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Author: Mr. Davy Vrancken  
QinetiQ Space nv, Belgium, davy.vrancken@qinetiq.be

## ALTIUS: HIGH PERFORMANCE LIMB TRACKER, BASED ON A PROBA PLATFORM

**Abstract**

There is more and more interest in the understanding and the monitoring of the physics and chemistry of the Earth's atmosphere and its impact on the climate change. There is currently a lack of sounders which provide a high vertical resolution in trace gas detection.

ALTIUS (Atmospheric Limb Tracker for the Investigation of the Upcoming Stratosphere ) is a remote sounding experiment proposed by the Belgian Institute for Space Aeronomy (BIRA/IASB). The mission scenario includes bright limb observations in basically all directions, solar occultations around the terminator passages and star occultations during eclipse. These observation modes allow imaging the atmosphere with a high vertical resolution. The spacecraft will be operated in a 10:00 sun-synchronous orbit at an altitude of 695 km, allowing a 3-day revisit time.

The envisaged payload for the ALTIUS mission is an imaging spectrometer, observing in the UV, the VIS and the NIR spectral ranges. For each spectral range, an AOTF (Acousto-Optical Tunable Filter) will permit to perform observations of selectable small wavelength domains. A typical set of 10 wavelengths will be recorded within 1 second.

The different operational modes impose a high agility capability on the platform. Furthermore, the quasi-continuous monitoring by the payload will drive the design of the platform in terms of power and downlink capabilities. ALTIUS is one of the mission which are currently envisaged to use the PROBA-NEXT platform, which is currently under development at QinetiQ Space.

This paper will present the ALTIUS mission, the envisaged instrument and the spacecraft concept.