

Europlanet NA1 Expert Program Report

Team up for ESA ARIEL preparatory survey

Short-term visit supported by Europlanet NA1

Host institute: LabEx ESEP, Paris Observatory, PSL University Paris

Visitors: Iaroslav Iakubivskiy, Andris Slavinskis, Anna Aret, Jānis Dalbiņš

Period of the visit: 8-12 April 2019 (5 working days, 7-13 April 2019 including travel days)

Team from the Tartu Observatory, University of Tartu (UT) visited LabEx ESEP, Paris Observatory, PSL University Paris to use their tools and the concurrent design facility PROMESS for assessment of the feasibility of the Cubesat for Refining Ephemerides (CURE) mission which would support the ESA's ARIEL mission by providing ephemerides with minimized uncertainty. My role in the study was a co-PI of the CURE mission and member of the scientific team.

The ESA-selected exoplanetology mission ARIEL needs a preparatory survey from ground and from space. Tartu Observatory can contribute to both, in particular with a CubeSat that would provide, before ARIEL's flight, accurate ephemerides complementing other facilities (ground observations, TESS, Twinkle, CHEOPS). During the workshop several approaches to the CURE design have been assessed. We confirmed the feasibility to use PROMESS for rapid mission design and provided inputs for improvements, some of which were made during the week. The common designing platform will be used for further development of the CURE mission allowing for remote cooperation. Next joint session will be organized in the "[Design of small satellite missions for planetary studies](#)" summer school at the University of Tartu.

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Anna Aret

Senior Research Fellow
Tartu Observatory, University of Tartu
61602 Tõravere, Tartumaa, Estonia

tel.: +372 737 4519
e-mail: anna.aret@ut.ee
<http://sirius.to.ee/aret/>