European Union Network for the Implementation and Enforcement of Environmental Law

Satellite Images- ICUD (Inspecting Using Copernicus and UAV Data)

Background

Environmental law enforcement may be supported by highly updated and valuable geographic information, gathering, storing, managing and assisting the field activities. However, there is still uncertainty regarding the methods, institutional use and the legal application of these tools for the environmental and land use analysis.

Therefore, this report aims to identify the potential users of these remote sensing data, based on Copernicus services and understand how this information can support the environmental and nature conservation inspection activities within the specificity of IMPEL members involved and how it has already been applied and can be applied in the future.

Copernicus is a European Union Programme, coordinated and managed by the European Commission, aimed at developing European information services based on satellite Earth Observation and in-situ (non-space) data. This information is available without cost and can be applied to several domains.

TARGET GROUP

- Environmental inspectors
- Nature Conservation Inspectors
- Environmental law enforcers

EU LEGISLATION

- REGULATION (EU) No 377/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010
- Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

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Content

Associated with the pre geo-analysis (Copernicus-based), mostly space-based data, there is complementary related information that can be acquired through Unmanned Aerial Vehicles (UAV - Drone) for more detailed and specific (circumscribed) information on site. This information supports the Copernicus images for specific, uncertain, miscellaneous (complex) areas, at high resolution and on demand. Considering that both technologies – Copernicus and UAV - can be used complementarily, the submitted project consisted on the evaluation of the use of these tools in environmental inspections and was named iCUD (inspecting using Copernicus and UAV data).

The use of UAV as a tool to support environmental inspections has become a reality in the past few years and there are currently many institutions already using or planning to use them. The use of new technologies always comes followed by doubts and the need to explore methodologies in order to maximize their use.
Although the information provided by the Copernicus services is available and cost free it is still not a widely used tool when dealing with environmental compliance mainly for lack of technical knowledge when using this type of data.

Recommendations

Copernicus services and UAV data are widely recognised as supporting tools for environmental inspections. However, there is still a lack of technical knowledge within some institutions on how both technologies can be used.
Copernicus services are currently being applied in a variety of areas related to environmental monitoring. The team members contributed with many examples of their own work in several domains:

- Detection of water over-abstraction through SAR remote sensing (WODA IMPEL project);
- Manure spreading monitoring and control;
- UAV examples:
- Hydropower reservoirs monitoring;
- Inspections in industrial facilities;
- Support of obligations under EU water framework and Birds Directive;
- Habitat quality assessment;
- Plant conservation;
- Object-based Image analysis for coastal habitat mapping.

There are also legal constraints: flying procedures and authorisations as well as the possible evidential value of the collected data is still a recognized limitation to most users.

LINKS

- ICUD Report
- Assess the use of satellite images project
- Cross-cutting tools and approaches Expert Team

KEY WORDS

- Copernicus
- UAV
- Environmental law enforcement
- Environmental inspection
- Nature conservation inspection
- Use of technology