Emerging space services to support a green economy

Climate Science from Space conference

22 April, 2021
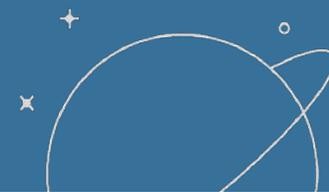
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Space is supporting the green economy on multiple axes

Nature & biodiversity

- Assess forest density and health and detect fires
- Combat deforestation by identifying illegal logging activities
- Monitor biodiversity by tracking migratory species
- Study the ocean environment, protecting marine protected areas

Air & marine quality

- Monitor air quality
- Track oil pollution, detecting oil spills
- Monitor water quality and identify pollutants in the sea
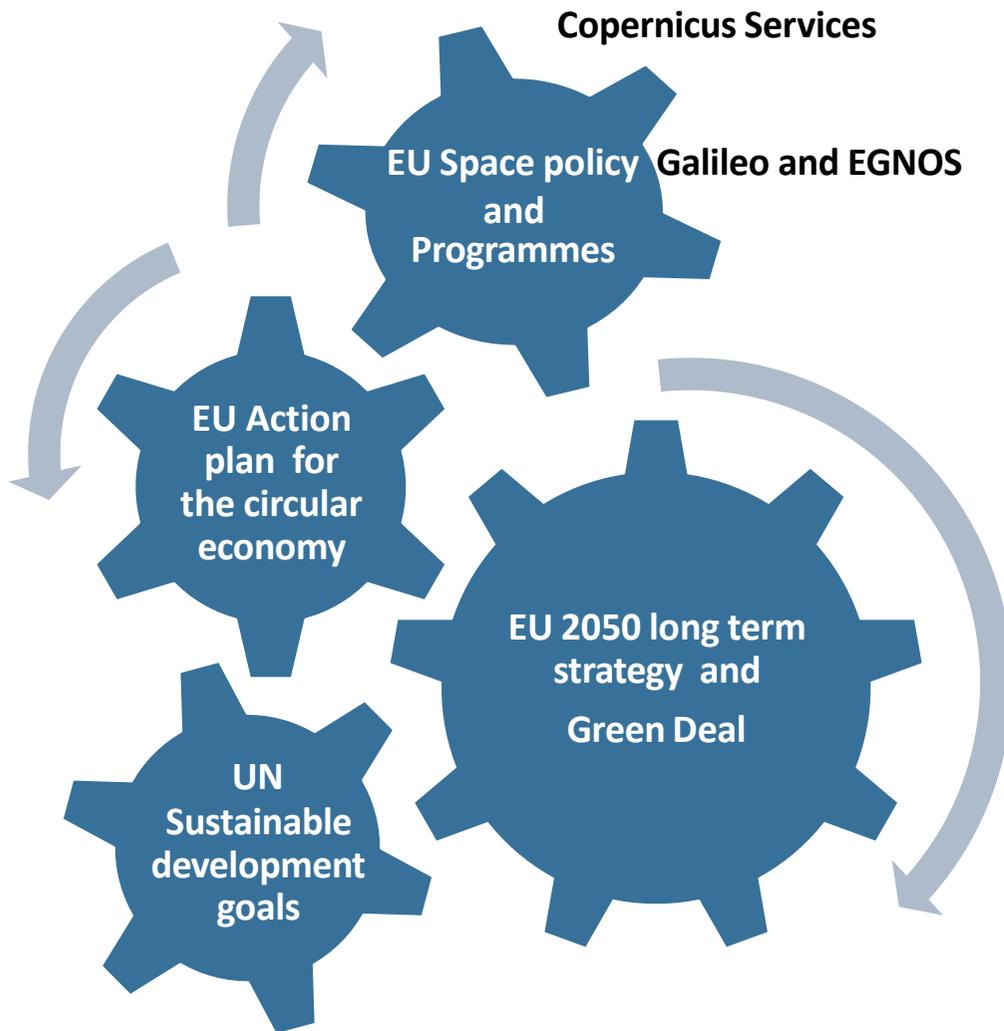
Sustainable agriculture

- Support farmers in the generation and use/reuse of solutions for sustainable agriculture based
- Provide connectivity in rural areas

Smart cities

- Optimise travelling routes and reduce travelling time
- Enabling shared mobility
- Support smart grids

EU Flagship space programmes, key assets in support of EU 2050 long term strategy and Green Deal and a more sustainable economy

Copernicus Services

EU Space policy and Programmes

Galileo and EGNOS

EU Action plan for the circular economy

EU 2050 long term strategy and Green Deal

UN Sustainable development goals

Air quality and climate change:

- CAMS provides daily **air quality forecasts worldwide** and daily air quality bulletins in the news for citizens
- C3S provides **annual European State of the Climate** report and **monthly Climate Bulletins of Climate Data Store** with key climate change indicators trends
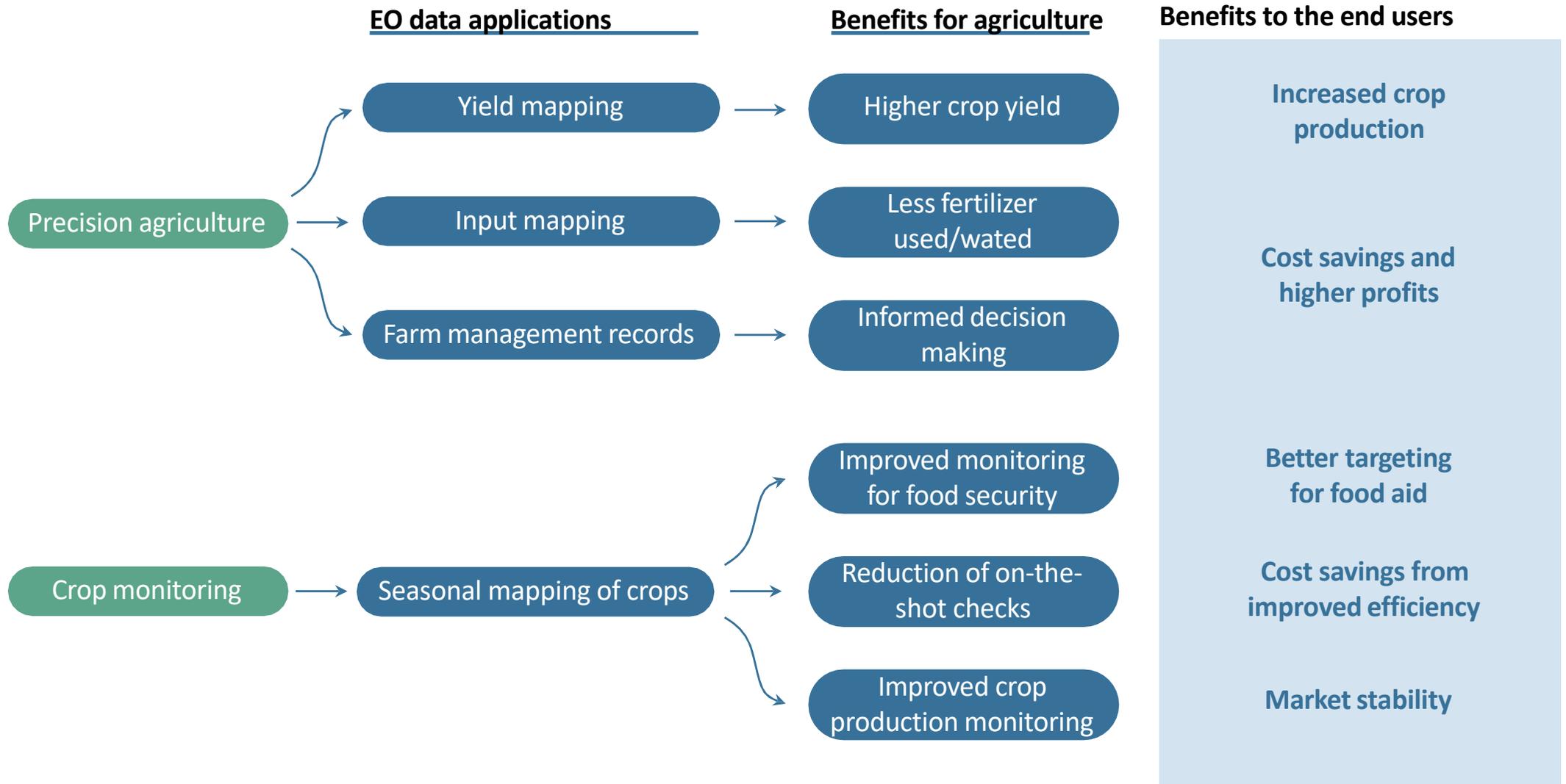
Marine pollution:

- CMEMS provides **daily with water quality tracking and forecasting pollutants** at sea coming from land and along coasts but also organic pollution, like algae blooms
- A CLMS **lake water quality product** is being developed to better monitor water pollution (and in line with WFD);

Smart cities and clean energy:

- Identify traffic jams, reduce travelling time and **optimise travelling routes with Galileo**
- Support the **implementation of smart grids with Galileo's precise synchronisation services**, increase safety and reduce the costs of energy infrastructure management;

Note: CAMS= Copernicus Atmosphere Monitoring Service, C3S= Copernicus Climate Change Service; CLMS= Copernicus Land Monitoring Service; CMEMS= Copernicus Marine Environment Monitoring Service

Example of applications: EO for a more sustainable agriculture generating positive economic impacts

EO data applications

Benefits for agriculture

Benefits to the end users

Precision agriculture

- Yield mapping → Higher crop yield
- Input mapping → Less fertilizer used/wated
- Farm management records → Informed decision making

Crop monitoring

- Seasonal mapping of crops
  - → Improved monitoring for food security
  - → Reduction of on-the-shot checks
  - → Improved crop production monitoring

Increased crop production

Cost savings and higher profits

Better targeting for food aid

Cost savings from improved efficiency

Market stability

Circular economy & emerging space segments