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Author: Mr. Giacomo Taini
Thales Alenia Space Italia, Italy, giacomo.taini@thalesaleniaspace.com

LAUNCH WINDOWS SELECTION WITH TARGET OBJECT TOOL (TOT)

Abstract

The aim of this paper is to present and to report some results from the Target Object Tool (TOT), devoted to the mission design for space exploration, in term of launch windows, propellant (or delta-v) and transfer time.

First of all three different selectable constraints are requested before to start the analyses and the optimization: the Launcher (including the site), the S/C (low thrust or not) and target object (Moon, Asteroid or Planet).

Moreover both analytical and numerical different methods are taken into account and they are compared in terms of computation and accuracy results.

Finally some validation comparisons are performed with real missions (e.g Smart-1, BepiColombo, Rosetta and New Horizons) reporting main differences and improvements.