Proposal Title:	ESCAPE
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The ESCAPE mission proposes to address an important question in planetary atmospheric research, namely, how, and at what rate, is Earth currently losing its atmosphere to space. The mission aims to determine the composition and flux of atmospheric constituents and their escape from the Earth and effect on the evolution of today's atmosphere. A single spacecraft with an extensive suite of high TRL in-situ and imaging instruments will fly for three years in an elliptical Earth orbit at high inclination (90 degrees) in the 500 – 33,000 km altitude range.

The mission aims to measure the loss of ions and neutrals from the entire exosphere and upper atmosphere. The observations will be carried out with special focus on the thermal and non-thermal escape fluxes and mechanisms. The mission also aims to measure the exospheric density and temperature as a function of solar EUV, solar wind and geomagnetic conditions. The proposed payload is well suited to achieve these goals. If successful, the mission's scientific results would provide deeper insight into the current loss mechanisms of the atmospheric constituents and their relative importance.

A significant weakness of the mission is its single spacecraft design, which makes it difficult for transport processes to be investigated in the lower atmosphere and exosphere. Thus, linking measurements at different altitudes and on a more global scale, between hemispheres at conjugate points, relies on numerical modelling efforts. Furthermore, to be able to study the dependence of the various hypothetical and identified escape mechanisms, observations of solar and solar-wind variability are important. The proposal does not elaborate on where these important observations will come from. It is questionable whether or not the measurements will provide new insight into escape processes on other planets, such as Venus and Mars, and whether they would allow us to infer the long-term evolution of the terrestrial atmosphere.