INPOP: Adjustments to LLR data

H. Manche, S. Bouquillon, A. Fienga, G. Francou, M. Gastineau, J. Laskar

INPOP06 is the latest numerical planetary ephemeris developed at IMCCE and Paris-Observatory. This version has been fitted only to planetary observations (Fienga et al, INPOP06: a new numerical planetary ephemeris, 2007, preprint). The next version currently in development will be directly fitted to Lunar Laser Ranging data. These observations (more than 17000 over 36 years, from 3 different sites) are useful to determine some physical parameters and initial conditions used in INPOP. Because of the high precision of these data, it is necessary to take into account the light deviation (general relativity and atmospheric effects), but also some geophysical effects responsible of small displacements of the LLR stations (such as solid tides, ocean and atmospheric loading, tectonic displacement...).We will present our fitting process, the physical effects taken into account to compute residuals and our latest results.