Webinar: Space in response to humanitarian crises

21 April 2022 | 15:00 CET

ESA Hosts:
- Nil Angli
- Mina Syriou
- Liz Barrow

Guest speakers:
- Lea Perekrests, IEP
- Einar Bjørgo, UNOSAT/ UNITAR
- Robert Trigwell, IOM – UN Migration
- Giulio Coppi, NRC

Webinar hosts

Nil Angli

Mina Syriou

Liz Barrow

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Welcome to our 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.

Space in response to humanitarian crises

Agenda

1. Introduction
2. ESA Space Solutions
3. ‘Space in response to humanitarian crises’ call
4. Our guest speakers
5. How to Apply
6. Q&A

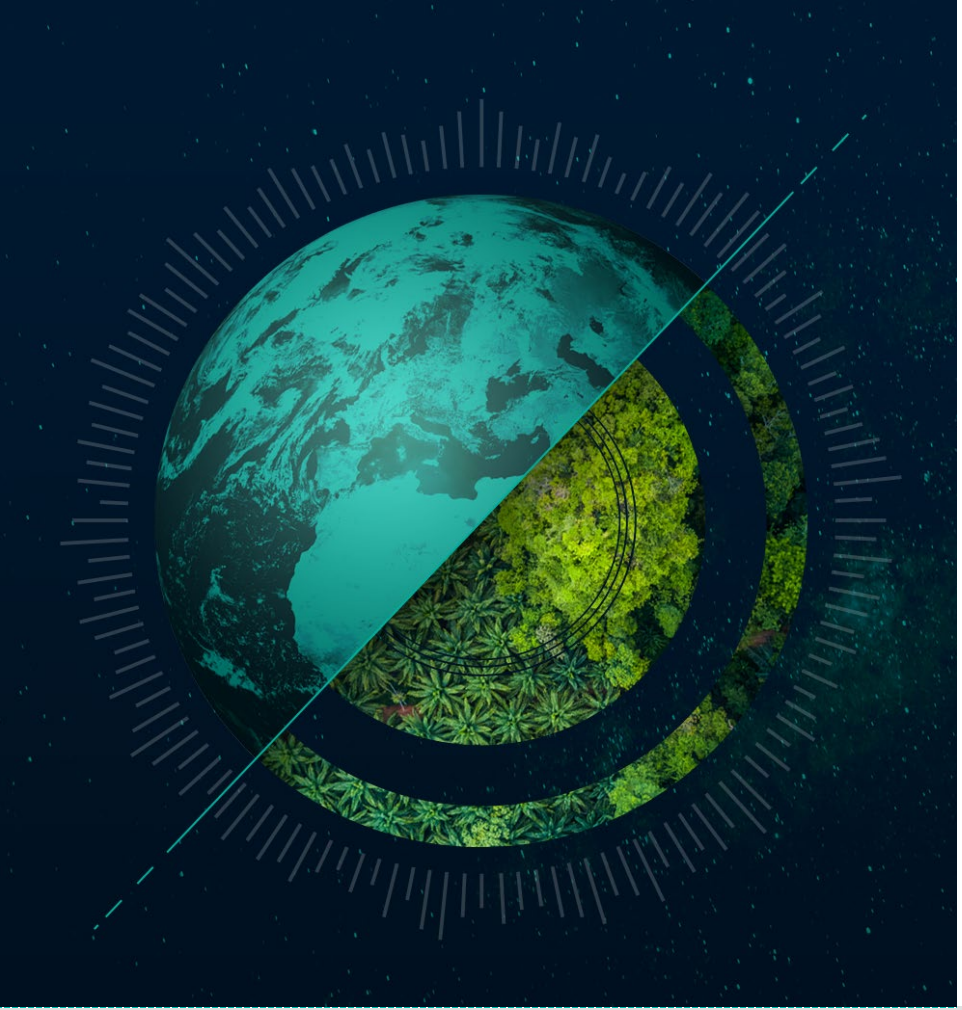
ESA Space Solutions

The largest space innovation network in the world

→The go-to place for great business involving space to improve everyday life

→Supporting European start-ups and SMEs to develop businesses using space technology and data

→Offering funding, business and technical support to help to generate successful business and create jobs



What we offer

- Zero-equity funding (from €50k to €2M+ per activity)
- A personalised ESA consultant
- Technical support and commercial guidance
- Tailored project management support
- Access to our international network of ESA and partners
- Access to our network of investors
- Credibility of the ESA brand

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Space tech, users & markets

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Space Technology...

- Earth Observation
- Satellite Navigation
- Satellite Communication
- Spaceflight Technologies
- Space Weather

... coupled with...

- Big Data analytics
- VR/AR
- Artificial Intelligence
- Mega-constellations
- Crowdsourcing
- IoT
- Cybersecurity
- Blockchain
- 5G (https://artes.esa.int/esa-5g6g-hub)

... to serve Users & Market

- Maritime
- Environment
- Financial
- Education
- Energy
- Agriculture
- Healthcare
- Transport
- Media
- Aviation

‘Space in response to humanitarian crises’ call

Opening date: 25 April 2022

https://business.esa.int/funding/invitation-to-tender/space-response-to-humanitarian-crises

Scope of the Thematic Call

+

The Thematic Call “Space in response to humanitarian crises” targets the development of space-based services that support humanitarian efforts in response to the Ukrainian crisis

Key thematic areas

Supporting the physical, emotional, psychological, social, or economic well-being of refugees/ IDPs

- Access to trusted sources (e.g., humanitarian organisations) for critical advice and information (e.g., on safe corridors, conditions in place of origin, available services and legal assistance)
- Restoration of family and community links
- Access to cash and remittances
- Protection of education provision
- Preservation and/or development of livelihoods in the digital space
- Provision of up-to-date route conditions in a rapidly changing landscape.

Supporting humanitarian and governmental organisations to forecast, respond to, and manage displacement crises

- Assessment of conditions of public services infrastructure (e.g., hospitals, roads, water supplies, telecommunications networks) in crisis regions
- Provision of secure connectivity to and for field teams
- Tracking of population movements
- Facilitating communications between responders and those in need of assistance
- Mapping of weaponised areas as a proxy for unexploded ordinance
- Dynamic routing services to facilitate access to and from affected areas.

Supporting communities hosting displaced people

- Assistance in refugee registration efforts
- Mapping of displaced populations
- Prediction of migrant flows
- Optimisation of local resources and services under stress
- Optimisation of imported resources and aid through digital supply chain.

Supporting post-conflict recovery efforts

- Assessment of conditions of critical infrastructure and household dwellings
- Recovery of key resources that have been damaged and/or neglected (e.g. agricultural land; power grid; water sources)
- Restoration of safe areas (e.g., clearing of landmines and unexploded ordinance)
- Recovery of contaminated areas (e.g., where shelling has occurred on heavily industrialised areas)
- Restoration of environmental governance.

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Value of space

Satellite Communication (SatCom) - Enable secure connection in remote places without land-based communication channels. Operate as back-up for land-based communications systems. Enable machine-to-machine communication in remote areas.

Satellite Earth Observation - SatEO data (both SAR and optical) can be used to monitor and plan infrastructure (e.g. buildings, road network, hospitals, airports) as well as identifying movements of migrants and refugees across large areas. SatEO can also be useful to predict where new crises might occur, e.g. images of hot spots where border crossings peak to determine where new crises might occur

Global Navigation Satellite Systems (GNSS) - provides accurate Positioning, Navigation, and Timing (PNT) enabling services such as tracking and tracing of vehicles, people, and resources. GNSS also allows navigation of autonomous or remotely piloted vehicles

Guest speaker #1

Lea Perekrests

Deputy Director of Operations,
Europe & MENA

Institute for Economics and Peace (IEP)

Positive Peace 2022

Analysing the factors that build, predict and sustain peace.

Lea Perekrests, Institute of Economics and Peace (IEP)

IEP

The Institute for Economics and Peace is an independent, not-for-profit think tank dedicated to building a **greater understanding** of the **key drivers** of peace, as well as identifying the **economic benefits** that increased peacefulness can deliver.

About the Institute

- Research used extensively by organisations including the OECD, Commonwealth Secretariat, World Bank and the United Nations.
- Work is included in 1,000s of university courses and trained over 1,500 IEP ambassadors.
- Over 200,000 downloads of IEP reports last 12 months.

27BN GLOBAL MEDIA REACH	**980M** SOCIAL REACH	**152** COUNTRY REACH
20,000 NEWS ARTICLES	**3000** BOOK REFERENCES	**1.5M** UNIQUE VISITORS

What is Positive Peace?

The Global Peace Index

Now in its **15th** year

Ranks **163** countries

According to their relative states of peace

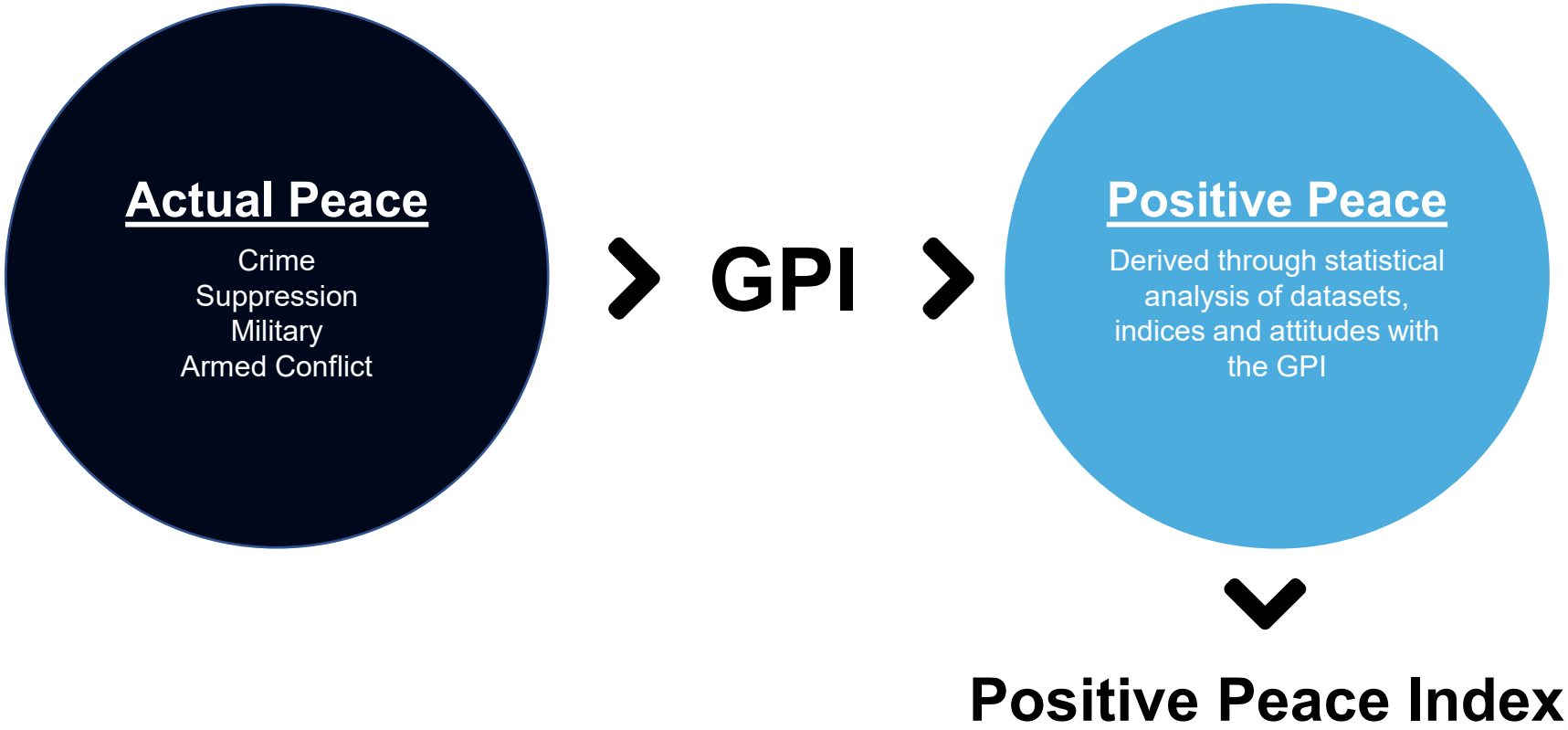
Using **23** Indicators weighed on a 1-5 scale

Developed by the Institute for Economics and Peace

Guided and overseen by a panel of **International Experts**

Defining and measuring peace

The perfect state would have no police, jails or crime.



Positive Peace

Positive Peace creates the optimum environment for human potential to flourish.

High levels of Positive Peace are associated with:

- Higher per capita income
- Resilience
- Better environmental outcomes
- Higher measures of wellbeing
- Better performance on SDGs

Positive Peace operates systemically

- The Pillars of Positive Peace provide entry points into a system
- Through stimulating each of the Pillars the whole of the system is stimulated
- Systems operate through feedback loops, encoded norms and steady state – not through causality
- Positive Peace can be used to measure emergent qualities of a system as well as sun-setting qualities
- Systems are not static, they have momentum. Positive Peace measures the momentum.
- Positive Peace is an excellent measure of the resilience of a system.

IEP

Benefits of Positive Peace

High levels of Positive Peace lead to:

IEP

1. Stronger resilience & adaptability
2. Better environmental outcomes
3. Higher measures of wellbeing
4. Better performance on development goals
5. Higher per capita income
6. Better business environment

IEP

Using and Creating Positive Peace

Global Positive Peace activities

- **Positive Peace 17 partners implementing workshops**
  Workshops in Uganda, Kenya, Columbia, Libya, Thailand, Mexico, Cambodia, United States, Australia… more
- **Training a million people on Positive Peace**
- **Created over 3,000 IEP ambassadors in 106 countries**
- **Offering free** Online Peace Academy

Water & sanitation project, Luubu, Uganda

Where: Luubu, Mayuge District, Uganda

Objective: Improving sanitation in the Luubu community of the blind

When: 2018

Examples of initiatives:

Sound Business Environment: Employing local youths in the building of latrines and sourcing construction materials from local providers

Low Levels of Corruption: Involving community in the allocation and monitoring of funding and construction materials

Equitable Distribution of Resources: Multiple and better latrines offered a fairer distribution of sanitation facilities in the area

Project example of Positive Peace

- Literacy project post Rotary workshop in Uganda
- Jude Kakuba – Rotaract Club of Kampala Ssese Islands
- **Where:** Kakuba Primary School, Busedde, Uganda
  Objective: Improving student conditions, enrolment rates and academic performance
  When: 2016 – 2018
- **Outcome**:
  - Before implementation of the project, 70% achieved low grades
  - After implementation of the project, only 38% achieved low grades
  - Number of students enrolled jumped by 146%.

Ugandan school example

Well-functioning government – including local community leaders on the planning and implementation committee

Sound business environment – Has been addressed through construction of classroom blocks

Equitable distribution – provision of scholastic material for all

Acceptance of the rights of others – provision of sanitary pads for girls

Good relations with neighbours – planting fruit trees and porridge lunch

Free flow of information – partnered with local radio station

High level of human capital – provided medical checks and classroom construction

Low levels of corruption – branding donated items and setting up committee to monitor

Get involved with IEP

Ambassador Program

Positive Peace Workshops

Strategic Partnerships

IEP Peace Academy

Online

@GlobPeaceIndex

GlobalPeaceIndex

@GlobalPeaceIndex

visionofhumanity.org

Guest speaker #2

Dr Einar Bjørgo, UNOSAT

Director, United Nations Satellite Centre (UNOSAT)

United Nations Institute for Training and Research (UNITAR)

UNOSAT

Using satellite imagery for humanitarian relief – need for AI

Einar Bjørgo, Director UNOSAT

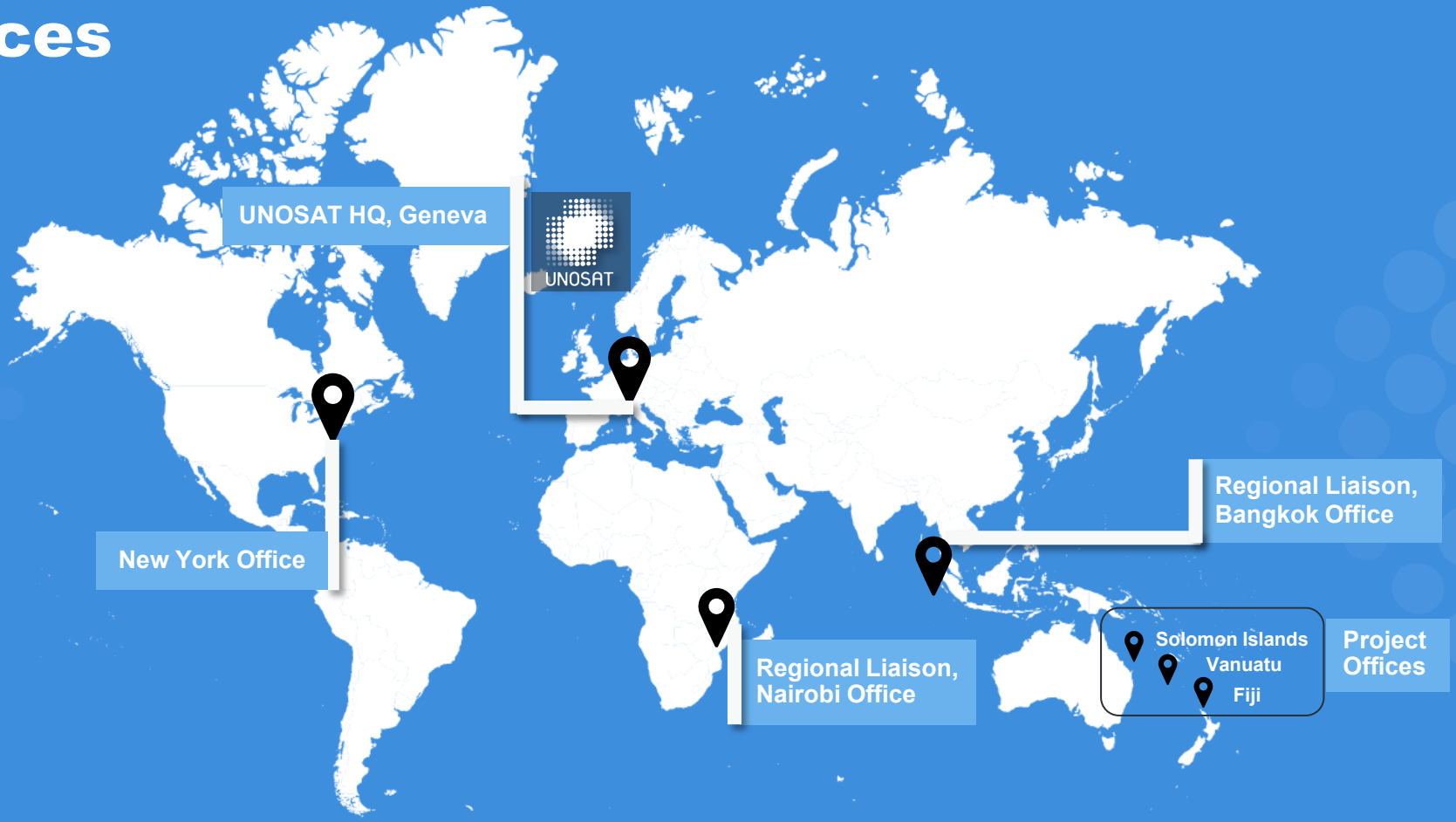
21/04/2022

United Nations Satellite Centre

Introduction

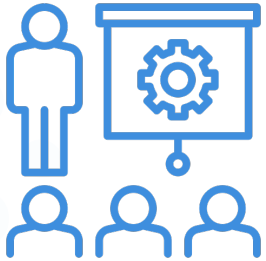
- Operational since 2001, recognized as the United Nations Satellite Centre in June 2021
- Mandate: To provide the United Nations funds, programmes and specialized agencies with satellite analysis, training and capacity development, at their request, as well as to continue supporting Member States with satellite imagery analysis over their respective territories and to provide training and capacity development in the use of geospatial information technologies

Offices


UNOSAT HQ, Geneva
UNOSAT
New York Office
Regional Liaison, Bangkok Office
Regional Liaison, Nairobi Office
Solomon Islands
Vanuatu
Fiji
Project Offices

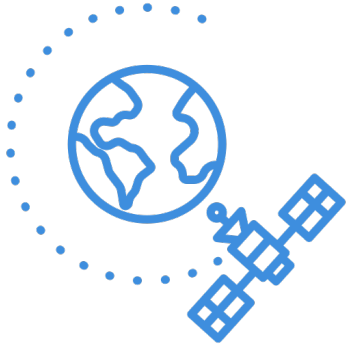
Operational Pillars

UNOSAT



Training and Capacity Development

Hands-on technical training, awareness raising and technical backstopping



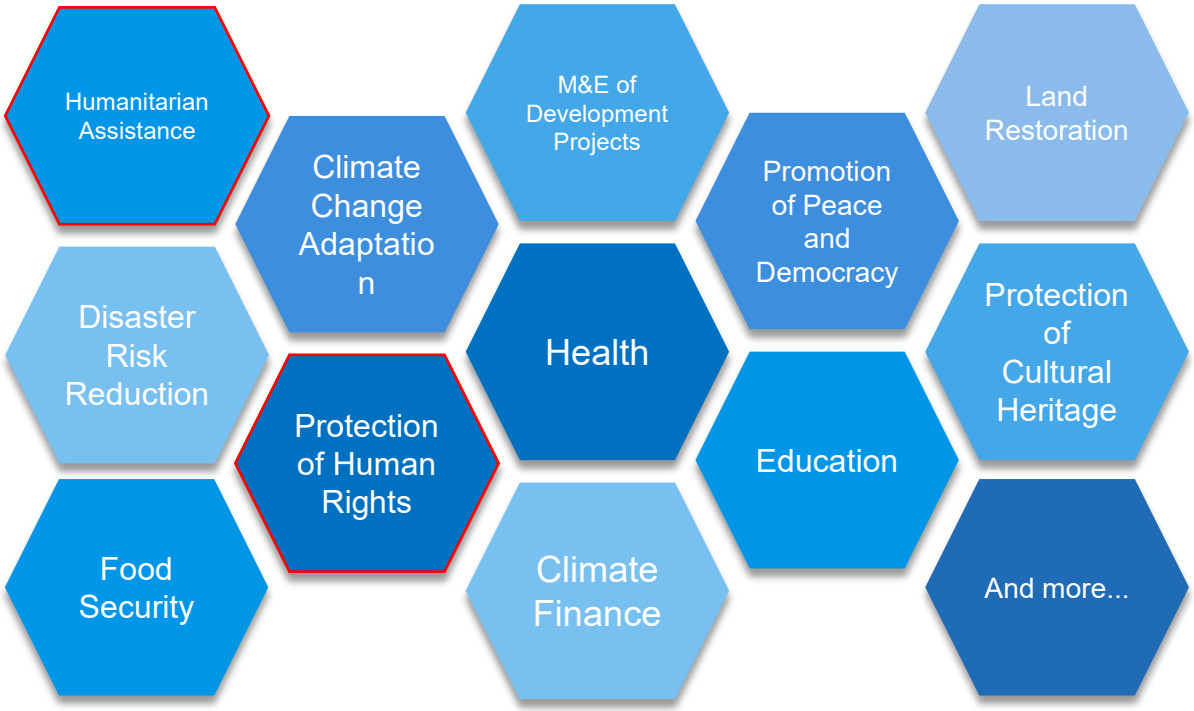
Satellite Analysis

Satellite imagery derived geospatial products

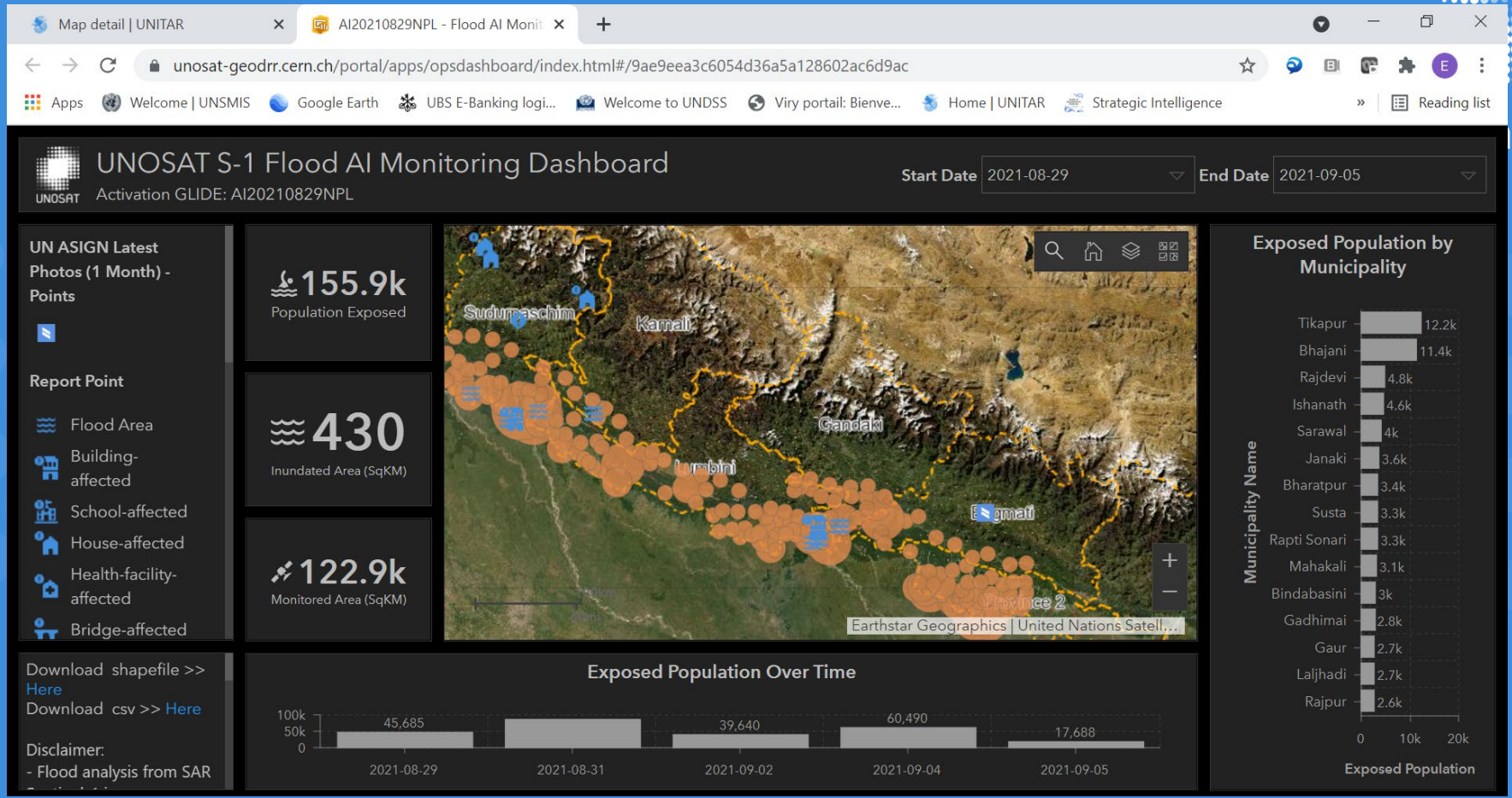
Applied Research and Innovation

EO, AI, Machine Learning, Big Data Analytics, crowdsourcing

UNOSAT
Thematic Areas




unitar
United Nations Institute
for Training and Research
UNOSAT
Humanitarian
Mapping Service


Map detail | UNITAR
AI20210829NPL - Flood AI Monit
unosat-geodrr.cern.ch/portal/apps/opsdashboard/index.html#/9ae9eea3c6054d36a5a128602ac6d9ac
Apps
Welcome | UNSMIS
Google Earth
UBS E-Banking logi...
Welcome to UNDSS
Viry portail: Bienve...
Home | UNITAR
Strategic Intelligence
Reading list
UNOSAT S-1 Flood AI Monitoring Dashboard
Activation GLIDE: AI20210829NPL
Start Date 2021-08-29
End Date 2021-09-05
UN ASIGN Latest Photos (1 Month) - Points
Report Point
Flood Area
Building-affected
School-affected
House-affected
Health-facility-affected
Bridge-affected
155.9k
Population Exposed
430
Inundated Area (SqKM)
122.9k
Monitored Area (SqKM)
Sudurpaschim
Karnali
Gandaki
Lumbini
Bagmati
Province 2
Earthstar Geographics | United Nations Satell...
Exposed Population by Municipality
Municipality Name
Tikapur 12.2k
Bhajani 11.4k
Rajdevi 4.8k
Ishanath 4.6k
Sarawal 4k
Janaki 3.6k
Bharatpur 3.4k
Susta 3.3k
Rapti Sonari 3.3k
Mahakali 3.1k
Bindabasini 3k
Gadhimai 2.8k
Gaur 2.7k
Laljhadi 2.7k
Rajpur 2.6k
0
10k
20k
Exposed Population
Download shapefile >> Here
Download csv >> Here
Disclaimer:
- Flood analysis from SAR
Exposed Population Over Time
100k
50k
0
45,685
39,640
60,490
17,688
2021-08-29
2021-08-31
2021-09-02
2021-09-04
2021-09-05

UKRAINE

HORENKA, KYIVSKA OBLAST

IMAGERY ANALYSIS: 31 March 2022 PUBLISHED: 11 April 2022 V1

% TOTAL VISIBLY DAMAGED CELL	AREA OF INTEREST
77%	10.5km2

unitar United Nations Institute for Training and Research

UNOSAT

COMPLEX EMERGENCY
CE20220223UKR

UNOSAT

UNOSAT Damage Assessment Overview Map

This map illustrates a satellite imagery-based Rapid Damage Building Assessment (RDBA) in the Horenka, Kyiv region, Ukraine. The RDBA divides the city into 500m x 500m cells, each of which is analyzed to determine whether or not there are damaged buildings inside the cell.

Based on imagery collected on 31 March 2022, analysts found that 51 cells out of 66 cells in Horenka sustained visible damage. This represents approximately 77% of the cells over the area.

This analysis is based on structures visibly damaged as of 31 March 2022 as seen in marginally degraded satellite imagery affected by light clouds and other limiting factors. This is a preliminary analysis and has not yet been validated in the field. Please send ground feedback to United Nations Satellite Centre (UNOSAT).

Legend

- Horenka Boundaries

Damage

- Damage
- No visible damage

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
PCS: WGS 1984 Web Mercator Auxiliary Sphere
GCS: GCS WGS 1984
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

Satellite data: WorldView-3
Acquisition date: 31 March 2022
Resolution: 30 cm
Copyright: © 2022 Maxar
Source: US Department of State, Humanitarian Information Unit, NextView License

Boundaries data: OCHA
Other data: UNOSAT
Analysis: United Nations Satellite Centre (UNOSAT)
Production: United Nations Satellite Centre (UNOSAT)

Map Scale for A3: 1:24'200

N 0 0.25 0.5 1 KM

UKRAINE

IRPIN, KYIV OBLAST

IMAGERY ANALYSIS: 31 March 2022 PUBLISHED: 18 April 2022 V2

TOTAL VISIBLY DAMAGED BUILDINGS	DESTROYED	SEVERELY DAMAGED	MODERATELY DAMAGED	POSSIBLY DAMAGED	HEALTH FACILITIES AFFECTED	EDUCATION FACILITIES AFFECTED
1,060	115	698	187	60	3*	4*

*Approximate values, not all the structures were digitized or labeled

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CE20220223UKR

UNOSAT Damage Assessment Overview Map

This map illustrates a satellite imagery based building damage assessment in Irpin City, Ukraine.

Based on imagery collected on 31 March 2022, analysts found that 1,060 structures sustained damage visible on the satellite imagery. Out of these, 115 are destroyed, 698 severely damaged, 187 moderately damaged and 60 possibly damaged. While no complete count of buildings for Irpin is available, an open source dataset which is visibly incomplete indicates at least 3,732 structures in the area.

This analysis is based on structures visibly damaged as of 31 March 2022 as seen in marginally cloudy satellite imagery. This is a preliminary analysis and has not yet been validated in the field. Please send ground feedback to the United Nations Satellite Centre (UNOSAT).

Legend

- Destroyed
- Severe Damage
- Moderate Damage
- Possible Damage
- Impact Crater (Damage to Road)
- Irpin Boundary

Map Scale for A3: 1:43,400

0 3.5 1.4M

30°18'E

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Guest speaker #3

Robert Trigwell

IOM Global DTM Support Team

Co-lead of the IASC Sub-group on Data Responsibility

International Organization for Migration (IOM)

How IOM's Displacement Tracking Matrix (DTM) utilizes 'Space in Response to Humanitarian Crises'

21st April 2022

Robert Trigwell
The UN Migration Agency (IOM)

The Displacement Tracking Matrix (DTM)

DTM
IOM DISPLACEMENT TRACKING MATRIX

To gather and analyze data to disseminate critical multi-layered information on the mobility, vulnerabilities, and needs of displaced and mobile populations that enables decision-makers and responders to provide these populations with better context-specific assistance"

IOM UN MIGRATION

DTM
IOM DISPLACEMENT TRACKING MATRIX

Data is collected on

Who?

Population

Internally displaced persons
Returnees
Migrants

Where? When?

Location

Sites and Camps
Transit points
Place of Resettlement

What? How?

Mobility

Internal Flows
Cross-Border
Spontaneous or Organized
Displacement and Returns

Needs / Vulnerabilities

Intersectoral Needs
GBV and Protection indicators

Conditions

Infrastructure
Livelihoods

IOM UN MIGRATION


Bangladesh

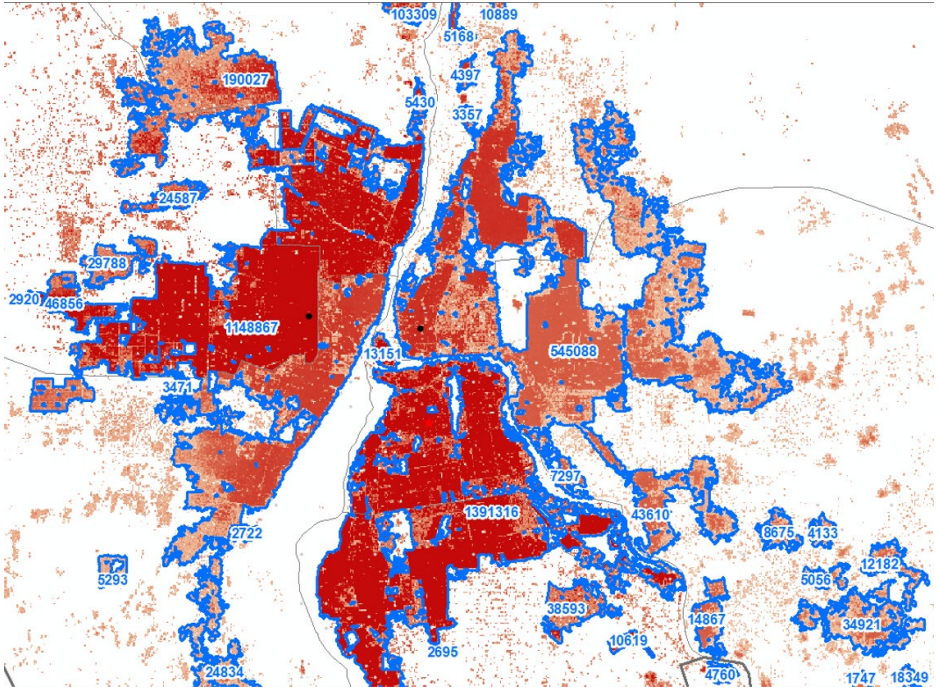

Ethiopia


DRC

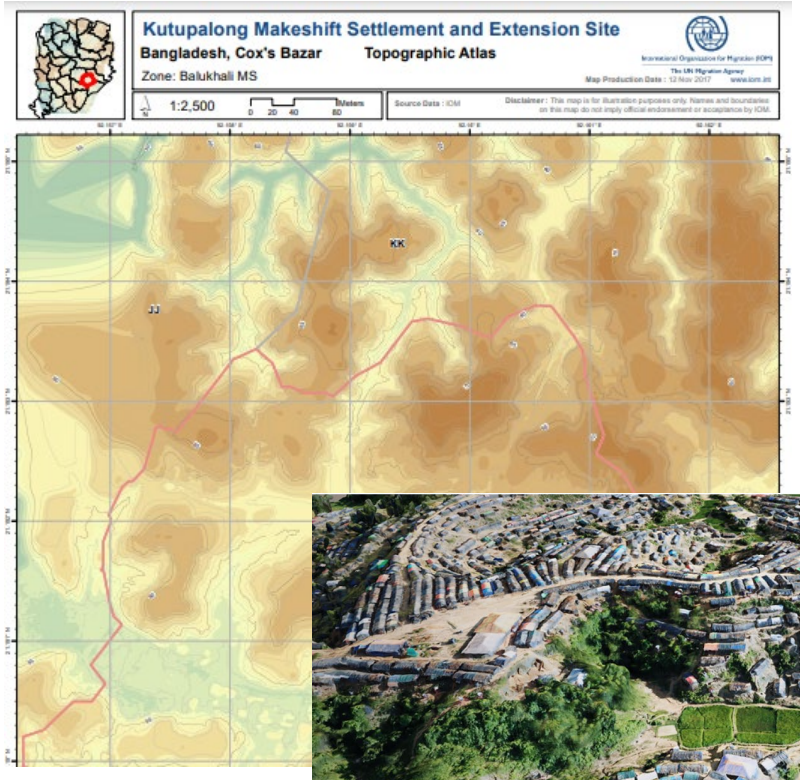

Afghanistan

Uses of Remote Sensing

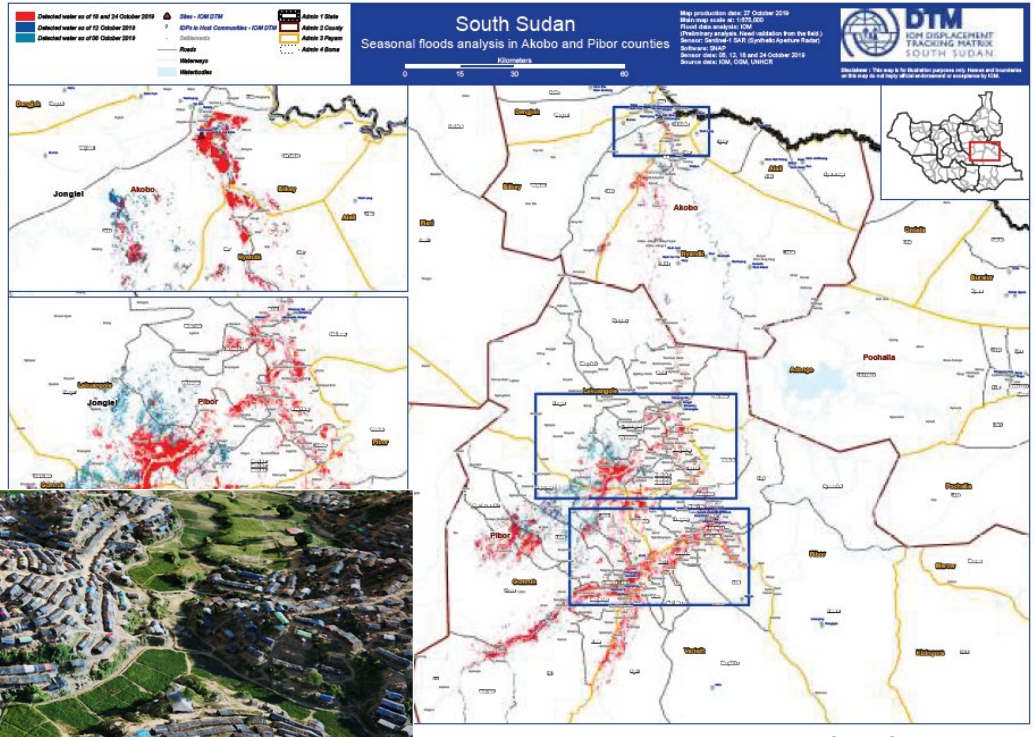
Building Footprints for Sampling Frameworks



Uses of Remote Sensing



3D camp models for site planning



Flood Mapping

Thank You

IOM
UN MIGRATION

Guest speaker #4

Giulio Coppi

Global Digital Specialist for Programmes

Norwegian Refugee Council (NRC)

GIS and humanitarian action

NRC use cases

- Granular (individual building-level) assessment of degree of damage to civilian infrastructure (homes\schools, etc)
- Granular and timely assessment of routes and access infrastructure to affected areas both in terms of structural integrity, and safety of access
- Granular assessment of local financial institutions operational status (e.g. banks, post office, moneygram points, etc)
- Granular assessment of markets\supermarkets\retail\wholesale activity status and projected disruption over time due to supply chain issues
- Agricultural\Farming analysis of post-conflict or post-disaster soils to inform returns or durable solutions activities

NORWEGIAN
REFUGEE COUNCIL

ESA Support

ESA will support Feasibility Studies and Demonstration Projects under this 'Announcement of Opportunities':

Feasibility Studies

Teams will analyse, design and plan their service.

Studies should last for 6 months and must include a proof of concept

Demonstration Projects

Teams will put their intended service into practice by trialling it with users. The pilot should begin by month 5

Projects should last for 9 months and by the end of the project, the service should be operational

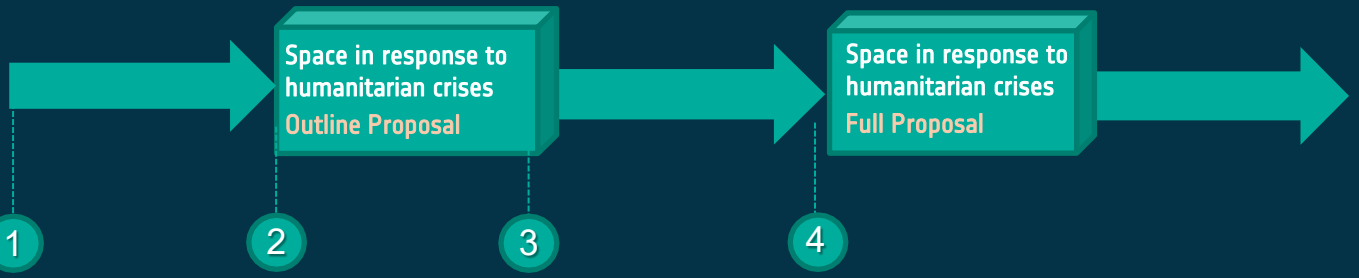
ESA will bear up to 50% of the eligible total project or study costs

Activities by micro, small and medium-sized enterprises or research institutions can be funded up to 80%, depending on the funding level authorised by the related National Delegation(s)

Application Timeline

Step 1: Submit an Outline Proposal

Step 2: If your Outline Proposal is positively evaluated by ESA, your team will be invited to prepare a Full Proposal



1 — ESA launches this opportunity
25 April 2022

2 — Teams prepare and submit their Outline Proposal (OP)

Recommended submission by:
20 May 2022
Deadline:
30 OCT 2022

3 — ESA evaluates the OPs and invites selected teams to prepare a Full Proposal

This is done in consultation with the National Delegates

4 — Teams submit their Full Proposal

Letter of Support from Relevant Delegate(s) must be provided with Full Proposal

Funding Eligibility

Companies residing in the following Member States will be eligible to apply:

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

The bidder shall send the Outline Proposal to their National Delegation(s)

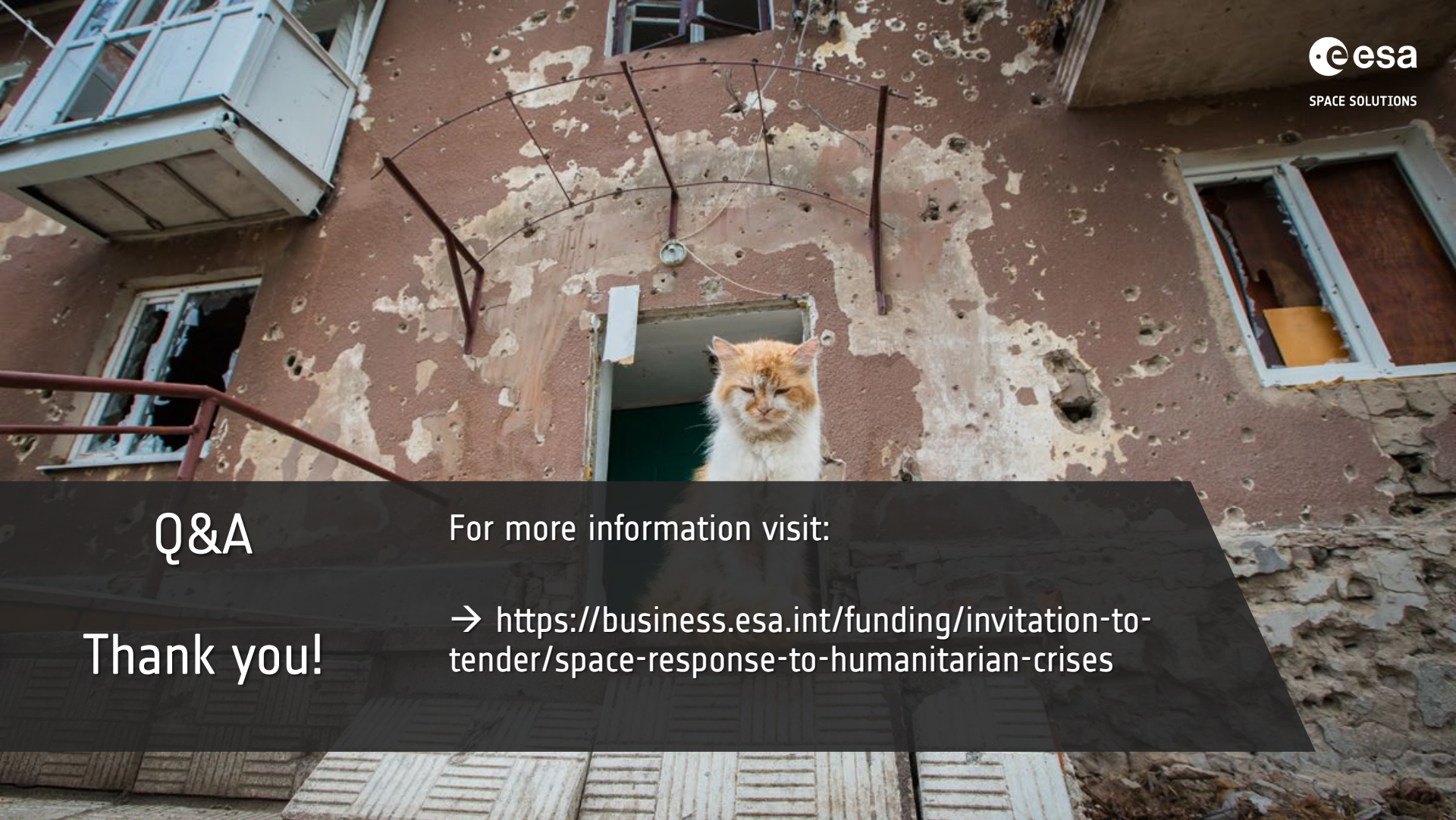
Letter of Authorization from bidding team's national delegation(s) is needed and must be submitted as part of the Bidder's Full Proposal. Without this letter, the proposal is not eligible

The contacts of the National Delegations can be found at https://business.esa.int/national-delegation

How to Apply

1. Register your team on esa star Registration (*https://esastar-emr.sso.esa.int/*) today! If your team is made up of more than one company or organisation, each member will need to register.
2. Scroll down to the 'Downloads' section of this webpage to download all of the official documents. Official documents include an 'Outline Proposal Template' and a document explaining the scope of this opportunity.
3. Prepare your Outline Proposal and submit it here from 25 April 2022: *https://business.esa.int/form/thematic-call-*
4. ESA will evaluate your Outline Proposal. Teams whose outline proposals are positively evaluated will be invited to prepare a Full Proposal. Teams must obtain a Letter of Authorisation from their respective National Delegation before submitting a Full Proposal. Contact details of all National Delegates can be found here: *http://artes-apps.esa.int/national-delegations*

It is strongly recommended to submit an outline proposal by 20 May 2022.
However, outline proposals submitted after this date will still be reviewed.



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Q&A

Thank you!

For more information visit:

→ https://business.esa.int/funding/invitation-to-tender/space-response-to-humanitarian-crises