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NOMAD, a spectrometer suite for Nadir and Solar Occultation observations on the ExoMars Trace Gas Orbiter

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NOMAD, the "Nadir and Occultation for MArs Discovery" spectrometer suite was selected as part of the payload of the ExoMars Trace Gas Orbiter mission 2016. This instrument suite will conduct a spectroscopic survey of Mars' atmosphere in the UV, visible and IR regions covering the 0.2-0.65 and 2.2-4.3 μm spectral ranges. NOMAD's observation modes include solar occultation, nadir and limb observations.
The NOMAD instrument is composed of 3 channels: a solar occultation only channel (SO) operating in the infrared wavelength domain, a second infrared channel capable of doing nadir, but also solar occultation and limb observations (LNO), and an ultraviolet/visible channel (UVIS) that can work in all observation modes. The spectral resolution of SO and LNO surpasses previous surveys in the infrared by more than one order of magnitude. NOMAD offers an integrated instrument combination of a flight-proven concept (SO is a copy of SOIR on Venus Express), and innovations based on existing and proven instrumentation (LNO is based on SOIR/VEX and UVIS has heritage from the ExoMars lander), that will provide mapping and vertical profile information at high spatio-temporal resolution. The three channels have each their own ILS and optical bench, but share the same single interface to the S/C. We will present the instrument and its capabilities in term of detection of a broad suite of species, its possibilities to improve our knowledge on vertical structure of the atmosphere as well as its mapping possibilities.
Since last year's abstract, much progress has been made on the instrument design and prototypes have been tested, especially concerning the very challenging thermal needs of the instrument. This paper will concentrate on the developments in the last year that prove NOMAD will be a very powerful, sensitive instrument.