



Deformation analysis of Northern Victoria Land with VLNDEF GPS network

A. Capra.(2) for Geodetic Team – PNRA -Italian Research Program in Antarctica
DIMeC – University of Modena and Reggio Emilia

Capra.alesandro@unimore.it

The crustal deformation field has been analyzed for the northern Victoria Land with VLNDEF (Victoria Land Network for DEFormation control) GPS network . Three complete surveys of the network and other partial measurement repetitions have been carried out since 1999. Data processing and analysis of relative and absolute movement and deformation have been estimated using a local and a regional approach; the network has been adjusted in global reference frame (ITRF).

The processing and analysis have been done on periodical acquisition and on long time series from long time station occupation and GPS permanent trackers. The seasonal signals affecting GPS long-time series have been analyzed, overall on the vertical component, which is essential in order to detect effects, such as or Post Glacial Rebound either Air Pressure and Ocean loading.

A comparison between the results obtained from Bernese GPS, GIPSY-OASIS II, GAMIT-GLOBK, GPS data processing software in terms of solution stability, station coordinates and velocity have been done. The more affordable results have been analyzed through a finite elements approach in order to define the horizontal displacement field and the related deformation parameters.