



Understanding the links between SOiL pollution and CancEr (SOLACE)

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Joint
Research
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Exploratory Research Proposal
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Cancer burden in the EU – a societal challenge

human burden

1 in 2 men and 1 in 3 women estimated to develop cancer during their lifetime; 1 in 4 men and 1 in 6 women expected to die from the disease

ECIS (2020)

1/3 survivors experience lasting effects of treatment including pain, poor health and limitations to perform daily activities

Ekwueme et al. (2014) MMWR Morb Mortal Wkly Rep.

financial burden

Health annual expenditure on cancer care were €85 billion

Total productivity loss € 58 billion (€41 billion from premature mortality and €18 billion from morbidity)

Hofmarcher et al. (2020) European Journal of Cancer

Knowledge Gateway: <https://ec.europa.eu/jrc/en/health-knowledge-gateway/societal-impacts/costs>

Understanding environmental drivers of cancer



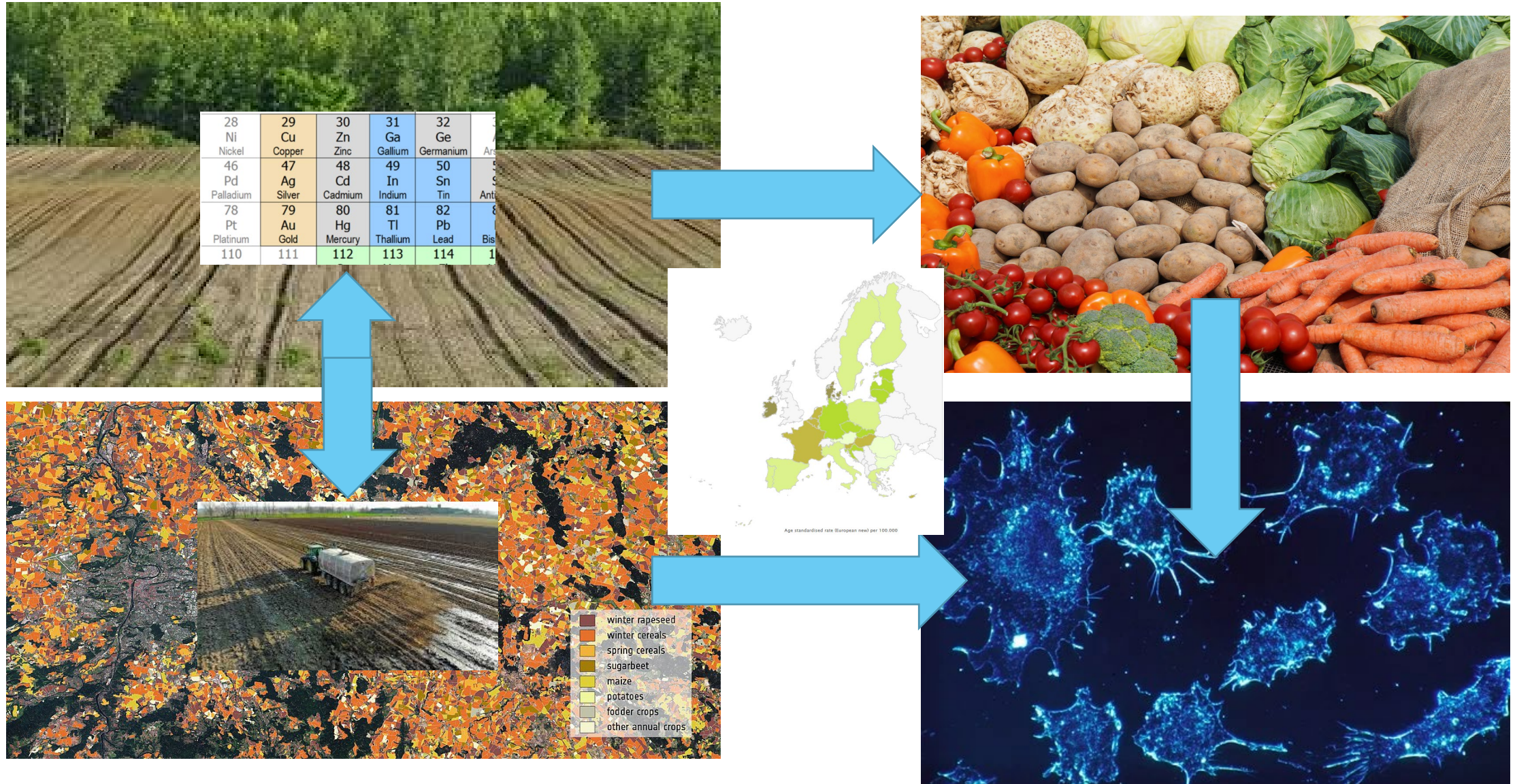
Winker @ Wikimedia Commons



Brian Robert Marshall @ Wikimedia Commons

- Contaminated air may make you cough
 - Contaminated water may make you vomit
 - Contaminated soils may give you a tumor in 25 years!
- 3 • SDG 3.9 reduce impact of soil pollution on human health

SOLACE



The EC's European Cancer Information System (ECIS)

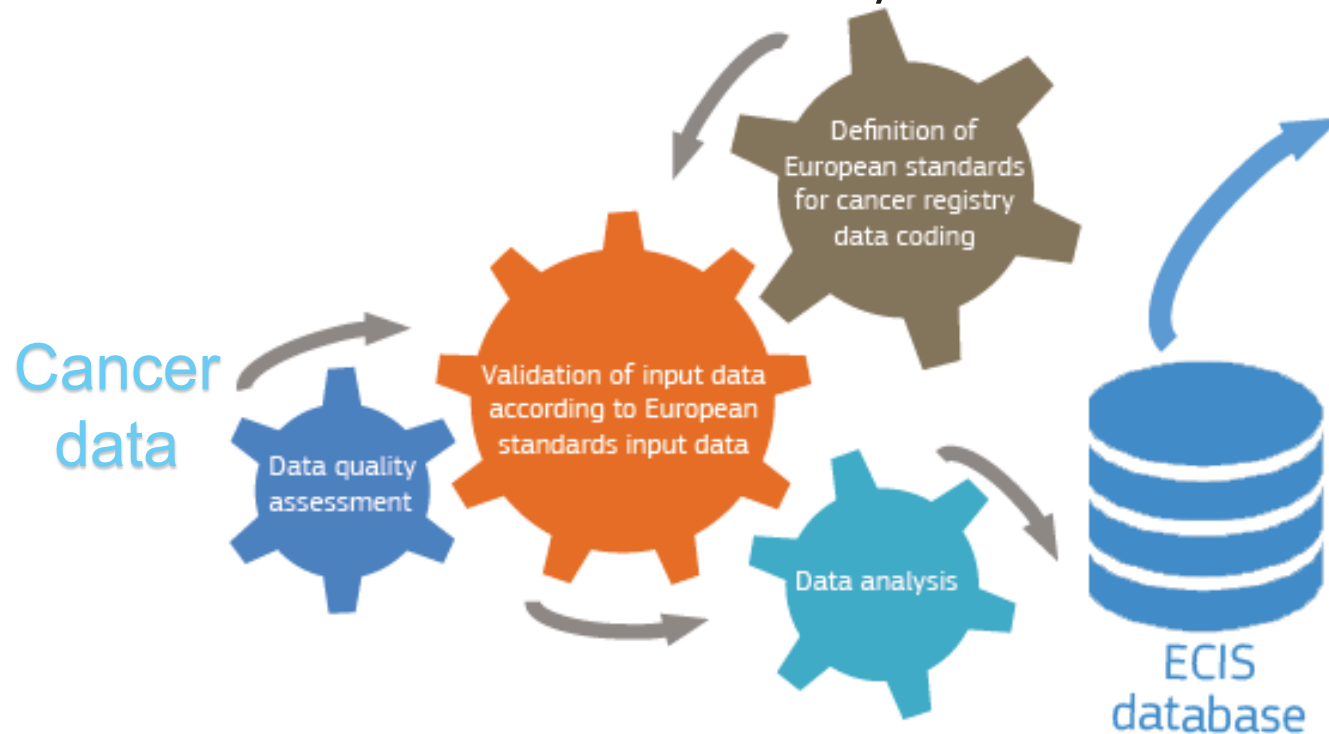
EC's Joint Research Centre

<https://ecis.jrc.ec.europa.eu/>

INDICATORS BY

- Cancer type
- Geographical area
- Sex
- Age
- Year

Data validation and analysis

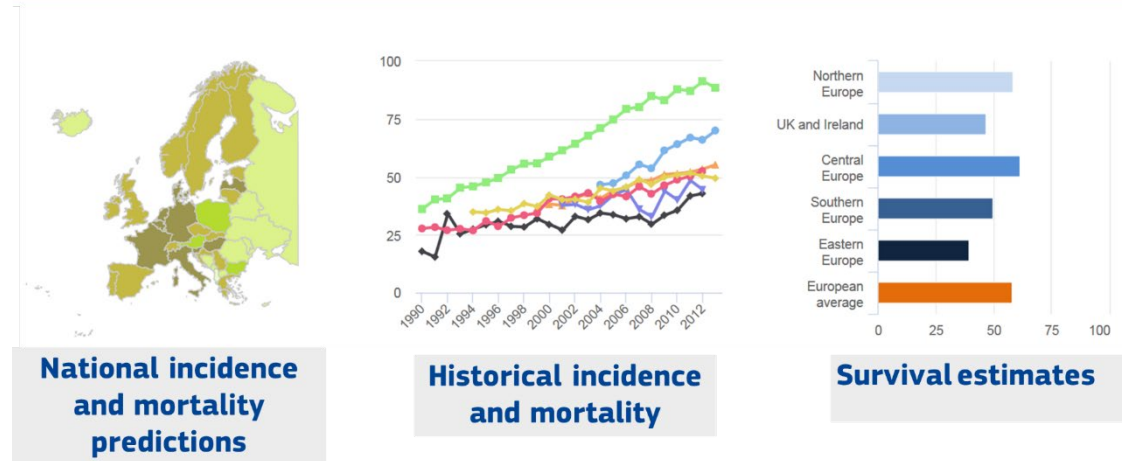


Output statistics

European Commission > EU Science Hub > ECIS

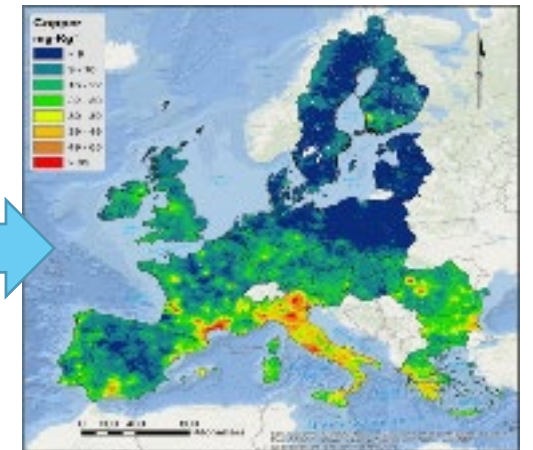
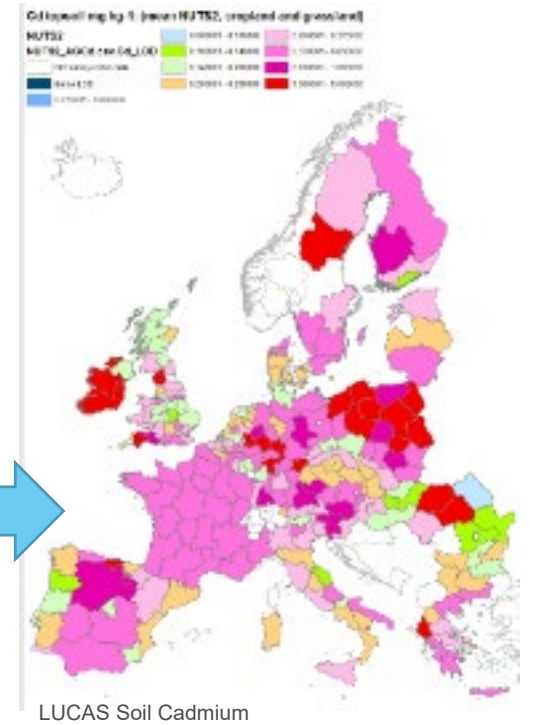
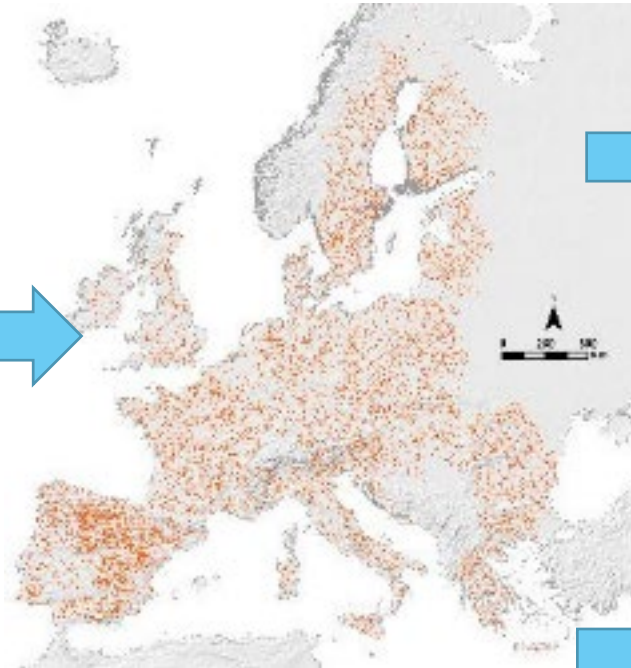
ECIS - European Cancer Information System

Measuring cancer burden and its time trends across Europe



34,500,000
cancer cases

LUCAS Soil: Measuring soil pollution



JRC Coordinates LUCAS SOIL

Survey in 2009, 2015, 2018 and 2022

22,000 sampling locations > 42,000

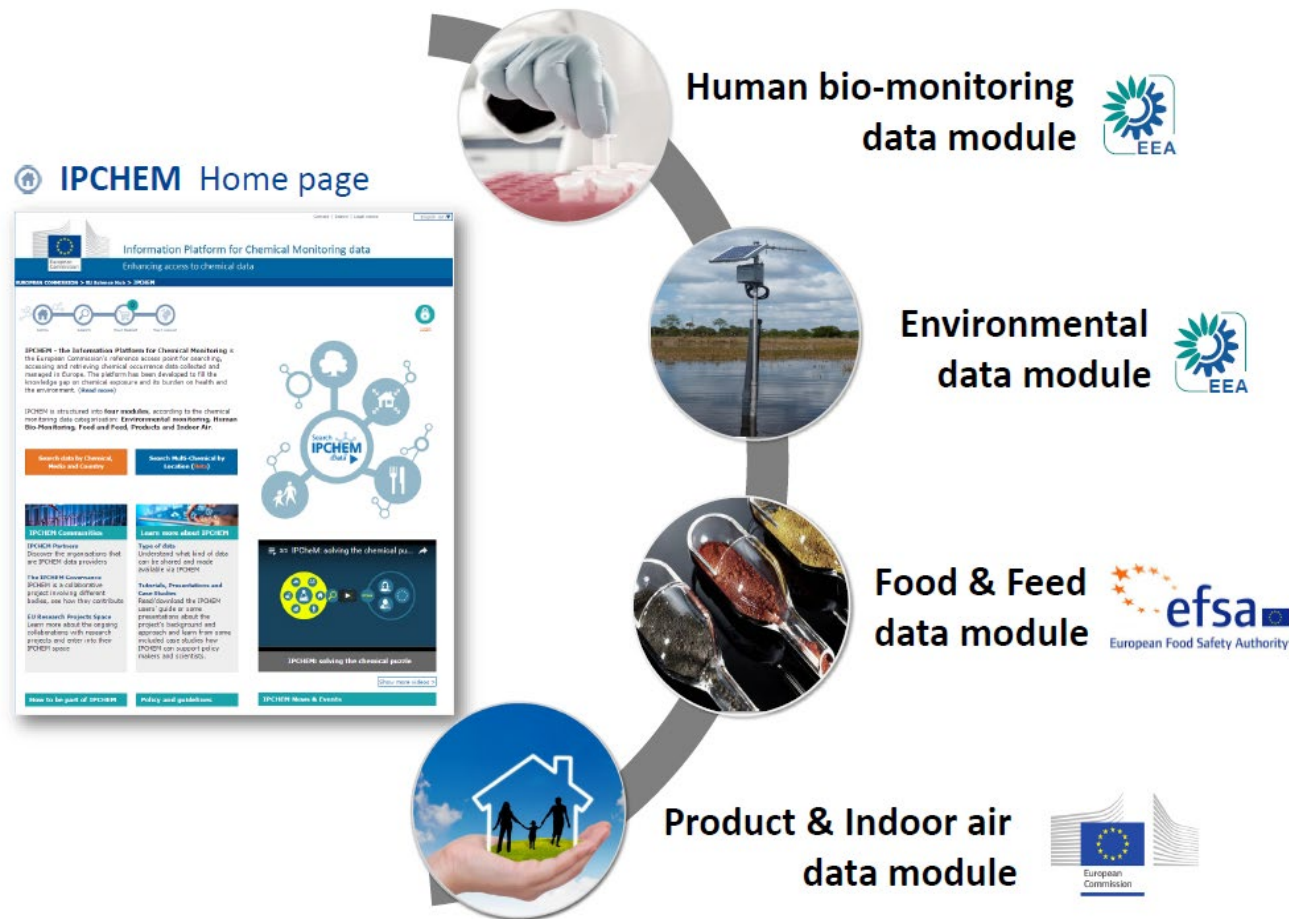
Only harmonized soil data collection programme for the EU

Adaptable to measure range of pollutants (metals, pesticides, endocrine disruptors, plastic, etc.)

Support from across DGs (ENV, SANTE, AGRI, CLIMA, ESTAT)

IPCHEM

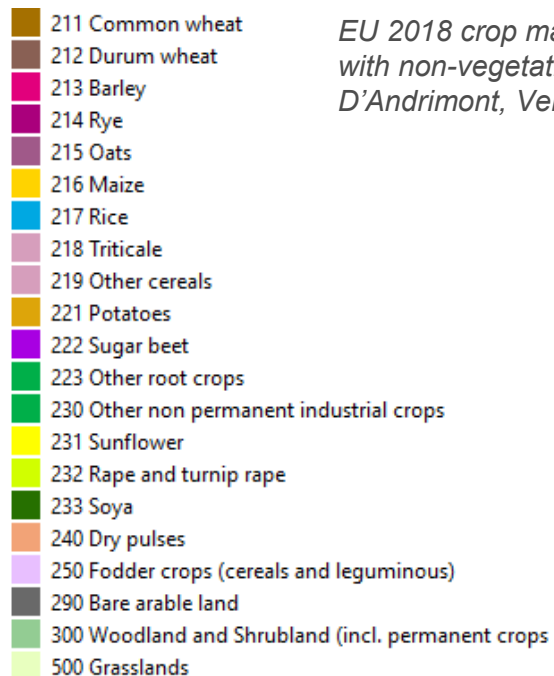
Information Platform for Chemical Monitoring



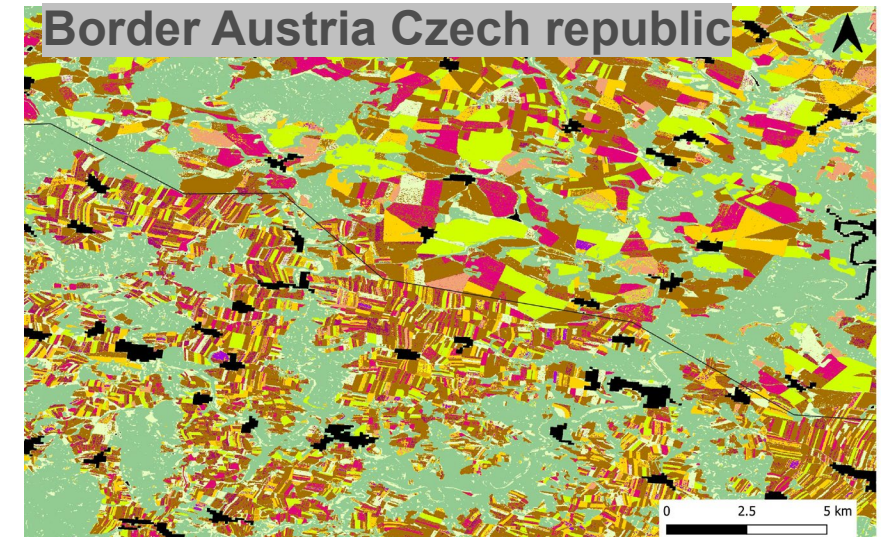
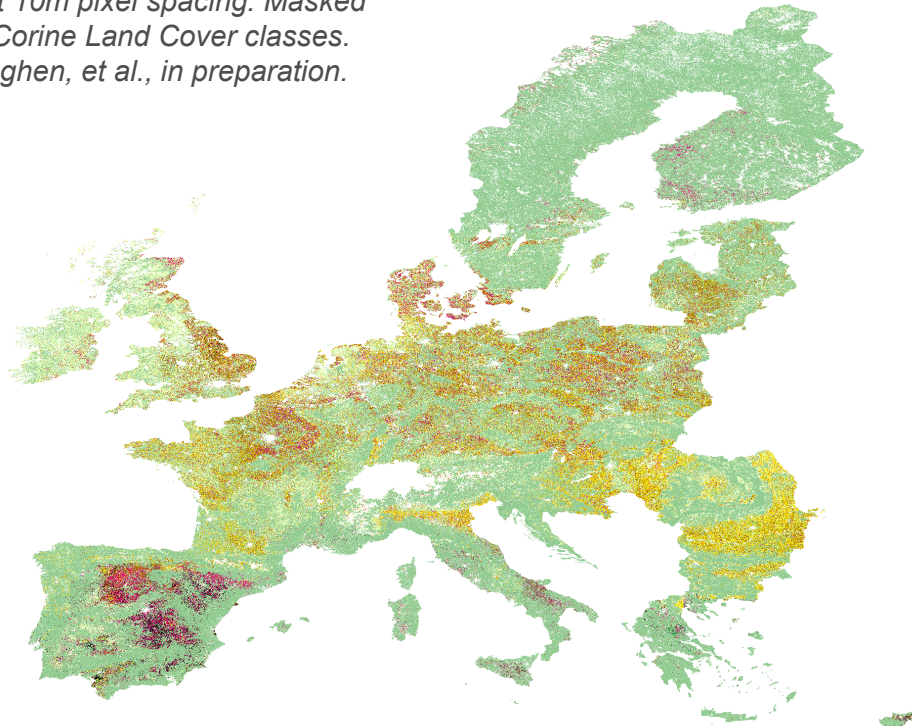
- **Single access point for searching, accessing and retrieving chemical occurrence data collected and managed in Europe and beyond**
- The platform has been developed to **fill the knowledge gap on chemical exposure and its burden on health and the environment**

How do we know where crops are grown?

- Mapping all crops on all parcels in the EU is now possible!
- Copernicus Sentinel 1 observations and LUCAS Copernicus in-situ data
- Link crops with crop specific agri-chemical use?



EU 2018 crop map at 10m pixel spacing. Masked with non-vegetation Corine Land Cover classes. D'Andrimont, Verhegghen, et al., in preparation.



Novel aspects

A real societal challenge in relation to both cancer and soil pollution.

Mirror the aspirations of the Green Deal (Zero Pollution, Farm2Fork)

Shows JRC is reactive to policy priorities with high public and scientific interest.

Links proposed Horizon Europe Missions on Cancer and Soil Health and Food.

The ER activity will provide a real focus for meaningful collaboration between two Units of Directorate D and two Units from Directorate F.

Integrate traditionally separate knowledge streams.

A real example of breaking silos.

If successful, a step to the prevention of cancer.