

## Welcome and Introductory Comments

Hans-Peter Plag

Nevada Bureau of Mines and Geology, University of Nevada, Reno, Nevada, USA.

I welcome everybody to this workshop.

I am looking forward to work with you over the next three days on a roadmap.

A roadmap that hopefully will give guidance to decision makers, funding agencies, space agencies, and our scientific and technological communities.

Observing gravity changes from space is an amazing observational tool that has already contributed to an improved scientific understanding of the one cycle that makes Earth unique among the planets we know and habitable for a rich biosphere, including human beings.

But it may also prove to be a tool that helps us to solve some of the most urgent problems that humanity is facing.

One billion people are today without sufficient access to drinking water.

During his speech at the UNESCO conference on water last year in Irvine, Peter Gleick, the director of the Pacific Institute, stated that having people without sufficient drinking water is an inexcusable failure of humanity.

One billion people do not have enough food – another inexcusable failure of humanity as a whole.

The Second World Water report of UNESCO published in 2006 states that water shortage is not a problem of abundance but of poor governance.

Often, poor governance is caused or worsened by insufficient scientific understanding and quantitative knowledge of the water cycle.

Increased pressure on water resources resulting from increasing demands from food production, energy production, industrial and urban usages will increase the governance problems.

Many fear that this will lead to conflicts and destabilization of whole regions. And we know, without water, there is no growth, be it environmental, social, or economic.

Better understanding of the water cycle and better quantification of the changes is not sufficient for solving these problems and avoiding future conflicts.

However, these are necessary ingredients.

We urgently need improved observations of the water cycle and its changes for progress and sustainable development.

The world governments have agreed on sustainable development as the political and ethical principle, The Millennium Development Goals are stepping stones towards this vision for our spacestation Earth. Those in the cockpit of spacestation Earth have realized that the control panels they have in the cockpit are not telling them what's going on with Earth.

They need more information about the state and trends in the Earth system as a whole.

In acknowledgment of the importance of knowing what is going on with Earth, the governments of by now eighty countries have established the Group on Earth Observations (GEO).

GEO has the mandate to build the Global Earth Observing System of Systems (GEOSS).

As we will hear in a minute, GEOSS is being built with focus on nine Societal Benefit Areas (SBAs) of Earth observations.

One of them is an improved management of Water resources.

Last year, at AGU's Fall meeting, a celebration of the Nobel peace price being awarded to IPCC took place.

At this celebration, Richard Alley, whom some of you certainly know, stated that this Noble peace

price acknowledged science as a contribution to peace.

He continued to predict that after this recognition, science will not be the same as before.

Society will expect support from science in solving urgent and existential problems and help in ensuring peace.

I do agree with Richard.

And this was one of the main motivation for me to join my colleagues on the Program Committee in this action to produce a roadmap towards future satellite gravity mission.

As I said before, a roadmap that can guide the science communities, the technology communities, the space agencies, the funding agencies, the world governments in an effort to ultimately gain more information about the water cycle.

I deeply believe that geodesy and in particular gravity is pivotal for an observing system of the global water cycle – as has already been identified in the IGOS-P Theme on Water and demonstrated by GRACE.

The Water-related tasks in the Work Plan of GEO also acknowledge this fact.

I therefore think that with GEO, we have an unique opportunity to make a difference.

GEO needs the input from the relevant scientific communities.

That is why this Workshop is a GEO Workshop, jointly organized with IAG, GGOS, major space agencies, and a UNESCO funded International Geoscience Project, the IGCP 565 Project.

After this Workshop, we would like to bring the roadmap to the attention of the GEO Plenary, which will hold its next meeting on November 17-18, 2009 in Washington, D.C.

For that, we aim to prepare a declaration that all participants of this workshop can support.

Both the roadmap and the declaration are ambitious goals, but I believe that together we can achieve these goals.

It is my pleasure to open the first session of this workshop.

I would like to invite Douglas Cripe, who works in the GEO Secretariat and is assigned to the Water SBA, to give us an overview of GEO and GEOSS and to tell us how our work can support GEO in achieving its goals – to the benefit of humanity.