

Report to the 11th Session of the IOC Group of Experts On the Global Sea Level Observing System(GLOSS) China National Sea Level Network

Manchun Chen

**National Marine Data and Information Service (NMDIS), P.R. China
E-mail: cmc@mail.nmdis.gov.cn**

The China national network to observe sea level was maintained by State Oceanic Administration (SOA). It consists of many stations which include the thirteen key stations (Laohutan, Qinhuangdao, Tanggu, Yantai, Shijiusuo, Lianyungang, Lusi, Kanmen, Shanwei, Zhapo, Beihai, Haikou and Dongfang) and other basic stations around China. Float operated gauges are installed in each station. Six stations of them have been registered in GLOSS Core Network and the detail information about them is showed in Table 1.

Data is collected, banked and updated by National Marine Data and Information Service (NMDIS), which maintains the quality controlled data output from these stations for use in tidal analysis, prediction, service and research. Data retrieved is subject to extensive quality control procedures on a regular basis, which reformat from old data formats, check for timing errors, remove spikes, identify data gaps, compile benchmark details and datum information, etc. All observed and derived data output from these stations is provided by NMDIS based on some special regulations.

In recent years, SOA is focus on the follow aspects about sea level:

1. Modifying the China sea level observed network
2. Observing the vertical land motion at each tide gauge locations of the China sea level observed network
3. Checking the historical variation of benchmark at every tide gauge
4. Setting up the system of impaction assessment upon sea level rising
5. Stressing sea level variation study

In 2008, SOA release the “China Sea level Bulletin , 2008” which shows that SOA reinforced the work with regard to the sea level, modified the China sea level monitoring network and started the impact assessment of sea level rising, as well as the operational system construction. Results of monitoring and analysis indicate that, the sea level of China showed a general trend of continuous ascending. Average rate of the sea level rise was 2.6mm/year. In 2008, coastal sea level of China was at the highest in the recent 10 years as the whole, respectively 60mm and 14mm higher than the multi-year average and that in 2007. Regional characteristics indicated that rise of the sea level in the coastal areas of the South China was obviously higher than the North China; and time characteristics indicate that in February, the sea level was bias low, while in April-June, was evidently high. Under the background of the rise of global sea level caused by global warming, local land surface subsidence and abnormal climatic events were the main causes resulting in the change of coastal sea level of our country in 2008.

Rise of the sea level intensifies such marine disasters as windstorm surges, coast erosions, sea water intrusions, soil salination and saline tides, etc. and in a way of different degrees affects flood prevention and drainage systems of cities in the coastal areas.

It is predicted that in the future 30 years, coastal sea level of China will continue to rise, rising by 80-130mm relative to 2008. The Yangtze River Delta, the Pearl River Delta, the Yellow River Delta and coastal areas of Tianjin will still be the main fragile zones under impacts of rise of the sea level.

Table 1: Status of GLOSS Stations in China

	Location	Status
1	Laohutan 38-52N, 121-41E	<ul style="list-style-type: none"> • Ongoing, currently using a digital gauge • The period of record spans from Jan 1980 to now. • Hourly height data from Jan 1975 to Dec 1999 has been sent to UHSLC and PSMSL. • MSL data from Jan 1991 to March 2009 has been sent to PSMSL.
2	Lusi 32-08N, 121-37E	<ul style="list-style-type: none"> • Ongoing, currently using a digital gauge • The period of record spans from Oct 1959 to now. • Hourly height data from Jan 1975 to Dec 1999 has been sent to UHSLC and PSMSL. • MSL data up to March 2009 has been sent to PSMSL.
3	Kanmen 28-05N, 121-17E	<ul style="list-style-type: none"> • Ongoing, currently using a digital gauge • The period of record spans from Oct 1959 to now. • Hourly height data from Jan 1975 to Dec 1999 has been sent to UHSLC and PSMSL. • MSL data up to March 2009 has been sent to PSMSL.
4	Zhapo 21-35N, 111-50E	<ul style="list-style-type: none"> • Ongoing, currently using a digital gauge • The period of record spans from Oct 1957 to now. • Hourly height data from Jan 1975 to Dec 1999 has been sent to UHSLC and PSMSL. • MSL data up to March 2009 has been sent to PSMSL.
5	Xisha	<ul style="list-style-type: none"> • Ongoing, currently using a digital gauge. • The period of record spans from July 1990 to now. • No hourly height data in CNODC. • MSL data up to March 2009 has been sent to PSMSL.
6	Nansha	<ul style="list-style-type: none"> • Data delayed for data transmit system problem • The period of record spans from June 1990 to July 2002. • No hourly height data in CNODC • MSL data up to March 2009 has been sent to PSMSL.