

Inclusion of LARES-2 in the ILRS products

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The International Laser Ranging Service (ILRS) contributed to the development of ITRF2020 by providing a combined time series of station coordinates and polar motions (ILRSA by the ILRS primary ASI Combination Center) from individual Analysis Centers (ACs) estimates (i.e. solutions), using the data from LAGEOS1/2 and Etalon1/2 satellites.

A new and effective approach was agreed within the Analysis Standing Committee (ASC) for modeling the stations' long-term systematic errors and modeling the target signature, to be used in the generation of the weekly solutions. The systematic errors are reported in the ILRS Data Handling File (DHF), strictly correlated with the target signature model. A strategy has been then defined to monitor systematic errors in the coming years with the aim of updating the DHF more frequently whenever a significant change in station systematic error is observed.

The quality of the ILRS products could be increased using the data from additional satellites and the inclusion of LARES-2, launched in July 2022, as the fifth geodetic satellite is under evaluation within the ASC.

The approach to manage the systematic errors is the same used for the ITRF2020 contribution: simultaneous estimation of the station heights and range biases to determine a set of long-term mean range biases for LARES-2 to be applied in the analysis (and populating the DHF).

The first results of the LARES-2 systematic errors model will be presented.

A preliminary time series of ASI AC solutions including LAGEOS/ETALON/LARES-2 has been produced and the results will be presented focusing on the quality of the estimated parameters.