International Master's in Geodesy: Addressing Critical Skill Shortages in a Vital Field

The Community of Interest on Geodetic Reference Systems – Europe, established by UN-GGIM, is dedicated to supporting and developing the geodetic profession. A recent meeting highlighted two crucial points: the risks associated with weak geodetic foundations and their impact on satellite services, and the launch of an initiative to create an international Master of Science in Geodesy.

The global navigation satellite systems (GNSS) industry, which includes positioning, navigation, timing, Earth observation, and satellite telecommunications services, has recently exceeded $450 billion in revenue and is expected to double within a few years. These satellites and the industries they support, such as land management, resource management, and mining, depend on geodetic products for reliable and accurate operation.

However, geodesy is facing a severe lack of formal education, with potential negative impacts on social, economic, and environmental applications. The steady decline in academically trained geodesists, especially in Western countries, is affecting various sectors of society. Industry and government organizations are struggling to attract new talent, as revealed by a recent stakeholder survey.

Despite its importance, geodesy remains a small, modest, and relatively unknown discipline to the general public. It has not fully capitalized on its own technological innovations, such as those related to satellite positioning and Earth observation. Universities, which should be breeding grounds for new academic talent in geodesy, are facing difficulties in maintaining sustainable training programs.

Nicholas Brown, head of the United Nations Global Geodetic Centre of Excellence, highlighted an alarming scenario during a recent webinar, describing the serious consequences we could face if GPS and GNSS satellites ceased to function. The Centre proposes a vision for a future where all countries have strong political support for geodesy, enabling collective acceleration towards achieving the Sustainable Development Goals, with social, environmental, and economic benefits.

To address these challenges, four universities in the IDEA League (Delft University of Technology, ETH Zurich, Politecnico di Milano, and Chalmers University of Technology) are exploring the creation of an International Master's in Geodesy. They are currently developing a joint curriculum to be proposed to their respective boards by the end of the year.

Key objectives of this initiative include:

1. Increasing investments in the global geodesy supply chain
2. Improving coordination and collaboration between Member States and geodetic organizations
3. Promoting the sharing of geodetic data and improving standards
4. Making geodesy and its benefits more visible and understandable to society

This initiative seeks to address the critical shortage of experts in geodesy by providing formal education and training. It aims to strengthen the foundations of this essential discipline, which underpins numerous technological applications and industries vital to our modern world.

The work is ongoing, and more information can be found in the recorded video of the mentioned webinar: (https://www.youtube.com/watch?v=0oKgA2PzrR4)

By investing in education and raising awareness about the importance of geodesy, we can ensure a robust foundation for the many technologies and services that depend on accurate geodetic data. This initiative represents a crucial step towards securing the future of geodesy and its wide-ranging applications in our increasingly technology-dependent world.

Enjoy your reading,
Renzo Carlucci