Systematic Range Error 2013-2014. T. Otsubo[1], [1]Hitotsubashi University (2-1 Naka, Kunitachi, 186-8601 Japan, email: t.otsubo@r.hit-u.ac.jp).

Concept: Precise orbit determination is carried out to retrieve satellite orbits and other geodetic products so that the sum of the squares of range residulas is minimized. However, the residual data set still contains useful information about the characteristics of each station. It is possible to extract mm-level signals when we accumulate ranging data for a long-time span as demonstrated in our previous study [1].

POD: A 1-year data set, covering from July 2013 to June 2014, of the six satellites, LAGEOS-1, -2, Ajisai, Starlette, Stella, and LARES is analyzed in a single batch analysis. The adjusting parameters are the orbital elements with empirical parameters (5-day arc for LAGEOS and 3-day arc for others), the gravity coefficients up to the degree/order 4 including the GM parameter and the geocenter motion, the station coordinates, the satellite-type-dependent range biases. The residual WRMS values are 8 mm for the LAGEOS satellites, and 15 to 22 mm for other lower satellites.

Basic variables: Our previous study [1] adopted the number of single shot returns per normal point bin as a basic variable that is used to sort the residuals. In this study, we largely extend it so that more various systematic behavior can be seen. The following parameters are adopted:

(1) number of single-shot returns per NP bin.
(2) single-shot scatter RMS of the NP bin.
(3) local time of day.
(4) range rate.
(5) applied system delay.
(6) time to the nearest calibration ranging.

and the residual plots are generated for the top 20 stations in terms of data yield. A number of possible systematic errors are detected such as intensity-dependent trends, time biases, and calibration problems.

This poster presentation contains a large number of station-by-station graphs and is also supposed to supplement our oral presentation (and group discussion) titled "Two-fold Quality Assessment of Global SLR Data" in the Station Clinic session.

References: [1] Otsubo T., Obara N. (2006), *15th International Workshop on Laser Ranging*.