

Input to discussions at the GGOS Retreat in Munchen 15-16 February 2006

## **HOW CAN WE STRUCTURE FUTURE WORK IN GGOS by B. Engen, Geodetic Institute, Norwegian Mapping Authority**

At the Earth Observation Summit held in Washington, DC on July 31, 2003, the declaration gave the following purpose of the summit:

“Promote the development of a comprehensive, coordinated, and sustained Earth observation system or systems among government and the international community to understand and address global environmental and economical challenges.

Begin a process to develop a conceptual framework and implementation plan for building this comprehensive, coordinated and sustained Earth observation system or systems”.

Already started as formally created in June 1998, all partners of the Integrated Global Observing Strategy Partnership, IGOS-P, had agreed to a basis for cooperation:

“The Integrated Global Observing Strategy (IGOS) seeks to provide a comprehensive framework to harmonize the common interests of the major space-based and in-site systems for global observations of the Earth. It is being developed as an over-arching strategy for conducting observations relating to climate, atmosphere, oceans and coasts, the land surface and the Earth’s interior. IGOS strives to build upon the strategies of existing international and global observing programmes and upon current achievements”.

There is a great deal in common between the GEO initiative and the IGOS Partnership cooperation, but it has been decided that GGOS shall seek both IGOS partnership and GEO membership in order to make the role of geodesy both understood and accepted in both two major international initiatives.

The modern geodetic infrastructure provided data and products which in many cases will strengthen and be complementary to the data from other dedicated systems. It is therefore likely that we in the initial phase will look for integrated solutions rather than integrated systems. GGOS will have to decide on a strategy and approach on how to include geodetic data and services in integrated solutions. The knowledge and experience gained could then be used to strengthen and improve the systems.

For Earth Observation or Global Monitoring we can draw some experience from several projects on monitoring of different types of large infrastructure as oil platforms, cultural areas, harbours and docking facilities, dams and reservoir areas. The response in most cases is focusing on the requirement for a very accurate reference frame with long time stability. As geodesists we should be grateful for this challenging demand which ought to give us opportunities to apply for funds for a number of research activities.

We can sum up this by saying that geodetic observations of the geometry and gravity field of the Earth contributes in two very important but different ways to IGOS-P and GEOSS:

1. They provide observations directly related to the dynamics which give additional contribution to other observations of climate, atmosphere, oceans and coastal areas, the land surface and the Earth's interior.
2. They allow to define and maintain a global reference frame as the backbone for the monitoring of dynamics of the phenomena or areas given under item 1.

The above will give GGOS the following major challenges:

- How can geodetic observations and products be integrated with data from other observation systems?
- How can we improve the global reference frame?