



Radioscience and seismic measurements for the INSIGHT mission about interior of Mars.

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We shall use the X-band radio link of the future 2016 InSIGHT (Interior exploration using Seismic Investigations, Geodesy, and Heat Transport) lander on the surface of Mars with the objective to better determine the rotation and interior structure of Mars. This X-band radio link consists in two-way Doppler measurements from a direct radio-link between the Martian lander and deep space tracking stations on the Earth. On the basis of these measurements, it will be possible to monitor the lander position relative to the Earth and in turn to improve the determination of the Mars' orientation and rotation parameters (MOP), i.e. the rotation rate variations (or Length of Days LOD), the precession rate and the nutations of the rotation axis. As these MOP parameters are related to the interior of the planet, we further discuss the expected improvement in our knowledge of Mars' interior in synergy with the seismic data, which include the tidal data. We will show in particular how to determine the state, size, and composition of the Martian core. These parameters are very important for understanding the evolution of Mars.