ILRS Fall 2007 Workshop
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Upgrading of the Borowiec SLR station in 2006/2007

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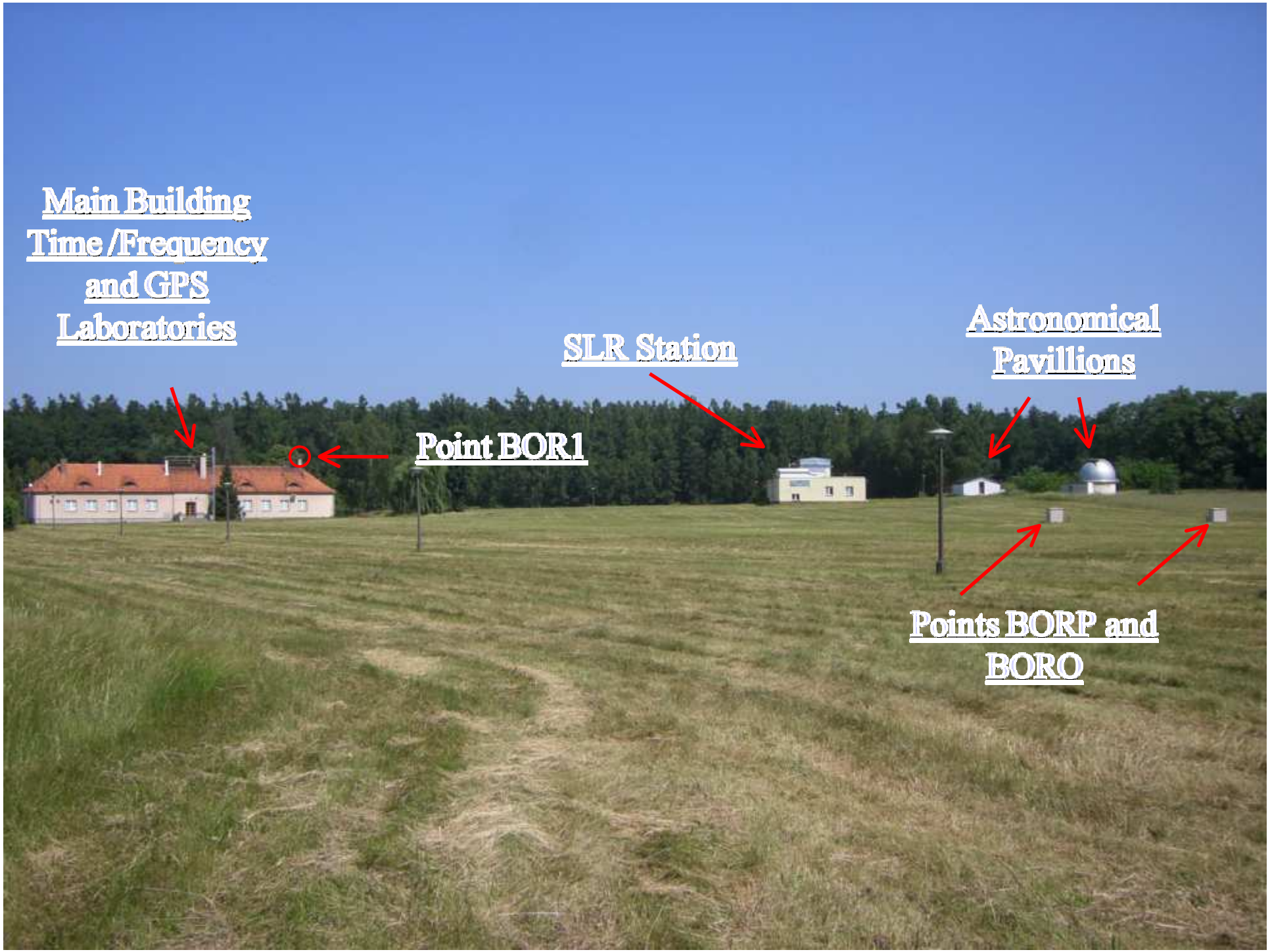

Main Building
Time /Frequency
and GPS
Laboratories
SLR Station
Astronomical
Pavillions
Point BOR1
Points BORP and
BORO

Main goals

better appearance of the SLR rooms and building
more comfortable working conditions for operator
better conditions for electronics – devices
new more effective control system

observations of the high satellites, mainly GALILEO
better efficiency, especially in the difficult weather conditions
improvement of the single shot precision and accuracy of the satellite passes
participation in Eurolas Status Exchange

First step – renovation of the SLR building

last satellite pass: November 8, 2006
first satellite pass: March 17, 2007

modernization of the laser and operators rooms
new air-conditioned section for electronics
renovation of outside and inside parts of the SLR building

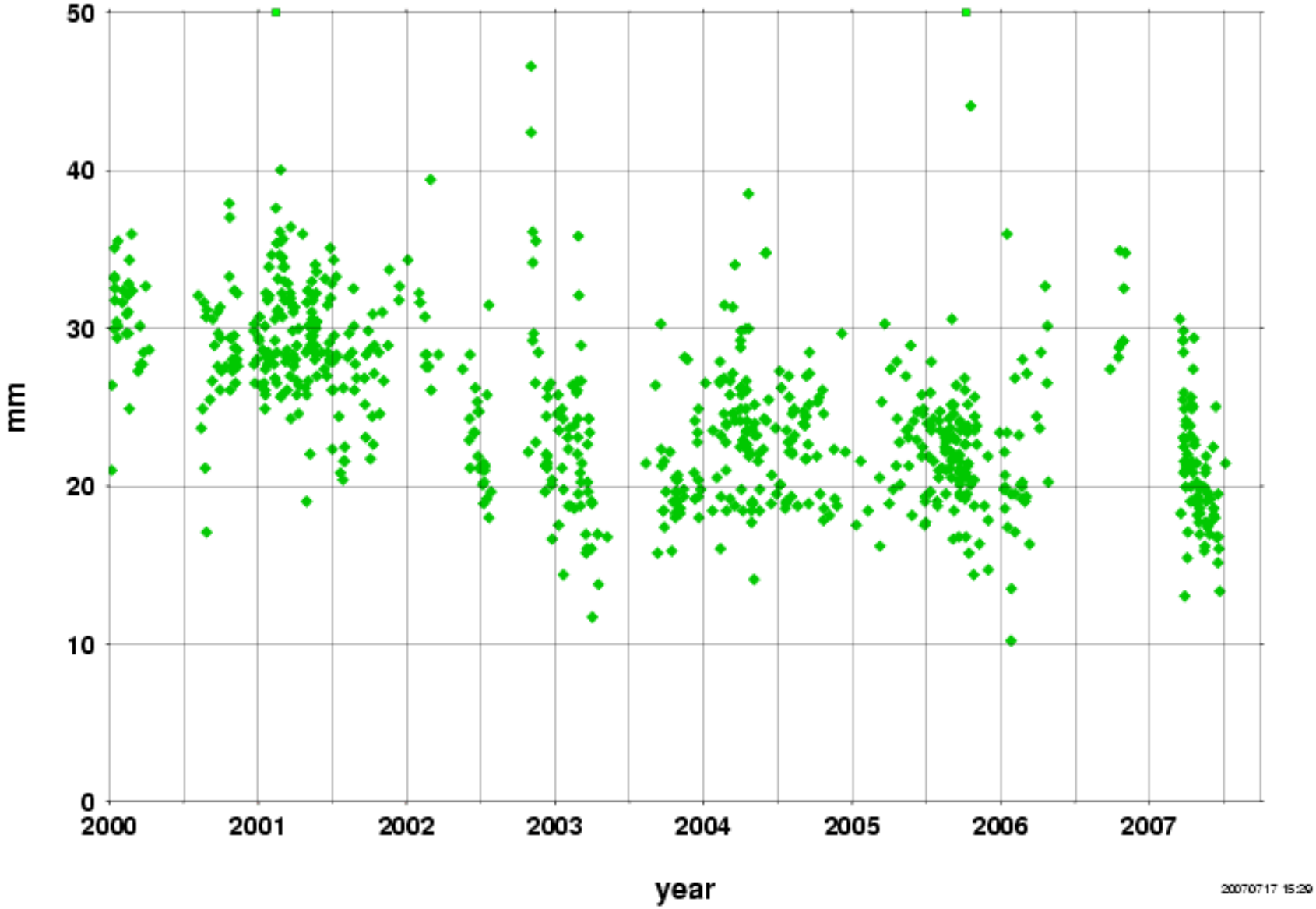
Adjustment of the Nd:YAG laser by service: April 24, 2007

single pulse instead two-three instable pulses
energy stability < 5%

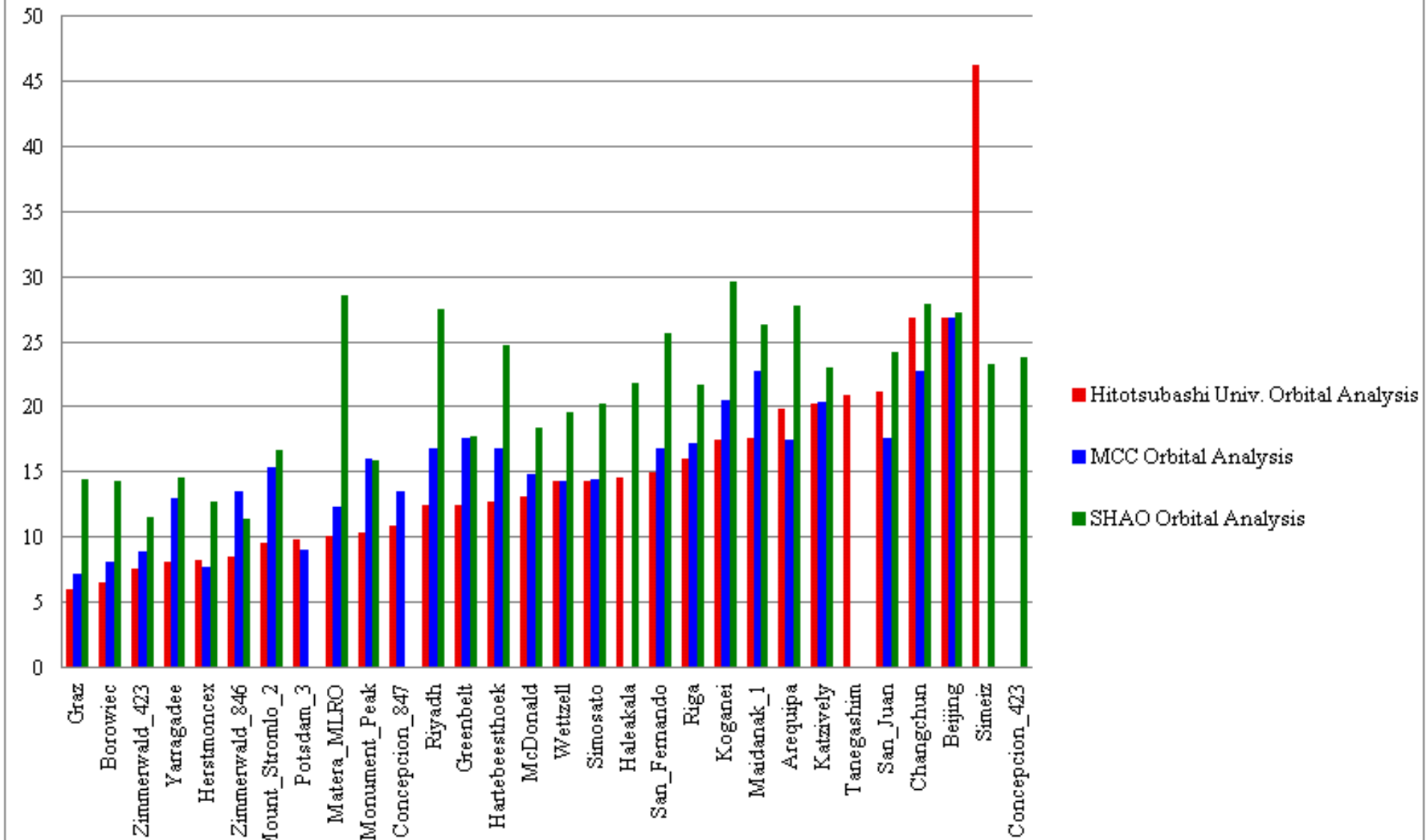
Borowiec, Poland 7811

pass LAGEOS rms

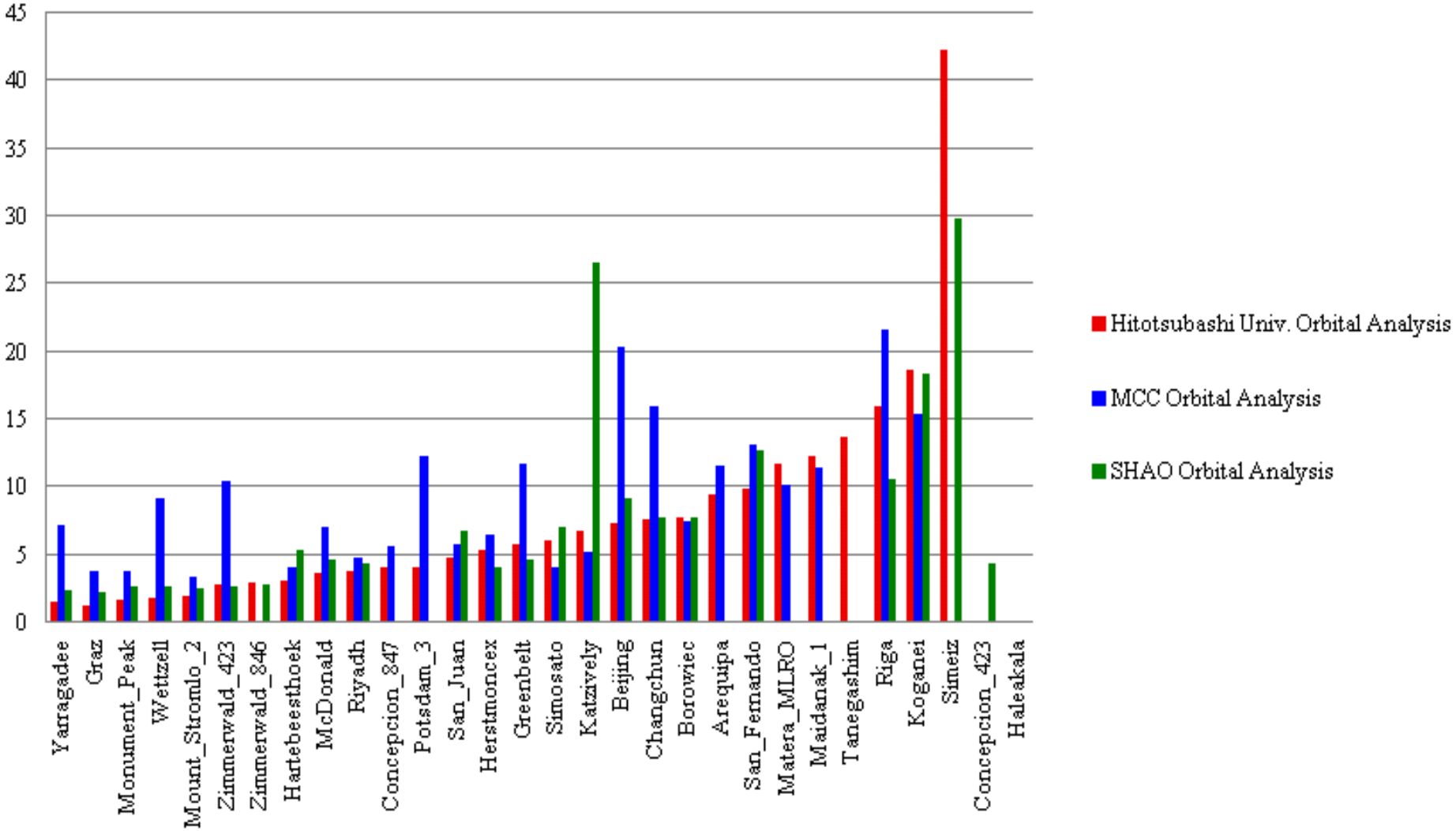
ave 24.84 st_dev 5.44 max 51.86 min 10.19 for 769 data points



SLR Global Performance Report Card - 2007 2nd Quarter
short term stability (mm)



SLR Global Performance Report Card
July 1, 2006 - June 30, 2007
long term stability (mm)



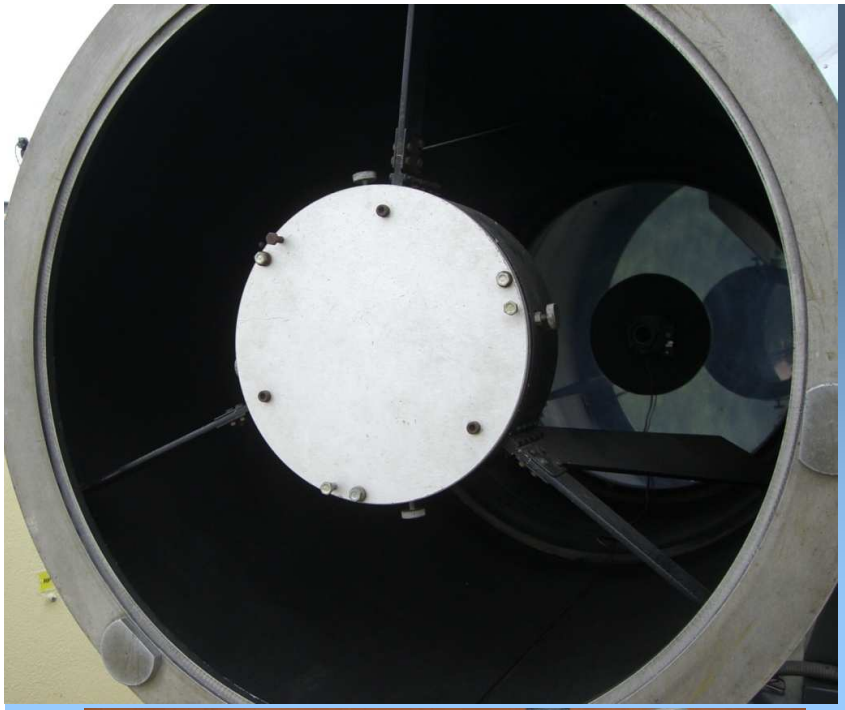
Second step – modernization of the SLR system

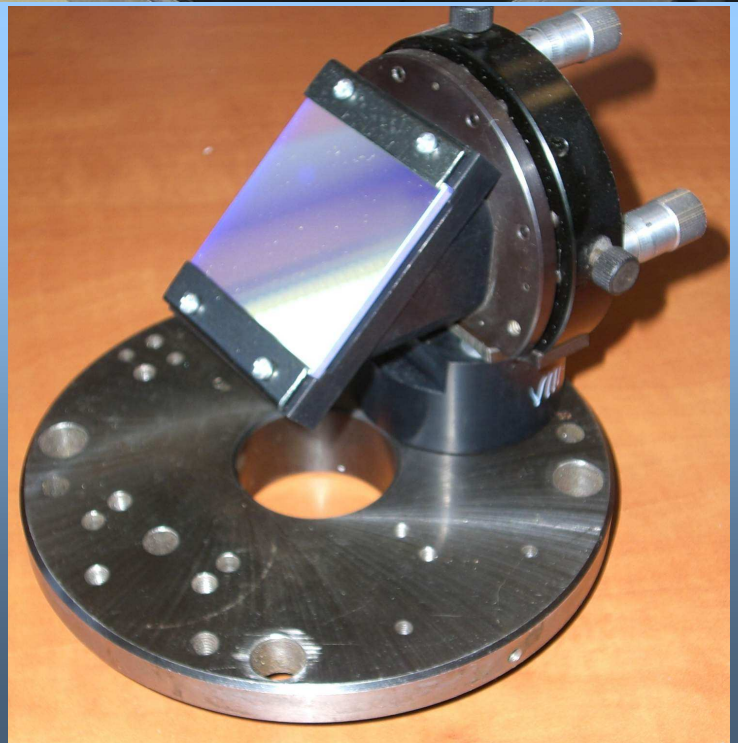
last satellite pass: July 8, 2007
first satellite pass: ? probably October 2007

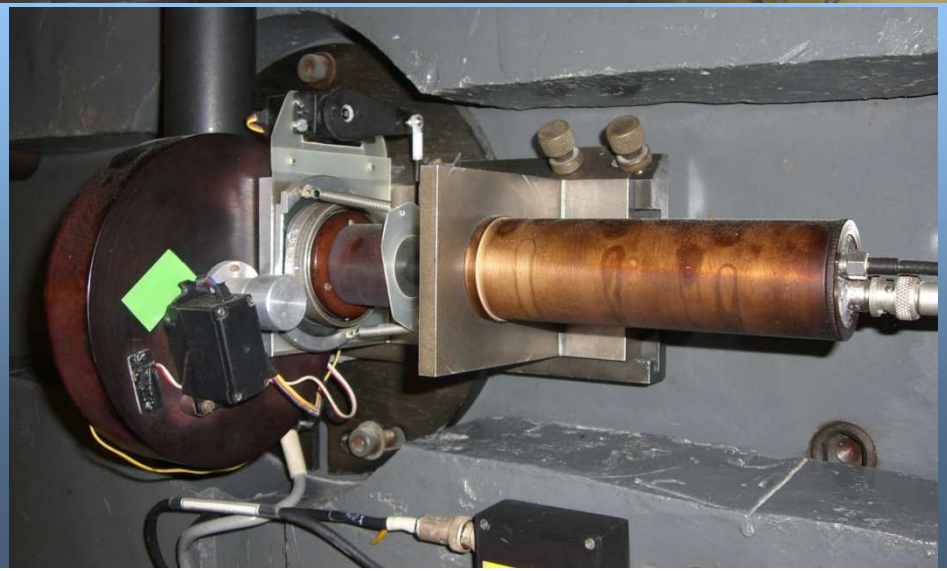
modernization of the optical parts of the telescope:

new cover of the main and secondary mirrors
installation of the new dielectric mirrors in Coude path with a new adjustment system of the mirrors
installation of a new transmitting telescope with remote adjustment of output beam divergence
new optical elements in receiving part (interference filter, neutral filters, collimation lenses, dielectric mirror, spatial filter)
installation of the sensitive CCD camera for control of the laser beam position, satellites and stars by the main mirror

installation of a new Hamamatsu
MCP-PMT R5916U-64-3MCP (QE 30%)







GATE
SIG.OUT
+HV
HAMAMATSU
& CHARGING UNIT
POWER
OUTPUT VOLTAGE (kV)
OUTPUT VOLTAGE ADJUSTMENT
DISPLAY ON/OFF
BATTERY CHARGING
IN PROGRESS
TERMINATED
& CHARGING UNIT
POWER
TRIGGERED
PULSE WIDTH
PULSE AMPLITUDE ADJUSTMENT
MANUAL TRIGGERING
BATTERY CHARGING
9 4 0

Software upgrading

New control system:

SLAVE computer – input/output control cards
MASTER computer – real time software
all under DOS or Linux operation systems

Effect:

faster and more effective operations
remote control of the most devices
more accurate gating system (max. 1 ns)
Eurolas Status Exchange