

SLR tracking of GNSS constellations - Many synergies to be explored

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SLR and GNSS are major contributors to realize the geodetic reference system.

On the GNSS side, there are many different systems in orbit nowadays: GPS, GLONASS, Galileo, Beidou, QZSS.

Some of them are fully operational, others only partly.

Although SLR stations provide a noticeable number of tracking data of GNSS satellites since many years, these data are not yet included into the computation of the ITRF and the EOP.

Furthermore, only GPS and GLONASS data are included into the official ITRF and EOP products, whereas the other GNSS are only used for pilot projects within the IGS.

With the increasing number of GNSS, the tracking becomes more demanding for the SLR stations. Since about 2011, several SLR stations make an effort to track the full GLONASS constellation.

In order to optimize the SLR tracking data on GNSS, the ILRS initiated since 2014 altogether five LARGE (Laser Ranging GNSS Experiment) campaigns.

More SLR tracking data ideally provide

- more information on orbit quality,
- more information on biases existing between GNSS and SLR,
- a stronger connection between GNSS and SLR in case of combined analysis.

This presentation will summarize the development of the SLR tracking on GNSS, and give an overview on the possible contributions of these data to geodetic products.

As these tracking data are the direct link between the two space-geodetic techniques GNSS and SLR, there is great potential that both techniques benefit from analysing these data. The presentation will try to work out, where these synergies are.