

REPORT FROM SURVEY OF INDIA

By

Dr. B. Nagarajan (Brig)

Director,

Geodetic and Research Branch

Survey of India (SOI) being a part of GLOSS (Global Sea Level Observing System) Programme has been monitoring sea level along the India Coast since 1880. The tide gauge stations are installed in various ports of the mainland and also in four major islands, in each station, a mechanical float type tide gauge has been installed and the Tide Gauge Bench Mark (TGBM)/Chart-datum of observations is connected to a precision leveling bench mark network. The first step in network automation by installing digital tide gauges (Acoustic/Pressure; and near real time transmission of the data from the various stations has already been undertaken. It has been done at few tide gauge sites at present and there are plans to extend it for other sites also in near future. In addition to construction, maintenance, collection and processing of tidal data Survey of India has taken up the following core activities in the field of oceanography:

- a) Monthly and Annual Mean Sea Level data are sent to Global Data Bank of PSMSL for long term sea level change information from tide gauges. Information is available on website www.pol.ac.uk/psmsl/
- b) Publication of INDIAN TIDE TABLE comprising tidal predictions at 76 Indian and selected foreign ports, mainly for navigational activities and harbour developments, every year
- c) Another annual publication HUGLI RIVER TIDE TABLE contains the predictions for 6 standard ports on the Hugli River, viz., Sagar, Gangra, Haldia, Diamond Harbour, Mayapur and Garden Reach (Kolkata).

- d) SOI provides tidal predictions for any place along the sea-coast of India (other than 30 ports included in the Indian tide table) to the various agencies on demand.
- e) SOI is also committed to provide "High frequency" (Typically hourly) data to Gloss Data Centres (PSMSL or University of Hawaii Sea Level Centre) in delayed and as well as in fast modes. In near future as per the IOC GLOSS programme (please refer letters from Chairman and Technical Secretary for GLOSS to National/Regional GLOSS contacts vide their letter No.IOC/OOS/TA/cw dated 3-1 -2002 and IOC/OOS/TA/cw dated 4-9-2002), The fast data are used on a global basis for applications such as altimeter calibration and assimilation of sea level data ocean numerical models.
- f) A long historical data set of sea level chart records. In the Indian Sub-continent, is kept at the Geodetic & Research Branch and covers the period since 1921. Survey of India is supposed to computerize their historic sea level data available in paper form to digital form to provided (i) electronic access (ii) as a back up for data secure and (iii) so that they can be subjected to modern quality control and data analysis. The decisions in this regard have been taken by the IOC group of experts on the global sea level observing system (GE-GLOSS) in May 1999.
- g) Work on study of precise inter-island drifts impact of global green house effect on sea level rise and determination of SLBM (Sea level Bench Marks) position on same Global Geocentric Reference System in order decouple vertical crustal movements from true sea-level variations have already been started. By means of GPS technique SLBM Positions can be defined on the same Global Geocentric Reference System, this enables a direct comparison of the sea level gauge data series.

The officers (Shri Sanjay Kumar, Superintending Surveyor and Shri Rajender Kumar Sawhney, Surveyor) particularly require the following knowledge,, skills and aptitude-

- I. To learn about the capability (accuracy, features etc.) of new generation tide gauges, their installation, operation and advantage over existing tide gauges used in Survey of India.
- II. To know about the latest trends in the field of tidal science and application of space geodetic techniques (TOPEX Poseidon, JASON-1. ERS-1/2 GEOSAT. ENVISAT etc.) in measuring vertical movement In the international arena.
- III. To be aware of Data archaeology, Satellite Radar Altimetry, Coastal Global Ocean Observing System (GOOS) development and regional network development etc

The GLOSS training program being organized in Malaysia will give them an opportunity not only to keep abreast with latest practical and theoretical development in the era of rapidly changing technology in the field of tidal science but also provide an opportunity to discuss with various National Geodetic Survey experts.