

On the derivation of local/regional geodetic system

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Abstract: The systemic and technological aspects in derivation of the national/regional integrated *geodetic system* are set out. Here, instead of consistency of three independently derived *reference systems*, the procedures are suggested which integrate networks, technologies, data and models connecting elements from different *reference systems*. The proposed procedures should be applied to the following areas 1) the design of layers of the complex *basic geodetic network*, 2) the measurement technologies in building of *network*, 3) the consistency of datums, 4) the modelling of inhomogeneous data, 5) the comparison and concordance of results, obtained by different methods. In order to analyse these procedures a term "*integrating process*" is introduced. The different elements, stages and varieties of these *processes* are set out. Two technological schemes for determination of the consistent parameters of *geodetic system* by means of *integrating processes* are proposed. The procedures for derivation of an integrated *system* with corresponding to it geocentric 4D *integrating geodetic datum* are outlined. It is suggested the materialization of the *system* to be realized by integral *basic geodetic network*. The *network's* structure and the possibilities of integrating technologies for determination of *quasigeoidal deviation parameters* are discussed. The integrating model for adjustment of 1D heterogeneous (leveling and GPS) height data with evaluation of the *basic quasigeoid* and the national/regional *vertical datum* is proposed.

Key words: geodetic system, integrating model, basic geodetic network, basic quasigeoid, vertical datum

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