

# COMPASS

## Climate Observations and Monitoring for Policy Action Support from Space

### Navigating the climate challenge

Susanne Mecklenburg  
On behalf of the ESA Climate Office

CCI colocation | October 2021



**STAKEHOLDERS**

→ Defining requirements for ECVs & scientific focus

→ International policy  
Global Stocktake  
Mitigation & Adaption

→ National & regional interests

National Authorities responsible for emission inventories, NDCs, NAPs

**ESA'S ROLE**

→ Providing expert input (data and science)

→ Addressing ECV requirements & associated science

→ Pre-operational development and R&D

→ Providing scientific evidence as input to policy decision

**USERS**

→ Climate Science and Modelling

→ Climate services

→ New user communities?

National Climate modelling Community

National Climate Services

# THE INTERNATIONAL CLIMATE NETWORK

## Policy drivers

- UNFCCC Paris Agreement/ IPCC
- 2030 Agenda for Sustainable Development
- Sendai Framework for Disaster Risk Reduction 2015–2030
- EU's Green Deal
- UN conventions: biodiversity & ecosystems

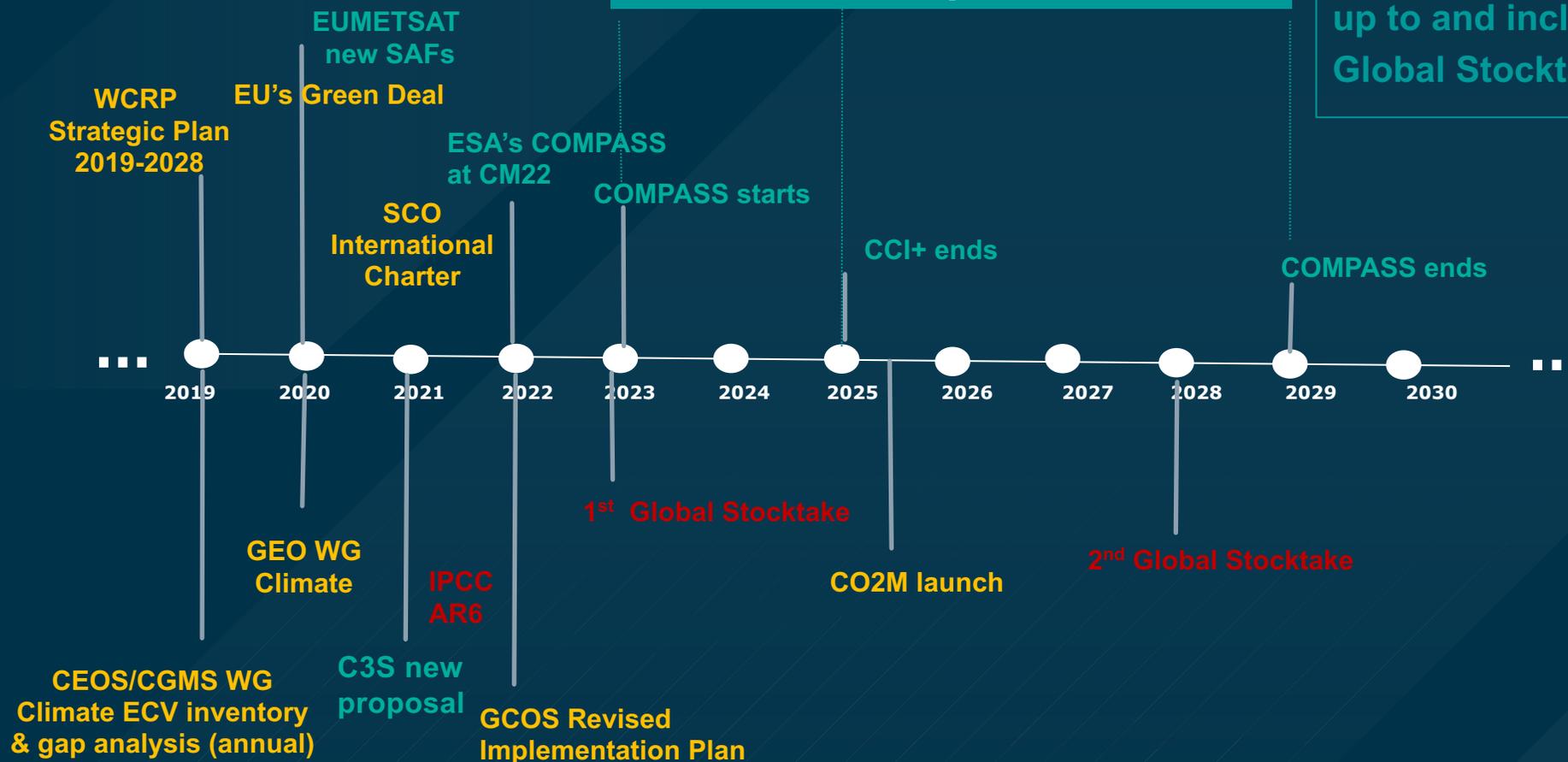
## Focus on collaboration, complementarity and synergy



→ CCI+ implementation →

→ COMPASS implementation →

COMPASS duration - 2023 to 2029, up to and including the 2<sup>nd</sup> UNFCCC Global Stocktake in 2029



Major tasks ahead  
How we address it  
Answering the questions

# The challenge: Think “globally local”

## Policy



Provide scientific evidence to support evolution of policy

## Support to and guidelines for regional implementation



Support European climate services in providing information for adaptation and mitigation measures

## National implementation and reporting



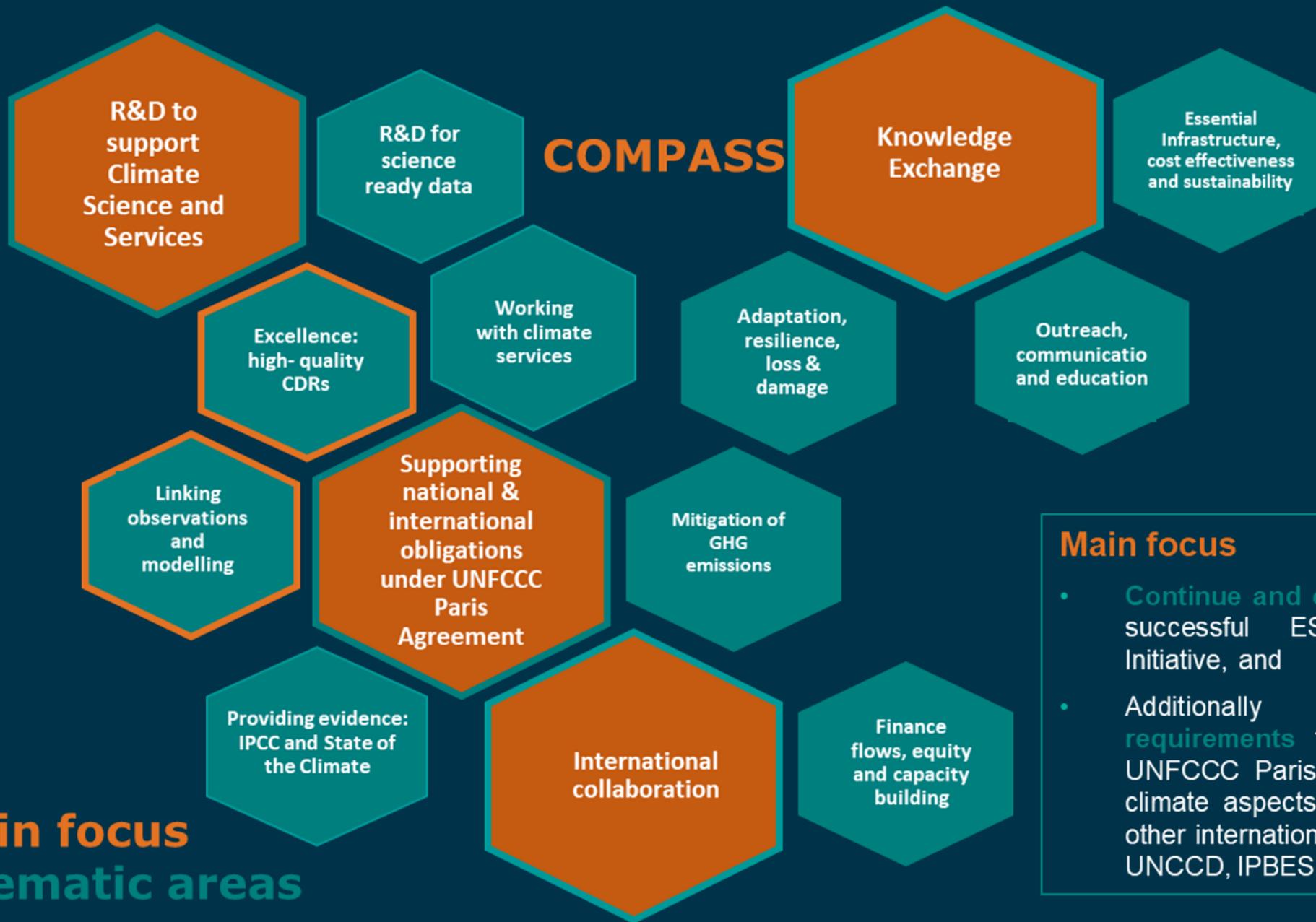
Data for assessing National Determined Contributions, national emission reporting, adaptation and mitigation measures

Global

Regional

National





**Main focus**  
**Thematic areas**

**Main focus**

- Continue and expand the work by the successful ESA Climate Change Initiative, and
- Additionally respond to new requirements for EO to support the UNFCCC Paris Agreement as well as climate aspects of the UN SDGs, and other international drivers such as CBD, UNCCD, IPBES.

# The consultation

- Continuous consultation with our **Climate Science Advisory Board (CSAB)**; . **on-going**
- **National Climate days** with ESA member states and science community; . **on-going**
- Consulting with the **climate science community**; . **on-going**
- Climate **Modelling** User Group: “Foresight Report”: high level requirements for the use of EO in climate research and services, led by Richard Jones, UK Met Office, IPCC AR6 lead author; **completed**
- RECCAP-ESA: feasibility of producing updated estimates of GHG balance anomalies (natural and anthropogenic) at country level constrained by EO & dialogue with national inventory agencies, **link to EU’s CHE/COCO-2/VERIFY on-going**
- Study on the potential for “EO support to the **UNFCCC Paris Agreement**”: case studies and network of leading experts to define R&D agenda. **on-going**
- European Space Policy Institute (ESPI) Horizon study: EO-based climate data to support **climate policies in Europe on-going**
- **Tipping Points** in the Earth’s Climate, Forum at ISSI, 2021, with Future Earth AIMES project, summary: <https://climate.esa.int/en/news-events/remote-sensing-tipping-points-climate-system/>, publication in Nature Climate Science planned
- **CCI-C3S collaboration** on common R&D **continuous**

Conclusion: "EO plays a critical role underpinning climate change research and providing information relevant to intl. and national policies and action on climate change."



Meetings with UK, D, FR, AT, NO, I, CA (NL, P to come)

Overall **positive feedback** with some specific points to consider

- Cluster or not individual ECVs
- How to go from Global to Regional/National/Local: “Globally local”
- Link to DTE and DestinEarth
- Complementarity and synergy with C3S and EUMETSAT (in particular for atmosphere)
- Close collaboration with CHE/CoCo2 and VERIFY to identifies gaps in R&D and link to modelling activities and how to contribute to the MVS
- Timing of GCOS’ updated Implementation Plan
- Continued support and expansion of the ECV portfolio is essential to support future cross-ECV activities on the water, carbon and energy cycles
- Some aspects of the UNFCCC Paris Agreement might also be covered from other part in the EOP Directorate than the Climate Office, e.g. some aspects of adaptation and finance, might not give a coherent picture but should be presented clearly and as a overall package



# Outlook

- ESA Ministerial Council in 2022
- New climate programme – COMPASS - to be presented to ESA member states in 2022
  - PB-EO Nov 2021: first presentation of programme proposal to member states
  - Nov 2021-May/Sept 2022: iteration and final agreement on programme proposal
  - 2023 COMPASS starts
- Linking climate observations and modelling: ESA will host the WCRP CMIP Project Office at ECSAY, Harwell Campus
- Extend our collaboration with operational climate services



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