Earth Observation Info Days

EO for Society in EOEP-5 and Future EO-1 Block 4 Enterprise activities

Gordon Campbell,

EO Data Applications Division, 9 March 2021

Activity overview

- Embed EO into operational activities
  - Industry growth - Expand Demand
  - Future EO – EO4Security
  - Future EO – EO4Resilience
  - Future EO – Regional Initiatives
- Establish EO as an accepted best practice
  - Industry growth - Best Practices
- Stimulate new capabilities, partnerships and working methods
  - Industry growth/Future EO - POC
  - Industry growth – NMS cooperation
  - Future EO – EO4Security
  - Future EO – AI4EO
  - Future EO – Regional Initiatives

Activity lines managed by Enterprise

1. EOEP5 – Industry growth
2. Future EO:
   i. EO4Resilience
   ii. Regional Initiatives (Applications)
   iii. EO4Security
   iv. Permanently Open Call

Block 4 High Level Opportunities

Future EO1 Block 4 Activity Lines	Opportunities and High Level Objectives
AI4EO	Stimulate integration of leading AI capabiliites within EO Service Industry Foster partnerships between companies with complementary capabilities Address structural impediments constraining individual providers (training data etc) Foster industrial spin-offs
EO4Resilience/SDGs	Open up new markets for integrating EO derived information Foster partnerships between companies with complementary capabilities Expand user base to non-traditional stakeholders
Regional Initiatives	Connect EO applications with wider range of policy domains and institutional users Achieve critical mass of monitoring & analysis capability Stimulate innovative devlopment approaches to address regional priorities
EO4Security	Strengthen/extend technical capability (algorthms etc) Foster partnerships between companies with complementary capabilities Embed /VerifyEO for operational practices Foster industrial spin-offs

Future EO: EO4Resilience

ITT Title:	Building EO into Operational Reslience
Scope	Develop and verify prototype capabilities to integrate EO derived information and specialized modelling and analysis capabilities to characterize resilience against both short time-scale shocks and long time-scale progressive perturbations. Short time-scale shocks include natural and man-made disasters, economic shocks, pandemic disease outbreak and collapses of civil society structure such as onset of violence or forced displacement. Long time-scale perturbations include considerations such as climate change driven environmental degradation, reduced availability or access to natural resources and demographic change. This tender will address resilience in three domains - health, urban sustainability and ecosystems. Each contract shall investigate the integration of state of the art EO derived information with other data collection technologies (eg IoT networks, socio-economic statistics etc) and domain specific analytics tools and models.
Timing	ITT released Q2 2021, Contracts in place Q4 2021
Value	3 parallel contracts (1 in each domain) each of 700k€

Future EO: Regional Initiatives

ITT Title	Regional Initiatives - prototype regional analytics
Scope	Integrate EO derived information, non-EO data (eg IoT data collection networks, mobile network operators, vehicel telemetry etc) and prototype modelling capabilities to characterize regional level dynamics for regional ecosystem dynamics and human activity. Based on availability of data and prototype analytics capabilities it is intended to start one contract in each of the following regions: Baltic, Danube, Alps
Timing	ITT released Q3 2021, Contracts in place Q1 2022
Value	3 parallel contracts each of 500k€

ITT Title	Regional Initiatives - Regional Application Stimulus
Scope	For each of the Baltic, Danube/Black Sea and Alps regions, issue a contract in which a set of small scale application developments can be executed. In each region, the application developments shall result in a crtical mass of innovative EO capabilities that address emerging requirements for national users driven by the relevant regional agreements (eg Helsinki Convention, Black Sea Convention) and opportunities driven by the relevant regional strategies.
Timing	ITT released Q2 2021, Contracts in place Q4 2021
Value	3 parallel contracts each of 500k€

ITT Title	Regional Initiatives - Strengthen Engagement of Regional Stakeholders
Scope	Develop prototype capability to connect EO and non-EO data to demonstrate innovative new monitoring capabilities to address expanding monitoring and assessment requirements among the regional stakeholders (HELCOM, OSPARCOM, Danube Secretariat). The ITT will start 1 contract in each of the following regions: Baltic, Danube, Atlantic
Timing	ITT released Q3 2021, Contracts in place Q1 2022
Value	3 parallel contracts (1 in each region) each of 250k€

EO4Security

• Super-Resolution data enhancement (Multi-spectral/SWIR, sat-video & Hyper-Spectral plus optical/IR Geostationary)	1 ITT for first 3 actions (3 contracts 200k€ each) 1 ITT for super-resolution GEO (1 contract 200k€)
• Expanded Uptake for Small Satellite Data	Demonstrate fitness for purpose for security users: 1 ITT to start 3 contracts, each of 500k€
• SAR capability developments (Inverse SAR, BiStatic SAR, SAR and Passive µ-wave fusion)	1 ITT to start 1-2 activities in each domain. Contract value 250 – 400k€
• Integration of EO into Operations Platforms for Counter-Proliferation/Regional Security and for Threats linked to Under-governed Territories	2 ITTs addressing counter-proliferation cooperation Max value 750k€
• Integration of EO into Operations Platforms for Environmental Crime/Crimes Against Humanity	Integration of EO and conventional data to support investigation of Environmental Crime and Crimes against humanity. Max Value 1M€
• Enhanced Feature Identification/Pattern Recognition (AI & physical models, telemetry)	1 ITT to start 2 activities in each domain – max value for each contract is 200k€

Left over from EOEP5 Industry Growth

ITT Title	Video Analytics
Scope	Based on state of the art AI techniques, develop and test prototype capabilities to extract information from feature change/target movement in satellite video data. This should complement information extracted from static imagery.
Timing	ITT released Q2 2021, Contracts in place Q4 2021
Value	2 parallel contracts each of 200k€

ITT Title	Best Practices: Arctic Shipping
Scope	Elaboration of operational situations where EO derived information can be used within the Arctic shipping sector. This includes the complete shipping lifecycle from vessel design to operations planning and management to end of life disposal. Innovative developments such as autonomous vessel management and optmized port operations in hostile environments shall also be considered. The activity shall contribute to the establishment of agreed best practices for the use of EO derived information
Timing	ITT released Q3 2021, Contracts in place Q1 2022
Value	500k€

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EO for Society in EOEP-5 and Future EO-1 Block 4 Permanently Open Call for Proposals

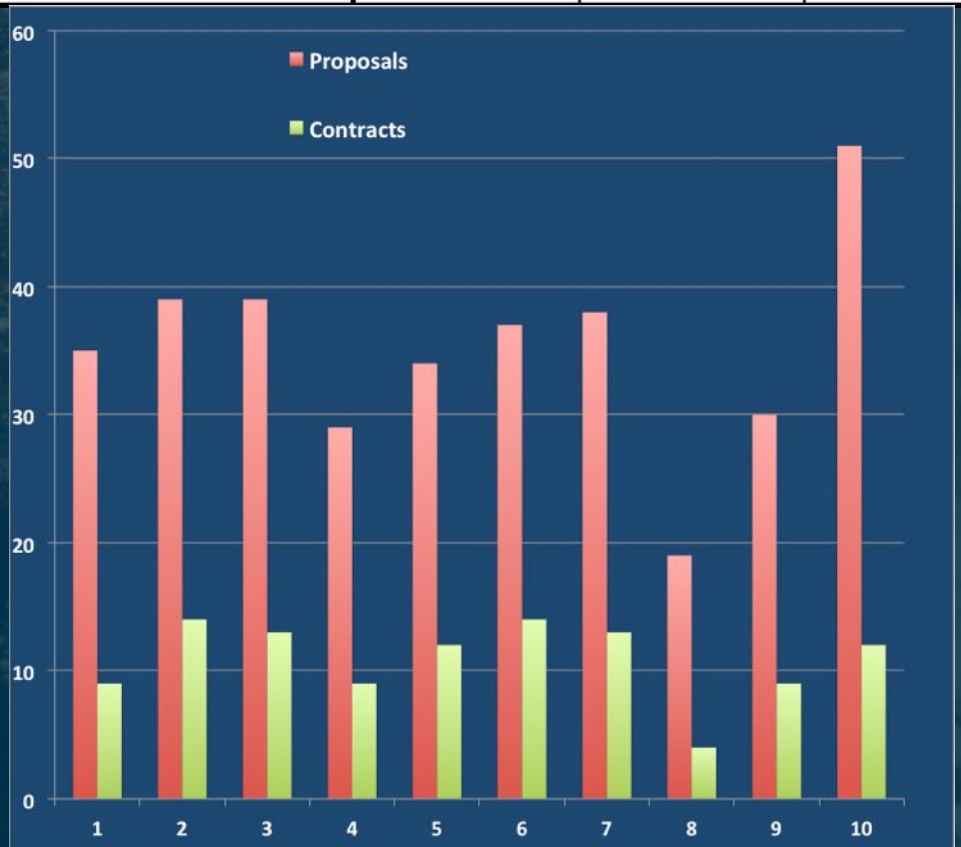
Gordon Campbell,

EO Data Applications Division, 9 March 2021

Permanently Open Call - summary

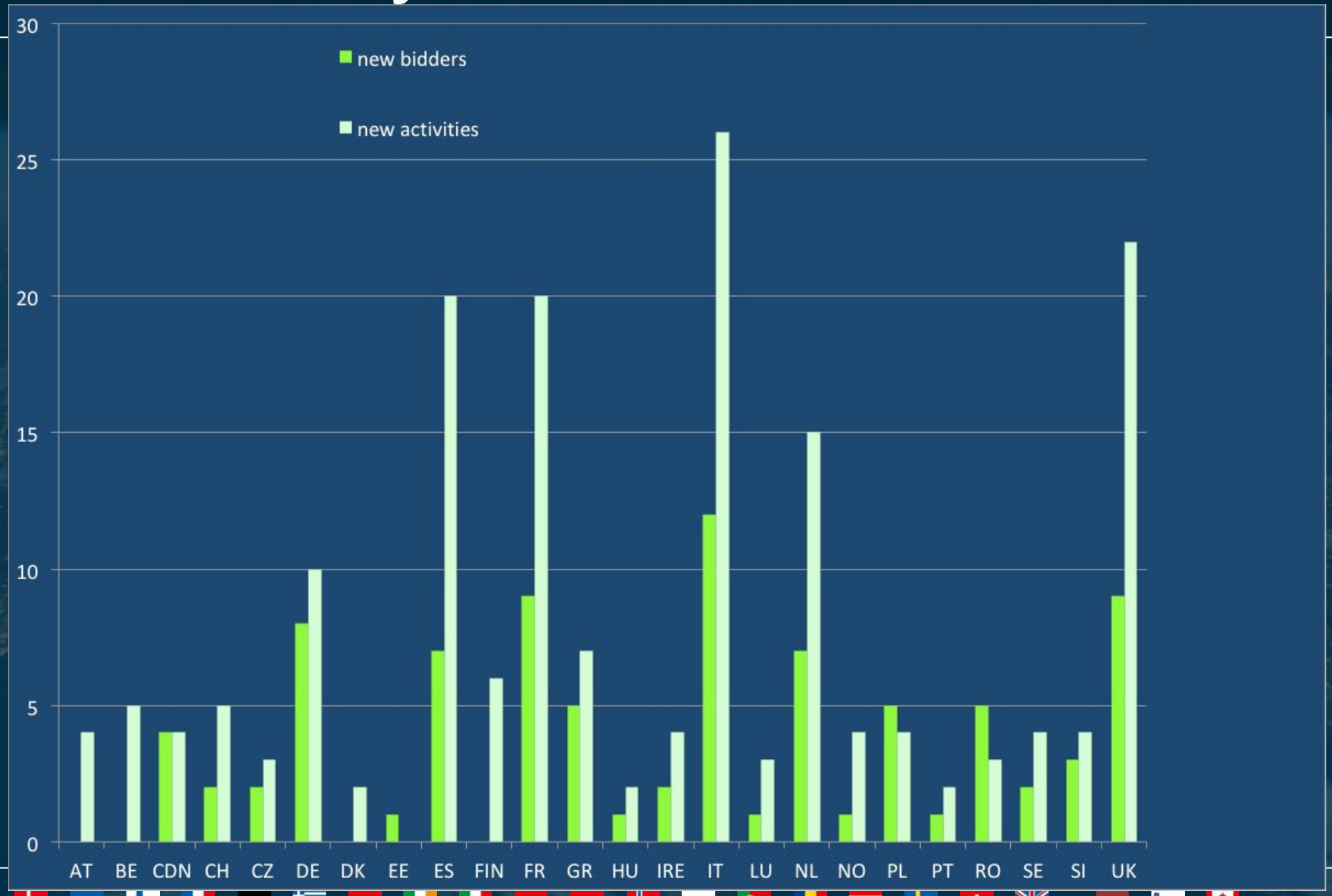
- Provide an opportunity for **industry & research community** to propose new activities outside of the standard ESA work-plan
- Total value is **10% of total industrial spend from EOEP5 Block 4** (PB-EO request)
- Prioritize **innovative ideas** responding to emerging opportunities. Evaluation criteria prioritize innovative content
- **Simplified proposal template** to ensure:
  - Minimal preparatory effort by bidders on administration – focus on technical development issues
  - Fast turn-around from evaluation to negotiation
- Max contract spend 150k€, 12 months

activity line	number of proposals	number of contracts	success rate (%)
EO4SD	45	10	22
Evolving Shared Technical Capabilities	37	10	27
Industry growth	79	24	30
Network of Resources	5	4	80
Public Sector Applications	75	17	23
Science Data Exploitation	110	44	40
Total	351	109	31



Proposals/contracts per batch

Innovation summary

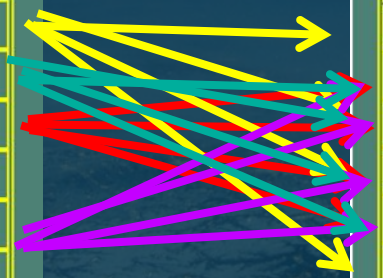


Permanently Open Call – FutureEO-1

- Objective – provide a framework to:
  - rapidly respond to new innovative ideas
  - maximize opportunities for industry and science.
- Call opened in October 2020.
- First Submission deadline was December 2020. Future deadlines are March 2021, July 2021 and November 2021
- Maximum budget for each project is150keuro, with a maximum duration of 12 months
- The scope of the call covers elements of Block 4 of Future EO-1 Segment 1
  - Scientific Data Exploitation
  - EO for a Resilient Society
  - Artificial Intelligence for EO
  - Regional Initiatives
  - EO for Civil Security

Key issues to consider

Activity Lines in Old Call
Science Exploitation
Enabling Industry Growth
Public Sector Applications
EO4Sustainable Development
Evolving Shared Technical Platform Capabilities
Building Network of Resources



Activity Lines in New Call
Science Grand Challenges
EO4Resilience
Regional Initiatives
AI4EO
EO4Security
EO4Africa

Make sure you explain clearly:

What is being developed?	
What are the target performance requirements to be achieved and why?	
What are the innovations you are proposing?	
What are the impacts resulting from your proposed development?	
What are the technical difficilities inherent in your proposed development and how to you plan to address them?	
What are the technical developments you are proposaing to execute and how do these ensure you meet target performance levels and address the identified difficulites?	

NB: Letters of support from users are usually necessary
Letters from your national delegation are not required


EO Science for Society
https://eo4society.esa.int
https://twitter.com/EO_OPEN_SCIENCE

Programme

09:00-09:05 Welcome and Introduction

09:05-09:20 Objectives and contents of Block-4 in EOEP-5/FutureEO-1

09:20-12:00 Workplan Future EO-segment 1 Block 4 presentation
- 09:20-09:50 Science
- 09:50-10:20 Applications
- 10:20-10:50 Enterprise
- 10:50-11:10 Federated Collaborative Platforms
- 11:10-11:30 AI4EO
- 11:30-11:40 Open Call
- 11:40-12:00 Q&A

14:00-14:30 Global Development Assistance (GDA)

14:30-15:00 Investing in Industrial Innovation (InCubed)

15:00 Closure