

ILRS Station Performance

(Where do we stand? What do we need?)
Mike Pearlman and Carey Noll

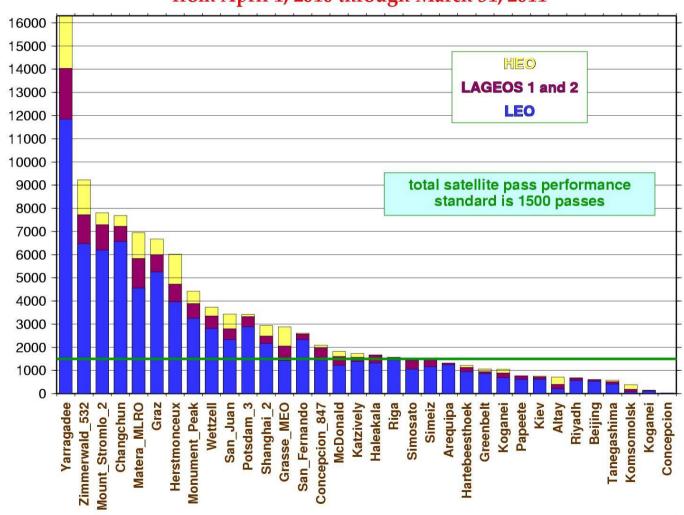
International Workshop on Laser Ranging Bad Koetzting, Germany May 16, 2011

INTERNATIONAL LASER RANGING SERVICE (ILRS) NETWORK IN 2011 Q1 Metsahovi ▲ Méndeleevo Herstmonceux Altay Komsomolsk Simeiz Arkhyz Katzively Changchun Greenbelt Maidanak San Fernand Stafford APOLLO Monument Pea Simosato Tanegashima Helwan Haleakala Riyadh Arequipa **A**Tahiti Hartebeesthoek Mt. Stromlo Concepción Yarragadee △ ILRS system operating in 2011 Q1 Operational system in 2011 Q1 34 SLR stations regularly provided data Co-located GNSS receiver ▲ ILRS system not contributing in 2011 Q1 3 Lunar stations ▼ Mobile Systems: FTLRS (France) TROS (China) • New SLR stations in Arkhyz and Zelenchukskaya, Russia



All Satellites (2011Q1)

total passes from April 1, 2010 through March 31, 2011



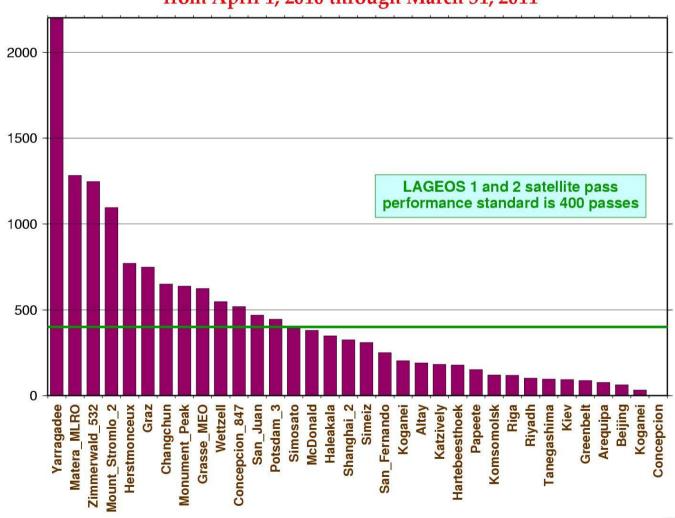
20110404

Note: One third of the stations do not achieve 1500 passes per year



Station Performance LAGEOS Satellites (2011Q1)

LAGEOS 1 and 2 passes from April 1, 2010 through March 31, 2011



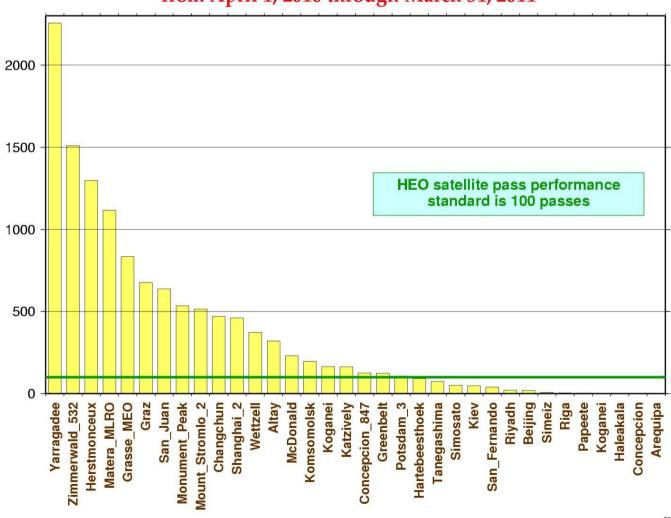
20110404

Note: More than half of the station do not achieve 400 LAGEOS passes per year



High Satellites (2011Q1)

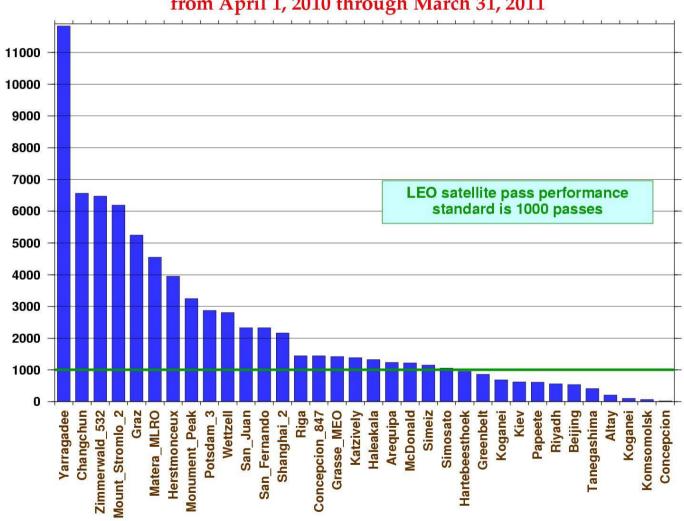
HEO passes from April 1, 2010 through March 31, 2011





Low Satellites (2011Q1)

LEO passes from April 1, 2010 through March 31, 2011

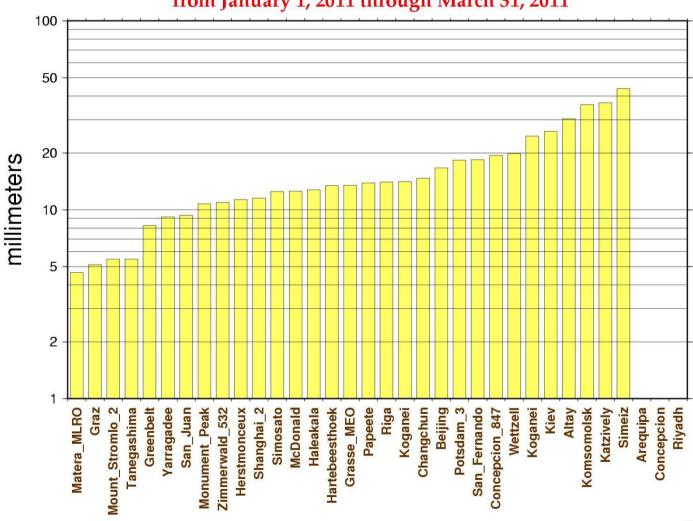




Station Performance **LAGEOS RMS (2011Q1)**

LAGEOS RMS

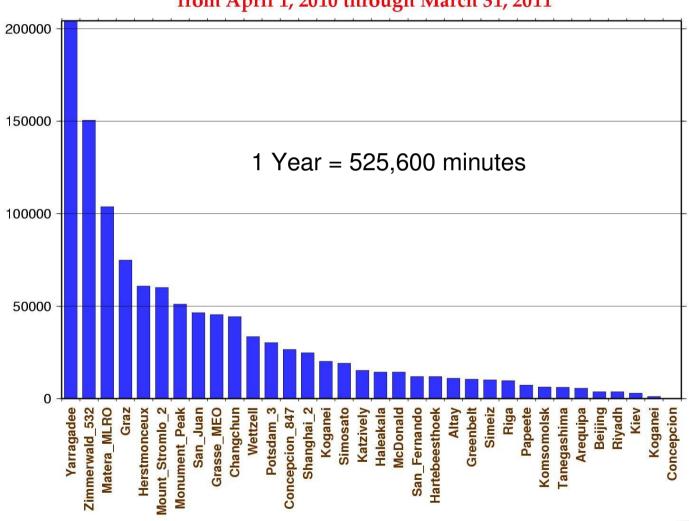
from January 1, 2011 through March 31, 2011





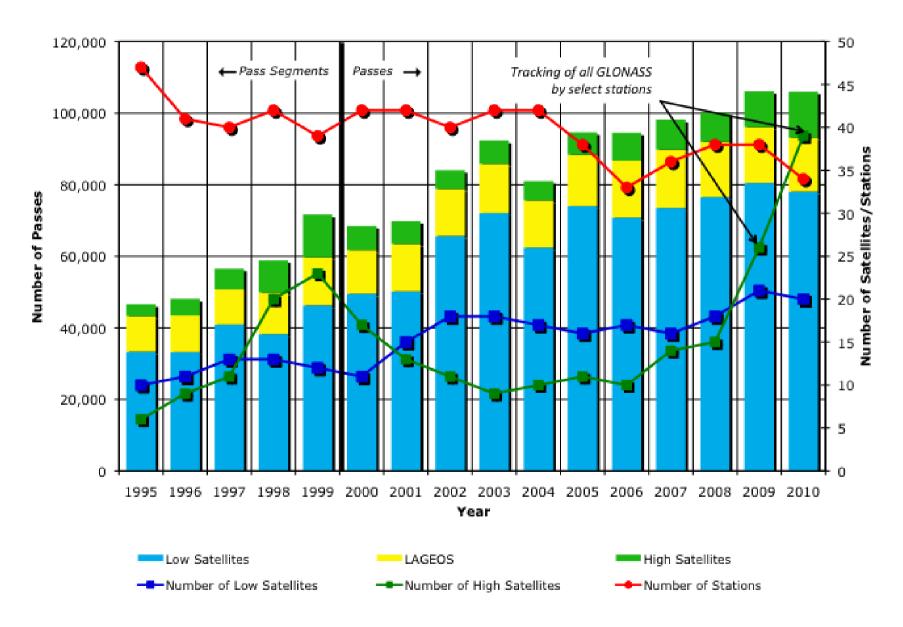
Minutes of Data (2011Q1)

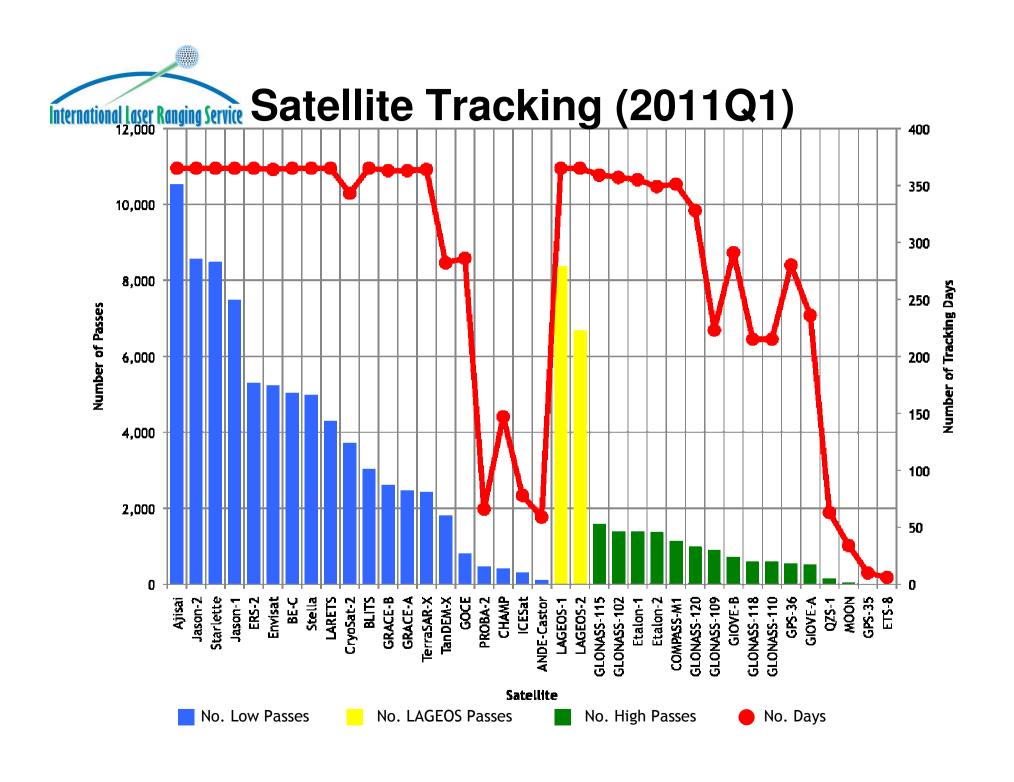
minutes of data from April 1, 2010 through March 31, 2011





Annual Data Yield



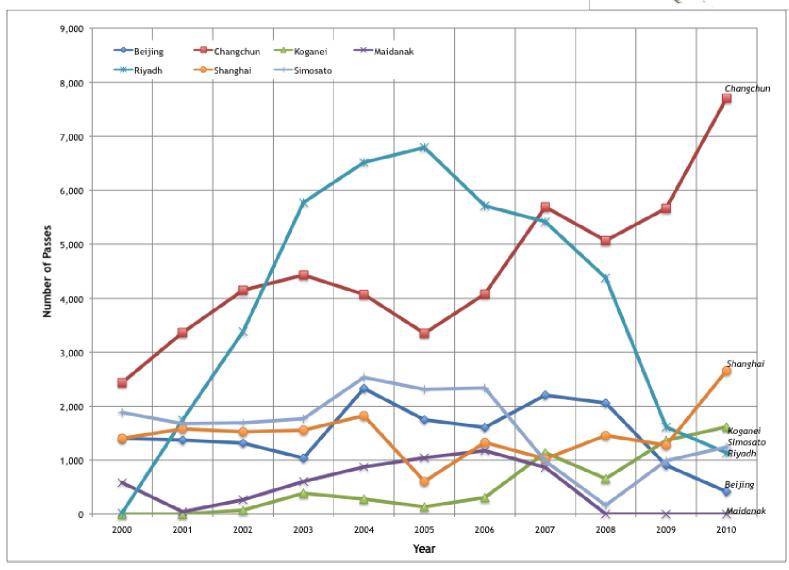


ILRS Network by Region Herstmongeur Zimmerv San Fernand Simosato lanegashima Monument Peak Haleakala Arequipa Tahiti Hartebeesthoek Mt. Stromlo Concepción Yarragadee North America Europe Asia Southern Hemisphere ILRS system included in plots Mobile Systems: FTLRS (France) TROS (China)



Yearly Pass Total Asia

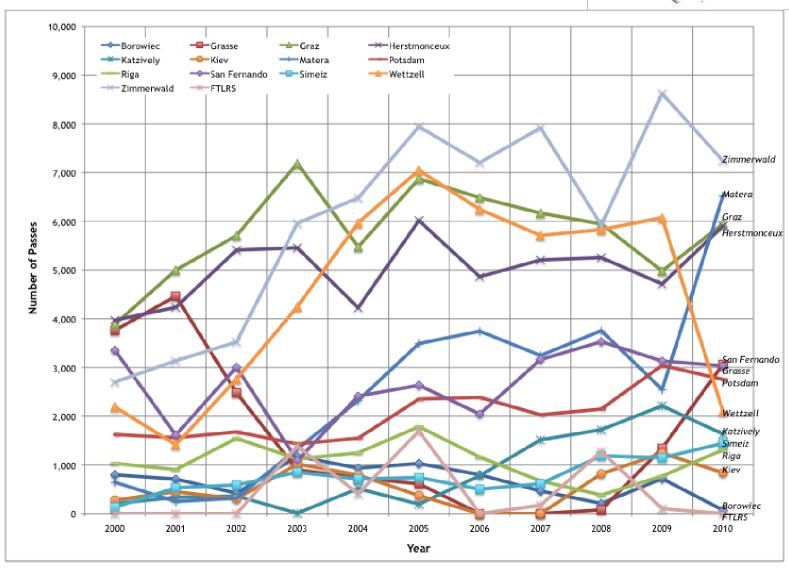






Yearly Pass Total Europe



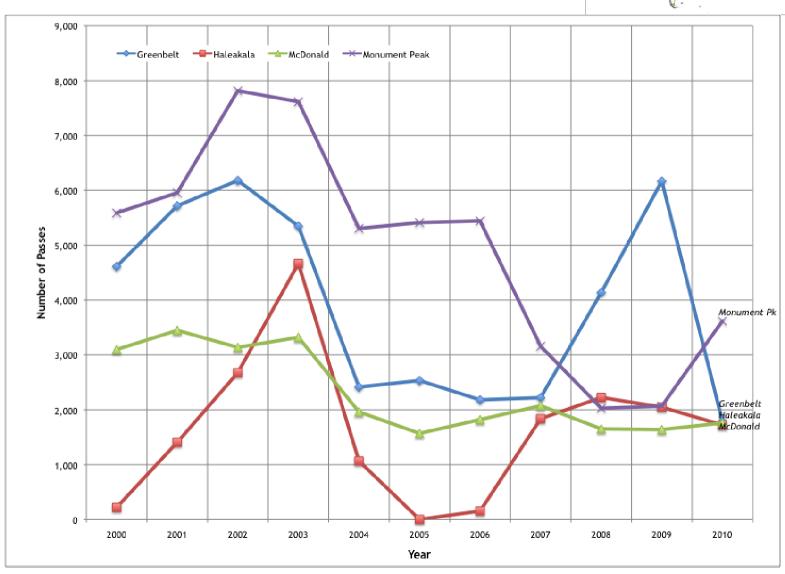




Yearly Pass Total

North America



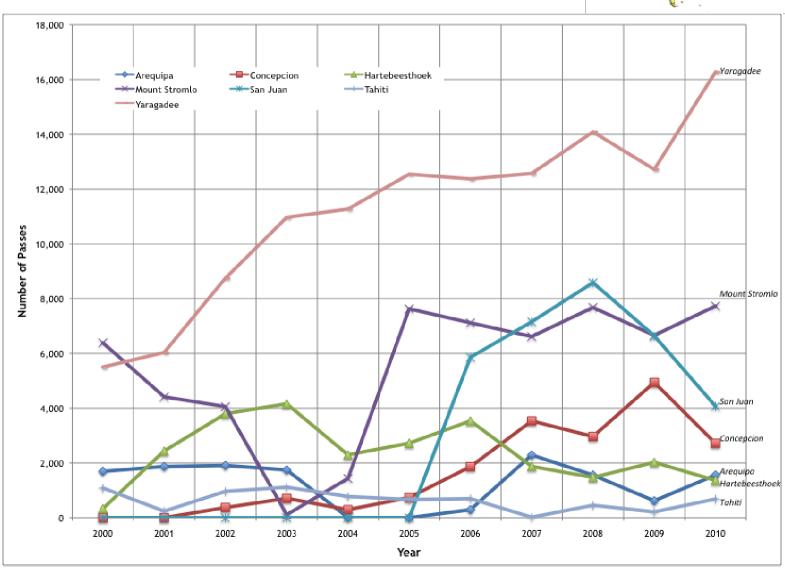




Yearly Pass Total

Southern Hemisphere







Laser Ranging Network

- Many stations do not meet Shanghai criteria (1500/400) set in 1992 (should be set higher)
- Severe geographical gaps
- Mix of technologies (new verses legacy)
- Mix in levels of operations
- Downtime due to inadequate spares
- Six co-location station with at least 3 techniques; several more being seriously considered