.62
1995/96	7.42	4.82	4.20	3.64	3.52	4.52	6.07	14.26	25.96	19.09	15.87	10.94	4.69	15.36	10.02
1996/97	6.37	4.23	3.19	3.04	2.88	2.77	3.40	5.70	9.63	14.78	11.31	7.90	3.75	8.79	6.27
1997/98	4.78	3.42	4.50	4.12	4.92	7.34	5.83	14.43	31.34	42.65	23.58	15.23	4.85	22.18	13.51
1998/99	10.34	6.66	4.80	3.96	3.32	3.04	4.81	8.64	11.19	13.58	13.58	8.11	5.35	9.98	7.67
1999/2000	4.72	3.42	3.02	2.70	2.80	3.11	5.81	11.78	18.87	16.18	13.95	8.12	3.29	12.45	7.87
2000/01	5.88	4.12	4.09	4.49	3.98	3.96	8.35	13.79	35.00	34.08	25.78	14.80	4.42	21.97	13.19
2001/02	8.00	5.52	4.64	4.36	5.09	5.39	8.09	14.71	35.19	30.36	22.37	13.69	5.50	20.74	13.12
2002/03	7.99	5.96	4.91	5.03	6.97	6.33	8.41	15.99	30.69	36.09	27.87	17.41	6.20	22.74	14.47
2003/04	9.65	6.15	5.44	4.57	4.49	4.67	7.59	12.89	18.33	21.36	9.95	11.98	5.83	13.68	9.76
2004/05	6.61	4.35	3.73	3.31	3.46	4.33	5.77	9.33	19.04	20.04	15.43	9.48	4.30	13.18	8.74
2005/06															
AVERAGE	7.1	4.8	4.4	3.9	3.9	4.1	6.2	12.8	24.3	25.9	19.8	12.3	4.69	16.88	10.78
STD DEV	2.0	1.3	1.2	1.1	0.9	1.0	1.5	3.2	7.5	9.5	6.8	3.7	0.97	4.75	2.67
CV	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.21	0.28	0.25
MAX	14.2	8.5	9.2	7.1	7.0	7.3	9.1	19.5	43.4	56.0	46.3	26.5	6.93	32.20	18.99
MIN	3.7	1.7	2.5	2.5	2.5	2.3	3.0	5.7	9.6	8.7	9.8	7.8	3.07	8.79	6.20

A2. 10: Volcán at Restitution (13.1 m³/s). Volcán Canal Intake.

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

Point 10: Volcan at Restitution (13.1 m3/s). Volcán Canal Intake

A [km²] = 455

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	8.10	6.32	5.45	4.91	5.02	5.66	8.38	12.07	24.69	21.57	16.34	12.64	5.91	15.95	10.93
1951/52	7.75	6.69	6.44	6.31	6.32	6.16	8.41	14.19	23.04	21.78	15.57	11.75	6.61	15.79	11.20
1952/53	7.96	6.53	6.47	6.37	6.19	6.45	8.63	12.66	23.00	22.15	18.04	12.25	6.66	16.12	11.39
1953/54	8.59	6.66	6.67	6.40	6.88	8.37	9.56	21.52	32.88	33.48	27.32	18.17	7.26	23.82	15.54
1954/55	10.02	8.39	8.50	7.59	7.22	7.28	9.44	15.87	20.79	20.35	17.76	13.08	8.17	16.22	12.19
1955/56	8.25	6.07	5.10	4.45	4.58	4.82	6.44	14.98	18.76	19.06	15.08	11.46	5.54	14.30	9.92
1956/57	6.58	6.72	5.90	5.51	5.77	5.87	7.94	17.95	21.06	23.41	21.83	14.09	6.06	17.71	11.88
1957/58	8.21	5.83	5.77	5.41	5.73	6.20	8.73	16.33	25.10	19.52	12.51	9.86	6.19	15.34	10.77
1958/59	7.40	6.52	6.29	6.07	5.82	7.83	11.75	25.71	26.63	21.36	17.16	11.18	6.66	18.96	12.81
1959/60	9.05	7.45	6.87	6.92	7.41	8.24	11.20	24.80	33.89	29.64	25.91	16.13	7.66	23.60	15.63
1960/61	7.78	6.56	5.81	5.95	5.92	8.35	8.84	19.48	26.19	20.12	15.03	11.80	6.73	16.91	11.82
1961/62	9.73	7.19	6.82	6.50	6.32	6.50	12.76	27.30	40.71	29.77	23.21	19.78	7.18	25.59	16.38
1962/63	9.19	7.40	6.93	6.48	6.19	6.65	8.71	18.45	23.64	15.79	14.54	10.18	7.14	15.22	11.18
1963/64	7.40	6.13	5.95	6.03	5.51	7.16	9.25	13.18	36.38	48.05	36.59	22.52	6.36	27.66	17.01
1964/65	14.99	9.52	8.20	6.88	6.18	6.18	7.59	13.00	16.00	18.45	17.42	11.43	8.66	13.98	11.32
1965/66	8.72	7.13	6.90	6.64	8.16	8.64	12.75	21.24	24.50	37.45	24.24	16.69	7.70	22.81	15.25
1966/67	10.95	8.25	7.92	8.07	6.85	7.43	10.91	19.26	21.54	19.09	17.63	11.52	8.24	16.66	12.45
1967/68	8.39	6.74	8.20	5.18	4.67	4.84	6.74	10.69	19.39	16.22	13.67	9.55	6.34	12.71	9.52
1968/69	6.55	5.77	5.65	4.66	4.34	4.15	4.86	8.37	11.98	15.04	12.80	8.99	5.19	10.34	7.76
1969/70	4.81	4.38	5.38	4.90	4.75	5.76	6.63	10.22	28.70	22.35	16.47	9.76	5.00	15.69	10.34
1970/71	7.52	5.70	4.91	4.58	4.64	5.35	9.36	15.92	23.50	8.90	10.04	12.14	5.45	13.31	9.38
1971/72	7.98	4.45	4.25	5.12	5.30	6.01	10.12	20.36	21.53	18.28	13.81	10.99	5.52	15.85	10.68
1972/73	6.94	11.46	9.34	6.75	7.77	8.78	10.59	14.83	28.91	36.20	28.87	20.22	8.51	23.27	15.89
1973/74	16.73	10.42	7.46	6.80	5.83	6.32	12.35	16.91	18.70	26.19	17.98	12.49	8.93	17.44	13.18
1974/75	7.73	6.40	6.47	7.51	6.90	6.94	13.40	21.47	27.50	40.35	21.12	13.96	6.99	22.97	14.98
1975/76	8.73	5.90	5.59	5.32	5.32	5.86	7.92	13.31	24.25	18.58	22.92	11.97	6.12	16.49	11.31
1976/77	6.61	5.61	5.53	5.35	5.16	5.41	6.37	13.85	20.37	21.48	13.94	11.67	5.61	14.61	10.11
1977/78	7.70	6.20	5.98	8.19	8.55	9.17	13.50	23.66	35.30	28.66	21.51	13.93	7.63	22.76	15.20
1978/79	10.08	6.09	6.80	7.77	7.87	7.60	10.75	17.09	35.86	34.31	20.83	15.12	7.70	22.33	15.02
1979/80	11.99	9.69	7.43	6.29	6.99	6.15	7.50	11.56	23.85	27.95	21.48	16.08	8.09	18.07	13.08
1980/81	15.30	13.72	11.26	10.00	8.09	8.45	10.92	19.93	42.22	35.26	29.39	18.28	11.14	26.00	18.57
1981/82	10.90	8.97	7.73	6.50	6.37	6.15	9.00	16.73	20.69	20.74	18.88	12.34	7.77	16.40	12.08
1982/83	7.70	6.96	7.82	12.53	10.49	12.26	11.72	19.11	48.79	58.35	48.33	31.70	9.63	36.33	22.98
1983/84	20.07	12.42	9.55	8.44	7.82	7.62	11.40	21.89	35.51	31.64	25.52	17.04	10.99	23.83	17.41
1984/85	11.17	7.98	6.98	6.78	7.09	8.25	13.63	18.74	32.87	37.48	27.15	21.25	8.04	25.19	16.61
1985/86	13.09	2.55	8.83	8.16	7.30	6.77	7.40	17.88	23.85	21.30	16.20	11.96	7.78	16.43	12.11
1986/87	9.07	7.96	15.45	10.16	7.48	8.30	11.20	17.29	36.50	39.06	30.84	20.21	9.74	25.85	17.79
1987/88	11.80	9.14	8.96	11.35	9.40	8.69	12.92	27.40	47.08	43.41	33.09	22.08	9.89	31.00	20.44
1988/89	14.22	9.70	7.82	6.86	6.67	5.05	9.15	16.99	20.12	20.70	19.29	12.14	8.39	16.40	12.39
1989/90	7.76	6.25	5.50	4.99	6.53	7.61	10.85	23.97	28.82	25.49	16.62	11.27	6.44	19.50	12.97
1990/91	8.14	6.63	5.89	5.43	5.44	6.43	7.59	14.50	19.39	19.61	16.01	12.23	6.33	14.89	10.61
1991/92	7.98	9.88	10.99	10.99	8.31	10.35	11.93	19.20	19.65	37.67	25.99	20.65	9.75	22.52	16.13
1992/93	11.95	9.92	9.37	8.86	7.83	9.20	13.64	20.59	31.80	35.14	25.93	18.05	9.52	24.19	16.86
1993/94	13.49	12.41	11.80	11.72	9.22	9.34	14.77	20.27	27.56	31.33	19.97	15.92	11.33	21.64	16.48
1994/95	10.07	8.03	7.46	7.23	7.56	6.82	10.42	25.81	34.17	27.04	18.11	13.53	7.86	21.51	14.69
1995/96	10.20	7.70	7.03	6.45	6.16	8.02	9.84	19.85	28.96	19.73	16.44	12.84	7.59	17.94	12.77
1996/97	8.67	6.74	5.34	5.40	5.05	4.92	5.52	7.52	10.45	15.23	11.66	9.13	6.02	9.92	7.97
1997/98	6.38	5.42	7.53	7.32	8.61	13.03	9.45	20.10	35.06	44.36	24.53	18.04	8.05	25.26	16.65
1998/99	14.41	10.73	8.04	7.03	5.82	5.40	7.80	11.75	12.22	13.98	14.04	9.39	8.57	11.53	10.05
1999/2000	6.30	5.41	5.05	4.79	4.90	5.52	9.42	16.28	20.93	16.70	14.43	9.40	5.33	14.53	9.93
2000/01	7.97	6.56	6.84	7.97	6.97	7.04	13.53	19.18	39.21	35.40	26.83	17.53	7.22	25.28	16.25
2001/02	11.03	8.86	7.76	7.74	8.91	9.57	13.11	20.51	39.43	31.51	23.26	16.17	8.98	24.00	16.49
2002/03	11.02	9.58	8.22	8.93	12.20	11.24	13.63	22.34	34.33	37.50	29.03	20.70	10.20	26.26	18.23
2003/04	13.42	9.90	9.11	8.11	7.85	8.30	12.30	17.88	20.31	22.11	10.24	14.10	9.45	16.16	12.80
2004/05	9.03	6.94	6.25	5.88	6.05	7.69	9.34	12.74	21.12	20.73	15.98	11.06	6.97	15.16	11.07
2005/06															
AVERAGE	9.7	7.6	7.3	7.0	6.8	7.3	10.0	17.7	27.1	26.9	20.5	14.5	7.61	19.46	13.54
STD DEV	3.0	2.2	2.0	1.9	1.6	1.8	2.4	4.6	8.6	9.9	7.1	4.4	1.59	5.40	3.22
CV	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.21	0.28	0.24
MAX	20.1	13.7	15.5	12.5	12.2	13.0	14.8	27.4	48.8	58.4	48.3	31.7	11.33	36.33	22.98
MIN	4.8	2.5	4.2	4.5	4.3	4.2	4.9	7.5	10.5	8.9	10.0	9.0	5.00	9.92	7.76

A2. 11: Yeso at Discharge to Maipo

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05

Point 11: Yeso at Discharge to Maipo

A [km²] = 629 (*)

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	6.91	5.70	5.23	5.19	4.23	5.09	6.29	7.70	12.59	14.35	8.31	7.90	5.39	9.52	7.46
1951/52	6.78	5.89	6.32	6.43	6.48	6.16	7.56	12.81	15.05	14.18	10.75	10.15	6.34	11.75	9.05
1952/53	8.19	7.00	6.68	6.96	6.14	6.96	7.07	9.25	16.49	13.86	12.73	7.59	6.99	11.17	9.08
1953/54	5.57	7.75	6.09	5.95	6.96	10.03	10.00	19.46	26.78	30.68	23.01	15.98	7.06	20.99	14.02
1954/55	11.18	8.63	7.83	8.61	8.50	8.44	10.41	17.41	15.96	16.27	12.14	9.17	8.86	13.56	11.21
1955/56	6.09	6.54	5.27	5.20	4.14	4.61	5.75	12.13	12.65	12.80	11.22	6.54	5.31	10.18	7.75
1956/57	6.99	7.36	6.56	6.29	5.81	6.50	7.65	11.27	10.26	9.57	9.24	6.92	6.59	9.15	7.87
1957/58	5.44	5.42	5.02	6.10	4.81	5.49	7.67	11.68	15.92	21.45	13.12	8.14	5.38	13.00	9.19
1958/59	6.98	6.67	7.70	5.50	4.22	6.47	12.73	12.95	14.62	11.76	10.89	8.29	6.26	11.87	9.07
1959/60	6.92	7.22	6.77	7.20	7.19	7.57	8.69	14.78	23.49	18.15	10.64	7.43	7.15	13.86	10.50
1960/61	7.33	7.20	6.72	6.35	5.85	6.72	9.00	13.72	15.68	13.61	10.34	11.63	6.69	12.33	9.51
1961/62	8.15	8.60	8.89	5.93	8.88	6.55	11.05	17.29	28.26	23.31	18.25	11.77	7.84	18.32	13.08
1962/63	10.80	9.39	7.31	6.09	5.83	6.58	8.96	15.44	16.05	16.59	14.05	8.90	7.67	13.33	10.50
1963/64	7.66	6.75	5.72	7.43	5.80	7.85	12.93	12.58	27.51	35.59	20.25	13.52	6.87	20.40	13.63
1964/65	10.56	8.55	9.33	5.87	4.03	7.47	7.11	7.73	7.97	10.61	10.27	7.36	7.64	8.51	8.07
1965/66	6.41	6.32	6.08	5.39	6.50	7.71	11.45	19.87	18.95	25.45	17.92	12.06	6.40	17.62	12.01
1966/67	11.27	6.96	6.64	6.42	4.80	6.34	8.47	12.39	23.80	16.13	15.24	8.69	7.07	14.12	10.60
1967/68	7.44	6.46	4.74	4.85	3.44	4.02	8.78	7.79	10.65	12.63	10.50	6.47	5.16	9.47	7.32
1968/69	6.71	4.62	2.83	4.09	2.28	2.82	5.39	4.99	3.88	6.01	6.26	4.95	3.89	5.25	4.57
1969/70	3.92	3.86	4.85	3.22	3.24	4.04	9.68	11.48	22.60	17.89	16.45	8.30	3.86	14.40	9.13
1970/71	7.08	5.34	4.60	4.68	3.01	5.02	7.66	11.61	10.32	9.04	8.84	5.27	4.96	8.79	6.87
1971/72	4.84	4.33	3.30	4.87	3.57	3.92	8.49	13.68	17.33	14.94	10.52	6.35	4.14	11.88	8.01
1972/73	7.04	8.68	13.29	8.01	9.69	9.87	12.18	17.09	29.30	47.82	27.28	17.92	9.43	25.27	17.35
1973/74	16.13	8.57	8.93	8.57	6.61	6.75	8.69	14.16	15.95	20.13	15.12	10.10	9.26	14.02	11.64
1974/75	7.52	7.34	7.47	6.82	5.17	5.69	12.07	16.80	16.21	22.15	13.49	9.87	6.67	15.10	10.88
1975/76	8.43	6.93	5.66	5.76	5.30	6.71	9.32	10.74	13.45	13.48	10.75	8.04	6.47	10.96	8.71
1976/77	6.07	5.10	5.14	4.94	4.34	5.37	5.65	9.96	14.73	12.78	9.63	7.01	5.16	9.96	7.56
1977/78	6.67	6.18	5.99	7.36	6.10	8.70	11.95	21.43	31.09	25.73	19.08	11.03	6.83	20.05	13.44
1978/79	8.29	7.16	5.56	14.40	7.92	7.40	8.41	19.28	35.31	40.82	20.77	14.34	8.46	23.16	15.81
1979/80	9.27	8.35	6.80	6.76	5.91	6.43	12.01	11.67	14.20	28.18	18.42	14.54	7.25	16.50	11.88
1980/81	12.55	13.72	11.63	11.09	11.01	10.87	10.91	12.99	30.15	26.48	22.89	14.57	11.81	19.66	15.74
1981/82	10.20	9.46	7.81	6.96	6.52	7.00	9.48	12.88	14.36	15.18	12.46	8.32	7.99	12.11	10.05
1982/83	6.96	6.79	11.68	13.02	10.34	14.91	12.04	21.46	42.10	55.33	43.83	25.10	10.62	33.31	21.96
1983/84	16.83	12.91	10.22	10.27	8.85	7.16	11.99	18.85	26.07	23.10	17.31	9.86	11.04	17.86	14.45
1984/85	7.04	6.80	7.50	6.85	6.84	7.72	13.13	16.59	24.89	28.72	22.06	15.50	7.12	20.15	13.64
1985/86	11.33	12.04	9.51	7.54	6.23	5.79	9.03	14.97	17.25	16.66	13.58	9.66	8.74	13.52	11.13
1986/87	8.30	7.49	19.79	8.84	7.22	9.09	12.83	15.01	32.98	35.07	27.45	16.04	10.12	23.23	16.68
1987/88	11.36	10.00	9.38	13.09	11.06	10.36	12.87	26.49	37.37	40.13	28.16	18.28	10.87	27.21	19.04
1988/89	13.52	11.03	8.78	7.43	6.43	7.43	10.21	13.00	12.72	11.54	12.50	7.63	9.10	11.27	10.19
1989/90	7.41	6.27	5.06	4.79	6.79	7.37	9.39	16.10	16.22	16.46	10.16	7.09	6.28	12.57	9.43
1990/91	7.27	5.29	5.05	5.07	4.81	5.72	6.00	9.40	12.43	12.93	11.22	8.70	5.53	10.11	7.82
1991/92	6.29	10.17	8.28	8.96	7.36	9.67	11.19	17.21	21.00	30.85	22.09	15.36	8.45	19.61	14.03
1992/93	9.94	8.29	8.25	7.48	6.13	8.54	13.06	17.03	21.92	25.35	17.73	11.81	8.11	17.82	12.96
1993/94	10.32	9.56	11.19	7.25	7.68	9.07	9.17	12.95	19.61	22.12	13.17	9.48	9.18	14.42	11.80
1994/95	7.21	6.90	5.29	9.23	6.88	6.62	8.05	16.68	23.86	17.57	11.97	7.79	7.02	14.32	10.67
1995/96	6.63	6.49	5.80	6.78	5.93	8.35	7.25	15.57	19.30	14.06	9.95	5.96	6.66	12.02	9.34
1996/97	6.69	4.44	3.77	3.56	3.27	2.89	6.38	8.61	8.54	7.98	7.92	6.81	4.10	7.71	5.91
1997/98	4.14	3.22	6.35	5.41	7.86	11.66	9.07	15.38	23.58	37.95	25.60	10.78	6.44	20.39	13.42
1998/99	9.36	8.02	6.49	4.96	3.76	3.65	6.02	6.11	8.72	9.26	8.79	5.14	6.04	7.34	6.69
1999/2000	3.65	3.47	3.11	3.06	3.04	4.65	8.32	12.96	13.30	13.92	8.55	6.95	3.50	10.67	7.08
2000/01	4.38	3.35	7.72	8.80	4.66	5.03	13.00	16.70	29.41	32.13	24.89	11.58	5.66	21.29	13.47
2001/02	8.78	8.54	5.56	8.95	8.80	8.41	9.74	16.12	28.45	21.33	15.46	10.79	8.17	16.98	12.58
2002/03	6.71	7.85	9.14	6.84	7.85	5.64	8.10	15.31	24.03	29.28	23.32	15.06	7.34	19.18	13.26
2003/04	10.28	8.95	8.63	7.27	6.21	6.51	9.14	14.48	13.87	14.95	11.69	7.26	7.98	11.90	9.94
2004/05	6.14	5.12	4.78	4.09	3.93	6.26	5.93	8.19	11.63	13.73	10.79	6.69	5.05	9.49	7.27
2005/06															
AVERAGE	8.1	7.3	7.2	6.9	6.1	7.0	9.4	14.0	19.5	20.9	15.4	10.2	7.09	14.88	10.99
STD DEV	2.7	2.2	2.8	2.3	2.1	2.2	2.3	4.1	8.2	10.5	6.9	4.0	1.89	5.52	3.43
CV	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.4	0.5	0.4	0.4	0.27	0.37	0.31
MAX	16.8	13.7	19.8	14.4	11.1	14.9	13.1	26.5	42.1	55.3	43.8	25.1	11.81	33.31	21.96
MIN	3.6	3.2	2.8	3.1	2.3	2.8	5.4	5.0	3.9	6.0	6.3	5.0	3.50	5.25	4.57

(*) Includes Laguna Negra and Laguna Lo Encañado areas.

A2. 12: Colorado at Alfalfal Hydropower Plant Discharge

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

Point 12: Colorado at Alfalfal Hydropower Plant Discharge

A [km²] = 1377

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	16.7	13.1	11.4	10.4	10.3	11.1	17.1	18.1	39.5	36.4	30.0	25.5	12.2	27.8	20.0
1951/52	17.7	13.8	11.7	11.1	11.9	13.1	15.0	25.1	37.8	57.0	37.7	30.2	13.2	33.8	23.5
1952/53	16.5	14.4	11.9	11.0	10.9	13.4	15.8	24.1	43.0	43.3	40.0	26.4	13.0	32.1	22.6
1953/54	18.1	14.2	12.8	11.9	12.9	17.6	22.1	38.2	54.7	61.2	52.3	39.5	14.6	44.7	29.6
1954/55	26.6	16.5	13.5	11.5	12.0	12.4	14.0	28.2	35.3	34.1	31.5	23.5	15.4	27.8	21.6
1955/56	16.5	12.4	11.5	10.6	9.6	9.2	11.6	21.9	26.0	32.9	29.4	21.8	11.6	24.0	17.8
1956/57	15.0	12.6	11.1	9.9	10.0	11.4	15.8	23.7	27.2	28.4	30.1	25.9	11.7	25.2	18.4
1957/58	15.4	12.2	11.3	10.2	10.1	10.9	13.6	20.9	33.7	41.4	35.7	29.7	11.7	29.2	20.4
1958/59	17.8	13.6	12.1	11.0	10.8	12.2	18.8	25.3	34.1	31.4	32.7	28.0	12.9	28.4	20.7
1959/60	16.9	13.5	11.5	11.9	11.5	14.8	18.1	27.5	38.4	43.0	37.4	30.7	13.4	32.5	22.9
1960/61	19.8	14.6	12.2	11.3	12.0	12.8	20.8	37.4	52.5	49.8	39.3	35.5	13.8	39.2	26.5
1961/62	21.3	15.2	14.2	12.1	12.1	14.0	24.3	37.6	52.4	53.7	44.8	36.5	14.8	41.6	28.2
1962/63	22.6	15.3	12.2	11.0	11.4	12.9	22.1	43.5	50.1	51.1	41.3	26.5	14.2	39.1	26.7
1963/64	18.6	12.2	11.0	10.5	11.1	14.2	29.7	29.0	73.5	85.4	64.1	40.0	12.9	53.6	33.3
1964/65	23.4	16.2	12.5	10.8	11.3	11.6	11.2	15.9	15.8	29.2	29.9	26.0	14.3	21.3	17.8
1965/66	15.4	11.5	10.0	10.1	12.8	12.8	25.7	43.4	54.9	70.9	49.4	32.7	12.1	46.2	29.1
1966/67	20.3	15.6	13.5	12.4	11.2	14.0	19.2	30.7	29.4	46.4	46.7	27.7	14.5	33.3	23.9
1967/68	19.2	14.0	12.1	9.3	9.2	9.7	11.6	13.6	30.0	35.3	35.5	21.1	12.3	24.5	18.4
1968/69	13.1	6.2	8.8	7.4	6.9	6.6	6.6	13.7	20.1	29.7	29.5	18.1	8.2	19.6	13.9
1969/70	9.5	7.6	7.5	6.7	6.6	7.4	9.0	20.0	49.7	31.0	43.1	26.4	7.6	29.9	18.7
1970/71	16.9	12.9	11.1	10.9	11.2	11.6	16.5	18.8	28.0	24.6	25.8	19.3	12.4	22.2	17.3
1971/72	11.3	9.9	9.2	9.8	9.9	12.4	19.3	32.7	40.3	44.7	35.6	19.8	10.4	32.1	21.2
1972/73	13.5	13.8	14.3	12.7	14.6	17.2	22.0	34.6	80.5	82.7	78.6	52.1	14.3	58.4	36.4
1973/74	32.6	22.8	15.9	13.3	12.7	13.6	15.4	27.2	34.5	51.4	39.6	29.5	18.5	32.9	25.7
1974/75	18.8	13.9	12.9	12.1	12.0	13.5	21.0	29.6	44.4	60.6	40.1	29.1	13.9	37.5	25.7
1975/76	18.2	12.9	11.4	10.7	10.8	11.6	15.5	18.4	30.9	35.9	26.0	18.7	12.6	24.2	18.4
1976/77	14.9	11.7	11.3	10.0	9.4	9.6	12.3	20.3	25.8	30.0	27.0	22.8	11.2	23.0	17.1
1977/78	15.8	12.6	11.6	12.1	11.5	18.3	28.7	45.9	70.9	58.0	42.5	27.1	13.6	45.5	29.6
1978/79	19.6	15.3	12.7	14.2	14.0	14.1	26.3	40.5	69.2	80.9	47.4	36.2	15.0	50.1	32.5
1979/80	24.4	18.5	14.7	12.4	12.2	12.6	18.0	23.8	35.5	50.8	39.7	34.3	15.8	33.7	24.8
1980/81	25.9	19.9	15.8	16.3	15.7	15.8	22.1	32.7	68.3	64.0	57.7	39.3	18.2	47.4	32.8
1981/82	19.3	14.9	14.1	13.6	13.4	13.0	15.2	23.6	32.7	45.0	37.9	21.2	14.7	29.3	22.0
1982/83	17.4	14.3	21.0	19.5	16.9	25.2	27.0	47.3	87.2	99.0	87.0	52.1	19.0	66.6	42.8
1983/84	35.4	23.4	18.1	20.1	17.3	13.9	23.3	39.7	75.6	77.9	65.0	32.3	21.4	52.3	36.8
1984/85	19.7	15.1	10.9	13.8	14.2	15.8	26.4	36.9	57.4	60.8	53.0	38.3	14.9	45.5	30.2
1985/86	21.6	17.2	14.9	13.3	11.9	11.0	15.0	33.3	52.2	55.7	44.8	31.3	15.0	38.7	26.8
1986/87	17.3	15.0	22.3	18.5	15.2	16.7	20.2	36.1	70.9	88.5	70.2	45.7	17.5	55.3	36.4
1987/88	25.5	19.6	15.2	22.3	20.2	19.5	24.0	70.4	76.7	85.0	81.4	54.3	20.4	65.3	42.8
1988/89	35.9	19.2	12.4	10.2	9.6	10.4	17.5	30.6	36.8	43.8	49.6	26.1	16.3	34.0	25.2
1989/90	17.6	12.5	10.6	11.4	13.6	16.1	23.1	51.0	55.7	53.9	42.5	28.6	13.6	42.5	28.0
1990/91	16.4	13.1	11.7	11.4	11.6	13.1	16.3	29.6	37.8	35.5	41.7	24.9	12.9	31.0	21.9
1991/92	15.9	17.2	14.7	17.7	14.6	19.3	24.1	41.2	55.5	64.3	56.6	46.0	16.6	48.0	32.3
1992/93	23.6	18.7	16.6	14.4	13.9	16.5	25.6	36.8	57.2	76.4	51.2	34.0	17.3	46.9	32.1
1993/94	23.5	23.9	18.6	16.2	15.0	15.8	20.8	31.5	39.9	53.6	45.3	33.2	18.8	37.4	28.1
1994/95	17.8	14.1	12.6	12.5	12.5	13.6	17.3	36.3	60.8	53.2	43.4	28.4	13.9	39.9	26.9
1995/96	19.0	14.6	12.9	11.6	11.0	14.1	16.2	33.7	51.6	41.0	37.9	29.5	13.9	35.0	24.4
1996/97	16.1	12.5	10.7	9.6	9.8	8.6	8.6	13.5	21.9	33.1	28.4	21.7	11.2	21.2	16.2
1997/98	12.3	8.9	16.4	9.9	13.8	17.9	21.2	40.4	71.9	106.4	54.1	30.6	13.2	54.1	33.6
1998/99	24.8	17.1	14.0	13.5	10.5	9.5	12.4	18.9	32.8	33.5	35.2	22.6	14.9	25.9	20.4
1999/2000	12.9	10.6	9.4	8.4	9.0	9.8	15.3	25.2	36.8	46.6	33.6	19.9	10.0	29.6	19.8
2000/01	13.6	10.8	11.5	12.0	10.6	12.6	24.1	33.1	79.5	84.4	53.4	32.8	11.9	51.2	31.5
2001/02	19.2	15.1	12.8	13.1	13.8	14.9	22.6	33.7	80.2	54.4	46.0	29.6	14.8	44.4	29.6
2002/03	16.3	14.4	14.3	13.0	13.5	18.3	26.9	38.9	80.8	93.1	73.4	49.2	15.0	60.4	37.7
2003/04	28.2	22.0	18.8	13.2	17.1	14.1	21.9	33.5	40.8	51.7	36.8	29.4	18.9	35.7	27.3
2004/05	17.8	13.2	11.1	10.0	9.7	12.1	13.5	18.5	31.0	43.4	38.9	23.8	12.3	28.2	20.3
2005/06															
AVERAGE	19.3	14.7	13.1	12.3	12.1	13.5	18.9	30.8	48.2	53.7	44.5	30.6	14.2	37.8	26.0
STD DEV	5.4	3.6	2.9	3.0	2.5	3.3	5.4	10.7	18.7	20.2	14.2	8.8	2.8	11.8	6.8
CV	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.3	0.3
MAX	35.9	23.9	22.3	22.3	20.2	25.2	29.7	70.4	87.2	106.4	87.0	54.3	21.4	66.6	42.8
MIN	9.5	6.2	7.5	6.7	6.6	6.6	6.6	13.5	15.8	24.6	25.8	18.1	7.6	19.6	13.9

A2. 13: Volcán at AES Gener Intake (13.1 m³/s).

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05

Point 13: Volcán at AES Gener Intake (13.1 m³/s).

A [km²] = 393

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	6.4	4.4	3.7	3.2	3.3	3.7	5.8	9.5	22.7	21.0	15.9	11.1	4.1	14.3	9.2
1951/52	6.1	4.7	4.4	4.1	4.1	4.0	5.8	11.1	21.2	21.2	15.1	10.4	4.6	14.1	9.4
1952/53	6.3	4.6	4.4	4.1	4.1	4.2	6.0	9.9	21.2	21.5	17.5	10.8	4.6	14.5	9.5
1953/54	6.8	4.7	4.5	4.2	4.5	5.4	6.6	16.6	30.1	32.5	26.5	15.9	5.0	21.4	13.2
1954/55	7.8	5.9	5.7	4.9	4.7	4.7	6.5	12.4	19.1	19.8	17.3	11.5	5.6	14.4	10.0
1955/56	6.5	4.3	3.4	2.9	3.0	3.1	4.5	11.7	17.3	18.6	14.7	10.1	3.9	12.8	8.3
1956/57	5.2	4.7	4.0	3.6	3.8	3.8	5.5	13.9	19.4	22.8	21.2	12.4	4.2	15.9	10.0
1957/58	6.5	4.1	3.9	3.5	3.8	4.0	6.0	12.7	23.0	19.0	12.2	8.8	4.3	13.6	9.0
1958/59	5.9	4.6	4.3	3.9	3.8	5.1	8.1	19.8	24.4	20.8	16.7	9.9	4.6	16.6	10.6
1959/60	7.1	5.2	4.6	4.5	4.9	5.3	7.7	19.1	31.0	28.8	25.1	14.1	5.3	21.0	13.1
1960/61	6.1	4.6	3.9	3.9	3.9	5.4	6.1	15.1	24.0	19.6	14.6	10.4	4.6	15.0	9.8
1961/62	7.6	5.0	4.6	4.2	4.1	4.2	8.8	21.0	37.2	28.9	22.5	17.3	5.0	22.6	13.8
1962/63	7.2	5.2	4.7	4.2	4.1	4.3	6.0	14.3	21.7	15.4	14.2	9.0	4.9	13.4	9.2
1963/64	5.9	4.3	4.0	3.9	3.6	4.6	6.4	10.3	33.3	46.5	35.4	19.6	4.4	25.3	14.8
1964/65	11.6	6.6	5.5	4.5	4.0	4.0	5.3	10.2	14.8	18.0	16.9	10.1	6.0	12.5	9.3
1965/66	6.9	5.0	4.7	4.3	5.3	5.6	8.8	16.4	22.5	36.3	23.5	14.6	5.3	20.4	12.8
1966/67	8.5	5.8	5.4	5.2	4.5	4.8	7.6	14.9	19.8	18.6	17.1	10.2	5.7	14.7	10.2
1967/68	6.6	4.7	5.5	3.4	3.1	3.1	4.7	8.4	17.9	15.8	13.3	8.5	4.4	11.4	7.9
1968/69	5.2	4.1	3.8	3.0	2.8	2.7	3.4	6.7	11.2	14.7	12.5	8.0	3.6	9.4	6.5
1969/70	3.9	3.1	3.6	3.2	3.1	3.7	4.6	8.1	26.3	21.7	16.0	8.7	3.4	14.2	8.8
1970/71	6.0	4.0	3.3	3.0	3.0	3.5	6.5	12.4	21.6	8.8	9.8	10.7	3.8	11.6	7.7
1971/72	6.3	3.1	2.9	3.3	3.5	3.9	7.0	15.7	19.8	17.8	13.4	9.7	3.8	13.9	8.9
1972/73	5.5	8.0	6.3	4.4	5.1	5.7	7.3	11.6	26.5	35.1	27.9	17.6	5.8	21.0	13.4
1973/74	12.9	7.2	5.0	4.4	3.8	4.1	8.5	13.1	17.3	25.4	17.5	11.0	6.2	15.5	10.9
1974/75	6.1	4.5	4.4	4.9	4.5	4.5	9.3	16.6	25.2	39.1	20.5	12.3	4.8	20.5	12.7
1975/76	6.9	4.1	3.8	3.5	3.5	3.8	5.5	10.4	22.3	18.1	22.2	10.6	4.3	14.8	9.5
1976/77	5.3	3.9	3.7	3.5	3.4	3.5	4.4	10.8	18.8	20.9	13.6	10.3	3.9	13.1	8.5
1977/78	6.1	4.4	4.0	5.3	5.6	6.0	9.3	18.2	32.3	27.8	20.9	12.3	5.2	20.1	12.7
1978/79	7.9	4.3	4.6	5.0	5.2	4.9	7.4	13.3	32.8	33.3	20.2	13.3	5.3	20.0	12.7
1979/80	9.3	6.7	5.0	4.1	4.6	4.0	5.2	9.1	21.9	27.1	20.8	14.1	5.6	16.4	11.0
1980/81	11.8	9.5	7.6	6.5	5.3	5.5	7.6	15.4	38.6	34.2	28.4	16.0	7.7	23.4	15.5
1981/82	8.5	6.2	5.2	4.2	4.2	4.0	6.2	13.0	19.1	20.2	18.3	10.9	5.4	14.6	10.0
1982/83	6.1	4.9	5.3	8.1	6.9	8.0	8.1	14.8	44.5	56.5	46.7	27.5	6.5	33.0	19.8
1983/84	15.4	8.6	6.5	5.5	5.1	4.9	7.9	16.9	32.5	30.7	24.7	14.9	7.7	21.3	14.5
1984/85	8.7	5.6	4.7	4.4	4.6	5.3	9.4	14.5	30.1	36.3	26.3	18.5	5.6	22.5	14.0
1985/86	10.1	1.8	6.0	5.3	4.8	4.4	5.1	13.9	21.9	20.7	15.7	10.6	5.4	14.7	10.0
1986/87	7.1	5.6	10.4	6.6	4.9	5.4	7.7	13.4	33.4	37.9	29.8	17.6	6.7	23.3	15.0
1987/88	9.2	6.4	6.1	7.4	6.2	5.6	8.9	21.0	42.9	42.1	32.0	19.2	6.8	27.7	17.2
1988/89	11.0	6.8	5.3	4.4	4.4	3.3	6.3	13.2	18.5	20.1	18.7	10.7	5.9	14.6	10.2
1989/90	6.1	4.4	3.7	3.2	4.3	4.9	7.5	18.5	26.4	24.8	16.2	10.0	4.4	17.2	10.8
1990/91	6.4	4.6	4.0	3.5	3.6	4.2	5.3	11.3	17.9	19.1	15.6	10.8	4.4	13.3	8.9
1991/92	6.3	6.9	7.4	7.1	5.4	6.7	8.3	14.9	18.1	36.5	25.2	18.0	6.6	20.2	13.4
1992/93	9.3	6.9	6.3	5.8	5.1	6.0	9.4	15.9	29.1	34.1	25.1	15.8	6.6	21.6	14.1
1993/94	10.4	8.6	8.0	7.6	6.0	6.1	10.2	15.7	25.3	30.4	19.4	14.0	7.8	19.2	13.5
1994/95	7.9	5.6	5.0	4.7	5.0	4.4	7.2	19.8	31.3	26.3	17.6	11.9	5.4	19.0	12.2
1995/96	8.0	5.4	4.8	4.2	4.0	5.2	6.8	15.3	26.5	19.2	16.0	11.3	5.3	15.9	10.6
1996/97	6.8	4.7	3.6	3.5	3.3	3.2	3.8	6.1	9.8	14.9	11.4	8.1	4.2	9.0	6.6
1997/98	5.1	3.8	5.1	4.7	5.6	8.5	6.5	15.5	32.1	43.0	23.8	15.8	5.5	22.8	14.1
1998/99	11.1	7.5	5.4	4.6	3.8	3.5	5.4	9.3	11.4	13.7	13.7	8.4	6.0	10.3	8.1
1999/2000	5.0	3.8	3.4	3.1	3.2	3.6	6.5	12.7	19.3	16.3	14.0	8.4	3.7	12.9	8.3
2000/01	6.3	4.6	4.6	5.2	4.6	4.6	9.4	14.8	35.8	34.3	26.0	15.3	5.0	22.6	13.8
2001/02	8.6	6.2	5.3	5.0	5.8	6.2	9.1	15.8	36.0	30.6	22.5	14.2	6.2	21.4	13.8
2002/03	8.6	6.7	5.6	5.8	8.0	7.3	9.4	17.2	31.4	36.4	28.1	18.1	7.0	23.4	15.2
2003/04	10.4	6.9	6.2	5.3	5.1	5.4	8.5	13.9	18.7	21.5	10.0	12.4	6.5	14.2	10.4
2004/05	7.1	4.9	4.2	3.8	4.0	5.0	6.5	10.0	19.4	20.2	15.5	9.8	4.8	13.6	9.2
2005/06															
AVERAGE	7.6	5.3	4.9	4.5	4.4	4.7	6.9	13.7	24.8	26.1	19.9	12.8	5.3	17.4	11.3
STD DEV	2.2	1.5	1.3	1.2	1.0	1.2	1.7	3.5	7.7	9.6	6.9	3.8	1.1	4.9	2.8
CV	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2
MAX	15.4	9.5	10.4	8.1	8.0	8.5	10.2	21.0	44.5	56.5	46.7	27.5	7.8	33.0	19.8
MIN	3.9	1.8	2.9	2.9	2.8	2.7	3.4	6.1	9.8	8.8	9.8	8.0	3.4	9.0	6.5

A2.14: Balance 1 Middle Basin

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05 STATISTICS

MIDDLE BASIN: San Alfonso - (Volcán + Las Melosas + Yeso Affluent)

A [km²] = 292

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	4.0	5.7	4.6	5.3	4.7	5.9	7.5	7.2	6.5	3.6	3.4	2.1	5.06	5.04	5.05
1951/52	3.9	5.1	7.1	7.9	7.4	7.1	8.2	8.3	6.6	4.5	2.8	2.7	6.42	5.52	5.97
1952/53	3.7	6.0	6.4	7.7	7.2	7.7	6.1	6.3	5.7	3.4	3.6	1.9	6.44	4.51	5.47
1953/54	4.8	4.8	5.8	6.5	8.1	11.7	10.4	15.2	11.8	8.0	6.0	3.2	6.95	9.08	8.02
1954/55	5.6	6.1	7.2	10.4	10.2	10.6	12.8	12.8	6.1	3.7	3.1	2.0	8.34	6.75	7.54
1955/56	3.8	6.0	4.9	4.3	4.0	4.2	4.9	7.5	4.1	3.0	3.1	1.5	4.54	4.02	4.28
1956/57	4.4	6.8	5.7	7.8	7.2	7.0	7.2	9.7	4.3	2.6	1.9	1.5	6.49	4.51	5.50
1957/58	4.4	4.6	4.1	6.0	4.2	5.1	7.8	10.2	6.7	6.4	4.6	3.3	4.76	6.48	5.62
1958/59	5.8	8.5	8.7	7.4	5.0	8.3	14.0	7.4	5.8	2.9	2.7	2.3	7.27	5.85	6.56
1959/60	3.8	6.5	7.0	8.2	8.4	8.3	8.3	10.7	10.0	5.0	1.9	0.2	7.03	6.00	6.52
1960/61	4.3	6.6	7.0	7.1	7.4	7.6	9.0	10.3	6.4	3.6	2.6	3.5	6.67	5.90	6.29
1961/62	4.6	8.1	10.7	6.4	11.0	7.2	11.5	12.6	10.5	7.3	5.5	2.8	8.01	8.38	8.20
1962/63	5.3	6.5	6.3	6.7	6.6	7.1	9.1	10.6	5.6	12.0	7.7	2.5	6.42	7.91	7.17
1963/64	4.2	5.6	5.8	7.5	6.7	8.9	14.0	16.4	14.5	3.0	6.0	3.1	6.44	9.49	7.96
1964/65	4.7	6.5	9.5	6.3	3.1	8.9	7.6	5.9	3.7	3.7	2.9	0.9	6.50	4.14	5.32
1965/66	2.9	5.5	5.9	6.0	7.3	8.5	11.9	13.0	13.2	8.4	3.6	3.2	6.01	8.85	7.43
1966/67	5.6	6.0	6.6	7.7	5.0	6.8	5.8	9.3	21.3	4.8	4.6	2.1	6.28	8.01	7.15
1967/68	4.3	5.7	2.9	4.6	2.5	3.9	9.7	7.5	4.9	10.6	6.0	1.7	4.00	6.72	5.36
1968/69	6.9	4.4	1.4	5.2	1.6	1.7	8.2	3.7	0.9	1.1	1.9	1.5	3.53	2.85	3.19
1969/70	2.0	3.4	5.9	2.6	3.3	2.2	9.0	11.7	9.6	4.1	10.6	2.0	3.22	7.83	5.53
1970/71	4.9	4.5	3.8	2.9	1.5	4.9	7.7	12.5	3.9	2.6	2.1	0.6	3.72	4.92	4.32
1971/72	2.3	3.7	2.7	5.2	3.0	1.7	7.3	4.2	7.1	4.4	2.8	1.8	3.10	4.58	3.84
1972/73	2.5	10.2	19.8	14.1	13.1	12.7	16.8	19.8	12.3	17.8	9.4	4.8	12.06	13.48	12.77
1973/74	7.6	7.5	9.0	9.4	7.1	6.4	6.6	9.7	7.1	5.8	4.0	2.4	7.83	5.95	6.89
1974/75	4.1	5.4	5.7	8.3	5.1	7.2	12.3	13.5	8.3	6.9	1.7	2.6	5.96	7.56	6.76
1975/76	4.9	4.8	5.6	5.7	5.2	5.9	6.8	8.9	2.1	3.7	2.9	2.0	5.33	4.41	4.87
1976/77	3.1	3.6	4.9	5.2	4.6	5.8	6.5	7.9	14.5	4.0	2.6	1.7	4.53	6.21	5.37
1977/78	3.2	5.5	6.2	10.5	7.9	12.4	11.5	14.8	11.2	7.3	9.7	2.9	7.63	9.58	8.61
1978/79	4.4	5.8	4.1	24.2	10.3	9.9	6.1	17.7	16.6	13.6	7.4	4.9	9.79	11.03	10.41
1979/80	5.5	6.1	5.0	7.8	6.4	8.9	17.8	10.8	5.0	12.0	4.6	3.4	6.62	8.93	7.78
1980/81	9.3	15.1	14.0	13.6	14.4	11.7	8.5	1.2	5.6	7.5	6.4	3.6	12.99	5.48	9.24
1981/82	6.1	8.9	8.8	7.7	7.1	7.5	9.1	10.2	5.8	4.4	3.2	2.0	7.67	5.79	6.73
1982/83	4.0	6.0	16.1	15.7	12.5	17.9	15.9	18.5	22.5	22.7	16.0	7.4	12.01	17.15	14.58
1983/84	10.0	12.4	10.2	10.8	9.3	8.3	13.2	14.9	10.2	7.1	5.6	3.4	10.17	9.07	9.62
1984/85	5.2	6.6	5.7	7.8	6.6	8.1	13.2	12.2	11.8	11.0	8.0	4.0	6.65	10.02	8.34
1985/86	5.7	11.5	8.5	8.3	6.4	6.1	7.4	10.4	6.7	4.6	4.1	2.3	7.74	5.92	6.83
1986/87	4.3	7.0	29.3	9.6	8.2	10.8	13.5	9.2	12.0	10.2	8.6	4.7	11.54	9.70	10.62
1987/88	6.2	7.7	8.2	14.9	12.5	11.8	14.7	19.4	15.4	12.9	9.9	4.9	10.20	12.84	11.52
1988/89	7.6	8.2	7.4	7.0	6.9	7.3	8.7	10.1	4.9	3.8	3.8	2.8	7.39	5.66	6.53
1989/90	3.6	5.2	5.2	5.2	9.0	10.9	10.5	13.8	8.6	11.7	2.9	1.5	6.53	8.15	7.34
1990/91	6.7	6.5	5.1	7.9	6.0	7.1	5.8	5.0	3.3	3.6	5.5	5.5	6.55	4.79	5.67
1991/92	6.2	12.5	9.7	11.2	7.9	9.4	15.7	15.8	10.8	10.2	3.5	4.2	9.49	10.03	9.76
1992/93	5.1	7.3	11.5	11.9	10.1	13.3	16.0	12.1	11.6	11.9	5.4	3.4	9.85	10.06	9.96
1993/94	7.8	8.2	12.5	11.4	7.5	10.2	10.2	9.1	8.7	8.6	4.8	2.7	9.61	7.33	8.47
1994/95	5.3	7.1	8.2	11.2	7.7	10.0	10.0	10.7	10.2	5.6	4.1	3.1	8.25	7.30	7.77
1995/96	6.2	8.3	9.3	7.7	6.8	9.4	9.4	13.4	8.3	4.1	3.6	2.4	7.95	6.85	7.40
1996/97	3.7	5.1	5.1	5.0	4.8	3.9	5.9	7.2	3.2	0.2	2.0	1.8	4.60	3.38	3.99
1997/98	3.8	2.9	9.8	9.1	9.2	13.2	13.0	15.4	14.3	13.8	9.4	4.5	8.00	11.74	9.87
1998/99	7.6	9.3	8.3	7.1	5.2	4.6	7.1	5.4	3.8	2.8	2.7	1.7	7.02	3.92	5.47
1999/2000	3.5	4.5	4.7	4.6	4.1	7.1	10.1	10.9	6.0	4.4	3.1	1.8	4.75	6.05	5.40
2000/01	4.1	5.2	12.6	12.9	7.3	7.4	15.3	14.8	15.5	5.2	8.9	4.0	8.25	10.61	9.43
2001/02	7.1	9.9	7.6	12.6	12.7	12.6	14.3	10.4	13.4	6.4	5.2	3.2	10.41	8.82	9.62
2002/03	5.2	7.2	10.0	8.5	10.2	7.7	9.2	9.9	10.2	9.6	7.4	4.7	8.13	8.51	8.32
2003/04	8.0	8.9	11.0	11.2	8.4	10.0	10.3	11.0	6.6	5.5	5.2	2.8	9.59	6.89	8.24
2004/05	5.8	6.6	6.9	6.9	6.5	8.8	8.9	7.4	5.8	4.7	3.3	2.5	6.91	5.44	6.18
2005/06															
AVERAGE	5.1	6.8	7.9	8.5	7.1	8.2	10.1	10.8	8.8	6.8	5.0	2.8	7.26	7.38	7.32
STD DEV	1.7	2.4	4.4	3.7	2.9	3.1	3.3	4.0	4.6	4.3	2.8	1.3	2.27	2.73	2.25
CV	5.1	6.8	8.0	8.5	7.2	8.2	10.2	10.9	8.8	6.9	5.1	2.8	7.31	7.46	7.39
MAX	1.7	2.4	4.5	3.7	2.9	3.1	3.3	3.9	4.6	4.3	2.8	1.3	2.27	2.73	2.24
MIN	0.3	0.3	0.6	0.4	0.4	0.4	0.3	0.4	0.5	0.6	0.6	0.5	0.31	0.37	0.30

A2.15: Balance 2 Middle Basin

AVERAGE MONTHLY FLOWS (m³/s)
1950/51 - 2004/05 STATISTICS

MIDDLE BASIN: Colorado River

A [km²] = 340

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	0.7	1.3	1.8	2.7	1.3	1.4	5.0	3.2	7.7	8.0	5.7	6.2	1.53	5.98	3.75
1951/52	1.2	1.5	0.8	4.3	3.6	1.6	5.4	7.2	22.9	31.4	8.2	3.7	2.17	13.14	7.65
1952/53	1.1	0.01	2.0	2.6	2.1	4.9	5.6	7.6	1.3	5.1	5.8	2.0	2.12	4.57	3.35
1953/54	0.6	0.2	3.7	4.0	4.2	5.3	7.2	11.0	12.0	9.8	7.4	3.9	3.00	8.55	5.78
1954/55	2.0	1.5	2.8	4.4	3.7	3.5	3.7	9.8	7.1	2.8	6.0	1.0	2.99	5.06	4.02
1955/56	1.1	0.4	0.9	0.9	1.6	4.0	3.9	9.9	10.6	8.3	0.8	1.8	1.49	5.88	3.68
1956/57	0.0	1.3	2.3	0.6	2.2	3.9	3.1	3.5	0.1	12.9	8.0	2.4	1.70	5.00	3.35
1957/58	2.4	0.4	1.5	1.2	1.0	2.7	3.2	5.2	21.7	23.8	9.0	3.4	1.53	11.03	6.28
1958/59	1.3	1.2	2.1	2.8	1.1	2.8	6.7	12.9	13.3	11.2	7.1	2.2	1.87	8.92	5.40
1959/60	0.6	1.2	0.9	6.7	1.5	9.9	7.9	13.9	9.3	10.6	6.2	6.4	3.46	9.02	6.24
1960/61	1.4	2.0	2.1	3.6	3.7	4.2	7.3	19.7	23.1	0.7	10.8	1.2	2.83	10.48	6.65
1961/62	1.5	2.2	6.4	4.1	4.2	5.3	10.9	23.7	22.8	11.3	6.8	3.6	3.98	13.16	8.57
1962/63	0.1	0.8	3.1	1.8	2.9	3.1	8.5	10.8	8.7	3.8	0.5	3.2	1.98	5.93	3.95
1963/64	1.3	2.7	2.3	4.3	9.2	11.0	7.6	2.6	7.7	7.5	25.7	9.7	5.14	10.14	7.64
1964/65	1.7	1.8	1.5	1.5	3.5	0.5	1.5	4.0	3.7	2.6	0.01	3.2	1.76	2.50	2.13
1965/66	1.1	1.7	1.1	0.3	6.8	2.8	4.2	11.2	4.4	5.7	2.5	0.6	2.29	4.77	3.53
1966/67	0.4	0.2	0.4	3.3	2.3	5.5	4.9	6.5	9.3	5.7	15.7	3.4	2.01	7.56	4.78
1967/68	1.5	1.6	0.7	1.0	0.7	1.4	3.4	1.7	3.3	1.5	3.8	1.9	1.14	2.61	1.87
1968/69	0.9	0.7	3.4	2.3	1.6	0.9	2.2	3.1	5.7	2.6	3.9	5.6	1.65	3.87	2.76
1969/70	0.6	0.4	1.8	2.2	1.9	2.4	2.4	2.8	7.2	17.0	2.9	1.5	1.52	5.61	3.57
1970/71	0.1	1.5	2.0	3.1	3.4	0.1	5.5	2.0	7.3	8.3	4.4	2.4	1.69	4.96	3.33
1971/72	0.5	1.1	0.5	3.7	2.9	3.8	6.0	11.6	12.8	5.7	3.8	2.9	2.07	7.10	4.59
1972/73	0.4	1.6	8.5	3.8	9.7	9.9	10.5	17.5	16.0	28.6	11.2	8.9	5.65	15.44	10.54
1973/74	2.3	1.7	4.5	8.7	5.2	6.9	3.9	7.7	6.3	10.7	7.3	2.4	4.88	6.37	5.63
1974/75	1.0	1.3	4.3	5.4	4.0	4.2	7.9	9.1	10.2	13.8	7.5	2.4	3.37	8.47	5.92
1975/76	0.8	0.6	1.5	1.9	2.0	2.6	3.9	2.7	5.1	5.7	1.1	0.3	1.56	3.15	2.35
1976/77	1.0	1.3	1.2	0.6	0.2	1.1	2.1	3.8	3.4	4.1	2.6	4.6	0.90	3.42	2.16
1977/78	0.3	1.3	2.9	8.1	4.7	5.2	8.3	16.1	11.4	10.1	10.3	5.8	3.73	10.33	7.03
1978/79	3.1	2.0	2.2	9.4	4.5	7.9	10.2	16.9	34.2	19.9	10.9	7.3	4.83	16.58	10.71
1979/80	1.8	0.1	0.0	1.0	3.8	4.3	4.8	5.4	5.6	14.6	6.7	3.9	1.83	6.84	4.33
1980/81	8.4	12.2	2.8	8.1	6.8	7.8	8.8	11.5	19.1	12.1	15.3	6.7	7.69	12.24	9.96
1981/82	5.4	7.9	3.8	4.2	4.6	2.9	7.1	11.0	13.1	13.5	4.1	1.1	4.79	8.31	6.55
1982/83	0.5	2.3	9.0	15.9	12.2	9.1	11.4	16.9	32.7	17.3	12.1	10.5	8.19	16.84	12.52
1983/84	3.5	3.5	4.0	2.7	2.8	5.4	11.7	27.4	16.5	14.8	12.0	3.0	3.65	14.22	8.93
1984/85	3.1	1.4	2.2	4.7	4.9	5.3	9.5	12.5	4.3	24.0	1.9	6.5	3.61	9.78	6.70
1985/86	4.1	2.3	1.4	2.7	2.3	2.3	3.4	8.2	3.5	5.2	6.0	0.9	2.50	4.54	3.52
1986/87	0.9	1.5	18.9	9.0	4.1	2.8	8.4	9.4	13.7	16.1	11.2	1.6	6.19	10.05	8.12
1987/88	0.3	2.2	3.0	14.9	13.0	10.5	7.8	1.1	21.5	15.9	14.6	7.2	7.30	11.36	9.33
1988/89	2.5	4.3	5.5	4.9	5.5	3.7	2.1	6.5	12.6	15.7	17.1	9.6	4.41	10.60	7.51
1989/90	2.5	2.4	2.2	0.3	7.3	7.2	13.5	14.8	15.8	8.6	6.5	2.0	3.67	10.21	6.94
1990/91	3.2	2.2	1.1	0.4	0.7	2.9	3.7	5.3	2.8	15.1	2.2	3.0	1.74	5.38	3.56
1991/92	5.4	5.0	5.4	12.2	8.1	11.7	11.4	15.7	7.8	11.1	9.2	0.6	7.96	9.32	8.64
1992/93	2.1	2.4	4.6	4.2	4.1	6.8	9.5	10.6	7.0	14.6	6.2	3.2	4.03	8.52	6.27
1993/94	3.6	0.2	6.3	6.3	4.7	5.7	8.1	10.2	17.3	23.6	4.9	4.6	4.47	11.46	7.96
1994/95	0.2	2.2	2.6	5.9	3.7	4.4	5.6	9.2	10.5	9.0	0.4	1.8	3.16	6.06	4.61
1995/96	2.0	2.8	3.0	3.0	3.2	5.1	4.7	7.3	5.8	1.1	1.0	1.7	3.18	3.62	3.40
1996/97	2.0	1.3	1.1	1.1	0.8	1.7	1.3	1.1	2.7	6.4	2.8	0.6	1.34	2.46	1.90
1997/98	1.4	1.7	3.6	3.7	4.5	14.1	12.6	15.6	8.1	18.2	0.4	2.8	4.84	9.59	7.22
1998/99	0.3	1.6	1.3	0.7	0.8	1.4	1.7	2.2	5.9	9.5	2.6	1.5	1.01	3.91	2.46
1999/2000	0.4	0.9	1.2	0.6	4.9	2.6	7.7	11.7	5.8	3.2	1.9	2.6	1.77	5.47	3.62
2000/01	1.8	1.6	9.2	6.7	3.9	5.7	13.8	14.2	7.6	15.6	6.7	4.0	4.83	10.31	7.57
2001/02	4.8	2.8	2.6	8.2	10.7	9.9	14.1	12.4	5.8	14.7	4.5	9.4	6.49	10.15	8.32
2002/03	1.1	1.6	3.5	9.7	5.4	10.9	11.9	6.1	5.8	7.3	3.3	5.1	5.37	6.58	5.97
2003/04	5.5	2.5	2.5	5.0	0.6	2.8	5.1	7.6	7.4	7.5	9.5	5.8	3.16	7.16	5.16
2004/05	3.6	2.3	2.1	0.5	0.3	3.5	1.5	8.0	8.6	3.3	1.3	0.8	2.03	3.90	2.97
2005/06															
AVERAGE	1.8	1.9	3.1	4.3	4.0	4.9	6.6	9.4	10.5	11.0	6.5	3.7	3.35	7.97	5.66
STD DEV	1.7	1.9	3.0	3.6	2.9	3.2	3.5	5.7	7.3	7.0	5.0	2.6	1.88	3.59	2.53
CV	1.9	2.0	3.2	4.3	4.0	5.0	6.7	9.6	10.3	10.7	6.5	3.7	3.40	7.91	5.66
MAX	1.7	1.9	3.0	3.6	2.9	3.2	3.5	5.7	7.2	6.4	5.1	2.6	1.87	3.55	2.52
MIN	0.9	1.0	0.9	0.8	0.7	0.6	0.5	0.6	0.7	0.6	0.8	0.7	0.55	0.45	0.45

A2.16: Balance 3 Middle Basin

AVERAGE MONTHLY FLOWS (m3/s)
1950/51 - 2004/05 STATISTICS

MIDDLE BASIN: El manzano - (San Alfonso + Colorado)

A [km²] = 392

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51	0.7	0.5	3.3	0.2	2.4	7.0	5.0	10.0	4.4	7.3	6.7	3.7	2.36	6.19	4.27
1951/52	4.7	4.4	6.9	6.8	7.7	8.4	7.5	17.3	3.0	8.4	6.9	0.5	6.48	7.27	6.87
1952/53	4.6	8.1	4.3	3.6	8.1	7.2	14.7	2.8	2.9	0.9	7.9	5.8	5.98	5.83	5.90
1953/54	1.7	3.6	0.6	2.1	11.7	11.2	25.0	9.3	25.9	13.2	10.7	9.5	5.17	15.59	10.38
1954/55	4.1	0.8	5.2	8.8	10.4	10.9	11.9	11.3	0.6	30.9	6.9	3.2	6.70	10.80	8.75
1955/56	4.5	3.7	3.6	3.6	5.7	6.2	11.9	1.3	7.7	1.3	6.2	2.2	4.54	5.09	4.82
1956/57	4.5	10.9	3.2	5.6	7.8	8.4	5.7	8.9	3.5	7.6	6.1	2.8	6.73	5.75	6.24
1957/58	1.6	1.3	6.2	4.1	6.2	4.0	7.4	9.0	3.0	9.3	0.5	7.4	3.91	6.09	5.00
1958/59	5.5	2.9	1.6	4.8	3.1	6.0	21.8	4.7	3.1	6.2	6.6	6.4	3.97	8.14	6.06
1959/60	12.3	7.0	3.9	5.5	8.2	3.1	10.9	11.0	20.7	11.8	9.2	3.8	6.67	11.23	8.95
1960/61	1.8	0.3	10.3	9.3	8.6	10.3	11.9	9.5	5.5	11.4	7.0	4.3	6.76	8.27	7.51
1961/62	11.6	2.9	8.2	1.8	10.7	5.9	15.9	6.2	18.7	15.0	1.3	10.0	6.85	11.19	9.02
1962/63	2.4	2.7	9.0	5.0	12.4	6.5	7.3	13.1	14.4	9.2	7.0	0.9	6.33	8.66	7.50
1963/64	4.9	1.5	4.0	3.2	7.2	2.1	14.1	11.7	2.8	9.3	3.0	10.0	3.82	8.47	6.14
1964/65	5.6	1.5	5.7	6.1	0.7	1.3	3.9	1.2	5.9	0.04	6.2	6.1	3.48	3.89	3.68
1965/66	0.3	0.9	5.0	4.9	15.1	14.0	12.9	0.9	5.4	17.5	1.5	8.3	6.69	7.74	7.22
1966/67	2.5	2.9	10.6	6.1	12.8	17.8	6.2	9.6	3.0	10.7	2.0	6.3	8.77	6.30	7.53
1967/68	5.1	3.9	0.5	1.5	1.7	5.1	9.4	6.0	8.5	8.0	6.9	4.9	2.96	7.28	5.12
1968/69	4.3	8.6	3.6	2.1	5.1	3.6	5.2	4.1	3.4	0.1	5.0	4.5	4.57	3.71	4.14
1969/70	2.2	6.7	6.3	1.8	6.2	6.0	4.7	0.4	14.7	9.4	7.8	5.8	4.88	7.11	6.00
1970/71	4.6	1.5	3.7	3.9	1.6	2.8	9.8	4.2	7.5	5.9	4.9	4.1	3.00	6.07	4.53
1971/72	3.2	2.6	3.1	0.2	1.8	3.4	5.6	16.0	10.9	9.8	0.3	2.3	2.39	7.50	4.94
1972/73	3.5	13.1	16.8	10.4	19.8	17.9	19.6	20.2	5.6	54.5	10.1	17.5	13.59	21.27	17.43
1973/74	9.3	5.6	4.1	9.1	8.8	0.9	4.8	25.5	20.3	5.0	0.9	6.9	6.30	10.54	8.42
1974/75	4.9	3.8	1.7	3.8	10.8	5.1	12.2	11.8	13.0	8.5	2.8	7.1	5.02	9.23	7.12
1975/76	5.3	3.9	2.8	2.6	13.0	8.0	3.2	6.9	4.6	15.6	6.4	5.3	5.93	6.99	6.46
1976/77	2.7	2.6	7.1	2.3	2.8	6.9	6.8	15.8	8.4	3.6	1.8	5.4	4.07	6.97	5.52
1977/78	4.1	0.0	2.7	8.2	14.5	14.0	35.8	16.9	44.3	25.3	7.7	4.0	7.25	22.30	14.78
1978/79	2.9	1.4	1.0	14.6	11.8	9.6	25.2	31.8	33.4	35.5	28.1	13.0	6.88	27.85	17.37
1979/80	4.4	10.8	8.0	0.1	12.3	10.7	18.3	9.8	26.7	23.6	8.4	7.0	7.72	15.64	11.68
1980/81	13.2	9.5	9.5	8.7	5.8	7.3	12.4	10.3	22.3	5.2	2.1	2.2	8.97	9.07	9.02
1981/82	3.5	10.3	11.9	4.1	0.5	0.9	0.6	3.0	9.8	10.6	7.4	1.3	5.20	5.47	5.33
1982/83	1.4	2.5	9.7	9.5	13.7	27.4	23.7	7.1	50.5	56.0	69.1	36.8	10.69	40.51	25.60
1983/84	18.3	9.1	7.7	10.8	14.5	13.8	36.6	15.2	28.1	4.3	12.3	8.5	12.36	17.53	14.94
1984/85	2.6	4.3	4.8	10.6	7.5	9.3	16.1	8.3	39.9	1.5	13.2	10.8	6.52	14.97	10.75
1985/86	6.7	5.7	6.5	2.0	10.0	8.0	3.3	4.6	2.8	3.2	2.4	0.6	6.48	2.82	4.65
1986/87	3.0	6.2	19.1	8.5	11.5	3.0	8.2	28.1	16.5	31.6	24.6	10.6	8.54	19.92	14.23
1987/88	5.0	0.4	8.8	5.5	34.3	17.1	32.3	26.6	27.9	28.4	0.4	13.2	11.86	21.46	16.66
1988/89	9.1	1.1	2.7	3.5	7.3	4.0	4.7	7.5	0.4	3.5	3.3	7.3	4.63	4.45	4.54
1989/90	9.0	8.7	4.7	2.5	11.0	12.9	24.5	23.2	14.3	11.8	9.1	5.1	8.14	14.68	11.41
1990/91	4.2	5.5	5.3	4.6	9.7	9.8	11.3	4.1	6.9	4.9	1.1	0.8	6.52	4.84	5.68
1991/92	5.8	6.0	10.8	11.3	14.7	16.2	14.5	10.2	7.7	5.1	1.4	6.4	10.79	7.55	9.17
1992/93	7.7	9.7	6.9	4.4	4.0	6.3	14.4	18.0	1.7	17.8	12.4	1.5	6.50	10.97	8.74
1993/94	11.1	6.0	6.6	9.7	11.6	0.9	14.5	10.1	13.6	14.7	9.3	7.8	7.64	11.67	9.66
1994/95	1.0	2.4	3.4	6.5	13.3	14.3	14.8	7.4	18.1	0.7	8.2	7.4	6.83	9.43	8.13
1995/96	6.1	0.1	1.4	3.2	6.0	8.6	11.0	7.0	10.1	3.9	4.4	8.2	4.23	7.43	5.83
1996/97	9.9	4.9	3.3	4.3	1.4	3.5	1.5	2.6	5.4	5.4	1.0	4.9	4.56	3.49	4.02
1997/98	3.8	3.6	3.7	9.2	17.1	22.3	14.6	13.6	16.2	19.1	14.4	11.9	9.94	14.97	12.45
1998/99	13.3	3.7	3.0	1.5	3.5	0.8	2.2	4.7	0.3	7.2	6.1	4.9	4.29	4.24	4.26
1999/2000	3.6	1.4	0.9	2.9	1.8	12.5	6.4	3.0	9.8	9.7	0.6	1.4	3.84	5.12	4.48
2000/01	3.1	3.8	7.9	11.2	17.6	7.7	18.0	8.7	19.2	20.9	10.8	7.6	8.54	14.18	11.36
2001/02	7.7	6.1	4.9	9.2	11.3	4.4	8.6	12.8	9.1	8.5	10.0	8.6	7.26	9.59	8.43
2002/03	8.5	7.0	12.5	5.6	24.1	5.1	14.8	25.9	26.4	34.5	36.7	25.0	10.45	27.21	18.83
2003/04	6.5	1.1	2.5	5.1	11.7	2.2	13.3	10.8	3.4	7.8	8.5	7.4	4.86	8.54	6.70
2004/05	3.9	4.0	0.6	2.7	5.6	5.8	1.7	5.0	0.7	10.1	7.1	6.0	3.78	5.09	4.44
2005/06															
AVERAGE	5.4	4.4	5.7	5.4	9.4	8.2	12.3	10.6	12.6	12.7	8.4	7.0	6.42	10.62	8.52
STD DEV	3.6	3.2	3.9	3.4	6.2	5.6	8.3	7.4	11.5	12.1	10.7	6.0	2.52	7.11	4.47
CV	5.5	4.5	5.7	5.5	9.6	8.2	12.6	10.5	12.9	12.9	8.5	7.2	6.50	10.76	8.63
MAX	3.6	3.2	3.9	3.3	6.2	5.7	8.3	7.4	11.5	12.2	10.8	5.9	2.48	7.13	4.47
MIN	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.9	0.9	1.3	0.8	0.38	0.66	0.52

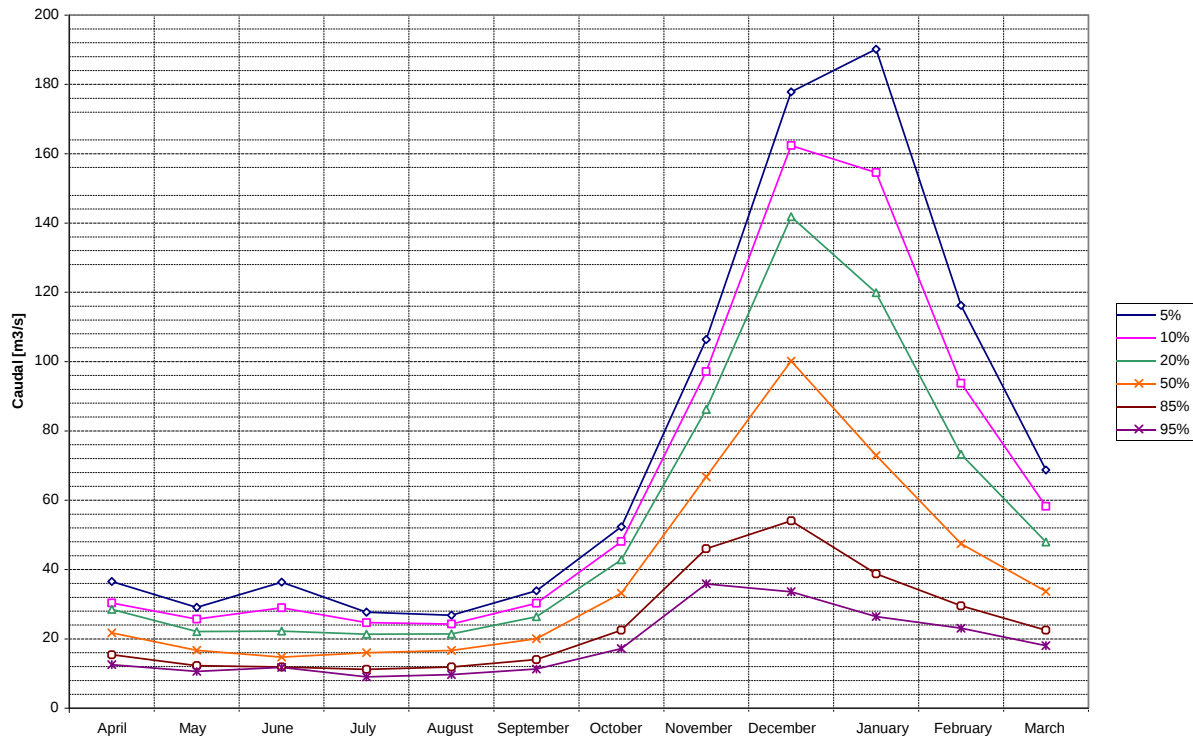
ANNEX III

SEASONAL VARIATION CURVES

SECTIONS OF INTEREST

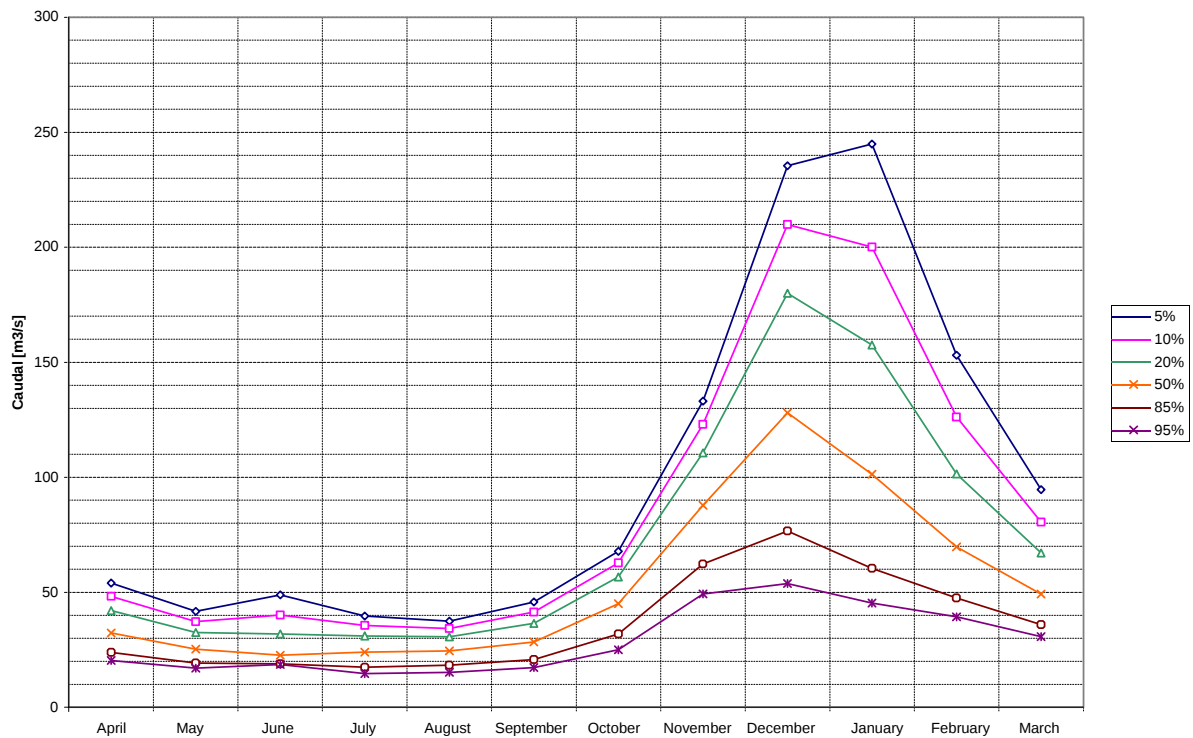
A3. 1: P1 Seasonal Variation Curve

P1 Seasonal Variation Curves: Maipo at Queltehués Hydropower Plant Discharge



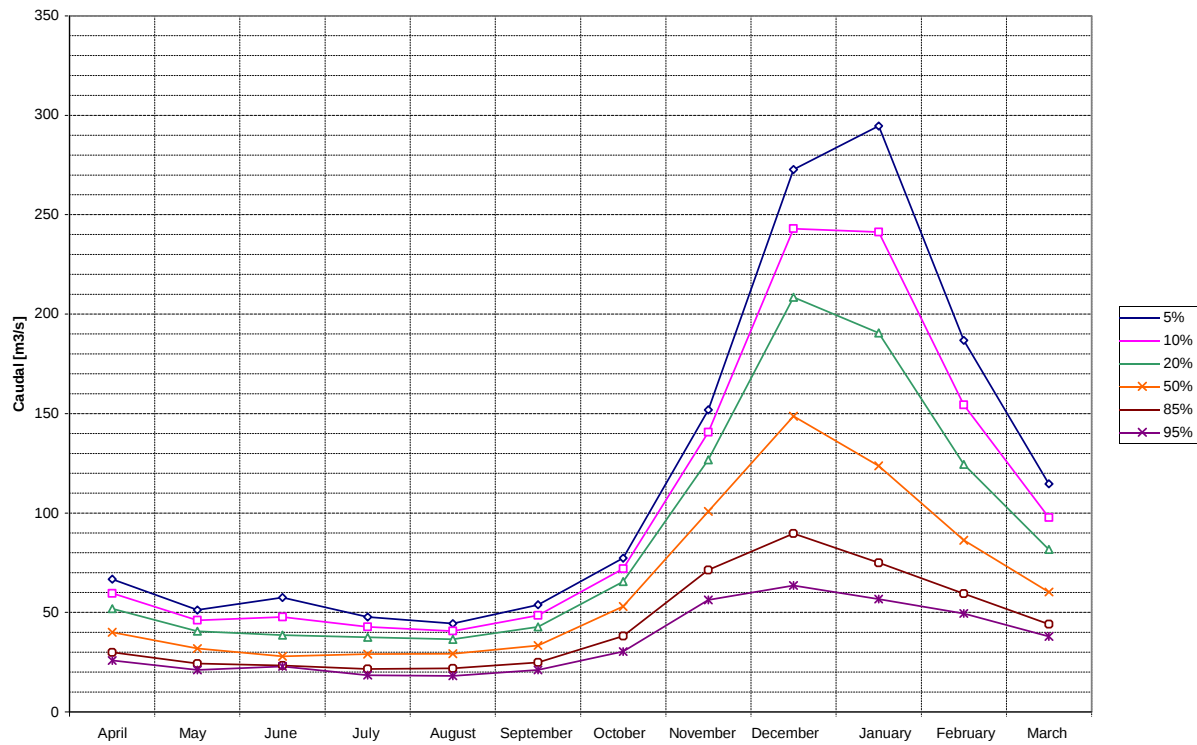
A3. 2: P2 Seasonal Variation Curve

P2 Seasonal Variation Curves: Maipo at Confluence with Volcán.



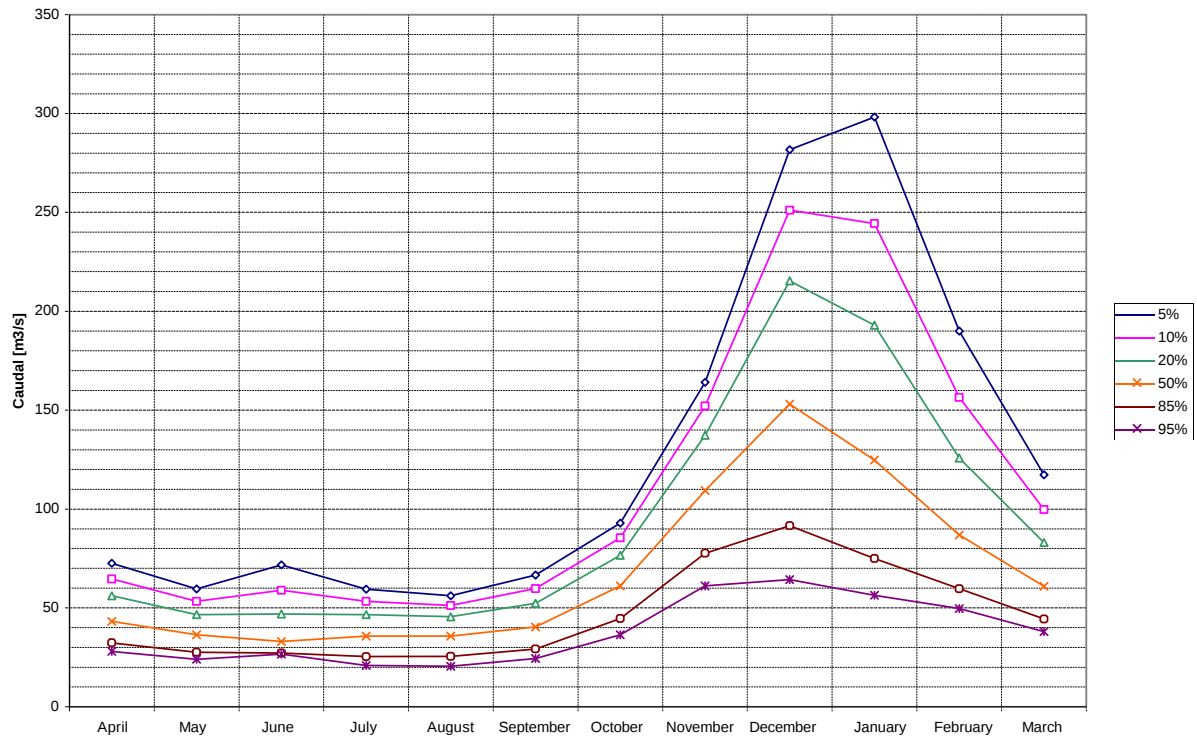
A3. 3: P3 Seasonal Variation Curve

P3 Seasonal Variation Curves: Maipo at Confluence with Yeso



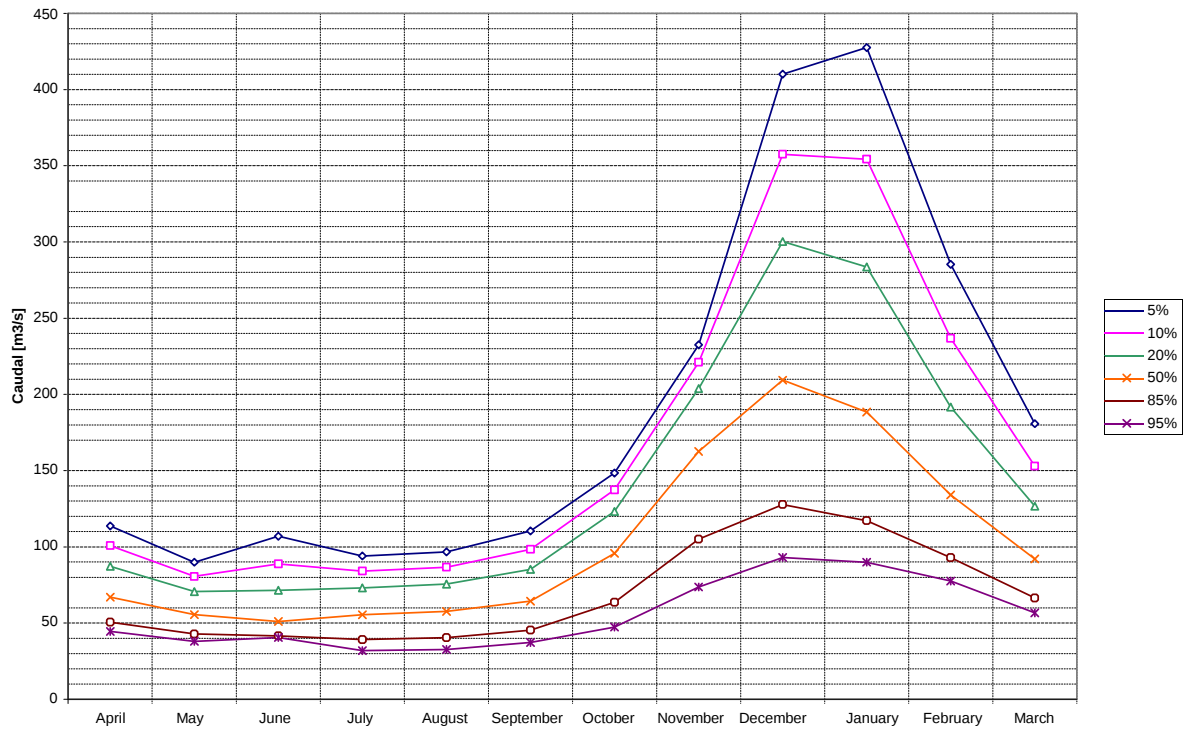
A3. 4: P4 Seasonal Variation Curve

P4 Seasonal Variation Curves: Maipo at AES Gener Intake (75m3/s).



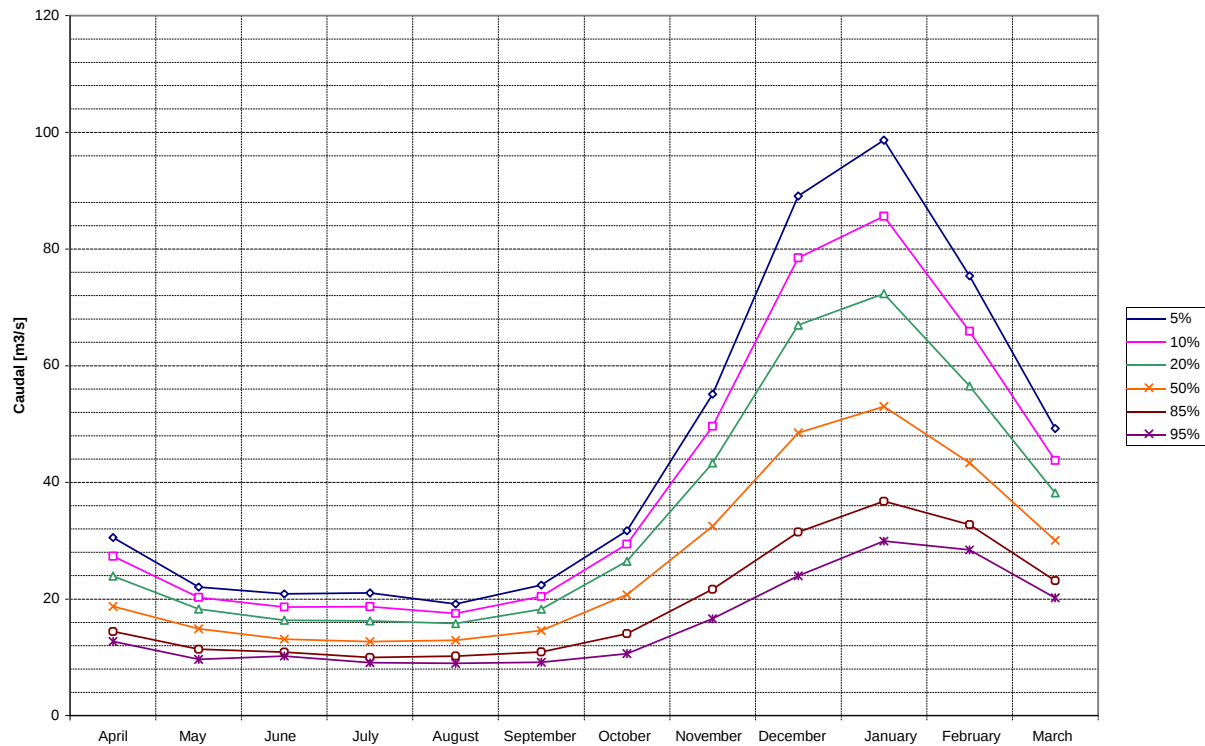
A3. 5: P5 Seasonal Variation Curve

P5 Seasonal Variation Curves: Maipo at Las Lajas Hydropower Plant Discharge



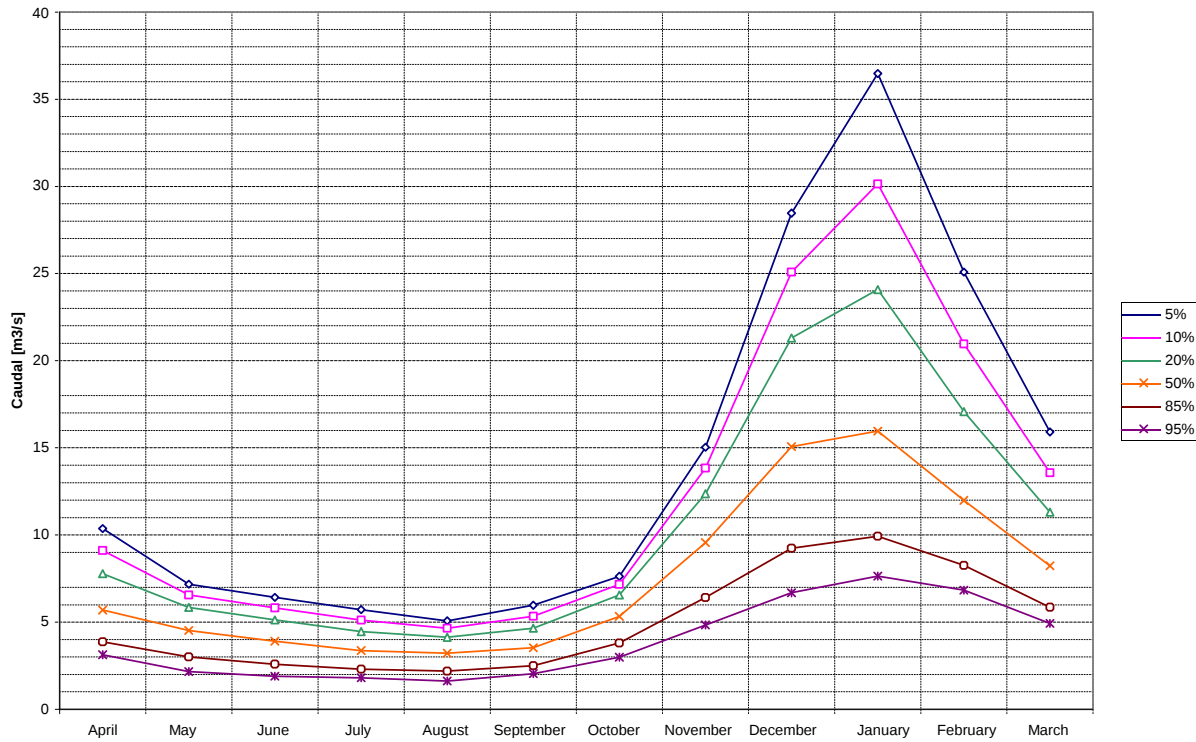
A3. 6: P6 Seasonal Variation Curve

P6 Seasonal Variation Curves: Colorado at Maitenes Hydropower Plant Discharge



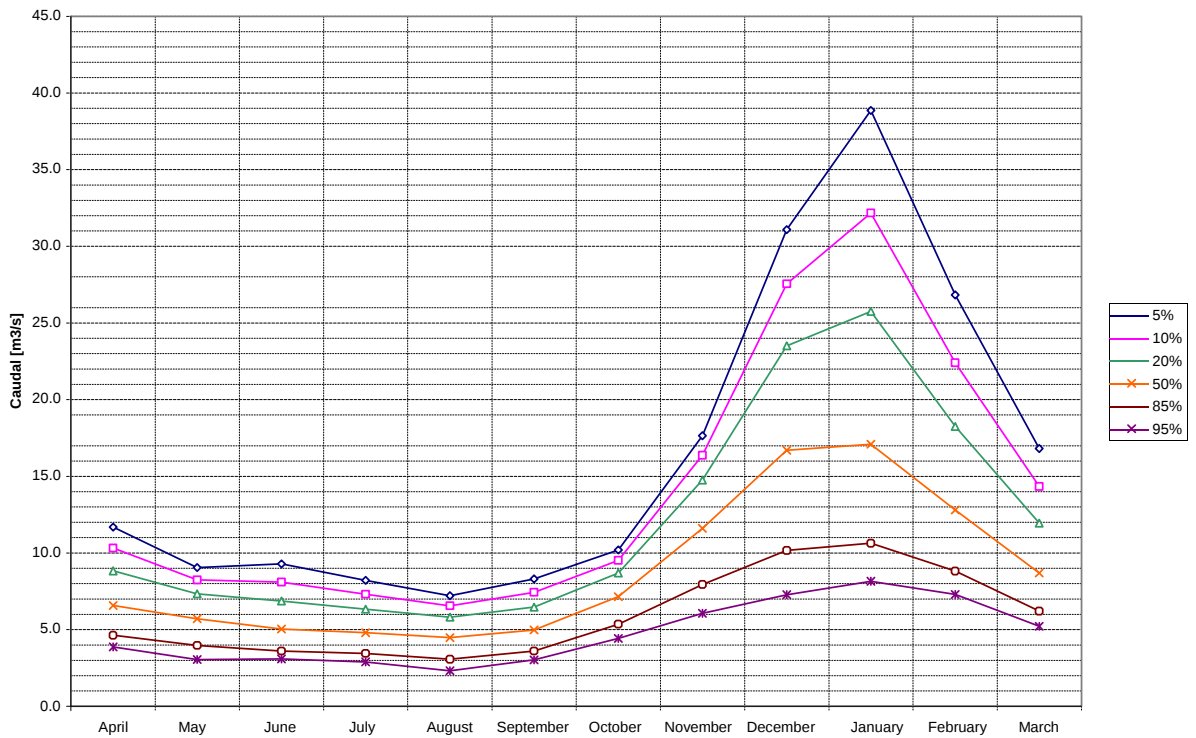
A3. 7: P7 Seasonal Variation Curve

P7 Seasonal Variation Curves: Yeso at Reservoir Discharge from



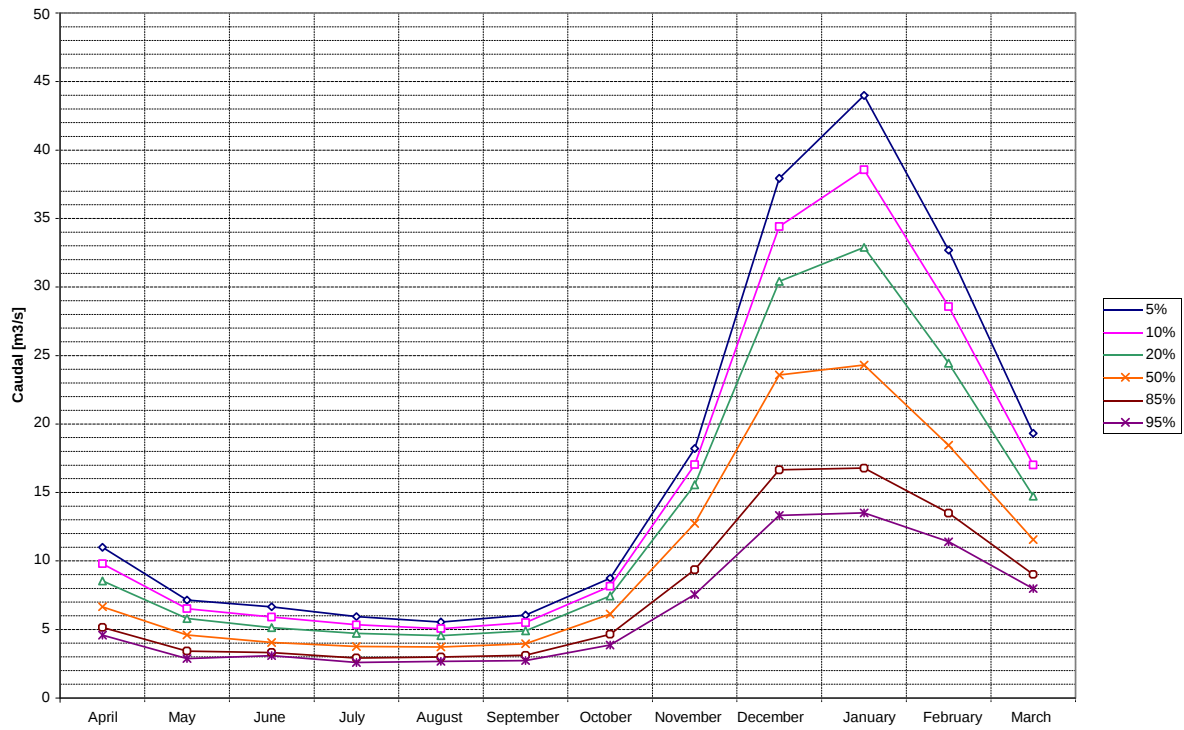
A3. 8: P8 Seasonal Variation Curve

P8 Seasonal Variation Curves: Yeso at Confluence with Estero Cortaderas



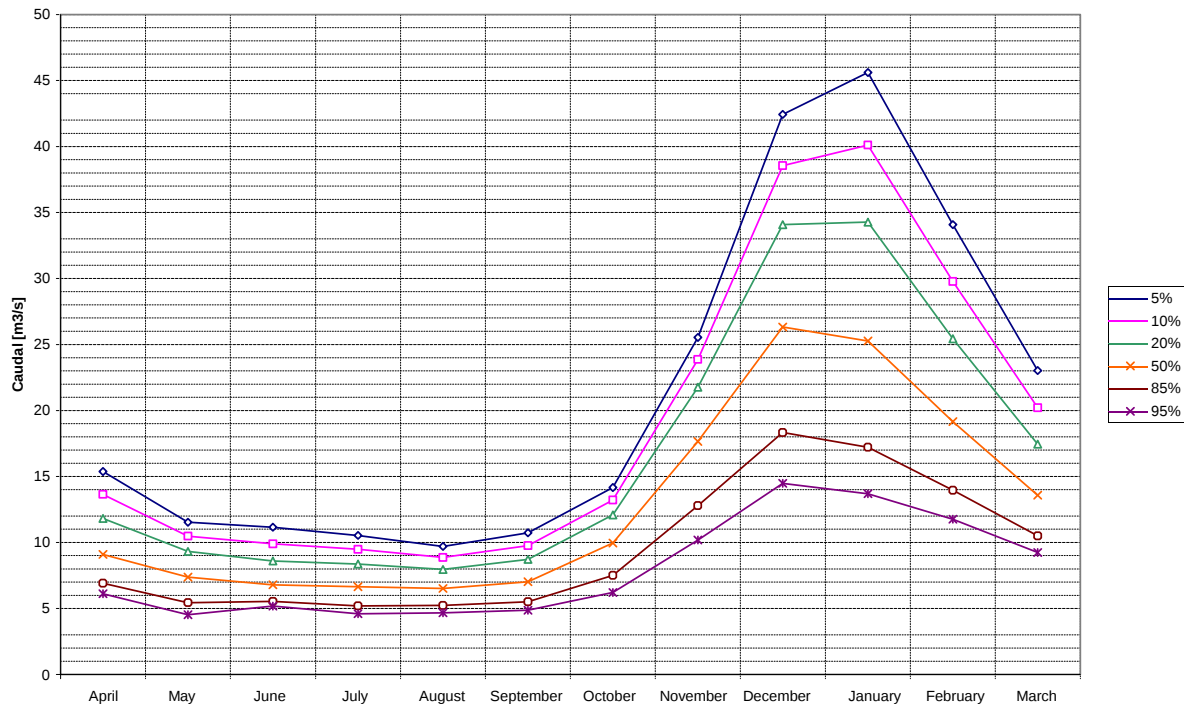
A3. 9: P9 Seasonal Variation Curve

P9 Seasonal Variation Curves: Volcán at AES Gener Intake (12.7 m³/s).



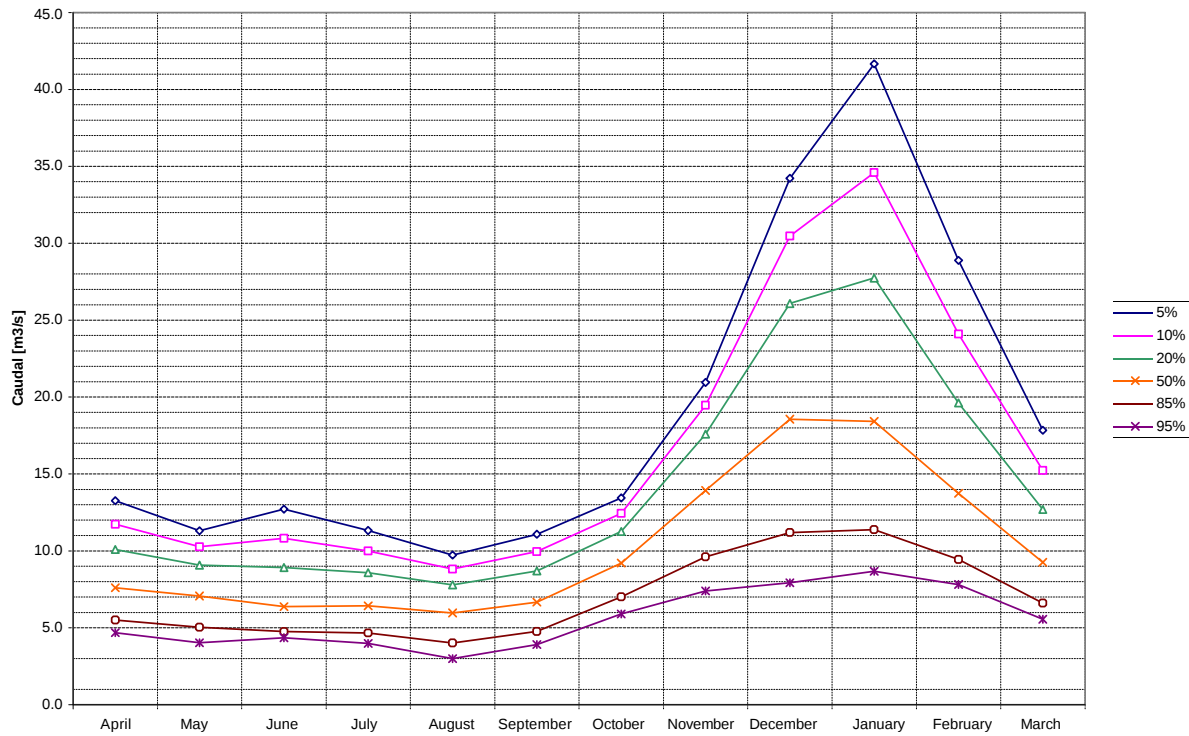
A3. 10: P10 Seasonal Variation Curve

P10 Seasonal Variation Curves: Volcán at AES Gener Restitution (13.1 m³/s). Volcán Canal Intake



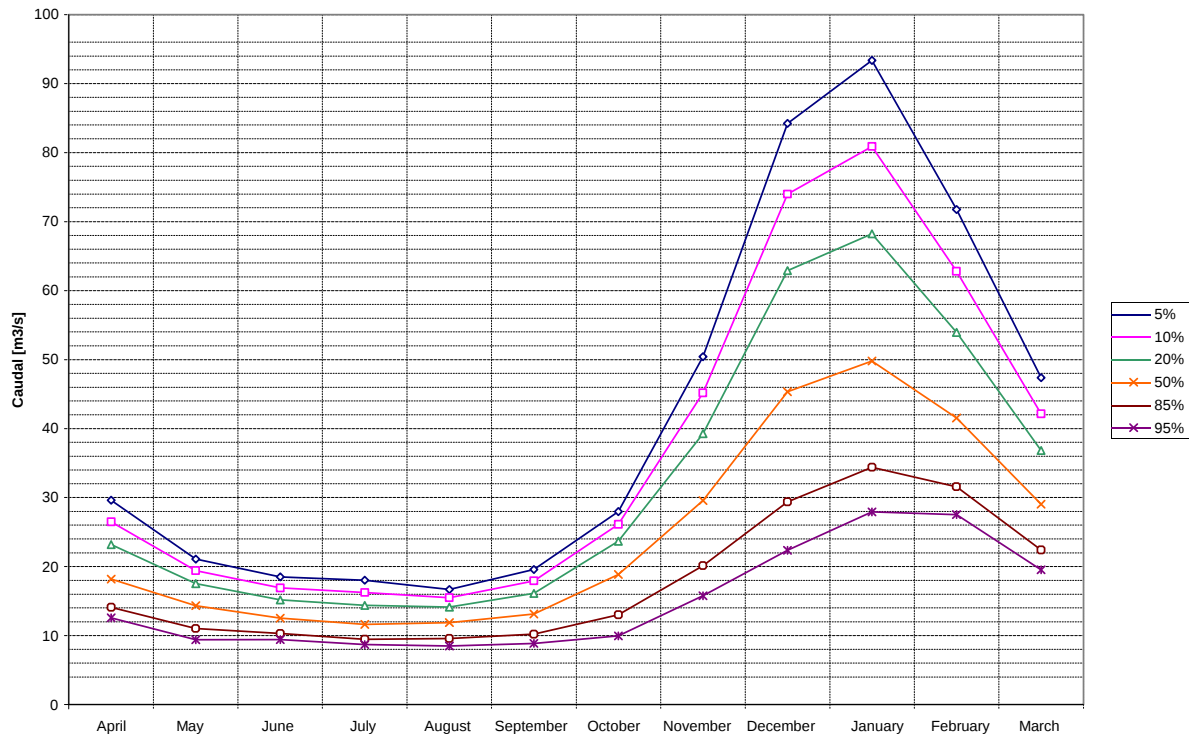
A3. 11: P11 Seasonal Variation Curve

P11 Seasonal Variation Curves: Yeso at Mouth



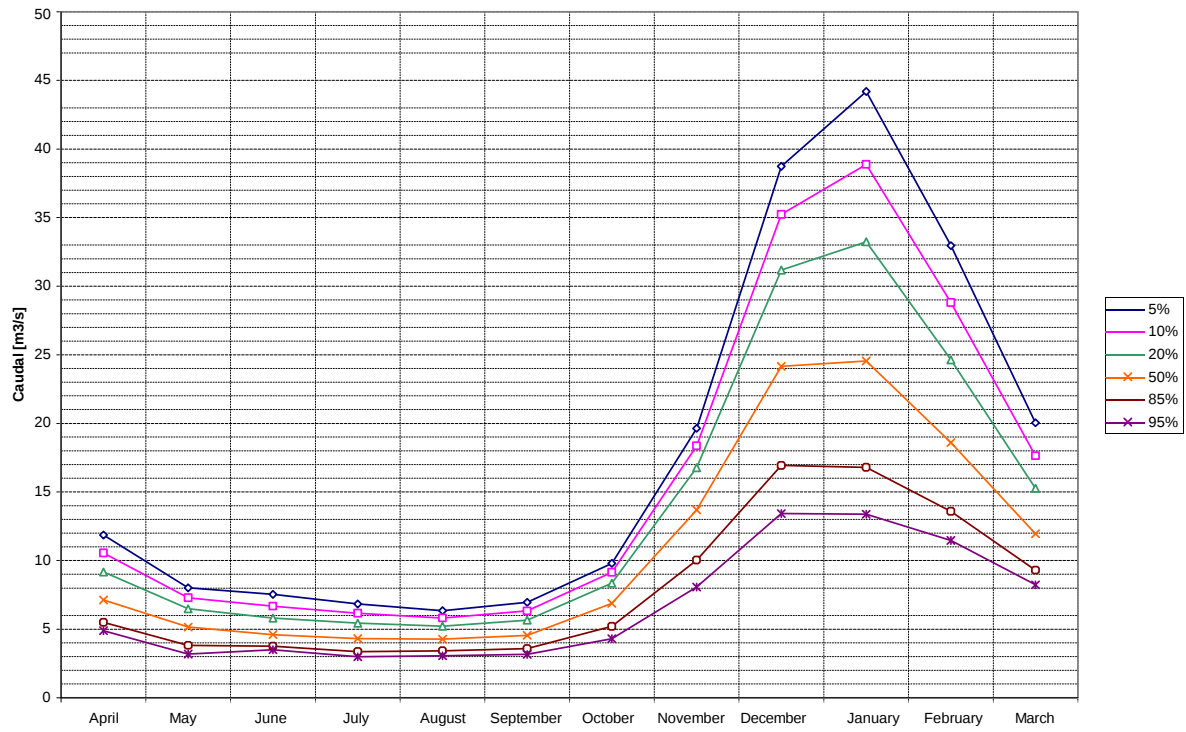
A3. 12: P12 Seasonal Variation Curve

P12 Seasonal Variation Curves: Colorado at Alfafal Hydropower Plant Discharge



A3. 13: P13 Seasonal Variation Curve

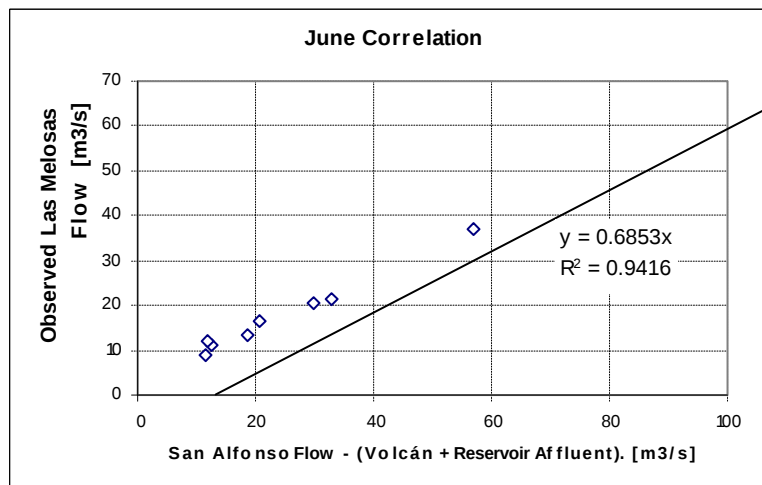
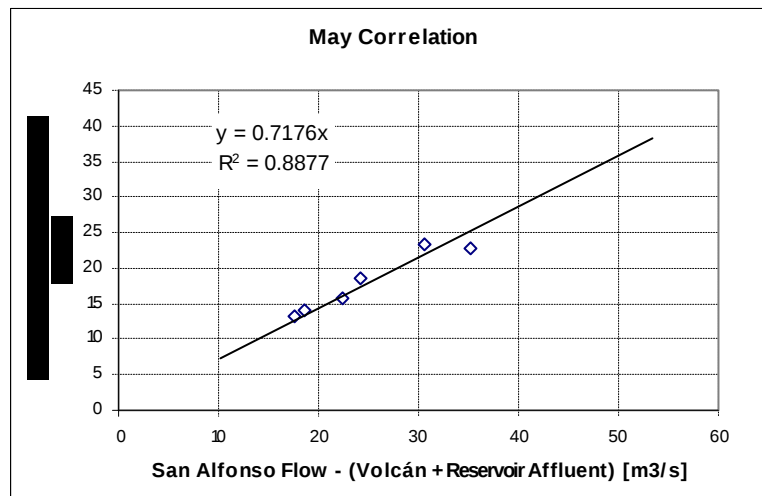
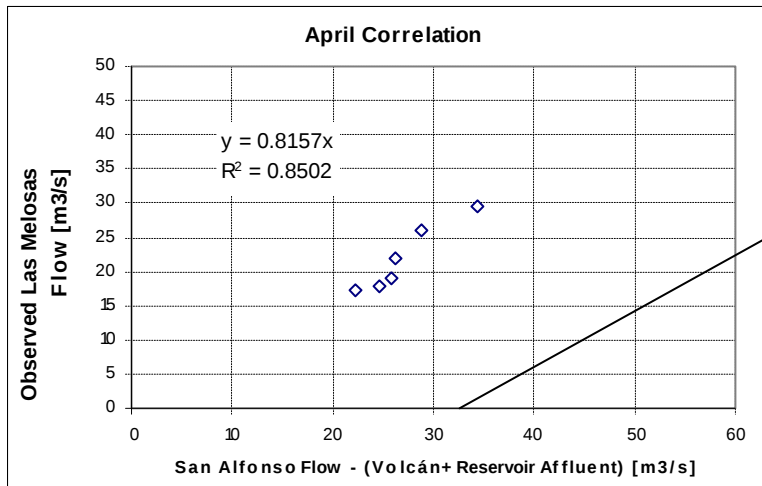
P13 Seasonal Variation Curves: Volcán at AES Gener Discharge (13.1 m³/s).



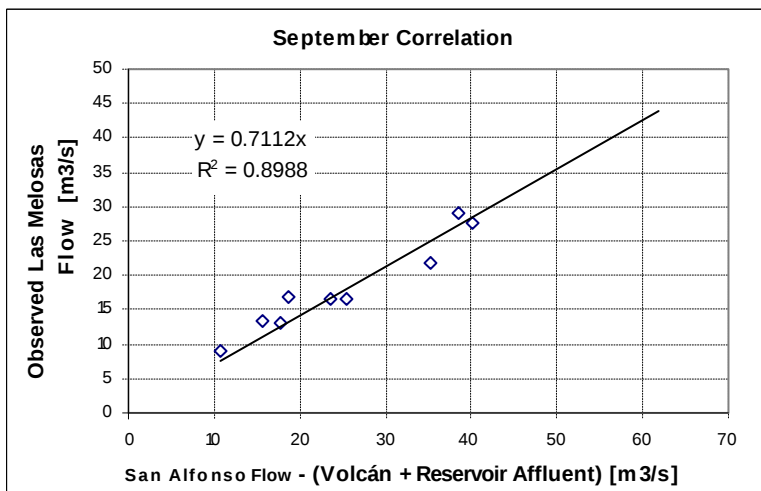
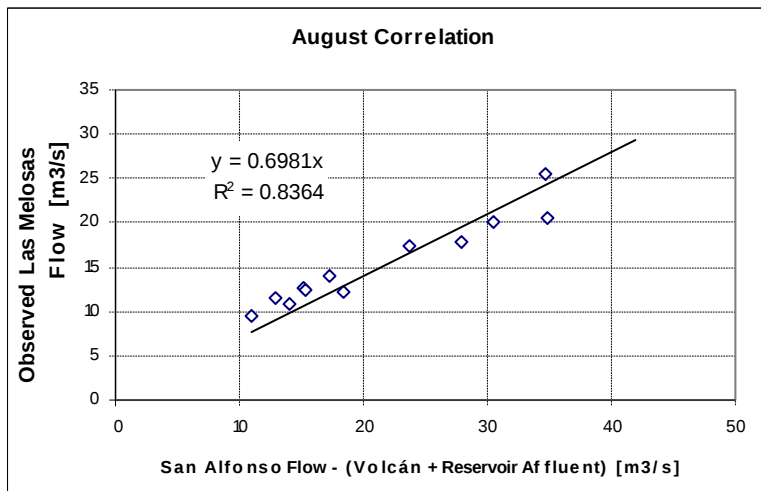
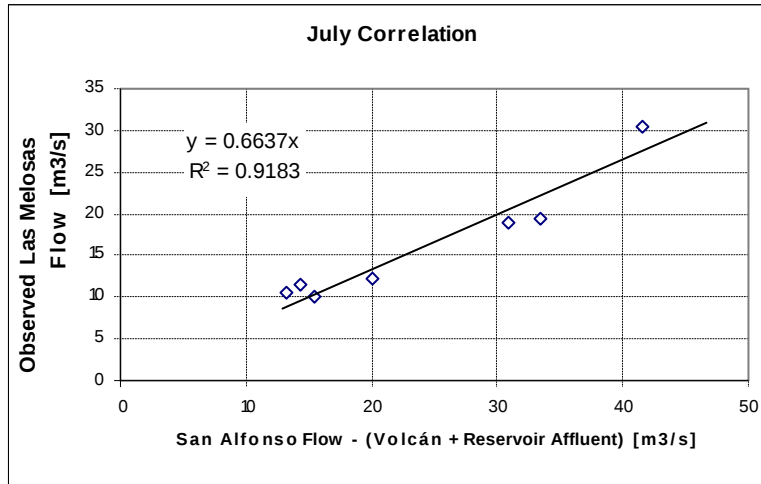
ANNEX IV

RÍO MAIPO EN LAS MELOSAS STATION CORRELATIONS

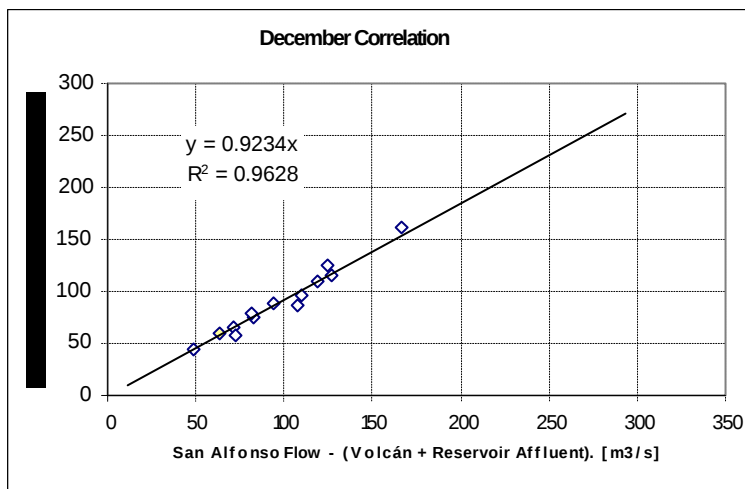
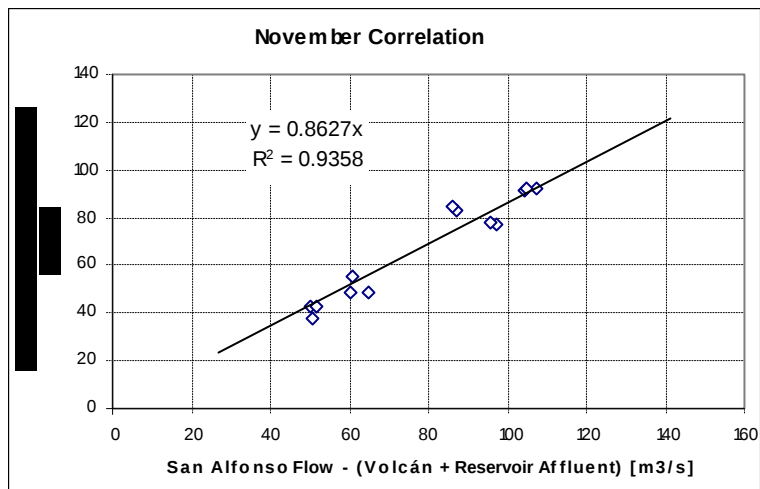
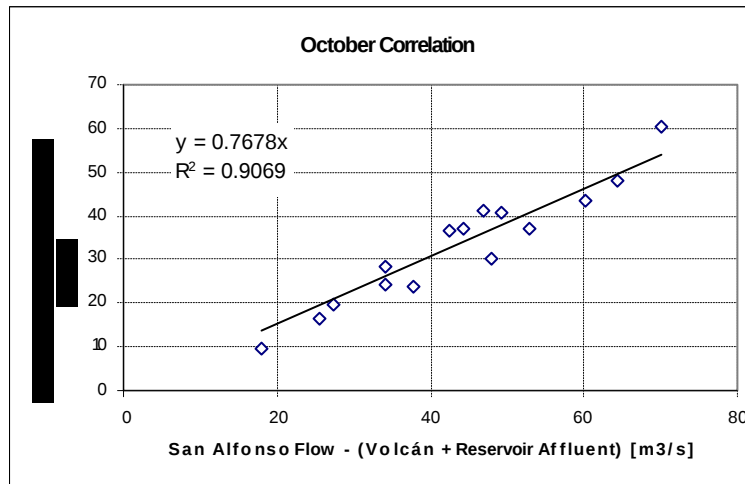
A4. 1: Apr – Jun Correlations



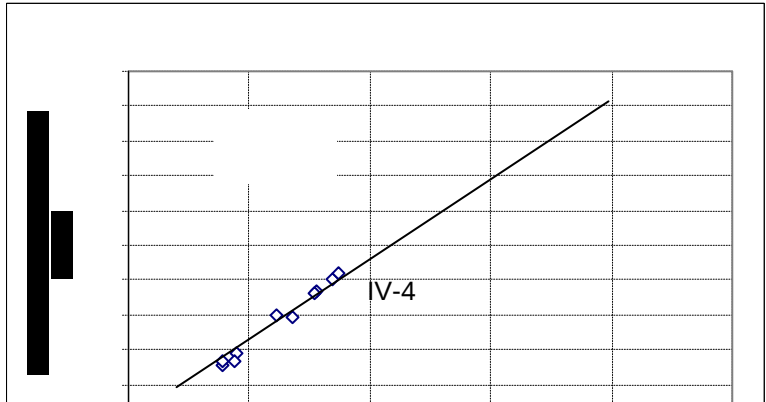
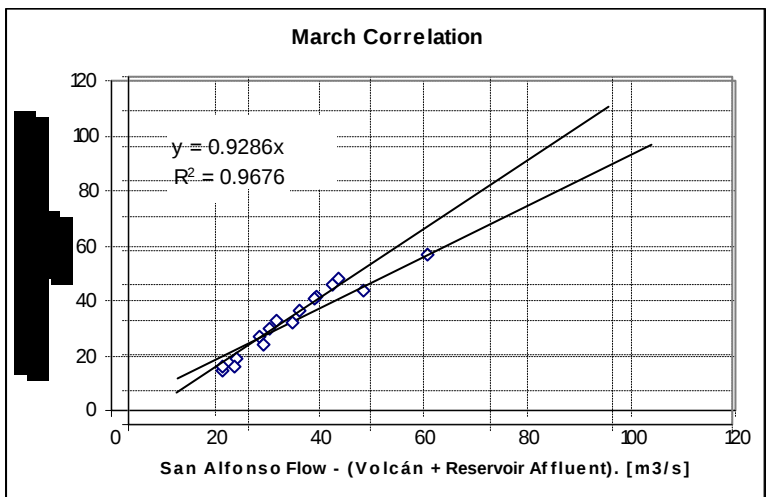
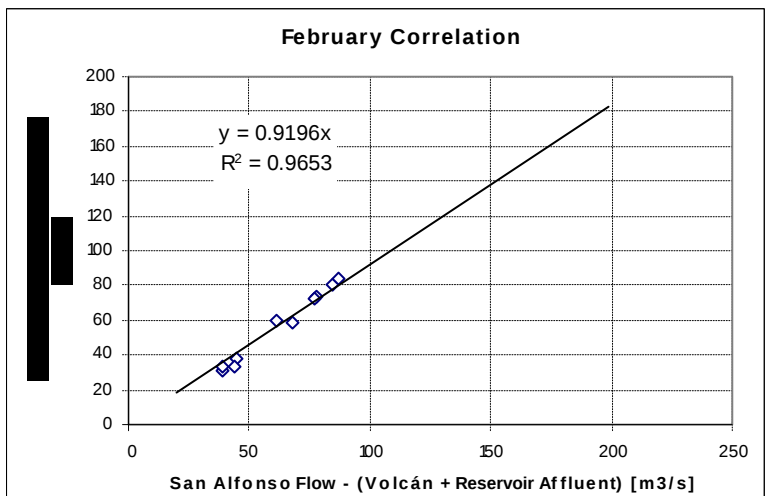
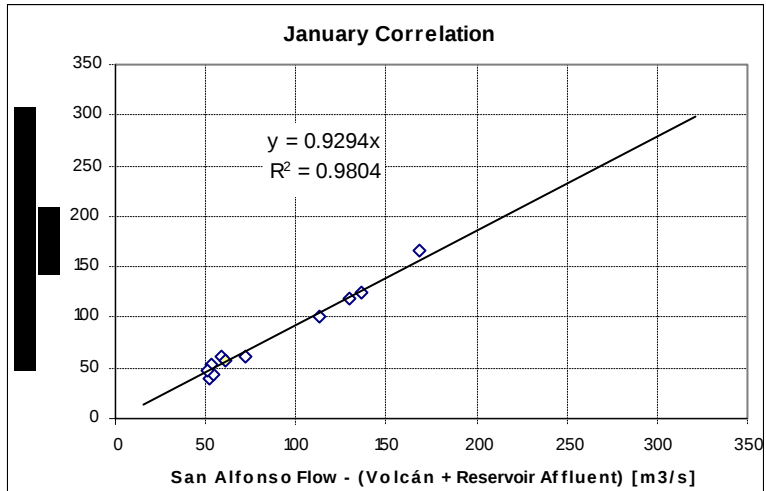
A4. 2: Jul – Sep Correlations



A4. 3: Oct – Dec Correlations



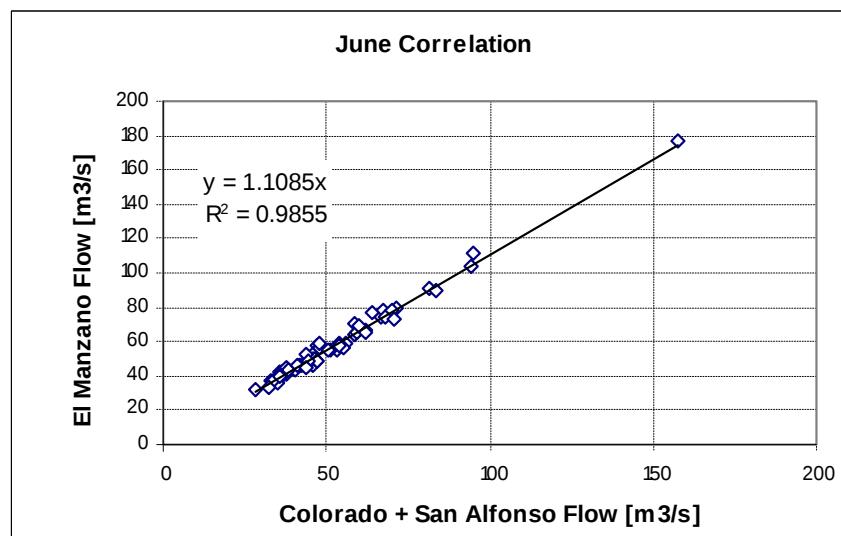
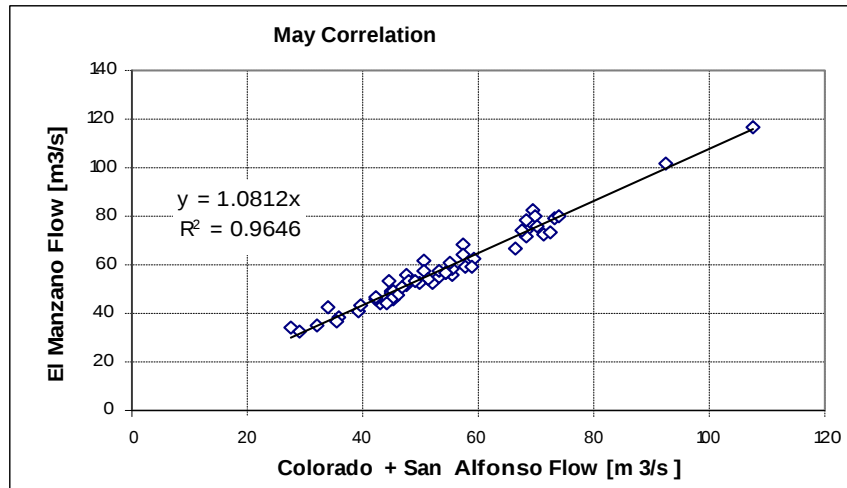
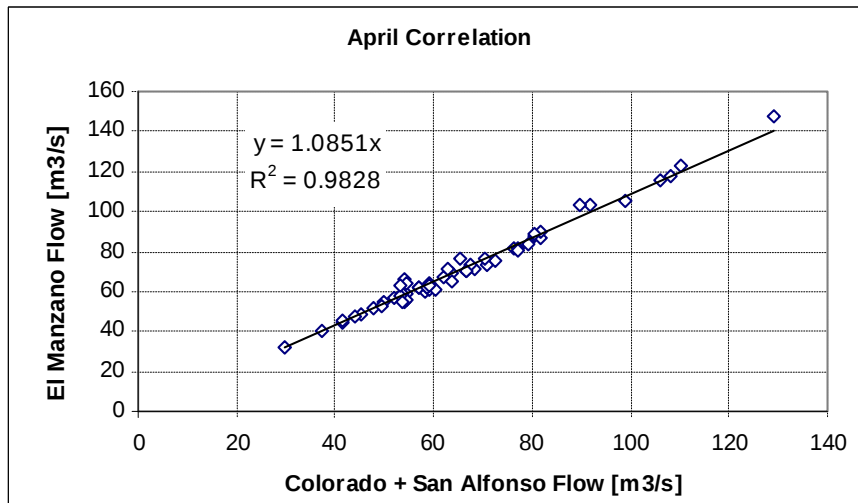
A4. 4: Jan – Mar Correlations



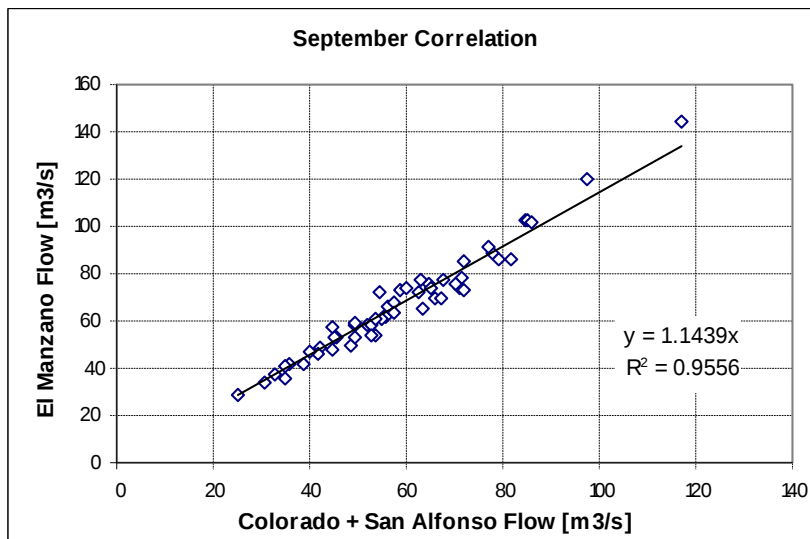
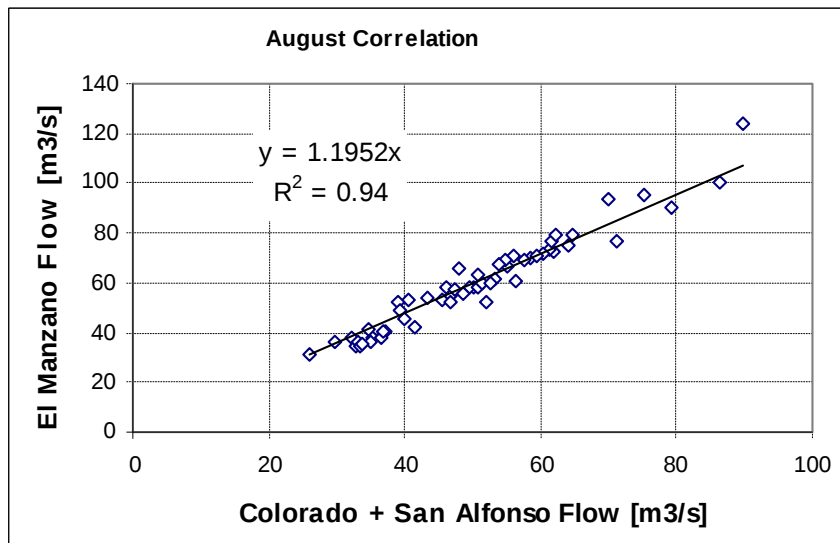
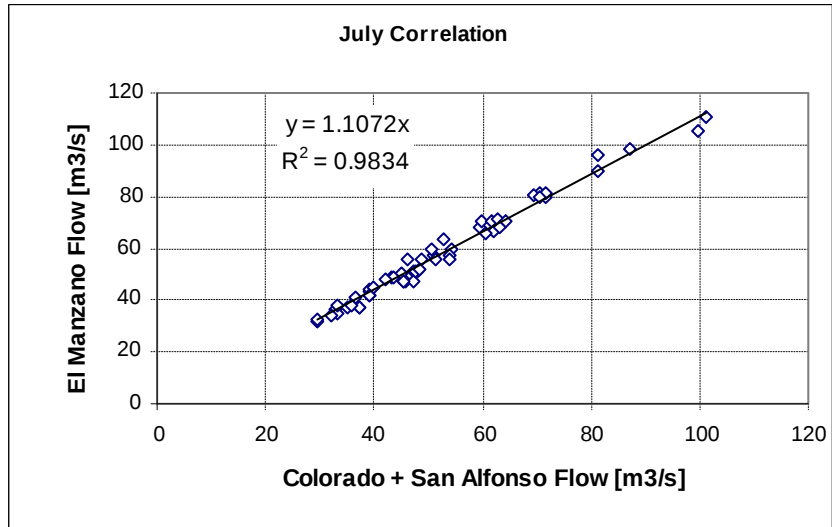
ANNEX V

RÍO MAIPO EN EL MANZANO STATION CORRELATIONS

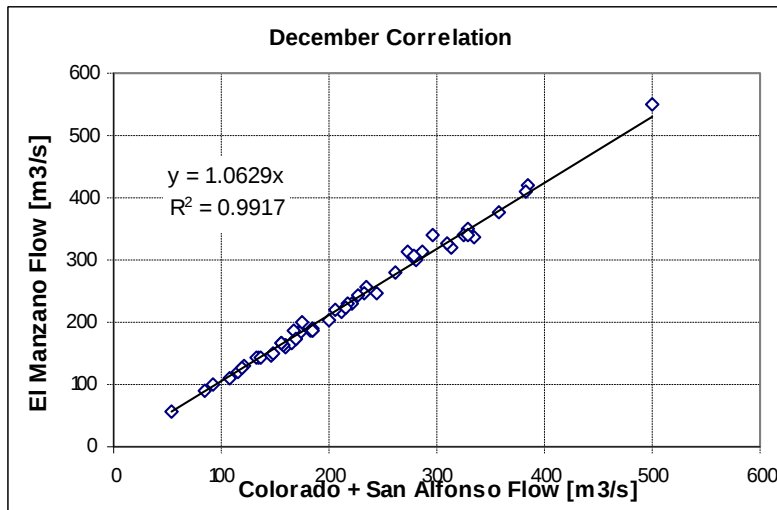
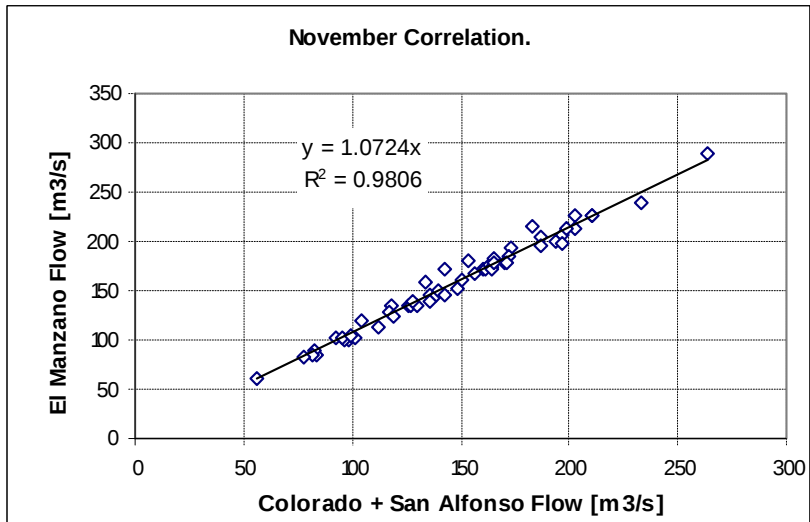
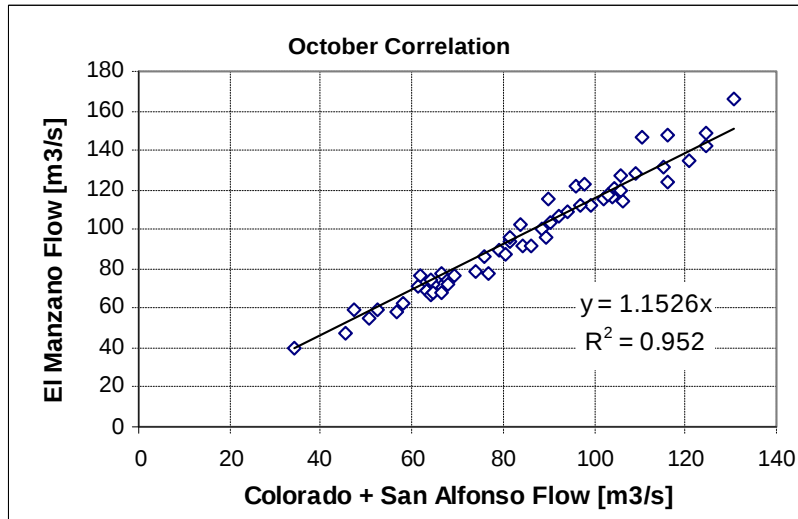
A5. 1: Apr - Jun Correlations



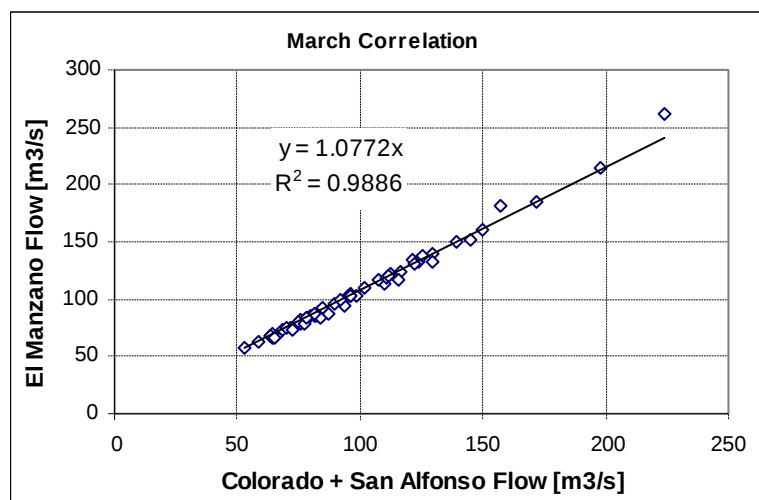
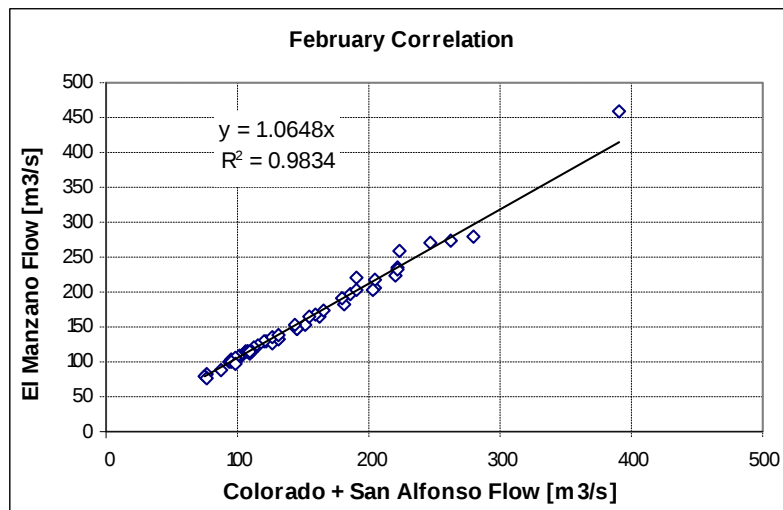
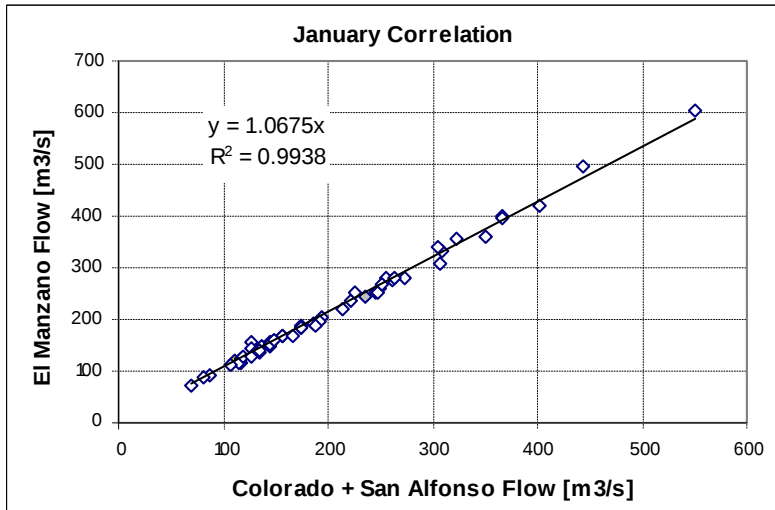
A5. 2: Jul – Sep Correlations



A5. 3: Oct – Dec Correlations



A5. 4: Jan – Mar Correlations



ANNEX VI

OBSERVED FLOW STATISTICS

A6.1: Maipo River at El Manzano Observed Data

AVERAGE MONTHLY FLOWS (m3/s)

STATION: RIO MAIPO EN EL MANZANO

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1950/51	54.67 *	45.41 %	40.97 %	37.02	39.19 %	49.41	70.91	99.61 %	173.23	143.01	94.43	74.76 %	76.9
1951/52	51.14 @	47.16	52.09 %	55.1 %	57.55	56.02 %	75.55 %	129.30	157.58	147.16	101.94	84.41 %	84.6
1952/53	51.73 %	56.11	49.55	50.13 %	45.23	62.44 %	75.37	100.75 %	162.10	133.77	118.07	73.42 %	81.6
1953/54	60.04 @		58.78 *	52.82 *	82.89 %	109.38	114.17	212.65 @	301.13	259.16	196.11	122.34	142.7
1954/55	68.86 *	55.74 @	59.68 @	54.89 @	55.38	56.4 %	66.64	130.52	147.58	143.22 %	88.54 %	62.94 %	82.5
1955/56	51.09 %	43.26 @	50.52 *	45.31 *	42.01 *	45 *	59.01 @	112.04	118.42	96.57	79.47	60.66 @	66.9
1956/57	46.79	42.38	39.48 *	32.62 %	35.82 @	43.75 @	58.54	102.21	100.92 %	93.79 %	74.93 *	64.27 @	61.3
1957/58	51.17 *	40.27	41.51 %	41.87	41.08 @	45.54 @	54.3 %	104.10 %	143.39	137.45 %	94.43 @	68.04 *	71.9
1958/59	44.93 @	40.67	54.1 %	44.73 %	40.01 %	61.5 %	100.34 @	136.86 @	144.64 @	123.18 %	97.58 %	79.61 @	80.7
1959/60	65.64 %	57.09 %	49.2 @	59.28 %	60.94 %	68.86	88.5	148.80	216.77	170.96 %	114.64 @	83.08 @	98.6
1960/61	58.67 %	48.08 @	58.7 %	54.91 @	57.18	66.35	92.63	169.33	203.87	148.32	106.18 *	113.2 %	98.1
1961/62	76.19 @	52.85	71.72 @		58.6 *	76.43 @	142.55	231.10	304.91 %	223.77	164.61	120.82 %	138.5
1962/63	72.61 @	56.55	57.22	59.69	58.92	59.36	89.07	172.63	187.52 %	134.24 @	103.49 @	77.92 @	94.1
1963/64	59.53 *	47 %	41.5 *	49.73 %	56.91 @	68.74	90.27	127.30	306.46 %	356.16	213.5 %	124.92 %	128.5
1964/65	81.2 %	58.34 @	51.71	48.47	42.86	49.42	61.18	83.58	88.35	112.94 %	101 *		70.8
1965/66	68.92 *	45.15 %	45.87	43.45 %	71.4 %	82.47 @	114.66	196.43	198.84	274.52	181.25	115.47	119.9
1966/67	92.73 *	58.21 *	58.49 @	57.25	53.03	71.52	94.87 @	229.67 *	177.23	165.39	127.46	77.46 *	105.3
1967/68	48.78 *		35.61 @	34.1 %	34.48 *	37.27 @	59.91	88.15	123.37	106.64 %	93.88 %	73.09 %	66.8
1968/69	50.73 %	35.79	24.27	24.59	23.17	27.49	33.82	50.58	43.04	66.66	62.33	51.41	41.2
1969/70	33.36	31.93	39.56	28.66	33.71	41.1	65.27	102.70	209.32	136.24	103.16	65.63	74.2
1970/71	44.93	39.49	36.32	40.38	34.1 %	46.65 %	70.33	93.66	107.95	82.87	76.22	53.37	60.5
1971/72	37.01 %	26.53	24.63	34.43	35.57	47.75	89.93	167.67	157.77	143.18	102.86	75.97	78.6
1972/73	49.08	80.5	106.18	67.11	90.2	98.56	136.9	196.37	291.50 @	477.5 %	305 *	226.81	177.1
1973/74	139.98	79.73 %	60.24	68.79 @	59.2 *	54.6 %	81.12	155.37	175.94	177 %	125.58 %	85.23	105.2
1974/75	55.54	51.35	59.83 %	52.67 %	50.98	63.27	127.23	187.93	192.68	224.39	139.54	90.79	108.0
1975/76	65.56	51.86	39.53	47.06	51.78 %	61.94 %	81.4 %	104.58	147.54 %	129.42 %	96.93	82.14	80.0
1976/77	49.06	36.92	40.97	34.37	32.7	36.2	55.75	112.45	123.77	107.42	96.38	80.02	67.2
1977/78	50.64	40.16	41.72	70.23	65.46	88.11	143.21	230.60	343.29	243.61	151.39	101.02	130.8
1978/79	69.01	54.57	48.15	96.76	76.41	75.96	119.9	219.43	398.39 %	395.55	222.5	124.31	158.4
1979/80	73.72	68.89	56.52	44.85 %	58.79	64.16	83.83	114.67 %	194.45	278.58	166.9	120.84	110.5
1980/81	123.68	117.2	98.7	96.23	87.03	91.61	117.27	176.73	350.97	251.12 %	206.61	132.39	154.1
1981/82	76.53	74.22	66.15	55.33	52.42	54.42 %	78.47	132.06	143.17 %	139.58	111.33	73.88	88.1
1982/83	59.08	49.89	104.06	142.69	99.99	144.13	155.46 %	256.70	539.45	592.84	455.14	261.1	238.4
1983/84	160.67	99.9	78.89	90.65	87.89	74.18	147.3	247.00	296.45	240.45	185.48	107.12	151.3
1984/85	67.74	57.02	44.32	63.42	60.22	51.82	145.58	190.30	313.29	289.74	180.96 %	146.1	135.9
1985/86	87.39	76.88	65.77	52.02	46.05	79.85	81.28	147.53	173.81	216.87	183.54	141.23	111.0
1986/87	111.4	97.24	115 *	88.64 %	66.73	83.67	122.68	159.87	309.52	351.45	271.56 %	162.52 %	161.7
1987/88	96.33 %	68.95	69.14	127.42 %	130.34	122.36	155.42	226.33 *					124.5
1988/89		63.16 *	59.56	48.06	52.75	56.46	91.85	138.91	136.41	145.07	148.29	98.34	94.4
1989/90	67.83	52.84	40.45	36.00	68.67	82.35	122.33	224.53	225.32	170.36	122.58	85.87	108.3
1990/91	62.73	58.80	50.53	49.68	52.29	56.76	78.48		135.37	129.39	109.75	78.44	78.4
1991/92	63.06	116.59 %	78.96 %	102.66	77.85	101.77	125.36	212.93	216.29	276.68	206.72	158.42	144.8
1992/93	94.65	80.08	79.97	71.16	68.39	80.65	132.00	196.20	233.65	256.97 %	192.48 %	117.13	133.6
1993/94	103.37 %	306.63 *	97.74 %	85.12	76.40	78.51	111.02	131.57	198.61	219.68	142.12 %	96.07 %	137.2
1994/95	69.52	60.74	60.16	76.36	75.81	82.01	98.01	161.30	261.13	184.16	127.79	97.84	112.9
1995/96	75.61	60.33	61.20	55.40	57.36	77.88	90.54	168.20	198.58	128.18	111.63	96.84	98.5
1996/97	69.49	49.96	42.75	41.36	38.60	38.16	47.04	51.92	58.74	81.81	75.88	61.77	54.8
1997/98	43.58	33.86	65.40 %	61.17	80.05	119.24	114.46	208.63	335.45	413.81	207.29	136.23	151.6
1998/99	102.72	72.36	60.39	50.40	44.75	39.12	61.01	83.73	105.8	99.75	89.49	61.88	72.6
1999/2000	41.95 %	41.67	38.04	37.77	40.72	60.79	86.82	138.48	144.84	133.77	100.18	71.62	78.1
2000/01	55.33	52.15	81.89	76.86	69.04 %	73.35	135.88	184.73	358.58	299.81	230.68	129.35	145.6
2001/02	89.25	73.37	61.47	80.60	89.38	83.48	134.04	180.40	331.03	215.39	149.21	105.77	132.8
2002/03	73.43	63.28 %	81.60	65.82	94.71	76.62 %	95.71	179.43	304.71	333.77	255.86	181.97	150.6
2003/04	106.65 %	72.73	73.46	71.29	58.61	69.57	108.05	152.27	150.65	182.13	127.86	91.88	105.4
2004/05	66.23	52.28	50.21	48.89	50.68	65.03	75.34	101.61	140	136.27	99.46	76.44	80.2
AVERAGE	70.2	63.1	58.6	59.4	59.5	68.4	96.5	154.9	209.3	202.3	146.2	102.0	107.4
STD DEV	25.5	39.2	20.0	23.6	20.4	22.9	30.6	51.3	96.0	106.9	69.9	41.3	37.2
CV	0.4	0.6	0.3	0.4	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.4	0.3
MAX	160.7	306.6	115.0	142.7	130.3	144.1	155.5	256.7	539.5	592.8	455.1	261.1	238.4
MIN	44.9	40.3	39.5	32.6	35.8	43.8	54.3	99.6	100.9	93.8	74.9	60.7	61.3

INCOMPLETE MONTHLY DATA INDICATORS

*= 1-10 DAYS WITH DATA IN THE MONTH

@= 11-20 DAYS WITH DATA IN THE MONTH

%= MORE THAN 20 DAYS WITH DATA IN THE MONTH

A6. 2: Colorado at River Mouth Observed Data

AVERAGE MONTHLY FLOWS (m3/s)

STATION: RIO COLORADO ANTES JUNTA RIO MAIPO

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1950/51				9.94 @	11.41	12.29 %	21.36 @	20.92	45.96 %	43.25 %	34.99	30.48 *	25.6
1951/52	15.18 *	15.15 *	12.40 *	14.77 @	15.03	14.58	19.77	31.27 %	57.77	85.38 %	44.74 @	47.43 *	31.1
1952/53	15.82 *	14.43	13.71	13.19	12.70	17.74	20.78	30.74	53.24	57.43 @	45.10	28.17	26.9
1953/54	18.55	14.27	16.53 *										16.5
1954/55				15.33 %	15.25	15.40	17.22 %	36.77 %	41.42 %	36.60 *	36.80	24.41	26.6
1955/56	15.25	12.69	12.31	11.40 *	10.99 @	12.74	14.99	30.58	35.19	40.08 %	30.04	23.33	20.8
1956/57	15.02	21.86 %	13.11 @	10.47	11.91	14.91 @	18.53	26.79	27.35	30.33 %	36.98 *	27.97	21.3
1957/58	17.51	12.65	12.63	11.21	11.05	13.24	16.48	25.43 %	52.51	62.02	43.46	53.9 *	27.7
1958/59	16.48 @	14.63	17.62	13.52	11.76	14.60	30.35	36.53	45.72	40.89 *	41.08 %	29.87	26.1
1959/60	17.44	14.47	12.31 %	17.69 @	12.78 @	23.37 %	24.91	39.48 %	64.48 %	81.18 *	55.42 @	35.83 *	33.3
1960/61	19.09 @	16.33 @	14.55 *	14.43 *	50.24 @	18.17 %	27.06 %	54.49	72.53	71.83	48.77	44.05 @	37.6
1961/62	18.83 *	17.13 @	19.87 %	15.75	15.88 %	18.58	33.74	58.13	72.05 %	63.60 *	50.74	39.65	35.3
1962/63	22.72	16.04	14.89 %	12.64 %	14.00	15.66	29.43	52.91	57.67	54.21 %	41.81 %	24.16 %	29.7
1963/64	14.95 %	14.49 @	12.94 @	17.50 %	22.51 @	24.17	32.00	44.89	98.98	103.54	79.82 @	29.56 %	41.3
1964/65	17.64	14.91 @	13.82	12.11	10.89	12.19	12.69 @	14.92	18.66	33.67 %	34.03 @	22.6 @	18.2
1965/66	16.04 %	11.3 %	10.97	10.63	18.78	16.25 %	28.87 @	51.67	59.69 @	68.90 *	33.11 *	23.42	29.1
1966/67	15.63	13.68 %	12.44	14.93	13.65	18.90	24.10	36.67 %	35.82	48.67	50.45 @	26.95	26.0
1967/68	21.21 %	12.13 *	10.80	10.02	9.00 %	9.90	13.69	14.17	32.76 %	35.08 *	35.57 %	17.3 @	18.5
1968/69	11.07	7.7 %	6.47 *	6.18	5.90	5.93 @	6.02	12.12 %	8.18 *	13.67 *	32.53 *	32.48 *	12.4
1969/70	8.75 %	8.59	9.62	6.72 *	8.64 *	10.10	11.80	23.94	66.41	52.61	51.90	30.02	24.1
1970/71	18.24	12.38	10.30	10.25	10.10 %	13.05	17.86	28.18	33.91	27.49		18.16	18.2
1971/72	11.93	9.71	9.83	12.56	12.53	15.69	23.95	41.68	50.29	56.71	43.09	22.01	25.8
1972/73	13.96	20.68 %	24.01 @	15.93 %	22.77	25.34	29.86	48.03	95.70	108.56	88.86	59.44	46.1
1973/74	34.36	24.4	19.80	20.84	17.31	17.90 *	20.16 %	34.10	39.50	59.60	43.67	30.52	30.2
1974/75	19.41	15.23 %	16.79	17.04	15.45	16.97	24.07 *		46.67 @	67.26	45.62	31.43	28.7
1975/76	20.89	15.05	12.56	12.56	12.50	13.70	19.70 *	20.65	35.59	40.24	26.70	19.48 %	20.8
1976/77	12.6 *	11.06	12.07	10.41	9.37	10.56	13.73	24.21	29.69 %	38.23	28.68	26.36	18.9
1977/78	15.95	13.62 %	15.32 @	19.05	15.66	22.58	40.29 %	51.06	80.24	66.88	50.98	32	35.3
1978/79	22.31	16.96	14.63	22.53	17.62	20.20	35.00	54.49	100.32	99.85	62.21	39.07	42.1
1979/80	23.93	18.43	14.66	13.27	15.17	16.27	24.79 @	28.43	40.12	62.97	45.56	38.2	28.5
1980/81	39.49 @	52.53 *		23.09 *	21.67	23.13	29.90	42.51	81.95	70.66	68.72	43.23	45.2
1981/82	22.98	23.01 @		17.14	17.39	17.62	18.11	28.24	42.50	55.34	47.40 %	21.76 *	28.3
1982/83	19.54	17.82	30.97	35.23	28.43	33.82	36.82	60.48	102.64	112.24 %	97.48	61.2 %	53.1
1983/84	38.41	26.39	21.63	20.42	18.47	18.59	33.40	46.83	73.77	71.60 %	76.54 %	79.31 %	43.8
1984/85	63.91 %	71.5 %	61.77 %	47.62 @	65.24 %	57.42 %	60.87 %	65.15 %	61.08 %	54.87 %	54.58	43.85	59.0
1985/86	25.1	19.2	16.10	15.59	13.83	12.99	17.90	40.42	55.21	60.23	50.04	32.12	29.9
1986/87	18.07	16.37	23.74	18.56	18.69	19.21	27.41	44.14	82.70	79.78	65.38	47.01	38.4
1987/88	25.46	18.92	18.91	31.17	35.25	31.37	46.84	81.89 %				60.49 %	38.9
1988/89	38.08	22.93	17.14	14.40	14.37	13.58	19.21	36.17	47.68	57.40	64.41	34.35	31.6
1989/90	19.80	14.61	12.48	11.70	19.92	22.32	34.81	63.74	69.22	62.75	48.03	30.79	34.2
1990/91	20.12	14.96	12.56	11.68	12.25	15.65	18.52	34.17	43.74	48.59	43.59	34.60	25.9
1991/92	20.56	21.48	19.34	28.30	21.17	29.39	34.03	52.43	62.37	77.69	64.58	46.61	39.8
1992/93	25.30	20.84	20.61	18.08	17.46	22.48	33.89	46.01	63.31	71.32	56.71	36.75	36.1
1993/94	26.61	38.04	24.05	21.65	19.11	20.68	27.92	40.30	54.88	74.07	49.44	37.25	36.2
1994/95	18.03	16.00	14.78	17.61	15.74	17.48	22.08	44.33	69.69	60.80	43.68	30.00	30.9
1995/96	20.78	16.97	15.50	14.18	13.83	18.57	20.37	39.97	56.48	41.92	38.75	30.98	27.4
1996/97	17.80	13.78	11.71	10.63	10.53	9.98	9.70	14.43	24.17	38.60	30.77	22.16	17.9
1997/98	13.49	10.44	19.55	13.05	17.66	30.08	32.07	53.86	78.88	101.25	54.44	33.04	38.2
1998/99	25.06	18.51	15.12	14.07 @	11.14 *	10.73	13.85	20.87	37.88	41.72	42.81	23.97	23.0
1999/2000	13.24	11.36	10.41	8.93	13.20	22.87	21.96	35.25	41.86	49.39	35.19	22.13	23.8
2000/01	15.19	12.19	19.68	17.86	14.03	17.55	36.06	45.38	86.08 @	71.40 %	59.24	29.87	35.4
2001/02	23.29	17.55	15.03	20.13 %	23.12 %	23.49	34.86	44.44	85.23	67.11	55.73	37.77	37.3
2002/03	23.87	21.97	26.53	21.40	31.94	27.77	37.21	63.41	85.8	99.47	76.28	53.57	47.4
2003/04	33.02	20.93	20.99	17.52	15.62	16.56	26.35	40.14	47.17	58.24	48.31	34.46	31.6
2004/05	20.83	15.12	12.95	10.41	9.94	15.17	14.81	25.33	38.5	46.24	40.06	24.49	18.1
AVERAGE	21.1	18.2	16.6	16.2	17.2	18.7	25.2	39.3	56.4	60.8	49.5	34.4	30.8
STD DEV	9.0	10.3	8.0	7.1	9.9	7.9	10.0	14.8	22.0	21.7	15.2	12.4	9.6
CV	0.4	0.6	0.5	0.4	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3
MAX	63.9	71.5	61.8	47.6	65.2	57.4	60.9	81.9	102.6	112.2	97.5	79.3	59.0
MIN	8.8	7.7	6.5	6.2	5.9	5.9	6.0	12.1	8.2	13.7	26.7	17.3	12.4

INCOMPLETE MONTHLY DATA INDICATORS

*= 1-10 DAYS WITH DATA IN THE MONTH

@= 11-20 DAYS WITH DATA IN THE MONTH

%= MORE THAN 20 DAYS WITH DATA IN THE MONTH

A6. 3: Colorado River before joining Olivares River Observed Data

AVERAGE MONTHLY FLOWS (m3/s)

STATION: RIO COLORADO ANTES JUNTA RIO OLIVARES

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1950/51													
1951/52													
1952/53													
1953/54													
1954/55													
1955/56													
1956/57													
1957/58													
1958/59													
1959/60													
1960/61													
1961/62													
1962/63													
1963/64													
1964/65													
1965/66													
1966/67													
1967/68													
1968/69													
1969/70													
1970/71													
1971/72													
1972/73													
1973/74													
1974/75													
1975/76													
1976/77													
1977/78	10.80	8.21 %		7.45 *	6.93	10.54	18.04	34.06	45.27	35.83	21.42 %		19.9
1978/79			8.60 @					19.43 *	42.81	53.40	31.36	25.14	30.1
1979/80	17.43	13.65	10.88	9.49 %	9.80 *	9.24 @	12.38 %	15.06	20.57	29.36	26.22 %		15.8
1980/81								10.09 @	37.56 @				23.8
1981/82					9.14 @	9.01	9.77	14.94	19.79	24.10	25.82 %	15.14 %	16.0
1982/83	13.13 @	9.68	9.14 %	13.35 %	12.34	15.83	16.77	31.25	73.96	153.64 @			34.9
1983/84			14.77 @	14.81	12.88	11.89	17.60	29.03	48.86	47.73	40.59 %	19.64 *	25.8
1984/85	15.47	12.16	10.34	9.55	9.63	10.37	16.54	23.01	38.41	52.35 *	33.37 %	24.47	21.3
1985/86	14.77	12.11	10.58	9.28	8.31	7.53	9.38	18.92 %	34.15	31.42	25.13 %	17.93	16.6
1986/87		13.20 *	16.35 %	12.85	11.07	11.58	15.42	26.33	46.46	56.95	50.54 @	29.66 %	26.4
1987/88	19.32	14.26	13.25 @	19.83 *	13.47 *	11.01	14.79	22.31 @					16.0
1988/89							12.06 %	19.98	21.44	23.48	24.80	14.51	19.4
1989/90	10.95	9.29	8.04	7.47	8.23	9.21	13.10	29.72	35.07	30.91	22.96	16.77	16.8
1990/91	11.87	9.79	8.72	8.12	7.82	8.07	9.99	19.09	20.71 %	17.50 *	17.00	14.27	12.7
1991/92	10.38	10.17	10.73	11.83	9.55	5.35	6.27	18.55	21.49 @	38.94 %		17.07 %	14.6
1992/93	6.42	3.85	3.83	3.15	3.09	3.97	6.71	10.61	21.59	35.73 %	14.74 %	3.04 %	9.7
1993/94	10.84	11.89 %	4.97	3.97	3.48	3.73	5.01	7.70	32.31	38.12	9.92 @	5.88 @	11.5
1994/95	2.97	2.37	2.20	3.43	2.68	2.84	3.87	10.34 %	22.59	16.88 %	11.30 @	3.38 %	7.1
1995/96	2.80	2.41	2.50	2.25	2.18	3.15	3.60	7.39	17.40	11.05	6.26	4.15	5.4
1996/97	2.97	2.36	2.25	1.99	6.93	1.55	1.31	1.34	1.52	3.59 *	1.53 *	1.41 %	2.4
1997/98	1.29	1.45	4.53	2.66	1.64	5.31	6.00	22.90	33.34	61.08	21.63	6.75	14.0
1998/99	4.21	2.83	2.13	1.73	1.42	1.37	1.85	2.55	4.12 %	2.80	2.25	2.14	2.5
1999/2000	2.00 *	1.56 %	1.50	1.58	1.46	2.02 @	2.37	3.69	8.25	12.49	4.68	2.18	3.6
2000/01	1.10	1.35	2.08	2.48 %	2.35	2.58 %	4.61	9.81 %	52.80	37.76 @	18.01	6.87	11.8
2001/02	2.02	1.68	1.53	2.00	2.51	2.99	3.77	10.63	38.03 @				7.2
2002/03		2.06 %	3.13	2.93	4.17	3.94	5.32	21.40	42.90	42.25	44.31	16.76	17.2
2003/04	15.36	14.29	11.91	12.59	6.57	2.47	3.32	6.67 %	10.44 %	11.07 @		2.68 %	8.9
2004/05	2.00	1.62	1.62	1.53	1.56	1.88	2.22	3.08	4.34	5.89	4.37	3.14	2.2
AVERAGE	8.5	7.1	6.9	6.9	6.4	6.3	8.5	16.1	29.5	35.0	20.8	11.5	14.8
STD DEV	6.1	5.1	4.7	5.2	4.0	4.1	5.5	9.3	17.1	30.0	13.7	8.7	8.5
CV	0.7	0.7	0.7	0.8	0.6	0.6	0.6	0.6	0.6	0.9	0.7	0.8	0.6
MAX	19.3	14.3	16.4	19.8	13.5	15.8	18.0	34.1	74.0	153.6	50.5	29.7	34.9
MIN	1.1	1.4	1.5	1.5	1.4	1.4	1.3	1.3	1.5	2.8	1.5	1.4	2.2

INCOMPLETE MONTHLY DATA INDICATORS

*= 1-10 DAYS WITH DATA IN THE MONTH

@= 11-20 DAYS WITH DATA IN THE MONTH

%= MORE THAN 20 DAYS WITH DATA IN THE MONTH

A6. 4: Olivares River before joining Colorado River Observed Data.

AVERAGE MONTHLY FLOWS (m3/s)

STATION: RIO OLIVARES ANTES JUNTA RIO COLORADO

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1950/51													
1951/52													
1952/53													
1953/54													
1954/55													
1955/56													
1956/57													
1957/58													
1958/59													
1959/60													
1960/61													
1961/62													
1962/63													
1963/64													
1964/65													
1965/66													
1966/67													
1967/68													
1968/69													
1969/70													
1970/71													
1971/72													
1972/73													
1973/74													
1974/75													
1975/76													
1976/77													
1977/78	5.29	4.10	3.66	3.71	4.07	7.13	10.87	15.53	23.43 %	22.67	21.42	11.71	11.1
1978/79	6.55	4.36	3.05	3.72	3.96 @		8.60 *	14.19	25.50	32.71	20.87	12.54	12.4
1979/80	6.22	4.97	3.84	1.80	3.55	3.69	5.14	6.26	10.97	22.13	16.05	13.81	8.2
1980/81	6.58	5.18	4.65	4.62	4.86	5.09	6.06	9.60	27.91	25.29	29.64	18.52	12.3
1981/82	5.94	4.40	3.58	2.89	2.39	3.21	3.86	7.14	12.70	22.89	24.59	11.84	8.8
1982/83	6.79	4.26	3.66 %	5.60 %	5.80	10.57	12.75	20.88	35.20	33.48 *	30.75	16.26	15.5
1983/84	8.92	6.00	4.88	5.34	3.99	4.40	8.18	12.75	24.49	28.18	22.79	12.32	11.9
1984/85	3.74	1.80	2.64	3.57	3.88	4.72	8.68	12.16	18.39	23.02	19.39	13.06	9.6
1985/86	6.22	4.81	4.07	3.68	3.32	3.19	5.13	11.37	17.48	23.60	18.98	13.31	9.6
1986/87	4.76	3.51 %	5.34	4.51	3.55	4.76	6.90	8.50	22.64	29.39	27.56	15.79	11.4
1987/88	6.14	4.97	4.63	5.03	5.54	6.05	11.01	15.97 @					7.4
1988/89								11.95 @	23.16	35.13	45.96	18.06	26.9
1989/90	6.29	3.39	2.83	4.16	4.54	5.97	8.19	19.26	25.14	33.00	27.21	11.55	12.6
1990/91	4.06	3.04	2.81	3.20	3.73	4.65	5.83	9.79	16.66	26.63	24.41	16.29	10.1
1991/92	4.80 %	6.31	2.67 *	2.17 *	2.29	2.49	2.92	6.03	23.27	70.73	10.09	9.95 %	12.0
1992/93	2.72	1.57	1.29	1.10	1.12	1.64	2.46	3.18	5.33	18.50	5.72	1.82	3.9
1993/94	4.81 %	6.33 @	1.97 %	1.89	1.78	1.80	1.91	3.07	14.82 %	15.12 %	4.69 *	4.71 @	5.2
1994/95	0.85	0.83	0.82	2.10	1.15	1.43	1.49	2.40	7.97	5.15	3.74 @	1.02 %	2.4
1995/96	0.87	0.72	0.77	0.75	0.78	1.16	1.23	1.67	4.48	2.43 %	2.27	1.18 %	1.5
1996/97	0.54	0.62	0.53	0.51	1.72	0.79	0.77	0.71	2.26	4.50 *	3.45 *	0.78 @	1.4
1997/98	0.40	0.56	3.03	1.57	1.36	2.33	3.52	4.88	11.54	27.93	5.90 %	1.60	5.4
1998/99	1.26	0.78	0.67	0.63	0.56	0.64	0.69	1.07	5.46	4.43	6.97	1.65 @	2.1
1999/2000	0.43 %	0.44	0.41 %	0.42	0.47	0.82	1.18	1.38	2.21	5.24 %	1.34 @	0.53 @	1.2
2000/01	0.59 %	0.57 %	0.72	0.88 %		1.56 *	2.17	2.56	10.30	15.45	17.54	9.51 @	5.6
2001/02	0.51 @	0.54	0.42	0.72	1.01	1.35	1.93	2.19	11.85	6.14	7.13	1.56	2.9
2002/03	0.79	1.14	1.08	0.94	1.65	1.93	2.74	4.64	8.60	20.40	13.69	2.13	5.0
2003/04	6.70	1.63	0.78	0.78	1.35	0.95	1.24	1.74	1.76	10.23	6.10	0.78	2.8
2004/05	0.72	0.64	0.63	0.45	0.40	0.57	0.62	1.18	1.72	8.22	6.86	1.63	0.8
AVERAGE	3.8	2.9	2.4	2.5	2.6	3.2	4.7	7.6	14.6	21.2	15.7	8.3	7.9
STD DEV	2.7	2.1	1.6	1.7	1.7	2.4	3.6	6.0	9.4	14.3	11.2	6.5	5.7
CV	0.7	0.7	0.7	0.7	0.6	0.8	0.8	0.8	0.6	0.7	0.7	0.8	0.7
MAX	8.9	6.3	5.3	5.6	5.8	10.6	12.8	20.9	35.2	70.7	46.0	18.5	26.9
MIN	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.7	1.7	2.4	1.3	0.5	0.8

INCOMPLETE MONTHLY DATA INDICATORS

*= 1-10 DAYS WITH DATA IN THE MONTH

@= 11-20 DAYS WITH DATA IN THE MONTH

%= MORE THAN 20 DAYS WITH DATA IN THE MONTH

A6. 5: Maipo River at San Alfonso Observed Data

AVERAGE MONTHLY FLOWS (m³/s)

STATION: RIO MAIPO EN SAN ALFONSO

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1946/47	38.31	29.83 %	24.85	24.82 %	22.27	28.13 %	34.92	69.11	69.55 %	71.85	59.95	45.46	43.3
1947/48	30.93 %	22.64	22.97 %	23.20 %	22.08	29.87	42.85	90.14	93.04 %	73.89	62.93 %	45.82	46.7
1948/49	36.20	32.75	26.01 %	25.39 %	29.55	36.16	64.18 %	113.18	210.45 %	139.36	79.69	52.39	70.4
1949/50	39.39	46.67	43.38	33.50 %	32.39 %	32.64 %	70.20	110.74	97.09	74.71	55.11 %		57.8
1950/51				27.51 %	28.65		50.27	71.10	136.43 %	89.36 %	67.86	51.76 @	65.4
1951/52		34.11 *	33.66	34.04	35.35	35.02	49.55	86.34 %	126.61	100.56	62.35 %	42.45 @	58.2
1952/53	37.19	33.34	32.00	34.22	34.17	38.00	45.54	67.49 @	125.84	104.83	87.55 @	45.79 @	57.2
1953/54	41.00 @	33.29 @	33.88 @	32.85 *	38.71	55.66 @	61.58	149.17	213.68	203.32	155.79	91.96	92.6
1954/55	50.92	47.61 %	51.98	44.21	46.58	49.37	71.41 @	123.95	118.21	90.49 @	70.12	51.65	68.0
1955/56	38.71 @	32.59	24.76	21.42 %	21.16 %	23.22	32.27	42.65 *	90.59 %	76.46	65.55 %	40.61 @	42.5
1956/57	37.01	36.40	36.21 %	32.75 %	33.54	34.73	44.85 %	99.05 %	88.94	72.32	57.09	43.39 @	51.4
1957/58	36.94 @	33.20		23.32 @	23.82	26.11	48.23 @	100.84 %	129.91 %	131.86 @	82.59 %	63.90 *	63.7
1958/59	44.72 @	40.93	39.16 @	31.73 %	30.97 *	41.12	81.14	93.76	118.53	76.68 %	63.50	47.41	59.1
1959/60	36.56 @	36.25 @	34.05	36.49 %	40.27	42.65 %	54.07	116.58	189.13	121.72	64.02	45.30	68.1
1960/61	37.97	35.63	31.85	31.92	32.46	34.02	54.47	106.80	126.53	87.16	59.48	53.87	57.7
1961/62	42.73 %	42.31	46.79 @		47.70 @	48.40	87.35	166.67	232.65	159.13	112.28	72.44	96.2
1962/63	48.30	38.27	32.99	30.77	32.33	36.18 %	54.66	110.06	115.50	82.61	66.66	46.08 %	57.9
1963/64	37.32	31.65	28.76			43.44 @	55.85	86.14 %	253.84	292.80 *			103.7
1964/65	39.20 @	40.12 @	45.04		27.25 @	45.56	69.46	73.95 %	83.43		66.03	50.75	52.5
1965/66	44.32	31.88	30.65	28.57	37.23	43.76	72.72	144.46	151.97	213.36	129.29	74.21	83.5
1966/67	52.01 @	35.43 @	34.15 @	29.77	27.36	35.75	65.84	123.23	148.44 %	105.13 @	91.33	51.02 %	66.6
1967/68	38.80 @		22.36 *			21.71 @	46.81	76.71 %	93.59	72.72 @	53.87 %	49.84 %	52.9
1968/69	39.56 @	31.04 *					31.08 @	39.52	28.62	35.47		24.19 %	32.8
1969/70	19.61	17.56	24.75 @	23.49	19.61	30.97	58.47	81.29	159.19	101.83	71.25	48.05	54.7
1970/71	32.71	30.75	26.91	27.99	18.95	32.48	52.66	70.17	85.78 %	57.18 @	51.06	36.56	43.6
1971/72	26.89 %	17.34 *	16.38	21.60 %	21.68	28.55	60.97	133.63		75.05 @	64.83 @	59.46 %	47.9
1972/73	42.78	56.18 *	72.45 *				91.46 %	127.70	196.08 @				97.8
1973/74			37.08 %	36.24	30.52		64.85 *	98.77 @					53.5
1974/75			41.98 %	33.35	25.40	32.22	60.43 @			145.18 @	90.66 %	65.98	61.9
1975/76	47.67	35.31	25.68	25.20	26.89	38.37	60.95	85.30	110.39	74.67 %	78.46	67.03	56.3
1976/77	31.11	21.80	21.98	22.00	21.00	33.43	35.47	74.76 @	99.27	81.83	66.41	52.81	46.8
1977/78	36.67 *	26.90	26.75	40.92 %	46.46 *	50.61 %	123.30 *	177.33 *	222.39 @	154.17 %	94.91	66.88	88.9
1978/79	44.50 %	36.59	32.93	35.39 @	47.48 %	46.21	63.62	136.54 %			142.36 %	71.53	65.7
1979/80	44.17	40.32	34.37	29.61 *	31.85 %	29.17	38.05	61.83	129.64 %	191.56 @	113.41	74.67 *	68.2
1980/81	76.88 @	77.35	70.96	69.61	59.58	61.84	74.95	123.60	281.50 @			69.02	96.5
1981/82	48.37	42.10	36.96	33.98	34.50	37.85	56.45	95.95	99.99	88.82	73.62	50.53	58.3
1982/83	39.95	31.07	41.49	68.43	58.89	89.67	94.41	187.87	373.31 %	413.52 %	278.82	163.10	153.4
1983/84	94.26	64.42	49.50	57.39	53.67	41.83	77.05	139.80	178.58	145.81	115.24	75.81	91.1
1984/85	49.32 %	44.61	31.80	34.93 %	34.27	42.14	95.04	133.96	212.10	207.26	131.71	106.81	93.7
1985/86	65.30	60.34	49.75	34.45	32.19	47.22	60.08	101.50	115.81	91.55	75.58	59.70	66.1
1986/87	47.52	34.41	118.68	53.84	44.77	61.48	87.49	87.67	235.67	235.29	165.14	106.61	106.5
1987/88	62.45	44.39	40.48	50.72	61.67	74.20	93.73	206.37	290.32	242.87	173.69	112.26	121.1
1988/89	74.20	53.93	40.01	30.36	31.10	39.49	69.19	96.40	88.98	85.35	81.59	57.04	62.3
1989/90	39.53	29.49	22.27	20.54	29.33	36.66	63.71	138.74	137.97	101.82	70.38	50.75	61.8
1990/91	35.82	34.80	29.52	29.65	31.18	31.76	52.87	93.02	87.91	75.52	65.33	50.19	51.5
1991/92	43.37	52.19	48.91	55.28	42.35	56.38	76.48	148.10	145.65	197.13	141.10	105.16	92.7
1992/93	59.94	47.58	52.51	48.77	46.93	51.89	83.73	132.46	168.94	167.68	123.57	78.77	88.6
1993/94	65.35	199.41 %	114.12 %	71.16	55.84	56.92	106.30	129.52	147.51	166.00	94.09	72.07	106.5
1994/95	50.50	42.31	41.88	52.31	64.96	71.10	87.30	158.30	173.90	132.77	95.49	70.40	86.8
1995/96	55.70	44.64	45.80	39.92	38.67	50.33	67.58	121.77	142.97	86.67	68.85	57.63	68.4
1996/97	41.79	31.40	27.77	26.42	25.10	24.54	38.39	39.54	39.54	49.38	62.82	61.12 @	39.0
1997/98							40.45 @	108.57	179.61	272.55	154.92 @	91.31	141.2
1998/99	76.64	50.14	42.32	34.81	30.12	29.43	44.97	58.17	67.61	69.41 *	54.31 @	41.05	49.9
1999/2000	32.58	28.90	26.70	25.95	25.77 @	36.28	58.50	100.26	103.68	85.23	64.43	48.14	53.0
2000/01	37.03	36.18	40.15	47.83	37.41	37.52	81.86	130.69	299.40 %	252.00	160.68	85.53	103.9
2001/02	58.24	49.70 %	50.47	51.26	54.99	55.60	90.62	138.62	311.32	168.68	104.06 %	73.74	100.6
2002/03	55.60 %	49.09	54.81	48.66	78.13	71.28	95.92	197.43	295.07	311.45	218.82	133.82	134.2
2003/04	77.47	53.09	49.97	48.63	41.24	50.80	90.95	114.52	117.45	116.04	85.87	64.27	75.9
2004/05	48.35	37.39	36.64	35.75	35.11	44.03	58.81	71.29	100.82	93.82	67.47	52.81	52.0
AVERAGE	46.5	42.0	40.0	36.8	36.7	42.5	64.8	109.6	153.3	132.7	94.7	64.9	72.7
STD DEV	14.3	24.6	18.9	12.8	12.9	13.9	20.2	37.6	74.2	76.1	45.2	25.1	26.3
CV	0.3	0.6	0.5	0.3	0.4	0.3	0.3	0.3	0.5	0.6	0.5	0.4	0.4
MAX	94.3	199.4	118.7	71.2	78.1	89.7	123.3	206.4	373.3	413.5	278.8	163.1	153.4
MIN	19.6	17.3	16.4	20.5	19.0	21.7	31.1	39.5	28.6	35.5	51.1	24.2	32.8

1 INCOMPLETE MONTHLY DATA INDICATORS
 *= 1-10 DAYS WITH DATA IN THE MONTH
 @= 11-20 DAYS WITH DATA IN THE MONTH
 %= MORE THAN 20 DAYS WITH DATA IN THE MONTH

A6. 6: Maipo River at Las Melosas Observed Data

AVERAGE MONTHLY FLOWS (m3/s)

STATION: RIO MAIPO EN LAS MELOSAS

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1950/51													
1951/52													
1952/53													
1953/54													
1954/55													
1955/56													
1956/57													
1957/58													
1958/59													
1959/60													
1960/61													
1961/62													
1962/63	6.19 %	1.04 @	1.39 *	0.26 %	0.29	0.36	2.19 %	42.14	47.85	26.74	17.44	8.36 @	12.9
1963/64	1.09	1.15	0.88	1.44 %	2.06	6.44	10.73	30.49	113.30 %	149.12 %	73.84 @	39.17	35.8
1964/65	16.39	6.58	4.30	1.47 *	1.90	2.09	10.74 @		30.39 %	35.94	22.78	12.11	13.2
1965/66	12.39	3.69	3.51	1.78	7.05	15.14	31.81 %	74.90	80.07	121.20	63.58	34.78	37.5
1966/67	22.42 @	9.16 @	6.41	7.07 %	4.21 *	4.26 *	27.89	54.85	68.83	70.24	49.28 @	19.67	28.7
1967/68	10.94 @		0.91 *	0.55 %	0.61	2.41	8.77	24.80	49.06	26.42	20.85	8.71 %	14.0
1968/69	1.95 %	0.71	0.62	0.59	0.55	0.55	0.62	4.11 @	1.24 @	6.01 %	1.33 *	1.66 *	1.7
1969/70	0.11 *	0.17 @	0.81 @	1.16	1.15	1.14	2.05	31.38	107.70	47.64	30.41 %	13.48 @	19.8
1970/71	3.44	0.77	0.74	1.01	0.98	1.15	5.20	22.38	29.61	18.31 @			8.4
1971/72	0.61 *	0.49 %	0.46	0.75 %	1.10	2.13 %	20.26	67.72	59.08 %	41.87	23.27 @		19.8
1972/73		2.27 *	22.40	3.72	10.94 %	18.17 %	26.69 %	67.21	173.96	204.00 @			58.8
1973/74										82.35 *	44.70 %	20.05 %	49.0
1974/75													
1975/76	6.49 *						18.46 @	27.68	63.57	42.34 @	9.09 *	4.05 *	24.5
1976/77	4.77 *							35.65 %	40.17 %	51.04 %		6.71 @	27.7
1977/78	1.26 %	0.51 *	1.66 @	5.63 @	2.36 %	11.11	38.24	76.33	118.87 @	73.77 *	43.43 %	31.14 *	33.7
1978/79	5.36 @	4.39	2.33	5.32	3.01	3.72	19.79	61.52	140.17 %	163.50 *	59.46 %	26.39 %	41.2
1979/80	13.78 *				2.06 %	2.05	12.79	29.28	71.77	106.90	57.35 %	31.82 %	36.4
1980/81				7.71 *	8.59	9.17 *	23.19 %	64.45	144.35	95.53	84.48 *		54.7
1981/82			3.41 @	2.04	5.15	3.30	14.82	53.61	64.53 @	47.96 @	37.30 *	6.82 *	23.9
1982/83	3.74	2.31 %	5.30	13.40 %	12.20 %	32.05 @	29.34 @	66.70	175.23	203.07	148.82	77.80	64.2
1983/84	34.09	15.47	8.49	4.82	9.27	3.63	24.22	75.76	114.54	80.04	52.03	23.25	37.1
1984/85	9.87	2.06	0.53	7.04	3.40	5.63	27.16	50.37	100.94	115.93	61.68	39.33 %	35.3
1985/86	14.98	9.05 %	3.96	2.18	3.41	1.25	7.52	52.44	67.57	47.92	33.28	16.47	21.7
1986/87	7.89	4.84	122.80 %				44.56 @	19.12 %	127.43 %	124.00	75.32	41.61	63.1
1987/88	12.69	4.44	3.38 %	1.15 *	12.49 @	10.79	25.49	100.35	164.97	145.71	87.79	50.44 @	51.6
1988/89	13.42 *	6.99	0.68 *	0.72	1.85 @	1.02 %	10.22	49.71	45.79	36.68	29.00	10.73	17.2
1989/90	1.60 @	0.95	0.68	0.81	1.81	3.39	19.64	73.02	72.55	44.37	23.99 %	9.79	21.1
1990/91	4.88	0.57	0.51	0.54	0.76	1.58	11.09	38.76	43.88	30.70	16.51	7.03 %	13.1
1991/92	2.31	8.57	37.23	30.43	21.37	20.31	27.12	39.75	91.30	102.65	66.30 %	39.09	40.5
1992/93	12.21 %	5.96	3.94	1.85	1.46	4.51 %	36.43	75.26	97.35	84.02	61.78	59.40 @	26.6
AVERAGE	8.6	4.0	9.5	4.1	4.6	6.4	19.2	50.3	86.4	80.9	48.0	24.6	31.1
STD DEV	7.8	3.9	25.0	6.3	5.1	7.6	11.6	22.4	45.5	53.3	30.9	19.0	16.6
CV	0.9	1.0	2.6	1.5	1.1	1.2	0.6	0.4	0.5	0.7	0.6	0.8	0.5
MAX	34.1	15.5	122.8	30.4	21.4	32.1	44.6	100.4	175.2	204.0	148.8	77.8	64.2
MIN	0.1	0.2	0.5	0.3	0.3	0.4	0.6	4.1	1.2	6.0	1.3	1.7	1.7

INCOMPLETE MONTHLY DATA INDICATORS

*= 1-10 DAYS WITH DATA IN THE MONTH

@= 11-20 DAYS WITH DATA IN THE MONTH

%= MORE THAN 20 DAYS WITH DATA IN THE MONTH

A6. 7: Volcán River at Queltehues Observed Data

AVERAGE MONTHLY FLOWS (m3/s)

STATION: RIO VOLCAN EN QUELTEHUES

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1950/51	0.62 *	0.77	1.03	1.05	1.02 @	1.13	2.12	3.59	17.57	14.01	9.81 @	3.55 %	4.7
1951/52	0.77	0.75	1.07	1.45	1.45	1.21	2.84	13.88	25.80	26.98	12.14	5.19	7.8
1952/53	0.93	1.65	3.61	0.93 %	0.84	1.74 %	3.04 @	12.93 *	24.55 *	15.37	17.26 @	3.49 @	7.2
1953/54	1.32	0.69	0.99	0.98	2.53	5.49	5.21 @	27.33 %	45.08	35.36	30.89	14.92	14.2
1954/55	5.44	2.49	2.61 *	1.90 @	2.08	2.16	2.97	11.38	15.83	25.70 @	8.87 %	4.46 %	7.2
1955/56			1.21 %	1.60	0.73	0.90	1.20	12.03 %	14.75	10.03	6.92	2.57 %	5.2
1956/57	0.51 @	0.90	0.85	0.83	1.26 @	1.21 @	1.46 %	14.43 @	14.86 %	18.00 %	17.90	7.25 %	6.6
1957/58	3.18 @	0.67	0.69	0.84	0.88	1.43	2.28	10.77	19.81	13.34	5.14	2.10	5.1
1958/59	0.89 %	0.88	1.20	1.07	1.34	11.24	21.57	24.51 %	23.88	17.30	11.55 %	4.78	10.0
1959/60	2.05	1.68 %		2.63 @	2.28 @	2.75	4.41	20.58 %	31.22	26.71	21.87 %	10.50	11.5
1960/61	1.27	0.64 %	0.97	1.14	1.10 @	0.83 @	2.90	14.40	22.47	15.22	9.18	5.80	6.3
1961/62	2.89 @	1.38	1.65	1.42 %	1.57 @	1.97	6.31		36.95 *	26.47	18.81	15.67 %	10.5
1962/63	2.51	1.18	1.61	2.12	1.49	1.56 *	4.94 @	13.35	19.28	12.57 @	7.77 %	3.42	6.0
1963/64	1.33	0.79 %	1.23 @	1.65	1.67 %	2.97 @	3.78	6.76	54.33 *	48.00	33.94	17.54	14.5
1964/65	8.78	3.09	1.22 @	1.37	0.92	0.91	1.35	6.55	10.63 %	12.11 %	9.53 @	5.08	5.1
1965/66	2.76	1.66	1.55	1.59	3.63	3.72	6.17	16.00	19.72	34.78	19.38	10.60	10.1
1966/67	3.96	1.06	1.94 %	2.04 *	1.49	1.66	4.22	13.63	16.43 %	11.50 *	8.04 *	3.56 @	5.8
1967/68	1.83	0.61	0.61	0.54	0.24	0.34	0.95	3.86	13.68	9.99	7.14	3.62 @	3.6
1968/69	0.37 %	1.13	1.29	0.43	0.36	0.29	0.42	2.55 @					0.9
1969/70					1.35 @	1.76	2.24 %	7.01 *	25.14	17.23	10.36	2.53	8.5
1970/71										3.04 %	2.74	1.58 *	2.5
1971/72							6.03 @	14.76	16.18	12.53	7.14	3.56 @	10.0
1972/73		5.95 *	3.42 @	2.17	2.67	3.20	4.36	8.39	24.80	33.27	24.67	18.74	12.0
1973/74	10.60									21.49 *	11.91	5.46 %	12.4
1974/75								15.97 @	22.98	37.71	15.49	7.18 %	19.5
1975/76							2.01 @	6.51 %	19.20	12.53	5.27 *		9.1
1976/77		0.27 %	0.76	0.86	0.84	0.55	1.17	8.25 %	15.90	17.19	8.17	7.22 *	5.6
1977/78	0.37 @	0.44	0.44 @		2.80 *	3.25	7.57	19.69	33.97	26.49	17.52	7.11 %	10.9
1978/79	2.68 %	0.51 %	0.46 @	2.14 %	2.04 @	1.90 %	3.80	11.83	34.58	33.32	16.57	9.17 %	9.9
1979/80	5.08	2.25 %	1.27 %										2.9
1980/81													
1981/82						0.79 %	3.17 %	8.83 @	14.81	15.16	12.85 @		9.3
1982/83			2.67 %	6.63	4.77	5.99	5.06	14.66	49.44	53.67	43.80	26.69	21.3
1983/84	13.98 %	5.45	1.81 @	1.52	1.63	1.37	4.13	15.99	31.08	26.58	19.42 %	10.41	11.1
1984/85	3.86	1.01	0.54	1.20	1.81	2.48	7.01	12.31	28.01	38.65 *	24.61 @	16.73 %	11.5
1985/86	4.48 @	2.80 %	1.30	1.11 %	0.90	0.62	1.35	12.72	20.41	16.91	10.72	5.24	6.5
1986/87	1.62	1.26	10.75	3.41	2.57	2.15	4.92	11.97	34.97	37.31	28.08	15.91	12.9
1987/88	5.03	1.79	1.87 %	3.01 *	5.06 @	3.97	6.68	24.51	46.57 %	40.65	29.60	16.68	15.5
1988/89	7.01	2.27	0.93	0.70	1.04	1.30 %	2.21 %	12.22	15.93	15.35	13.69	4.26 %	6.4
1989/90	0.71	0.66	0.63	0.68	2.15 %	3.26	4.32 %	19.42	24.63	20.74	10.42	4.11	7.6
1990/91	1.38	0.96	0.73	0.71	0.71	1.56	1.86	7.96	11.47 @		9.17 @	3.17 %	3.6
1991/92	0.95	4.93 %	12.38 %	4.95 *	5.22 %	3.96	5.61	15.99	21.56	34.62	20.75	14.59	12.1
1992/93	4.53	2.37	2.21	2.06	1.79 %	2.91 %	6.67 %	16.14	27.59	31.57	20.81	11.46	10.8
1993/94	6.27	11.80 @	5.04	3.08 %	2.46	2.34	7.14 %					4.02 *	5.3
1994/95	2.42	0.98	0.87	1.38	1.49	1.96	2.70	20.59 @	30.54	21.99	11.77	6.24	8.6
1995/96	2.22 %	0.57	0.62	0.61	0.73	1.28	3.12	12.94 *	24.31 @	13.66	9.66	5.19 %	6.2
1996/97	1.16	0.52 @	0.46 *	0.46	0.35	0.29	0.20	0.84	3.59 %	6.31 %	4.35 @	2.18 %	1.7
1997/98	0.76	1.04 @	3.38	2.94	3.87	7.97	7.57	13.94	32.70 %	46.87 *	19.13 @	11.72	12.7
1998/99	7.40	3.40 %	0.91 %	0.78	0.52	0.28	1.34	4.70	4.85	7.26	6.94	1.82	3.4
1999/2000	0.40 %	0.26 *	0.36	0.39	0.48	0.91	2.86 %	9.55	14.95	10.22	7.45 @	1.58	4.1
2000/01	0.97	0.89	2.14	2.73	1.67	1.81	6.83	12.99	36.56	31.91	21.91	11.07	11.0
2001/02	3.67	1.44	1.14	1.72	2.28	2.45	6.01	12.71	36.83	27.60	17.73	9.59	10.3
2002/03	3.53	2.35	2.56	2.56 %	5.72	4.31	6.68	16.80	30.72	34.57	24.69	14.82	12.4
2003/04	6.35	2.49	1.80	1.22	1.27	1.58	5.43	11.68	14.37	16.47	11.93	7.13	6.8
2004/05	1.90	0.90	0.73	0.71	1.03	1.84	2.69	6.00	15.55	15.08	9.55	3.80	3.5
AVERAGE	3.2	1.8	1.9	1.7	1.8	2.3	4.2	12.6	24.3	23.0	15.0	7.9	8.5
STD DEV	3.0	2.0	2.3	1.2	1.3	2.0	3.3	5.7	11.0	11.9	8.5	5.6	4.3
CV	0.9	1.1	1.2	0.7	0.7	0.9	0.8	0.5	0.5	0.5	0.6	0.7	0.5
MAX	14.0	11.8	12.4	6.6	5.7	11.2	21.6	27.3	54.3	53.7	43.8	26.7	21.3
MIN	0.4	0.3	0.4	0.4	0.2	0.3	0.2	0.8	3.6	3.0	2.7	1.6	0.9

INCOMPLETE MONTHLY DATA INDICATORS

*= 1-10 DAYS WITH DATA IN THE MONTH

@= 11-20 DAYS WITH DATA IN THE MONTH

%= MORE THAN 20 DAYS WITH DATA IN THE MONTH

A6. 8: Yeso River at El Yeso Reservoir

AVERAGE MONTHLY FLOWS (m³/s)

STATION: RIO YESO EN EMBALSE EL YESO

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	ANNUAL
1950/51	5.3 %	3.41 %	3.38 *	3.07	2.35	2.73	3.31	4.84	10.01	12.90 %	6.97 *	7.05 %	5.4
1951/52	5.21	3.84	3.47	3.29 %	3.55 @	3.34	4.28	9.5	12.41	12.43	9.65	9.08	6.7
1952/53	6.69 @	4.62 @	4.12 @	3.89	3.28 %	3.89	4.63	6.73	14.25	12.48	11.28	8.15	7.0
1953/54	6.59	5.83 @						21.02 @	42.12 %	27.50	20.74 *	14.70	19.8
1954/55	8.95	6.19	4.95 @	4.46	4.43 @	4.22	5.3	12.31 %	13.5 *	14.83 *	10.92 %	8.37 @	8.2
1955/56	4.59 @	4.13	3.33	3.48 @	2.55 %	2.92	3.8	9.14	11.03	11.60	10.03	7.15	6.1
1956/57	5.21	4.63	4.29	3.2	2.94	3.72	4.79	7.39	8.55	8.54 %	13.64 *	6.33	6.1
1957/58	3.7	3.57	3.37	3.7	3.12	3.45	4.58	9.49	20.21	21.10	15.78	11.54	8.6
1958/59	9.1 %	7.58		6.71 %	6.37	7.42 *	15.01 @	14.58					9.5
1959/60													
1960/61													
1961/62													
1962/63	8.67 @	6.81	4.8 @	5.75 *		3.73 @	5.33	11.23	13.84	11.77	11.01	7.92	8.3
1963/64	5.99 %	4.5 %	3.41	4.44 @			7.36 @	6.02	21.74 %	34.41 @	23.70	12.26 %	12.4
1964/65	8.7 %	5.95 @	5.54 *			3.92 @	4.08	5.36 @	6.47 %	9.12 @	9.10	7.02	6.5
1965/66	5.26	4.13	3.72	2.98 *			6.69 @	14.65 @	13.67	22.15 %	16.47	10.76 %	10.0
1966/67	9.04 *												9.0
1967/68							23.93 @	14.28	0.03 %	0.21 *	2.97	16.33	9.6
1968/69	15.27 @	5.41 %	0.28	0.29 @	0.28	6.68	12.33	10	3.51	4.26 @		3.77 %	5.6
1969/70	4.68	0.52	0.43	0.43 @		10.11 %	28.2	9.02		%		3.22 *	7.1
1970/71	0.69	5.38	6.16	7.5	0.04 @								4.0
1971/72													
1972/73								11.82 %	1.88	27.49	38.86	34.02	22.8
1973/74	36.47 *												36.5
1974/75						15.51 %	21.43	22.23 @	0.09 @		14.95	23.63	16.3
1975/76	5.89	2.44	0.02	0.08 @		6.89		0.06 @	3.18	0.00	25.85 *	16.40 @	6.1
1976/77	9.66		0.01	0.05	0.03 %		3.92 @	20.18	30.16	15.04	1.20	10.35	9.1
1977/78	5.96	3.62	2	6.31 *									4.5
AVERAGE	8.2	4.6	3.1	3.5	2.6	5.6	9.4	11.0	12.6	14.5	14.3	11.5	10.2
STD DEV	7.1	1.7	1.9	2.3	1.9	3.6	8.0	5.7	10.8	9.5	9.1	7.3	7.2
CV	0.9	0.4	0.6	0.7	0.7	0.6	0.9	0.5	0.9	0.7	0.6	0.6	0.7
MAX	36.5	7.6	6.2	7.5	6.4	15.5	28.2	22.2	42.1	34.4	38.9	34.0	36.5
MIN	0.7	0.5	0.0	0.1	0.0	2.7	3.3	0.1	0.0	0.0	1.2	3.2	4.5

INCOMPLETE MONTHLY DATA INDICATORS

*= 1-10 DAYS WITH DATA IN THE MONTH

@= 11-20 DAYS WITH DATA IN THE MONTH

%= MORE THAN 20 DAYS WITH DATA IN THE MONTH

A6. 9: El Yeso Reservoir Operation Outflow

AVERAGE MONTHLY
FLOWS (m3/s)
1968/69 - 2004/05
STATISTICS

El Yeso Reservoir Operation Outflow

YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR-SEP	OCT-MAR	ANNUAL
1950/51															
1951/52															
1952/53															
1953/54															
1954/55															
1955/56															
1956/57															
1957/58															
1958/59															
1959/60															
1960/61															
1961/62															
1962/63															
1963/64															
1964/65															
1965/66															
1966/67															
1967/68															
1968/69	7.9	4.8	0.0	0.0	0.0	6.5	12.3	10.0	3.4	3.1	2.8	3.6	3.19	5.86	4.53
1969/70	-	0.2	0.0	0.0	0.3	8.3	29.4	9.2	0.0	0.0	0.0	1.6	-	6.70	-
1970/71	1.2	5.5	6.3	8.6	0.4	8.3	14.3	0.0	0.0	9.4	11.8	11.6	5.06	7.86	6.46
1971/72	4.7	0.0	0.0	0.0	0.0	2.9	4.5	0.0	2.0	12.5	13.3	21.4	1.26	8.95	5.11
1972/73	16.4	3.2	0.0	0.0	0.0	0.0	19.1	13.2	1.9	27.7	39.7	36.7	3.26	23.04	13.15
1973/74	34.0	6.3	0.0	0.0	0.0	5.1	14.7	7.6	2.3	0.0	7.9	6.2	7.57	6.45	7.01
1974/75	5.9	10.3	16.7	0.0	0.0	10.4	20.1	16.9	1.3	0.0	4.4	13.3	7.23	9.33	8.28
1975/76	11.0	11.0	1.5	1.7	3.3	11.1	22.2	17.6	0.0	0.0	15.4	24.4	6.60	13.24	9.92
1976/77	6.2	2.5	0.0	0.0	0.0	6.8	0.0	0.8	3.1	0.3	18.8	17.5	2.57	6.77	4.67
1977/78	10.1	0.0	0.0	0.0	0.0	0.0	3.5	21.9	33.7	16.2	1.3	9.5	1.68	14.36	8.02
1978/79	6.4	4.9	4.2	6.7	7.6	3.5	8.4	21.2	14.1	34.8	28.6	4.9	5.57	18.66	12.11
1979/80	0.0	7.2	9.7	1.3	0.0	0.0	0.5	5.9	8.0	22.5	9.2	9.9	3.03	9.36	6.19
1980/81	9.1	8.0	13.0	17.5	15.3	11.3	12.7	14.5	27.6	23.1	19.3	12.9	12.36	18.35	15.36
1981/82	3.3	0.0	0.0	3.6	3.6	4.6	6.6	1.5	0.0	1.1	9.9	6.7	2.52	4.31	3.42
1982/83	8.7	1.3	0.6	6.5	3.4	3.7	11.9	30.9	22.0	31.6	31.4	21.3	4.02	24.86	14.44
1983/84	25.8	5.9	6.0	15.3	13.4	4.3	6.3	5.3	4.0	8.2	14.0	7.6	11.76	7.59	9.67
1984/85	7.3	11.6	5.3	4.1	4.0	4.2	22.2	22.6	19.8	6.5	0.6	9.4	6.09	13.52	9.80
1985/86	8.4	16.1	12.1	0.0	2.1	19.6	19.4	4.6	0.0	0.4	5.2	12.8	9.72	7.08	8.40
1986/87	11.6	0.0	6.9	13.1	0.3	13.9	15.9	0.0	11.0	27.8	22.3	17.0	7.64	15.66	11.65
1987/88	17.7	8.8	6.0	1.2	11.8	25.0	13.7	17.4	31.0	6.8	10.9	15.4	11.75	15.88	13.81
1988/89	14.3	11.7	6.6	1.0	0.1	7.4	19.3	1.7	0.1	5.5	8.8	13.1	6.85	8.07	7.46
1989/90	9.7	3.3	0.0	0.0	0.0	0.0	4.0	8.8	11.9	10.8	9.0	8.1	2.16	8.79	5.47
1990/91	3.44	7.84	6.58	6.72	5.32	0.00	4.13	7.09	1.16	1.22	6.84	5.74	4.98	4.36	4.67
1991/92	6.60	4.96	4.80	8.63	5.98	5.32	9.17	10.00	3.04	23.10	22.57	19.47	6.05	14.56	10.30
1992/93	11.13	5.05	8.49	7.30	9.74	5.72	3.16	2.92	5.01	9.12	9.58	9.77	7.91	6.59	7.25
1993/94	6.63	4.84	10.76	6.18	7.25	8.01	7.28	4.26	1.02	6.59	9.86	6.84	7.28	5.97	6.63
1994/95	9.40	7.43	6.93	7.67	9.85	7.15	5.34	0.88	0.86	9.16	12.40	10.21	8.07	6.47	7.27
1995/96	9.47	5.65	7.95	7.16	7.02	5.82	6.87	0.86	0.54	0.81	4.67	7.99	7.18	3.62	5.40
1996/97	7.79	4.92	5.07	4.98	4.74	4.94	9.41	4.29	2.20	3.85	3.15	3.74	5.41	4.44	4.92
1997/98	3.33	3.04	2.09	3.14	2.81	2.14	0.50	5.31	11.93	17.18	2.87	6.99	2.76	7.46	5.11
1998/99	5.73	4.30	5.68	5.48	5.80	5.03	4.97	4.48	3.57	3.93	3.89	5.29	5.34	4.36	4.85
1999/2000	5.97	5.97	5.86	6.39	6.39	5.18	3.95	1.62	0.61	2.68	8.79	9.19	5.96	4.47	5.22
2000/01	5.21	9.98	6.36	0.00	5.03	3.61	0.00	0.06	5.33	14.29	12.50	8.44	5.03	6.77	5.90
2001/02	6.18	3.63	7.90	4.16	2.24	0.49	12.95	10.31	15.26	12.08	12.03	9.18	4.10	11.97	8.03
2002/03	6.38	3.38	10.07	2.72	4.07	3.54	3.68	10.55	18.57	19.63	15.77	12.48	5.03	13.45	9.24
2003/04	7.46	3.98	3.94	5.25	3.58	5.92	8.93	0.24	6.66	11.97	9.01	8.45	5.02	7.54	6.28
2004/05	5.88	5.63	7.30	8.21	6.25	4.25	9.38	2.01	0.00	1.98	1.58	4.21	6.25	3.19	4.72
2005/06															
AVERAGE	8.9	5.5	5.3	4.4	4.1	6.1	10.0	8.0	7.4	10.4	11.4	11.2	5.78	9.73	7.80
STD DEV	6.4	3.7	4.3	4.5	4.1	5.2	7.2	7.8	9.4	9.9	8.9	6.9	2.75	5.43	3.12
CV	0.7	0.7	0.8	1.0	1.0	0.9	0.7	1.0	1.3	1.0	0.8	0.6	0.48	0.56	0.40
MAX	34.0	16.1	16.7	17.5	15.3	25.0	29.4	30.9	33.7	34.8	39.7	36.7	12.36	24.86	15.36
MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.26	3.19	3.42

1. MONTHLY MEAN FLOW ASSESSMENT

In the following points the monthly mean flows are analyzed in each one of the systems mentioned in the precedent point.

1.1 Monthly Mean Flows in the Volcán System.

1.1.1 Description of the Volcán System.

The Volcán System (Figure 2.1), is part of the upper basin of the Maipo River and affluent of the homonym river, located in the east part of the Metropolitan Region. The Volcán river has its source in the summit of the San José volcano (5.856 m m.a.s.l.), and receives the contribution of Colina stream which has its source in the eastern hillside of the previously mentioned volcano, and from Marmolejo hill (6.100 m m.a.s.l.). Up to its outlet in the Maipo River, the Volcán River controls an approximate area near to 530 Km².

This basin is divided in two upper main sub-basins, which correspond to Colina stream and El Volcán River, which at the same time, are source of the Volcán River as such (see Figure 2.1). The zone of interest for the collection system of Alto Maipo Project, is constituted by the sub-basins of Colina stream system, which correspond to El Morado canyon, Las Placas ravines, Colina stream as such, and La Engorda canyon (see Figure 2.2).

This zone presents a hydrologic regime of snow and glacial origin, controlling approximately 36 Km² of glaciers, Marmolejo glacier and Loma Larga glacier standing out among them, besides, other gullies which have its source in San José volcano.

Currently, the only collection of importance in the system is the one corresponding to the El Volcán run-of-river power plant (Point A1 in Fig. 2.1), whose flows are directly returned into the Maipo river, upstream of the confluence with Volcán river. Gener controls this point both in the collected flows with their intakes, as well as with the river surplus.

The Volcán River counts only with one flowmeter control dependent on the General Directorate of Waters (DGA), corresponding to station Volcán in Quelltehués. This control point (highlighted in Figure 2.1), is downstream the collection of El Volcán power plant.

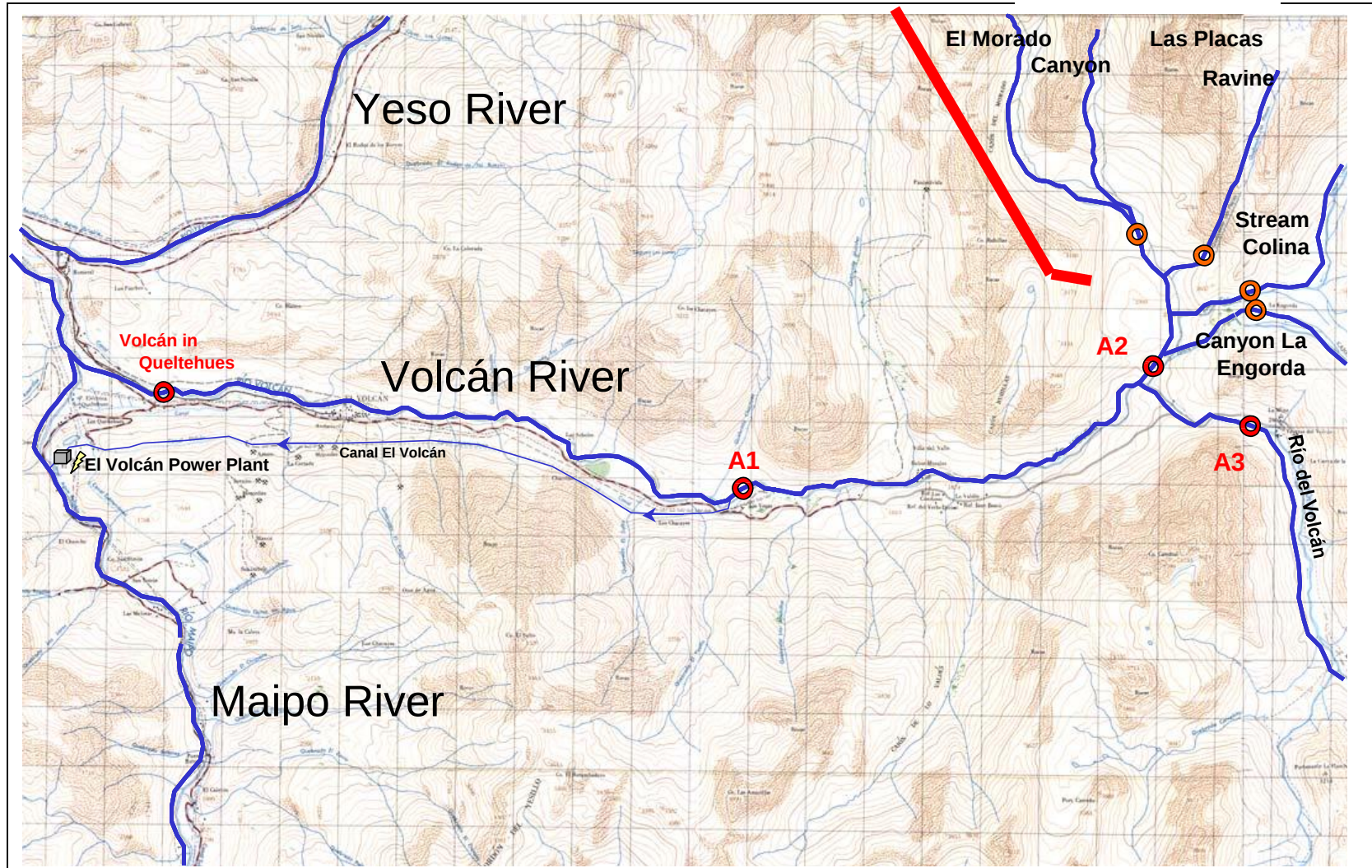
The Alto Maipo Hydroelectric Project considers the collection of superficial water resources available in the basin of the Colina stream (Point A2 in Fig. 2.1), and direct them through a tunnel towards the Yeso river basin. Four collections in this system are projected in particular (approximately at 2.500 m.a.s.l.), which will collect the resources from the already mentioned sub-basins out of La Engorda canyon, Colina stream, Las Placas ravine and El Morado canyon.

The main characteristics of the basins to be collected are pointed out next in Table 2.1

Table 2.1
CHARACTERISTICS OF THE COLLECTION BASINS IN THE
VOLCÁN SYSTEM

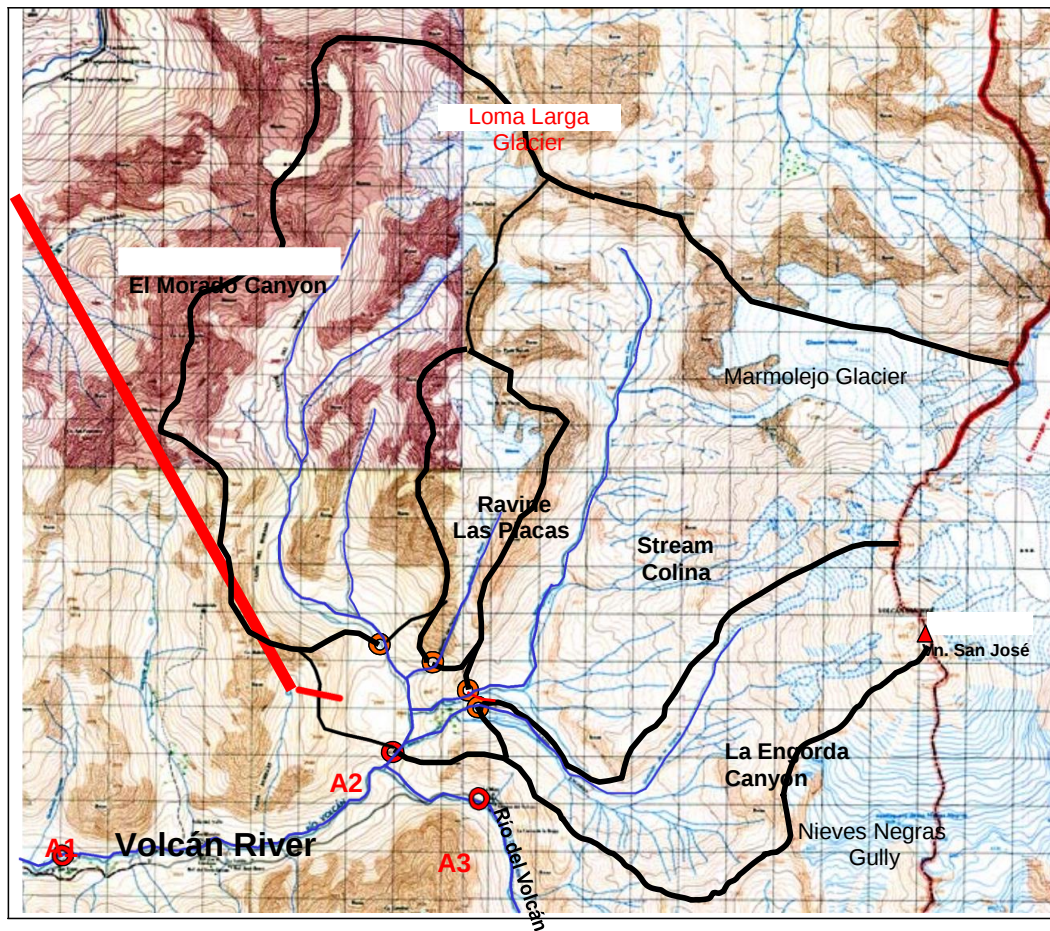
	Total Area (Km²)	Glaciers Area (A^g) (Km²)	Minimum Elevation (m.a.s.l.)	Maximum Elevation (m.a.s.l.)
La Engorda Canyon	30.4	2.4	2540	5820
Colina Stream	74.5	10.7	2540	6108
Las Placas Ravine	10.4	1.6	2540	4594
El Morado Canyon	54.0	4.0	2540	5404

FIGURE 2.1
VOLCÁN SYSTEM GENERAL SCHEME¹



¹ Source: Alto Maipo Hydroelectric Project Feasibility Study

FIGURE 2.2²
COLLECTION BASIN DETAILS, VOLCÁN SYSTEM



1.1.2 Available Background.

- Monthly Mean Flows of Volcán River in Queltehues (VQ) 1950/51 - 2005/06 (Source Sep 1950 - Dec 1988: BF Civil Engineers 1991 in natural regime, January 1989 - August 2006: BNA, observed flows).
- Monthly Generation, El Volcán Power Plant, January 1989 - August 2006 (Source Gener).
- Monthly Mean Flows, Maipo in San Alfonso (MSA) January 1988 - August 2006 (Source: BNA of DGA, observed flows).

² Source: Alto Maipo Hydroelectric Project Feasibility Study

1.1.3 Methodology.

In order to assess the monthly mean in each one of the collection points of the Volcán System, practically the same methodology used in the Alto Maipo Project Feasibility Study was taken, with some minor complements from the need of extending the series to a new period 1950/51 to 2005/06. Such methodology has been critically reviewed and analyzed according to the Milestone Report 2 of this Basic Engineering. The followed methodological steps are summarized next:

1.1.3.1 Volcán river in Queltehues Natural Regime Assessment.

First of all, the statistic of natural regime at the Volcán station in Queltehue was established given that this information, as it will be explained later on, is basic for the later hydrology assessments in each one of the collection points.

For such effects, the period of September 1950 to December 1998, the content information of the BF report of 1991, previously mentioned, was used. Then, for the period of January 1989 to August 2006, the monthly flow statistics registered in BNA of DGA and the generation information of the El Volcán Power Plant was used. In this way, a factor of monthly conversion relating both variables was used, such as:

$$FC_{Flow} = \frac{\text{Monthly Generation (MWh)}}{\text{Flow collected measured (m}^3\text{/s)}} \quad \text{Eq. 2.1}$$

With the calculated factor for each value of the series, a representative value is obtained for each month of the year, as the average of the statistic with a calculated conversion factor. The analysis of these monthly factors, allows identifying a factor for the winter months (May to September) equal to 1,45 MWh/m³/s and another factor equal to 1.42 for the rest of the year. With this conversion factor and the available information of the monthly generation in MWh, the monthly mean flow collected by the Hydroelectric Power Plant is obtained. Adding this statistic with the one registered in Volcán in Queltehues, finally, the natural regime of the control section of DGA is obtained in the specific station.

In order to estimate the missing values in the original flowmeter registry of Volcán in Queltehues and to correct those identified as possibly mistaken or incomplete, an establishment of the lineal correlations between these registries and those of Maipo in San Alfonso in natural regime was done, using the same parameters of the correlations established in the BF study of the year 1991. In this process, the natural regime of Maipo in San Alfonso is obtained adding to the registered flows, the regulated flows in Yeso river by the homonym reservoir.

The statistic, finally obtained in a natural regime in Volcán in Queltehues, is presented in Table A2.1 of the Annex.

With the natural regime flow of the basin defined by the flowmeter station of Volcán in Queltehues, a summary of the flows in the four projected points of collection was done next. The methodology used for it, was based in the transposition of the flows in natural regime of Volcán in Queltehues to the points A1 and A2 of the basin (see Figure 2.1), identifying and splitting the glacial contribution from the contribution of the areas without presence of glaciers.

This methodology is explained next according to the following steps:

- Analysis of previous gauging done by Gener in the Volcán river.
- Determination of dependency of flows between points of gauging.
- Summary of monthly mean flows in Volcán River before the Intake.
- Transposition of flows to the points of collection.

1.1.3.2 Analysis of previous Gauging in the Volcán river.

During the years 1989/90, Chilegener did systematic gauging in points A1, A2, and A3 (see Figure 2.2) which defined the basins respectively: the Volcán river before Collection, Colina stream before the joint with Volcán river and Volcán river before the joint with Colina stream, and whose characteristics are detailed in Table 2.2.

For this report, and while there is no new information on gauging available, the homogenization of these gauging from the study of BF 1991 was used, which allowed to obtain a characteristic hydrogramme of the monthly mean flows of these three sub-basins in such period of time. In Figure 2.3, these results are graphically presented, which will be used as base to relate the flow of these three sub-basins with the collection points contemplated in the Project, as it is explained later on.

Out of these results, it is observed that basins A2 and A3 presented a slight uneven hydrological regime with regards A1 basin, due to a lower accumulation of snow and to the relative presence of glaciers. On the other hand, basins A2 and A3 presented a similar behavior, producing a greater difference of flows between them in snow thaw season and the glacial contribution (to say the least, November to March). The greatest flow generated by Colina basin before its joint with Volcán (A2) in thaw season, is attributed to the presence of glaciers in this sub-basin.

With this information is possible to have a relation between the flows of basins A1, A2 and A3 as how it has been explained in point 2.1.3.3 next.

FIGURE 2.3³
HOMOGENEIZED GAUNGING YEAR 1990

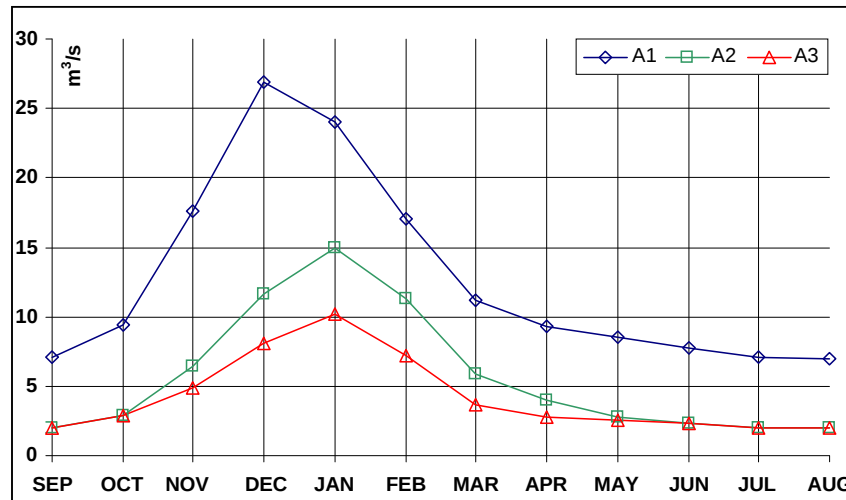


TABLE 2.2
CHARACTERISTICS OF BASINS A2 AND A3

BASIN	Total Area (Km ²)	Glaciers Area (Km ²)
Colina Stream before joint with Volcán river (A2)	177.7	18.7
Volcán River before joint with Colina stream (A3)	189.3	8

1.1.3.3 Determination of Dependency of Flows between points of gauging.

In order to obtain a relation between the flows of the sub-basins defined by points A1, A2 and A3 as per Figure 2.2, it has been set out that the unit yield of the areas without glacial contributions, q^{sg} en l/s/km², are approximately equal in A2 and A3, which has greater validity in winter season (see Figure 2.3). In thaw season, the glacial effect of A2 is highly well known and is valid to suppose that the difference of flow between A2 and A3 is attributable to the greater relative contribution of the present glaciers in the Colina river basin before joining with Volcán (A2).

³ Source: Alto Maipo Project Feasibility Study

With these approximations is possible to state the two relations of balance which are pointed out on the following equations, which finally lets to assess numerically the unit yields, for the areas with and without glaciers (q^{sg} y q^g , respectively).

$$Q_{A2} = Area_{A2}^{sg} \cdot q^{sg}(i) + Area_{A2}^g \cdot q^g(i) \quad \text{Eq. 2.2}$$

$$Q_{A3} = Area_{A3}^{sg} \cdot q^{sg}(i) + Area_{A3}^g \cdot q^g(i) \quad \text{Eq. 2.3}$$

Where:

Q_{A2} y Q_{A3}	= total flows in basins A2 and A3.
$Area_{A2}^{sg}$ y $Area_{A3}^{sg}$	= area without glaciers of A2 and A3 respectively.
$Area_{A2}^g$ y $Area_{A3}^g$	= Glacier area in A2 and A3 respectively.

Thus, the flow without glacial contribution of A1, $Q_{A1}^{sg}(i)$ obtained as per the following relation:

$$Q_{A1}^{sg}(i) = Q_{A1}(i) - Area_{A1}^g \cdot q^g(i) \quad \text{Eq. 2.4}$$

Finally, the non-glacial flow of A2 and A3 can be calculated as per the following equations: The relation between the non-glacial flows of A1 and A2, are expressed through a monthly coefficient, $F_{A2}(i)$, just as is presented in equation 2.7:

$$Q_{A2}^{sg}(i) = Area_{A2}^{sg} \cdot q^{sg}(i) \quad \text{Eq. 2.5}$$

$$Q_{A3}^{sg}(i) = Area_{A3}^{sg} \cdot q^{sg}(i) \quad \text{Eq. 2.6}$$

$$Q_{A2}^{sg}(i) = F_{A2}(i) \cdot Q_{A1}^{sg}(i) \quad \text{Eq. 2.7}$$

The results of the gauging done in the three points before mentioned, the magnitude of the glacial contribution and the percentage factor between the non-glacial contribution flow of A2 and A1 calculated and finally adopted, are detailed in Table 2.3.

TABLE 2.3
GAUNGING AND FLOW CORRELATION (m³/s). BASIN A2

MONTH	Q _{A1} m ³ /s	Q _{A2} m ³ /s	Q _{A3} m ³ /s	q ^g l/s/km ²	Q _{A1} ^{sg} m ³ /s	Q _{A2} ^{sg} m ³ /s	F _{A2}	F _{A3} Adopted
SEP	7.1	2.0	2.0	21.1	6.5	1.6	25%.	25%.
OCT	9.4	2.9	2.9	30.5	8.6	2.3	27%.	25%.
NOV	17.6	6.4	4.8	187.5	12.6	2.9	23%.	25%.
DEC	26.9	11.6	8.1	384.8	16.6	4.4	26%.	30%.
JAN	24.0	14.9	10.2	509.6	10.4	5.4	52%.	54%.
FEB	17.0	11.3	7.2	426.7	5.6	3.3	59%.	54%.
MAR	11.2	5.9	3.7	227.2	5.1	1.7	32%.	35%.
APR	9.3	4.0	2.8	132.2	5.8	1.5	26%.	25%.
MAY	8.5	2.8	2.5	52.0	7.1	1.8	26%.	25%.
JUN	7.7	2.3	2.3	24.2	7.1	1.8	26%.	25%.
JUL	7.1	2.0	2.0	21.1	6.5	1.6	25%.	25%.
AUG	7.0	2.0	2.0	21.1	6.4	1.6	25%.	25%.

* SOURCE Q_{A1}, Q_{A2} Y Q_{A3} GAUGING DONE IN THE YEAR 1989 / 90

With this analysis, a factor $F_{A2}(i)$ at monthly level is obtained, which corresponds to, as per such gauging, to a relation between the non-glacial contribution flows of A1 and A2, which will be adopted as a constant between basins, as well as the unit yield (monthly) of the glaciers, $q^g(i)$. That is to say, if the flows without glacial contribution in A1 are known, it is possible to determine the flows without glacial contribution in A2, applying such factor.

2.1.3.4 Summary of Flows in Volcán river before the Volcán Power Plant Intake (A1).

The monthly mean flow in a natural regime in the Volcán river before the Intake (A1), was calculated through proportional of the areas between this basin A1 and the basin defined in Volcán river in Queltehues, whose flows were already assessed (see point 2.1.3.1). This factor is equal to 0.838, which multiplying the statistic obtained in the natural regime in the mentioned flowmeter station, allows to obtain the registry of the monthly mean flow in natural regime in A1 (Table A2.2 of Annex). Flows in A1 without glacial contribution are determined over the base of the equation 2.4.

2.1.3.5 Transposition of flows to the points of collection.

The flows in the collection points are estimated over the base of the flows in basin A2, as per is pointed out later on.

For such effects, the flows without glacial contribution in A2 are primarily calculated, applying the Factor $F_{A2}(i)$ to the statistic without glacial contribution of A1, just as it is established in equation 2.7.

Finally, using the characteristics of the collection basins, detailed in Table 2.1, the monthly mean flow can be obtained in each one of the points of collection ($Q_{CAP(x)}(i)$), transposing by proportionality of area, the non-glacial flow of A2 and additionally the yield of the glaciers which each basin has, applying the following equation 2.8.

$$Q_{CAP(x)}(i) = Q_{A2}^{sg}(i) \cdot \frac{A_{CAP(x)}^{sg}}{A_{A2}^{sg}} + A_{CAP(x)}^g \cdot q^g(i) \quad \text{Eq. 2.8}$$

Where: $Q_{CAP(x)}$ is the monthly mean flow the collection x , $Area_{sgCAP(x)}$ the non-glacial area of collection x , A_{A2}^{sg} the non-glacial area of the basin A2, and $A_{gCAP(x)}$ the glacial area of the collection basin x . All of them are in km^2 .

As result of this analysis, a statistic of the monthly mean flows in natural regime in each collection point can be obtained, which are included in Tables A2.3 to A2.6 of the attached Annex.

ANNEX

TABLE A2.1
VOLCÁN RIVER IN
QUELTHEUES
NATURAL REGIME
MONTHLY MEAN FLOW (m³/s)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	Q _{MA}
1950 / 51	6.60	9.77	14.07	28.78	25.14	19.04	14.73	9.03	7.80	7.51	7.35	7.37	13.10
1951 / 52	7.18	9.80	16.54	26.85	25.39	18.15	13.69	9.28	7.61	7.54	7.42	7.22	13.06
1952 / 53	7.52	10.06	14.75	26.81	25.81	21.03	14.28	10.01	7.76	7.77	7.46	8.02	13.44
1953 / 54	9.76	11.14	25.08	38.32	39.02	31.84	21.18	11.68	9.78	9.91	8.85	8.42	18.75
1954 / 55	8.49	11.00	18.50	24.23	23.72	20.70	15.25	9.61	7.07	5.94	5.19	5.34	12.92
1955 / 56	5.62	7.50	17.46	21.86	22.22	17.58	13.36	7.67	7.83	6.88	6.42	6.72	11.76
1956 / 57	6.84	9.25	20.92	24.54	27.29	25.44	16.42	9.57	6.79	6.72	6.31	6.68	13.90
1957 / 58	7.23	10.17	19.03	29.25	22.75	14.58	11.49	8.63	7.60	7.33	7.08	6.78	12.66
1958 / 59	9.12	13.69	29.96	31.04	24.90	20.00	13.03	10.55	8.68	8.01	8.07	8.64	15.47
1959 / 60	9.60	13.05	28.90	39.50	34.55	30.20	18.80	9.07	7.64	6.77	6.94	6.90	17.66
1960 / 61	9.73	10.30	22.70	30.53	23.45	17.52	13.75	11.34	8.38	7.95	7.57	7.37	14.22
1961 / 62	7.57	14.87	31.82	47.45	34.70	27.05	23.05	10.71	8.62	8.08	7.55	7.21	19.06
1962 / 63	7.75	10.15	21.50	27.55	18.40	16.95	11.86	8.63	7.14	6.93	7.03	6.42	12.53
1963 / 64	8.35	10.78	15.36	42.40	56.00	42.65	26.25	17.47	11.09	9.56	8.02	7.20	21.26
1964 / 65	7.20	8.85	15.15	18.65	21.50	20.30	13.32	10.16	8.31	8.04	7.74	9.51	12.39
1965 / 66	10.07	14.86	24.75	28.55	43.65	28.25	19.45	12.76	9.61	9.23	9.41	7.98	18.21
1966 / 67	8.66	12.72	22.45	25.10	22.25	20.55	13.43	9.78	7.86	9.56	6.04	5.44	13.65
1967 / 68	5.64	7.85	12.46	22.60	18.90	15.93	11.13	7.63	6.72	6.59	5.43	5.06	10.50
1968 / 69	4.84	5.67	9.76	13.96	17.53	14.92	10.48	5.61	5.11	6.27	5.71	5.54	8.78
1969 / 70	6.71	7.73	11.91	33.45	26.05	19.20	11.37	8.77	6.64	5.72	5.34	5.41	12.36
1970 / 71	6.23	10.91	18.56	27.39	10.37	11.70	14.15	9.30	5.19	4.95	5.97	6.18	10.91
1971 / 72	7.01	11.79	23.73	25.09	21.31	16.09	12.81	8.09	13.36	10.89	7.87	9.06	13.93
1972 / 73	10.23	12.34	17.28	33.70	42.19	33.65	23.57	19.50	12.15	8.69	7.92	6.79	19.00
1973 / 74	7.37	14.39	19.71	21.80	30.53	20.95	14.56	9.01	7.46	7.54	8.75	8.04	14.18
1974 / 75	8.09	15.62	25.02	32.05	47.03	24.61	16.27	10.18	6.88	6.51	6.20	6.20	17.06
1975 / 76	6.83	9.23	15.51	28.26	21.66	26.71	13.95	7.70	6.54	6.44	6.24	6.01	12.92
1976 / 77	6.31	7.42	16.14	23.74	25.03	16.25	13.60	8.98	7.23	6.97	9.55	9.97	12.60
1977 / 78	10.69	15.74	27.58	41.14	33.40	25.07	16.24	11.75	7.10	7.93	9.06	9.17	17.91
1978 / 79	8.86	12.53	19.92	41.80	39.99	24.28	17.62	13.98	11.29	8.66	7.33	8.15	17.87
1979 / 80	7.17	8.74	13.47	27.80	32.58	25.03	18.74	17.83	15.99	13.12	11.66	9.43	16.80
1980 / 81	9.85	12.73	23.23	49.21	41.09	34.25	21.31	12.70	10.45	9.01	7.57	7.42	19.90
1981 / 82	7.17	10.49	19.50	24.11	24.17	22.01	14.38	8.98	8.11	9.11	14.60	12.23	14.57
1982 / 83	14.29	13.66	22.27	56.86	68.01	56.33	36.95	23.39	14.47	11.13	9.84	9.11	28.03
1983 / 84	8.88	13.29	25.51	41.39	36.88	29.74	19.86	13.02	9.30	8.14	7.90	8.26	18.51
1984 / 85	9.61	15.89	21.84	38.31	43.68	31.64	24.77	15.26	2.97	10.29	9.51	8.51	19.36
1985 / 86	7.89	8.62	20.84	27.80	24.82	18.88	13.94	10.57	9.28	18.01	11.84	8.72	15.10
1986 / 87	9.67	13.05	20.15	42.54	45.53	35.94	23.56	13.75	10.65	10.44	13.23	10.96	20.79
1987 / 88	10.13	15.06	31.93	54.87	50.59	38.57	25.73	16.57	11.31	9.11	7.99	7.77	23.30
1988 / 89	5.89	10.67	19.80	23.45	24.13	22.48	14.21	9.05	7.29	6.41	5.82	7.61	13.07
1989 / 90	8.87	12.64	27.94	33.59	29.71	19.37	13.14	9.49	7.73	6.87	6.33	6.34	15.17
1990 / 91	7.49	8.85	16.90	22.71	22.95	18.75	14.32	9.30	11.58	12.81	10.76	9.69	13.84
1991 / 92	12.06	13.91	22.38	22.90	43.91	30.29	24.07	13.93	11.56	10.92	10.33	9.12	18.78
1992 / 93	10.72	15.90	24.00	37.06	40.96	30.22	21.04	15.72	14.46	13.75	13.73	10.75	20.69
1993 / 94	10.89	17.29	23.75	32.27	36.69	23.40	18.66	11.74	9.36	8.70	8.43	8.81	17.50
1994 / 95	7.95	12.15	30.08	39.82	31.52	21.11	15.77	11.95	8.98	8.19	7.52	7.18	16.85
1995 / 96	9.35	11.47	23.24	33.75	23.00	19.16	15.02	10.11	7.86	6.26	6.29	5.88	14.28
1996 / 97	5.73	6.43	8.76	12.18	17.84	18.44	10.64	7.44	6.32	8.78	8.53	10.03	10.09
1997 / 98	15.19	11.01	23.43	40.86	51.96	28.59	21.03	16.80	12.50	9.37	8.19	6.78	20.48
1998 / 99	6.29	9.09	13.70	14.24	16.29	16.36	10.94	7.38	6.34	5.89	5.58	5.71	9.82
1999 / 00	6.43	11.03	18.98	24.39	19.46	18.13	10.96	9.29	7.65	7.97	9.29	8.12	12.64
2000 / 01	8.20	15.77	22.35	45.70	41.26	31.27	20.43	12.86	10.33	9.05	9.02	10.38	19.72
2001 / 02	11.15	15.28	24.01	45.95	36.73	27.11	18.85	12.84	11.17	9.58	10.46	14.22	19.78
2002 / 03	13.10	15.89	26.04	40.01	43.71	33.83	24.13	15.64	11.54	10.62	9.45	9.15	21.09
2003 / 04	9.67	14.34	20.84	23.67	25.77	21.08	16.43	10.69	8.24	6.38	6.85	7.10	14.25
2004 / 05	9.15	7.56	13.66	24.82	24.33	18.90	13.03	9.32	8.20	10.39	10.47	10.92	13.40
2005 / 06	12.07	16.18	29.36	44.87	49.64	35.72	21.01	14.64	11.82	10.37	11.48	11.10	22.36
AVER.	8.59	11.72	20.79	31.81	31.64	24.42	17.00	11.37	8.94	8.60	8.26	8.04	15.93
MAX.	15.19	17.29	31.93	56.86	68.01	56.33	36.95	23.39	15.99	18.01	14.60	14.22	28.03
MIN.	4.84	5.67	8.76	12.18	10.37	11.70	10.48	5.61	2.97	4.95	5.19	5.06	8.78

% More than 20 days with information in the Month

@ 11-20 Days with information in the Month

Corrected values as per correlation

TABLE A2.2
VOLCÁN RIVER AT EL VOLCÁN POWER PLANT
INTAKE NATURAL REGIME
MONTHLY MEAN FLOW (m³/s)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	Q _{MA}
1950 / 51	5.50	8.15	11.73	24.00	20.96	15.88	12.28	7.53	6.50	6.26	6.13	6.15	10.92
1951 / 52	5.99	8.17	13.79	22.39	21.17	15.13	11.42	7.74	6.35	6.29	6.19	6.02	10.89
1952 / 53	6.27	8.39	12.30	22.36	21.52	17.54	11.91	8.35	6.47	6.48	6.22	6.69	11.21
1953 / 54	8.14	9.29	20.91	31.95	32.54	26.55	17.66	9.74	8.15	8.26	7.38	7.02	15.63
1954 / 55	7.08	9.17	15.43	20.20	19.78	17.26	12.72	8.01	5.90	4.95	4.33	4.45	10.77
1955 / 56	4.69	6.25	14.56	18.23	18.53	14.66	11.14	6.40	6.53	5.74	5.35	5.60	9.81
1956 / 57	5.70	7.71	17.44	20.46	22.76	21.21	13.69	7.98	5.66	5.60	5.26	5.57	11.59
1957 / 58	6.03	8.48	15.87	24.39	18.97	12.16	9.58	7.20	6.34	6.11	5.90	5.65	10.56
1958 / 59	7.60	11.42	24.98	25.88	20.76	16.68	10.86	8.80	7.24	6.68	6.73	7.20	12.90
1959 / 60	8.00	10.88	24.10	32.94	28.81	25.18	15.68	7.56	6.37	5.65	5.79	5.75	14.73
1960 / 61	8.11	8.59	18.93	25.46	19.55	14.61	11.47	9.46	6.99	6.63	6.31	6.15	11.85
1961 / 62	6.31	12.40	26.53	39.57	28.93	22.56	19.22	8.93	7.19	6.74	6.30	6.01	15.89
1962 / 63	6.46	8.46	17.93	22.97	15.34	14.13	9.89	7.20	5.95	5.78	5.86	5.35	10.44
1963 / 64	6.96	8.99	12.81	35.35	46.70	35.56	21.89	14.57	9.25	7.97	6.69	6.00	17.73
1964 / 65	6.00	7.38	12.63	15.55	17.93	16.93	11.11	8.47	6.93	6.70	6.45	7.93	10.33
1965 / 66	8.40	12.39	20.64	23.81	36.40	23.56	16.22	10.64	8.01	7.70	7.85	6.65	15.19
1966 / 67	7.22	10.61	18.72	20.93	18.55	17.14	11.20	8.15	6.55	7.97	5.04	4.54	11.38
1967 / 68	4.70	6.55	10.39	18.84	15.76	13.28	9.28	6.36	5.60	5.50	4.53	4.22	8.75
1968 / 69	4.04	4.73	8.14	11.64	14.62	12.44	8.74	4.68	4.26	5.23	4.76	4.62	7.32
1969 / 70	5.60	6.45	9.93	27.89	21.72	16.01	9.48	7.31	5.54	4.77	4.45	4.51	10.30
1970 / 71	5.19	9.10	15.48	22.84	8.65	9.76	11.80	7.75	4.33	4.13	4.98	5.15	9.10
1971 / 72	5.85	9.83	19.79	20.92	17.77	13.42	10.68	6.75	11.14	9.08	6.56	7.55	11.61
1972 / 73	8.53	10.29	14.41	28.10	35.18	28.06	19.65	16.26	10.13	7.25	6.60	5.66	15.84
1973 / 74	6.15	12.00	16.44	18.18	25.46	17.47	12.14	7.51	6.22	6.29	7.30	6.70	11.82
1974 / 75	6.75	13.02	20.86	26.72	39.22	20.52	13.57	8.49	5.74	5.43	5.17	5.17	14.22
1975 / 76	5.70	7.70	12.93	23.56	18.06	22.27	11.63	6.42	5.45	5.37	5.20	5.01	10.78
1976 / 77	5.26	6.19	13.46	19.80	20.87	13.55	11.34	7.49	6.03	5.81	7.96	8.31	10.51
1977 / 78	8.91	13.12	23.00	34.30	27.85	20.90	13.54	9.80	5.92	6.61	7.55	7.65	14.93
1978 / 79	7.39	10.45	16.61	34.85	33.35	20.25	14.69	11.66	9.41	7.22	6.11	6.80	14.90
1979 / 80	5.98	7.29	11.23	23.18	27.17	20.87	15.63	14.87	13.33	10.94	9.72	7.86	14.01
1980 / 81	8.21	10.61	19.37	41.03	34.26	28.56	17.77	10.59	8.71	7.51	6.31	6.19	16.59
1981 / 82	5.98	8.75	16.26	20.10	20.15	18.35	11.99	7.49	6.76	7.60	12.17	10.20	12.15
1982 / 83	11.92	11.39	18.57	47.41	56.71	46.97	30.81	19.50	12.07	9.28	8.21	7.60	23.37
1983 / 84	7.40	11.08	21.27	34.51	30.75	24.80	16.56	10.86	7.75	6.79	6.59	6.89	15.44
1984 / 85	8.01	13.25	18.21	31.94	36.42	26.38	20.65	12.72	2.48	8.58	7.93	7.10	16.14
1985 / 86	6.58	7.19	17.38	23.18	20.70	15.74	11.62	8.81	7.74	15.02	9.87	7.27	12.59
1986 / 87	8.06	10.88	16.80	35.47	37.96	29.97	19.65	11.47	8.88	8.71	11.03	9.14	17.33
1987 / 88	8.45	12.56	26.62	45.75	42.18	32.16	21.45	13.82	9.43	7.60	6.66	6.48	19.43
1988 / 89	4.91	8.90	16.51	19.55	20.12	18.74	11.85	7.54	6.08	5.34	4.85	6.34	10.89
1989 / 90	7.39	10.54	23.30	28.01	24.77	16.15	10.96	7.91	6.45	5.73	5.28	5.29	12.65
1990 / 91	6.25	7.38	14.10	18.93	19.14	15.63	11.94	7.76	9.65	10.68	8.97	8.08	11.54
1991 / 92	10.06	11.60	18.66	19.09	36.61	25.26	20.07	11.61	9.64	9.10	8.61	7.61	15.66
1992 / 93	8.94	13.26	20.01	30.90	34.16	25.20	17.54	13.11	12.06	11.46	11.45	8.96	17.25
1993 / 94	9.08	14.42	19.80	26.91	30.59	19.51	15.56	9.79	7.81	7.26	7.03	7.35	14.59
1994 / 95	6.63	10.13	25.08	33.20	26.28	17.61	13.15	9.97	7.49	6.83	6.27	5.99	14.05
1995 / 96	7.80	9.57	19.38	28.14	19.17	15.98	12.53	8.43	6.56	5.22	5.25	4.90	11.91
1996 / 97	4.78	5.36	7.30	10.16	14.88	15.38	8.87	6.21	5.27	7.32	7.12	8.36	8.42
1997 / 98	12.67	9.18	19.54	34.07	43.33	23.84	17.54	14.01	10.42	7.81	6.83	5.65	17.07
1998 / 99	5.25	7.58	11.42	11.87	13.59	13.64	9.12	6.15	5.29	4.91	4.65	4.76	8.19
1999 / 00	5.36	9.20	15.83	20.34	16.22	15.12	9.14	7.74	6.38	6.65	7.75	6.77	10.54
2000 / 01	6.84	13.15	18.64	38.11	34.41	26.07	17.03	10.72	8.61	7.54	7.52	8.66	16.44
2001 / 02	9.30	12.74	20.02	38.31	30.63	22.61	15.72	10.71	9.32	7.99	8.73	11.86	16.49
2002 / 03	10.92	13.25	21.71	33.36	36.45	28.21	20.12	13.04	9.62	8.85	7.88	7.63	17.59
2003 / 04	8.07	11.96	17.38	19.74	21.48	17.58	13.70	8.91	6.87	5.32	5.71	5.92	11.89
2004 / 05	7.63	6.31	11.39	20.69	20.29	15.76	10.86	7.77	6.84	8.67	8.73	9.11	11.17
2005 / 06	10.07	13.49	24.48	37.42	41.39	29.78	17.52	12.21	9.86	8.65	9.57	9.25	18.64
AVER.	7.16	9.77	17.34	26.53	26.38	20.37	14.18	9.48	7.46	7.17	6.89	6.70	13.28
MAX.	12.67	14.42	26.62	47.41	56.71	46.97	30.81	19.50	13.33	15.02	12.17	11.86	23.37
MIN.	4.04	4.73	7.30	10.16	8.65	9.76	8.74	4.68	2.48	4.13	4.33	4.22	7.32

TABLE A2.3
LA ENGORDA
CANYON
NATURAL REGIMEN
MONTHLY MEAN FLOW (m³/s)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	QMA
1950 / 51	0.27	0.40	0.80	1.79	2.28	1.75	1.03	0.53	0.36	0.31	0.30	0.30	0.84
1951 / 52	0.29	0.40	0.89	1.70	2.30	1.69	0.97	0.54	0.35	0.31	0.30	0.29	0.84
1952 / 53	0.30	0.41	0.83	1.70	2.33	1.91	1.00	0.57	0.36	0.32	0.30	0.32	0.86
1953 / 54	0.38	0.45	1.19	2.19	3.35	2.74	1.35	0.63	0.43	0.39	0.35	0.33	1.15
1954 / 55	0.34	0.44	0.96	1.59	2.17	1.88	1.05	0.55	0.34	0.25	0.22	0.22	0.83
1955 / 56	0.23	0.32	0.92	1.49	2.05	1.64	0.96	0.49	0.36	0.28	0.26	0.27	0.77
1956 / 57	0.28	0.38	1.05	1.60	2.44	2.25	1.11	0.55	0.33	0.28	0.26	0.27	0.90
1957 / 58	0.29	0.41	0.98	1.81	2.10	1.41	0.86	0.52	0.35	0.30	0.29	0.28	0.80
1958 / 59	0.36	0.54	1.37	1.88	2.26	1.83	0.94	0.59	0.39	0.32	0.32	0.34	0.93
1959 / 60	0.38	0.51	1.33	2.24	3.00	2.61	1.23	0.53	0.36	0.28	0.28	0.28	1.09
1960 / 61	0.38	0.42	1.11	1.86	2.15	1.64	0.98	0.62	0.38	0.32	0.30	0.30	0.87
1961 / 62	0.30	0.58	1.43	2.58	3.02	2.37	1.44	0.59	0.39	0.33	0.30	0.29	1.14
1962 / 63	0.31	0.41	1.07	1.73	1.76	1.59	0.88	0.52	0.34	0.29	0.28	0.26	0.79
1963 / 64	0.33	0.43	0.85	2.37	4.66	3.57	1.60	0.83	0.48	0.38	0.32	0.29	1.34
1964 / 65	0.29	0.36	0.84	1.35	2.00	1.85	0.96	0.57	0.38	0.33	0.31	0.37	0.80
1965 / 66	0.39	0.58	1.18	1.78	3.71	2.46	1.26	0.67	0.43	0.37	0.37	0.32	1.13
1966 / 67	0.34	0.50	1.10	1.63	2.06	1.87	0.96	0.56	0.36	0.38	0.25	0.23	0.85
1967 / 68	0.23	0.33	0.74	1.52	1.80	1.51	0.85	0.48	0.32	0.27	0.23	0.21	0.71
1968 / 69	0.21	0.25	0.65	1.15	1.69	1.44	0.81	0.41	0.27	0.26	0.24	0.23	0.63
1969 / 70	0.27	0.32	0.72	1.99	2.35	1.77	0.86	0.52	0.32	0.24	0.22	0.23	0.82
1970 / 71	0.26	0.44	0.96	1.73	1.22	1.19	1.00	0.54	0.27	0.22	0.25	0.25	0.69
1971 / 72	0.28	0.47	1.15	1.63	1.98	1.53	0.93	0.50	0.56	0.43	0.31	0.36	0.84
1972 / 73	0.40	0.49	0.92	2.00	3.59	2.88	1.47	0.91	0.52	0.35	0.32	0.28	1.18
1973 / 74	0.30	0.56	1.00	1.49	2.69	1.90	1.02	0.53	0.35	0.31	0.35	0.32	0.90
1974 / 75	0.32	0.61	1.19	1.93	3.97	2.18	1.10	0.57	0.33	0.27	0.25	0.25	1.08
1975 / 76	0.28	0.38	0.85	1.76	2.01	2.34	0.99	0.49	0.32	0.27	0.26	0.25	0.85
1976 / 77	0.26	0.31	0.88	1.57	2.27	1.54	0.97	0.53	0.34	0.29	0.37	0.39	0.81
1977 / 78	0.41	0.61	1.28	2.31	2.92	2.22	1.10	0.63	0.34	0.32	0.36	0.36	1.07
1978 / 79	0.35	0.50	1.01	2.34	3.42	2.16	1.17	0.71	0.49	0.35	0.30	0.32	1.09
1979 / 80	0.29	0.36	0.78	1.74	2.85	2.22	1.23	0.85	0.65	0.51	0.45	0.37	1.02
1980 / 81	0.38	0.50	1.13	2.66	3.51	2.93	1.35	0.66	0.46	0.36	0.30	0.30	1.21
1981 / 82	0.29	0.42	1.00	1.59	2.20	1.98	1.01	0.53	0.37	0.36	0.55	0.47	0.90
1982 / 83	0.54	0.54	1.09	2.99	5.58	4.63	2.14	1.05	0.60	0.44	0.38	0.36	1.69
1983 / 84	0.35	0.52	1.21	2.33	3.18	2.58	1.28	0.68	0.41	0.33	0.32	0.33	1.13
1984 / 85	0.38	0.62	1.08	2.19	3.71	2.72	1.53	0.76	0.19	0.41	0.37	0.34	1.19
1985 / 86	0.32	0.36	1.04	1.74	2.25	1.74	0.99	0.59	0.41	0.68	0.46	0.34	0.91
1986 / 87	0.38	0.51	1.02	2.37	3.85	3.06	1.47	0.70	0.46	0.41	0.51	0.42	1.26
1987 / 88	0.39	0.59	1.44	2.90	4.24	3.26	1.58	0.80	0.49	0.36	0.32	0.31	1.39
1988 / 89	0.24	0.43	1.01	1.56	2.20	2.02	1.00	0.53	0.34	0.27	0.24	0.31	0.85
1989 / 90	0.35	0.50	1.30	1.99	2.63	1.78	0.95	0.55	0.36	0.28	0.26	0.26	0.93
1990 / 91	0.30	0.36	0.90	1.53	2.11	1.73	1.01	0.54	0.50	0.50	0.42	0.38	0.86
1991 / 92	0.46	0.55	1.10	1.53	3.73	2.62	1.49	0.71	0.50	0.43	0.40	0.36	1.16
1992 / 93	0.42	0.62	1.16	2.14	3.50	2.61	1.34	0.77	0.60	0.53	0.52	0.42	1.22
1993 / 94	0.42	0.67	1.15	1.94	3.17	2.09	1.22	0.63	0.42	0.35	0.33	0.35	1.06
1994 / 95	0.32	0.48	1.37	2.26	2.77	1.91	1.08	0.64	0.40	0.33	0.30	0.29	1.01
1995 / 96	0.37	0.46	1.13	2.00	2.11	1.76	1.04	0.57	0.36	0.26	0.26	0.24	0.88
1996 / 97	0.24	0.28	0.61	1.08	1.72	1.71	0.82	0.48	0.31	0.35	0.34	0.39	0.69
1997 / 98	0.58	0.44	1.14	2.30	4.35	2.49	1.34	0.81	0.53	0.37	0.33	0.28	1.25
1998 / 99	0.26	0.37	0.79	1.16	1.60	1.55	0.84	0.47	0.31	0.25	0.23	0.24	0.67
1999 / 00	0.26	0.44	0.98	1.60	1.84	1.68	0.84	0.54	0.36	0.32	0.37	0.32	0.80
2000 / 01	0.33	0.61	1.10	2.51	3.52	2.70	1.31	0.67	0.45	0.36	0.36	0.40	1.19
2001 / 02	0.43	0.59	1.16	2.52	3.17	2.38	1.23	0.67	0.48	0.38	0.41	0.54	1.16
2002 / 03	0.50	0.62	1.23	2.27	3.71	2.89	1.50	0.77	0.49	0.42	0.37	0.36	1.26
2003 / 04	0.38	0.56	1.04	1.57	2.33	1.91	1.11	0.59	0.38	0.27	0.28	0.29	0.89
2004 / 05	0.36	0.32	0.79	1.62	2.22	1.74	0.94	0.54	0.38	0.41	0.41	0.42	0.85
2005 / 06	0.46	0.63	1.35	2.47	4.17	3.04	1.34	0.73	0.50	0.41	0.44	0.43	1.33
AVER.	0.34	0.47	1.04	1.92	2.78	2.17	1.14	0.62	0.40	0.35	0.33	0.32	0.99
MAX.	0.58	0.67	1.44	2.99	5.58	4.63	2.14	1.05	0.65	0.68	0.55	0.54	1.69
MIN.	0.21	0.25	0.61	1.08	1.22	1.19	0.81	0.41	0.19	0.22	0.22	0.21	0.63

TABLE A2.4
COLINA STREAM
NATURAL REGIMEN
MONTHLY MEAN FLOW (m³/s)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	QMA
1950 / 51	0.76	1.12	2.87	6.23	8.04	6.35	3.61	1.94	1.14	0.87	0.83	0.83	2.88
1951 / 52	0.81	1.12	3.08	6.03	8.09	6.19	3.48	1.97	1.12	0.87	0.83	0.82	2.87
1952 / 53	0.84	1.15	2.93	6.02	8.17	6.73	3.56	2.03	1.13	0.89	0.84	0.88	2.93
1953 / 54	1.04	1.24	3.83	7.23	10.66	8.77	4.40	2.18	1.31	1.08	0.96	0.92	3.63
1954 / 55	0.93	1.23	3.26	5.75	7.77	6.67	3.67	2.00	1.07	0.73	0.64	0.65	2.86
1955 / 56	0.68	0.92	3.16	5.51	7.49	6.08	3.44	1.83	1.14	0.81	0.75	0.77	2.71
1956 / 57	0.78	1.08	3.47	5.79	8.45	7.56	3.82	1.99	1.05	0.80	0.74	0.77	3.02
1957 / 58	0.82	1.16	3.30	6.28	7.59	5.51	3.21	1.91	1.12	0.85	0.80	0.78	2.78
1958 / 59	0.98	1.46	4.26	6.47	8.00	6.53	3.40	2.08	1.21	0.91	0.89	0.94	3.09
1959 / 60	1.02	1.41	4.16	7.36	9.82	8.46	4.11	1.95	1.12	0.80	0.79	0.79	3.48
1960 / 61	1.03	1.17	3.62	6.41	7.72	6.07	3.49	2.15	1.19	0.91	0.85	0.83	2.95
1961 / 62	0.85	1.57	4.42	8.19	9.85	7.87	4.63	2.09	1.21	0.92	0.84	0.81	3.60
1962 / 63	0.86	1.15	3.52	6.10	6.77	5.96	3.26	1.91	1.08	0.82	0.80	0.75	2.75
1963 / 64	0.91	1.21	2.98	7.66	13.87	10.81	5.02	2.68	1.42	1.05	0.88	0.81	4.11
1964 / 65	0.81	1.04	2.96	5.17	7.35	6.59	3.44	2.04	1.18	0.91	0.86	1.02	2.78
1965 / 66	1.06	1.57	3.80	6.21	11.54	8.09	4.19	2.27	1.29	1.02	1.01	0.88	3.58
1966 / 67	0.94	1.38	3.60	5.84	7.50	6.64	3.45	2.01	1.14	1.05	0.71	0.66	2.91
1967 / 68	0.68	0.95	2.73	5.58	6.86	5.77	3.17	1.82	1.04	0.79	0.66	0.63	2.56
1968 / 69	0.61	0.76	2.49	4.68	6.60	5.58	3.09	1.65	0.90	0.76	0.68	0.67	2.37
1969 / 70	0.77	0.94	2.68	6.72	8.21	6.38	3.20	1.92	1.03	0.71	0.65	0.66	2.82
1970 / 71	0.73	1.22	3.26	6.09	5.45	4.97	3.54	1.97	0.91	0.64	0.71	0.72	2.52
1971 / 72	0.80	1.30	3.71	5.84	7.32	5.80	3.38	1.86	1.62	1.16	0.87	0.98	2.89
1972 / 73	1.08	1.35	3.15	6.75	11.26	9.11	4.69	2.86	1.52	0.97	0.88	0.78	3.70
1973 / 74	0.83	1.52	3.36	5.50	9.06	6.71	3.59	1.94	1.11	0.87	0.95	0.89	3.03
1974 / 75	0.89	1.63	3.83	6.57	12.17	7.41	3.80	2.04	1.06	0.78	0.73	0.73	3.47
1975 / 76	0.78	1.07	2.99	6.18	7.38	7.80	3.51	1.83	1.03	0.77	0.73	0.71	2.90
1976 / 77	0.74	0.92	3.05	5.70	8.02	5.83	3.47	1.94	1.09	0.82	1.02	1.06	2.80
1977 / 78	1.12	1.64	4.05	7.53	9.60	7.49	3.79	2.18	1.07	0.90	0.98	0.99	3.45
1978 / 79	0.96	1.36	3.38	7.60	10.84	7.34	3.96	2.38	1.44	0.97	0.82	0.90	3.50
1979 / 80	0.81	1.03	2.82	6.13	9.45	7.48	4.10	2.71	1.85	1.36	1.20	1.01	3.33
1980 / 81	1.04	1.38	3.67	8.37	11.05	9.22	4.42	2.27	1.37	1.00	0.85	0.83	3.79
1981 / 82	0.81	1.18	3.34	5.74	7.86	6.91	3.57	1.94	1.16	1.01	1.46	1.25	3.02
1982 / 83	1.43	1.46	3.58	9.18	16.13	13.39	6.33	3.20	1.72	1.18	1.04	0.98	4.97
1983 / 84	0.96	1.43	3.87	7.55	10.26	8.37	4.24	2.29	1.27	0.92	0.87	0.91	3.58
1984 / 85	1.02	1.66	3.55	7.23	11.54	8.73	4.84	2.49	0.71	1.11	1.02	0.93	3.74
1985 / 86	0.87	1.02	3.46	6.13	7.98	6.32	3.51	2.08	1.27	1.79	1.22	0.95	3.05
1986 / 87	1.03	1.41	3.40	7.67	11.89	9.54	4.69	2.36	1.39	1.12	1.34	1.14	3.92
1987 / 88	1.07	1.58	4.43	8.97	12.85	10.04	4.96	2.60	1.44	1.01	0.88	0.86	4.22
1988 / 89	0.70	1.20	3.37	5.67	7.85	7.00	3.55	1.95	1.09	0.77	0.69	0.85	2.89
1989 / 90	0.96	1.37	4.08	6.74	8.90	6.41	3.42	1.98	1.13	0.81	0.74	0.74	3.11
1990 / 91	0.84	1.04	3.12	5.59	7.63	6.30	3.56	1.97	1.47	1.33	1.12	1.03	2.92
1991 / 92	1.24	1.48	3.59	5.61	11.58	8.48	4.75	2.37	1.46	1.17	1.09	0.98	3.65
1992 / 93	1.12	1.66	3.74	7.10	11.03	8.46	4.38	2.53	1.72	1.41	1.38	1.12	3.80
1993 / 94	1.14	1.78	3.71	6.60	10.22	7.18	4.09	2.18	1.27	0.97	0.92	0.95	3.42
1994 / 95	0.88	1.33	4.27	7.39	9.25	6.74	3.74	2.20	1.24	0.93	0.84	0.81	3.30
1995 / 96	1.00	1.27	3.67	6.75	7.64	6.38	3.65	2.04	1.14	0.76	0.73	0.70	2.98
1996 / 97	0.69	0.83	2.40	4.49	6.66	6.24	3.11	1.81	1.01	0.98	0.93	1.06	2.52
1997 / 98	1.51	1.23	3.69	7.50	13.10	8.16	4.38	2.62	1.55	1.03	0.90	0.78	3.87
1998 / 99	0.73	1.06	2.84	4.71	6.37	5.85	3.15	1.80	1.01	0.73	0.67	0.68	2.47
1999 / 00	0.75	1.23	3.30	5.77	6.97	6.18	3.15	1.97	1.12	0.91	1.00	0.89	2.77
2000 / 01	0.90	1.65	3.59	8.01	11.09	8.66	4.31	2.28	1.36	1.00	0.97	1.09	3.74
2001 / 02	1.16	1.60	3.74	8.03	10.23	7.88	4.11	2.28	1.43	1.05	1.10	1.43	3.67
2002 / 03	1.33	1.66	3.91	7.41	11.55	9.15	4.76	2.52	1.46	1.14	1.01	0.98	3.91
2003 / 04	1.03	1.52	3.46	5.69	8.16	6.74	3.82	2.09	1.17	0.77	0.78	0.80	3.00
2004 / 05	0.98	0.93	2.83	5.82	7.89	6.33	3.40	1.97	1.17	1.12	1.10	1.14	2.89
2005 / 06	1.24	1.68	4.20	7.92	12.67	9.50	4.38	2.43	1.49	1.12	1.19	1.15	4.08
AVER.	0.93	1.29	3.46	6.55	9.27	7.37	3.89	2.15	1.24	0.96	0.91	0.89	3.24
MAX.	1.51	1.78	4.43	9.18	16.13	13.39	6.33	3.20	1.85	1.79	1.46	1.43	4.97
MIN.	0.61	0.76	2.40	4.49	5.45	4.97	3.09	1.65	0.71	0.64	0.64	0.63	2.37

TABLE A2.5
LAS PLACAS RAVINE
NATURAL REGIMEN
MONTHLY MEAN FLOW (m³/s)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	QMA
1950 / 51	0.11	0.16	0.42	0.91	1.18	0.93	0.53	0.29	0.16	0.12	0.12	0.12	0.42
1951 / 52	0.12	0.16	0.45	0.88	1.18	0.91	0.51	0.29	0.16	0.12	0.12	0.12	0.42
1952 / 53	0.12	0.16	0.43	0.88	1.19	0.98	0.52	0.30	0.16	0.13	0.12	0.13	0.43
1953 / 54	0.15	0.18	0.55	1.05	1.54	1.27	0.64	0.32	0.19	0.15	0.14	0.13	0.53
1954 / 55	0.13	0.17	0.47	0.84	1.14	0.98	0.54	0.29	0.16	0.10	0.09	0.09	0.42
1955 / 56	0.10	0.13	0.46	0.81	1.10	0.89	0.50	0.27	0.16	0.12	0.11	0.11	0.40
1956 / 57	0.11	0.15	0.50	0.85	1.23	1.10	0.56	0.29	0.15	0.11	0.10	0.11	0.44
1957 / 58	0.12	0.16	0.48	0.92	1.11	0.81	0.47	0.28	0.16	0.12	0.11	0.11	0.41
1958 / 59	0.14	0.21	0.61	0.94	1.17	0.96	0.50	0.30	0.17	0.13	0.13	0.13	0.45
1959 / 60	0.15	0.20	0.60	1.07	1.42	1.23	0.60	0.29	0.16	0.11	0.11	0.11	0.50
1960 / 61	0.15	0.17	0.53	0.94	1.13	0.89	0.51	0.31	0.17	0.13	0.12	0.12	0.43
1961 / 62	0.12	0.22	0.64	1.18	1.43	1.14	0.67	0.31	0.17	0.13	0.12	0.12	0.52
1962 / 63	0.12	0.16	0.51	0.89	1.00	0.88	0.48	0.28	0.16	0.12	0.11	0.11	0.40
1963 / 64	0.13	0.17	0.44	1.11	1.99	1.55	0.72	0.39	0.20	0.15	0.13	0.12	0.59
1964 / 65	0.12	0.15	0.43	0.76	1.08	0.97	0.50	0.30	0.17	0.13	0.12	0.14	0.41
1965 / 66	0.15	0.22	0.55	0.91	1.66	1.18	0.61	0.33	0.19	0.14	0.14	0.13	0.52
1966 / 67	0.13	0.20	0.52	0.86	1.10	0.97	0.51	0.29	0.16	0.15	0.10	0.09	0.42
1967 / 68	0.10	0.14	0.40	0.82	1.01	0.85	0.47	0.27	0.15	0.11	0.09	0.09	0.37
1968 / 69	0.09	0.11	0.37	0.69	0.98	0.82	0.46	0.24	0.13	0.11	0.10	0.10	0.35
1969 / 70	0.11	0.13	0.39	0.98	1.20	0.94	0.47	0.28	0.15	0.10	0.09	0.09	0.41
1970 / 71	0.10	0.17	0.48	0.89	0.82	0.74	0.52	0.29	0.13	0.09	0.10	0.10	0.37
1971 / 72	0.11	0.18	0.54	0.86	1.08	0.85	0.50	0.27	0.23	0.16	0.12	0.14	0.42
1972 / 73	0.15	0.19	0.46	0.98	1.63	1.32	0.68	0.41	0.22	0.14	0.12	0.11	0.53
1973 / 74	0.12	0.22	0.49	0.81	1.32	0.98	0.53	0.29	0.16	0.12	0.13	0.13	0.44
1974 / 75	0.13	0.23	0.55	0.96	1.75	1.08	0.55	0.30	0.15	0.11	0.10	0.10	0.50
1975 / 76	0.11	0.15	0.44	0.90	1.09	1.13	0.51	0.27	0.15	0.11	0.10	0.10	0.42
1976 / 77	0.10	0.13	0.45	0.84	1.17	0.86	0.51	0.28	0.16	0.12	0.14	0.15	0.41
1977 / 78	0.16	0.23	0.59	1.09	1.39	1.09	0.55	0.32	0.16	0.13	0.14	0.14	0.50
1978 / 79	0.14	0.19	0.49	1.10	1.57	1.07	0.58	0.35	0.21	0.14	0.12	0.13	0.51
1979 / 80	0.12	0.15	0.41	0.90	1.37	1.09	0.60	0.39	0.26	0.19	0.17	0.14	0.48
1980 / 81	0.15	0.20	0.53	1.21	1.60	1.33	0.64	0.33	0.20	0.14	0.12	0.12	0.55
1981 / 82	0.12	0.17	0.49	0.84	1.15	1.01	0.52	0.28	0.17	0.14	0.21	0.18	0.44
1982 / 83	0.20	0.21	0.52	1.32	2.31	1.91	0.91	0.46	0.25	0.17	0.15	0.14	0.71
1983 / 84	0.14	0.20	0.56	1.10	1.49	1.21	0.62	0.33	0.18	0.13	0.12	0.13	0.52
1984 / 85	0.15	0.23	0.52	1.05	1.67	1.26	0.70	0.36	0.11	0.16	0.14	0.13	0.54
1985 / 86	0.12	0.15	0.50	0.90	1.17	0.93	0.51	0.30	0.18	0.25	0.17	0.13	0.44
1986 / 87	0.15	0.20	0.49	1.11	1.71	1.38	0.68	0.34	0.20	0.16	0.19	0.16	0.56
1987 / 88	0.15	0.22	0.64	1.29	1.85	1.45	0.72	0.38	0.21	0.14	0.13	0.12	0.61
1988 / 89	0.10	0.17	0.49	0.83	1.15	1.02	0.52	0.29	0.16	0.11	0.10	0.12	0.42
1989 / 90	0.14	0.19	0.59	0.98	1.30	0.94	0.50	0.29	0.16	0.12	0.11	0.11	0.45
1990 / 91	0.12	0.15	0.45	0.82	1.12	0.92	0.52	0.29	0.21	0.19	0.16	0.15	0.43
1991 / 92	0.18	0.21	0.52	0.82	1.67	1.23	0.69	0.35	0.21	0.17	0.15	0.14	0.53
1992 / 93	0.16	0.23	0.54	1.03	1.59	1.23	0.64	0.37	0.25	0.20	0.20	0.16	0.55
1993 / 94	0.16	0.25	0.54	0.96	1.48	1.05	0.60	0.32	0.18	0.14	0.13	0.14	0.50
1994 / 95	0.12	0.19	0.62	1.07	1.34	0.99	0.55	0.32	0.18	0.13	0.12	0.12	0.48
1995 / 96	0.14	0.18	0.53	0.98	1.12	0.94	0.53	0.30	0.16	0.11	0.10	0.10	0.43
1996 / 97	0.10	0.12	0.36	0.67	0.98	0.92	0.46	0.27	0.15	0.14	0.13	0.15	0.37
1997 / 98	0.21	0.17	0.53	1.09	1.88	1.18	0.64	0.38	0.22	0.15	0.13	0.11	0.56
1998 / 99	0.10	0.15	0.42	0.70	0.94	0.86	0.46	0.27	0.15	0.10	0.10	0.10	0.36
1999 / 00	0.11	0.18	0.48	0.85	1.03	0.91	0.46	0.29	0.16	0.13	0.14	0.13	0.40
2000 / 01	0.13	0.23	0.52	1.16	1.60	1.25	0.63	0.33	0.19	0.14	0.14	0.15	0.54
2001 / 02	0.16	0.23	0.54	1.16	1.48	1.15	0.60	0.33	0.21	0.15	0.16	0.20	0.53
2002 / 03	0.19	0.23	0.57	1.08	1.67	1.32	0.69	0.37	0.21	0.16	0.14	0.14	0.56
2003 / 04	0.15	0.22	0.50	0.84	1.19	0.99	0.56	0.31	0.17	0.11	0.11	0.11	0.44
2004 / 05	0.14	0.13	0.42	0.85	1.16	0.93	0.50	0.29	0.17	0.16	0.16	0.16	0.42
2005 / 06	0.18	0.24	0.61	1.15	1.82	1.37	0.64	0.35	0.21	0.16	0.17	0.16	0.59
AVER.	0.13	0.18	0.50	0.96	1.35	1.07	0.57	0.31	0.18	0.14	0.13	0.13	0.47
MAX.	0.21	0.25	0.64	1.32	2.31	1.91	0.91	0.46	0.26	0.25	0.21	0.20	0.71
MIN.	0.09	0.11	0.36	0.67	0.82	0.74	0.46	0.24	0.11	0.09	0.09	0.09	0.35

TABLE A2.6
EL MORADO CANYON
NATURAL REGIMEN
MONTHLY MEAN FLOW (m³/s)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	QMA
1950 / 51	0.47	0.70	1.37	3.07	3.91	3.00	1.76	0.91	0.63	0.54	0.52	0.52	1.45
1951 / 52	0.51	0.70	1.53	2.92	3.95	2.88	1.67	0.93	0.62	0.54	0.52	0.51	1.44
1952 / 53	0.53	0.72	1.42	2.92	4.01	3.27	1.72	0.98	0.63	0.55	0.53	0.56	1.49
1953 / 54	0.67	0.78	2.07	3.80	5.81	4.75	2.34	1.08	0.75	0.69	0.61	0.59	2.00
1954 / 55	0.59	0.78	1.66	2.73	3.72	3.23	1.81	0.95	0.58	0.44	0.38	0.39	1.44
1955 / 56	0.41	0.55	1.59	2.54	3.52	2.80	1.64	0.83	0.63	0.50	0.46	0.48	1.33
1956 / 57	0.49	0.66	1.81	2.75	4.21	3.88	1.91	0.95	0.56	0.49	0.45	0.48	1.55
1957 / 58	0.51	0.72	1.69	3.11	3.59	2.39	1.48	0.89	0.62	0.53	0.50	0.48	1.38
1958 / 59	0.63	0.95	2.38	3.24	3.88	3.13	1.61	1.01	0.68	0.57	0.57	0.60	1.61
1959 / 60	0.66	0.91	2.31	3.89	5.20	4.53	2.12	0.92	0.62	0.49	0.49	0.49	1.89
1960 / 61	0.67	0.73	1.92	3.20	3.68	2.79	1.68	1.06	0.66	0.57	0.53	0.52	1.50
1961 / 62	0.53	1.02	2.50	4.49	5.22	4.10	2.50	1.02	0.68	0.57	0.53	0.51	1.97
1962 / 63	0.55	0.72	1.85	2.98	2.99	2.72	1.51	0.89	0.59	0.50	0.50	0.46	1.35
1963 / 64	0.58	0.76	1.46	4.11	8.14	6.23	2.79	1.45	0.84	0.67	0.56	0.51	2.34
1964 / 65	0.51	0.64	1.44	2.30	3.42	3.18	1.64	0.98	0.66	0.57	0.54	0.66	1.38
1965 / 66	0.69	1.02	2.05	3.05	6.45	4.26	2.18	1.15	0.74	0.65	0.65	0.56	1.95
1966 / 67	0.60	0.88	1.91	2.79	3.52	3.21	1.65	0.96	0.63	0.67	0.44	0.40	1.47
1967 / 68	0.41	0.58	1.27	2.60	3.06	2.58	1.44	0.82	0.56	0.48	0.40	0.37	1.22
1968 / 69	0.36	0.44	1.10	1.94	2.87	2.44	1.39	0.70	0.46	0.46	0.42	0.41	1.08
1969 / 70	0.48	0.57	1.24	3.43	4.04	3.02	1.47	0.90	0.55	0.42	0.39	0.40	1.41
1970 / 71	0.45	0.77	1.66	2.97	2.04	2.00	1.71	0.93	0.46	0.38	0.43	0.45	1.19
1971 / 72	0.50	0.83	1.99	2.79	3.39	2.60	1.59	0.85	0.98	0.75	0.55	0.63	1.45
1972 / 73	0.70	0.86	1.58	3.45	6.25	5.00	2.55	1.58	0.90	0.61	0.56	0.48	2.04
1973 / 74	0.52	0.99	1.73	2.54	4.65	3.26	1.75	0.91	0.61	0.54	0.61	0.56	1.56
1974 / 75	0.57	1.07	2.07	3.32	6.91	3.76	1.90	0.99	0.57	0.47	0.45	0.45	1.88
1975 / 76	0.49	0.66	1.47	3.03	3.44	4.05	1.69	0.83	0.55	0.47	0.45	0.44	1.46
1976 / 77	0.45	0.55	1.51	2.69	3.90	2.62	1.66	0.91	0.59	0.50	0.66	0.69	1.39
1977 / 78	0.73	1.08	2.23	4.01	5.04	3.83	1.90	1.09	0.58	0.56	0.63	0.64	1.86
1978 / 79	0.62	0.87	1.75	4.06	5.95	3.72	2.02	1.23	0.85	0.61	0.52	0.57	1.90
1979 / 80	0.51	0.63	1.34	3.00	4.93	3.82	2.12	1.47	1.15	0.89	0.79	0.65	1.78
1980 / 81	0.68	0.89	1.96	4.62	6.10	5.08	2.35	1.15	0.80	0.63	0.53	0.52	2.11
1981 / 82	0.51	0.74	1.72	2.72	3.78	3.41	1.73	0.91	0.65	0.64	0.98	0.83	1.55
1982 / 83	0.96	0.94	1.89	5.21	9.78	8.11	3.73	1.82	1.05	0.77	0.68	0.63	2.96
1983 / 84	0.62	0.92	2.10	4.03	5.52	4.47	2.22	1.17	0.72	0.58	0.55	0.58	1.96
1984 / 85	0.66	1.09	1.87	3.80	6.45	4.73	2.65	1.31	0.32	0.71	0.66	0.59	2.07
1985 / 86	0.55	0.62	1.80	3.00	3.87	2.98	1.69	1.01	0.72	1.20	0.80	0.61	1.57
1986 / 87	0.67	0.91	1.76	4.12	6.70	5.32	2.55	1.21	0.81	0.72	0.89	0.75	2.20
1987 / 88	0.70	1.03	2.51	5.05	7.40	5.67	2.74	1.39	0.85	0.64	0.56	0.55	2.42
1988 / 89	0.43	0.75	1.74	2.67	3.78	3.47	1.72	0.91	0.60	0.47	0.42	0.54	1.46
1989 / 90	0.62	0.88	2.25	3.44	4.54	3.05	1.62	0.94	0.62	0.50	0.46	0.46	1.61
1990 / 91	0.53	0.64	1.55	2.61	3.62	2.96	1.73	0.93	0.87	0.87	0.74	0.67	1.48
1991 / 92	0.82	0.96	1.90	2.62	6.48	4.54	2.59	1.22	0.87	0.75	0.71	0.63	2.01
1992 / 93	0.73	1.09	2.00	3.70	6.08	4.53	2.32	1.34	1.05	0.93	0.92	0.74	2.12
1993 / 94	0.74	1.17	1.99	3.34	5.49	3.60	2.11	1.08	0.73	0.61	0.59	0.61	1.84
1994 / 95	0.56	0.85	2.39	3.91	4.79	3.29	1.86	1.10	0.70	0.58	0.53	0.51	1.75
1995 / 96	0.65	0.81	1.96	3.45	3.62	3.02	1.79	0.98	0.63	0.46	0.45	0.43	1.52
1996 / 97	0.42	0.49	1.04	1.81	2.92	2.92	1.40	0.81	0.53	0.62	0.59	0.69	1.19
1997 / 98	1.02	0.78	1.97	3.99	7.58	4.31	2.32	1.41	0.93	0.66	0.57	0.48	2.17
1998 / 99	0.45	0.65	1.35	1.97	2.70	2.64	1.43	0.81	0.54	0.44	0.41	0.42	1.15
1999 / 00	0.46	0.78	1.69	2.74	3.14	2.88	1.43	0.93	0.62	0.57	0.64	0.57	1.37
2000 / 01	0.57	1.08	1.90	4.36	6.12	4.68	2.27	1.16	0.79	0.64	0.63	0.71	2.07
2001 / 02	0.76	1.05	2.00	4.38	5.50	4.11	2.13	1.15	0.84	0.67	0.72	0.96	2.02
2002 / 03	0.88	1.09	2.13	3.92	6.46	5.03	2.60	1.33	0.87	0.73	0.65	0.63	2.19
2003 / 04	0.67	0.99	1.80	2.68	4.00	3.28	1.91	1.02	0.66	0.47	0.49	0.50	1.54
2004 / 05	0.63	0.56	1.35	2.77	3.80	2.98	1.61	0.93	0.65	0.72	0.72	0.75	1.46
2005 / 06	0.82	1.10	2.34	4.29	7.27	5.28	2.32	1.27	0.88	0.72	0.78	0.76	2.32
AVER.	0.60	0.82	1.80	3.30	4.81	3.74	1.96	1.06	0.70	0.61	0.58	0.56	1.71
MAX.	1.02	1.17	2.51	5.21	9.78	8.11	3.73	1.82	1.15	1.20	0.98	0.96	2.96
MIN.	0.36	0.44	1.04	1.81	2.04	2.00	1.39	0.70	0.32	0.38	0.38	0.37	1.08

Figure N°1: La Engorda Stream monthly mean flows

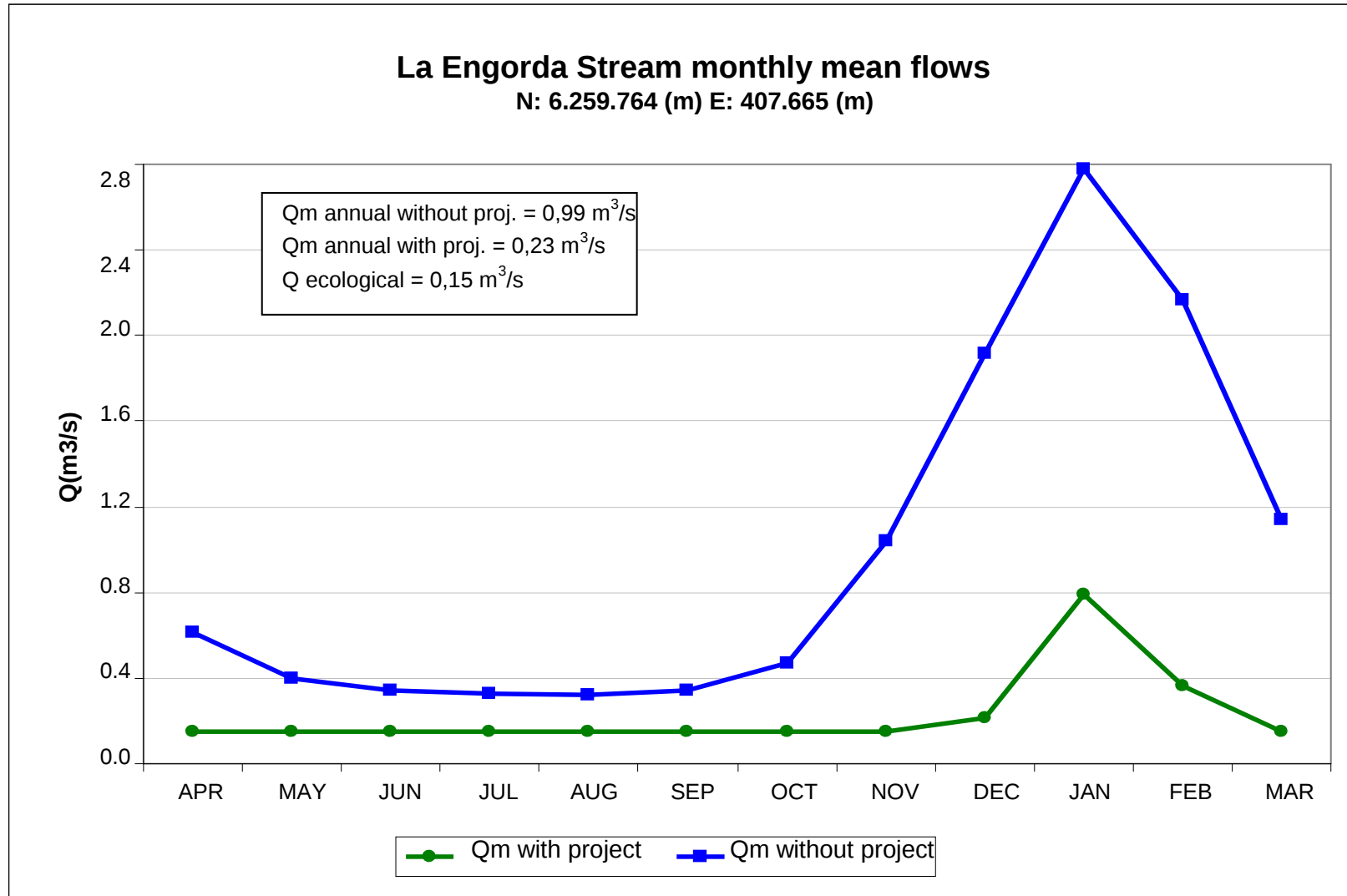


Figure N°2: Colina Stream monthly mean flows

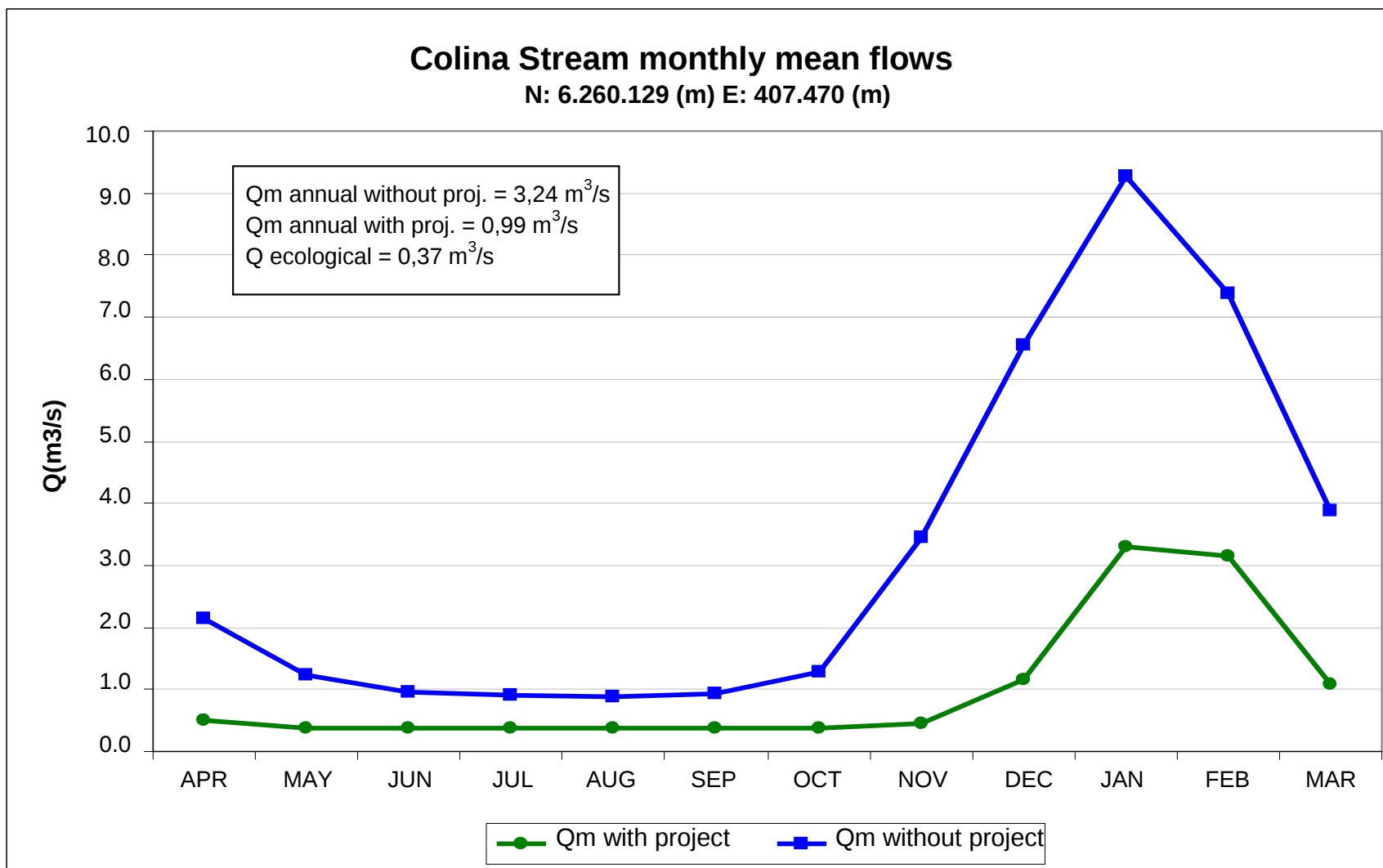


Figure N°3: Las Placas Stream monthly mean flows

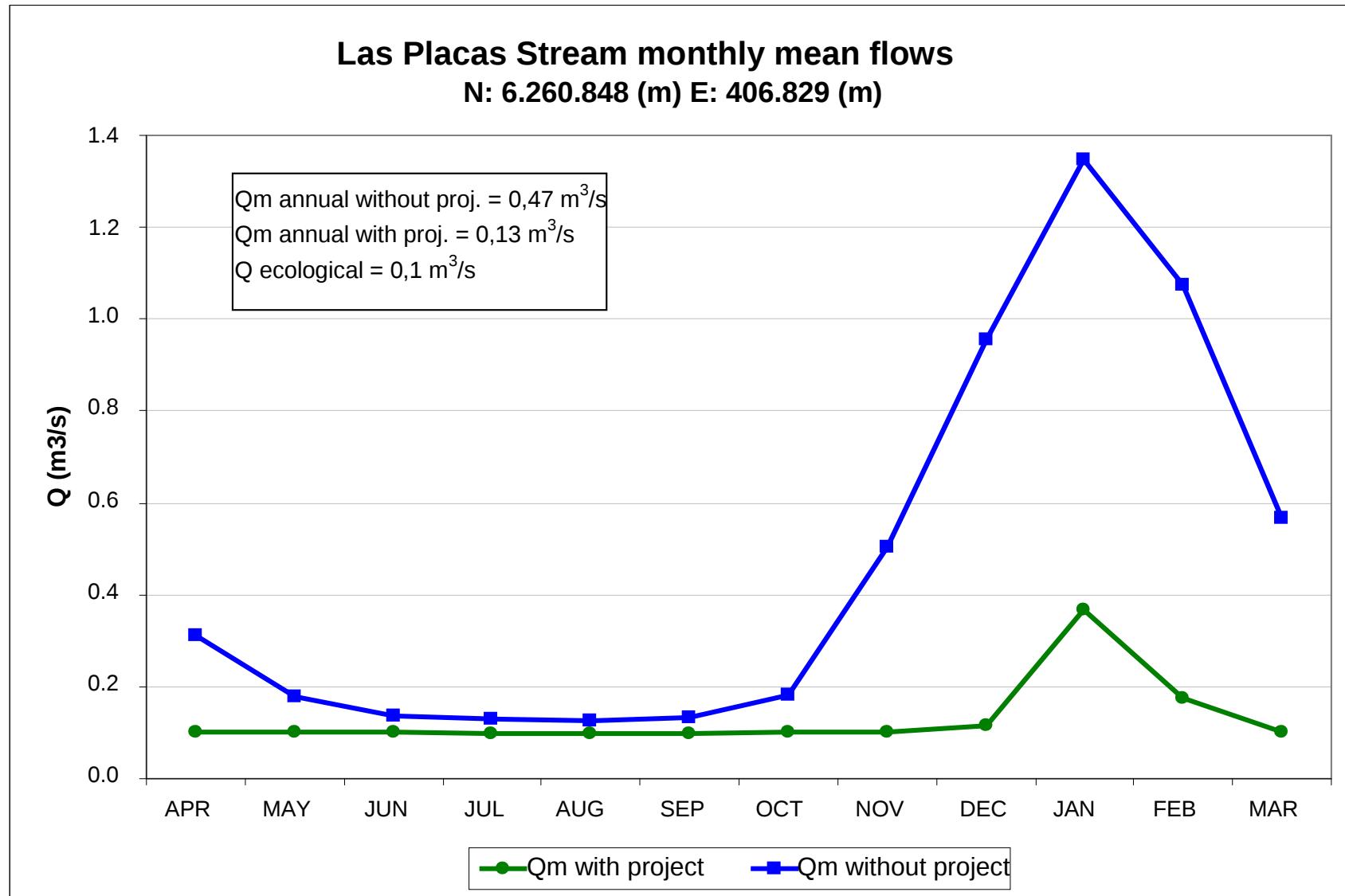


Figure N°4: El Morado Stream monthly mean flows

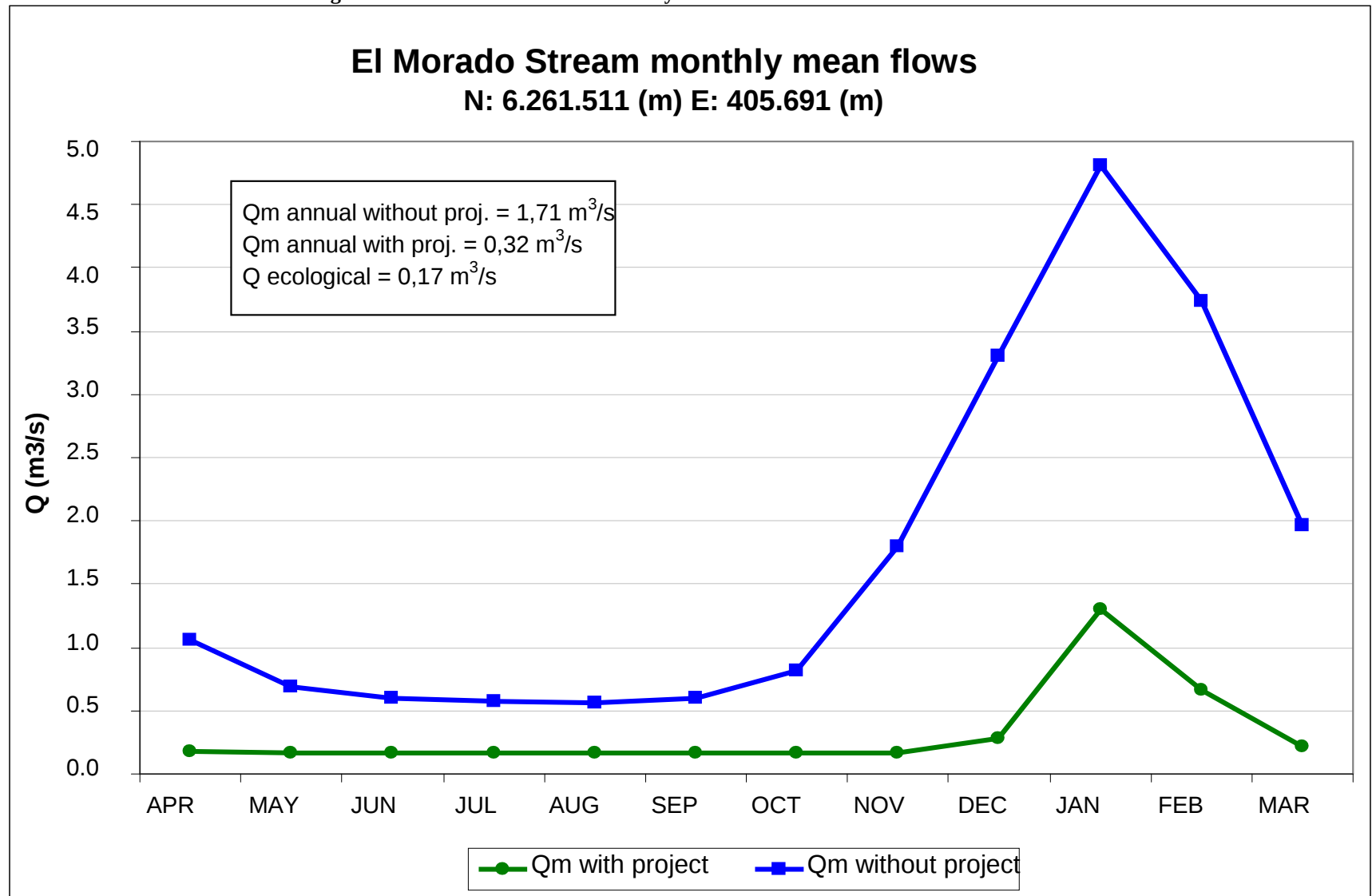


Figure N°5: Yeso River monthly mean flows

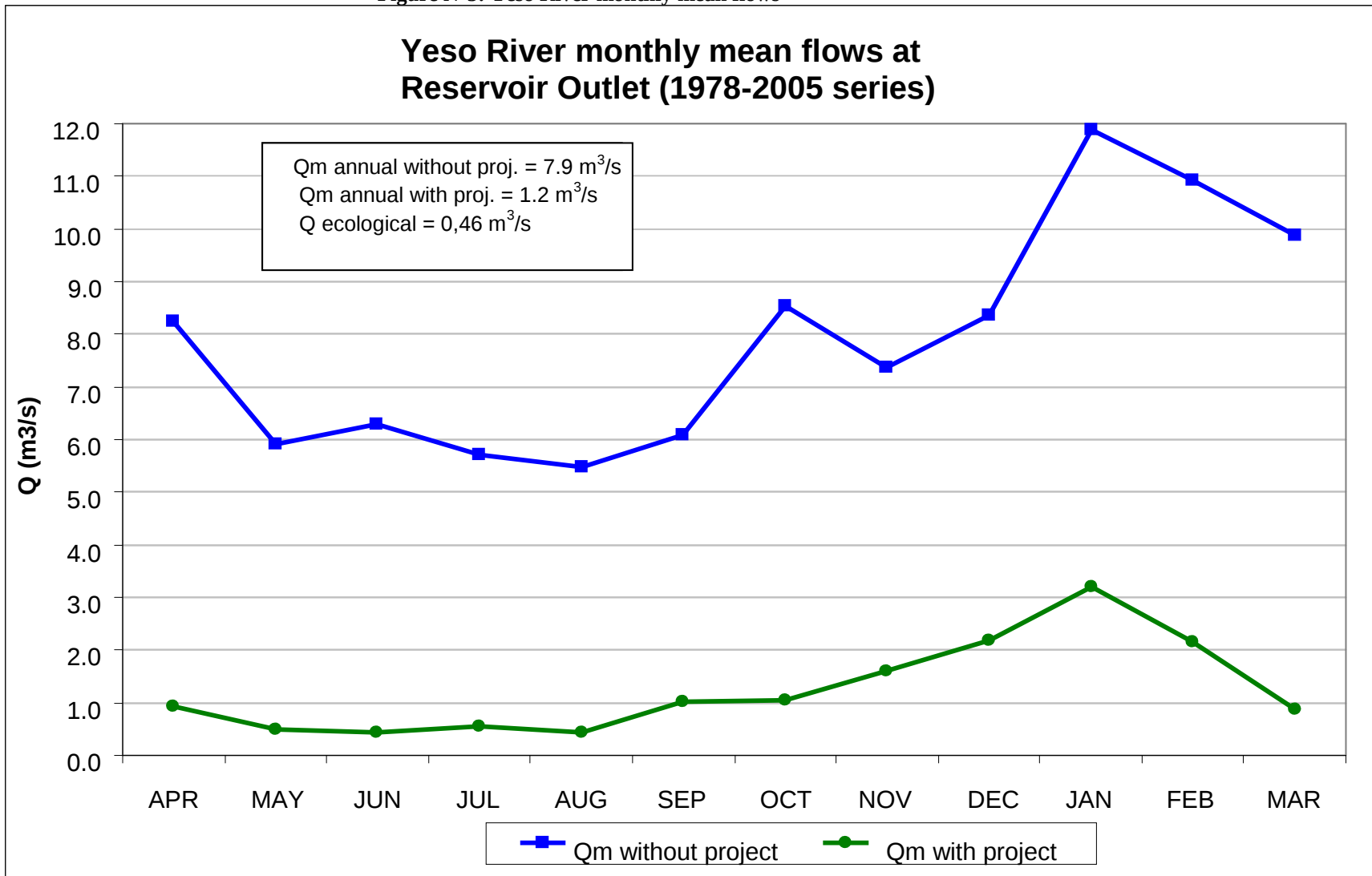


Figure N°6: Yeso River monthly mean flows

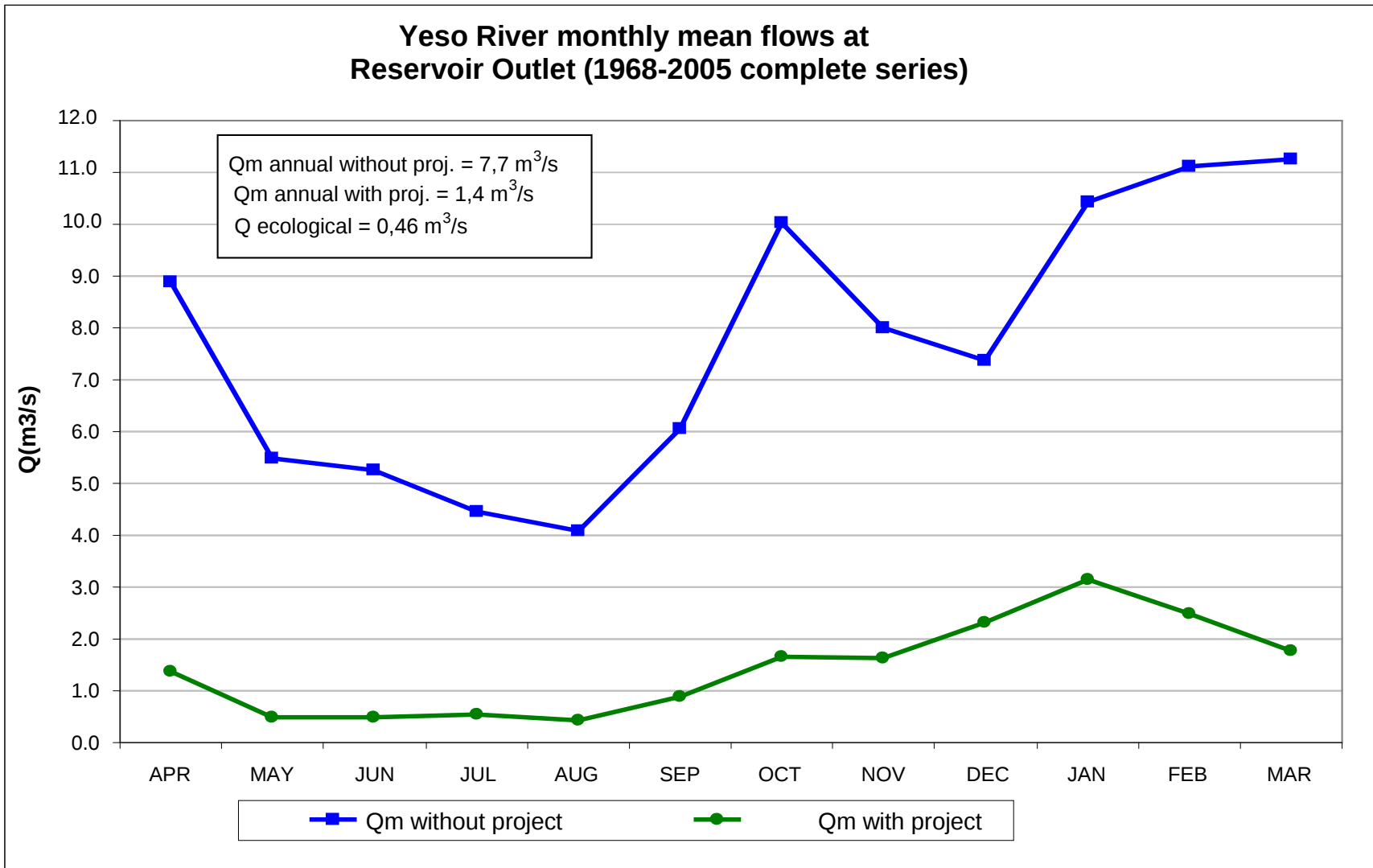


Figure N°7: Colorado River monthly mean flows

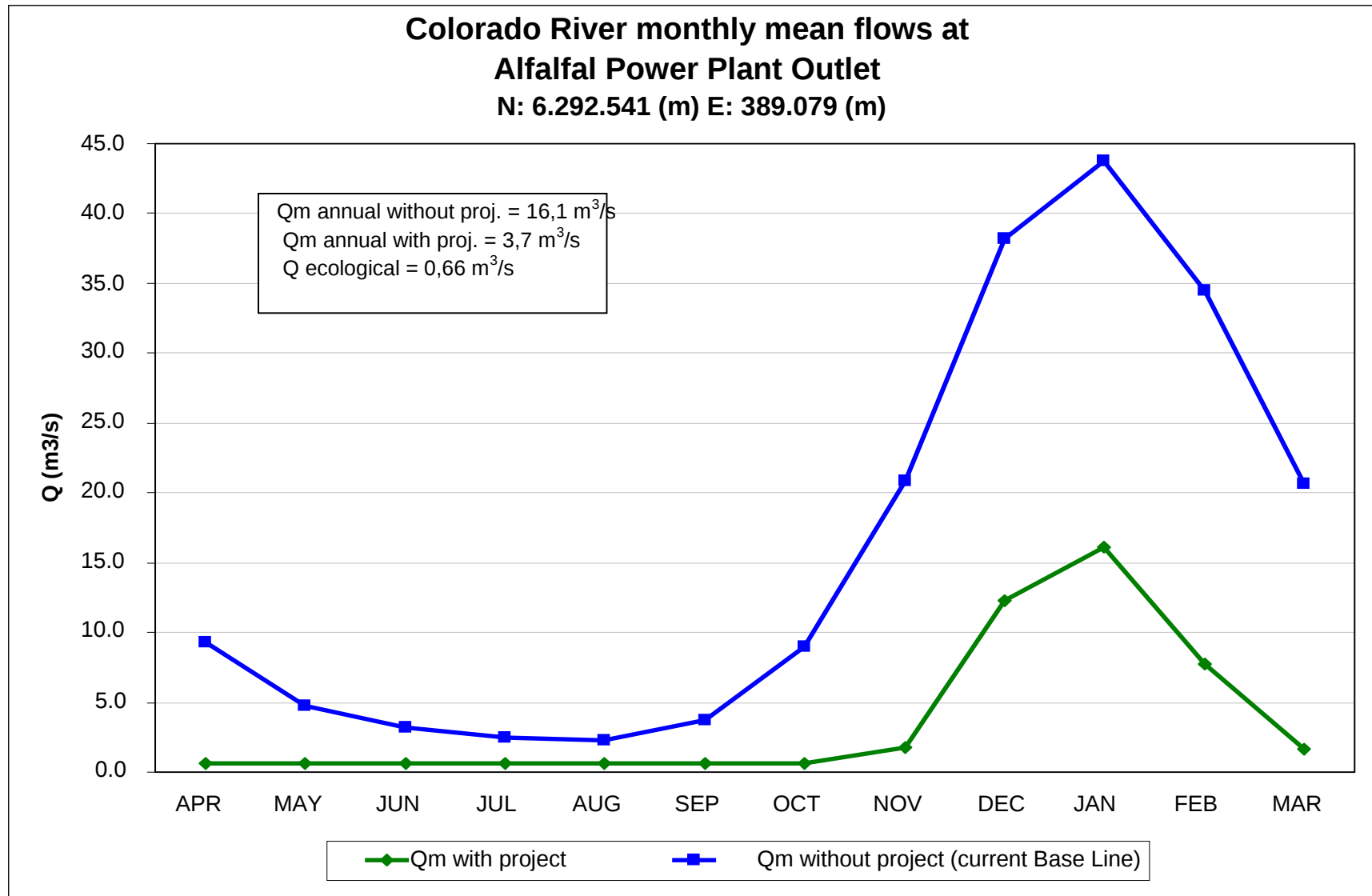


Figure N°8: Volcán River monthly mean flows

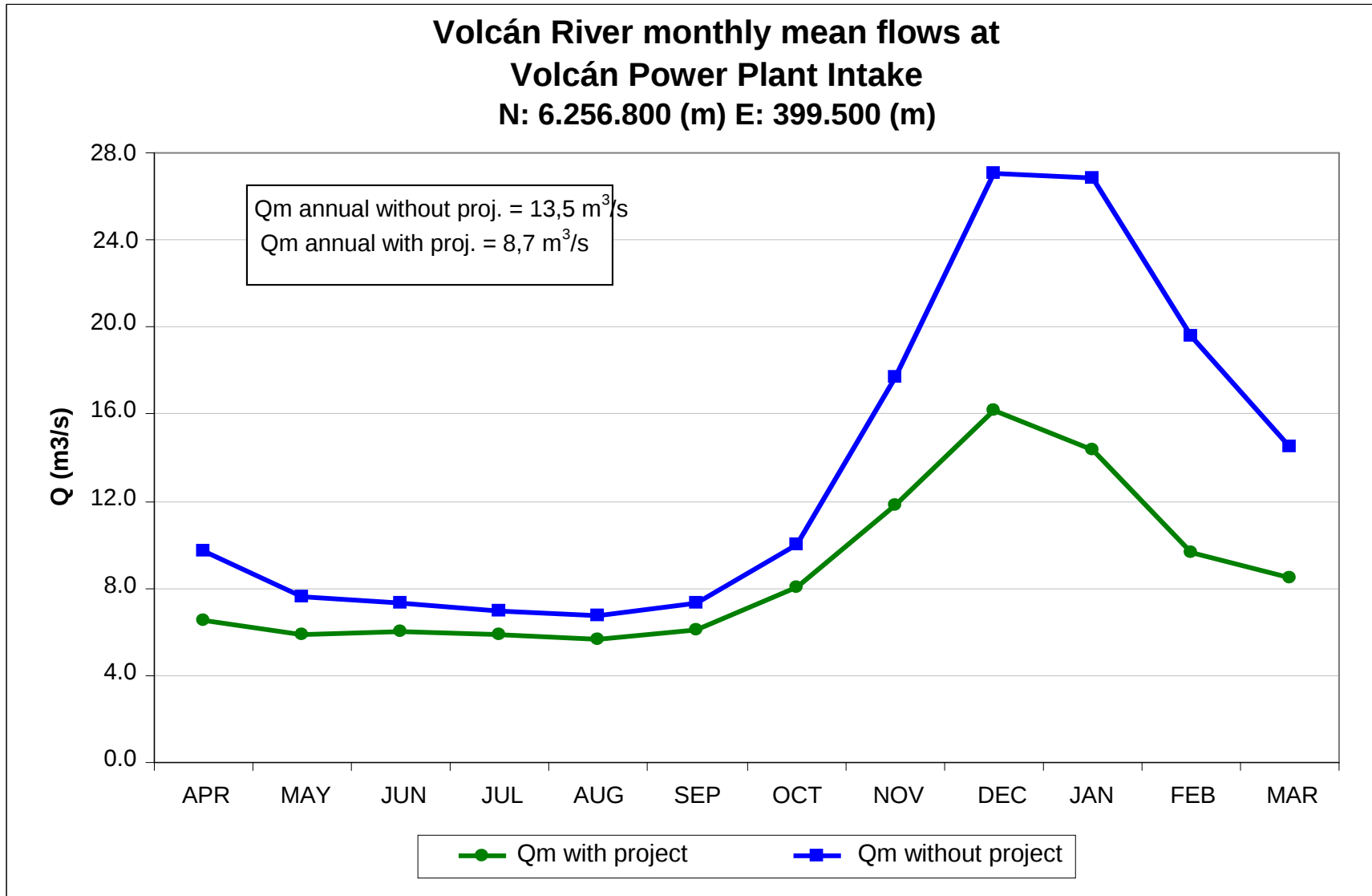


Figure N°9: Maipo River monthly mean flows at San Alfonso

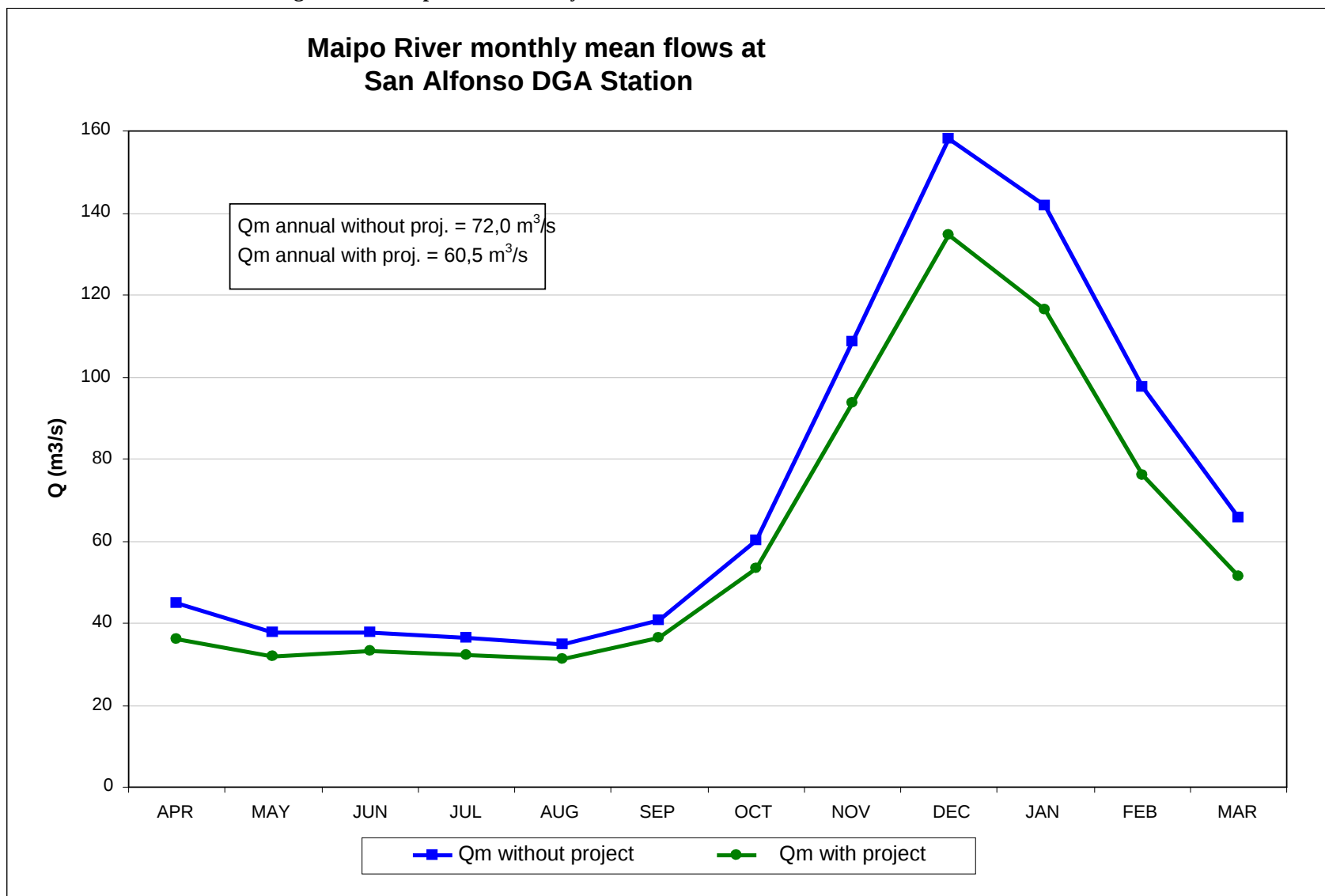


Figure N°10: Maipo River monthly mean flows at El Manzano

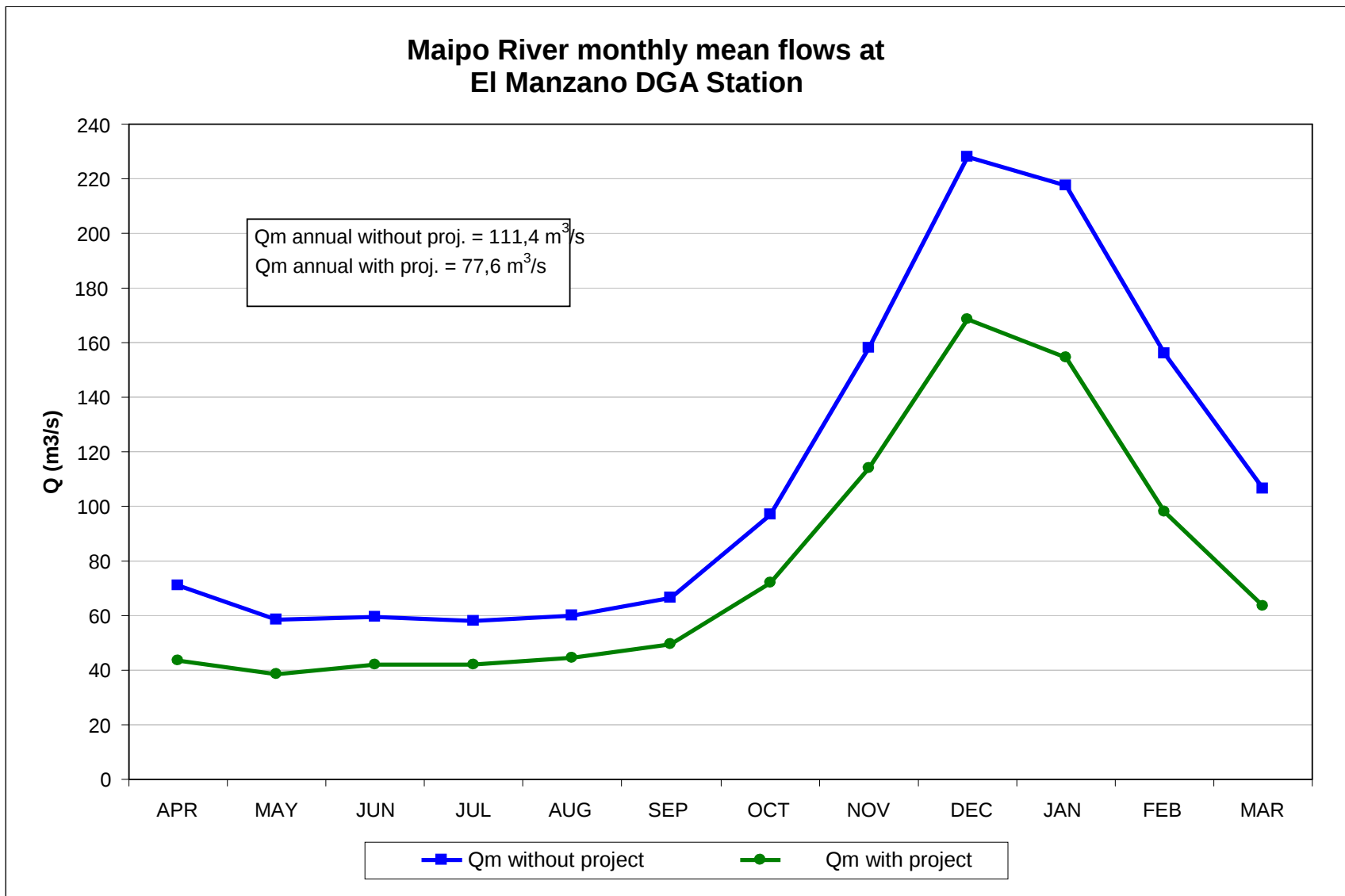
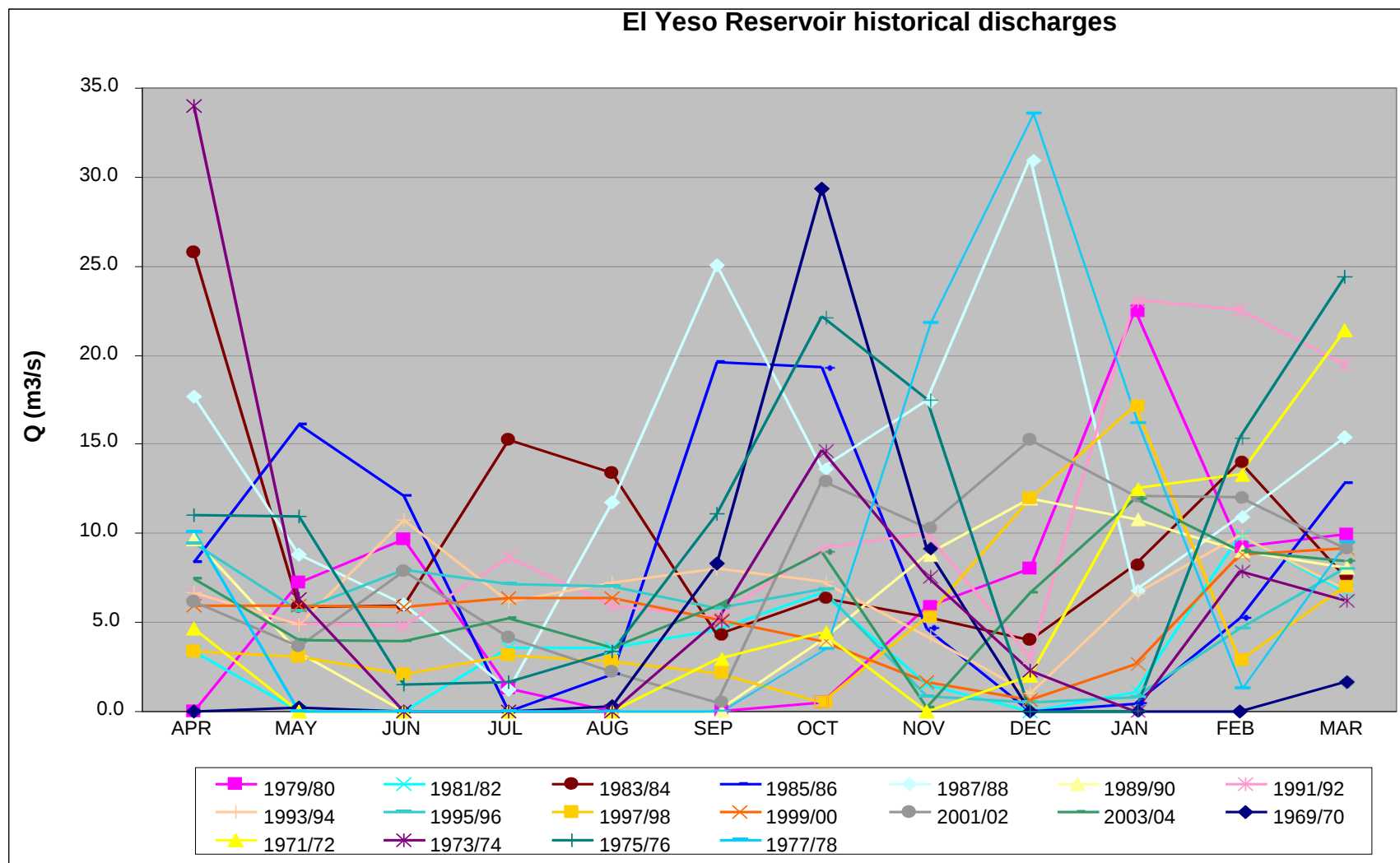
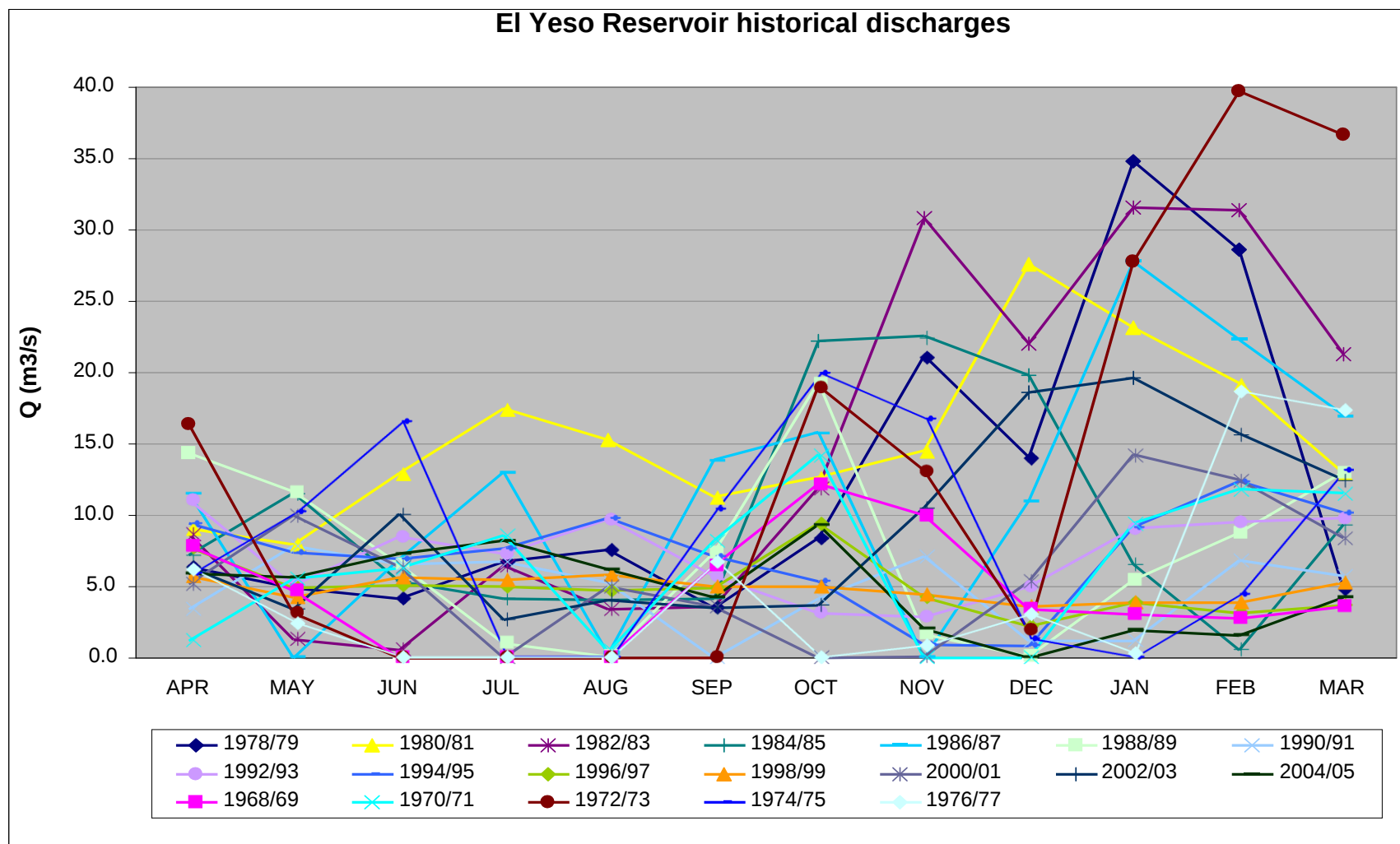


Figure N°11: Monthly mean flows historically discharged by El Yeso Reservoir 1968-2005 period (even years).



Source: Aguas Andinas S.A.

Figure N°12: Monthly mean flows historically discharged by El Yeso Reservoir 1968-2005 period (odd years).



Source: Aguas Andinas S.A.