



European  
Commission

# European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



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# Water pollution from a river basin perspective



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# Statistical problem

Pollution indicators complemented with geographical information, from a river basin perspective.

## Our approach

- Geographical area of study: Spain and Portugal, Tagus River basin
- Disaggregation level: Subbasin units, which are smaller than NUTS3
- Time periods of study
  - Water pollution: mean values for periods 1971 to 2000 (historical) and 2011-2040 (predictions)
  - Land coverage: 1990 and 2018



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# Our resources

- **Pollution indicators:** subbasin HYPE contamination models
- **Land Cover:** CORINE
- **Subbasins and hydrological links:** Level A Pan European Subbasins, E-HYPE 3.0 Type (Isberg, 2017)
- **Tools:** Python and QGis



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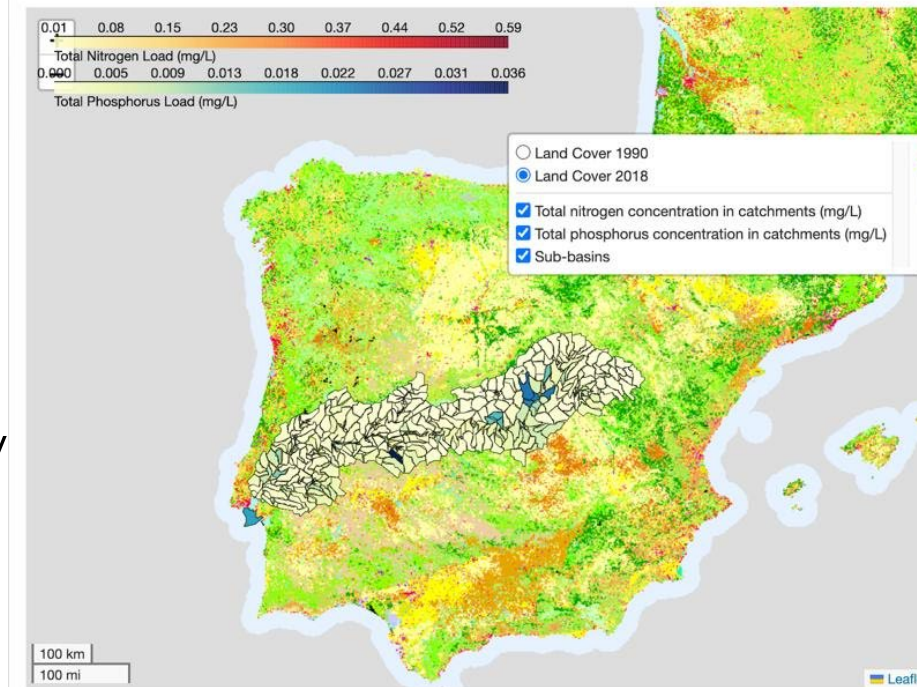
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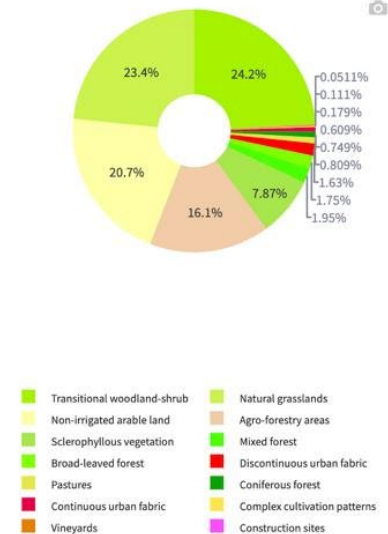
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# Output generated

- Interactive dashboard  
Information from different sources is integrated in one space, after performing operations that improve the information given by data.



Land Cover Distribution for Sub-basin 9556584



# Conclusions

Data availability and study on river streams and basins remain limited. This gap can be addressed by geographically integrating relevant information to assess basin conditions, strengths, and risks, considering the hydrological connections in the area.



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# Thanks

Ricardo Carvalho, University of Porto

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