

The Geodetic Journey© is an outreach activity that aims to promote the field of geodesy to the general public by making journeys that focus on geodesy both today and its history particularly in the region where the journey takes place.

Geodetic Journey© 2007

From Ancient Surveying to Modern Earth Observation With train from Beijing to Lhasa

A team of experts will travel from Beijing to Lhasa and Shanghai. Starting in Beijing, the journey will go by train through the “Mother of China” (Middle Kingdom) region and along the ancient Silk Road before reaching Lhasa and the Tibetan plateau. In Tibet the team will visit Mt. Everest/Qomolangma Base Camp and other beautiful sites – all described and seen from a geodetic perspective.

On this journey the team will unveil China's and the Tibetan Plateau's natural beauty and characteristics as well as its scientific and technical culture, history and recent discoveries.

Geodetic activities on the journey

Apart from demonstrating and illustrating different geodetic techniques (levelling, positioning with gps, gravity measurements, etc) focus will be on two modern applications of geodesy; geohazards and mass distribution. In addition the traditional use of geodesy in the making of maps is included.

Geodesy can contribute substantially to the improved understanding of mass distribution. As Himalaya is the source of fresh water for about 40 % of the world's population it is relevant to use this region as the background to explain the different elements of the water cycle. A special focus will be on the use of satellites like GRACE and GOCE since the potential usefulness of these tools are so evident in this remote and topographically challenging region.

A workshop on mass distribution is planned as part of the journey. Explanations of recent development of geodesy (space geodesy: GRACE and GOCE, in-situ geodesy: gravimetric measurements by airborne gravimeter, superconducting gravimeter, absolute gravimeter, recent development on determination of the geoid). An overview of the work of GGOS/presentation of GGOS2020 will be given.

On the Tibetan Plateau there are tectonic interesting phenomena like a tectonic knot and large earthquakes. Development of gps/gnss as a technique to monitor and complement traditional observation techniques like seismographs will be discussed and illustrated, thus demonstrating another area where geodesy contribute to a better understanding of natural geohazards.

Throughout the journey the history of surveying (ancient/traditional geodesy) will be covered by visiting among others the world's oldest benchmark (outside Xi'an) and telling the history of mapping of Lhasa and Tibet, thus reference to geodesy as the basis for making maps will be made.

Demonstration of a sub-system of GEOSS and its applications in selected areas

The geodetic reference frame is Task AR-03-07. A demonstration of its development can be made by using part of the footage taken on the Geodetic Journey© in August 2007. Reference to both the

journeys web-blogg with pictures, videos and more detailed information about geodesy as well as the GGOS2020 report can be made in the videopresentation.

Responsible: N (NMCA), CN (SBSM), IAG (GGOS) and GEO Secretariat