

A priori gradients in the analysis of GPS and VLBI observations

P. Steigenberger, V. Tesmer, J. Böhm

This presentation addresses the question whether there is utility in using a priori gradients for the analysis of GPS and VLBI observations.

GPS re-analysis solutions were determined at GFZ Potsdam with a very simple latitude-dependent gradient model to check the influence of a priori gradients on the terrestrial reference frame. These investigations show that there is a clear systematic behaviour of station coordinates if no residual gradients are estimated, but that there is hardly any difference if gradients are estimated in the solutions. Global VLBI solutions at DGFI with station-dependent a priori gradients confirm previous findings that there is a systematic effect of a priori gradients on the estimation of source coordinates, but as far as the terrestrial reference frame is concerned the effect is small if not negligible if residual gradients are estimated.