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# Civil Engineering '13

International Scientific Conference

Programme/Abstracts

# Būvniecība '13

Starptautiskā zinātniskā konference

Programma/Kopsavilkumi

Jelgava 2013

LATVIA UNIVERSITY OF AGRICULTURE  
FACULTY OF RURAL ENGINEERING  
DEPARTMENT OF ARCHITECTURE AND BUILDING  
DEPARTMENT OF STRUCTURAL ENGINEERING  
DEPARTMENT OF LAND MANAGEMENT AND GEODESY  
DEPARTMENT OF ENVIRONMENTAL ENGINEERING AND WATER  
MANAGEMENT

LATVIJAS LAUKSAIMNIECĪBAS UNIVERSITĀTE  
LAUKU INŽENIERU FAKULTĀTE  
ARHITEKTŪRAS UN BŪVNICĪBAS KATEDRA  
BŪVKONSTRUKCIJU KATEDRA  
ZEMES IERĪCĪBAS KATEDRA  
VIDES UN ŪDENSŠAIMNIECĪBAS KATEDRA

**CIVIL ENGINEERING '13**  
International scientific conference

ABSTRACTS

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KOPSAVILKUMI

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## DISPLACEMENTS AT THE GNSS STATIONS

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The daily movements of EUPOS®-RIGA and LatPos permanent GNSS networks' stations have been studied. Reference stations from EUREF Permanent Network (EPN) have been used and Bernese GPS Software, Version 5.0, in both kinematic and static modes was applied. The standard data sets were taken from IGS data base.

The impact of solid Earth tides on the site coordinate changes has been studied as well.

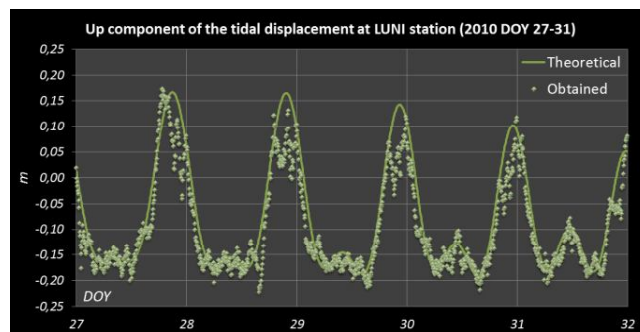


Figure 1. The solid Earth tide caused vertical displacements at LUNI station

The tide caused deformations of the Earth crust create vertical movement of the site with the maximum amplitude of 30 cm according to the theoretical estimates. The maximum value of the solid Earth tide caused vertical displacement obtained for the EUPOS®-RIGA stations is 34 cm for selected observation periods.

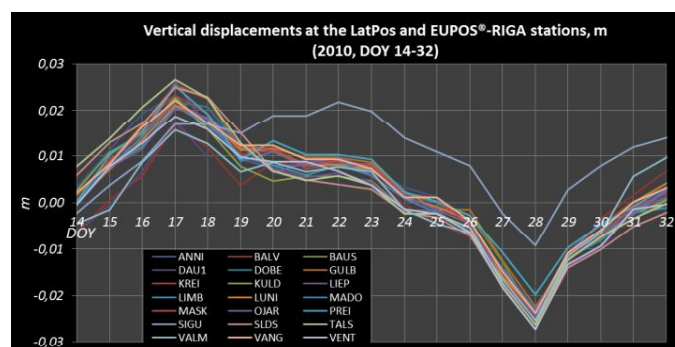


Figure 2. EUPOS®-RIGA and LatPos stations' height time series

The results of sites' height time series have shown some coherence between extreme values of the vertical displacements at the Latvian GNSS stations and distribution of solid tidal wave. As well as dissimilar height values at some LatPos stations could be distinguished.