

**Group on Earth Observations (GEO)  
2007-2009 Activities  
Individual Task for 2007-2009**

Societal Benefit Area or Transverse Area	Task Title
User Engagement	Establish a comprehensive GEOSS database of user requirements concerning georeferencing and geodetic reference frames by identifying, describing and establishing links to relevant user communities in the nine societal benefit areas and conducting appropriate surveys.
Task No.	
US-07-P3	

**Description of the Work to be Performed**

- (1) Identify relevant user groups in the societal benefit areas, including groups of users relevant for several benefit areas, and create a matrix of users, groups of users and benefit areas.
- (2) Identify and quantify the requirements of the nine benefit areas with respect to georeferencing and access to a long-term stable reference frame.
- (3) Facilitate an assessment of the current status and future requirements for the geodetic reference frames and geodetic observations with particular focus on the needs of the nine benefit areas.
- (4) Establish links between representatives of the different user groups within the nine benefit areas and an appropriate expert team to coordinate georeferencing and reference frame issues across these areas.
- (5) Identify user-oriented capacity building needs within the different user groups with respect to reference frames.

**Output & Deliverables**

In 2007:

Since 2005, the EU-Funded project 'Assessing and forward planning of the Geodetic and Geohazards Observing Systems for GMES applications (GAGOS)' is carrying out related studies in Europe, and the project report will directly feed into the proposed task.

Strategy report "The Global Geodetic Observing System: Meeting the Requirements of a Global Society on a Changing Planet in 2020" as input to the GEO Plenary. This deliverable would be produced jointly with the proposed task AR-07-P4.

The definition of the GGOS Data Portal will be based on user requirements and be designed as an important link to the user groups identified here.

**Calendar (incl. milestones)**

Start in 1<sup>st</sup> Quarter 2007 – Continuous activity

**Responsible Entity, Participants**

**Leading organization(s):**

IAG/GGOS (Markus Rothacher, Chair, GGOS Steering Committee, [rothacher@gfz-potsdam.de](mailto:rothacher@gfz-potsdam.de), Ruth Neilan, Vice-Chair, GGOS Steering Committee, [ruth.neilan@jpl.nasa.gov](mailto:ruth.neilan@jpl.nasa.gov), Hans-Peter Plag, Vice-Chair, GGOS Steering Committee, [hpplag@unr.edu](mailto:hpplag@unr.edu))

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Additional lead organization to be added in coordination with the UIC.

**Contributing organizations:**

Many of the GEO members and Participating Organizations are active in the UIC and some of the CoPs. It is expected that these organizations would contribute to this task. In particular, a number of Participating Organisations in GEO are also directly active in issues related to georeferencing and reference frame issues. Examples are ISPRS, ISCGM, OGC, GSDI, ESEAS, EuroGeoSurveys, and ICSU. It is expected that these organizations will join this task as contributors.

**IAG:** Global Geodetic Observing System (GGOS) Executive Committee ([rothacher@gfz-potsdam.de](mailto:rothacher@gfz-potsdam.de), [ruth.neilan@jpl.nasa.gov](mailto:ruth.neilan@jpl.nasa.gov), [hpplag@unr.edu](mailto:hpplag@unr.edu) ).

**Contributing Users:**

For many users in the nine benefit areas, applications of Earth observation data are directly or indirectly affected by the choice of the geodetic reference frames and the availability of an accurate reference frame anywhere on Earth. Many of the GEO Participating Organizations are in fact users of the geodetic reference frames, and it is expected that a number of them will join this task as users. The existing and proposed GEO CoPs would be appropriate interfaces to user groups in the nine benefit areas.

<b>Financial Contributions (from GEO Operations Budget)</b>
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Potentially: publication of the strategy reports (deliverables) as GEO reports (also for AR-07-P4)

**GEO Member Potential Contributions Reported to date:**

Some of the specific work proposed in the task description is already under way and the proposed task would link these activities formally to GEO and the GEO User Interface Committee. If required, a more detailed summary of the on-going work can be provided. The following is a brief summary of relevant activities and the general context.

With the global geodetic reference frames, the *International Terrestrial Reference Frame* (ITRF) and the *International Celestial Reference Frame* (ICRF), GGOS provides the metrological basis for all Earth observations independent of the targeted benefit areas. Maintaining a terrestrial reference frame at the level that allows, for example, the determination of global sea level changes at the sub-millimeter per year level, pre- co- and post-seismic displacement fields associated with large earthquakes at the sub-centimeter level, timely early warnings for earthquakes, tsunamis, landslides, and volcanic eruptions, as well as the monitoring of mass transport in the Earth system at the few Gigatons level will require an Earth system approach, encompassing all Earth sciences. Among others, this has recently been acknowledged by IGOS-P, for which a proposal for an Earth System Dynamics Theme is in preparation. This activity will contribute to the proposed item (2) in the task description.

Currently, GGOS is facing an increasing demand from science, the Earth observation community, and society at large for improved services, observations and products. Most of these requirements are in terms of improved accuracy, in particular, instantaneous accuracy, better reliability (including liability), and improved access to the reference frame. In order to meet these requirements, GGOS is currently preparing a document that reviews the wide range of scientific and societal applications of geodetic observations and products. This document (the proposed first deliverable of the task) will provide the scientific basis for an

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implementation of the geodetic observing system that meets the requirements of the society at large and GEO and IGOS-P in particular. This activity will contribute to the items (1), and (2).

Taking into account that the geodetic observations and products are relevant at least for the GEO benefit areas of water, disasters, energy, weather, climate, health, and agriculture, and that the GGOS is a major component in the architecture of GEOSS, the proposed task facilitates the assessment of the GEO requirements for the reference frames as well as the status of the GGOS as a basis for the development of the geodetic frames and services such that they meet these requirements.