



Investigation of temporal and spatial distribution of slant delay for low elevation angles on the basis of mesoscale weather model data

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The paper presents investigations of neutral atmosphere slant delay based on analysis and forecast fields from mesoscale weather model. The Coupled Ocean / Atmosphere Mesoscale Prediction System, Naval Research Laboratory, Monterey Marine Meteorology Division (COAMPS - NRL) was used. Model runs in operational mode in the Centre of Applied Geomatics (Faculty of Civil Engineering and Geodesy, Military University of Technology, Warsaw). Refraction fields required for calculation were interpolated from the model grid with the spatial resolutions of 13, 4.3 and 1.44 km for every hour in the 24-hour range. Slant delays were determined using ray tracing procedure - numerical realization of the eikonal equation solution. Spatial distribution of delays was obtained in the process of atmosphere scanning for the ASG-EUPOS sites positions. The scanning was performed in topocentric frames for the elevations [30 - 150] and azimuths [00 - 3600]. The results enabled preliminary estimation of temporal and spatial slant delay fields changes and their dependencies on mesoscale model grids resolution. The results also helped to make the anisotropy characteristics of their local spatial distributions.