POTENTIAL FOR SPACE TECHNOLOGIES FOR CLEAN ENERGY AND ENVIRONMENT

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BETTER POLICIES FOR BETTER LIVES

Space technologies as clean energy enablers

Space technologies, in particular Earth Observation (EO), can become crucial enablers of clean energy

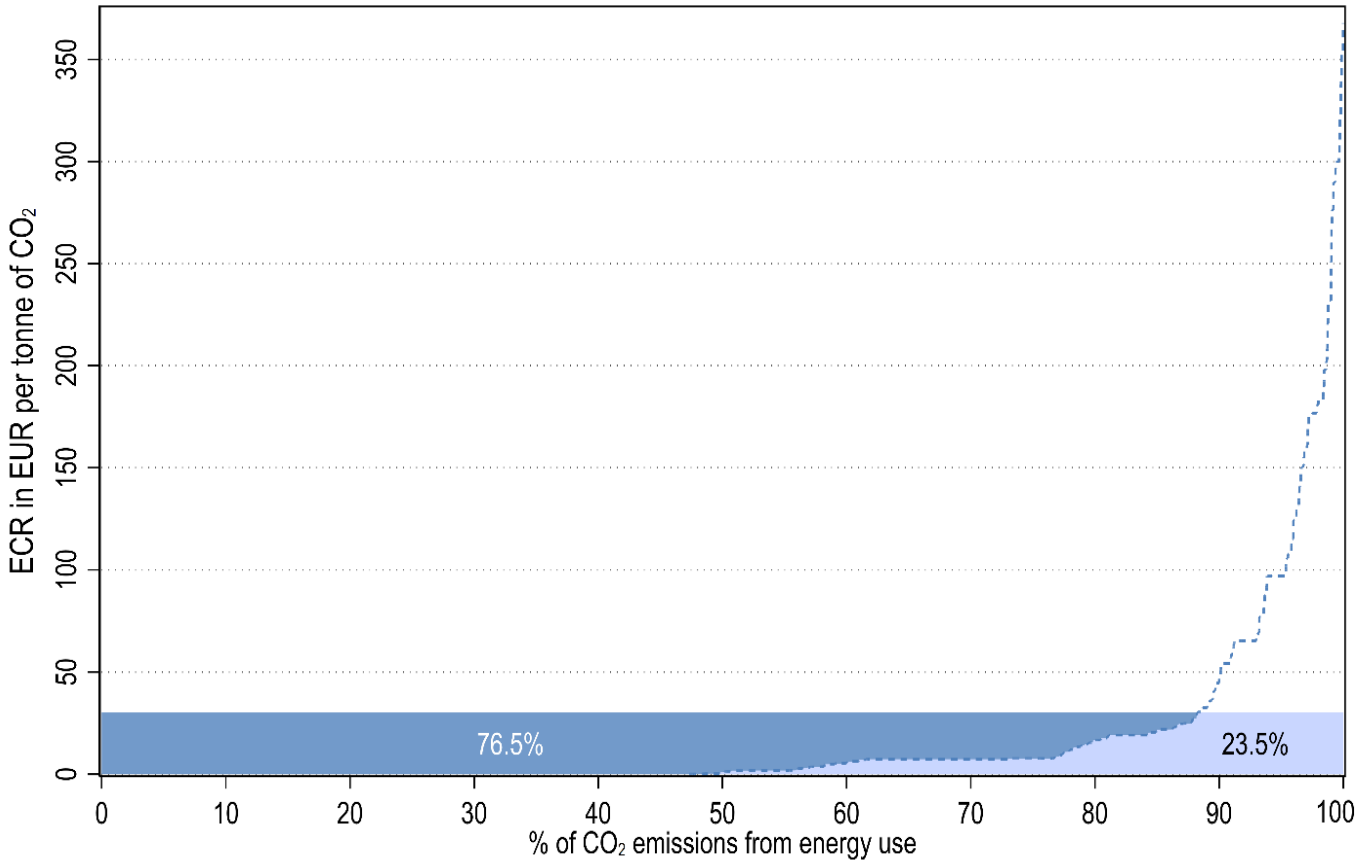
- Better mapping of renewable energy resources
- Better weather forecasts, key to improving stable integration of RE into power grids
- Validating point-source CO_2 emissions, e.g. satellite-based monitoring of plant-level CO2 (e.g Climate TRACE, combining EO with machine learning) – improve trust and facilitate key policies such as carbon pricing
- Improving climate resilience of the energy system– better understanding and handling of extreme weather events

But realising this potential requires strong and consistent climate policies…

Climate policy stringency is insufficient

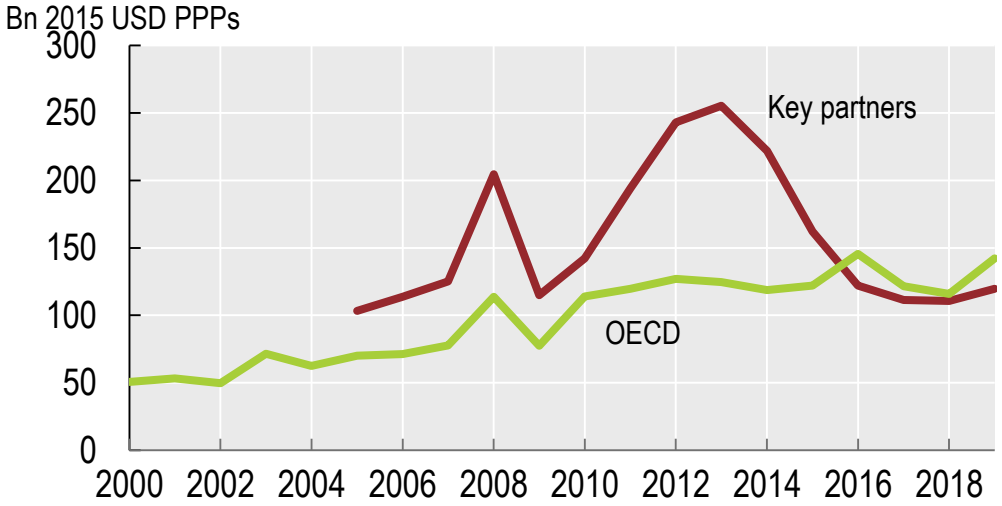
Carbon pricing gap

42 OECD and G20 countries, 2018

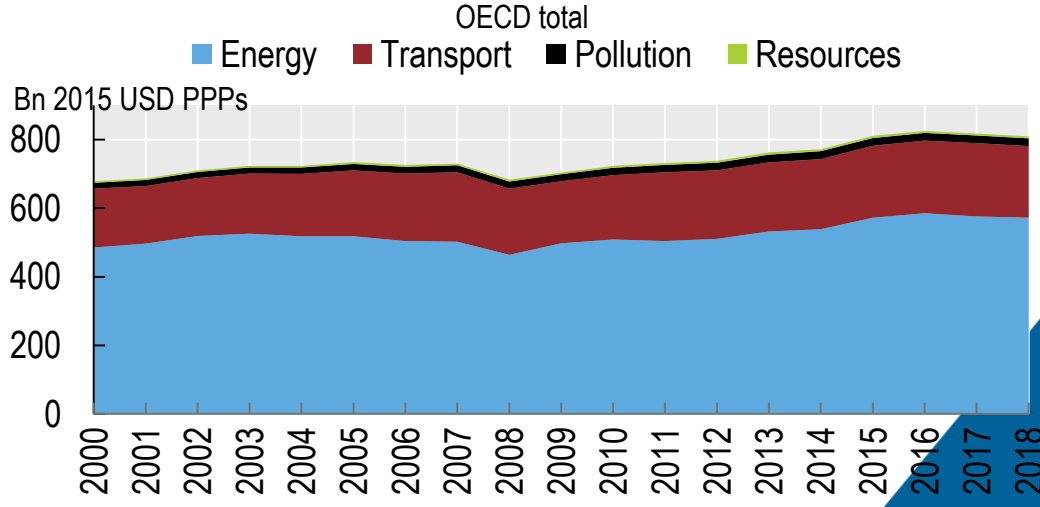


76.5% of CO_2 emissions are priced below EUR 30

Total Fossil Fuel Support

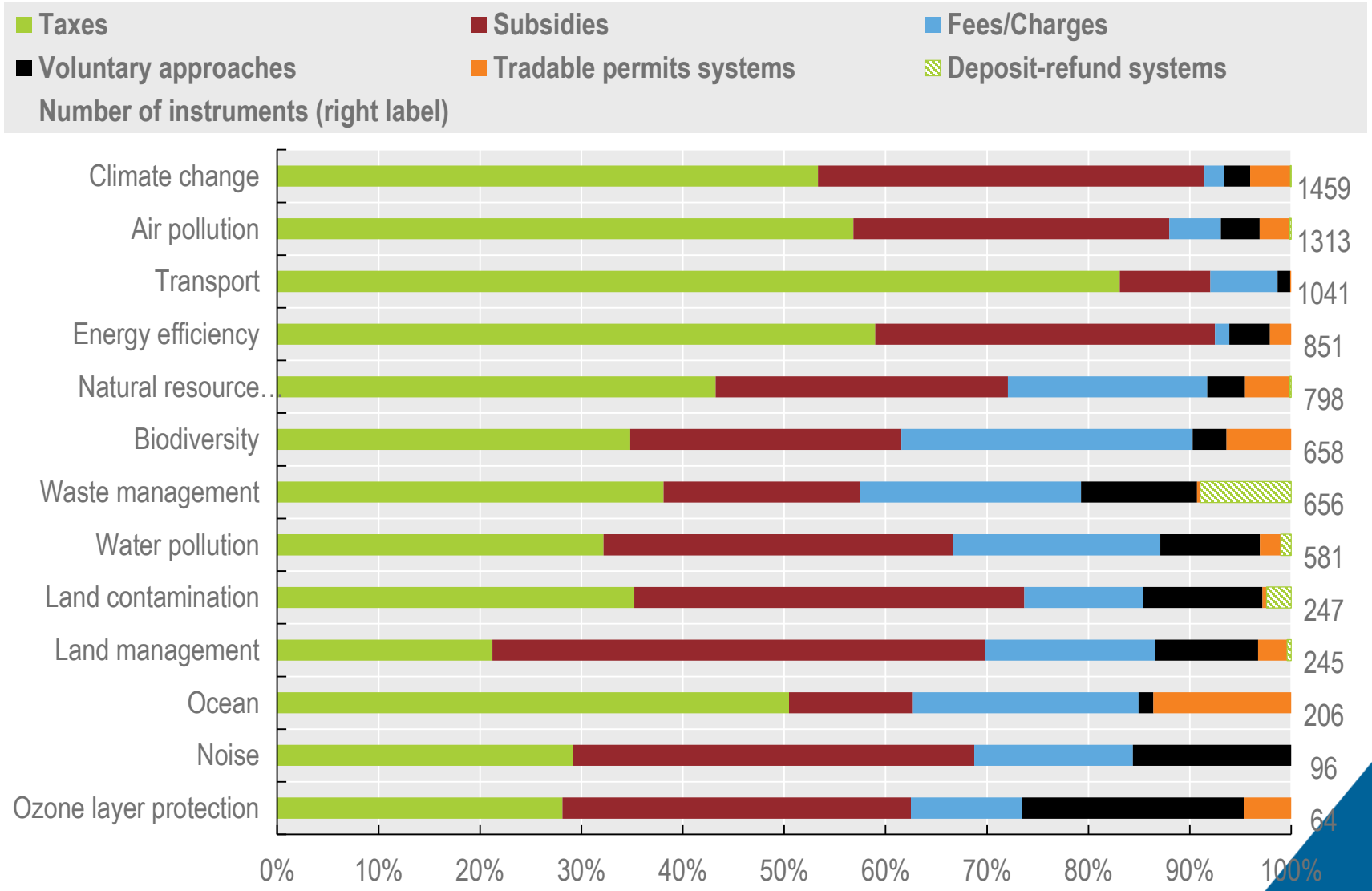


Environmentally Related Tax Revenue



Economic instruments are essential

- Policy Instruments for the Environment (PINE) database oe.cd/pine
- Information on 110 countries, 3600 policy instruments, and 13 environmental domains.



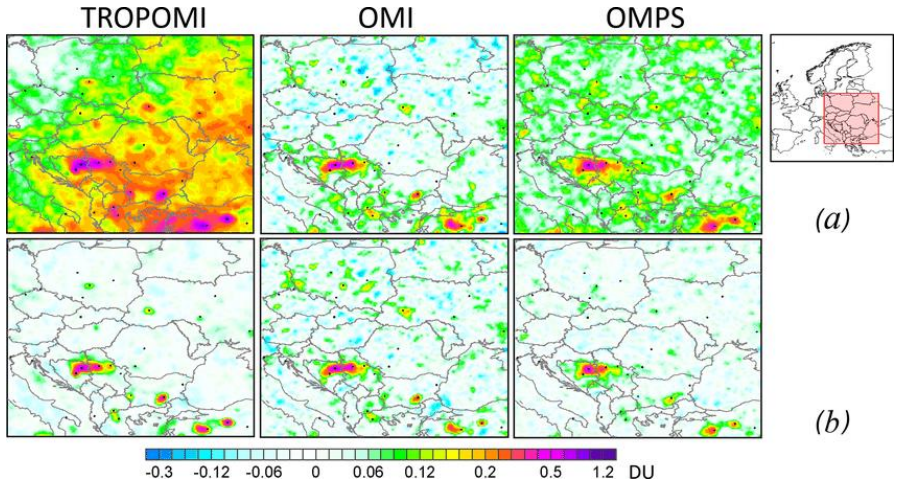
EO potential to improve data on air quality can also support the clean energy transition

Air pollution

- EO can improve data on exposure to pollutants, in particular through improvements in granularity and timeliness.
- Quantifying the benefits of better air quality that accrue to residents through clean energy can support a faster adoption of transition

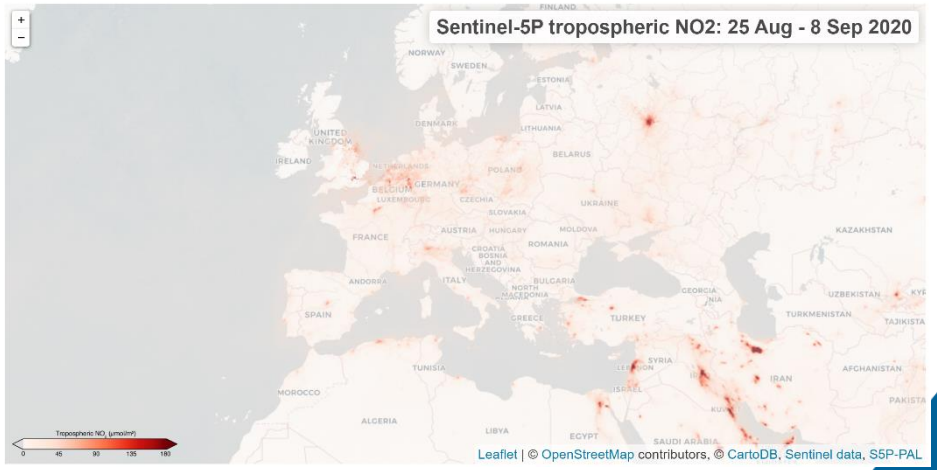
<u>The potential of these scientific achievements is slow to be realised in policymaking.</u>

Mean tropospheric SO2 in S. Europe 2018-19 with point sources (Fioletov et al. 2020)



Copernicus Sentinel-5P Tropospheric Nitrogen Dioxide

Maps of tropospheric NO_2 concentrations averaged over 14 days

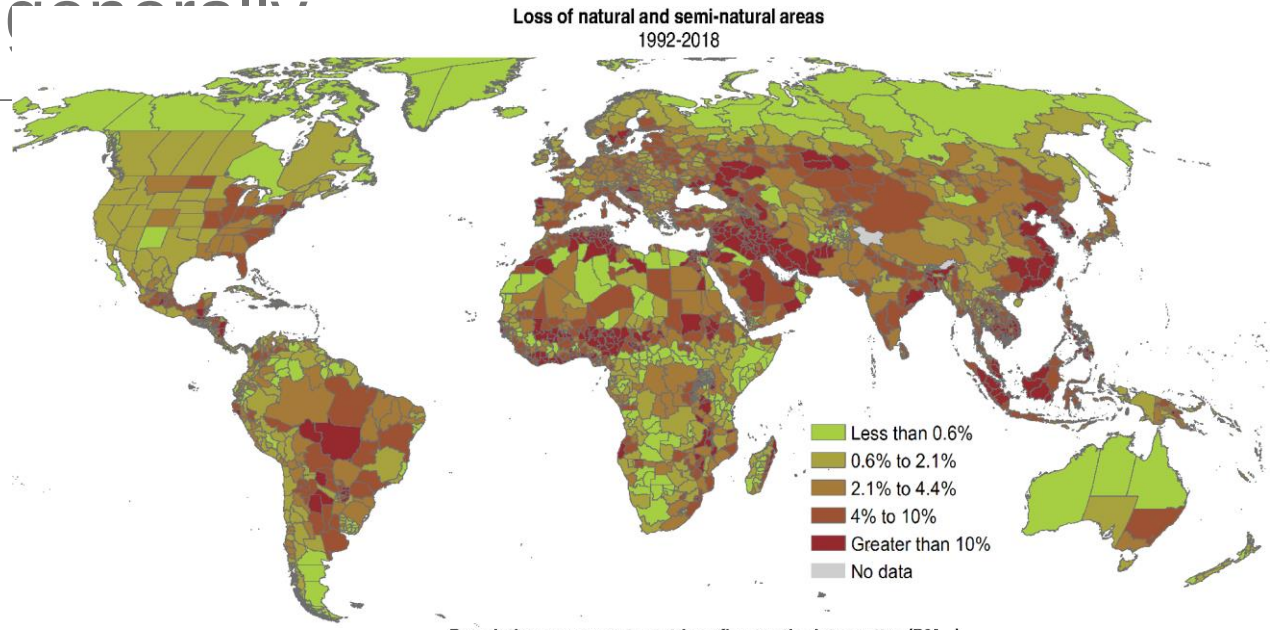


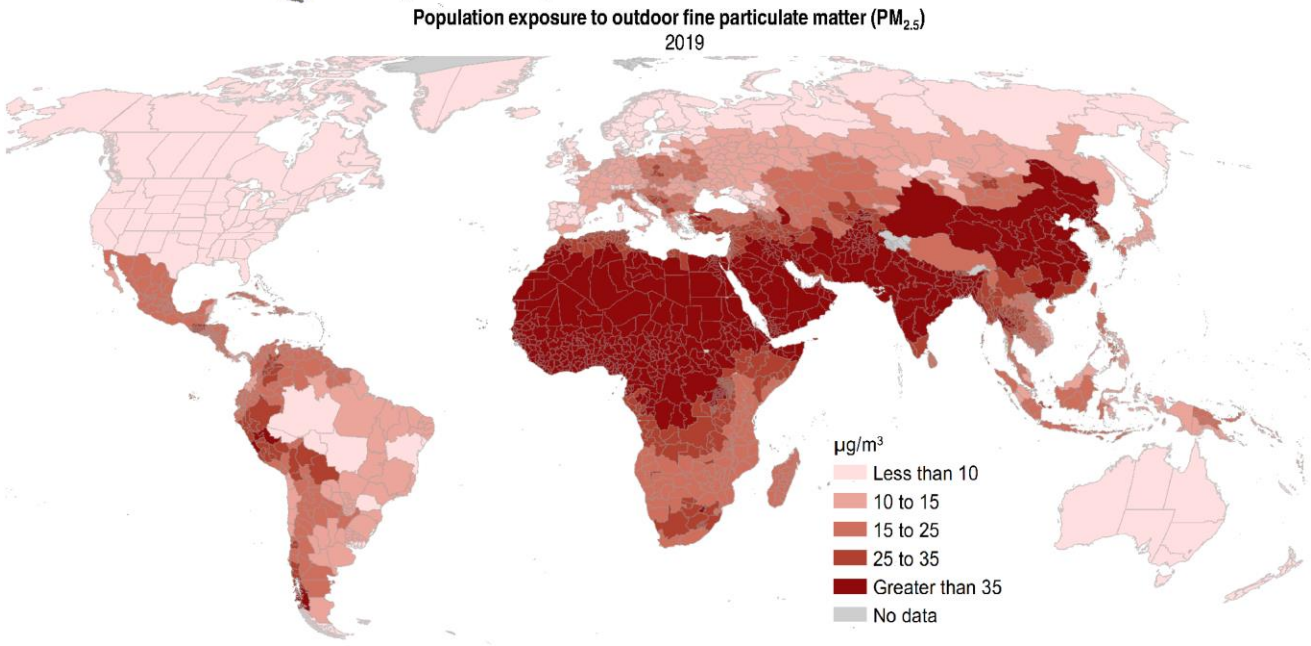
EO also has a crucial role in climate monitoring and environmental policy more generally

Other potential uses of EO for monitoring:

- Land cover and land use change
- Ecosystem management and biodiversity conservation
- Carbon stocks in soils and biomass
- Water quality
- Natural hazards and environmental risks
- Ice

OECD uses EO and EO-derived information in some of these domains (e.g. air quality and land cover change shown here) but data is often insufficient (frequency, resolution), difficult to use, or does not adequately meet policy needs (e.g. deforestation, ecosystem degradation)





THANK YOU