



## **Scientific roadmap towards height system unification with GOCE**

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GOCE allows the determination of geoid heights with an accuracy of 1-2cm and spatial resolution of at least 100 km. An important application that will benefit from this is the global unification of the (over 100) existing height systems. GOCE will provide three important components of height unification: highly accurate potential differences (geopotential numbers), a global geoid- or quasi-geoid-based reference surface for elevations that will be independent of inaccuracies and inconsistencies of local and regional data, and a consistent way to refer to the same datum all the relevant gravimetric, topographic and oceanographic data. The paper summarizes results of a project supported by the European Space Agency and specifies a scientific roadmap on how GOCE can support world height system unification.