



Remarks on the Model- Observation Context

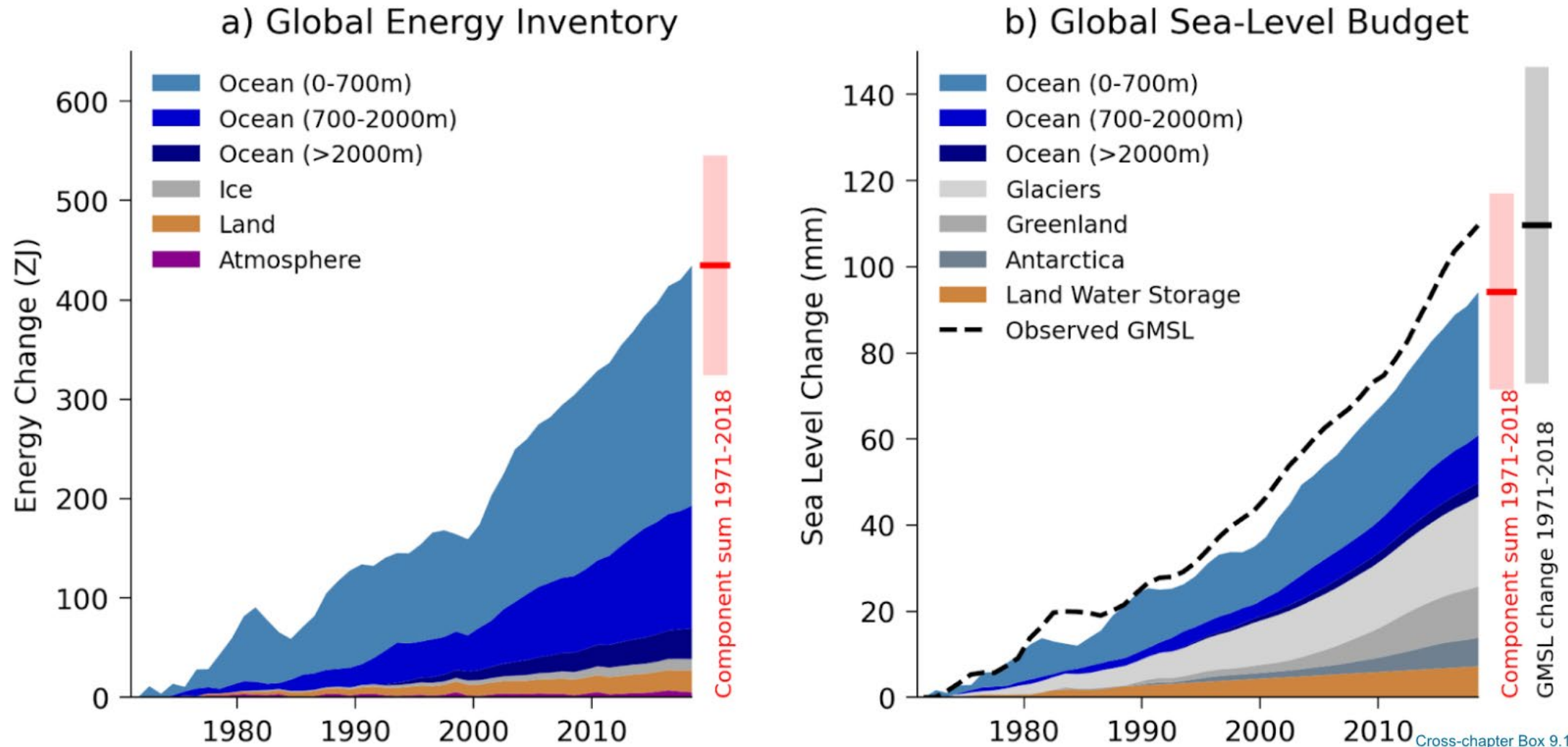
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*Observations & modelling: shedding light on climate
futures/25 May 2022*



Observation Consistency and Uncertainty Characterisation Matters

eurometsat.int



Global Energy Inventory and Sea Level Budget. a) Observed changes in the global energy inventory for 1971-2018 (shaded time series) with component contributions as indicated in the figure legend. Earth System Heating for the whole period and associated uncertainty is indicated to the right of the plot (red bar = central estimate; shading = *very likely* range); b) Observed changes in components of global mean sea-level for 1971-2018 (shaded time series) as indicated in the figure legend.

Cross-chapter Box 9.1.1
IPCC AR6 WG1





Observations and Models Play Together



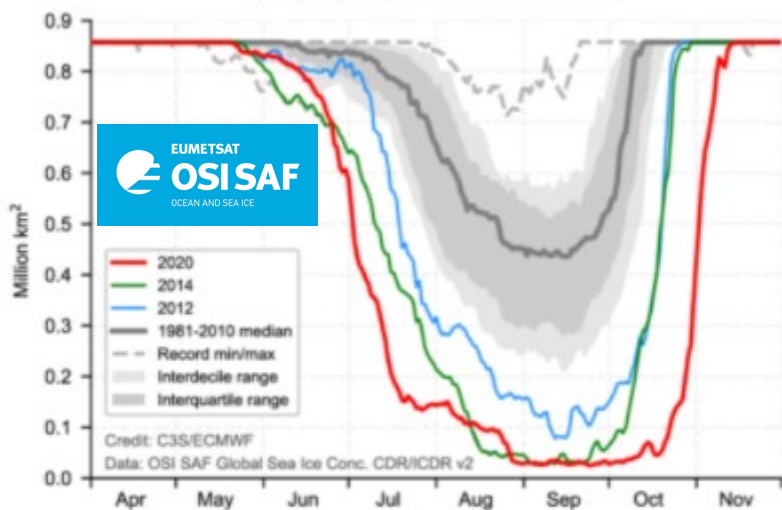
Data from many satellites assimilated including series produced by EUMETSAT

Satellite Product

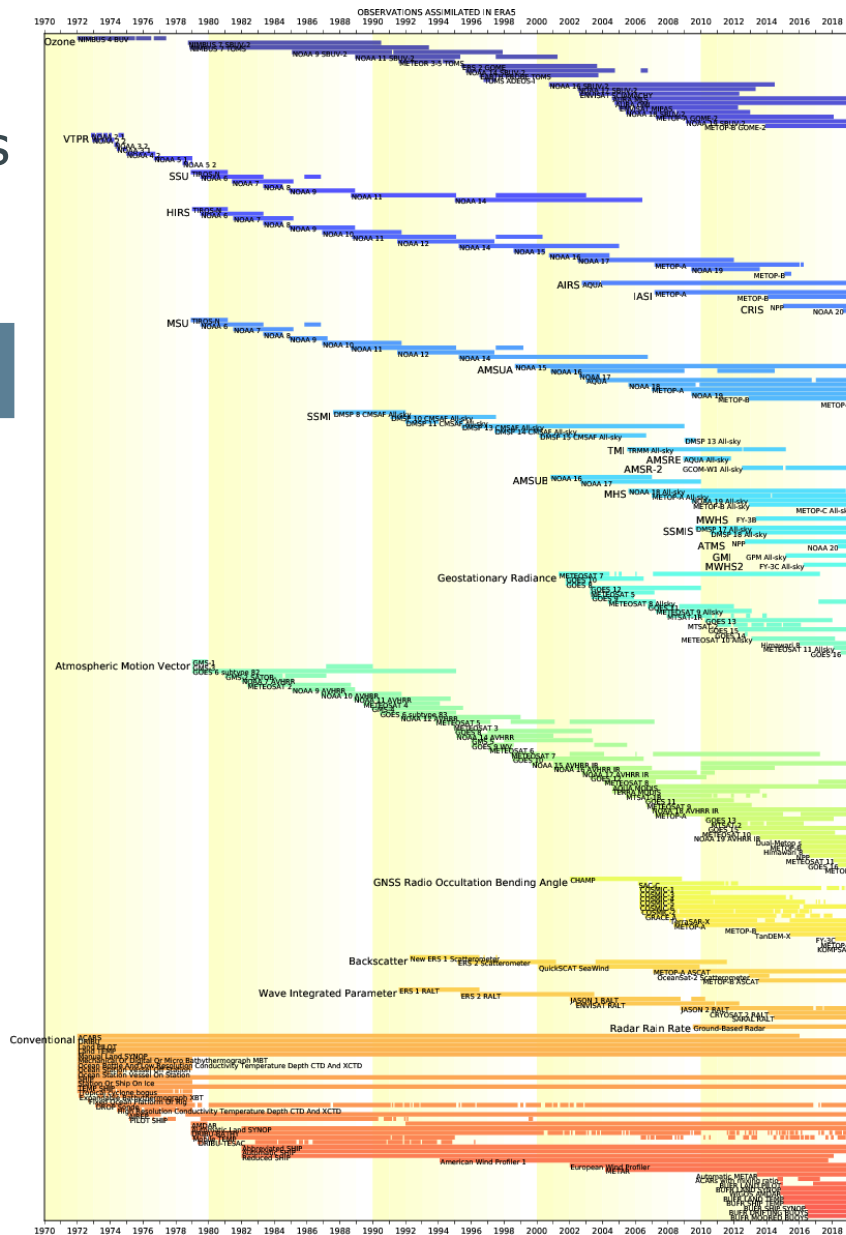
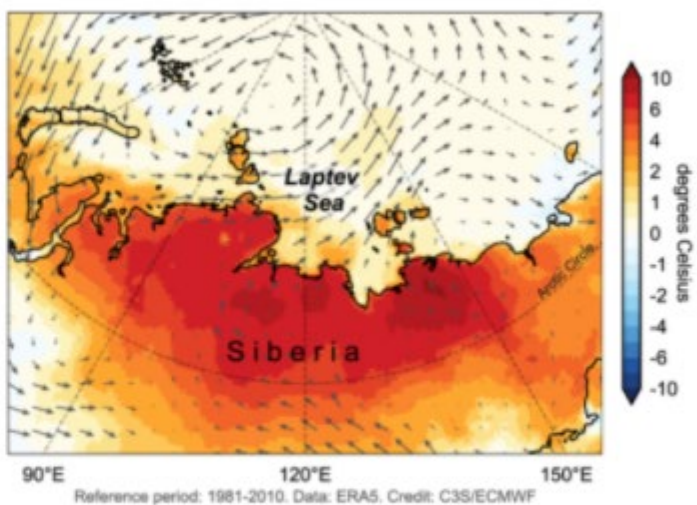
ERA5 Reanalysis

INPUT

Daily sea ice extent in Laptev Sea



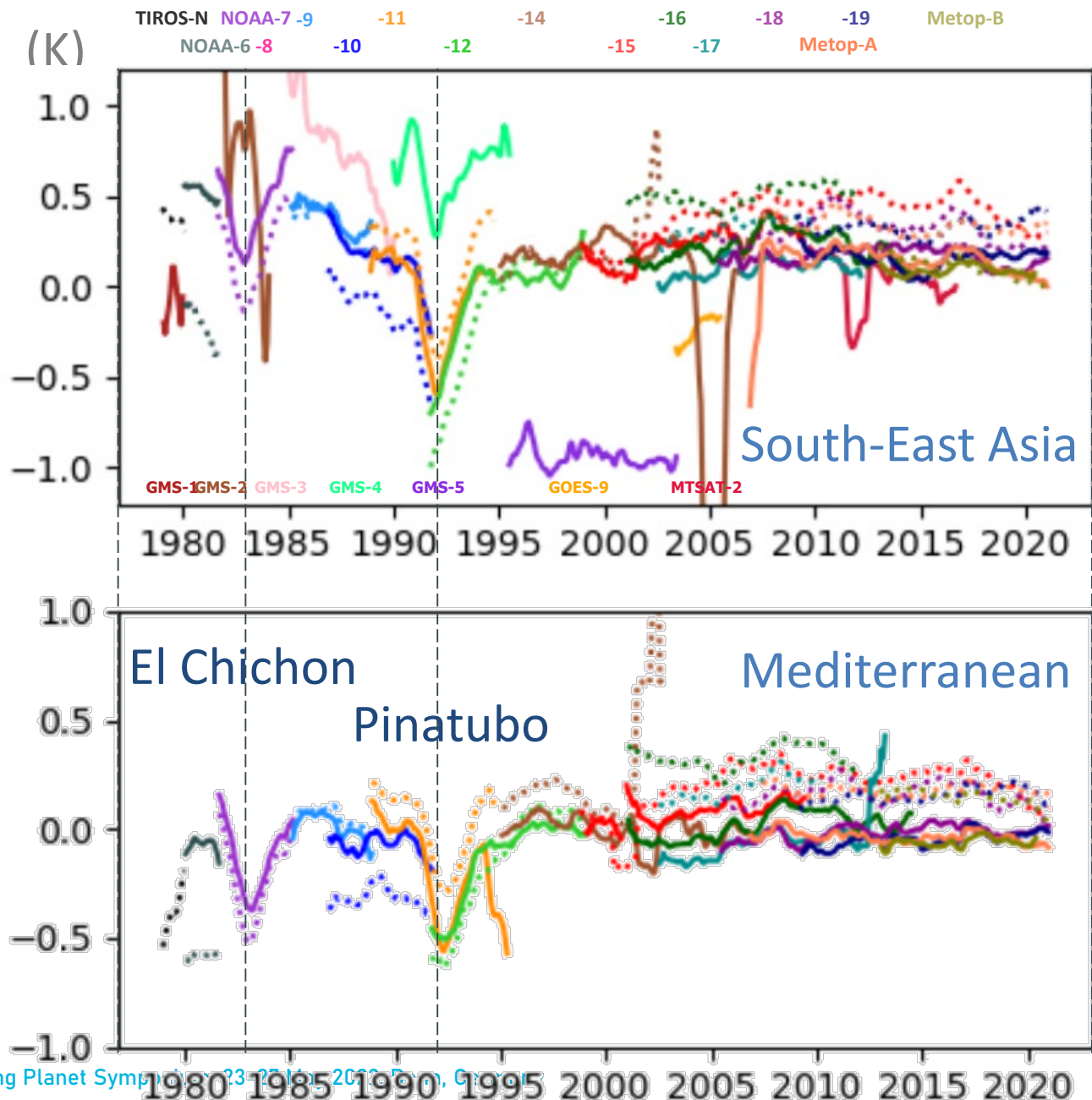
Surface temperature anomaly and wind in June 2020





Models can help to Assess Observations Quality

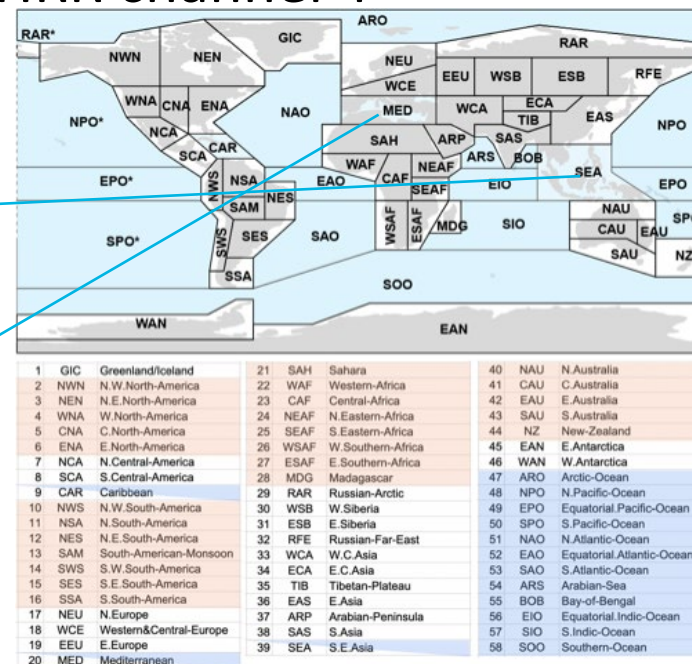
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HIRS channel 8

JMA GEO imagers channel 1

AVHRR channel 4



Atlas/reference-regions at level · IPCC-WG1/Atlas · GitHub

Showing mode of Obs-Calc. (monthly)
12-month moving average applied



Cloud Infrastructure will Support the Data Access and Usage Challenge

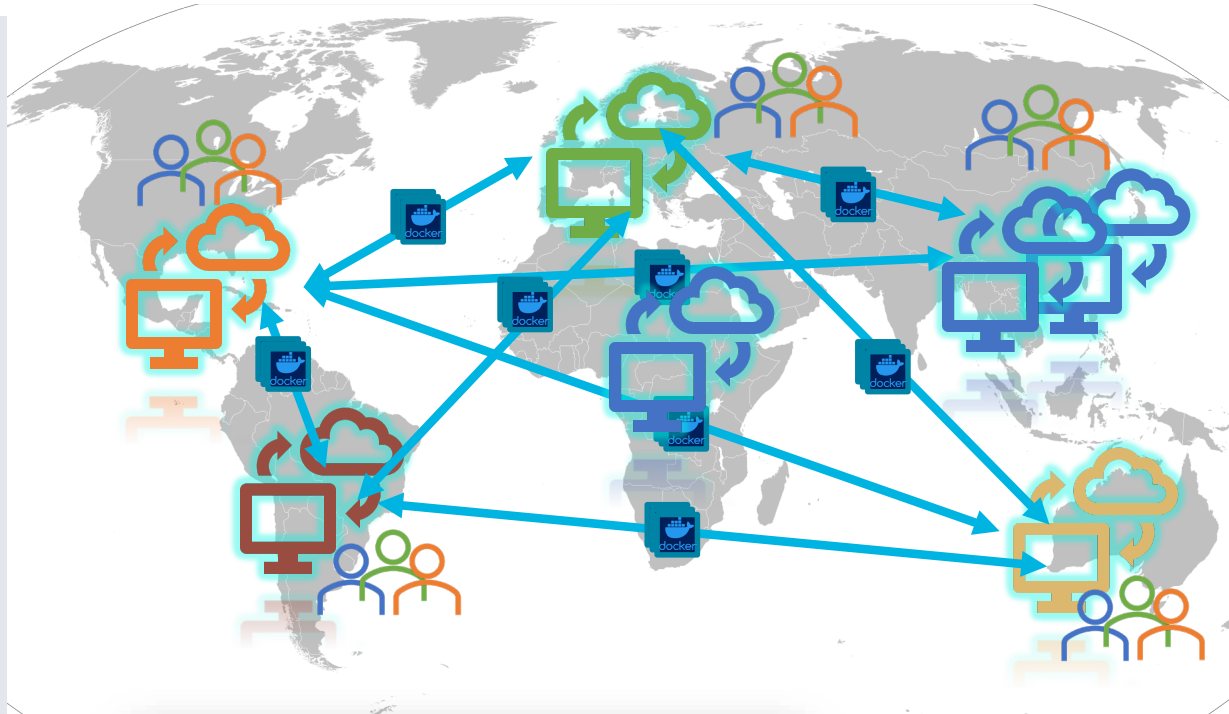
Processing model and observation data

Share “best-of-breed” code

- Data processing
- Product validation
- Model evaluation
- etc.

Use of containers

- Interoperability in different cloud environments
- Allows local customisation

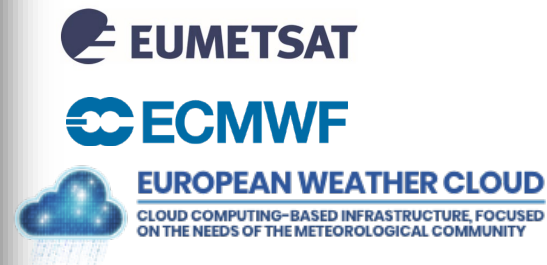
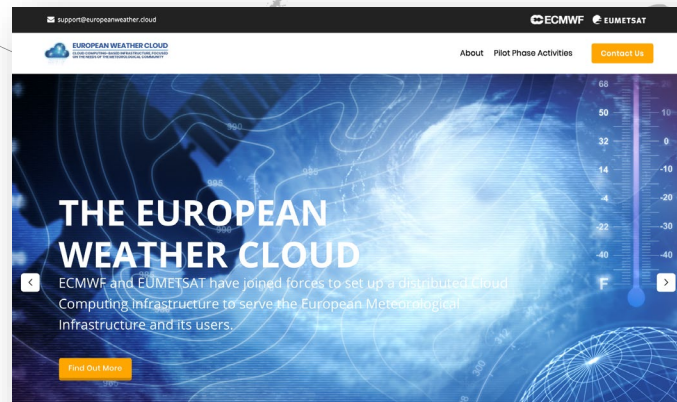


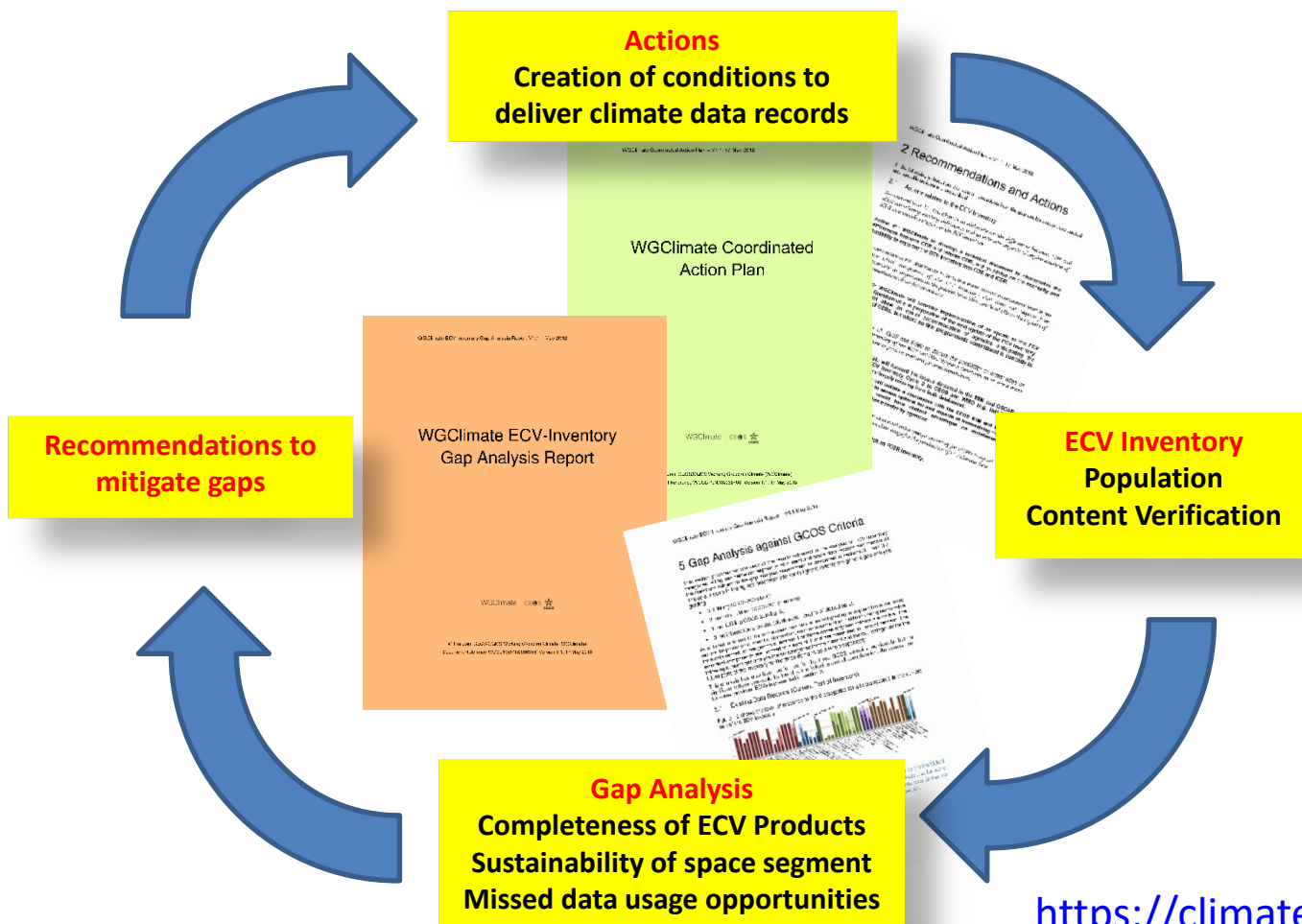
Data access and usage

Opens opportunity analysis-ready data and/or data cube approaches

- Simplifies usage
- Supports using subsets of the data, e.g., for local area analyses

Data used by the whole world for downstream applications





- The ECV Inventory fully describes current and planned implementation arrangements for ECVs
- **Data access is globally free and open without any constraint for more than 98% of the data records in the Inventory**
- **Everybody with an internet connection can download the ECV Inventory content for their own analysis, find direct access points to climate data records in the Inventory, and get access to WG Climate gap analysis results and resulting actions**

<https://climatemonitoring.info/ecvinventory/>