

MUNICH SATELLITE NAVIGATION SUMMIT 2007:

Session 7 – Why Galileo for Australian Industry?

John Dawson, Trade Commissioner and Agent General, Queensland Government, and Prof. Dr. Guenter W. Hein, Institute of Geodesy and Navigation, University FAF Munich, were the two chairmen of Session7 “Why Galileo for Australian Industry?”.

Andrew Dempster, Director of Research, School of Surveying and Spatial Information Systems, University of New South Wales, presented the research activities introducing the academic community consisting of six universities basically. Three organisations are responsible for the funding of GNSS related academic research. Cooperative Research Centre for Spatial Information (CRC-SI) is the biggest of them and provides 47 million € over 7 years for industry-related projects. Dempster analysed the focal points of the current research activities.



Dempster, Lorimer, Hein, Rizos, Dawson, Higgins (left to right)

On the one hand they are reflected within the 69 Australian technical papers for IGSS 2006 conference. Seven of them dealt with Galileo or Galileo/GPS whereas a special

emphasis was on integrity, correlator design, multi-carrier performance and AGJU (Australian GNSS Joint Undertaking).

On the other hand, there are “niche” areas (weak signal, Unmanned Aerial Vehicles (UAVs), interference, pseudolites, intergration with other sensors) and an “Australian” area where Australian scientists are specialised on Ground-based Regional Augmentation Systems (GRAS), machine automation and a special philosophy of reference networks. However, Galileo is still an unexploited opportunity.

Furthermore, Dempster presented some research works like the “Namuru” open-source FPGA-based receiver which works with L2C and the GIOVE-A signals. Moreover, GRAS was addressed underlining the huge market that exists in Australia in this field. It is interesting for other countries too who can’t afford a Satellite Based Augmentation System. In spite of the enormous attention that Galileo arises in Australia, he pointed out that there are still unsolved research questions, regarding the funding, the political will of European Institutions and the way to go ahead.

Matt Higgins, Principal Survey Advisor, Land Information and Titles, Department of Natural Resources and Water, presented the role of the Queensland government with respect to questions regarding GNSS. He insured that it is important to take advantage of the latest technology. Therefore, he desires to facilitate the activities and cooperation across the Government, the private and research sectors.

In his presentation he further focused on the reference station infrastructure comprising five different existing network families: Australian Regional GNSS network, GRAS from Air Service Australia, Australian Maritime



Safety Authority, CORS network in the States and Territories and the Nationwide Commercial Services from Omnistar and Starfire - Decimetre. However, they can't serve as a system covering the whole area like the German SAPOS does.

Higgins continued showing the last developments that have been made in the past months and years. Special attention he focused on the AuScope project. Moreover, some facts on Queensland were given to indicate the difficulties Australia has to deal with and how GNSS can help to solve the problems. Queensland has a surface five times bigger than Germany, but the population is only a twentieth of that of Germany. This implicates bigger per capita costs to cover Queensland with similar density as SAPOS in Germany. In conclusion, he presented the interests of Queensland in Galileo.

Rob Lorimer, Managing Partner, PositionOneConsulting, started his presentation giving a short description on GNSS Industry and the GNSS value chain in Australia. The Australian GNSS market has a turnover of \$1.3 Billion. Other economical figures as the number of employee in the GNSS sector were showed.

Lorimer continued with the most important Australian applications, emphasising the significant concentration of knowledge on certain activities. Australia has a very unique geography, thick infrastructure, urban and developed world problems like in other regions (e.g. US and Europe). But since the population is very concentrated on certain regions, there are some parts of Australia with very thin infrastructure and typical rural problems. He reviewed typical scenarios of the two extremes and concluded that the Australian GNSS companies regularly solve both kinds of problems.

Moreover, Lorimer talked about the interest of Australia in Galileo: "What can Galileo do for Australia?" Different figures concerning coverage, configuration and schedule of several GNSS were presented. He clearly stated that

the Australian GNSS community wishes a reliable system which is interoperable with GPS. At the end, he concentrated on what Australia can do for Galileo. Australia is a competitive region and has a good understanding in solving the thick and thin infrastructure problems he described in the presentation.

Prof. Dr. Chris Rizos, Professor and Head, School of Surveying & Spatial Information Systems, University of New South Wales, took up his presentation showing the special Australian context – a highly urbanised society, but a large, sparsely populated country. In general, the user requirement is to better benefit from current GPS signals with minimal extra costs. In particular, agriculture and mining industry are economically very important branches. Those are part of the niche users who have higher demands. The fields of geodesy and machine automation are niche users too. Rizos called the niche users multi-GNSS users.

He is interested in an answer to the question "Will niche Australian users welcome Galileo?". Extra signals will improve signal availability, offer more frequencies, give faster TTFF (Time to First Fix), a generally higher performance, especially for longer baselines. All these properties are desired, but this will not be for free. Rizos asked: "Are the users cash cows?" He stated that base stations are necessary for augmentation and that value added services are needed. Besides, RTK is the most demanding technique. However, the biggest challenge is the integration of the different GNSS systems but Australia can't really contribute to that. He summarised his thoughts in the desire to establish Australia as a test bed for a potential system of systems combined with the question: "Can we try before we buy?"

info@munich-satellite-navigation-summit.org
www.munich-satellite-navigation-summit.org

*Communication: *Munich Satellite Navigation Summit 2007 *Institute of Geodesy and Navigation *University FAF Munich *D-85577 Neubiberg *Chairman: Univ.-Prof. Dr.-Ing. G. Hein *Phone: +49-(0)89 - 6004 - 3425 *Fax: +49-(0)89 - 6004 - 3019 *Invoicing Party: Gesellschaft zur Förderung der Weiterbildung an der Universität der Bundeswehr München e.V. *Werner-Heisenberg-Weg 39 *85579 Neubiberg *Bankaccount: gfw Gesellschaft für Weiterbildung - "munich summit", Deutsche Bank Ottobrunn *Bankcode: 700 700 24 *Account No. 4745717 *BIC: DEUTDE33 *IBAN: DE39700700240474571700