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Perspectives for relativistic potential and height reference

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With the recent progress in the development and testing of stationary and transportable optical atomic clocks and long-distance frequency transfer through phase-stabilized optical fiber, the technology and infrastructure for continental networks of optical atomic clocks is advancing. Questions arise how to use such networks for complementing and strengthening the existing global and regional potential and height reference, and how such an improved reference could be integrated in GGOS in the long run. We discuss perspectives to combine relativistic potential and height differences, e.g., in a first-order network with static and time variable potential and height data from other sources. We address accuracy expectations and complementarity issues for geodetic and geophysical applications. We refer to scientific activities of IAG Joint Working Group 2.1 and activities related to the International Height Reference System (IHRS).