

## Germany

Working Committee of the Surveying Authorities of the Laender of the Federal Republic of Germany (AdV)

# Ensuring a high-quality, consistent spatial reference for Germany

*“The results presented contribute to a high-quality and homogeneous spatial reference for the Federal Republic of Germany. The AdV’s spatial reference working group has made a valuable contribution to infrastructural public services by carrying out the GNSS measurement campaign and subsequently providing an updated integrated geodetic spatial reference. This makes it possible to integrate various technical topics of different types at the highest level of accuracy in the spatial reference.”*

**Karin Schultze**

AdV Chairwoman 2024/2025,  
Ministry of Infrastructure and Digital  
Affairs of the Land Saxony-Anhalt

The decision to introduce new coordinates by the official German surveying authorities in 2024 ensures consistency and quality in the integrated geodetic spatial reference. The new official spatial reference will be introduced as a realisation in 2025.

The new coordinates are the result of the GNSS measurement campaign carried out in summer 2021 on 250 geodetic basic network points. The evaluation was carried out at two computing centres – the BKG in Frankfurt/M. and the LGLN in Hanover. Both computing centres have access to the 24-hour observation data from at least two point occupations.

The campaign, delivered by approximately 35 measuring teams, was designed to be climate-friendly; around 100,000 km in driven distance was saved compared to the 2008 deployment whilst the same number of measurement points was covered. In the overall balance, this corresponds to an approximate 50% reduction of CO<sub>2</sub> emissions.

The results of the evaluation clearly show no nationwide uniform movements of the geodetic basic network points. In comparison with the existing official spatial reference, around 10% of the points show significant movements, particularly in height. Here, the expected geological movement rates in the centimetre range have been verified. The requirement for a position accuracy of 1 mm and a height accuracy of 2 mm for the point determination was met.

Geodetic reference network point “Altenberg” seen from South



© Christian Lewerenz (BKG)

## Benefits

- Ensures the consistency of the SAPOS® coordinates as a result of the uniform introduction of the new realisation.
- Confirms the quality of the existing official integrated geodetic spatial reference.
- Creates the basis for the introduction of new measurement methods such as the new official PPP-RTK service of the AdV.