Geophysical Research Abstracts,
Vol. 10, EGU2008-A-05108, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-05108
EGU General Assembly 2008

EUPOS-RIGA and SLR EUPOS-RIGA and SLR

M.Abele (1), **J.Balodis** (1,2), I.Mitrofanovs (2), A.Rubans (1), G.Silabriedis (1,2) and A.Zarinsjh (1)

(1) University of Latvia, Latvia, (2) Rigas GeoMatrs SIA, Latvia

(janis.balodis@lu.lv / Fax: +371 67034436 / Phone: +371 67034436)

Several research teams have been outgrown from the SatelliteTracking station of the former Astronomical Observatory of the University of Latvia (LU). One of them is an Institute of Geodesy and Geoinformation (GGI) which has been created in 1994 by quitting the Astronomical Observatory. Actually the Institute of Geodesy existed at the University of Latvia in time span 1924 – 1944. After the World War II the Latvian geodesy specialists continued their activities by teaching land surveying in both the Agriculture University of Latvia and Riga Technical University.

There are two research branches were developed at the Institute of Geodesy and Geoinformation. One of them raised from the former team of astrometry plate reduction and continued their work in geo-informatics. Other one continued the research in SLR hardware and software development. There were rather hard for research activities in Latvia at the years before joining to EU. Currently the situation has improved significantly.

The topic we want to talk is a ground based satellite tracking system developed in GGI in cooperation with a Riga municipality surveying company named Rigas GeoMetrs SIA. The system consists of a EUPOS-RIGA GNSS RTK 5 reference station network developed by Rigas GeoMetrs SIA and a satellite laser ranging system developed by GGI. The JAVAD GNSS chock ring antennas calibrated in Garbsen, Germany. The heights of antennas were determined by levelling to the 1-2 order levelling benchmarks. The analyses centre's server at the GGI and the GNSS receivers connected via optical cables and the signal from each receiver is received in GGI with a latency of

1-2 msec. The Geo++ network solution software GNSMART is used. The SLR hardware and software is designed in GGI by integrating advanced industrially produced components. The experience gained by the SLR personnel in Riga has been applied. There is an alt/alt original small size telescope mount, EKSPLA diode pumped 17 mJ laser with a 50Hz frequency and a 35 psec pulse.

A032-ET event timer and the Quartzlock (UK) GPS steered time service applied.

Hamamatsu PMT used. SLR is placed on the roof of 150 years old 5 stair University building. The joint system of both the GNSS network and SLR will be applied for LEO satellite positioning, The results could be used for geoid improvement, occultation studies (GOCE, GRACE, Terra-SAR) etc... The EUPOS-RIGA network is used by surveyors for multifunctional positioning and navigation applications.

Acknowledgement. The funding for the SLR development was covered by EUREKA E!3095 project, ERAF Contract VPD1/ERAF/CFLA/05/APK/2.5.1./000081/039, by Ministry of Economics of Latvia, Rigas GeoMetrs SIA and by University of Latvia.