Land Cover

Technical Deep Dive

This paper describes EOMAP's methodology for deriving Land Cover Models from satellite data.
In addition, it includes details on the resolutions we provide, the classification schemes we follow and which satellite sensors we use.

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What is Land Cover Classification?

Land Cover Classification (LCC) involves identifying and mapping different types of coverage on the earth's surface such as vegetation, water bodies, urban areas, or bare ground areas. This information is critical for applications, such as natural resource management, environmental impact mitigation and decision-making support in agriculture, forestry, urban planning, conservation, and climate sectors.

Land Cover Classification with Remote Sensing

The thematic classification of the land use and cover is based on multispectral satellite image analytics.

The satellite images are pre-processed by applying a set of image correction procedures which aim to reduce environmental noise and result in a standardised surface reflectance. Following this, the data is segmented and thematically classified by using pre-known spectral information and analytical expertise of our EO experts. Finally, the data is QaQc'd using on-site information – if those are accessible – and biased information which might be caused by cloud shadows or other environmental factors will be removed.

EOMAP can use existing classification schemas such as the Corine Land Cover nomenclature, the US national land cover database classification, the FAO Land Cover Classification System, the ESA WorldCover, and GlobeCover classification scheme. Furthermore, EOMAP can provide tailored classification schemes that are agreed upon with the client and developed for a specific area or site.

Satellite Data Sources

The data sources are very high resolution satellite data from commercial service providers, which does come with additional data costs.

Please contact us to discuss the most appropriate set of satellite sensors for your needs.

Satellite / Sensor	Spatial Resolution	Temporal Resolution	Start and End Date	Data Source
Sentinel-2 A/B	10m	5 days	2015/2018 – now	Open Source
Planet SuperDove	3m	daily	2019 – now	Commercial
Maxar WorldView	2m	upon request	2009 / 2014	Commercial
Pleiades Neo 3, 4	1.2m	upon request	2021- now	Commercial
Planet SkySAT	1m	up to daily / upon request		Commercial
SPOT 6	6m	upon request	2012 - now	Commercial
RapidEye 1 - 5	5m	upon request	2009 - 2020	Commercial

Table 1: Overview of commonly used satellite sensors with temporal and spatial specifications

Use Cases

EOMAP has provided Land Cover Classification to different clients worldwide such as engineering firms, research institutes and consultancy firms. Due to confidentiality agreements and client privacy EOMAP is not at liberty to disclose the clients and the location of the projects.

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