

Dissertation Release

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GNSS observations in the maintenance of reference frames

Title of the dissertation	Reference frame densifications for Nordic and Baltic countries – from local analysis to common and consistent GNSS solutions
Contents of the dissertation	<p>Coordinates describe locations in respect to a certain reference frame. The Finnish national reference frame, EUREF-FIN, is the basis for geographical information in public and private sectors in Finland. It was created in the late 1990s, but its accuracy has decreased during the past decades due to the Fennoscandian postglacial rebound. As the renewal of the national reference frame would have very broad consequences, it is profitable to extend its lifetime by developing methods to maintain it.</p> <p>The dissertation defined long-term coordinate and velocity solutions for Global Satellite Navigation System (GNSS) reference stations in the Nordic and Baltic countries that are necessary for the maintenance of the national reference frames. The solutions contribute to the deformation modelling of the area and to the development of the coordinate transformations between global and national reference frames.</p> <p>The research focused on developing methods to combine combination of the local sub-nets, analysis of the time series, and estimating a multi-year position and velocity solution. The research enhanced knowledge of the GNSS stations and their time series in the Nordic and Baltic countries that is essential while interpreting and utilizing the results in the maintenance of the reference frames and other geophysical studies.</p>
Field of the dissertation	Geoinformatics
Doctoral candidate	Sonja Lahtinen, M.Sc. (Tech.), born in 1985 in Helsinki, Finland
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