Sten Bergstrand

The current state of ground surveys

GGOS is the Observing System of the International Association of Geodesy. GGOS works with the IAG components to provide the geodetic infrastructure necessary for monitoring the Earth system and for global change research. The combination of space geodetic solutions is critically reliant on the availability of local tie vectors, which are the relative positions of the reference points of co-located space geodetic instruments determined by some survey technique. In order to combine the four space geodetic techniques DORIS, GNSS, SLR and VLBI, tie vectors enter the combination of space geodetic solutions effectively as a fifth technique. The tie vectors are not only necessary for rigorous terrestrial reference frame realization but also serve to highlight the presence of technique- and/or site-specific biases.
With the overall objective to provide a rigorous reference frame that is accurate to 1 mm and stable to 0.1 mm/yr over decadal time scales, the current understanding of the observing system needs to be improved by about an order of magnitude. The talk will give an overview of recent local tie method improvements and future needs to accomplish the GGOS objective.