

## TRANSFORMATION OF GEODETIC WORLD AND DIGITAL TECHNOLOGIES ON THE INERGEO 2014

I.Trevoho, K.Tretyak, V.Zadorozhnyy, V.Kilaru

Traditional annual world's largest geodesic scientific and technical congress "INTERGEO 2014" and powerful large-scale professional exhibition of new equipment, modern technology, software geodetic and cartographic products «Messe Gelände» worked 7-9 October 2014 in Berlin (Germany). This forum, which was attended by almost 20 thousand professionals, took place in an international conference - the capital of Germany.

The main organizer of the congress "INTERGEO 2014", as in previous years, the German Society for Geodesy, Geoinformation and Land Management (DVW eV). Exhibition company engaged unit HINTE GmbH. The motto of the congress remained unchanged - "The knowledge and opinions of the Earth."

As part of the Congress worked great scientific conference; multifunctional exhibition geodetic and photogrammetric techniques, new technologies, GIS software, mobile surveying systems, specialized vehicles, UAVs (drones, quadcopters), accessories, clothing, etc., which showed hundreds of firms, enterprises and scientific institutions. Widely activity was rendered professional training and research facilities around the world, the editorial boards of scientific journals, professional associations and civil societies.

Ukraine Congress "INTERGEO 2014" was presented at the largest previous years the number of participants - about 70 specialists. This university employees, the company surveying of various types of geodetic and public.

The delegation of the Ukrainian Geodesic Society of Geodesy and Cartography (UTHK) consisted of professors I.S.Trevoho (President UTHK) K.R.Tretyak (Director of the Institute of Geodesy) V.V.Zadorozhnyy (Deputy Chairman UTHK HRT) - all of National University "Lviv Polytechnic", director of a private surveying company "Zahidzem" (c. Chernovtsy) V.M.Kilaru, chief engineer of the State Enterprise

"Ukrheodezmark" V.Ya.Kovtuna and head. Department of the National University of Water and Environmental Management (m. Rivne) Associate Professor R.M.Yanchuka.

The day before the official opening of the Congress held celebrations in honor of "INTERGEO 2014" in the ancient castle "Spandau" in Berlin on the initiative of the organizers of the forum. At the event were invited honored guests from many countries of Europe and the world, including the delegation of Ukraine. The audience made DVW President Professor Karl-Friedrich Thöne and others. Discussed directions of Geodesy and its role in the world community. Held talks with leaders of a number of professional organizations in Europe and the world, exchange souvenirs, professional symbolism, magazines, prospectuses. President UTHK prof. Games Trevi presented DVW President Professor. Karl-Friedrich Thöne (Karl-Friedrich Thöne) charter company for deepening cooperation between the DVW and UTHK.

INTERGEO 2014 officially opened by President DVW, at the plenary session in the morning on October 7 2014. After his short speech and wishes of fruitful cooperation and progress the industry has begun work Scientific Conference and powerful professional exhibition.

In general, the work of scientific sessions of the congress was held under the auspices of implementing directives «INSPIRE» in Europe and the world. Three days were made more than 100 reports. They were devoted to modern requirements for the construction of engineering structures on the German railway; automated geodetic monitoring of road infrastructure facilities; flood prevention strategy, laser altimetric measurement using GEOHALO, the role and implementation of INSPIRE and geoinformatics for development of social demands of the XXI century, theory and measurement results using UAVs; using Arc GIS

in planning wind energy facilities, raw state monitoring using aerial photography and 3D - modeling, model review crust vertical movements of Alaska; modeling of currents in the North Atlantic by evaluating the data of surface drift, use survey data for the design of pipelines, planning and evaluation of geodetic observations of sources and more.

In numerous pavilions professional exhibition could get acquainted with the characteristics of new GNSS receivers of satellite signals, electronic total stations, different in shape, size and appointments drones, aerial equipment, 3D laser scanners range of different actions, monitoring and mobile scanning systems, software, accessories and more.

His development as well-known companies exhibited Trimble, Leica Geosystems, Topcon, Sokkia, Stonex, Javad, Faro, Satlab, GeoMax and many smaller firms, companies, research institutes and universities. Demonstrated its business and social organizations of the editorial board.

"INTERGEO 2014" in Berlin clearly demonstrated that the geodesic industry transformed the world of digital and IT technologies. The main vector of its development is GIS technologies that focus on digital products. Modern GIS industry is completely focused on solving important economic and social issues. Professional exhibition actually summed up the current market dynamics in the innovation space geoinformation industry and in the formation of e-government, digital administrations, safety and protection from accidents and emergencies. Using sophisticated GIS tools various data streams are friendly powerful and reliable source of information that does not interchangeable geographic information industry in the analysis and forecast of development of society. Major trends in geoinformatics were presented in various presentations such as "Smart Cities", "The integrated geospatial solutions" powerful corporations DigitalGlobe, BlackBridge, Airbus Defence and Space, DMCii, Exelis VIS, Trimble, ESRI, Geospatial Media and Communicatio, Geoconnection and many others.

Equally powerful development at all levels of experience of remote sensing technologies

(satellite, aerial and ground). The main directions of development - increasing resolution images in all spectra, accelerating their transformation into other formats and transfer data to other devices. Certainly the success of new technology depends on their profitability. In this regard, new unmanned vehicles, multyrotory, land and air 3D scanners that contribute to the progress of various industries. A striking example of these technologies is a company Optech, products which, radar and integrated photogrammetric methods with laser scanning. This is a mobile mapping system of city infrastructure, roads and shooting railways and waterways Lynx. Aviation topographic laser system for corridor mapping ALTM Orion. In particular liderna Optech system was the main part of the NASA Phoenix Mars Lander, which is used to capture the surface of Mars in 2008.

Of particular interest to the participants of the exhibition was the company Aibotix, which produces modern UAV. A special hangar was presented demonstration of UAVs Aibot X6 V2. Impressive range of design possibilities and multyrotoriv company TWINS.

Unfortunately, last year there is not much progress in the traditional areas of modern measuring technology (high-precision GNSS receivers, total stations, electronic and others). You can see only new applications of data transmission.

In particular it should be noted improvement TS11 total station Leica company to monitor crack engineering structures, using the Japanese firm developed it in Kumonos effective distance learning technology different in shape and size of cracks in engineering structures.

Board UTHK delegation held talks on international cooperation with geodetic, cartographic and photogrammetric companies in several countries, with the FIG, ESG, European universities, companies, firms, businesses and invited colleagues to visit Ukraine and take part in the jubilee twentieth IRTC "Heoforum-2015" Lviv, Yavoriv 22-24 April 2015. A number of firms have agreed to participate in the exhibition and to support the ISTC "Heoforum."

Next INTERGEO congress scheduled in Stuttgart in October 2015.



*Fig.1. Statement by the President of IDV prof. Dr. Carl Friedrich Tyne (Dr. Karl-Friedrich Thöne) at the opening of the castle INTERGEO Shlandau, Berlin*



*Fig.2. Meeting with the coordinator of Hinte-Messe GmbH Ms. Christine Salbach (Christina Salbach)*



*Figure 3. Meeting with President of IDV prof. Dr. Karl-Friedrich Thöne*



*Fig. 4. Meeting with prof. Technical University of Oldenburg (Germany are being) Thomas Luhmann*



*Fig. 5. Introduction of mobile laser scanning system*



*Fig. 6. Explore the firm Leica instruments*



*Fig. 7. Meeting with representative of Drone Technology - prof. Cornelius Tretiak, prof. Games Trevi, prof. Vladimir Zadorozhnyy*



*Fig. 8. In the pavilion the company Topcon*

**Visualization of transformation geodetic  
industry in the world of digital and information  
technologies INERGEO in 2014**

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Provides information on the global geodesic  
Congress «INERGEO 2014", which worked 7-  
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