



Geodesy beyond the geodetic goals

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Geodesy initiated by Human curiosity about the Earth and the Universe, evolved later on for many practical and engineering needs. The 3 main actual and recent aspects of Geodesy consisting of: a) mapping the Earth b) determining the Earth's rotation c) studying its gravity field, in space/time frame, is - since few decades now - gradually "fading out" giving rise to the Geodetic (geometry) concept in the new "types" of measurements and the satellite imagery acquired data that strongly depend on Physics. These are supposed to contribute in revealing the Earth's system dynamical attitude in several new aspects. In parallel by using such types of data, the parameters of particular parts of the Earth's system can be unraveled including the system's dynamical attitude as a non-linear physical process. As Geodesy evolves towards the use of acquired types of data based on various signal types, for understanding parts and the whole of the Earth's system, the presentation is composed by two parts: In the first part after a theoretical introduction it is argued that in the frame of Geodesy one may conceive and implement the successful deducing of new information by the geodetic measurements provided that these are considered under a slightly different point of view than their standard use so far. Such a viewpoint illustrates the duality of Geodesy as Geometry and Physics in a concept of non linear input-output multi-parameter systems. In the second part examples using GPS and Jason altimetry are used with "new methods" or "new viewpoints" that enable to acquire the information content about the Earth's system or about data features. Using Geodesy in Science and Engineering does not introduce controversy but provides instead a way to consider the potential of this subject beyond its standard objectives.