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Approach for a Global Height Reference System

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For Earth system monitoring the heights are main parameters for global changes. Physical heights are potential differences of the outer Earth gravity field at different positions. Long term monitoring of the vertical component of the Earth surface needs a standardized defined and realized global reference relating the geometry and the gravity field of the Earth.
In the last two decades, in several working groups of the International Association of Geodesy were different concepts for definition and realization of global height reference system discussed. Furthermore, the satellite gravity missions have the Earth gravity field data basis general extended. So far, it is possible to develop the present local and regional height reference systems concepts to a global approach.
The presented proposal has to be understood as a model that consider the present possibilities and actual needs for the realization of a global height reference system. It includes aspects for the combination of observations and products representing the geometry and the gravity field of the Earth.