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Mapping the flow of energetic particles in Titan's exobase

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Abstract

In this contribution, we present maps of the exobase of Titan, indicating the latitudes and longitudes at which energy deposition is expected from particles of different species and energies. For this, particle tracing software is used, using starting positions all around the moon at an altitude of 1450 km and backtracing them, varying the starting pitch and phase angles, as well as their energy. For this contribution, the T9 flyby by Cassini is considered, with the near-Titan electromagnetic environment modelled by the A.I.K.E.F. hybrid code, accounting for the distortions in the Saturnian magnetic field introduced by the presence of Titan with its conducting ionosphere.