

# Navigating Through Land and Water

This year the Geodetic Institute of Slovenia is celebrating its 55th anniversary. As a public institution, the work of the Institute was and remains dedicated to geodesy, photogrammetry, cartography, geomatics and property. Its experts in different fields of the profession are also the lecturers at the University of Ljubljana and, in this way, they transfer their knowledge to younger generations. About 10 years ago, the Institute started hydrographic activities as official support to the Slovenian Hydrographic Office. <P>

The Institute for Geodesy and Photogrammetry (IGF) was established on 14 December 1953 as a research institute at the University of Ljubljana. The early years were dedicated to the development of different tools and equipment for classical geodetic surveys. Later on, the Institute allotted the majority of its time to aerial and terrestrial photogrammetry. Over the years, the cartography department started to produce different types of map, from road maps, maps for mountaineers and tourist maps to thematic maps for various end-users. In the 1980s, the Institute was one of the first in the former Yugoslavia that started to introduce computers into cartography, opening a new field and type of work. In 2000, the Institute was officially restructured into the Geodetic Institute of Slovenia, a public institution supervised by the Ministry of Environment and Spatial Planning.

## The Institute's Structure

Today there are more than 40 experts working in various fields of activities in research, development and technical expertise:

- fundamental geodesy and a national GPS network
- geographical information systems and information technology
- topography, cartography and photogrammetry
- land cadastre and building cadastre (property system)
- education, training centre for geomatics
- hydrography.

The Geodetic Institute is located in Ljubljana, on the ground floor of the Faculty of Civil and Geodetic Engineering building, where experts from the Geodetic Institute co-operate closely and hold lectures for the students at the Geodesy Department.

## Products and Activities

The Geodetic Institute offers a variety of products to all sorts of end-user, from public institutions, government and communities to individuals.

National maps and topographic databases are widely used in various scales (from 1:1,000,000 to 1:500). The cartographic portfolio includes over 3,000 sheets of basic topographic charts at a scale of 1:5,000, 198 sheets of national topographic maps at a scale of 1:25,000, military topographic maps based on NATO standards, and sets of geographic maps at scales of 1:250,000 to 1:1,000,000. The topographic–cartographic database at the Institute offers the possibility of preparing different geomatics expertise for various purposes at a state or local level.

Aerial and terrestrial photogrammetry is the basis for creating and updating different databases and maps. One important photogrammetric work is related to documenting natural and cultural heritage, hazards and phenomena. Comprehensive work has been done in creating a 3D cadastre of buildings. Dynamic visualisation of 3D models has been done as an aid to various experts for visualising and simulating complex objects, spatial processes and their impact on the environment. One of the more important projects for the photogrammetric department is documenting Slovenia's largest glacier, which is also periodically surveyed with Lidar technology.

The Hydrographic Department works closely with the Ministry of Transport of the Republic of Slovenia. Co-operation in this field started in 1997 and the first modern hydrographic survey was accomplished in September/October 1998. Based on this, the Geodetic Institute's hydrographic department compiled the first Slovenian nautical chart in June 1999. Since then, hydrographers from the Geodetic Institute have participated in several surveys and compiled more than 10 nautical charts of Slovenian waters and three publications (IALA, Symbols and Abbreviations, and Sailing Direction). In the last few years, the Geodetic Institute has also been working on the compilation of Slovenian electronic navigational charts. To date, two have been prepared and are ready for distribution.

One of the Institute's major activities includes close co-operation with the Surveying and Mapping Authority of the Republic of Slovenia, mostly in providing support in property information, providing spatial data and offering location-based services for end-users.

## Involvement in EU Projects

The Geodetic Institute of Slovenia is also actively involved in various European Union co-financed projects. Recently, two INTERREG III

projects were completed, both of which the Geodetic Institute had an active role in.

The main goal of the HARMO-GEO project was to set up a joint spatial database for spatial planning of the cross-border area (Gorica–Nova Gorica). The results of the project were a 3D city model of a narrow testing area of Nova Gorica and the upgrade to a high-accuracy topographic database.

The goal of the ENHYGMA project was to promote transnational exchange of experiences, technologies and know-how in the field of integrated water management. The general objective was the improvement of the technical content and reliability of the tools available to the public administration for territorial planning and environmental rehabilitation.

### **The Future**

Future activities of the Geodetic Institute will mainly be focused on:

- R&D and special works in the field of geoinformation infrastructure
- providing expertise and technical support to the national geodetic service
- hydrographic service (providing information for safety of navigation: i.e. charts, publications, Notices to Mariners, web-based information for mariners)
- remote sensing services (control with remote sensing, use of Lidar and satellite images for spatial planning, digital terrain map, land use) and cartography
- location-based services and types of different spatial data
- active participation in international projects

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<https://www.hydro-international.com/content/article/navigating-through-land-and-water>

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