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Fast Marching method for GPS slant delay determination

Krzysztof Kroszczyński (1), Jarosław Bosy (2), Janusz Bogusz (1), Mariusz Figurski (1), and Karolina Szafranek (1)

(1) Centre of Applied Geomatics, Faculty of Civil Engineering and Geodesy, Military University of Technology, Warsaw, Poland, (2) Department of Geodesy and Photogrammetry, Wrocław University of Environmental and Life Sciences, Poland

The paper presents method of GPS tropospheric slant delay determination on the basis of data from mezoscale weather model - Coupled Ocean/Atmosphere Mesoscale Prediction, System (COAMPS) Naval Reseach Laboratory. The calculations of slant delay are related to 3D(2D) maps of GPS signal propagation velocities in the atmosphere and associated maps of distances, which contain information about geodetic distances (time of propagation) between GPS station and atmosphere's points. The algorithm fast marching (Dirk-Jan Kroon - University of Twente) written in Matlab language has been used for the estimation of different weather conditions impact on slant delay. Anisotropic slant delay fields can be used as the direct 3D prognostic mapping functions. Currently, the test are carried on polish ASG-EUPOS system (Active Geodetic Network-European Position Determination System).