



Exploring GNSS applications for GEE0 and GEOSS

The framework of the Global Earth Observation System of Systems (GEOSS), the European Union has compromised to ensure the full interaction and engagement of relevant science and technology communities to guarantee that state of the art in Earth Science knowledge is continuously applied into GEOSS development and operation as well as for the benefit of the Global Environmental Earth Observation (GEE0). Working to this aim, the EU acknowledged the need to better assess the scientific value of Global Navigation Satellite Systems (GNSS) beyond their classical positioning services, for the achievement of the GEOSS goals in the nine GEOSS Societal Benefit Areas (SBAs): agriculture, biodiversity, climate, disasters, energy, ecosystems, health, water and weather. The Gfg2 coordination action described in this paper provides response to this need.

The Group on Earth Observation (GEO) is a voluntary partnership of governments and international organizations unifying efforts to build GEOSS. This is being pursued following a ten-year implementation plan. The European Union is a member of GEO and, at a European level, it acts as a funding agency to support European contribution to GEO activities. The **Gfg2 project** is one of the projects funded by the 7th Framework Programme of the European Commission under the Environment theme (2010 call) to achieve the EU compromise within GEO: to ensure the full interaction and engagement of relevant science and technology communities into GEOSS implementation to guarantee that state of the art Earth Science knowledge is continuously applied into GEOSS development and operation.

Gfg2 is a three-year **coordination action** that started in January 2011 and will last until December 2013. The project envisions a better assessment of the value of GNSS for GEE0 and GEOSS.

The main **goals** of Gfg2 are:

- To consolidate a community of experts interested in the scientific exploitation of GNSS for GEE0 and GEOSS.
- To explore novel applications derived from GNSS for GEE0 and GEOSS while enhancing research-industry collaboration to implement these applications.
- To identify the research and technological challenges and to define the strategic vision, roadmap and policy for GNSS for GEE0 and GEOSS available or under development.
- To assess the value of a European GNSS independent constellation (EGNOS-GALILEO) in the support to GEE0 and GEOSS.
- To promote the public understanding of GNSS for GEE0 and GEOSS research and use within the GEO community, providing support to the GEO tasks and fostering the application of the Data Sharing Principle.

In order to achieve these goals, the Gfg2 coordination action will undertake the following **activities**:

- Identify the widest number of on going GNSS-GEE0 activities related to positioning, mass-market or scientific applications.

- Consolidate a GNSS community of experts for GEE0 and GEOSS.
- Explore novel applications of GNSS for GEE0 and GEOSS with specific attention to the needs of Earth and Ocean observation systems and monitoring methods for the environment and sustainable development.
- Identify barriers and enablers (perspectives for technological development) to support the novel applications identified that entail an impact in the society.
- Promote the public understanding of GNSS research and the use among the GEO community providing support to the GEO tasks.
- Organize summer schools, workshops and industry events.
- Build a collaborative community web.

The Gfg2 project team, whose lead is at Starlab Barcelona S.L (Spain), is composed of seven additional partners with experience in GNSS and/or GEE0: the GNSS Research and Applications Centre of Excellence from the University of Nottingham (United Kingdom), the German Research Centre for Geoscience (Denmark), the Space Geodesy and Geodynamics Research Group from Chalmers University of Technology (Sweden), the G-STEP group from the University of Leicester (United Kingdom), the Norway Meteorological Institute (Norway) and the Wageningen University and Research Centre (Netherlands). The consortium includes experts who already make use of GNSS technologies for scientific purposes and also includes experts from at least one of the SBAs and who are willing to make use of GNSS technology as part of their scientific work. In addition, a Board of Experts supports the consortium, providing external advice for guiding the project's development to successfully reach its objectives.

Gfg2 is building a community. Scientists and experts involved in any SBA who are interested in understanding the potentialities of GNSS for their scientific work, as well as GNSS experts willing to exploit this technology for scientific purposes in any of the SBAs, are welcome to be part of this community by joining the LinkedIn group "GNSS for Global Environmental Earth Observation and GEOSS" or via Twitter (#Gfg2project). Community members are eligible to: have an active participation in project activities, access the discussion sub-groups, share their profiles with other community members, announce relevant events for the community, post job offers (Ph.D. and postdoc positions as well) and to apply for financial support for traveling/hosting to events related to the project.

The Gfg2 team is willing to collaborate with European and international GNSS, GEE0 and GEOSS entities for the organization of joint events. These include annual conferences, workshops, publications, etc.

For more information you are invited to visit our project web page : www.gfg2.eu or contact: gfg2@starlab.es

