Report to the 13th Session of the IOC Group of Experts On the Global Sea Level Observing System(GLOSS)

China National Sea Level Network

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1. The China national network of sea level observation

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.

2.Data processing

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.

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

- Modifying the China sea level observed network
- Observing the vertical land motion at each tide gauge locations of the China sea level observed network
- Checking the historical variation of benchmark at every tide gauge
- Participating in international cooperation planning in marine field actively such as GLOSS, NEARGOOS, ODINWESTPAC and so on. Established China NEARGOOS database website, ODINWESTPAC service website and CMOC service website. Published China coastal observation data and other data processed by NMDIS.
  The website: http://near-goos.coi.gov.cn, http://www.odinwestpac.org.cn and http://www.cmoc-china.cn.

- Setting up the system of impact assessment upon sea level rise
- Stressing sea level variation study

SOA has released the “China Sea level Bulletin” each year since 2006 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 rise, as well as the operational system construction.

4. China coastal sea level rise

In March 2013, SOA released the ‘China Sea level Bulletin, 2012 ‘. The results indicate that, from 1980 to 2012 the sea level of China showed a general trend of continuous rising(fig.1). Average rate of the SLR was 2.9mm/year. It’s higher than the average global sea level rise. In 2012, the China costal annual average sea level is the highest since 1980. It’s 122mm higher than the average from 1975 to 1993, and 53mm higher than 2011. Regional characteristics indicate that the SLR in the coastal areas of the southwest Bohai sea and the Yangtze River estuary was obviously higher than the other sections. Under the background of the global SLR 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 China in 2012. SLR 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. 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 SLR.

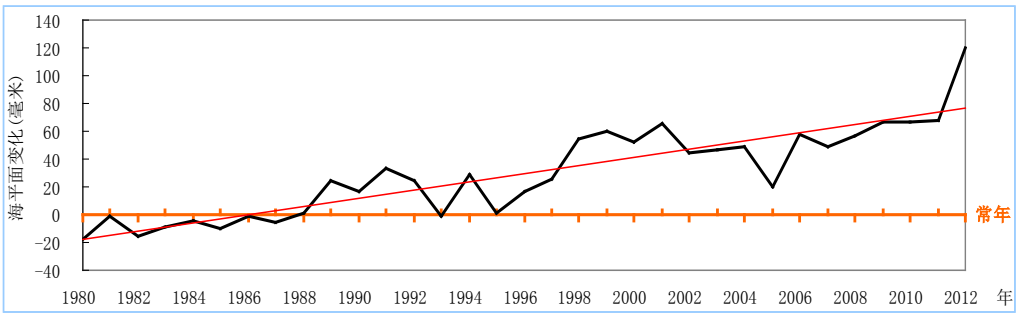

Fig. 1 Sea level rise of China from 1980 to 2012
(from China Sea Level Bulletin, 2012)

Table 1: Status of GLOSS Stations in China

	Location	**Status**
1	Laohutan 38-52N, 121-41E	• 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. • Monthly MSL data from Jan 1991 to October 2013 has been sent to PSMSL.
2	Lusi 32-08N, 121-37E	• 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. • Monthly MSL data up to October 2013 has been sent to PSMSL.
3	Kanmen 28-05N, 121-17E	• 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. • Monthly MSL data up to October 2013 has been sent to PSMSL.
4	Zhapo 21-35N, 111-50E	• 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. • Monthly MSL data up to October 2013 has been sent to PSMSL.
5	Xisha	• Ongoing, currently using a digital gauge. • The period of record spans from July 1990 to now. • No hourly height data in CNODC. • Monthly MSL data up to October 2013 has been sent to PSMSL.
6	Nansha	• Data delayed for data transmit system problem. • The period of record spans from June 1990 to July 2002. • No hourly height data in CNODC • Monthly MSL data up to October 2013 has been sent to PSMSL.