

# Canadian Atmospheric Science Community Workshop

## **The Future of Canadian Atmospheric Science from Space**

Telecon 2 – Thursday 18 October

Please sign in by sending an email to [info@csa-asac.ca](mailto:info@csa-asac.ca)

# Agenda

- Review of Workshop Approach
- Self-assembled Teams/Consortia Details
- International Opportunities and Documents
- Environment and Climate Change Canada's Space-based Earth Observation Strategy
- Q&A
- Next Steps

# Approach to Workshop

- Goal from workshop is to provide a “menu” of options to CSA for their planning
  - Range of ideas on different themes and with estimates of cost/effort/impact magnitude
  - Proactive approach so that options are readily available to CSA when opportunities arise
- Need to get new atmospheric projects into the federal government budget exercise for this and coming years
  - Want to provide input as soon as possible – hence the workshop in November

# Definitions for Workshop

- Goal to **develop** both short- and longer-term strategies for **Canadian atmospheric measurements from space**
- These will include, but not restricted to, ideas for:
  - Missions
  - Instruments
  - Observing systems
  - International collaborations
  - Other mission-related concepts (e.g. data assimilation systems, validation sites and instruments, etc.)

# Definitions for Workshop

- Time scale definitions
  - **What can we do now?** (short-term ~0-5 years)
    - Some work has already been done on instrumentation or mission development
  - **Where do we want to go?** (longer-term ~5-20 years)
    - New ideas or concepts that need development
- We will focus on short-term for day 1 and longer-term for day 2 of the community workshop in November

# Consortia Concept

- Consortia are required for ideas on both the short-term and long-term horizons to be presented at the workshop.
  - There will not be any individual presentations.
- This is especially important for the short-term horizon
  - To demonstrate the readiness of the consortium to move forward with an idea if funding were to become available.

# Consortium Membership

- Members of the community are welcome to attend the workshop without belonging to any consortia
  - There is also no limit to the number of consortia that an individual can be affiliated with, but an individual can lead a maximum of one consortium for each time horizon.
  - One can also still be a member of a consortium even if he/she is unable to attend the workshop.

# Consortium Membership

- Each consortium is expected to have members from academia, the government and industry.
- Consortia without a member from a government department/agency are permitted. But this could be viewed as an indicator that the idea is not aligned with government priorities.
- Consortia without industry representatives are also permitted, but this adds uncertainty to the feasibility and cost of an idea.
- Consortia consisting of only industry representatives will not be permitted.
- Consortia may include some international team members (i.e. working outside of Canada), but consortia are expected to be primarily composed of members from the Canadian atmospheric science community.



# Consortium Summary

- By Tuesday 31 October, each consortium will provide to the workshop organizers ([info@csa-asac.ca](mailto:info@csa-asac.ca)):
  - A theme/title of their idea with a brief summary,
  - List of the members and their affiliations
  - Select one single point-of-contact (PoC)
- The PoC can be the leader or Principal Investigator (PI) of the consortium or another member
- Consortia can have whatever hierarchical structure they desire (two or more co-PIs for example).



INNOVATION  
EXPLORATION  
OBSERVATION  
INSPIRATION

## Upcoming Partnership Opportunities:

ESA: Earth Explorer 10

ESA: Earth Explorer 11

NASA: Decadal Survey Missions



Canadian Space  
Agency

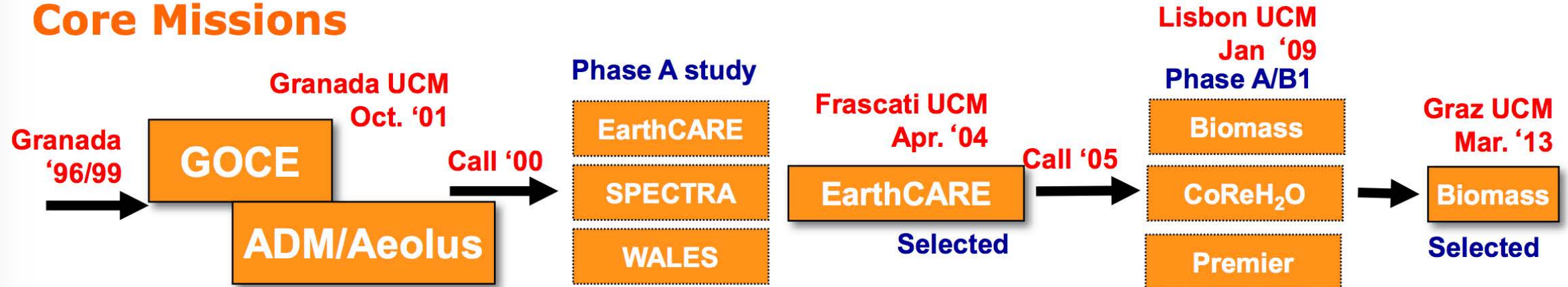
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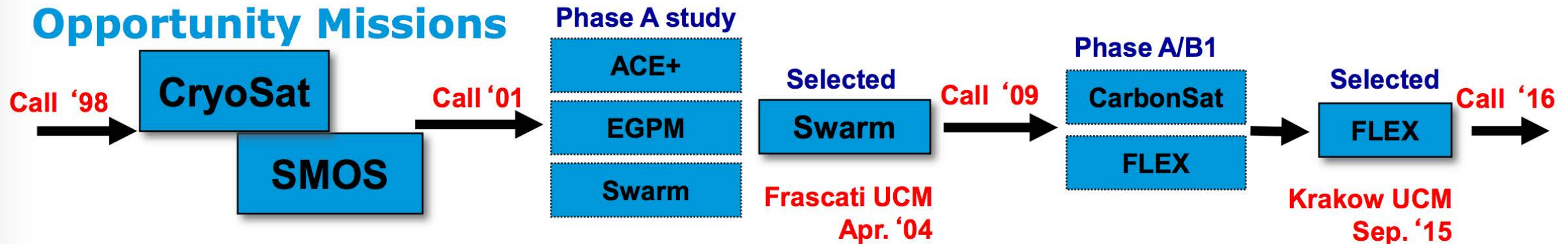
# Mission Calls, UCMs and Selections so far



## Core Missions



## Opportunity Missions



**R2015/1 EOEP-4 Science Review:** The Panel recommends that the Agency should strive to return to a higher frequency of Calls, and timely implementation of Earth Explorer Missions without sacrificing scientific ambition and mission quality.



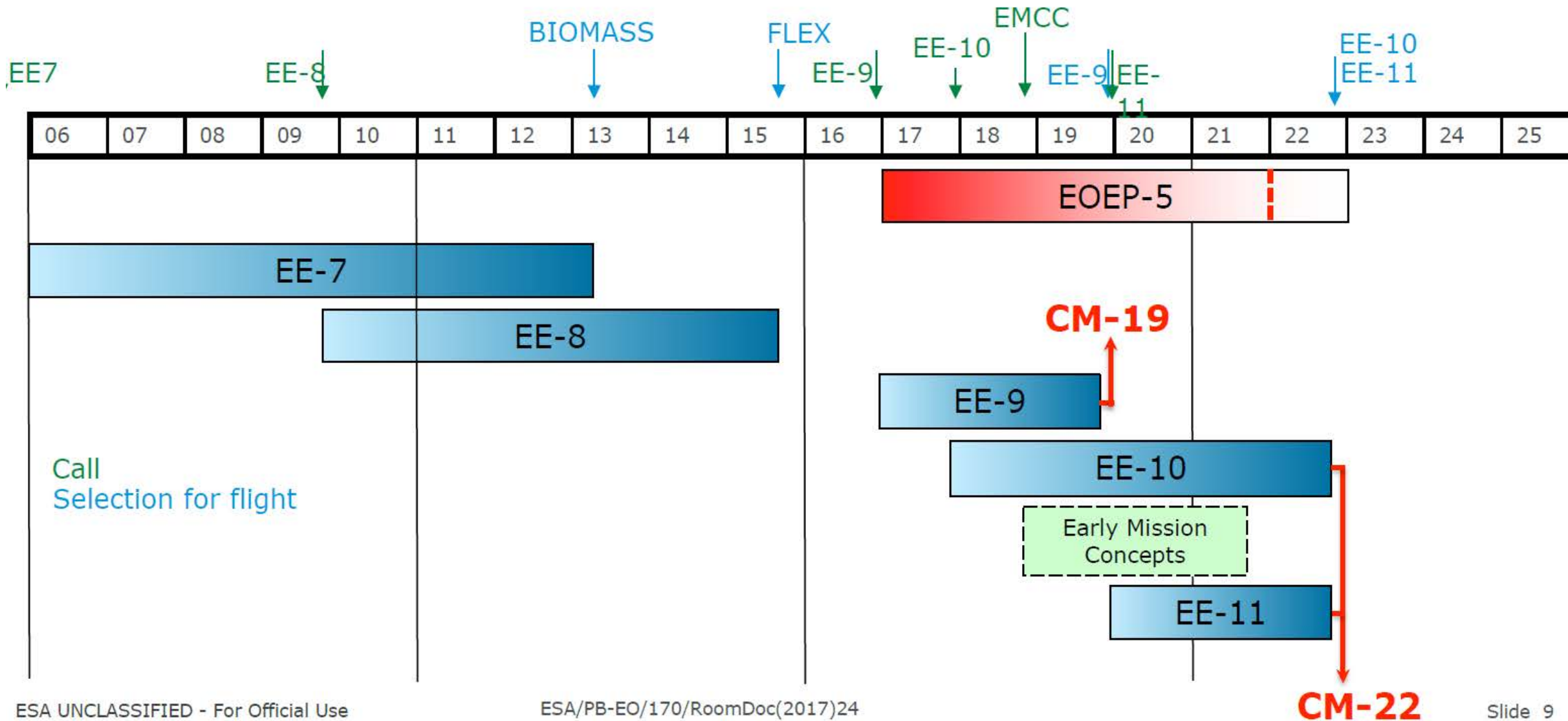
## **Annex – 1: DESCRIPTION OF RESEARCH MISSION CLASSES IN EOEP-5**

	NAME	Description	Objective	CaC (ESA part)	Time Span	Implementation <sup>69</sup>
<b>EARTH EXPLORER MISSIONS</b> Calls for ideas or for proposals	<b>CORE EARTH EXPLORER</b>	Large mission addressing ‘big EO science challenges’ with complex novel observation technique(s)	Science and novel observation type(s)	Large	Long (starting from phase 0, complex implementation)	<ul style="list-style-type: none"> <li>• Call for ideas with low TRL/SRL</li> <li>• Down-selection of candidates for phase 0</li> <li>• Down-selection of candidates for phase A</li> <li>• Down-selection of candidate for implementation</li> </ul>
	<b>FAST-TRACK EARTH EXPLORER</b>	Medium to small-class mission addressing science/technology demonstration, with higher maturity	Science /technology	Medium to small	Medium (starting from phase A)	<ul style="list-style-type: none"> <li>• Call for proposals with mature TRL/SRL</li> <li>• Down-selection of candidates for phase A</li> <li>• Down-selection of candidate for implementation</li> </ul>
<b>EO MISSIONS OF OPPORTUNITY</b> Unsolicited proposals	<b>MISSION OF OPPORTUNITY</b>	Mission responding to opportunities with external parties <sup>70</sup> . Typically, participation in such opportunities requires short decision process.	Science /technology	Limited ESA contribution, cooperation needed	Depending on the nature of the opportunity	<ul style="list-style-type: none"> <li>• Not linked to a call (un-solicited proposals)</li> <li>• Level of TRL/SRL depending on the nature of the opportunity but usually high</li> <li>• Fast decision mechanisms: <ul style="list-style-type: none"> <li>○ Approval of phase A (assuming no need for phase 0 and need for phase A)</li> <li>○ Approval of mission implementation</li> </ul> </li> </ul>

<sup>69</sup> Majority associated to decisions: double simple for calls for ideas/proposals; two-thirds for other selection steps; ESAC involved in all down-selection processes. Bearing in mind the present programme proposal, the EOEP Participating States will eventually decide on these selection procedures and associated majorities in the Implementing Rules.

<sup>70</sup> e.g. launch opportunity, instrument embarkation opportunity

# Roadmap - EE Calls and Early Phases in EOEP-5







# Earth Explorer 10 Call for Proposals, September 2017

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"In line with the spirit of the EOEP programme, the Agency is soliciting proposals for mission ideas for implementation as EE-10 that should not exceed a 400 M€ budget to ESA at 2017 economic conditions (e.c.), covering the development of the mission up to the end of the commissioning phase once the satellite is in orbit (phase B1 to E1). This implies, for the proposers, that a target of 225 M€, e.c. 2017, has been set for all industrial development costs for the space segment, excluding launch services, operations, ground segment, level 2 processor and ESA internal costs."

The Agency foresees a launch of EE-10 in the 2027/28 timeframe.

<http://explorercall.esa.int/images/callee10documents/EE-10-Call-Text.pdf>



# U.S. 2017 Decadal Survey for Earth Science and Applications from Space “ESAS 2017”

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## SUMMARY

The United States National Research Council (NRC), led by the Space Studies Board in collaboration with other Earth Science related boards across the NRC, will organize a “decadal survey” that will **generate consensus recommendations from the environmental monitoring and Earth science and applications community on an integrated and sustainable approach to the conduct of the U.S. government’s civilian space-based Earth-system science programs.**

These programs are carried out predominantly by NASA, NOAA, and the USGS, with supporting and complementary contributions from agencies including the NSF, USDA, DoE, and DoD.

<http://sites.nationalacademies.org/DEPS/ESAS2017/index.htm>



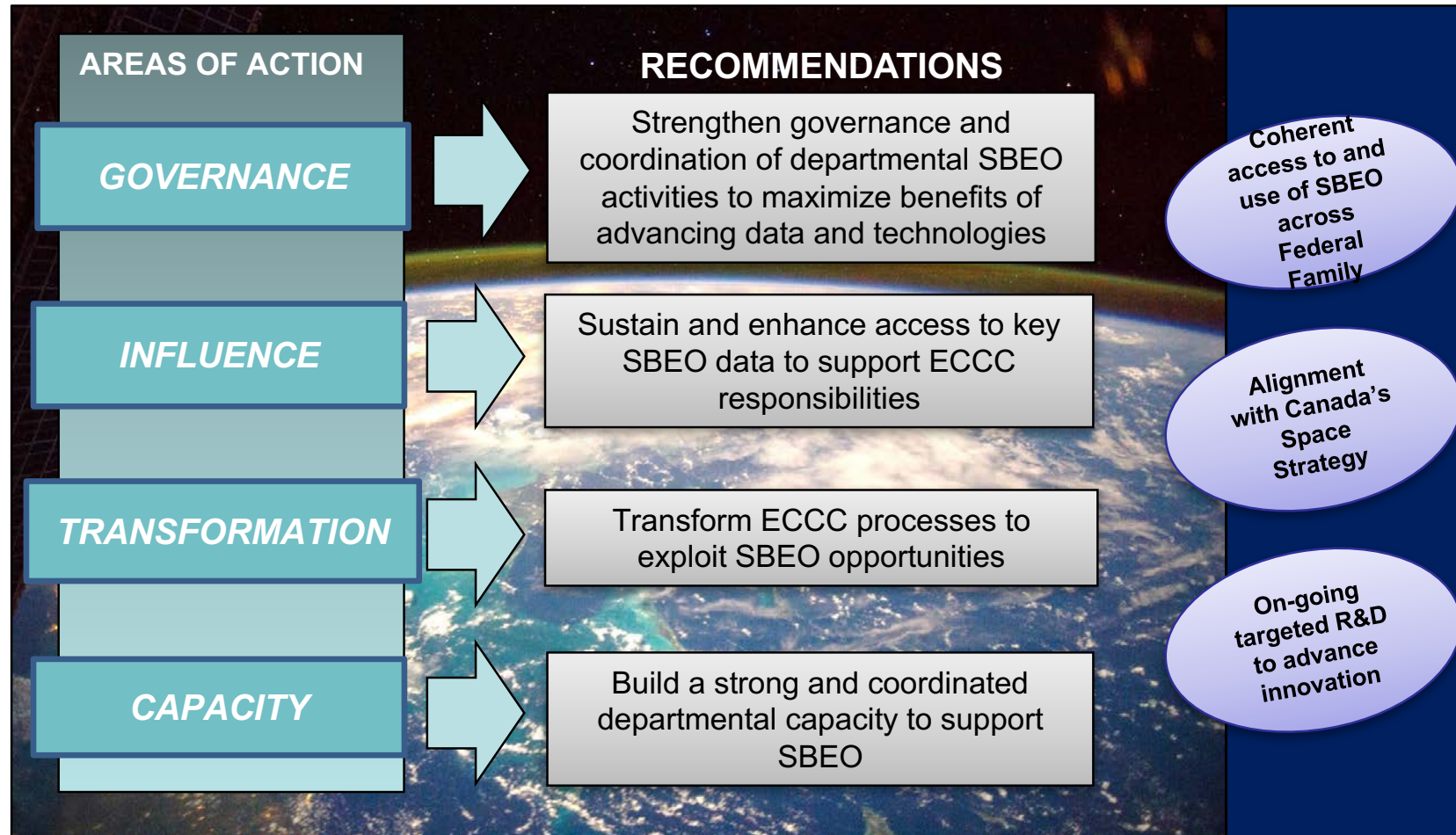
# ESAS 2017

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- Report should be released in late autumn 2017.
- Measurements, rather than missions, may be prioritized.
- Implementation by NASA may be through a mix of competitive and directed missions in order to attain more efficient use of available funds.
- Teams that prepared White Papers will be well placed to participate in implementation consultations and subsequent proposal solicitations.
- Some Canadians were involved in co-authoring White Papers that were submitted to the survey.



# ECCC Space Based Earth Observation (SBEO) Strategy: Areas of Action & Key Recommendations



Environment and  
Climate Change Canada

Environnement et  
Changement climatique Canada

Canada

# Questions?

# Timeline to Workshop

- First Telecon Fri. 6 Oct. 1-2 PM ET
- Second Telecon TODAY 19 Oct. 1-2 PM ET
- **Registration deadline** **Tues. 31 Oct.**
- **Consortium deadline** **Tues. 31 Oct.**
- Third Telecon Wed. 8 Nov. 1-2 PM ET
- Community Workshop Thurs.-Fri. 16-17 Nov.

# Next Steps

- Remember to sign in for this meeting by sending an email to [info@csa-asac.ca](mailto:info@csa-asac.ca)
- Assemble your consortium and submit your summary by 31 October to [info@csa-asac.ca](mailto:info@csa-asac.ca)
- Visit the workshop website at <http://www.csa-asac.ca/>
  - Register for the workshop by 31 October
  - Make your travel plans and hotel reservation
- Attend the final telecon on Wednesday 8 November