

IAF EARTH OBSERVATION SYMPOSIUM (B1)  
Future Earth Observation Systems (2)

Author: Mr. Giacomo Caporusso  
Politecnico di Bari, Italy, giacomo.caporusso@poliba.it

Mr. Ettore Lopinto  
Italian Space Agency (ASI), Italy, etttore.lopinto@asi.it  
Mr. Rino Lorusso  
Italian Space Agency (ASI), Italy, rino.lorusso@asi.it  
Ms. Rosa Loizzo  
Italian Space Agency (ASI), Italy, rosa.loizzo@asi.it  
Dr. Rocchina Guarini  
Italian Space Agency (ASI), Italy, rocchina.guarini@est.asi.it  
Dr. Maria Girolamo Daraio  
Italian Space Agency (ASI), Italy, mariagirolamo.daraio@asi.it  
Dr. Patrizia Sacco  
Italian Space Agency (ASI), Italy, patrizia.sacco@asi.it

## THE HYPERSPECTRAL PRISMA MISSION OPERATIONAL PHASE: FIRST RESULTS

**Abstract**

PRISMA (PRecursores IperSpettrale della Missione Applicativa) is an Italian EO hyperspectral Mission fully funded by the Italian Space Agency. PRISMA was launched on 22 March 2019 on board the VEGA rocket. The Mission has been conceived as a pre-operational and technology demonstrator and it focuses on the space qualification of PAN/HYP payload and the development and production of PAN/HYP products up to Level 2d. The PRISMA Payload operates with a Pushbroom scanning concept. It is an electro-optical instrument for Hyperspectral Earth observation, composed of a high spectral resolution spectrometer optically integrated with a panchromatic camera. It records the radiation reected from the Earth surface (spectral cubes) in 400nm – 2505nm spectral window: PAN range; 240 bands in VNIR / SWIR (partial overlap). The system, when fully exploiting its resources, allows planning acquisition and download of 223 spot (30x30 Km) images per day, corresponding to 200.000 Km<sup>2</sup>, using all PAN/HYP channels. The system allows processing 223 spot images per day up to level 0 and generating corresponding quicklooks. The system allows processing at least 200 Hyperspectral scenes (30x30 Km) up to level 2d per day starting from archived L0 products. The system allows archiving products (downloaded data, L0 products and support data) for a minimum of 10 years. According to PRISMA data policy, The user shall be enabled to request new acquisitions and archived data. The new acquisition requests are managed through rights defined in terms of "quota" and "priority" in access. A systematic validation process is foreseen both during the commissioning phase and during the operational phase. The Validation involves the assessment of the accuracy of data and products, over the relevant spatial, temporal and spectral domains. After the end of the commissioning phase it is foreseen a structured three years CAL/VAL activity, which will be performed on instrumented sites distributed in Italy for supporting the performance characterization of the instrument, the verification and maintenance of mission performance over time and the effective use of data. The PRISMA Commissioning Phase was completed in February 2020. The paper aim to describe the mission and the results achieved in the first period of the full operational activity (Feb 2020 – Jun 2020).