

# THE GLOBAL GEODETIC REFERENCE FRAME

The United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), established in 2011 by the Economic and Social Council (ECOSOC), recognizes the growing demand for more precise positioning services, the economic importance of the global geodetic reference frame, and the need to improve global cooperation within geodesy.

**Geodesy provides a coordinate reference frame for the whole planet, fundamental for:**

- *Monitoring changes to the Earth including the continents, ice caps, oceans and the atmosphere*
- *Mapping, navigation and universal timing*

This coordinate system allows us to know where people and features are on the Earth. "Location" is a vital component for effective decision making.



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IMPORTANT APPLICATIONS ARE:

## Natural hazard and disaster management

Decision makers need an accurate and stable global geodetic reference frame to make good decisions for the future and to identify areas under threat of flooding, earthquakes or drought and to adopt preventive measurements to protect them. Geodesy provides the location basis for such decisions.

## Climate change and sea level monitoring

Climate change is a global challenge that puts stronger requirements on the precision of the global geodetic reference frame. Geodesy provides information about sea level changes, plate movements, land uplift, and ice sheet and glacier changes. Global society requires information about current trends at a scale measured in millimeters to detect changes of the Earth system with sufficient accuracy, for local, regional and global planning.

To be able to monitor and estimate future sea level variations, significant improvements in both geodetic infrastructure and data analysis are needed.

## Geospatial information, mapping and navigation

'Location-based' services are becoming increasingly important in modern society.

The global geodetic reference frame supports satellite positioning technology and is a critical enabler of geospatial information interoperability and applications such as land titling and ownership, engineering construction, precision agriculture, intelligent transport and navigation.



UN-GGIM

United Nations Initiative on  
Global Geospatial Information Management

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