

## 2.1

NAME Xiaoya Wang\*,Fan Shao,Jing Zhang  
EMAIL wxy@shao.ac.cn  
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### ABSTRACT

SLR is one of an important space geodesy for geodetic and geophysical research as well as IERS products such as International Terrestrial Reference Frame (ITRF) and Earth Orientation Parameters (EOP). In order to obtain better and more consistent results with other space geodetic techniques SLR observation and dynamical models should be checked and better models should be applied. Therefore, we firstly checked and compared CoM correction models, Tidal models including ocean tidal models and atmosphere loading correction, atmosphere delay correction, relativistic corrections, gravity models and so on in our SLR data processing software. After comparisons we chose the better models as input and applied a fuzzy-logic method with an enhanced probability function for weighting the SLR station observations. It shows the RMS of the orbit and the individual station becomes smaller. Then we reprocessed SLR data and compared the modified tropospheric delay with other techniques. It shows there are a big difference. We added the tropospheric zenith wet delay estimation and horizontal gradient estimation in our SLR data processing. It improved the precision of the global precise orbit determination (POD) solution. Finally, by comparing our SINEX result with other ACs' solutions we checked and analyzed these models again.