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First in-situ Observations of Electrical Phenomena Related to Lightning in the Atmosphere of Titan

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The CASSINI/HUYGENS mission provided for the first time the opportunity to investigate in-situ electrical phenomena in the atmosphere of Titan. During the descent of the HUYGENS probe the electric sensors of the Permittivity, Wave and Altimetry experiment (PWA) as part of the Huygens Atmospheric Structure Instrument (HASI) observed fluctuations of the electric field up to 10 kHz. The observed events below 140 km have been compared with the electric field of terrestrial lightning and related phenomena. The damping of electromagnetic waves in the atmosphere of Titan is calculated using the conductivity profile measured by PWA.