



12th European Week of Regions and Cities

OPEN Brussels

DAYS 6 - 9 October 2014

The Copernicus Programme and its Support of Regions

Peter Breger

Copernicus Services

**European Commission - DG Enterprise
and Industry**





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Outline

Update of the Copernicus Programme

Copernicus and its Support to Regions

Opportunities for User uptake



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"The Union Earth observation and monitoring programme"


European Commission

Monitor the environment


Foster downstream applications in a number of fields




Protect people and assets



Increase general knowledge on the state of the Planet



Improve environmental policy effectiveness



Facilitate adaptation to climate change



Help managing emergency and security related situations





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Official Journal
of the European Union

L 122/44

EN

Official Journal of the European Union

24.4.2014

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
(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Adopted budget appropriations 2014-2020

Space component	3.394 M€
Service & In-situ component	897 M€

- *Until end-2013 funding for Copernicus comes from **GMES Initial Operations (GIO)** and FP7 funded pre-operational projects*
- *From 2014 Copernicus entered its operational phase*
- ***24.04.2014** adoption of the Copernicus Regulation – **legal base** for the **implementation of the programme***



Copernicus comprises...

a service component ensuring access to information



a space component ensuring sustainable space borne observations for the service areas

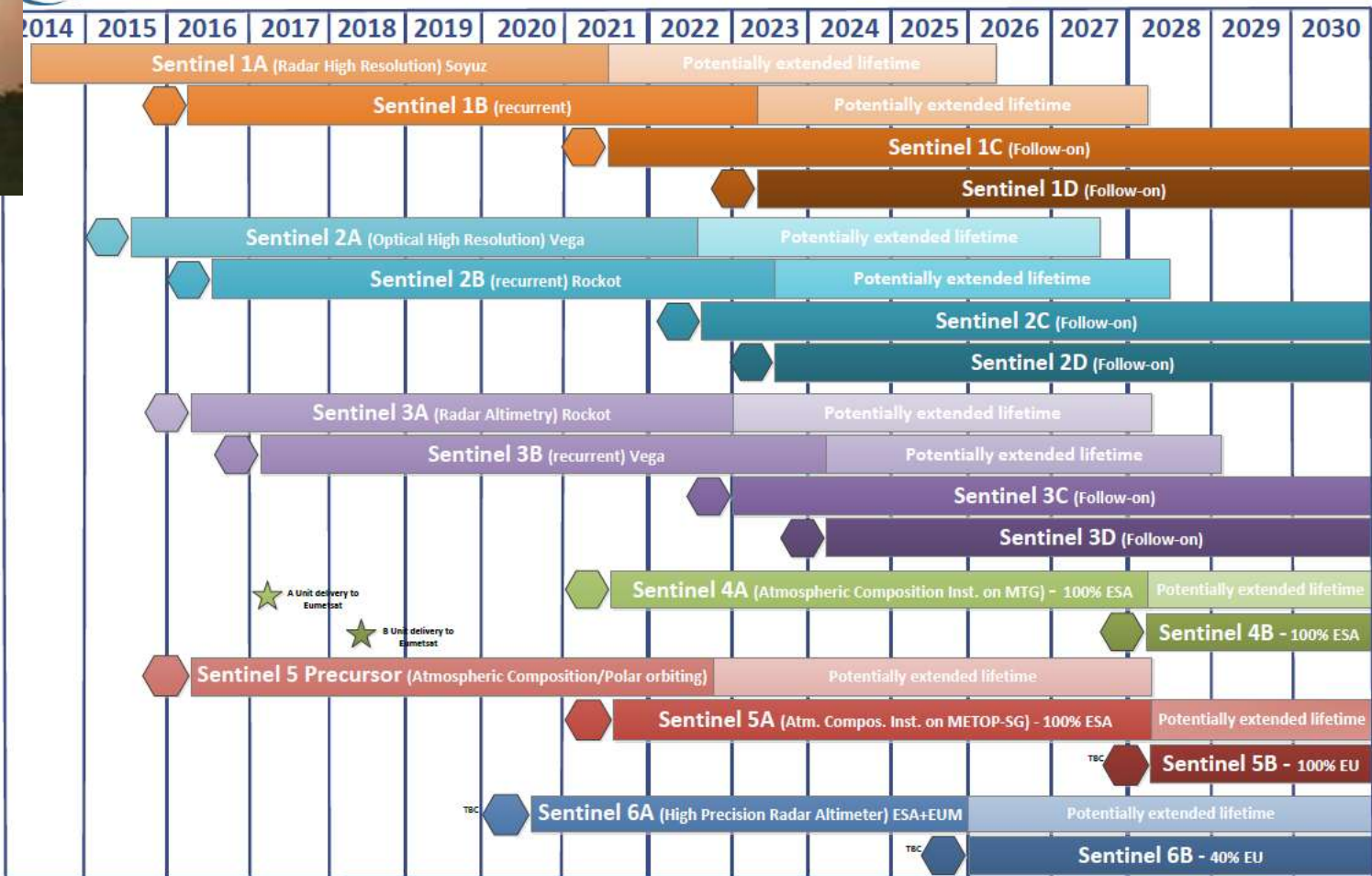


an in-situ component ensuring observations through airborne, seaborne and ground-based installations for the service areas





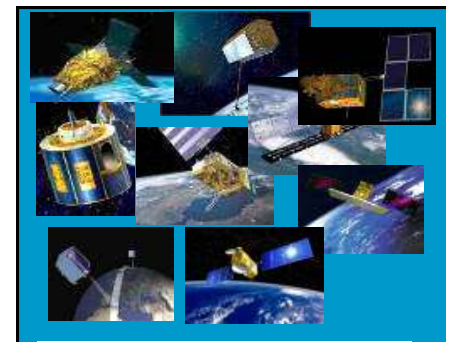
Copernicus Constellations Deployment Schedule



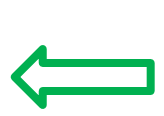
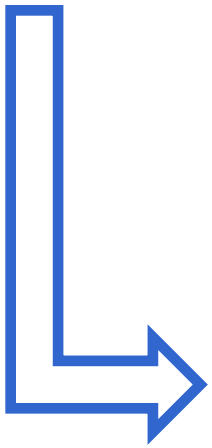
Legend: ○ Flight Acceptance Review



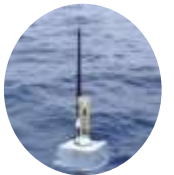
6 services use Earth Observation data to make ...



contributing missions



in-situ

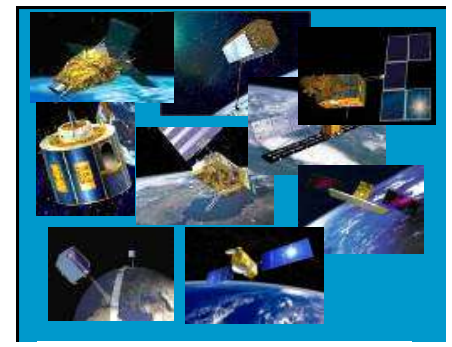


...added-value products





National/Commercial



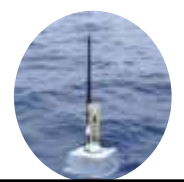
6 services need Earth observation data to make...

contributing missions



 European Environment Agency	 ECMWF	 Mercator Ocean Ocean Forecasters
 FRONTEX	 EMSA	 European Commission

in-situ



...added-value products





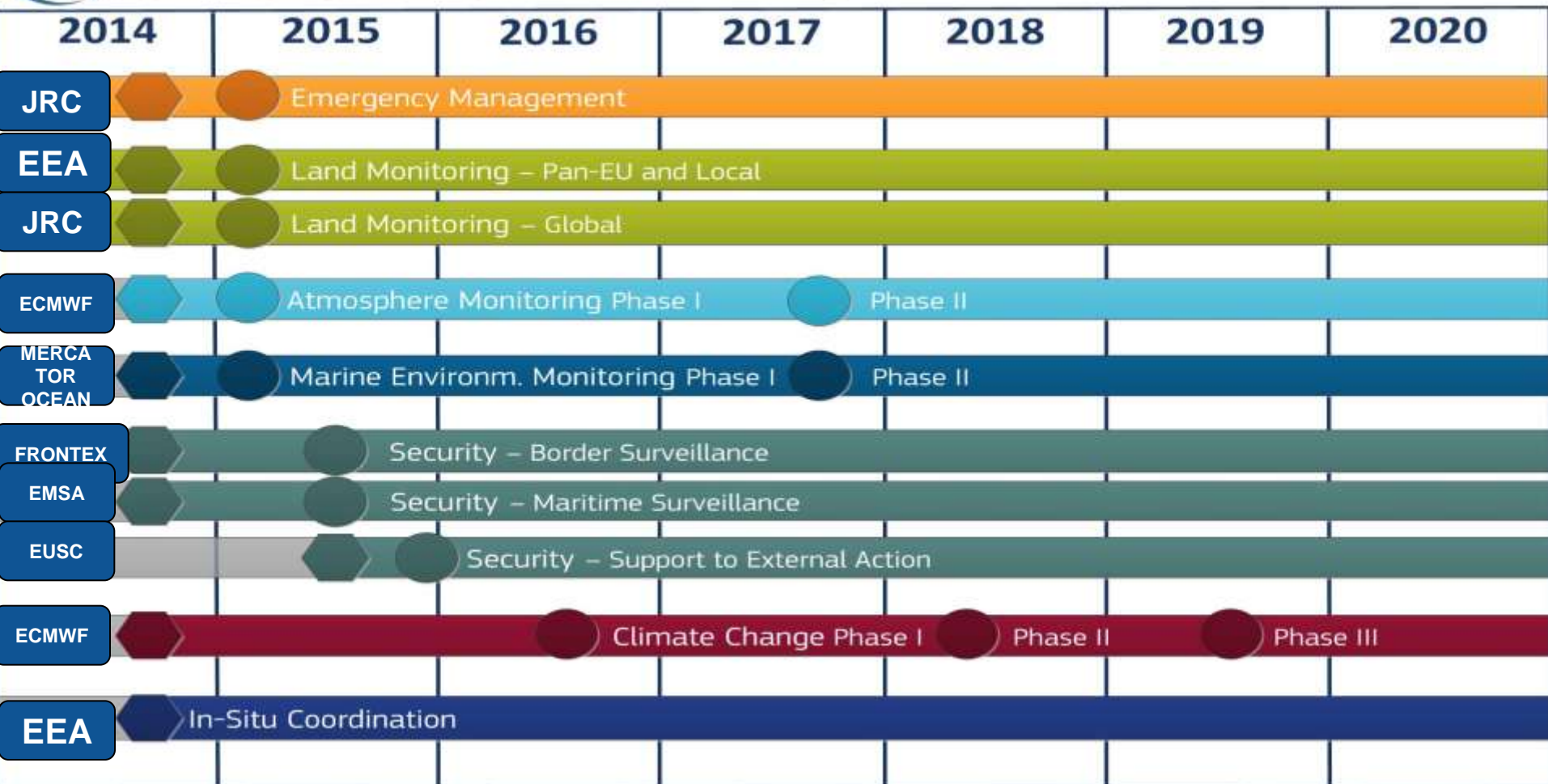
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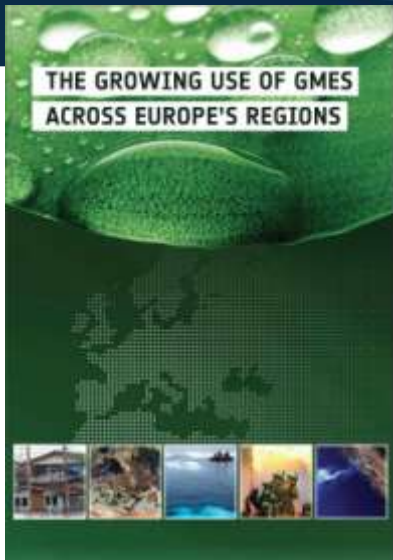
Copernicus services: Implementation Schedule



Legend: Delegation agreement Operational phase



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Outline



Introduces some 60+ services from some different 40 regions

Update of the Copernicus Programme
Copernicus and its support to Regions
Opportunities for User uptake



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Copernicus Services for support to regional authorities

Core and Downstream Services!

Example cases (not yet highlighted as much):

- Air quality – transport of pollution**
- Climate change service – sectoral support**
- ...

Objective:

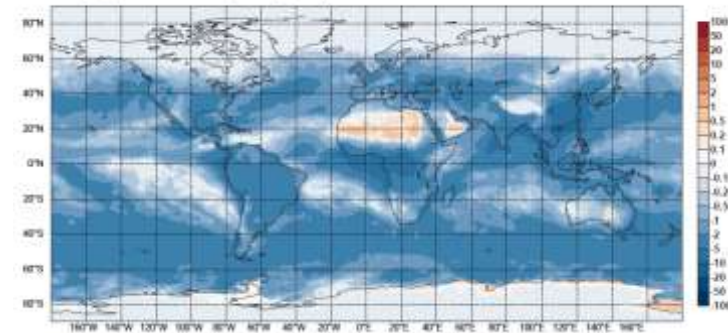
To provide information of chemical composition of the atmosphere on a global scale, and on air quality on EU.

For air quality monitoring system at local to national scales, and to contribute to the monitoring of atmospheric chemistry climate variable.

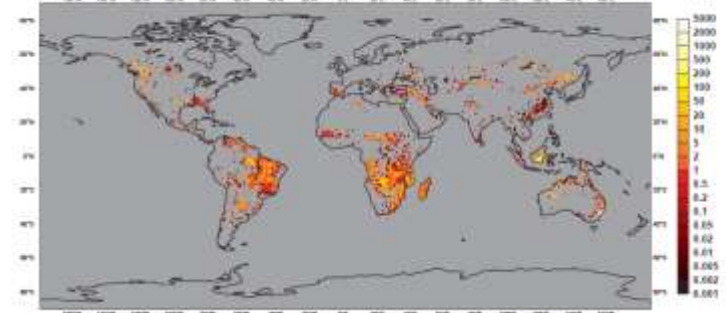
Service Domains:

- Air quality & atmospheric composition
- Climate forcing
- Ozone layer and UV
- Solar radiation
- Emissions and surface fluxes

MACC Aerosol Forcing derived from MACC reanalysis Global Monthly Mean January 2003
Anthropogenic SW direct forcing at TOA [W/m²] min=-13.911 max=1.556 mean=-1.876

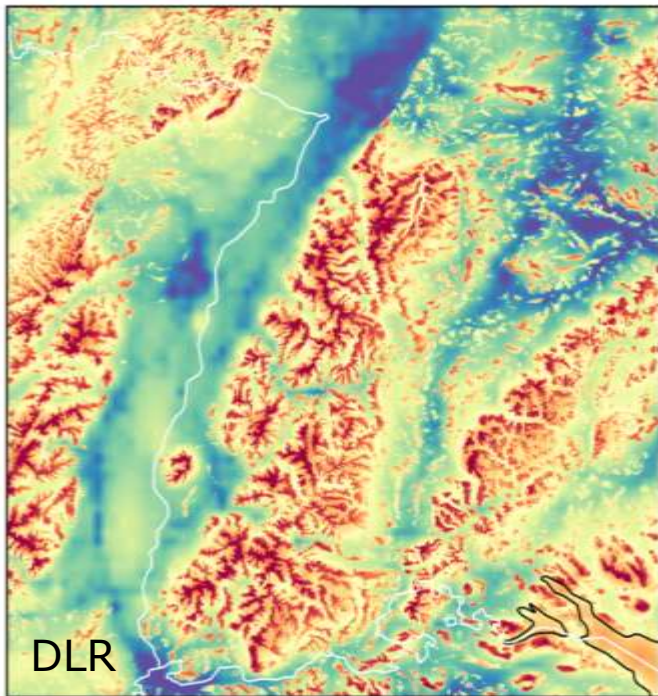


MACC Daily Fire Products Thursday 17 October 2013
Average of Observed Fire Radiative Power Areal Density [mW/m²] max value = 7.91 W/m²



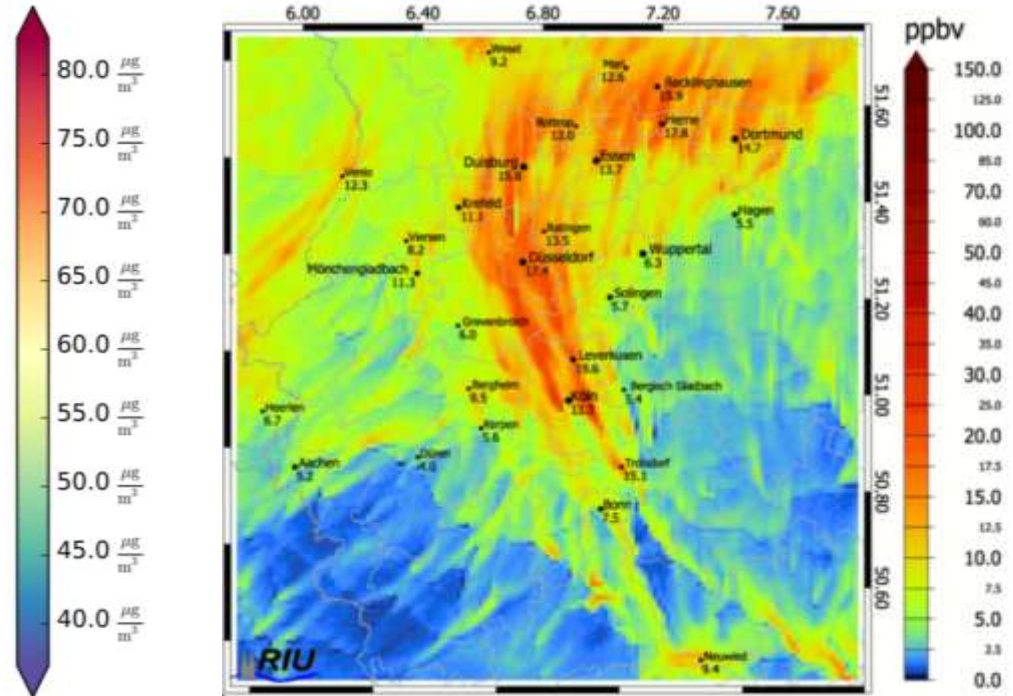


Air Quality Forecasting at Regional Scales (Germany)



Mountain Areas [O₃]

POLYPHEMUS/DLR
Black Forest, DE (2km x 2km)



Industrialized Areas [NO₂]

EURAD-IM/RIU
Ruhr Area, DE1 (km x 1km)



Air quality in south east UK – 3 April 2014

influenced by external source outside regional control?

Copernicus Atmosphere Monitoring pilot service (MACC-II) provides the big picture

- *Here: influenced by Sahara dust*

Department for Environment Food & Rural Affairs

Home About Air Pollution Data Archive Monitoring Networks Library Science & Research AQMAs

You are here: Home > Pollution forecast

UK-AIR Pollution forecast

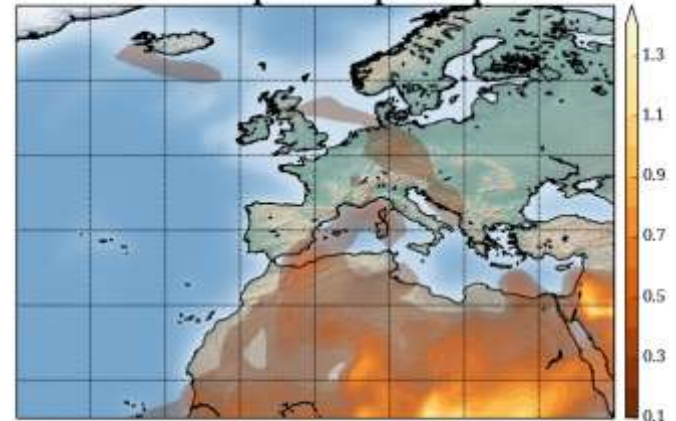
Forecast maps (provided by the Met Office)

Enter your location or postcode to see the forecast for your area:



BBC, 02.04.2014: " ... The air was hazy as Oxford University's rowing crew took part in a training session ahead of the Boat Race ... "

MACC-II dust aerosol optical depth 2 April 2014 01 UTC



- *Forecast by UK Met on behalf of DEFRA (Department for Environment Food & Rural Affairs)*
- *Downstream application based on Copernicus/MACC*



source-receptor relationship for Air pollution

Question

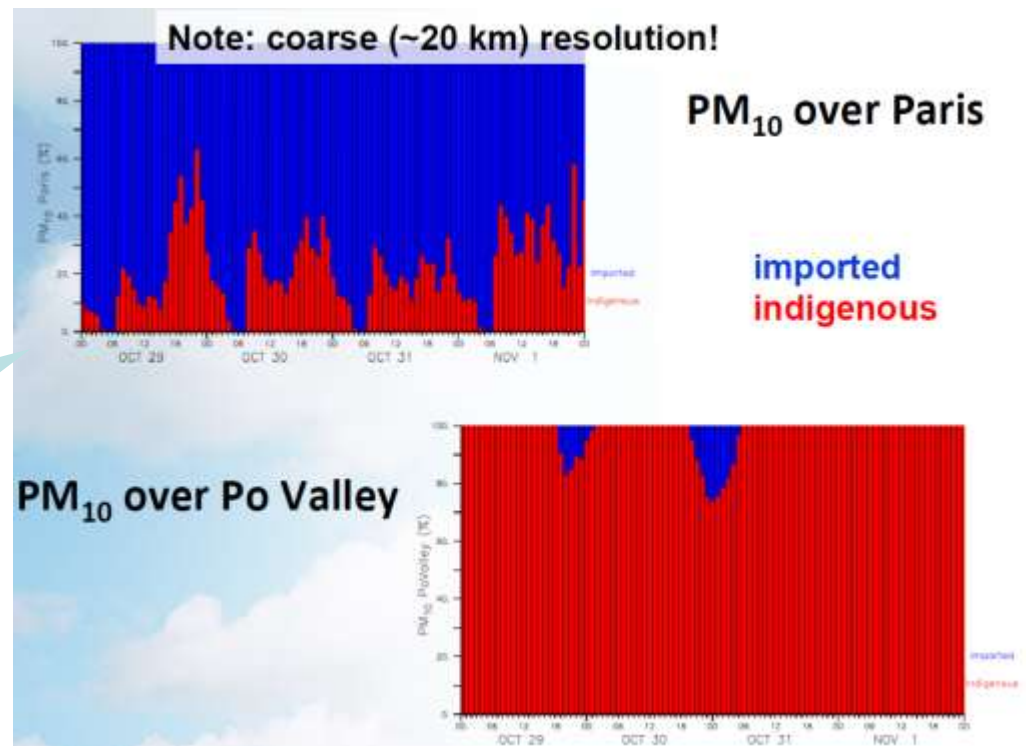
1. How much pollution produced regionally?
2. How much from outside?

*"Where to act ...
... at home or beyond"*

**Model of %
imported and
indigenous
amount of PM₁₀**

Answer:

Simulation in Copernicus Atmosphere pilot-service (MACC-II)

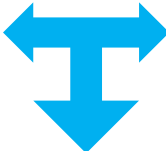


Climate Change service



from European commission
e.g. FP7 Space call

from other bodies e.g., MS,
ESA, Eumetsat, EEA, WMO..



Harmonization/Coordination & QA platform



Consistent Climate Data Store



Customization platform

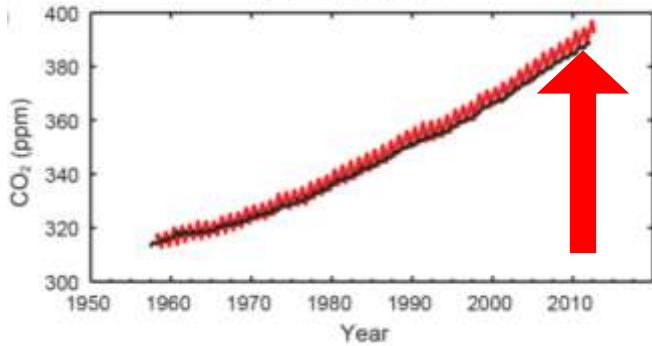


Sectoral Information System

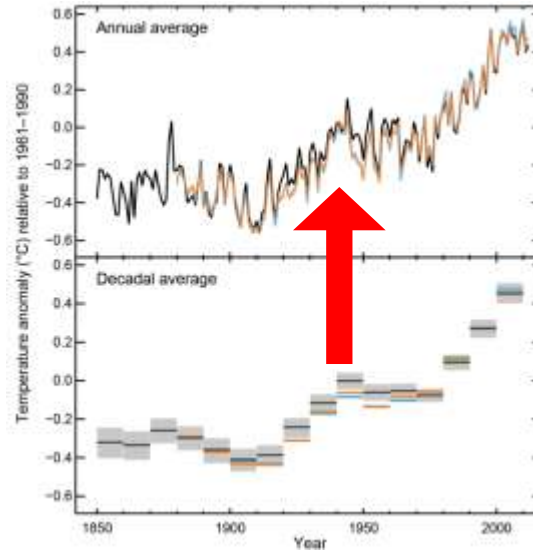




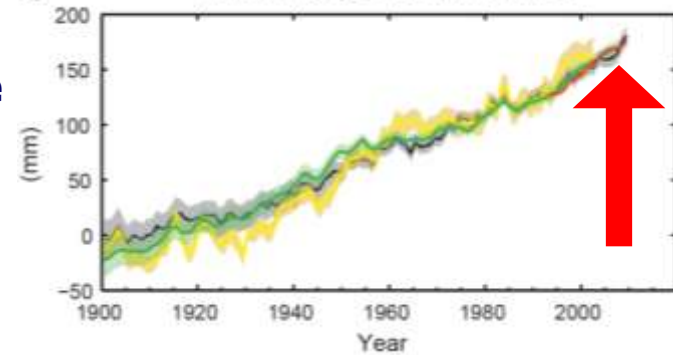
Atmospheric CO₂



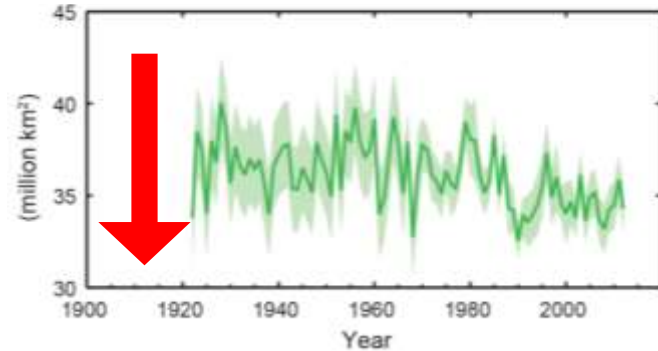
Surface Temperature



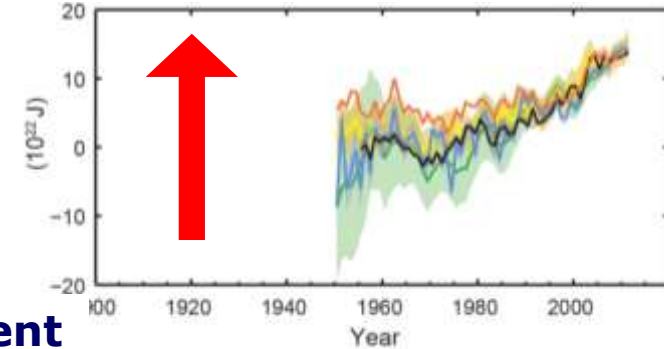
Average Sea Level Change



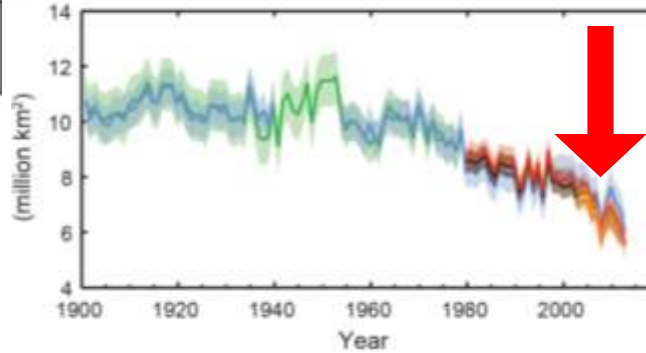
NH Spring Snow Cover



Global Ocean Heat Content



Arctic Summer Ice Extent

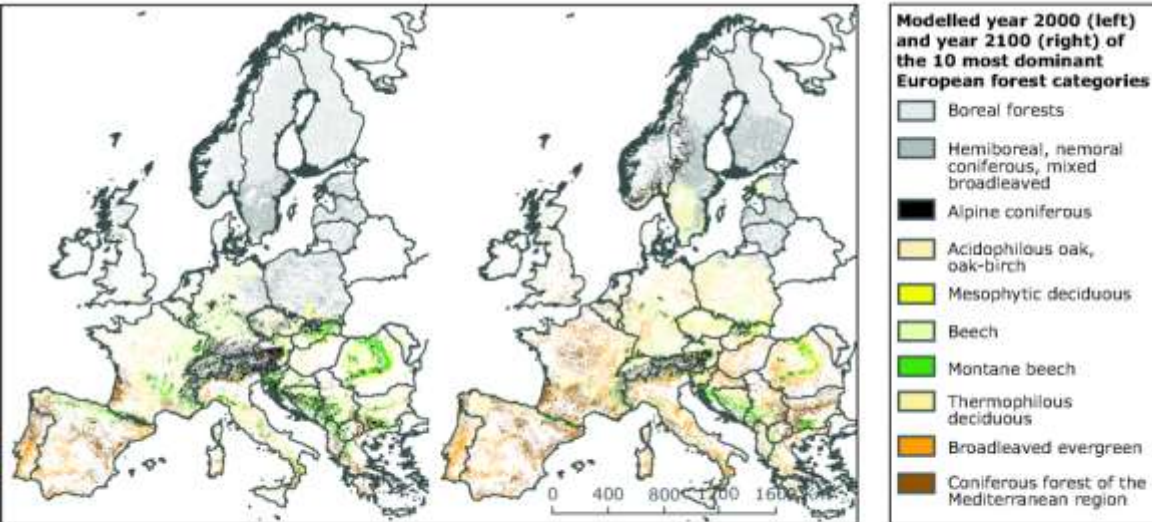


Different colours associated with different data sets

Shaded colours associated with uncertainties

Forestry

Source: JRC



Coastal zones

Source: ice2sea



Sectoral Information System

Climate indices relevant to the various
EU sectoral policies

Regions are often dependent on characteristic sectoral activities e.g. Wine growing & associated tourism

- *Are changes in seasons and temperature only a normal variability?*
- *Or is there a persisting climate change facing the region?*

Vineyards take action as climate change threatens wines and livelihoods

As growing conditions are altered, grape production long associated with regions further south is now beginning to shift to new areas



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The E-VitiClimate

E-learning website is now open!

Click here to access our free course and assess your knowledge of new strategies to manage climate change.

Thus, the project **E-VitiClimate** aims to train teachers and trainers on issues related to climate change and on different viticultural techniques to help producers adapt to climate change. **E-VitiClimate** delivers an innovative platform to help maintain the best European vineyard conditions.

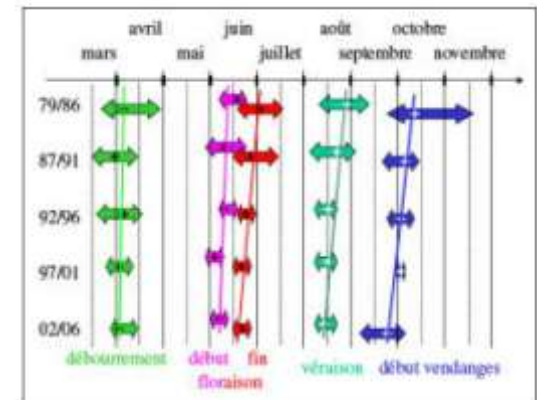
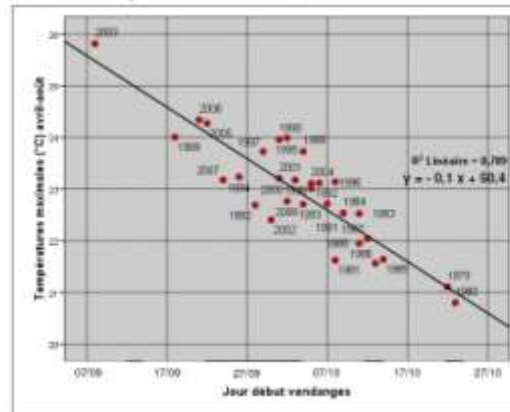


Figure 6 : Evolution des stades physiologiques de 1979 à 2006 dans le vignoble de Cognac (SNAKKERS, 2007)



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Opportunities for User uptake



Examples of mechanisms:

- Information / Match-making events – intermediate and end users
 - **Use cases / good practises**
- User uptake workshops to identify the needs
- Capacity building
 - **E.g. Educational and training workshops – train the trainers, eLearning**
- Service voucher schemes
- Competitions (e.g. *App Camp*, ...)



- **385/PP/2014/FC: Support to the uptake of Copernicus services by users**

Lot1 Support to Copernicus user uptake promotion, communication and dissemination activities

Lot2 Support to the use and user uptake of Copernicus data and information

16/09/2014 – 13/11/2014



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**Thank you
for your attention**