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The solar system data in the forthcoming Data Release 3 by the Gaia mission of ESA: a preview

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The Data Release 3 by the Gaia mission (ESA) will not only multiply by a large factor the volume of observations, but will also add more quality and complexity. With respect to DR2, that appeared in 2018. The number of asteroids with astrometry and photometry will be multiplied by a factor >10 , and data will span a longer time interval. Also, for the first time a set of reflectance spectra for several thousand asteroids will be released. Some planetary satellites and candidate new asteroids will also be included. The improvement in volume, accuracy and variety of data will add new dimensions to the contribution of Gaia to asteroid science as this will probably be the most extensive and self consistent set of visible spectra available up to know.

In this talk, we will mainly focus on the general properties of the asteroid data in DR3 (statistics on the sample) and on the improvement in astrometry with respect to DR2. Based on the results obtained from the exploitation of DR2, we will review the expected impact of DR3 in terms of improved orbits, Yarkovsky determination, prediction of asteroid occultations. The properties of asteroid spectra in DR3 will be presented in another contribution to this meeting by M. Delbo'.