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Ukraine SLR stations: the current state and future.

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Abstract. *Ukraine have feasible participation in SLR. We have 3 active station. The current state of Ukraine network, successes and troubles are presented. The futures plans and perspectives are described.*

Introduction

Ukraine laser ranging network consists of three active stations, that make regular observations according to ILRS program. These stations are of third generation in general [Pavlis, 2008]. Despite of that their location results have no good precision, as compared with the best third generation stations. During the last two years we made a serious success to increase the precision of our stations twice.
The head of the Ukrainian network is Myhailo Medvedskyy. Some parameters of our stations are presented at the table 1.

Table 1. Some information about Ukraine stations.

	Golosiyv-Kyiv	**Simeiz**	**Katzively**
Laser	Nd:YAG, 532 nm, 10 Hz, 3 - 15 mJ	Nd:YAG, 532 nm, 3-10 Hz, 30 - 80 mJ	Nd:YAG, 532 nm, 3-10 Hz, 100 mJ
Telescope	TPL-1, 1m	TPL-1, 1m	TPL-1, 1m
Expected overall accuracy of the system	2 cm	2 cm	2 cm
	Number of observations from 01.01.2013		
LEO	1162	1109	1209
Lageos	201	198	226
HEO	81	30	16

Station “Golosiyv-Kyiv” (1824) is the property of the National Academy of sciences of Ukraine. It is situated in the north of the country, in Kyiv, was founded in the 1985, active work from 1997.Station “Simeiz” (1873) is the property Taras Shevchenko National University of Kyiv. It is situated in the south of the country, in Crimea. Station “Katzively” (1893) is the property of the National Academy of sciences of Ukraine. It is situa- ted in the south of the country, in Crimea.

Also, in the Ukraine, we have some other stations, that don't work for ILRS due to different reasons. The laser transmitter of the Lviv University SLR station 1831 “Lviv” was out of order, is repairing now and that is why the station has made only 9 observational sessions during the last year. Two stations of the National Space Agency in Yevpatoria and Dunaivtsi can't obtain high precision

observations and they are not very suiteted for the laser observations. Anywhere these stations have good four-channel telescope systems and most of the time they work in other astronomical programs, in particular, for monitoring of the space debris. All the data, obtained by these stations, are collected in our internal database of SLR observations [Zhaborovskyy, 2013]. Database available by http://eop.mao.kiev.ua/robots/description.html

Achievements and results.

The regular observations according ILRS program are provided by Ukrainian stations.
Stations 1824 and 1893 fulfill the ILRS quotas for LEO satellites. Quotas for Lageos satellites are possible to perform only with the daylighting observations. Unfortunately they are still not performed at our stations. All stations significantly increased the precision of the observations, for example, the station 1873 – more than twice.

Plans for the future.

During the next year we plan to provide improved epoch timing system at the stations 1824 and 1893, modernize the receiving channel at the station 1824 and set new laser transmitter for the station 1893.
During the next five years we plan to organize the station for the GGOS project. Most likely, this GGOS station will be based upon station 1893 and will consist of GNSS, VLBY and SLR observation points [Yatskiv, 2013].

References

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