

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Data Management Systems (4)

Author: Mr. Leonardo Amoruso
Planetek Hellas epe, Italy, amoruso@planetek.it

Dr. Cristoforo Abbattista
Planetek Italia, Italy, abbattista@planetek.it

Mr. Luigi Agrimano
Planetek Italia, Italy, agrimano@planetek.it

Mrs. Francesca Santoro
Planetek Italia, Italy, santoro@planetek.it

Dr. Daniela Drimaco
Planetek Italia, Italy, drimaco@planetek.it

MULTI-SPECTRAL MISSIONS DATA INTER-CALIBRATION AND CO-REGISTRATION
AS-A-SERVICE

Abstract

In recent decades, the increasing availability of orbiting satellites and Earth Observation data has favored the development of a large number of applications in a wide range of fields, from monitoring environmental changes to the identification of pollutants, from the study of the interaction between ecosystems to the prevention of and response to natural disasters. Many applications use Earth Observation data from different satellite missions, exploiting their potential and synergy. In this context, in order to meet the often stringent requirements, Earth Observation instruments must be able to ensure the most accurate, reliable and consistent measurements throughout the mission. Moreover, the combined and synergistic use of data from various missions becomes essential, thus requiring precise co-registration and inter-calibration operations between instruments to normalise the response of the different sensors on the basis of a common reference. Planetek provides the possibility to correct residual geometrical deformation and radiometric inaccuracies in optical, multi-spectral, images by means of a knowledge base with a worldwide coverage. This base is built thanks to the combined usage and the fusion of satellite data from different missions and relies on accurate information automatically extracted, and regularly updated, in specific “ground control truths”. The control points are characterized by the precise knowledge of their geometrical position or radiometric response.

The service exploits the information extracted by long time series to increase the geometric precision and radiometric stability. It is provided on a cloud infrastructure and can be integrated in any standard mission payload data ground segment workflow.