EU collaborations with NASA LCLUC Program & Current Priorities

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Special Interest Group in Land Use & Land Cover

| Life services          | Biodiversity |
|                       | Habitats     |
|                       | Health       |
| Geo services          | Land Cover & Land Use |
|                       | Agriculture  |
|                       | Forestry     |
| IT services           | Modelling & Simulation |
|                       | Feature Extraction |
|                       | Uncertainty handling |
### Framework conditions

#### Current priorities

#### Trends

- Various resolutions
- Different sensors
- Diverse classification schemes
- Multi-modal & -source data
- Process automation
- Web downstream services
- Tailor made solutions
- Pan-European layers (+ global & local components)
- Variables for earth system monitoring
- Free data policy

#### Assets or Issues

- Multiple applications
- International coordination
- Product validation
- Mission continuity
- Engagement of member states
- Research
- Standardization, Harmonization
- INSPIRE Directive: Key step to ensure compatibility among spatial data infrastructures
- CORINE Land Cover updates
EU: Big data research
Data mining
Downstream services
Societal benefit areas
(Agriculture, Biodiversity, Climate, Disasters, Ecosystems, Energy, Health, Water, and Weather)
Coupling with in situ networks
Engage citizens through citizen observatories
Multidiscipline research and innovation
Multimodal and –source data processing
Data and processes harmonization
Change detection
Uncertainty handling

Roles (credit: EARSC):
- **Research** should continue R&D into new techniques and technologies and enable the knowledge transfer into both public and private actors.

- **Public bodies** should fulfil their mission to supply core public information needs (in line with their thematic and geographic mandates).

- **Private sector** (industry) should take responsibility and risk in delivering Copernicus Services and accessing and developing new markets for geospatial information.
### Framework conditions

**EU Current priorities**

<table>
<thead>
<tr>
<th>5-10 year trends</th>
<th>20+ years outlook</th>
<th>Progress to policy targets</th>
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<tbody>
<tr>
<td>Protecting, conserving and enhancing nature</td>
<td>Resource efficiency and the low-carbon economy</td>
<td>No target</td>
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<td>Terrestrial and freshwater biodiversity</td>
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<td>Land use and soil functions</td>
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<td>Ecological processes</td>
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<td>Water</td>
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<td>Material resource efficiency and material use</td>
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<td>Waste management</td>
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<td>Marine</td>
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<td>Greenhouse gas emissions and climate change</td>
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<td>Energy conservation and efficiency</td>
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<td>Transport and travel</td>
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<td>Industrial pollution</td>
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<td>Water use and availability</td>
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<td>Noise pollution (especially in urban areas)</td>
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<td>Urban systems</td>
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<td>Climate change</td>
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<td>Health risks</td>
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<td>Chemical</td>
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**Society and policy driven studies**

Emergence of needs for the EO industry

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Credits: ESA

**CREDIT:**

THE EUROPEAN ENVIRONMENT STATE AND OUTLOOK 2015
SYNTHESIS REPORT
European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark
Industry needs (credit: EARSC position paper on Industry Access to Copernicus Sentinel Data, 2013):

- Imagery from anywhere on the earth’s surface available in Europe.
- Imagery that is easily discoverable and easy to identify as covering a particular location on the ground. This implies that available imagery is geo-corrected (level 2/3).
- SAR imagery in coastal areas - which has consequences for the mode changing of the sensors.
- Early knowledge (1 to 3 months ahead) of what imagery will be available and when.
- Assembly of imagery data together with in-situ data (atmospheric corrections, AIS, land measurements, etc).
- A combination of SAR and optical imagery with observations taken within a short time of each other.
- Near-real time availability (critical for many applications).
- Adequate bandwidth to allow data to be downloaded in a short time.
- Available as standard OGC compliant web-services.
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**Till now** numerous research activities are supported by NASA Earth Observation products across Europe at continental, regional, and local level, especially following 2008.

**Today** numerous on going and planned research activities are based on the security of data abundance of e.g. Landsat and as surrogates to non yet existing Sentinel data, e.g. relevant H2020 projects or supporting Global Cover validation exercises.

**Tomorrow** complementarity & synergy to enhance EO products & services

*Thank you NASA*
EU collaborations with NASA LCLUC Program

First joint Workshop of the EARSeL Special Interest Group on Land Use & Land Cover and the NASA LCLUC Program

Berlin, March 2014

Future possibilities for joint activities – **Discussion seeds**:

1. common exercises initiation with members of the LULC SIG of EARSeL, setting specific challenges and concepts to pursue and test;
2. common working groups establishment, based on the example of your S-2 preparatory studies, but expanded in the sense of engaging more members and seeking for alternative additional funding sources;
3. common publications (book, text releases, etc.);
4. setting up a follow up bi-annual WS for brain storming based on the success of Berlin 2014
5. Setting up regional network observatories to support joint activities

(note: communication, wherever needed, with ESA and other EU high level Entities shall be sought and carried out with the relevant designated representatives)
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with a smile and a vision

With my thanks and appreciation to Garik Gutman and you all for providing us this opportunity

At your disposal for questions/clarifications

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CERTH-ITI's footprint in RS & international developments