

# Shaping the Change - XXIII In Combination with INTERGEO Creates Big Global Surveyors

The XXIII Congress of the International Federation of Surveyors, FIG, will take place in Munich, Germany from 8-13 October 2006. The congress will be hosted by the DVW – German Association of Surveying – Society for Geodesy, Geo-Information and Land Management. This organisation has assumed the FIG presidency for the period 2003–2006.

By Markku Villikka



Thomas Gollwitzer, Congress Director of FIG 2006.

## FIG & INTERGEO

The FIG event will make Munich the focus of international activity for one week in 2006 - at least for surveying and geomatics. The congress will run concurrently with the German INTERGEO 2006 as one fully integrated event. Especially the expert fair with almost 500 exhibitors and an exhibition space of 30,000 square meters will make FIG 2006 the largest meeting for surveyors world-wide this year. The organisers expect that more than 15,000 people will visit the exhibition in Munich.

## Surveying Disciplines

Several additional events are linked to the main congress. For example the Geodetic Week (10–12 October 2006) for the exchange of information on current activities in geodetic university and research institutes. "Other parallel events include the symposium of

International Association of Geodesy (IAG) Commission 1 and FIG Commission 5 and the workshop 'History of Surveying' at the Deutsches Museum. And there will be more", says Thomas Gollwitzer, Congress Director of FIG 2006.

The FIG Congress will run at the International Congress Centre in Munich and at the Holiday Inn, Munich for a whole week. The event includes four plenary sessions – three jointly with INTERGEO – and more than 100 technical sessions and workshops. Furthermore there are 30 technical tours. To balance the technical programme a wide range of sightseeing tours and social events has been planned. In order to facilitate the mutual exchange of ideas, a variety of meetings and events will be organised jointly, both in the professional field and on a social level, especially in the evenings.

Gollwitzer wants to emphasize the specific location of the conference: in Germany, which is located in the heart of Europe, and in Munich which is in the heart of Germany. According to Gollwitzer this allows easy access for congress participants from all over the world. Furthermore he comments: "We have chosen Munich, city of science, technology, arts and culture and – of 'joie de vivre' – as the venue, as we are convinced that this city, with all of its Bavarian charm, will contribute to making surveyors from all over the world feel welcome in Germany." location of the conference: in Germany, which is located in the heart of Europe, and in Munich which is in the heart of Germany. According to Gollwitzer this allows easy access for congress participants from all over the world. Furthermore he comments: "We have chosen Munich, city of science, technology, arts and culture and – of 'joie de vivre'

The world congress of FIG is organised every four years, with previous congresses in Washington DC in

2002, Brighton, UK in 1998, Melbourne, Australia in 1994 and in Helsinki in 1990. This year the 23rd Congress will take place in Munich, Germany 8-13 October 2006. The latest congress in Germany was in Wiesbaden in 1971.



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## Two Different Venues

The FIG Congress takes place at two different venues. From 9–12 October it will be held at the International Congress Centre Munich (ICM), from 10 October together with INTERGEO, Geodetic Week and the trade fair. The opening ceremony, plenary sessions and all FIG/INTERGEO/Geodetic Week scientific sessions will be held at the ICM.

The FIG administrative meetings, General Assemblies and the welcoming reception, closing ceremony and the party of the next FIG Congress (to be held in Sydney in 2010) on 8 and 13 October will take place at the Holiday Inn Munich City Centre. "The Holiday Inn is a 4-star conference hotel located just a few minutes away from the city centre and the 'Deutsches Museum'", explains Gollwitzer. "ICM and Holiday Inn are linked by a practical public transport system. Expenses for this are included in the congress fee."

## Results of Past Four Years

"With the motto 'Shaping the Change', we wish to make clear how the surveying profession can contribute to the present and future challenges among experts, but also to make it accessible to a more general public", explains Prof. Holger Magel, President of FIG. He continues by explaining that the congress contains a collection of the results of the work of the ten FIG technical commissions and of the FIG Council from the last four years. "The result is the congress programme to range from an opening ceremony to technical sessions and workshops. The speakers

|   | GPS          | Galileo            | Glonass |
|---|--------------|--------------------|---------|
| (Probably) operational in the year                      | 1993         | 2008               | 2010    |
| Number of satellites when operational (active + spares) | 21 + 3       | 27 + 3             | 21 + 3  |
| Current number of satellites                            | 30           | 1                  | 13      |
| Number of orbits  | 6            | 3                  | 3       |
| Number of satellites per orbit                          | 4            | 10                 | 8       |
| Inclination of satellites                               | 55°          | 56°                | 64.8°   |
| Orbit height (kilometres)                               | 20,240       | 23,222             | 19,100  |
| Frequency bands used                                    | L1, L2, (L5) | L1, E1, E2, E5, E6 | L1, L2  |

Specific parameters of global navigation satellite systems.

a receiver, a good antenna is needed. Usually antennas incorporating amplifiers are used. But even when using a state-of-the-art antenna, a small obstruction between the satellite and the receiver will block the signal completely. Glass is usually no problem, but under trees or inside and under cranes GPS performance is greatly reduced because the signals are blocked.

### Satellite Detection

In order to use auto correlation the receiver needs to know in advance which satellites to expect above the horizon. This is necessary since most receivers don't have as many reception channels (usually 12) as there are available satellites (around 30 at the moment). If we now have a GPS receiver having been used in America and accordingly switched off and back on in Europe, it would try to find the satellites that are visible above the horizon in America. Eventually these satellites will come into view, but this can take as long as eight hours. If we tell the receiver our approximate location, it will use the information from the almanac or ephemeris to determine which satellites are visible above the horizon. This initial position does not have to be very accurate; a couple hundreds of kilometres is in general good enough.

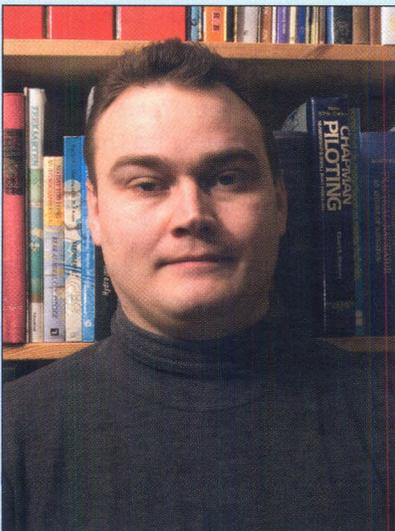
If we have a "clean" receiver without an almanac, or if the almanac is faulty, the ini-

tialisation will take longer as well. In this case the complete almanac must be received from the satellites. This can take several hours, depending on the number of visible satellites. An alternative is to download an

almanac into the receiver from the Internet or another GPS receiver. GPS almanacs and ephemerides are, amongst others, available from the US Coast Guard Navigation Center.

The next article in this series will deal with the positioning method and timing within satellite navigation systems.

Huibert-Jan Lekkerkerk ([info@hydrografie.info](mailto:info@hydrografie.info)) is a freelance writer and trainer in the field of positioning and hydrography. For more information about the topics discussed go to [www.navcen.uscg.gov](http://www.navcen.uscg.gov) (GPS), [www.esa.int](http://www.esa.int) (Galileo) and [www.glonass-center.ru](http://www.glonass-center.ru) (Glonass).



Starting this issue, Huibert-Jan Lekkerkerk, will reinforce the writing staff of GeoInformatics on the topic of surveying. Huibert-Jan studied both Hydrography (1995) and Maritime Electronics (1997) at the Higher Nautical College Amsterdam, the Netherlands. From 1995 until 1998 he worked as a hydrographic surveyor and software engineer at Hydrographic and Marine Consultants where, amongst others, he was involved in the development of a maritime GIS and an autonomous survey vessel. From 1998 until 2005 he worked in various functions at the D.O.O.R. group, first as hydrographic surveyor, later on as consultant / project manager and trainer. As a trainer for Skilltrade, a trainings institute for hydrographic and geological survey, he trained various branches of the Dutch government as well as personnel of various survey companies. In 2005 he left D.O.O.R. Nederland to take up the function of project manager information standards at the InformationDesk standards Water. Besides his function at IDSW, Huibert-Jan is also active as a freelance writer and trainer in the field of positioning and surveying. His fields of expertise are inshore surveying and dredging with an emphasis on GPS, Multibeam echo sounding and Attitude sensors.

# International FIG Congress

## Event



Participants should look for this hotel if they want to attend the FIG administrative meetings.

include international partners like the United Nations and its agencies – UN Under Secretary General Prof. Klaus Töpfer will be the keynote speaker at the opening ceremony – to our professional partners among which representatives of the geospatial information societies. We are also very happy about the closer co-operation with our corporate members and their professional contributions to our scientific programme.”

### Developing Countries

Magel expects the FIG Congress in Munich to make a new record both in participant figures and nations represented in the congress. He explains that for many developing countries and countries in transition the congress, as it takes place once every four years, is still the best if not the only opportunity to meet with international colleagues. “This is in spite of the success that we have had by introducing regional conferences and by developing the FIG working weeks into ‘mini-congresses’. The FIG Congress is still a must for all surveyors.”

Magel also expresses his wish to see many young surveyors and students at the congress. “We are doing our best to make participation as attractive as possible for young people. In order to do so we have the FIG Congress Prize for example, a contest for surveyors under 35 years.”

The topics of the scientific programme cover all ten commissions of FIG: professional practice, education, geoinformation management, hydrography, positioning and measurement, engineering surveys, land management and administration, spatial planning and development, valuation and real estate management and construction economies.

“FIG is not only about land surveying and land administration, but also about valuation and quantity surveying or about geodesy, photogrammetry and remote sensing”, says Magel.

### Call for Papers

Papers to the technical programme are selected by the FIG technical commissions based both on an open call for papers and on invited papers. Authors who are interested in submitting a paper have to submit their abstract to the FIG office by 15 March 2006. For the first time the abstract submissions are collected online on the FIG web site: <http://www.fig.net/abstractdb/submit.asp?id=6>. Selected authors will be notified by the end of May 2006. The full papers have to be submitted by 15 July 2006.

Registration fees to the congress vary from 440 euros (early-bird registration) to 560 euros (late registration). To encourage students to participate they pay only 150 euros. The fees include admission to all FIG, INTERGEO and Geodetic Week Sessions, the trade show, FIG general assemblies and social events like the welcoming reception, Surveyors’ Reception, FIG 2010 party and a ticket for public transportation. Especially the Surveyors’ Reception is a shared event with the traditional Treff, the social highlight of.



Silhouette of Munich, centre of Germany and with a Bavarian charm.

### Visible Profession

Magel wants to emphasize that the FIG congress in Munich will be a great platform to discuss the role of surveying and geomatics in future. “Up to now surveyors have had to contribute more or less purely technically to public and private interests and actions. Nowadays the profession is visible for all, heading towards more equity, security and

transparency and especially more sustainable development in the interest of the next generation. More than ever surveyors explicitly have to contribute to democracy, good governance and enhancement of civil society. Due to some negative consequences of globalization increasing there is now a great danger for democratic structures on a local, national and global level. More than ever we should underline the need for and benefit of functioning and even strengthened democracy for all people and for proper or at least better living conditions. This includes an intensified commitment of surveyors to guaranteeing better access to land and resources for all human beings. Surveyors are well-known experts for all topics around land and resources and therefore responsible for tailor-made land administration and land readjustment systems or for appropriate spatial data infrastructures. More than ever there is also a need for a new balance between public and private sectors in the field of surveying activities and responsibilities”, says Magel.

He continues: “We can conclude that surveyors around the global village have to adapt to all of these new socio-political and economic and environmental dimensions. They have to deal with new technologies, methods and tools to optimize their contributions in the interest of public and private stakeholders. That is why the FIG congress 2006 in Munich is so important.”

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More information about FIG at [www.fig.net](http://www.fig.net) and about FIG 2006 at [www.fig2006.de](http://www.fig2006.de).