A new method of automated processing of rough measurements in laser satellite ranger

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Abstract

The one of the main goals of Global Geodetic Observation System (GGOS) is achieving of the millimeter accuracy of reference points coordinates. The VLBI, GNSS and SLR equipment of new generation is needed for this purpose. Because off this accuracy is near limits of modern measurable devices, the methods and models of processing as well as preprocessing have to be developed.

In preprocessing the task of detection of outliers appears. This problem is deeply connected with task of finding of unknown trend (polynomial in general) in measurable data. The mistake in trend can lead to mistake in outliers detection and, as result, the good measurements can be detected as outliers and bad measurements can be taken into account. In GNSS preprocessing the lost of some observations is not very important because there are many navigation observations. But for SLR preprocessing every measure result is very significantly. For solving SLR preprocessing task the outliers detection algorithm preprocessing and showed it's advantages comparing with other methods (less computation operations, less outliers for the same root mean squared error values).