

## TIDE STATION NETWORK – PRESENT SITUATION

The early permanent measurements of the sea level variations carried out at the Peruvian coast were obtained since 1942 with the standard automatic stations through Inter American Geodetic Survey of the United States of America, being the master control stations which were located in Talara, Callao and Matarani. Later, Chimbote and San Juan stations were implemented. During the eighties were installed the Pisco, Paita and Lobos de Afuera stations. Recently, from 2000, we have ten (10) automatic stations distributed along the Peruvian coast which are nowadays under control and normalization process.



## CALLAO STATION (GLOSS)

The Callao tide station which is situated at La Punta district (Constitutional Province of Callao) is considered as master station, located at a latitude of 12° 03.0' S, longitude 77° 09.0' W.



La Punta Tide Station (GLOSS)

The automatic satellite ocean-meteorological stations installed recently, were got thanks to an agreement between Peru and World Bank. At present, these stations are operating and receiving sea level data in real time and this data is available to the scientific and business community through the web page <http://www.naylamp.dhn.mil.pe>, however, this data is in a standardization and validation stage which is compared with the data from mechanical stations installed in previous years.

On the following table is shown the positions of the coastal automatic stations :

STATION	LATITUDE (°S)	LONGITUDE (°W)
La Cruz	03° 37' 48''	080° 35' 00''
Talara	04° 35' 00''	081° 03' 00''
Paita	05° 02' 00''	081° 06' 00''
Isla Lobos de Afuera	06° 55' 30''	080° 42' 30''
Chicama	06° 55' 00''	080° 42' 00''
Chimbote	09° 04' 24''	078° 36' 00''
Pisco	13° 43' 00''	076° 13' 00''
San Juan	15° 21' 36''	075° 09' 42''
Matarani	16° 59' 30''	072° 06' 06''
Ilo	17° 03' 00''	077° 09' 00''



Automatic Stations (yellow), Primary Station (red)

**Automatic Stations**



At present, it counts with eleven (11) ocean-meteorological automatic stations installed at north , center and south zone of our litoral.

### **Technical Specifications of the SUTRON Automatic**

#### Sea mean level Sensor

Work temperature	-5° a +50°C
Measurement Status	0 a 10 meters
Reading accuracy	0.03 meters
Resolution	0.0014 psi
Type of sensor	Pressure
Principle of operation	Pressure change

### **TIDES IN FRONT OF THE PERUVIAN COAST**

The tides in front of the Peruvian coast are of semi-diurnal type, i.e. every day is recorded two alternatives high tides and two low tides, being of an order of 1.5 – 2.5 meters; where northern stations registered the most important values. The highest sea level heights were registered during the El Niño 1982-83 and 1997-98 events with positive anomalies of 40 centimeters in relation to the sea mean level.

#### **TIDE TABLES**

The time and height predictions of the high tides and low tides for the Peruvian ports which appeared in the tide tables have been elaborated in the Environment Department of the Hydrographic Office of the Peruvian Navy.

The table contains the time and height daily predictions of the high and low tides of the primary tide station and secondary ports from the Peruvian coast. Also, the method to calculate the tide in a specific time is described. And, it contains the conversion tables from meters to foot, moon phase, list of port establishment, tide order and finally, glossary of technical terms.