

## SC 2.4e: Gravity and Geoid in the Asia-Pacific

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### Context

Depending on one's definition of the Asia-Pacific (AP) region, this SC could cover as many as 48 countries. Moreover, these countries are very diverse in terms of language, political persuasions, governments and wealth. This poses a significant challenge for the exchange of gravity and geoid data and expertise.

Not only unique to the AP region, the management and administration of gravity and the geoid can be vastly different in each country, making the coordination of such a group challenging. Taking Australia as an easy example, the gravity database is administered by a different government division to the administration of the national quasigeoid model.

### Terms of Reference and Objectives

Promote the cooperation in and knowledge of gravity, geoid and closely related studies in the Asia-Pacific region.

The executive committee should be small to ensure efficiency, but the larger committee should comprise one member from each participating country. Because of the need to carry national authority, the national member is logically the officer in the country's geodetic authority responsible for its quasi/geoid and/or vertical datum matters.

Because of the synergy that exists between the objectives of this SC and those of the Geodesy Working Group of the UN Permanent Committee for GIS Infrastructure for Asia and the Pacific (PCGIAP), it is logical to liaise with this working group.

### Program of Activities

Liaise with the Geodesy Working Group of the PCGIAP and other nations in the Asia-Pacific region, initially through the production of a flier that outlines the benefits of cooperation and data sharing.

Audit, document and catalogue the gravity and geoid-related that exists – including airborne campaigns. It is also important to establish a protocol for sharing the data. National authorities may be reluctant to give all the data available and at the precision available. It should be possible for geoid evaluation purposes, however, to decrease the resolution and accuracy of data shared along common borders without either comprising the precision of the geoid significantly, or the security of the national data shared.

## Topics of interest

### a) Gravity and Related Data

Explore ways in which we may

- share available gravity data (e.g. via International Gravity Bureau)
- share available DEMs along common borders (National Geodetic Authorities)
- combine resources for terrestrial gravity surveys along common borders
- combine resources for airborne gravity surveys in the region.

### b) Quasi/geoid Control

Explore ways in which countries of the region may cooperate by

- sharing geometric (GNSS/leveling and vertical deflections) geoid control data
- combining efforts in global GNSS campaigns
- undertaking joint campaign for the connection of regional vertical datums.

### c) Education & Research

Encourage and sponsor, for the region,

- meetings and workshops, in cooperation with the International Geoid Service, to foster understanding in the evaluation and use of gravimetric quasi/geoids, and in their application to efficient height determination with GNSS.
- technical sessions in scientific and professional conferences
- research into matters of common concern/interest.