

# Contributions of SLR for the Next Decade

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SLR is one of the cornerstone geodetic methods that define today's modern geodetic infrastructure. The directions of geodetic science for the next decade will be defined by scientific problems to be addressed and the technology developments that allow the types of measurements needed to address these problems. One geodetic system will not be able to address all problems but the careful combination of the techniques available (VLBI, GNSS, DORIS and terrestrial measurements) is more likely to lead to advances. In this talk, we examine where SLR is likely to fall in the mix of geodetic systems and in what directions should developments proceed for SLR to have maximum impact. We will re-visit issues related to range biases and how these impact correlations between atmospheric delays and height estimates, and the relationship between microwave technique and SLR sensitivities. Defining a geodetic reference system that allows global sea level to be determined with high spatial and temporal resolution while maintaining decade long stability will likely continue to be one of most stringent requirements for geodetic systems. We will focus on measurement of center of mass motions from SLR and GNSS, and we will carefully examine the scale difference between SLR and VLBI, and most importantly the scale rate of 0.026 ppb/yr ( $\sim 0.2$  mm/yr) between GPS and ITRF2014. Finally we will look at the relative roles of SLR providing "service measurements" to other techniques and the science that can be done directly with SLR data.