

The dark side of the Earth



WELCOME TO THE WEBINAR!

Before we start...

Due to the number of attendees, please keep your **microphones muted** at all times and switch off the webcam function

You can use the **conversation function** anytime to submit your questions. They will be addressed during the Q&A at the end of the webinar



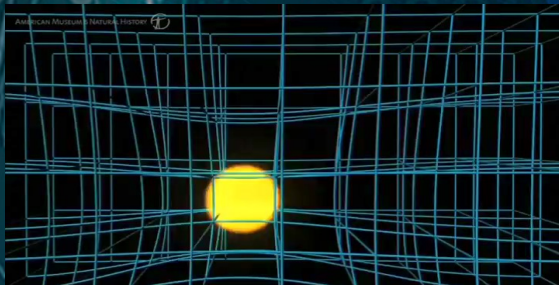
Nil Angli - ESA
Nil.angli@esa.int



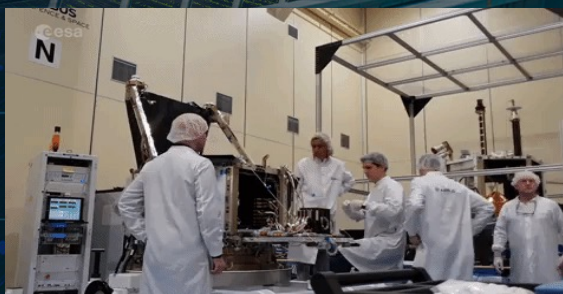
AGENDA

- Introduction to ESA BASS
- Call for Proposals “The Dark Side of the Earth”
- Potential use cases and data products
- Tender information
- How to apply
- Q&A

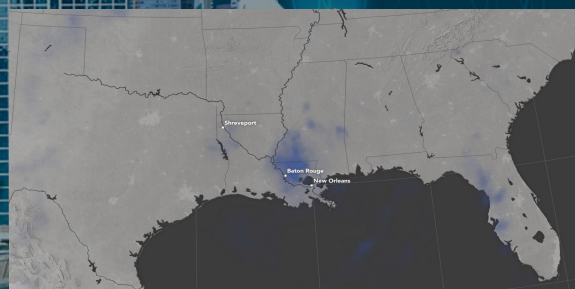
Science and Exploration



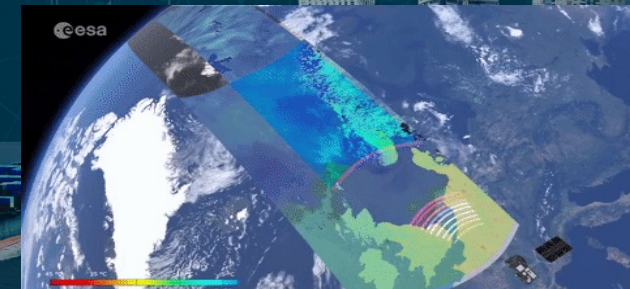
Enabling and Support



Safety and Security



Applications



BUSINESS APPLICATIONS: SPACE-ENABLED SERVICES



Using any space asset(s) and integrating them with terrestrial assets for the benefit of life on Earth





Social, green value and economic sustainability



Utilisation of space in new markets and user communities



Strengthen European Industry competitiveness

Our aim is to work together to make your idea commercially viable, with:



Zero-Equity Funding
(€50K-€2M+)



Tailored Project Management Support



Access to our Network and Partners

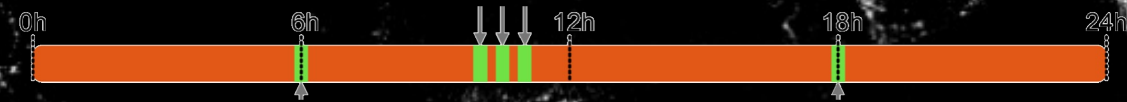


Use of ESA Brand for Credibility

- ✓ **Demo projects:** Mature value proposition & business plan and demo your service with customers
- ✓ **Feasibility studies:** Explore ideas, create a business plan & connect with potential users
- ✓ **Kick-Starts:** Thematic activities

The Dark Side of the Earth

At any given time, half of the Earth lacks direct Sun illumination, thus impeding most EO satellites' operations. While it is true that SAR satellites can image at night time, due to thermal and power constraints, those typically operated in dawn-dusk orbits (i.e. LTAN/LTDN 6AM-6PM) leaving long periods of the night-time unmonitored.



Value of space at night-time

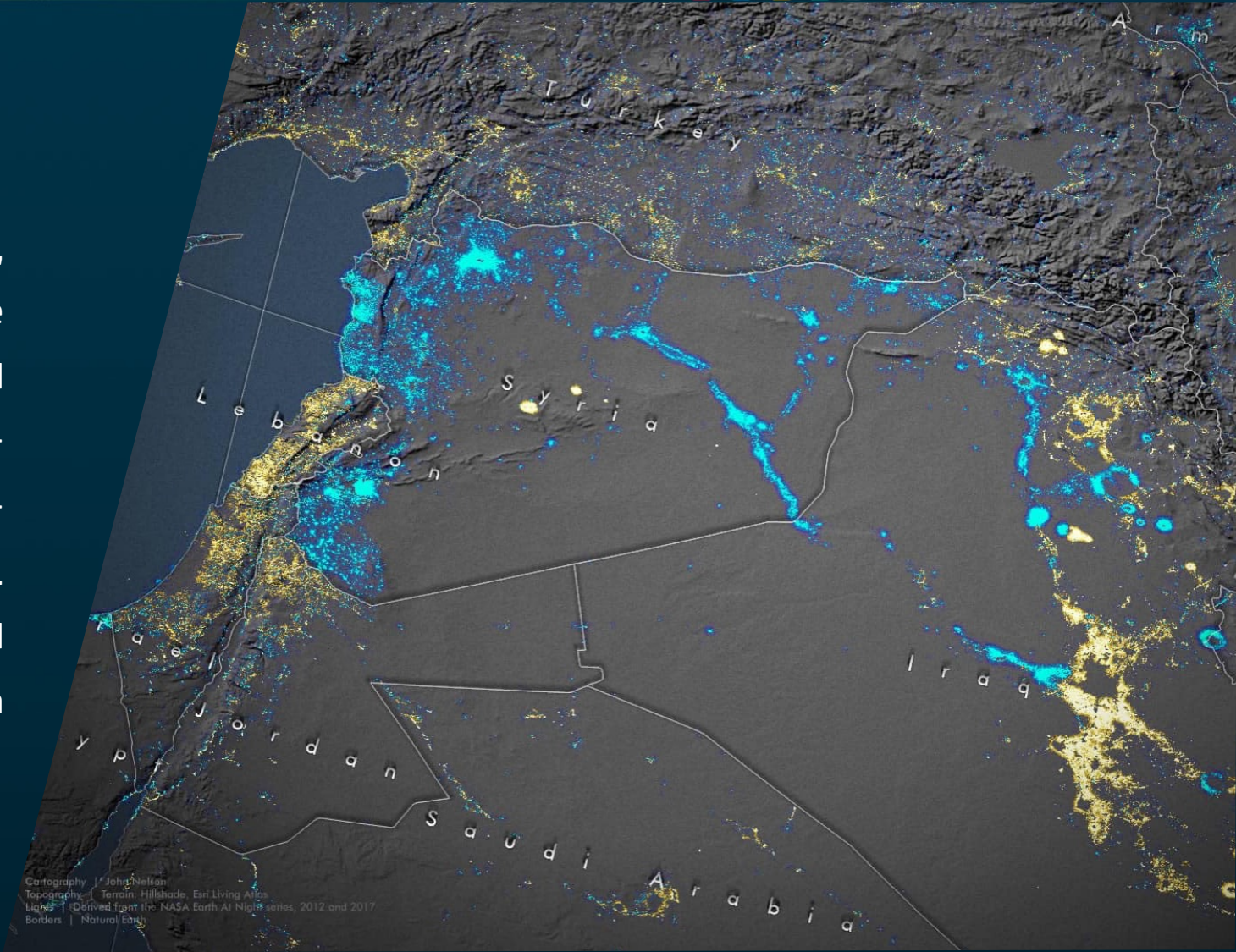
Space data can result in multiple downstream applications when operated at night, those can be separated into:

- Detecting events that only occur at night. (e.g. squid fisheries)
- Detecting events that can only be observed at night. (e.g. light-based economic growth)
- Providing events that benefit from adding observations at night as well as during the day. (e.g. oil and gas refinery activities)



Use Case Example 1 - The economics of lights

Artificial lights are indicators of socio-economic activities, especially when analysed on temporal sequences. While there isn't a direct correlation between light brightness and GDP (often richer economies are also more active in anti-light pollution measures), economic trends and socio-economic patterns can be obtained from night-time imagery. The picture on the right shows increase (in yellow) and decrease (in blue) of artificial lights over the Middle East in the 2012-2017 period.



Use Case Example 2 - Light pollution, and public lighting

Similarly to the monitoring of socio-economic activities, radiometers or visible imagers can be used for observing the amount of light emitted by artificial lights, either from a light pollution perspective. Light pollution has negative effects the environment in terms of: disturbance of biological rhythms, human psychological effects and environmental degradation.

Light pollution also massively degrades the performance of astronomic observations as it degrades the stellar visibility.

On the other hand, night imaging can assist in public lighting infrastructure planning with tangible benefits to public safety.



Use Case 3 Example - Fisheries at night

A number of activities occurring at night use powerful artificial lights at their core. This allows to easily monitor and track those sectors with night-time remote sensing. As an example, the image on the right shows the Gulf of Thailand where boats use lights (in green) to attract fish, which are then used to bait squid. The brightest area (in yellow) is the greater Bangkok area.



Use Case Example 4 – Industrial activity monitoring

Night-time imagery can be used to monitor activity levels in various industrial settings such as oil refineries and oil pads, open mines, or construction works. This information can turn into invaluable intelligence for commodity trading, or control of supply chain amongst others.



Funded participation to ESA Space Solutions is open to any company and/or organisation, be it as group of users, public body or non-governmental organisation, residing in the following Member States:

Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Luxembourg, The Netherlands, Norway, Poland, Portugal, Romania, Sweden, Switzerland and the United Kingdom.

Activity title	The Dark Side of the Earth
Activity type	Feasibility Study with PoC
Space assets involved	Optical Night-time imagery
Opening Date	28 February 2024
Closing Date	31 May 2024
Estimated duration	12 months
Estimated price [cost]	200.000 Euro (firm fixed price), 80% of the total cost
User community & users expected to be involved	Law enforcement, financial institutions, oil and gas, environmental agencies, maritime organisations, wildlife conservation, water agencies.

- Task 1: Use cases analysis and service requirements consolidation
- Task 2: Technical Feasibility Assessment
- Task 3: Commercial Viability Assessment
- Task 4: Proof of Concept

1. **Register** (minimum 'light registration') by completing online questionnaire on ESA-STAR Registration (esastar-emr.sso.esa.int)
2. **Download** the official tender **documentation** (Invitation to Tender), which will be available as soon as the ITT is open via esa-star.
3. Create 'Bidder Restricted Area' in ESA-STAR
4. **Write your Proposal** using the template provided in the Tender documentation and obtain **Letter of Authorization** from your National Delegation (business.esa.int/national-delegations)
5. **Submit** your proposal via 'Bidder Restricted Area' in ESA-STAR Tendering (esastar.sso.esa.int)

More info can be found here:

esa.int/About_Us/Business_with_ESA/How_to_do/esa-star_Registration_Process

BASIC PRINCIPLES - ESA-STAR



Registration (minimum 'light registration') on [ESA-STAR Registration \(https://esastar-emr.sso.esa.int\)](https://esastar-emr.sso.esa.int)

Please note that esa-star allows two levels of entity registration: "Light" and "Full". This allows new users wishing to do business with ESA to carry out their registration in two steps. A "Light" registration will grant access to all esa-star services up to and including proposal submission. The award of ESA contracts requires "Full" registration.

esa-star registration

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ESA Entities Directory

NEW REGISTRATION

? Please select one of the two options:*

? A. I am an Entity that has the capacity as "legal entity"

? B. I am a Business Unit acting on behalf of a "legal entity", without being entitled to commit on contracts on my own





Nil Angli - ESA
Nil.angli@esa.int



Q&A

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