

# Report on Munich Satellite Navigation Summit 2007

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## Summit Presentations

In the Summit program, there were many excellent presentations on latest status and policy developments relating to all the major providers of GNSS, including the EU, USA, Russia, India, Japan and China. The 2007 Summit had approximately 440 registrants from 28 countries. The event really is a "Summit", rather than a Technical Conference. It deals with the latest developments but does so with a focus on the policy aspects. As such the Summit is a quite unique format. It also has the advantage of attracting senior decision makers, making it an ideal event for high level networking.

Sessions in the Summit are structured as "Panels" where speakers give short explanations of the status of their topic and then form a panel that is questioned by the Session Chair. This format works well as a way of drawing out issues that need to be explained and which may need some attention in terms of policy and planning.

The Summit program was as follows:

- Tuesday 6th March:
  - Opening Plenary
- Wednesday 7th March:
  - News from satellite Navigation Systems
  - Munich Flashlights – News from Bavaria
  - Debate Between the Galileo Responsibilities
  - Starting, Waiting or No Interest in Galileo/GNSS Applications
  - Do We Know More About the Galileo Public Regulated Service (PRS) Now?
- Thursday 8th March:
  - The U.S. Scene of Satellite Navigation
  - Why Galileo for Australian Industry?
  - Views and Perspectives of Worldwide GNSS Industry
  - Is (or Will Be) the Russian GLONASS System Interoperable with the Other GNSS?
  - The International Space Station: a Talk by Astronaut Thomas Reiter
  - Galileo Masters Competition 2007

All presentations from the Summit will eventually be made available on the web site ([www.munich-satellite-navigation-summit.org](http://www.munich-satellite-navigation-summit.org)).

## Galileo Public Private Partnership

The dominant issue at this year's Summit was the problem with the Public Private Partnership for Galileo, which is Europe's Global Navigation Satellite Systems (GNSS). There are delays in reaching an agreement between the European GNSS Supervisory Authority (representing the European Union) and the consortium of companies known as the Concessionaire, which is supposed to take on the contract to operate the Galileo system for the next 20 years. Most of the private sector companies in the Consortium are trying to take a "European view". However, there have been suggestions in the press that one of the companies is acting more in their national interest. My opinion based on private discussions at the Summit is that there is already too much time and money invested for the PPP to fail. For example, there are two contracts, one to operate the system (the Concession) and one to build the system. Many of the players in the Concession part are also heavily involved in the consortium that is contracted to build the system (itself a 2 billion Euro contract). Also, neither the EC

(public servants) nor the private sector wants the issue to go back to the European Parliament and all the uncertainty that would be attached to that. Therefore, overall I am confident a compromise will be found in coming months. Unfortunately, this all means that there will be delays in the full deployment of the system.

### **Session on 'Why Galileo for Australian Industry?'**

This year was the first time that Australia had its own session at the Munich Summit. That grew out of discussions with the Summit organiser, Prof. Günter Hein, when he attended the IGNSS conference in Australia in 2006. Günter has agreed that at future IGNSS conferences he will coordinate a session on GNSS in Europe and in return the IGNSS Society will coordinate a session on Australia at all future Munich Summits. The Session in Munich on 'Why Galileo for Australian Industry?' was presented by Rob Lorimer (Position One Consulting) speaking on industry matters, Andrew Dempster (School of Surveying & Spatial Information Systems, UNSW) speaking on GNSS research activities in Australia, and Chris Rizos (SSIS, UNSW) speaking on high-accuracy user requirements. I also spoke on Queensland Government activities and more generally on governmental GNSS issues in Australia. The session was Co-Chaired by John Dawson (Queensland Agent-General and Trade Commissioner from London) and by Prof. Hein.

### **UN Mandated International Committee on GNSS (ICG)**

I also met out of session with John Dow (Head of the International GNSS Service - IGS - he is based at ESA in Germany), Ruth Neilan (Director of IGS - based at NASA in California) and Dave Turner (a consultant to the US State Department through the Directorate for Position, Navigation and Timing). The meeting was also observed by Chris Rizos representing the International Association of Geodesy and Gerry Mader from the US National Geodetic Survey (NGS). The meeting in Munich was to discuss the sub group of the UN mandated International Committee on GNSS (ICG). That sub-group is Co-Chaired by me for FIG and by Ruth for IGS. The sub-group is charged with tasks such as developing standards for GNSS Reference stations, investigating mitigation of radio interference and multi-path at such stations and fostering the rejuvenation of geodetic reference frames in developing countries (like the AFREF project in Africa). It was agreed that in coming months Ruth will develop a report on progress with AFREF. I will also develop a report on the status of work on a regional reference frame by the Permanent Committee on GIS Infrastructure in the Asia Pacific. Geoscience Australia is heavily involved in that work in the Asia Pacific. We agreed that Ruth and I would meet again at the FIG Working Week in Hong Kong in May and then take those reports and any follow up recommended actions to the next meeting of the full ICG in Bangalore, India in September.

### **German Galileo Test Bed – GATE**

On the Friday following the Summit I participated in a technical tour to the German Galileo Test Bed - GATE (Galileo Test- und Entwicklungsumgebung) which is located in the Berchtesgaden area at the foot of the Alps. The GATE involves 6 transmitters broadcasting Galileo specification signals from mountain tops down into the valley around the town of Berchtesgaden. The system can broadcast signals to multiple receivers in the test area allowing receiver manufacturers and applications developers to test their products before the Galileo satellites are in place. In its simplest mode of operation the system broadcasts the signals as though the "satellites" are at the fixed locations of the transmission towers. In a more sophisticated mode the system can fully simulate signals as though they are coming from satellites in motion across the sky in orbits like will be seen for the real Galileo satellites. To accurately simulate the signals for a moving receiver the position of the receiver (derived from GPS measurements) need to be fed back to the GATE control centre. Therefore, in this mode only one receiver can be tested at a time. As well as the advantages for receiver and application development, the GATE system can be a very useful tool for testing possible improvements to signal design for future satellites. It will also allow data to be gathered to better research and understand signal propagation issues such as radio interference and multi-path. More information on GATE is available at the web site ([www.gate-testbed.com](http://www.gate-testbed.com)).



**Figure 1 Multi-National Group on the GATE Tour**