



SPACE FOR CULTURAL HERITAGE

Policy Perspectives: Opportunities, Trends, and Challenges in the field of Cultural Heritage

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UNITAR

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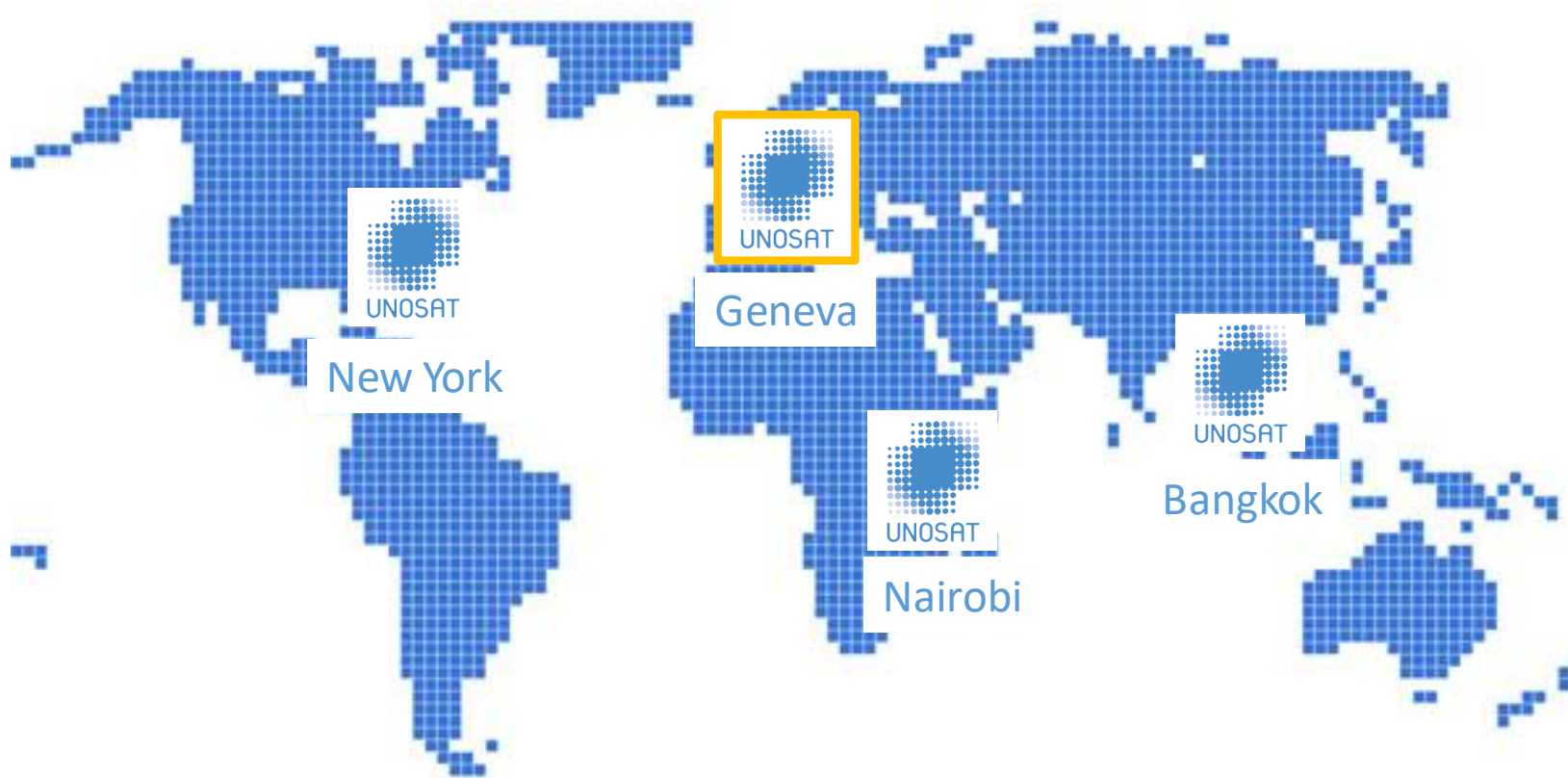
Introduction to UNOSAT



- A programme in the Division for Satellite Analysis and Applied Research at the United Nations Institute for Training and Research (UNITAR)
- UNOSAT operational since 2001 - 20 years!
- Fully dedicated to satellite imagery analysis and capacity development
- UNOSAT IT infrastructure hosted at CERN



Offices



- Fiji
- Vanuatu
- Solomon Islands

MOU with UNESCO



United Nations
Educational, Scientific and
Cultural Organization

UNESCO

"Building peace in the minds of men and women"

IN BRIEF WHAT WE DO WHERE WE WORK PARTNERS JOIN US RESOURCES

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UNESCO and UNITAR-UNOSAT team up to protect cultural heritage with geo-spatial technologies

01 July 2015



PALMYRA, SYRIA: 30 MAY 2015

RELATED LINKS

- [UNITAR-UNOSAT](#)
- [Satellite-based Damage Assessment to Cultural Heritage Sites in Syria](#)

MEDIA SERVICES

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HUMAN RIGHTS MAPPING

SATELLITE IMAGERY ANALYSIS IN
SUPPORT OF UN HUMAN RIGHTS
INVESTIGATIONS



SERVICE OVERVIEW

UNOSAT has long worked to support the Office of the UN High Commissioner for Human Rights, the International Criminal Court, UNESCO, and other entities with satellite imagery analysis. UNOSAT supports investigations, fact finding missions, courts, and emergency responders concerned with violations of international humanitarian law. UNOSAT works under the guidance of the partner organization to discover and analyze satellite imagery and other relevant data that can help inform the investigation. This has included reporting on destruction to housing in cities, towns, and rural areas, position and disposition of weaponry and forces, graves, detention facilities, cultural heritage sites, and much more.

HOW WE SUPPORT HUMAN RIGHTS INVESTIGATIONS

Advanced geospatial support to human rights investigations.

Provision of high quality analyses utilizing satellite imagery as evidence for partner organizations.

Ongoing and further support as needed, including testimony.



OUR WORK

Analysis of Destruction of the Temple of Bel, Palmyra, Syria

UNOSAT has long used satellite imagery analysis to document tragic destruction of cultural heritage in multiple countries. For example, the Temple of Bel was an important part of the ancient city of Palmyra, a UNESCO World Heritage Site in Syria. Much of the area was occupied by ISIS and in August 2015 the Temple of Bel was destroyed with explosives. Initial media reports from inside ISIS territory could not be independently confirmed and UNOSAT rapidly acquired imagery to verify the destruction of the 2,000 year-old Temple. This helped to inform UNESCO and the international community with evidence of the destruction.



Main temple building and row of columns destroyed

Pair of columns seemingly standing



HUMANITARIAN RAPID MAPPING

SATELLITE IMAGE ANALYSIS
DURING HUMANITARIAN
EMERGENCIES



SERVICE OVERVIEW

Operational since 2003, the UNOSAT Rapid Mapping service offers a 24/7 year round availability to process requests from humanitarian actors and to deliver satellite imagery derived analysis, maps, reports and data ready to use data following major sudden onset disaster events and conflict situations. Typical situations for which UNOSAT Rapid Mapping is activated include floods, earthquakes, storms, landslides, volcanoes, oil spills, chemical waste, refugee and internally displaced person camp mapping, conflict damage assessment and situation analysis. UNOSAT benefits from a variety of sources for its satellite imagery: free and open source, commercial vendors, International Charter Space and Major Disasters (natural and technological disasters only) and in-kind donations.



UN-ASIGN

Download and use
the UN-ASIGN app
to capture images of
humanitarian disasters



HOW WE SUPPORT DURING HUMANITARIAN EMERGENCIES

Wide and timely distribution of rapid mapping products to support evidence based operational planning and decision making of humanitarian actors in the field and at headquarter level.

24/7 on-call service for UN member states, UN agencies, Red Cross and Red Crescent Movement (ICRC and IFRC), international and regional organizations and humanitarian non-governmental organizations.

Broad and rapid coverage of areas of interest using satellite images collected through different acquisition mechanisms including the activation of the International Charter Space and Major Disasters.

Rapid satellite derived analysis and assessments in support of emergency response operations.



PRODUCTS



SATELLITE
ANALYSIS

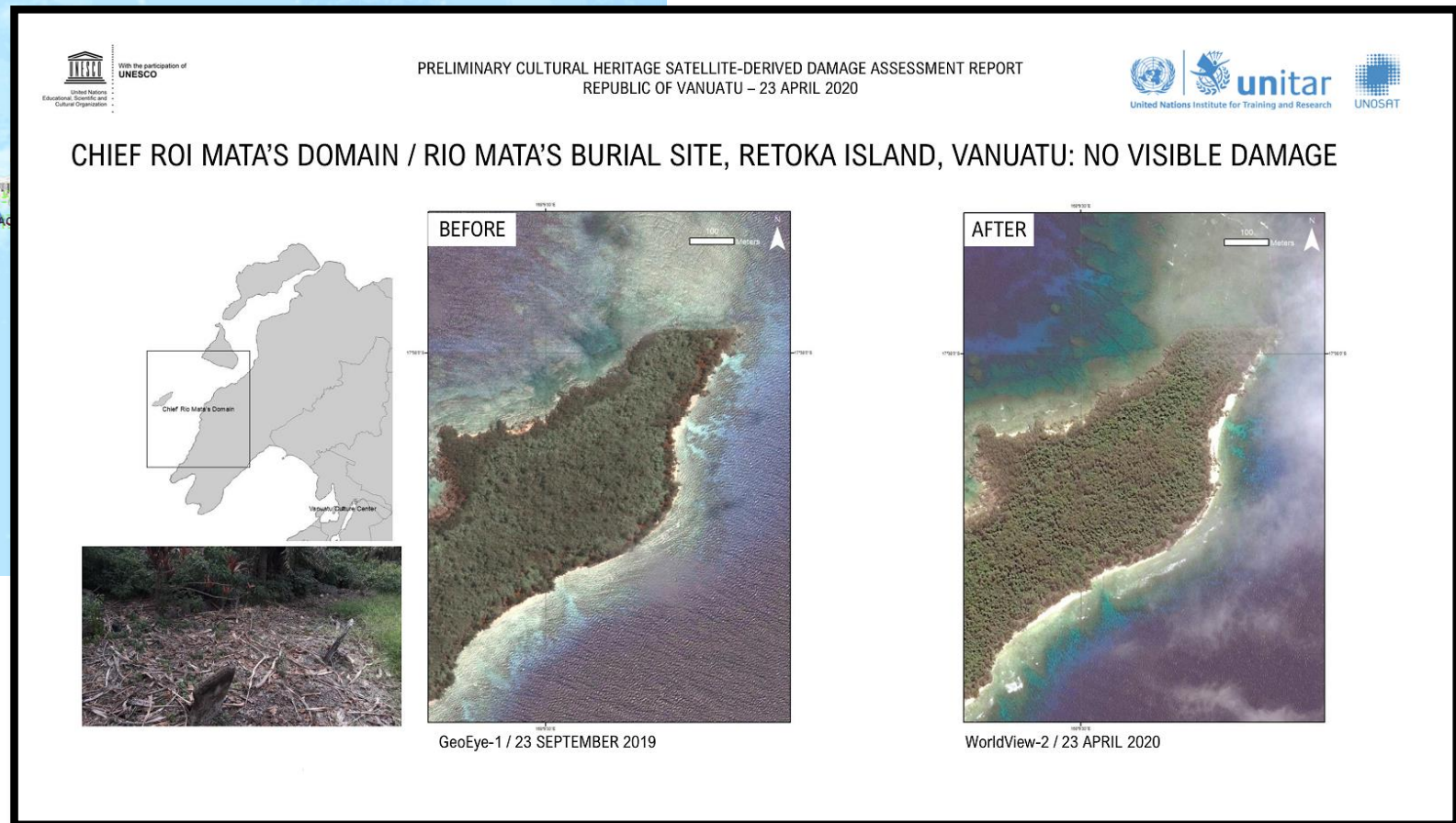
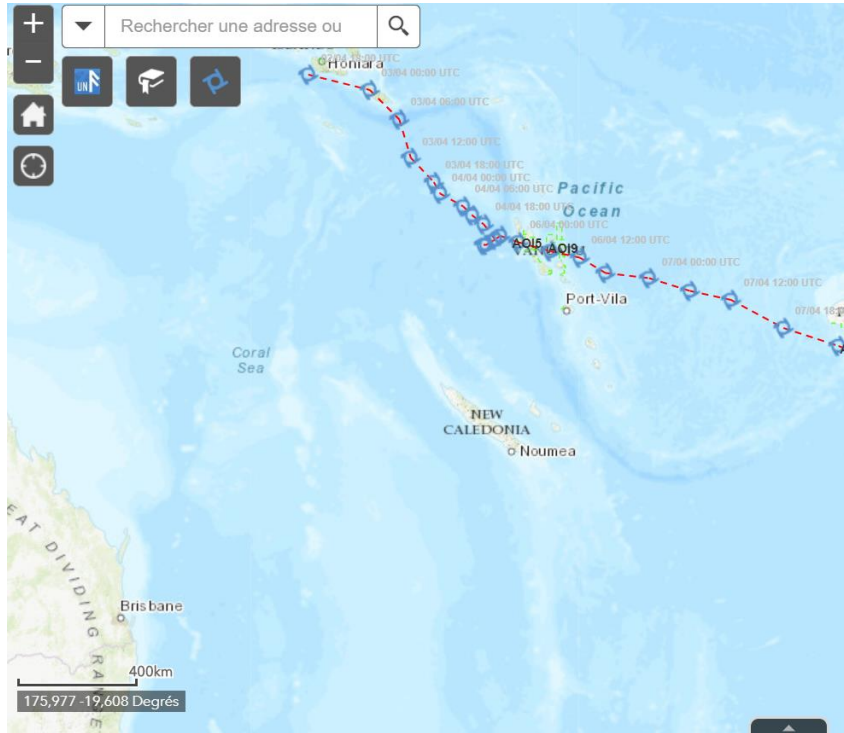


REPORTS
& DATA

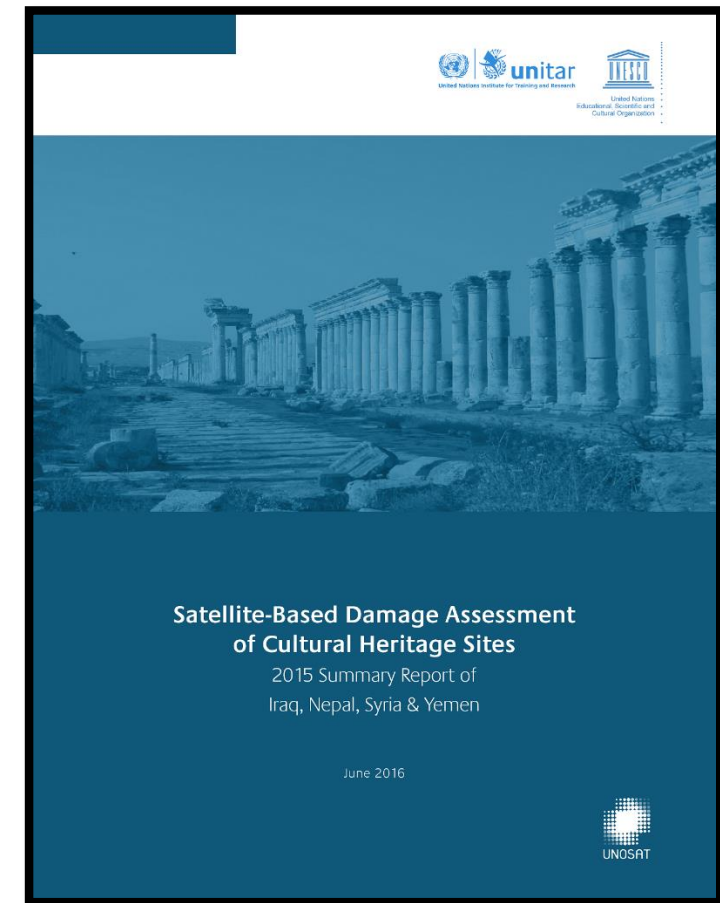
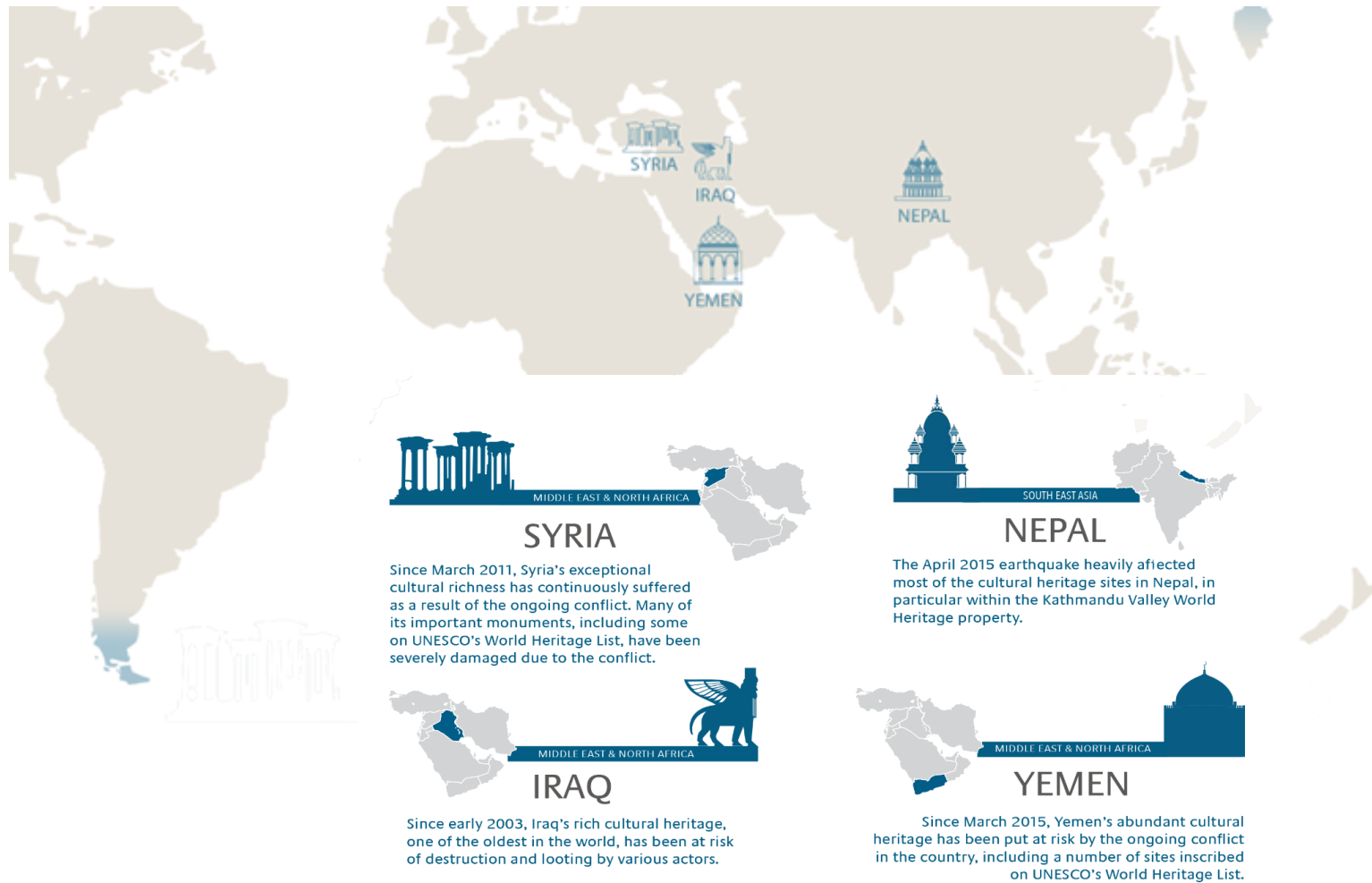


WEB MAP

Tropical cyclones






Diversity in analysis




https://en.unesco.org/system/files/full-chs-report_28062016_final.pdf

Data and specialist integration




United Nations Educational, Scientific and Cultural Organization



FIVE YEARS OF | The State of Cultural




Khan al-Turan





al-Saghir Mosque




SATELLITE DAMAGE ASSESSMENT CATEGORIES

Site Destroyed 
All or most of the visible key elements of the assessed site have collapsed (80–100 per cent of structure destroyed) due to military or civilian activity.

Site Severely Damaged 
A significant part of the visible key elements of the site has collapsed or is partially damaged (40–80 per cent of structure damaged) or significant military or civilian activity has contributed to extensive damage at the site.

Site Moderately Damaged 
Limited damage observed relating to key elements of the site (5–40 per cent of structure damaged) or where military or civilian activity has contributed to damage at the site.

Site Possibly Damaged 
Assessed site structures do not appear to be damaged, but debris is visible around key site structures.

Inventory-Based Assessment of Cultural Heritage Assets


Asset building inside


Assessment and plots inside


Point Analysis structures inside


from 2013 to 2020
Classification of D&S

HISTORICAL LOSS ASSESSMENT CATEGORIES

Critical Loss 
All of the main historically valuable elements inside the cultural heritage site are destroyed causing critical loss.

Severe Loss 
Many of the main historically valuable elements of the cultural heritage site are severely damaged causing severe loss.

Moderate Loss 
Some of the main historically valuable structures inside the cultural heritage site are moderately damaged causing moderate loss.

Minimal Loss 
None of the main historically valuable elements of the cultural heritage site are damaged.

Augmented Reality



Conclusions

Opportunities

- Partnerships
- Include archaeologists to add value to remote analysis
- Integrate into service lines for consistency
- Solutions exist, put them to use

Trends

- Increasing awareness of space based solutions in support of cultural heritage protection
- Improved technologies: Satellite constellations, AI, Augmented Reality, longer archive

Challenges

- Consistency in monitoring, ref opportunities
- Support to national entities, in particular developing countries

Thank you

www.unitar.org/unosat

