

ATMOSPHERIC ANGULAR MOMENTUM AND ROTATION VARIATIONS OF MARS BETWEEN MARTIAN YEARS 24 AND 27.

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Atmospheric angular momentum variations of a planet are associated with the global atmospheric mass redistribution and the wind variability. The exchange of angular momentum between the fluid layers and the solid planet is the main cause for the variations of the planetary rotation at seasonal time scales. In the present study, we investigate the seasonal angular momentum and rotation variations of Mars using the output from the Mars Analysis Correction Data Assimilation (MACDA) dataset v1.0. MACDA contains the reanalysis of fundamental atmospheric and surface variables for the planet Mars over three martian years, produced by assimilating data from spacecraft observations (Thermal Emission Spectrometer on board Mars Global Surveyor). The corresponding Length-of-day (LOD) variations are compared with the existing geodetic observations based on orbiter tracking data as well as other GCM predictions. The results are discussed considering future observations of INSIGHT mission.