



Deriving Actionable Information from Big Earth Data - Experiences from the Urban Thematic Exploitation Platform

Thomas Esch (1), Hubert Asamer (1), Jakub Balhar (2), Martin Boettcher (3), Enguerran Boissier (4), Andreas Hirner (1), Emmanuel Mathot (4), Mattia Marconcini (1), Annekatrin Metz (1), Hans Permana (3), Tomas Soukup (2), Vaclav Svaton (5), Soner Ureyen (1), and Julian Zeidler ()

(1) German Aerospace Center (DLR), DFD-LAX, Wessling, Germany (thomas.esch@dlr.de), (2) GISAT s.r.o., Czech Republic, (3) Brockmann Consult GmbH, Germany, (4) Terradue Srl, Italy, (5) IT4Innovations, VSB-Technical University of Ostrava, Czech Republic

The upcoming suite of Sentinel satellites in combination with their free and open access data policy will open new perspectives for establishing a spatially and temporally detailed monitoring of the Earth's surface. However, the capability to effectively and efficiently access, process, analyze and distribute the mass data streams from the Sentinels and high-level information products derived from them (but also from other missions such as Landsat), poses a key challenge. This is also true with respect to the necessity of flexibly adapting the processing and analysis procedures to new or changing user requirements and technical developments. Hence, the implementation of operational, modular and highly automated processing chains, embedded in powerful hard- and software environments and linked with effective distribution functionalities is of central importance. This contribution introduces the Urban Thematic Exploitation Platform (Urban TEP) that aims at the utilization of modern information technology (ICT) functionalities and services to bridge the gap between the technology-driven Earth Observation (EO) sector and the information needs of environmental science, planning, and policy. Key components of the system are an open, web-based portal connected to distributed high-level computing infrastructures and providing key functionalities for data access, processing, analysis, and visualization, along with the possibility of a customized development and sharing of algorithms, products and services via dedicated networking and communication tools. The Urban TEP is supposed to initiate a step change in the use of EO data and geospatial analytics by enabling any interested user to easily exploit and generate thematic information on the status and development of the built environment based multi-source data collections (i.a. EO imagery, statistics, surveying, volunteered geographic information). So far the U-TEP has successfully been used to process >3PB of EO data, provide a unique portfolio of thematic products and services, and activate a community of >250 institutions from 43 countries (including UN, World Bank, OECD, World Food Programme, or Bill and Melinda Gates Foundation).