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OHB FUTURE EARTH OBSERVATION SPACEBORNE MISSIONS: OVERVIEW AND CURRENT STATUS

Abstract

Spaceborne systems have become essential assets for Earth Observation applications, being complementary to in-situ and airborne remote sensing systems. During the last decade, the United Nations made a priority to implement concrete measures to tackle one of the great challenge of our time, climate change. Indeed, man-kind has a great impact on the Earth environment and represents a threat to the global balance, with consequences that will critically affect billions of lives in the future. Therefore, it is essential to monitor on the one hand the anthropogenic sources that are responsible for the modification of the ecosystems and for which actions can be undertaken, and on the other hand the direct measurable effects on the environment.

Spaceborne remote sensing complements ground and air-based measurements and can provide information on a global scale with daily revisits of critical locations on the globe, with a broad application range, from climate change impact, land cover changes, biodiversity processes, and natural resources, to geohazard and risk assessments.

The IAC paper will give an overview of all space missions dedicated to Earth Observation that are currently in development and implementation phase at OHB System, with the goal to efficiently contribute to global solutions, which main objective is to tackle the challenges of tomorrow. TanDEM-L is based on digital active radar technologies in L-Band and aims at the precise measurement of the global forest biomass, at the monitoring of deformations of the Earth surface at millimetre scale as well as acquisition of wet land changes, of movement and melting processes of the polar glaciers and of the dynamic of maritime surface including sea ice. Running activities with respect to spectrometry in different spectral bands, from the visible to the Short Wave Infra-Red and based on different technologies, from Imaging to Fourier Transform Spectrometer, will be introduced. The FLORIS hyperspectral instrument of the FLEX mission aims at the accurate mapping of vegetation fluorescence as function of wavelength, the estimation of photosynthetic activity as well as vegetation health and the enhanced knowledge on anthropogenic impacts associated to land use change. The characteristics and status of the Infra-Red Sounder (Meteosat Third Generation) and the German national hyperspectral EnMAP missions will also be presented, as well as an overview on the on-going studies realised in the frame of the European Copernicus as well as the running ESA Earth Explorer programmes.