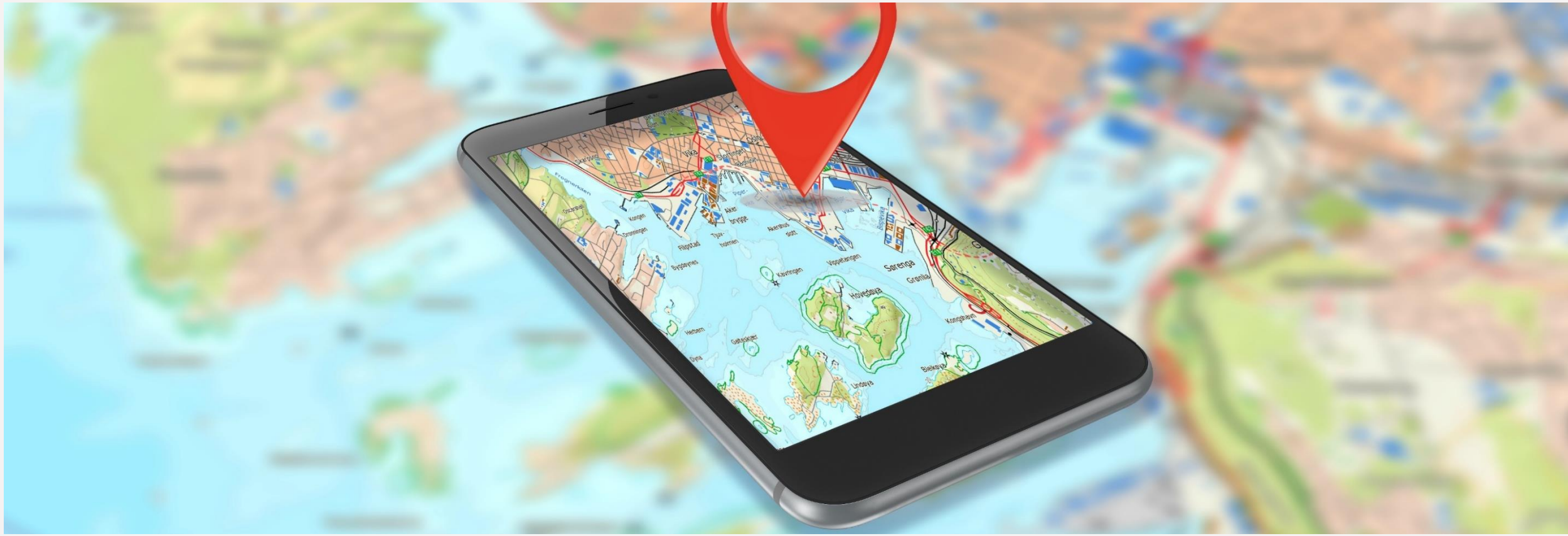
The Need for Enhanced Focus on Geodetic Reference Frames to Meet the Future Demands of Geospatial Data Management

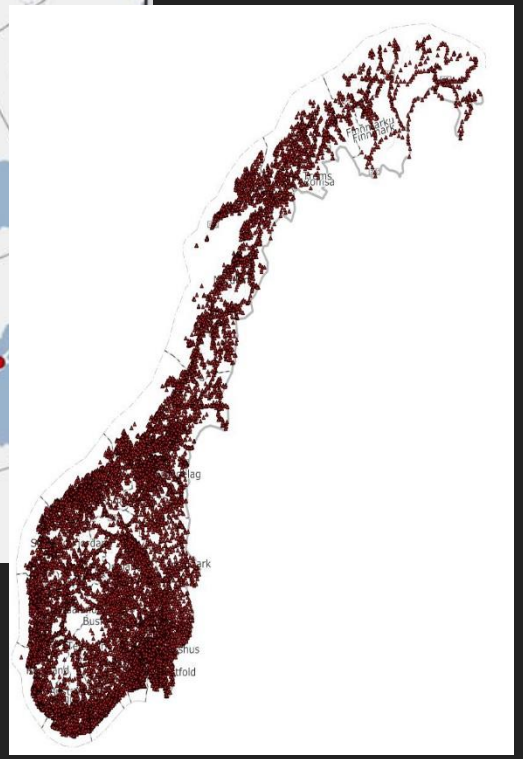
Eurogeographics, Riga, May 2025

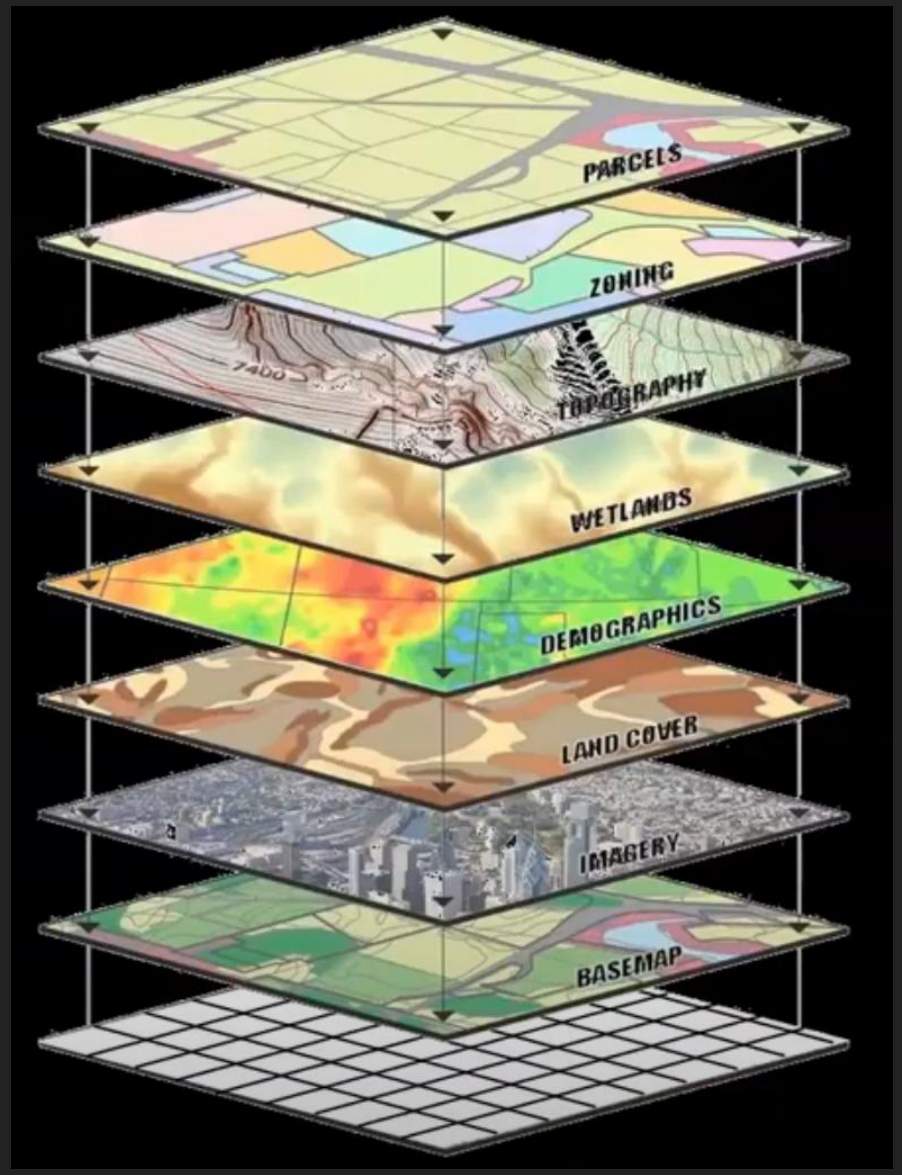


Kartverket

18.05.2025

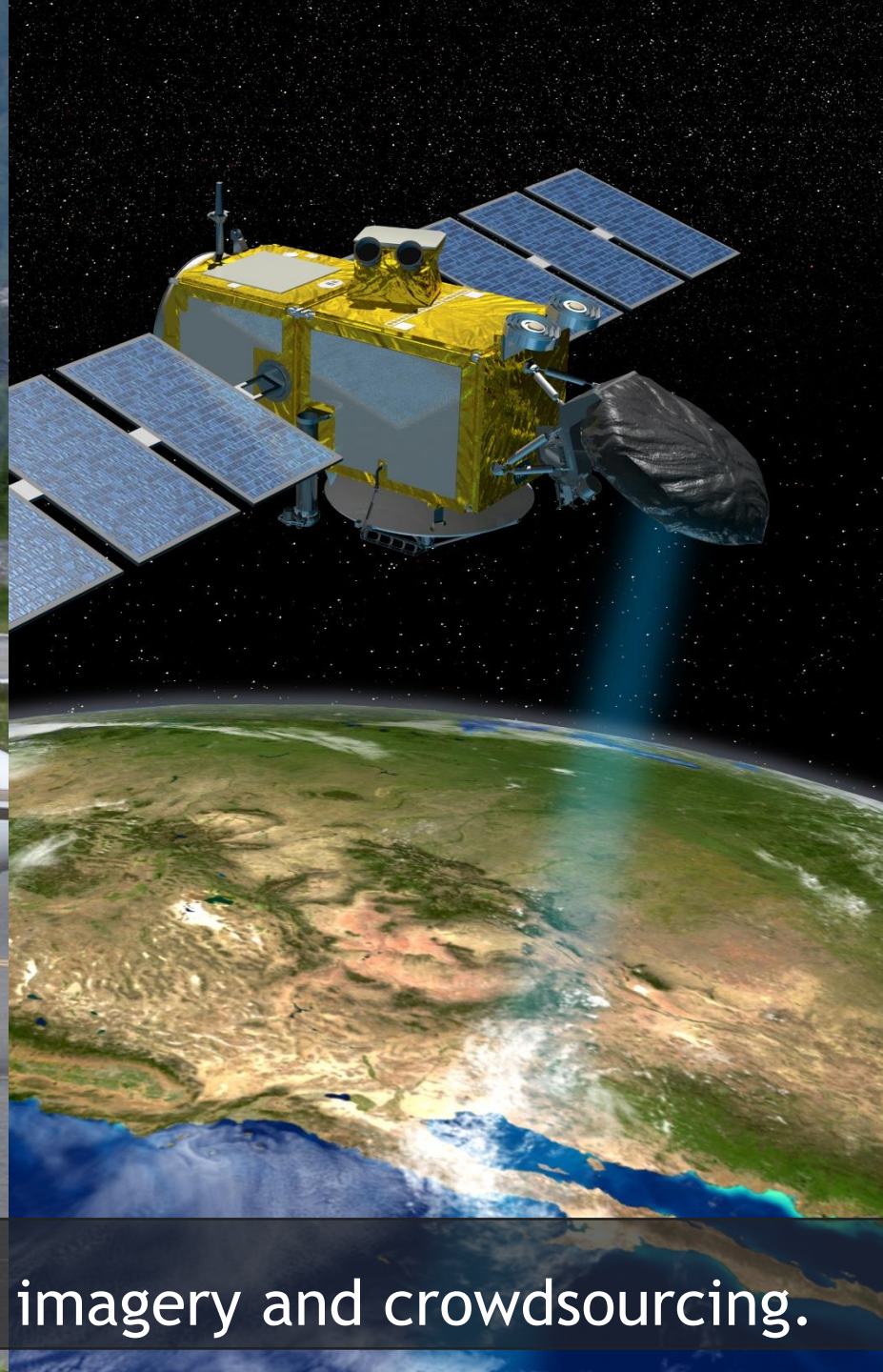
The geodetic reference frame





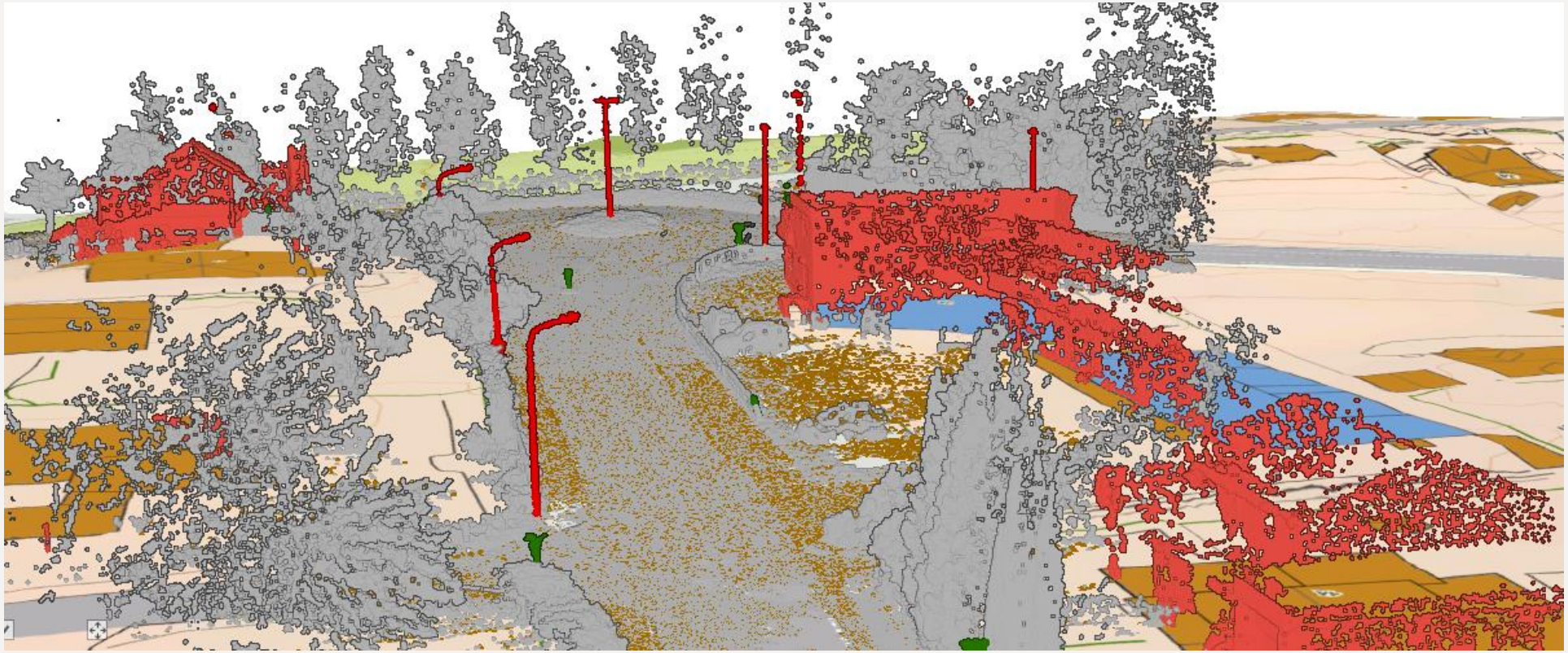
Geodetisk referanseramme

From land surveying to space geodesy and satellite navigation



"From field surveys and aerial photography to satellite imagery and crowdsourcing.

Crowdsourcing



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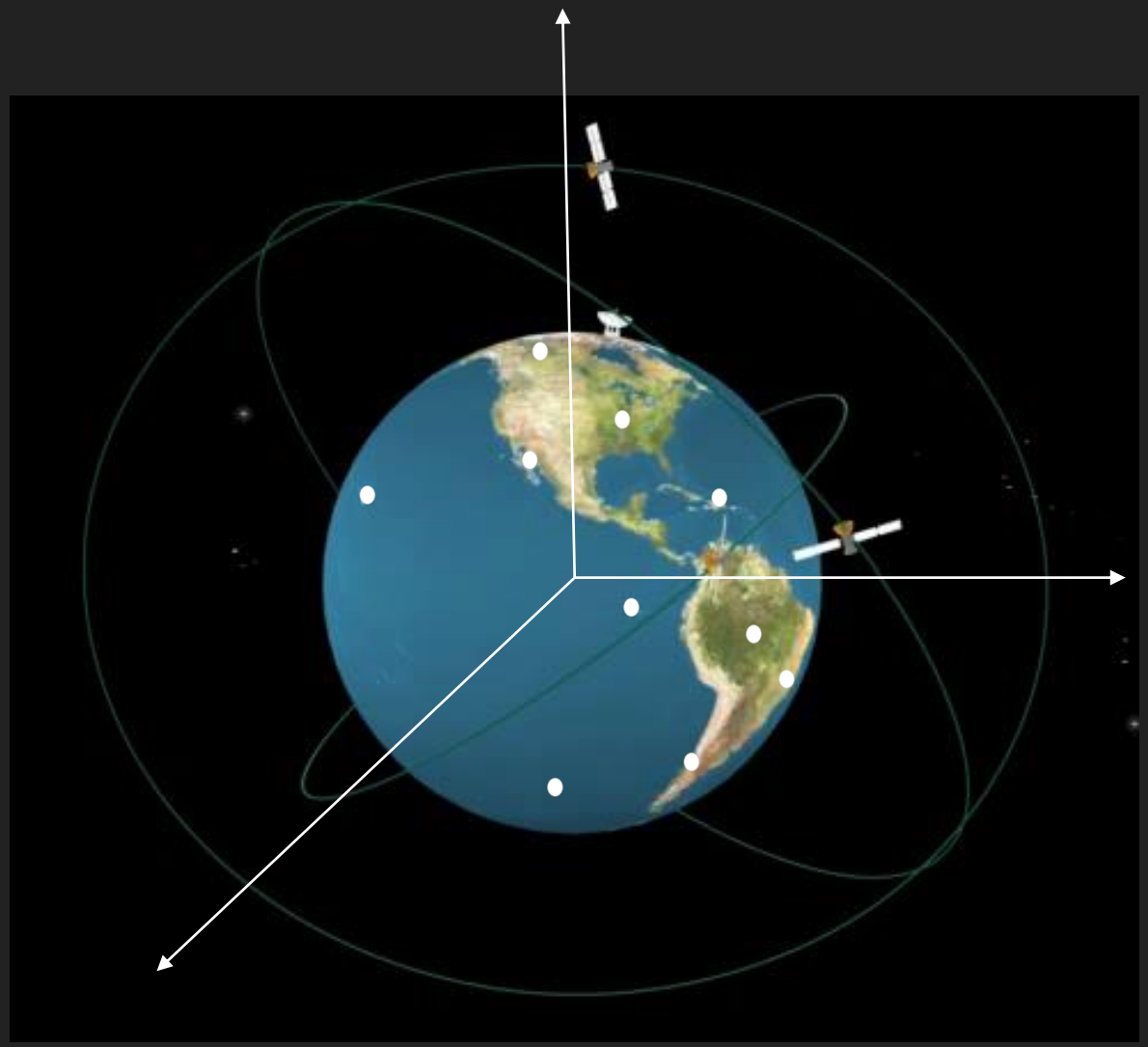
The global geodetic reference frame



Source: Internationalfinance.com

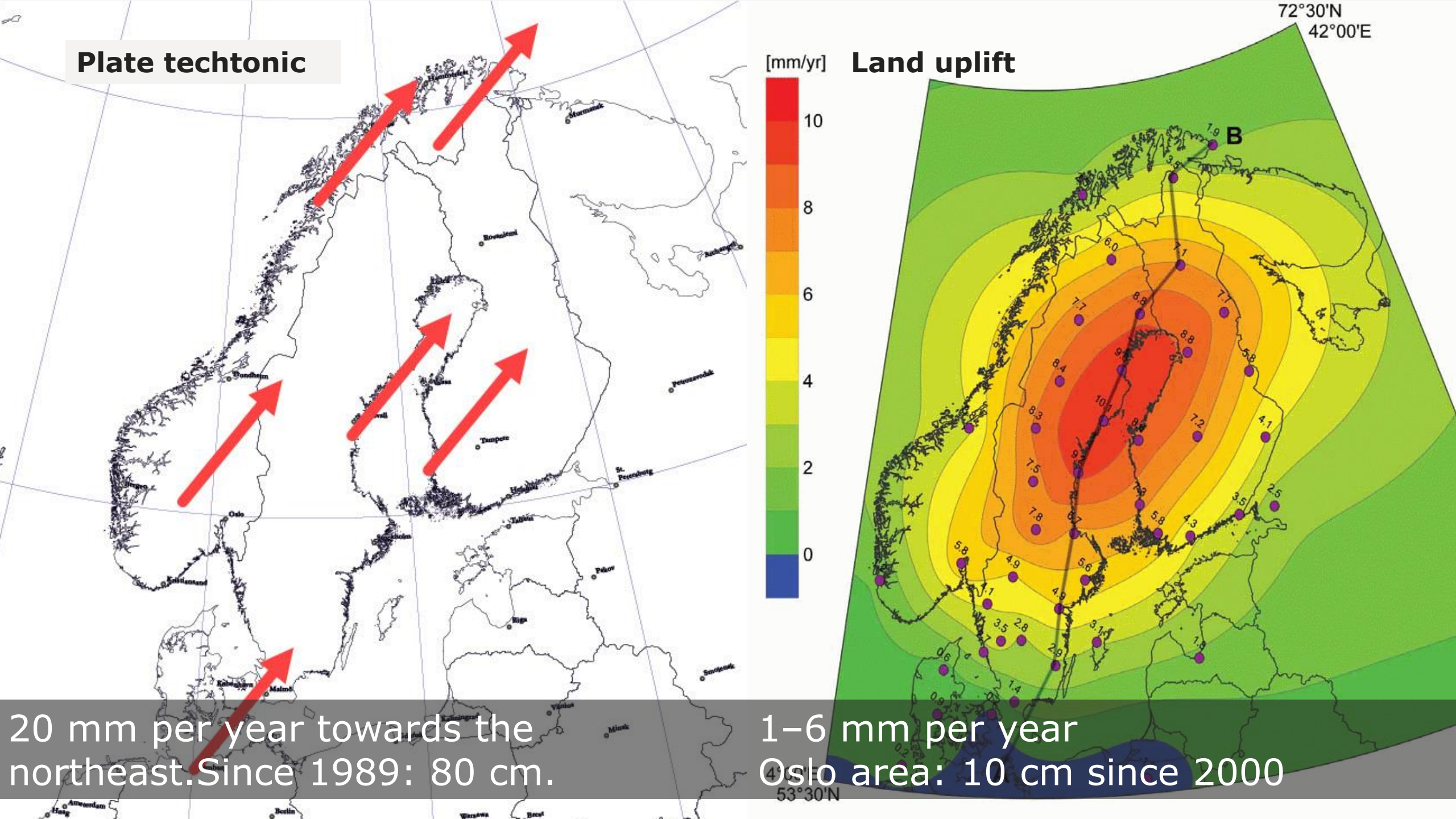
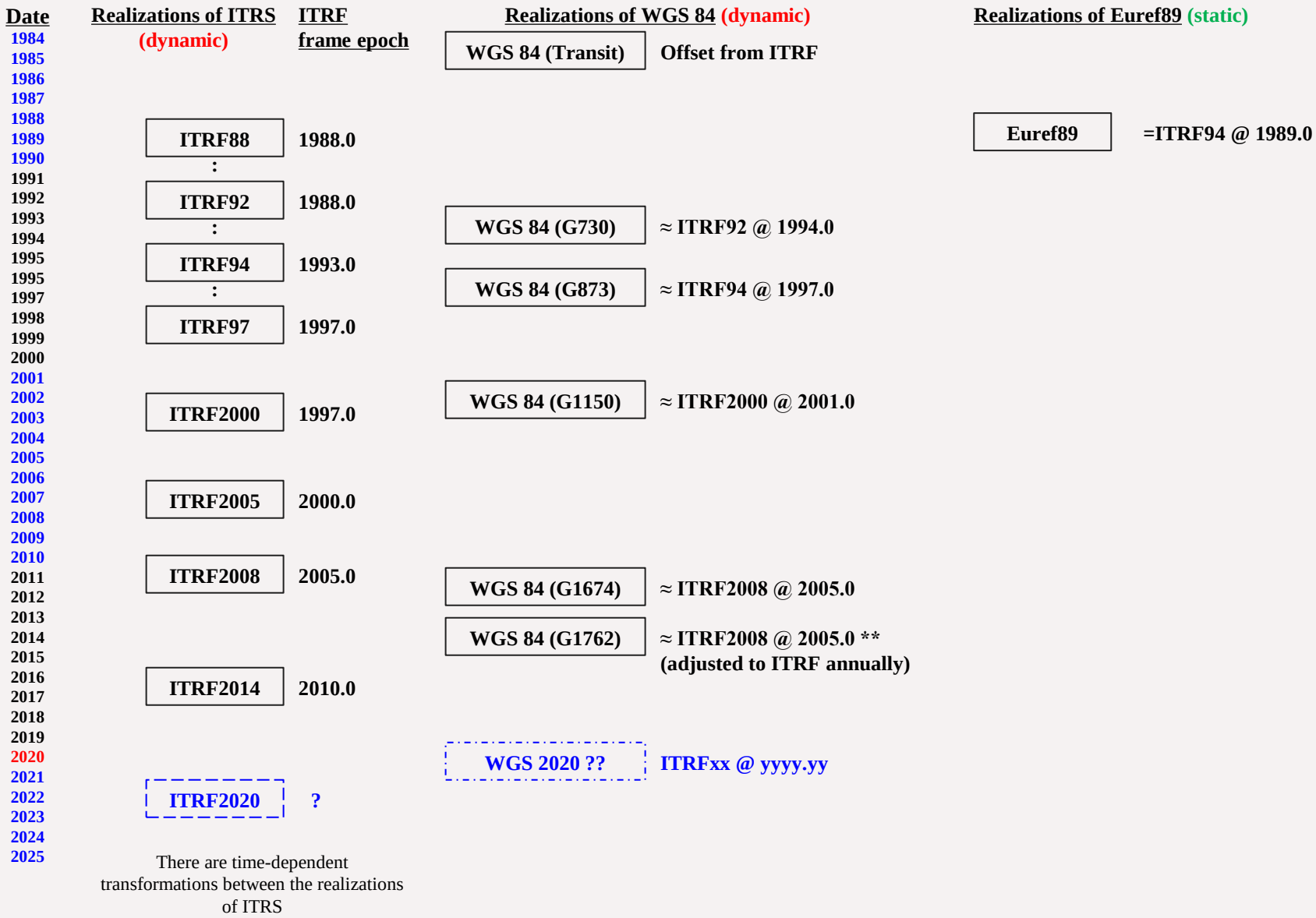


Plate techtonic
[mm/yr]
10
8
6
4
2
0
Land uplift
72°30'N
42°00'E
53°30'N
B
20 mm per year towards the northeast.Since 1989: 80 cm.
1–6 mm per year
Oslo area: 10 cm since 2000

Geodetic Reference frames

The relationship between ITRF, WGS84, and EUREF89



Recommendations - long term

Multi-Reference Frame Support: Future geospatial systems, both shared and user applications, must support multiple reference frames simultaneously to ensure compatibility across datasets.

Automatic Updates: Data systems should automatically update when reference frames are changed or updated, minimizing disruptions in map data accuracy.

Seamless Reference Frame Switching: Switching between reference frames should be simplified and automated, avoiding the need for complex, manual processes.

EUREF is responsible for the realization of the regional European reference frames. However, there may be a need for further encouragement to facilitate the transition towards global reference frames in Europe. This would enable position data from satellite systems such as Galileo and GPS to increasingly align with European geospatial databases.