Satellite Laser Ranging in the University of Latvia Since 1971

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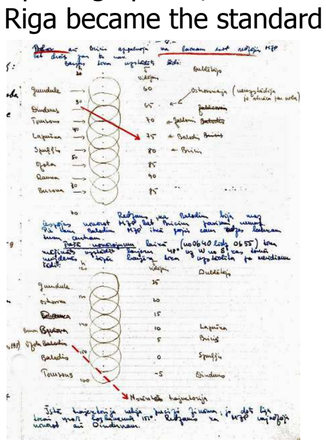
The **SLR station Riga** started as a visual satellite observing site in 1957 when the first satellite "Sputnik-1" was launched. The first Sputnik-1 observation was done in November 13, 1957.
Later satellite tracking methods were changed to photographical, then to laser.
The photographical camera AFU-75 designed in Riga became the standard camera for the Soviet Union-led Global Network.

Students training for visual observations of first Earth satellite, AT1 scope



Observation Log, November 13, 1957

Satellite photographical camera AFU-75 in Riga

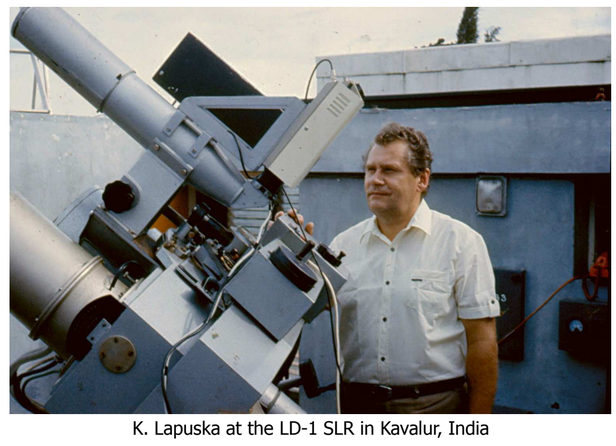
"InterKosmos" sites with the AFU-75, the Riga designed Telescopes SLR systems outside USSR in Red

The first SLR measurements were made in 1971/1972 within the frame of the "InterKosmos" program.
The SLR systems LD-1 and LD-2 mechanical and optical parts were assembled in the Optical-Mechanical factory in Riga, and tested at the Satellite Tracking Station.
The first exemplar of "InterKosmos" LD-1 SLR system was assembled and tested in Riga and installed in Helwan, Egypt in 1972/3 for regular satellite tracking.
This LD systems were installed during the 70's and 80's at sites around the world: Egypt, Bolivia, Cuba, India, Ecuador, Vietnam and in places inside the Soviet Union.

LD-1 testing in Riga, 1975.
Left: A. Rubans, right K. Lapuska

LD-1 Riga's system original control room

Sending the container with the InterKosmos LD-1 system to Helwan, Egypt.



K. Lapuska at the LD-1 SLR in Kavalur, India

Finally in 1987 the permanent SLR system LS-105 was installed on the monument which previously hosted a Carl-Zeiss Jena SBG satellite photographic camera.
After testing, the second produced, and first unit of the regular production series TPL(LS-105) telescope, was installed and is still in operation.
In 1996/97 the SLR system ULIS-630 was operated: total 39 passes, including 14 Lageos.

First pass milestones:

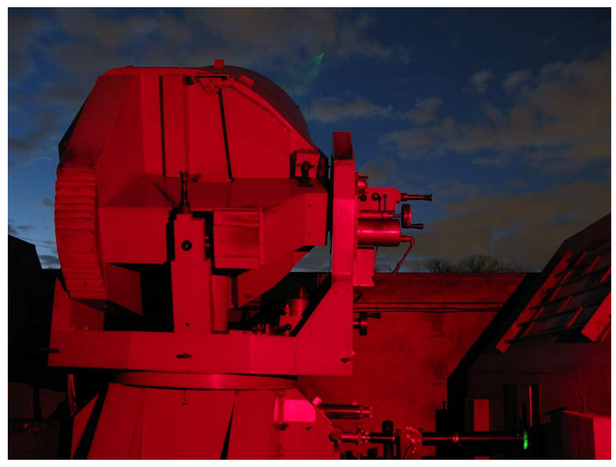
Lageos-1	September 9, 1987
Etalon-1	March 19, 1989
Etalon-2	October 24, 1989
Lageos-2	December 24, 1992
Glonass-67	August 11,1995
Glonass-63	August 25, 1995
GPS-35	September 5, 1995
GPS-36	October 4, 1995

Other milestones:

- Operation of the ULIS-630 system in Riga, 1996/97.
- Collocation with MTLRS – from August 5 to October 4, 1991
- Riga Station joins EUROLAS after 1991
- First daylight tracking in March 3, 1996: ERS-1, ERS-2, GFZ-1

MTLRS arrival for collocation, SLR Station Riga 1991.

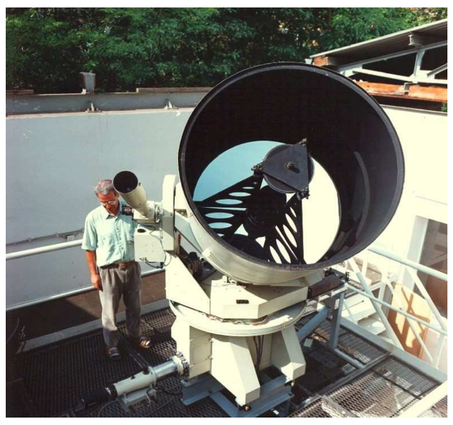
ULIS-630 SLR in Riga, 1995.



Riga's LS-105 measuring at sunset.

Hardware development: many different SLR systems has been designed, prototyped and in some cases field-tested since the 80's

Testing the ULIS-630 SLR at Stara Zagora, Bulgaria, late 80's



TPL telescope at GFZ Potsdam, 1993

Testing the Riga's PLRS in Yarragadee, Australia.
M. Abele on the left

Testing the experimental portable SLR system for LEO, 2007
(Roof of University of Latvia Building, central Riga)

Winter panorama of the Station Riga 1883, the SLR building is on the right behind the metallic trailer (arrow), the pillars supporting the mobile roof are visible besides the stone tower

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