

ESA Atlantic Regional Initiative

Atlantic from Space Workshop, Southampton, UK
23 January 2019

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Directorate of EO Programmes

ESA Vision for EO



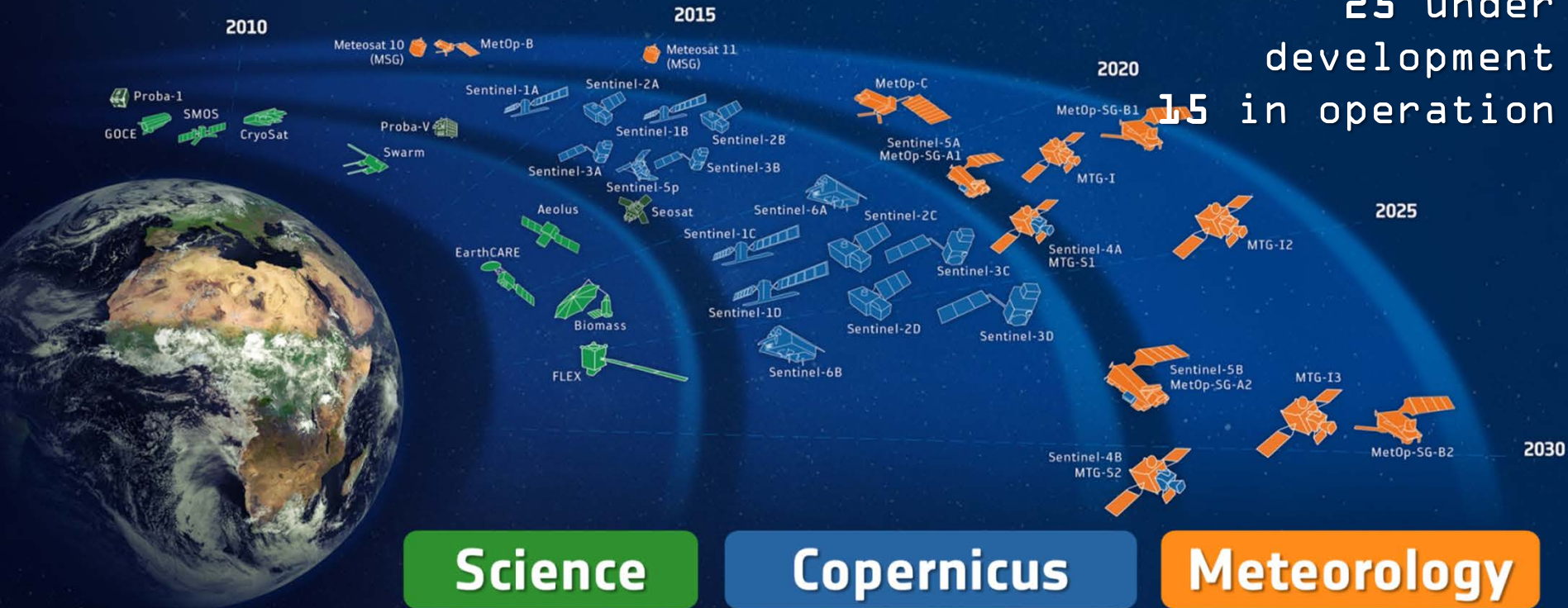
Feeling the Pulse of our Planet



ESA-DEVELOPED EARTH OBSERVATION MISSIONS



Satellites
25 under
development
15 in operation



Sentinel-3B

25 Apr. 2018
Plesetsk



Aeolus

22 Aug. 2018
Kourou



MetOp-C

6 Nov. 2018
Kourou



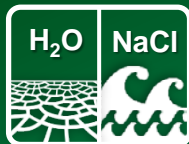
European Space Agency

Flying Missions

GOCE
2009-2013



SMOS
2009



Cryosat
2010



Swarm
2013



Aeolus
2018



Science & Innovation



4.700+
Reg. Users

Future Missions

EarthCare
2021



Biomass
2022



FLEX
2022



EE-9
2025

2
Cand.

EE-10
2027

3
Cand.



300+ Publ.
per Year

**High Risk for
Great Rewards**

Copernicus – continue global leadership in EO



> 195.000

registered users
= tip of the iceberg



Land



Atmosphere



Ocean



Climate



Disaster



Security

6 operational services



150 TB satellite data
distributed per day



full, free & open
data policy

7 satellites flying

S1



S2



S3



S4



S5P



S5



S6



preparing Copernicus 2.0



Space19+ FutureEO – Structured around 4 Blocks



**Future
Flagships
& Systems**

1.

**Foundations,
Concepts &
Technology**

2.

**Research
Missions**

FORUM or SKIM

**Operation &
Exploitation**

3.

**Mission
Management**



4.

**Earth Science
for Society**



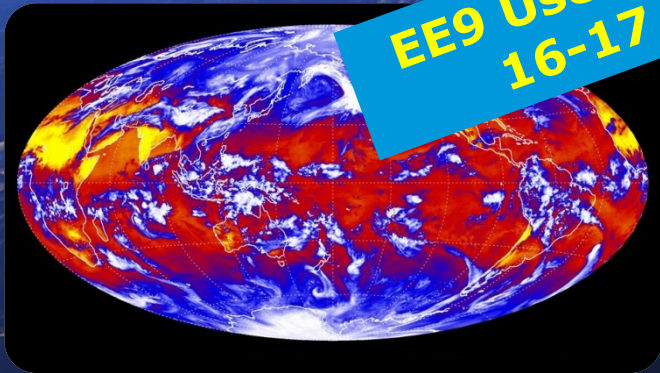
Earth Explorer 9 Candidates



- Candidates undergoing competitive feasibility assessment (Ph. A/B1)
- End Phase A selection recommendation by ACEO Prior to M19
- EE9 implementation financed via EOEP-Next Programme proposal
- Launch around 2025

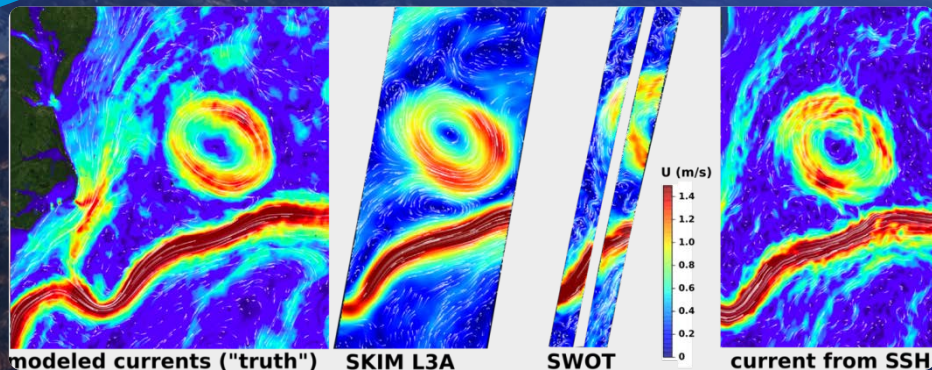
FORUM

Far-infrared Outgoing Radiation



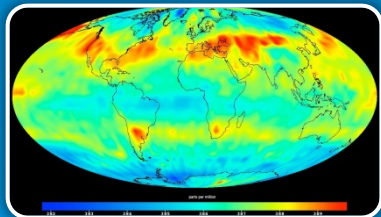
SKIM

Ocean Surface Currents



**EE9 Users Consultation Meeting (UCM),
16-17 July 2019, Cambridge, UK**

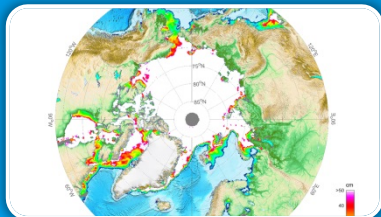
6 High Priority Candidate Missions



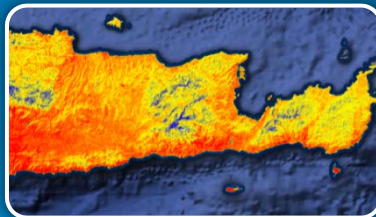
Monitor causes of Climate Change (CO₂ emissions)



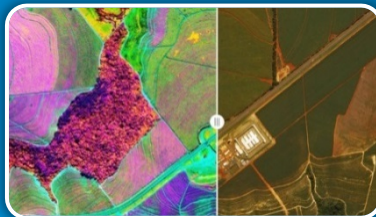
Monitor effects of Climate Change (Arctic/Polar ice volume)



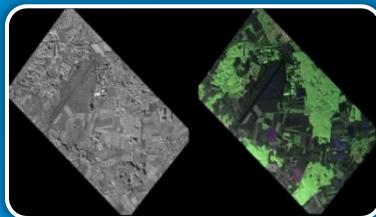
Sea Ice Conc. & SST (Arctic sit. awareness)



Agriculture & Water Productivity



Food Security, Soil & Minerals, Forestry, Biodiversity



Soil Moisture, Vegetation & Ground Motion

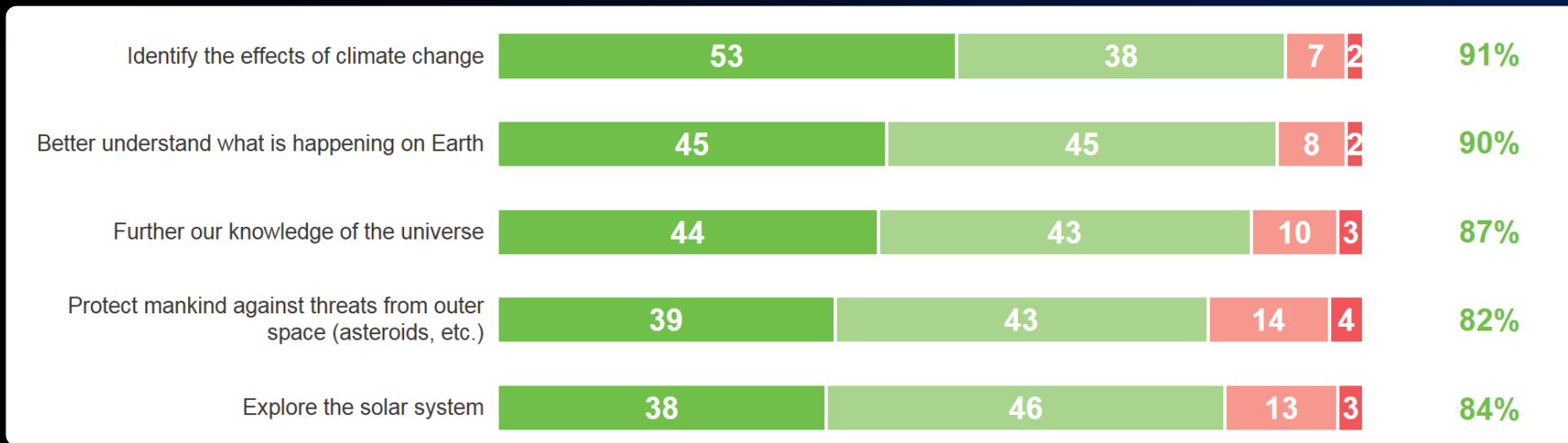
European Citizens' Priorities in Space



Q: In the future, do you believe that priority should be given or not to space activities that allow us to ... ?



TOP 5 Priorities:



“In the eyes of Europeans, the **primary area of progression** for space activities would be to **foster a better understanding of what is happening on Earth**, particularly regarding the **climate**”



Regional Initiatives: overview



Objectives

Concrete embedding of EO capabilities within regional Earth science programmes, regional environmental protection agreements and regional sustainable development strategies

In each region:

- ◆ Connect innovative EO R&D, application and service developments with the required underlying customized platform and processing capabilities
- ◆ Augment connectivity between EO and conventional Earth science, environmental protection and natural resources management practices

Scope - separate but coordinated actions for each region:

Project Office:

stakeholder engagement,
communication and planning

Science projects

connect with regional
Science programmes

Application projects

Integrate EO in ecosystem
assessment & sustainable growth

Customized platform and processing resources



ARCTIC OCEAN

Barents Sea

Regional Initiatives so far

Stakeholder consultation	Sept 2016/April 2018
Science Exploitation Projects	Q3 2018
Application Development Projects	Q4 2018
Stakeholder consultation	March 2017
Science Exploitation Projects	Q2 2018
Application Development Projects	Q4 2018
Stakeholder consultation	June 2018
Science Exploitation Projects	Q2 2019
Application Development Projects	Q2 2019
Stakeholder consultation	December 2018
Science Exploitation Projects	Q3 2019
Application Development Projects	Q3 2019
Stakeholder consultation	January 2019
Science Exploitation Projects	Q2 2019
Application Development Projects	Q2 2019

PORTUGAL

SPAIN

MALTA

Mediterranean Sea

CYPRUS

TURKEY

GREECE

MACE

BULGARIA

KOS

SERBIA

BOS. & HERZ.

CRO.

HUNG.

SLOVAKIA

CHECH REP.

AUS. SL.

SWITZ.

FRANCE

LUX.

BEL.

NETH.

DENMARK

GERMANY

POLAND

 Stakeholder consultation | June 2018 || Science Exploitation Projects | Q2 2019 |
| Application Development Projects | Q2 2019 |

Baltic Sea

LITHUANIA

LATVIA

ESTONIA

FINLAND

SWEDEN

NORWAY

RUSSIA

Black Sea

UKRAINE

MOLDOVA

ROMANIA

BELARUS

North Sea

UNITED KINGDOM

Norwegian Sea

Barents Sea

Why have we organized this workshop?



- ESA don't define the priorities for the region – **you do** (the regional stakeholders)
- What we need from this workshop:
 - Establish state-of-the-art:
 - On-going and planned MS Atlantic research activities/projects
 - Available and planned processing and platform capabilities
 - Regional and national policy priorities for the region and subsequent information requirements
 - Operational and planned environmental/geospatial information services and applications
 - Identify the priority science and application interests in the region
 - Characterize the capacity to address these priorities and identify gaps
 - Elaborate **and agree** roadmap of priorities to address opportunities/gaps
- We define the actions to be executed on the basis of the inputs we receive at this workshop – **this is your opportunity to shape this agenda!!**



How is this workshop structured?



Days 1 and 2:

- Presentations addressing priority issues related to Atlantic region
- Discussion sessions and round tables
- Summary of current status, gaps, and opportunities

Day 3

- Putting it all together – summaries from each session/discussion on:
 - Current status, what is already available, what is under development
 - What else is needed, can this be developed under an ESA project?
 - What additional developments are required and how can these be executed?
- Roadmap elaboration:
 - Ensure priority issues are all covered
 - Identify what are the short and mid-term developments required under ESA funding
 - Identify key cooperation priorities



What happens after this workshop



- The conclusions will be written up and circulated to participants – this will cover:
 - Current status of EO uptake within Atlantic Earth science and key priorities
 - Current status of EO uptake within Atlantic regional environmental monitoring/protection and sustainable economic development & priorities
 - Current status of underlying processing and platform capabilities (including ICT infrastructure to support effective fusion of EO and non-EO datasets, assimilation of EO into regional models, etc.) & priorities
- On the basis of these conclusions, we will issue Invitations to Tender for dedicated projects during 2019 addressing Science exploitation, application development and processing/platform services
- We will also tender for a Regional Project Office to support stakeholder engagement, communications, etc. in the region



This is just the start



Active participation during the Workshop to best advise us

Your comments will be retained (so we can draft a summary report) but:

Next steps:

- Development projects initiated in 2019 are only the first phase of activity
- We plan to request additional funds at 2019 ESA Ministerial Council (Space19+) to expand ESA regional activities post 2020
- We are in close cooperation with EC on these actions and coordinated opportunities are being planned

Wishing you a good and successful workshop !



living planet symposium

MILAN
13-17 May
2019

UNDERSTANDING THE EARTH SYSTEM

SPACE 4.0 AND EARTH OBSERVATION

BENEFITS FOR A RESILIENT SOCIETY

PUBLIC AND PRIVATE SECTOR INTERACTIONS



Deadlines

Session Proposals
17 June 2018

Abstracts
11 November 2018

Registration
April 2019

lps19.esa.int



Thank you

Earth Observation
A Necessity