

## **JWG 2.4: Multiple geodetic observations and interpretations over Tibet, Xinjiang and Siberia (TibXS)**

(Joint with Commission 3)

Chair: Cheinway Hwang (Taiwan)

Vice Chair: Wenbin Shen (China)

### **Terms of Reference and Objectives**

Tibet, Xinjiang and Siberia (TibXS) are regions with active plate tectonics. Evidences from satellite gravimetry and altimetry show the hydrological evolutions over these regions are sensitive to global climate change. For example, inter-annual lake level changes over Tibet and Xinjiang from satellite altimetry are found to be connected to El Nino Southern Oscillation (ENSO). Lakes in central Asia originating in Xinjiang and lakes in eastern Siberia show sharp changes in lake levels that can be explained by climate change. Recent terrestrial gravity, GRACE and GPS observations suggest that the crust over the Tibetan plateau is thickening, and the Himalayan glaciers appear to be thawing. Satellite altimetry is a potential tool to study vertical displacement and permafrost thawing and changes in the active layers in Siberia and Tibet. With more satellite gravimetry and altimetry data to come, decadal changes over TibXS in many aspects can be investigated in connection to global climate change and dynamics of the crust and the upper mantle.

Under the support of IAG commission 2, two international workshops on multiple geodetic observations and interpretations have been held in Urumqi (2009; <http://space.cv.nctu.edu.tw/altimetryworkshop/TibXS2009/TibXS2009.htm>) and Xining (2011; <http://space.cv.nctu.edu.tw/altimetryworkshop/TibXS2011/TibXS2011.htm>). The results presented in these workshops have been or will be published in two special issues of the journal *Terrestrial, Atmospheric and Oceanic Sciences* (TAO). In response to the call to continue the geodetic studies over TibXS, this working group is established and reports to IAG Commission 2 over 2011-2015. The objective is to investigate the long-term records from different geodetic sensors to understand the geodynamic process and climate change over TibXS. This WG will report to IAG Commission 2.

### **Program of Activities:**

- This WG will organize international workshops to investigate the results from multiple geodetic observations over TibXS.
- This WG will establish a link between the geodetic community and the geophysical community to interpret the geodetic results.
- This WG will assess satellite results from GRACE, COSMIC and its follow-on, altimetry and SAR and other remote sensing platforms over TibXS using in situ

observations such as superconducting gravimeter and absolute gravimeter data, GPS data, lake gauge and glacier stake and snow pit measurements.

- This WG will publish papers dedicated to the subjects of the WG in journal special issues.

### **Members of the Standing Committee**

- B F Chao (Taiwan)
- Kosuke Heki, (Japan)
- Jeff Freymuller, (USA)
- CK Shum (USA)
- He-Ping Sun (China)
- Qi Wang (China)

### **Members**

- Xiaoli Deng (Australia)
- Xiao-Li Ding (Hong Kong)
- Xiaodong Song (USA)
- Wenke Sun (China)
- Nikolay Shestakov (Russia)
- VM Tiwari (India)
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