

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

Author: Dr. Nicos Spyropoulos
EarthDaily Analytics, Canada

EARTHDAILY CONSTELLATION (EDC) - A GLOBAL DAILY CHANGE DETECTION SYSTEM TO
HELP UNDERSTANDING OUR BIOSPHERE'S BEHAVIOR

Abstract

The “hottest” challenges facing the world today are food security, water optimization, energy and climate change. These are truly global problems necessitating that the world needs a global change detection system to address that using earth observation. A high-cadence, scientific-quality satellite system and AI-derived monitoring, change detection alerting, and predictive analytics, at scale has never applied before. Most of the current systems are inadequate, and none of which are fit-for-purpose for large scale change detection and predictive analytics. There are commercial high resolution and high-quality systems that are useful for analytics, good revisit for small areas, but do not offer broad-area coverage and do not have the needed spectral bands. There are also small “mini sat” and “micro sat” constellations offering good coverage and revisit, but they are producing poor-quality data and poor derived analytics have a limited set of spectral bands. Lastly there are large Government scientific satellite missions offering high-quality that support analytics, but have limited revisit/coverage, and non-commercial service. EarthDaily Constellation (EDC) is designed to address and deliver the data set for these challenges. EDC is helping to turn out the Earth Observation technologies into something that is usable by public and private users to get better and more informed decisions. Based on proven technologies of Airbus and ABB, EarthDaily Constellation is bringing a new paradigm shift in continuous global monitoring by introducing the world's first super-spectral satellite system with daily coverage optimized for AI/ML applications to provide baseline data for the whole planet. The twenty-two (22) spectral bands covering critical wavelengths for analytics: Visible-NIR, SWIR MWIR-Thermal stably looking always at Nadir at a consistent look angle, geometry, and calibration are producing Analysis-Ready Data derivatives that are prepared for direct-to-algorithm enterprise-grade AI/ML applications with no humans in the loop. True interoperable ARD products with science missions such as Sentinel-2 and Landsat allowing user existing algorithms to work seamlessly with them, and natively acquired at 5m Ground Sample Distance (GSD) with products up to 3.5m pixels size without compromising the 240km swath.