Biodiversity-2013

2nd International Conference on
Biodiversity & Sustainable Energy Development
August 12-14 2013 Raleigh, North Carolina, USA

Earth observation services to sustain Europe's habitats and biodiversity

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Abstract

The European Union (EU) has set up an 'EU 2020 biodiversity strategy' in response to the adoption of a global Strategic Plan for Biodiversity 2011-2020. The European Habitats Directive, established back in 1992, is considered a flagship policy for the EU and a role model worldwide, ascertaining the conservation of natural habitats, fauna and flora in the entire territory of the Member States (MS) with strict measures of implementation. Earth observation (EO), realized through satellite and air-borne remote sensing and complemented by in-situ observation networks provides the technological means for regularly updated information on adaptable scales and spatio-temporal coverage. The European Copernicus program fosters the development of EO-based information services for all societal domains of concern. In ecosystem monitoring, such services are designed to sustain biological diversity and favorable ecological conditions on increasingly operational level. A standardized reporting on status and trends of ecosystems will help keep such conditions in balance with favorable social and also economic ones, while not sacrificing the first for the latter. This paper discusses achievements towards an operational use of latest generation satellite imagery for monitoring sensitive ecological sites applied on several levels of implementation. Technical advances and remaining methodological challenges are discussed with a particular focus on (semi-)automated extraction of habitat classes and associated ecosystem integrity indicators and from very high resolution satellite imagery such as WorldView-II.

Biography

Stefan Lang has completed his PhD at the age of 32 years from Salzburg University, held a 1 year substitute professorship at Technical University of Berlin and is Assistant Professor at the Interfaculty Department of Geoinformatics, Z_GIS in Salzburg, Austria. He is head of the research division Integrated Spatial Analysis (ISA) and coordinates a collaborative EU project on EO-based biodiversity monitoring called MS.MONINA. He has authored and co-authored more than 20 papers in reputed journals, and serves as editorial board member.