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Tidal dissipation in Uranus from high accuracy data

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Tidal dissipation in Uranus is a key factor in understanding this system, both in terms of the planet's internal structure and the orbital evolution of its moons. Observation of the moons' orbital motion remains so far the only way to access this physical parameter. By way of example, the use of a consistent interval of astrometric observations has been successfully employed to determine tidal dissipation in Jupiter and Saturn. Application to the Uranus system is more difficult, however, due to the lower precision of astrometric observations. In particular, some of the older observations are relatively biased, making them difficult to use.

We present here the results of an analysis based on observations beginning with the space age and restricted to the most reliable data from this system, including those from the Gaia probe. The question of older observations is also discussed.