

Processing of SLR observations with an optimal Wiener filter – an alternative way to calculate normal points

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Applying iterative editing criteria in the calculation of normal points is a standard procedure at many ILRS stations. However recent quality analysis has shown systematic dependencies when plotting rms vs. residual of the resulting normal points. A thorough investigation of SOS-W single photon data showing clear satellite signature effects revealed the iterative editing procedure as the underlying error source, since it's convergence properties are dominated by the skew nature of the data distribution. In order to eliminate the systematic errors inherent in the iterative editing procedure, a normal point algorithm based on an optimal Wiener or deconvolution filter has been set up. Deconvolving the satellite dependent signature effect the proposed algorithm permits to reach rms values comparable to those obtained from calibration measurements to a flat target. In the present paper the algorithm is used to reprocess data from all geodetic satellites gathered in 2017 and the resulting bias series are compared to those obtained from the standard iterative procedure.