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In the giant planet systems many satellites are subject to significant tidal distortion. Most prominent examples are Io, where the volcanism is driven by tidal friction, and Europa, where tidal heating may play an essential role to sustain a subsurface ocean over long time. However, even for other satellites, e.g. Ganymede, Enceladus, and Titan, tidal distortion is not negligible.

Measuring tidal amplitudes, the tidal potentials, and in some cases the thermal activity of the moons are key factors to understand the present states with respect to interior structure, rheology and evolution of the satellites.

The implication of tidal interaction of the satellites with their primary planets and the prospects for detecting the signals from orbit or at the surface by future missions will be discussed for several examples in the Jovian and Saturnian systems.

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