Space and Climate

International Space Forum 2016
Trento, 24 October 2016

Josef Aschbacher
Director of Earth Observation Programmes
The Paris Agreement – A milestone for our planet
The Paris Agreement

- Global average temperature increase: +2°C (goal +1.5°C)
- Enters into force 2020
- Reporting every 5 years, from 2023 onwards
- 194 countries + EU

Issues addressed

- Climate Mitigation
- Climate Adaptation
- Transparency, Global Stocktake
- Loss and Damage
- Support

Space brings key contributions for all issues
Space-based EO and Climate Change

• Complete, coherent and long-term measurements of geophysical parameters needed for climate models

• Global Climate Observing System (GCOS) has identified 50 Essential Climate Variables (ECV)

• For half of these satellite EO is the primary data source
ESA–DEVELOPED EARTH OBSERVATION MISSIONS
36 YEARS OF GLACIER RETREAT
southeast Greenland
Cryosat: Artic Sea Ice Volume

Nature Geoscience
IMBIE: Ice-Sheet Mass Balance Inter-comparison Exercise

Results:
- 11 +/- 3.8 mm sea level rise from melting ice since 1992
- Antarctic ice loss 3 times higher than in the 90s
Next big challenge: CO₂
(Simulation, Sentinel-7, 2025+)

Monitoring and Consequences
→ global data exchange for worldwide acceptance!
ESA’s Climate Change Initiative (CCI)