

# SUCCESS: UL Institute of Astronomy Recognized as UN-GGCE Partner



The University of Latvia's (UL) Institute of Astronomy has been recognized as a partner of the United Nations Global Geodetic Centre of Excellence (UN-GGCE), highlighting the institute's contributing role in supporting highly accurate observations and measurements.

For over two decades the UL Institute of Astronomy has excelled in satellite laser ranging (SLR) and global navigation satellite system observations. With two observatories—the Astrophysical Observatory in Baldone and the Fundamental Geodynamic Station in Riga, located within the UL Botanical Garden – the institute successfully participates in the implementation of various international projects. Baldone observatory is involved in the asteroid observation, and notably, several asteroids discovered there have been given names related to Latvia. Fundamental Geodynamic Station uses SLR to determine the distance to a satellite by measuring the time interval in which a very short laser pulse travels from a specially designed telescope to the satellite and back. By knowing the speed of light and the time at which the laser pulse travels back and forth, the distance to the satellite can be determined with very high accuracy – up to 1 cm or even less.

The high accuracy and continuity of the institute's observations have positioned it

within multiple research networks focused on the Terrestrial Reference Frame. The reference frame not only enables precise navigation for everyday smartphone users but also supports sustainable development initiatives, such as monitoring global ocean levels.

The director of the UL Institute of Astronomy, **Kalvis Salmiņš**, emphasizes that “this is a significant example of the use of space technology on Earth with great practical impact.”

However, the valuable results rely on collaboration among nations, organizations, and individuals worldwide. The recognition by UN-GGCE acknowledges the UL Institute of Astronomy’s significant contributions to this international effort.

### **About UN Global Geodetic Centre of Excellence**

The UN-GGCE in Bonn, Germany, was established in 2020 with the support of the German government to implement the UN General Assembly's resolution 69/266 “A Global Geodetic Reference Frame for Sustainable Development,” adopted in February 2015. The resolution emphasizes that international cooperation is key to achieving a reliable geodetic framework that supports global navigation systems and geospatial data integration.

Photo: Toms Grīnbergs, University of Latvia