



Atmosphere Monitoring

CAMS : existing and foreseen links with FAIRMODE

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Coordinator of CAMS services for policy support

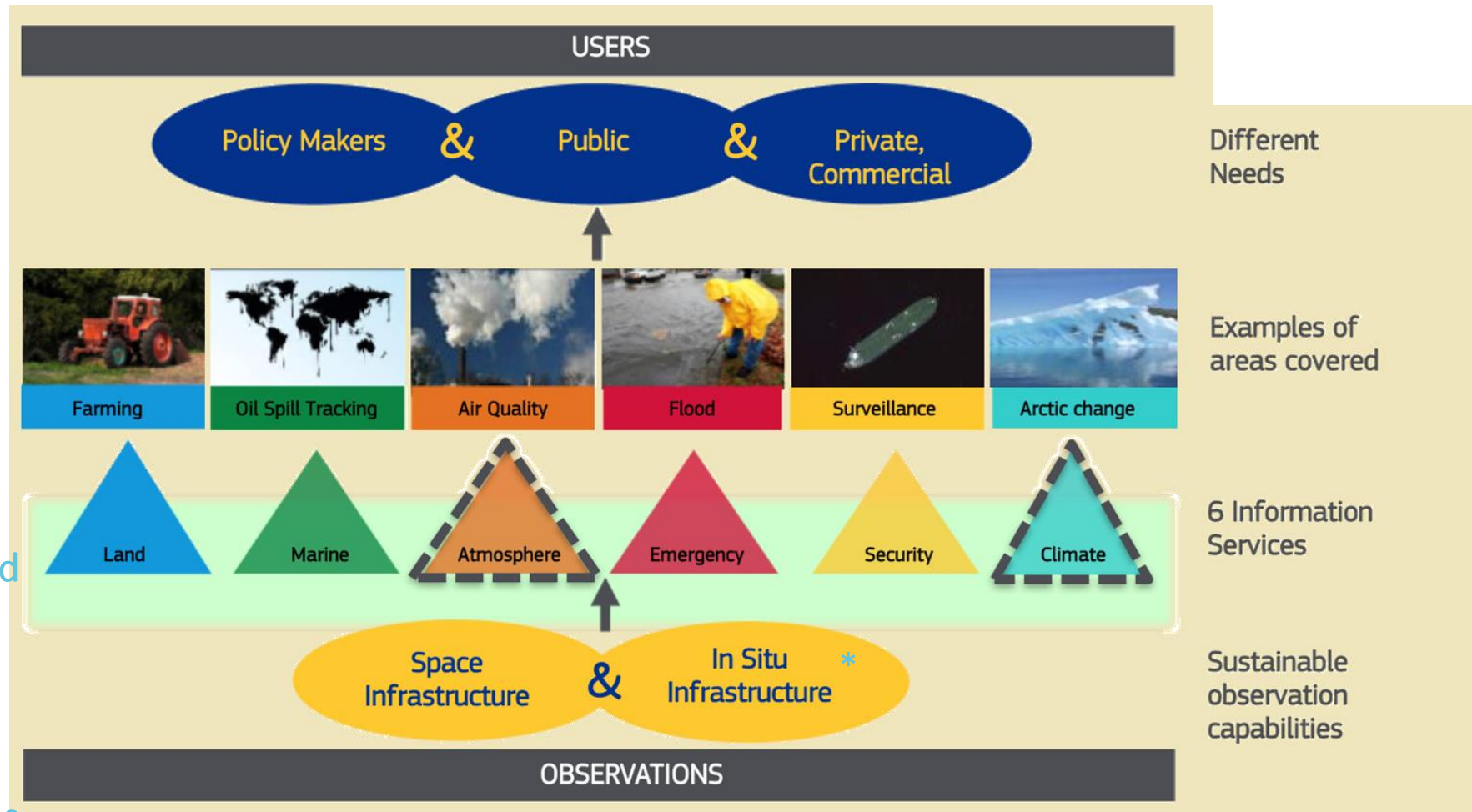


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THE COPERNICUS VALUE-ADDING CHAIN


Services
led by ECMWF

* Mostly based
on the
principle of
subsidiarity
from EU
Member states



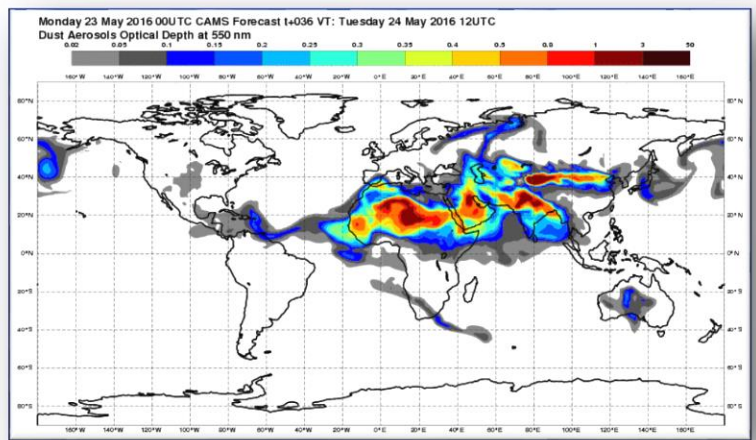
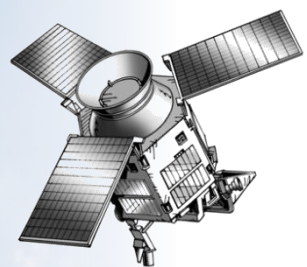


CAMS SERVICE CHAIN

<http://atmosphere.copernicus.eu/>

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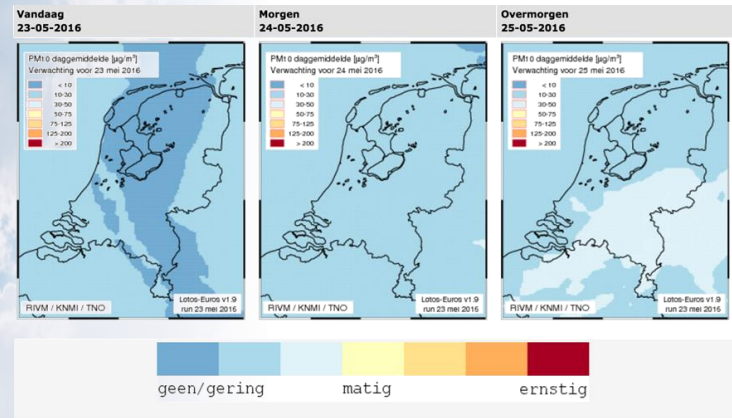
Space Agencies



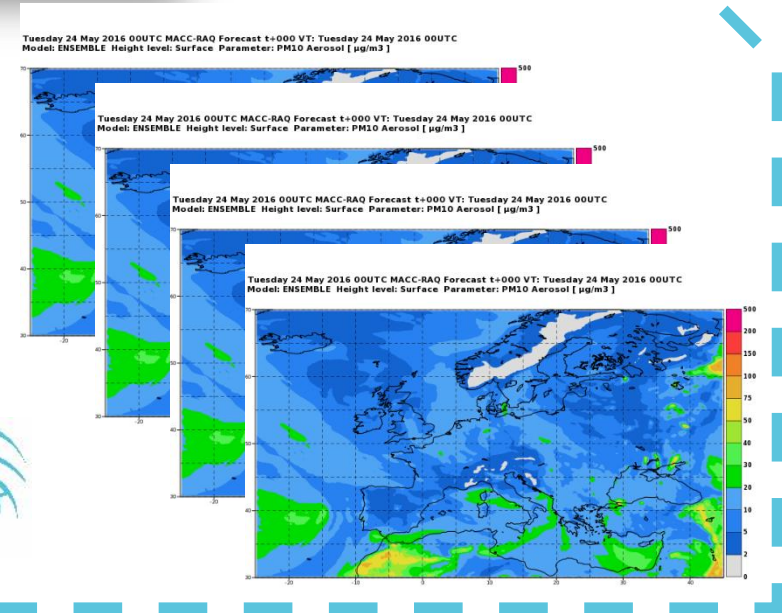
In-situ observations



National scale



> 30
providers
from 14
Member
States





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CAMS PORTFOLIO



Portfolio	Product groups
A. Regional products	European AQ NRT analyses
	European AQ NRT forecasts
	European AQ interim reanalyses
	European AQ reanalyses
B. Global products (troposphere and stratosphere)	Global atmospheric composition NRT analyses
	Global atmospheric composition NRT forecasts
	Global atmospheric composition reanalyses
C. Supplementary products	Policy support products
	Solar radiation
	Greenhouse gas fluxes
	Climate forcings
D. Emissions products	Anthropogenic emissions
	Fire emissions

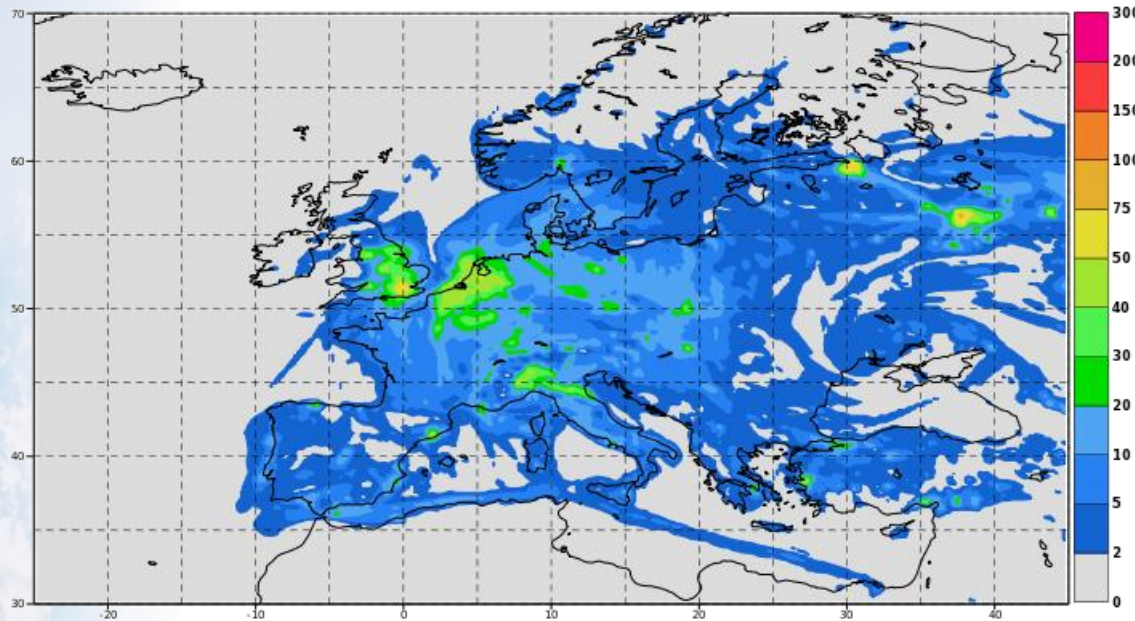
CAMS delivers the portfolio of products outlined in the Delegation Agreement



CAMS PORTFOLIO: REGIONAL PRODUCTS

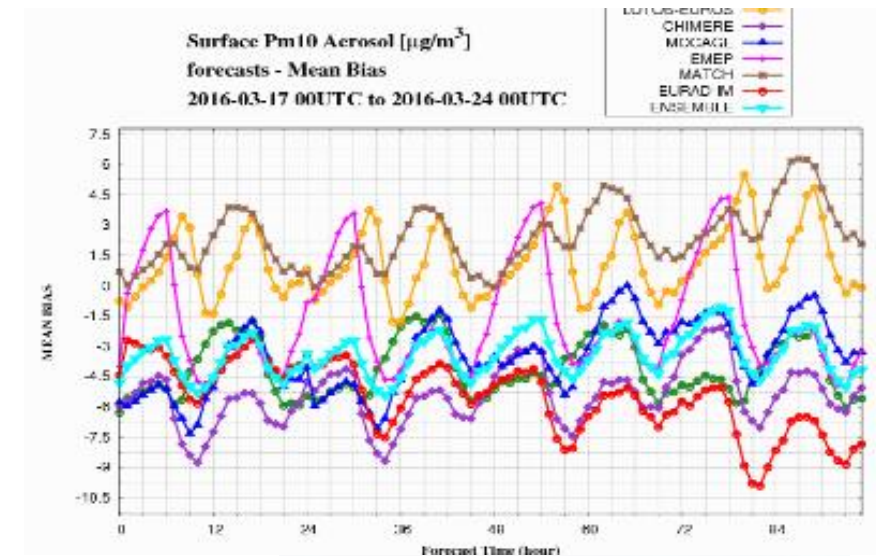
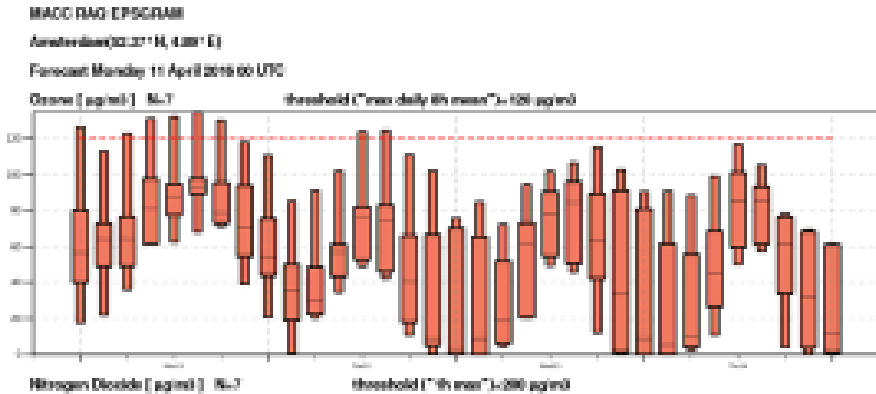
On-line evaluation of NRT products and a posteriori verification of re-analyses (QA/QC)

Monday 14 November 2016 00UTC CAMS Forecast t+000 VT: Monday 14 November 2016 00UTC
Model: ENSEMBLE Height level: Surface Parameter: Nitrogen Dioxide [$\mu\text{g}/\text{m}^3$]



For regulatory pollutants (O_3 , NO_2 , SO_2 , $\text{PM}_{2.5}$, PM_{10}):

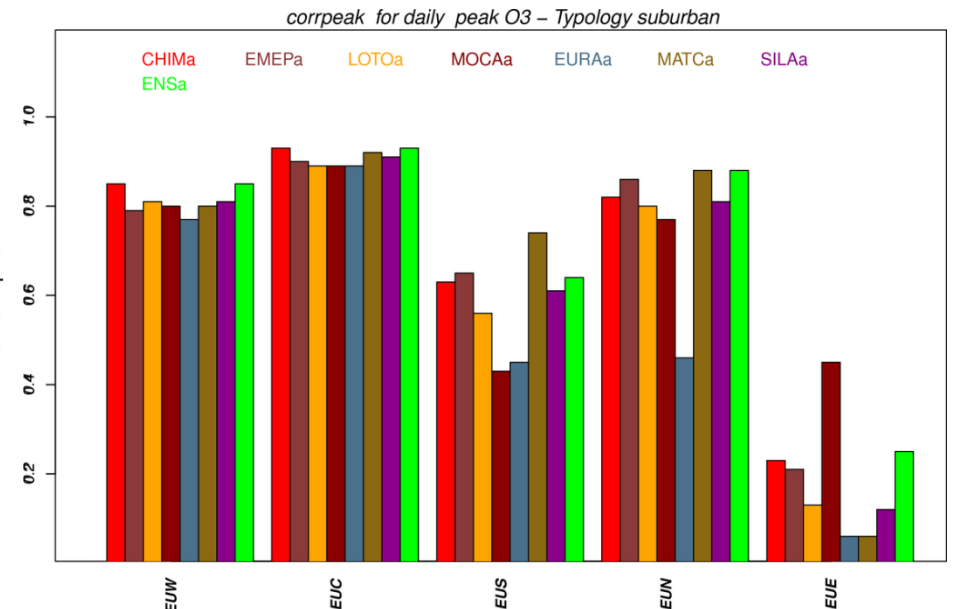
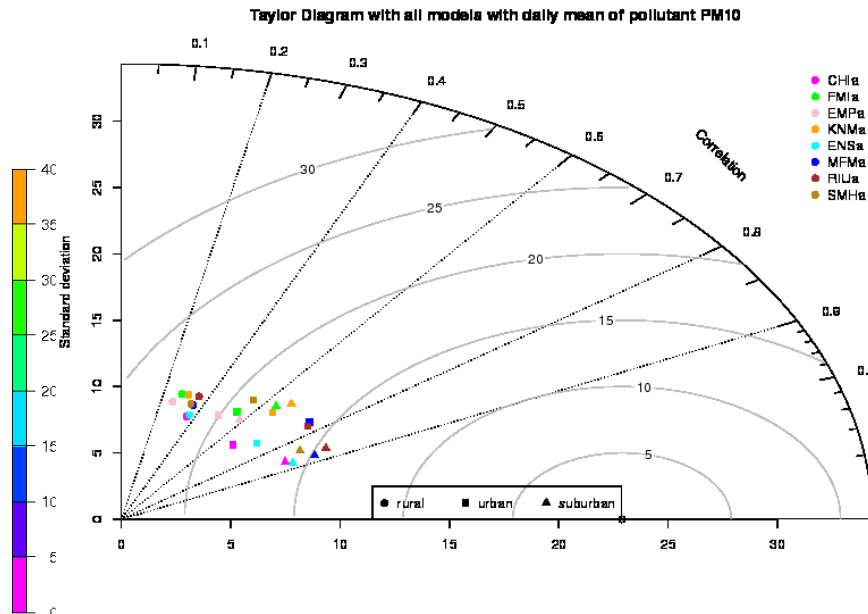
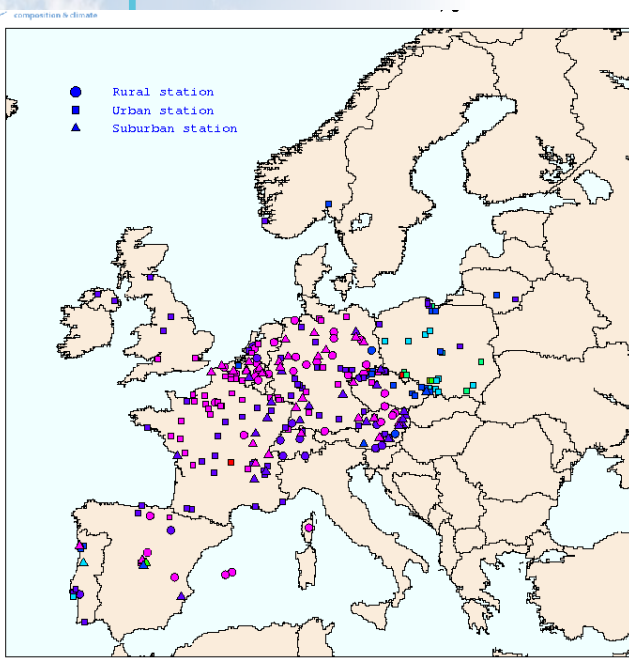
- Real-time analyses and forecasts (4-day)
- Interim reanalyses (shortly after the end of each year)
- Reanalyses based on validated observations (when AQ e-reporting DBV is updated)
- An ensemble approach based on 7 models to increase robustness and accuracy





Sharing FAIRMODE model quality objectives

- CAMS developed its own criteria for model evaluation based on usual statistical performance indicators



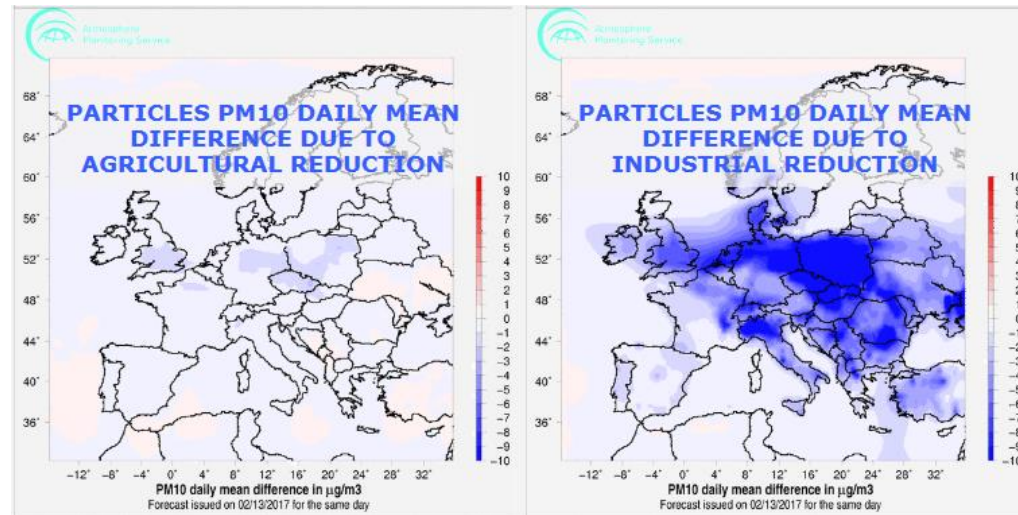
- It is expected to assess CAMS regional products against FAIRMODE MQO (forecasts and assessments)
- Issue : fitness of the delta tool to deal with large domains (Europe) and very large datasets ?



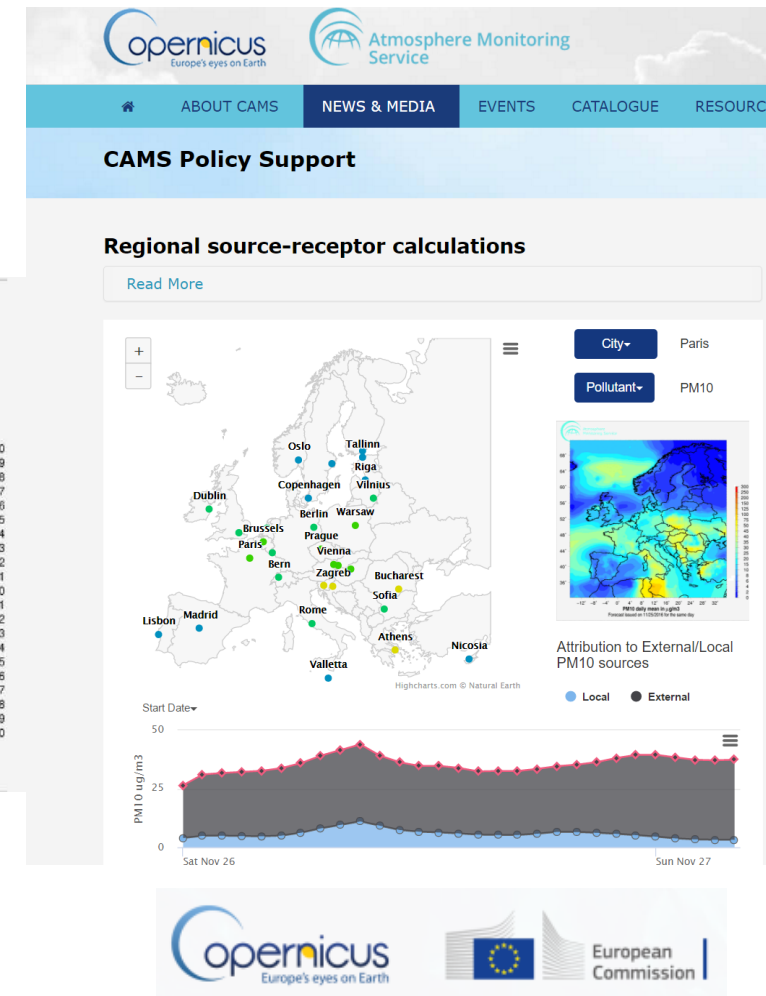
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CAMS policy support products

- Such products aim at analysing the development of air pollution episodes in Europe, their sources, looking for efficient ways to control them (not only short term measures)
- Focus on natural sources (dusts, sea salts, forest fires)
- Lessons learnt could be shared with FAIRMODE community to help in AQ reporting



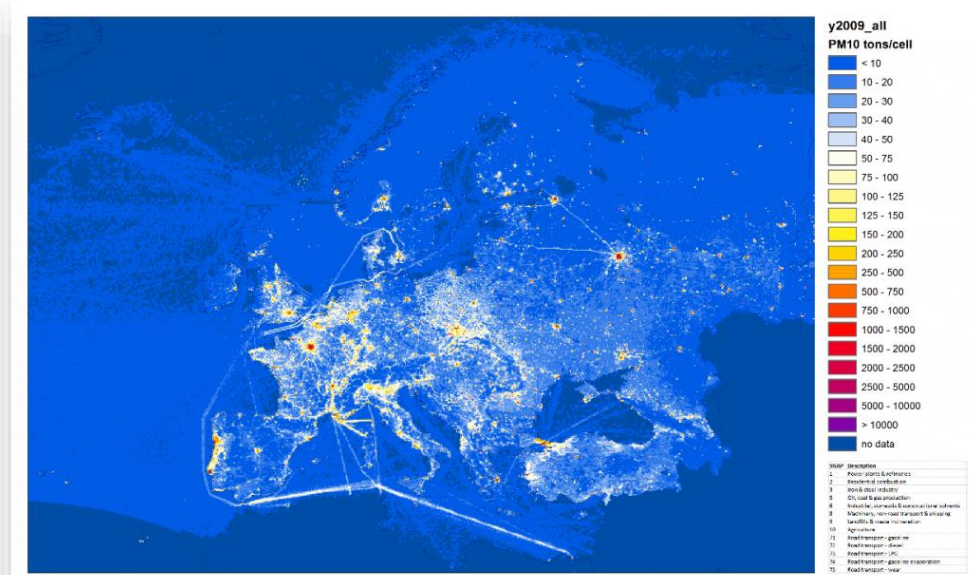
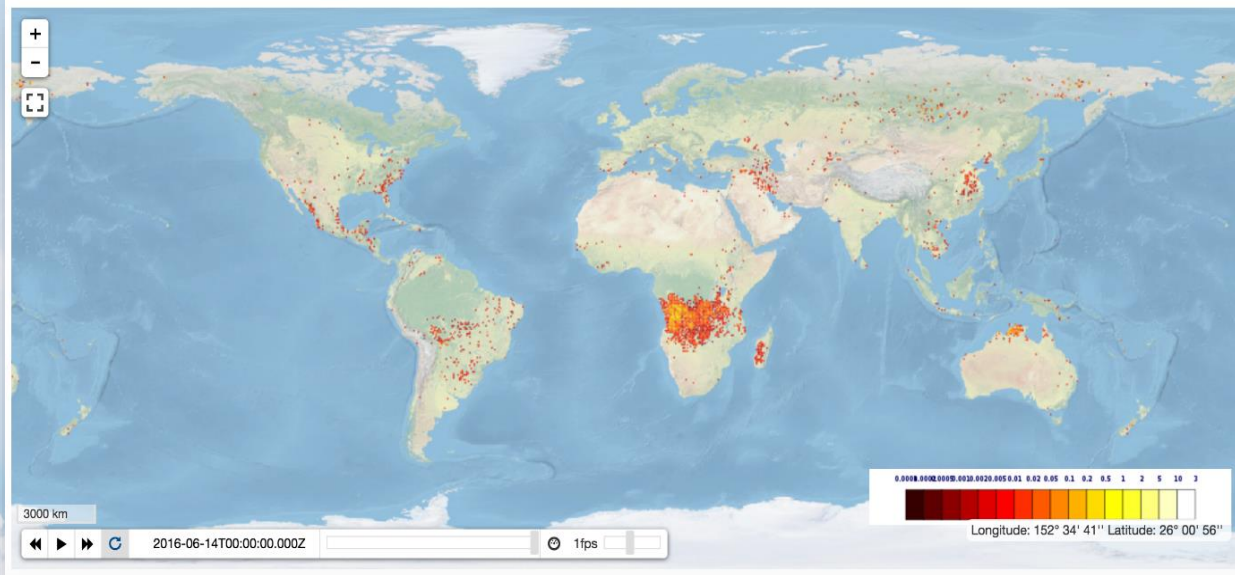
- <http://policy.atmosphere.copernicus.eu/index.html>





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EMISSIONS



- Fire emissions (daily)
- Global anthropogenic emissions (~50km, 2003-present)
- Regional anthropogenic emissions (~10km, up to Y-3) scaled on official emissions reported through EMEP/NECD
- Cooperation on quality issues regarding emission inventories in Europe: consistency with the national and local tools



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Thank you for your attention