The Aeolus Wind LIDAR Mission and its Aladin instrument: Technical status and latest results. Anders Elfving, Alain Culoma, Denny Wernham, ESA/ESTEC (The Netherlands).

ABSTRACT

Second Earth Explorer Core mission of ESA's Living Planet Programme, the Atmospheric Dynamic Mission Aeolus, with its on-board high spectral resolution Doppler wind LIDAR instrument, will provide the first global observations of wind profiles from space.

The development of ALADIN payload (Atmospheric LAser Doppler INstrument) is a very challenging undertaking. Many innovative solutions have been introduced, especially related to the complex laser transmitter technology, in order to meet the stringent user requirements on the wind measurement accuracy. Many unchartered territories have had to be explored in order to build a robust laser transmitter supplying more than 5 Giga shots over 3 years of high UV energy pulses while being able to sustain the harsh launch environment and the hard vacuum conditions in space.

In this presentation, the recent achievements of ALADIN and its laser transmitter will be presented. Implications of the latest ground test results and future prospects thereof will also be exposed, both in terms of technical experiences gained for the flight segment hardware as well as for application in Numerical Weather Forecasts.