Chronometric Height: a relativistic height definition by generalizing geopotential numbers

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A height definition in terms of geopotential numbers offers a variety of advantages. Moreover, from the theoretical point of view, such a definition is considered more fundamental.

We know, however, that relativistic gravity (here General Relativity) requires to reformulate the basic geodetic notions and to develop a consistent theoretical framework, relativistic geodesy, to yield an unambiguously correct interpretation of measurement results.

The new framework of chronometric geodesy that builds on the comparison of clocks offers fundamental insight into the spacetime geometry if a solid theoretical formulation of observables is underlying modern high-precision measurements. Here we approach a genuine relativistic definition of the concept of height. Based on the relativistic generalization of geopotential numbers, a definition of chronometric height is suggested, which reduces to the well-known notions in the weak-field limit.