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Operational infrastructure to ensure the long-term sustainability of the IHRS/IHRF

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An objective of the International Height Reference System (IHRS) and its realization (the IHRF) is to support the monitoring and analysis of Earth's system changes. The more accurate the IHRS/IHRF is, the more phenomena can be identified and modelled. Thus, the IHRS/IHRF must provide vertical coordinates and their changes with time as accurately as possible. As many global change phenomena occur at different scales, the global frame should be extended to regional and local levels to guarantee consistency in the observation, detection, and modelling of their effects. From this perspective, an operational infrastructure is needed to ensure the long-term sustainability of the IHRS/IHRF. In this contribution, we discuss the possibility of establishing such an infrastructure within the International Association of Geodesy (IAG) and its International Gravity Field Service (IGFS). Some aspects to be considered are:

- - Improvements in the IHRS definition and realization following future developments in geodetic theory, observations and modelling.
- - Refinement of the IHRS/IHRF standards/conventions based on the unification of the standards/conventions used by the geometric and gravity IAG Services.
- - Development of strategies for collocation of IHRF stations with existing gravity and geometrical reference stations at different densification levels.
- - Identification of the geodetic products associated with the IHRF and description of the elements to be considered in the corresponding metadata.
- - Servicing the vertical datum needs of other geosciences such as, e.g., hydrography and oceanography.
- - Implementation of a registry containing the existing local/regional height systems and their connections to the global IHRS/IHRF.