

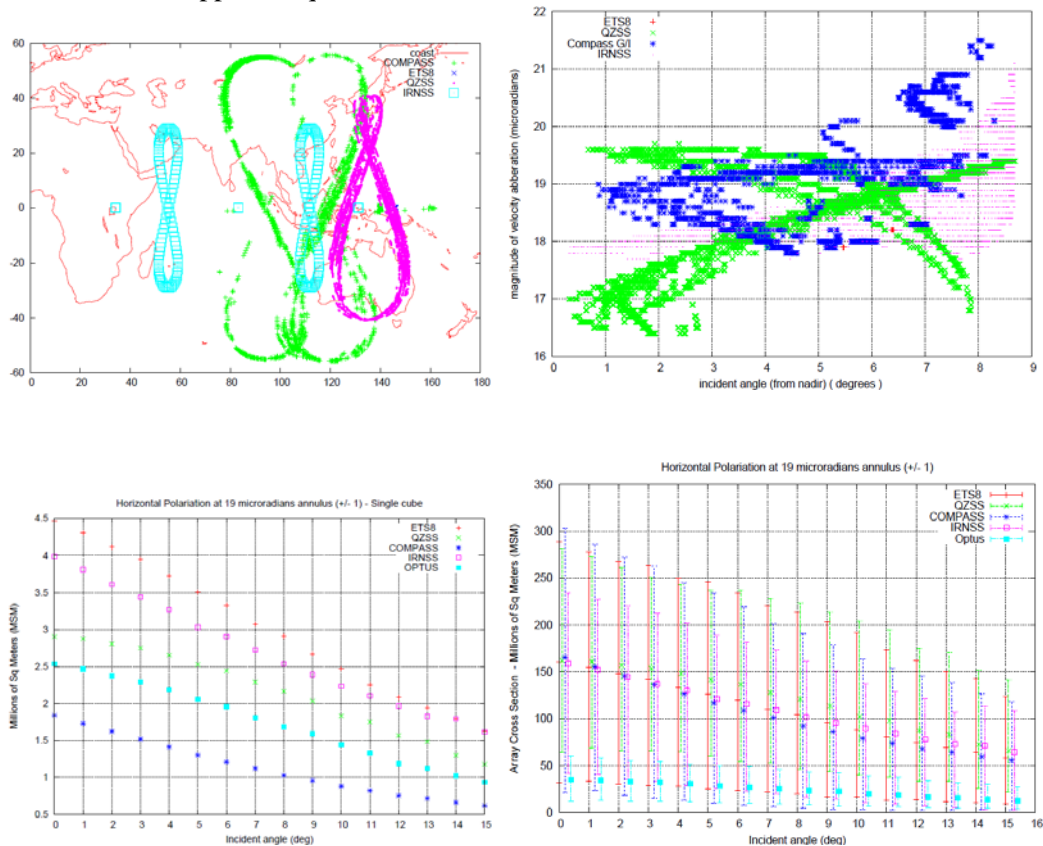
# Performance and Prediction of SLR Tracking on Regional GNSS Constellations

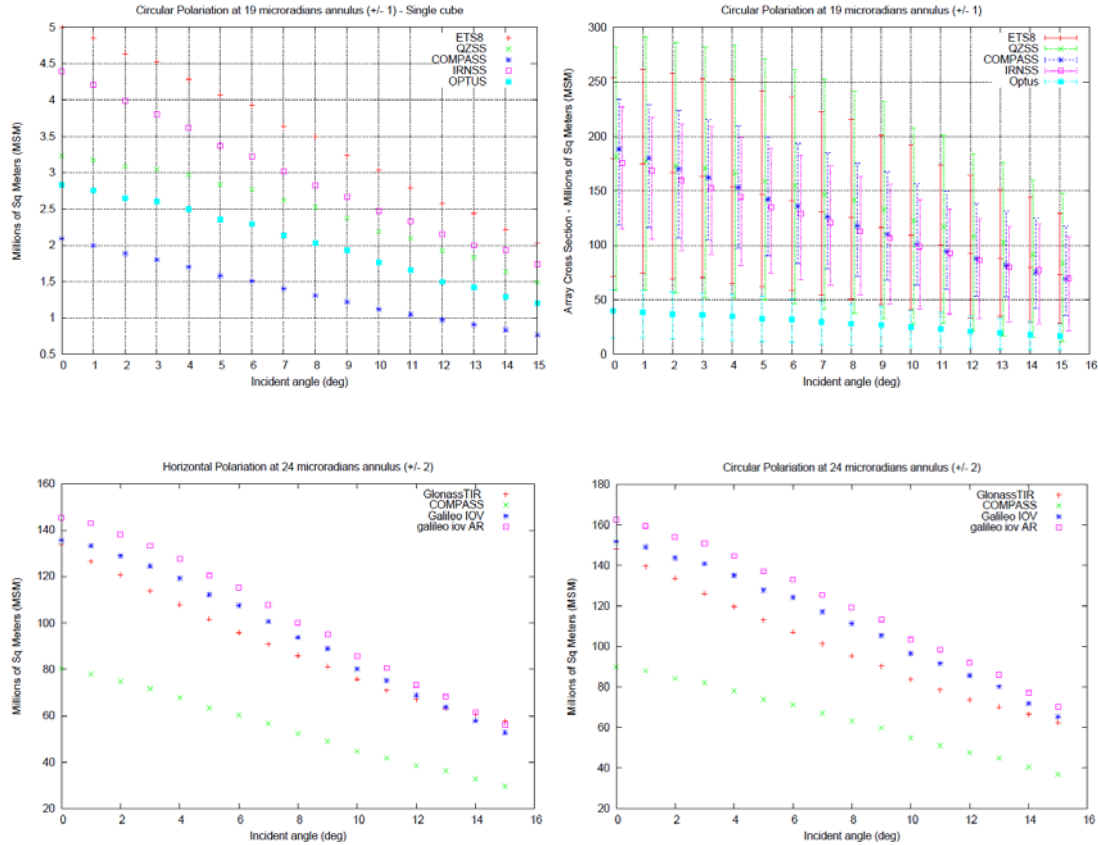
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## Abstract

Computation of the Cross Sections for the QZSS, Compass and Indian Regional (IRNSS) GNSS Augmentations is presented along with the ILRS station historical performance and predicted link budgets for these datasets.

The augmentation of GNSS using satellites in GEO and inclined GEO have begun as show in the follow figure (actual data for 2012 or planned for IRNSS). The SLR support to these depends on the availability of sufficient cross section of the LRA's. The full 64 bit computation in ZEMAX was used to compute for each incident angle the explicit computed for the explicit annulus where the data is being required to be collected. Both Linear and Circular excitation polarization is used and the extreme error bars are shown for the array of cubes. Individual Cube configurations are assumed from data in the ILRS Mission Support Request forms



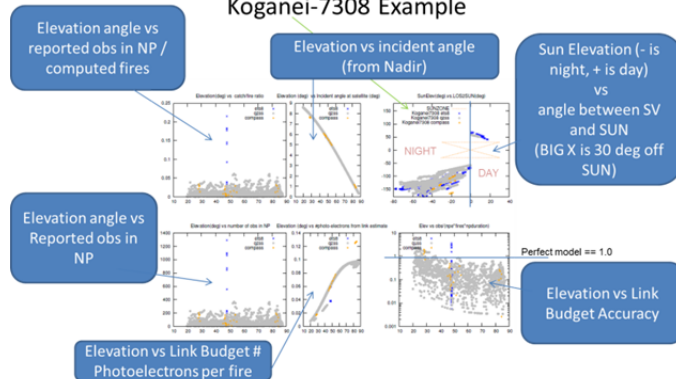


### Link Budgets

The stations which have submitted data to the ILRS archives have the link budgets computed for these arrays so that direct comparison of the predicted performance can be assessed. These are two different styles of plots and the presentation and backups contain the key to interpretations.

#### Data on Constellations Today – 6 Pane Plots

##### Koganei-7308 Example



### Concluding Remarks

Computation results of the Regional and GNSS Array Cross sections are presented with the associated expect link budget predictions. Direct comparison of link budget and the real achieved data rates are shown. Extrapolation to the future constellations is also included. In general since the cross sections are realized to the same value (despite very different number and cube configurations) the expected performance comparable. The overall satellite signature and number of data points per normal point to achieve the accuracy can be constructed from this performance data and estimate.