

A COMMUNITY OF THE FUTURE FOR HUMANITARIAN ACTION

RHIANNAN PRICE, NASA LIFELINES





July 14, 2015
Dogleg Strait, Papua New Guinea

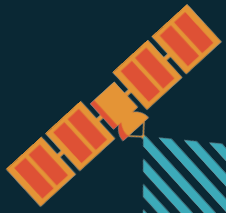


**The right people
working together at
the right time can
accomplish
incredible things.**



When wielded for humanitarian purposes, satellites can save lives and alleviate suffering.

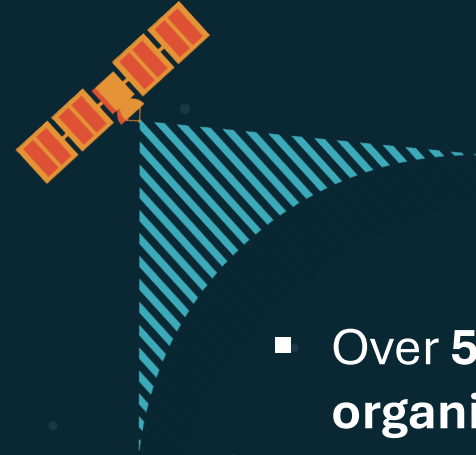




our mission:

**NASA Lifelines is a community of the future
using satellite data and tools
to improve humanitarian action.**



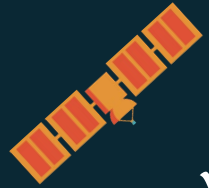


There is still significant **unrealized potential** for Earth science to help humanitarians **save lives** and **reduce human suffering**.

- Over **5,000 humanitarian organizations** globally serving **362 million people** currently experiencing humanitarian emergencies
- Only **1% of humanitarian aid budgets** go towards innovation
- **500 humanitarian applications** already powered by Earth science and growing demand for satellite-derived data across sectors and geographies



How do satellites help humanitarian missions?



- ✓ coverage
- ✓ objectivity
- ✓ repeatability
- ✓ detail
- ✓ speed
- ✓ affordability



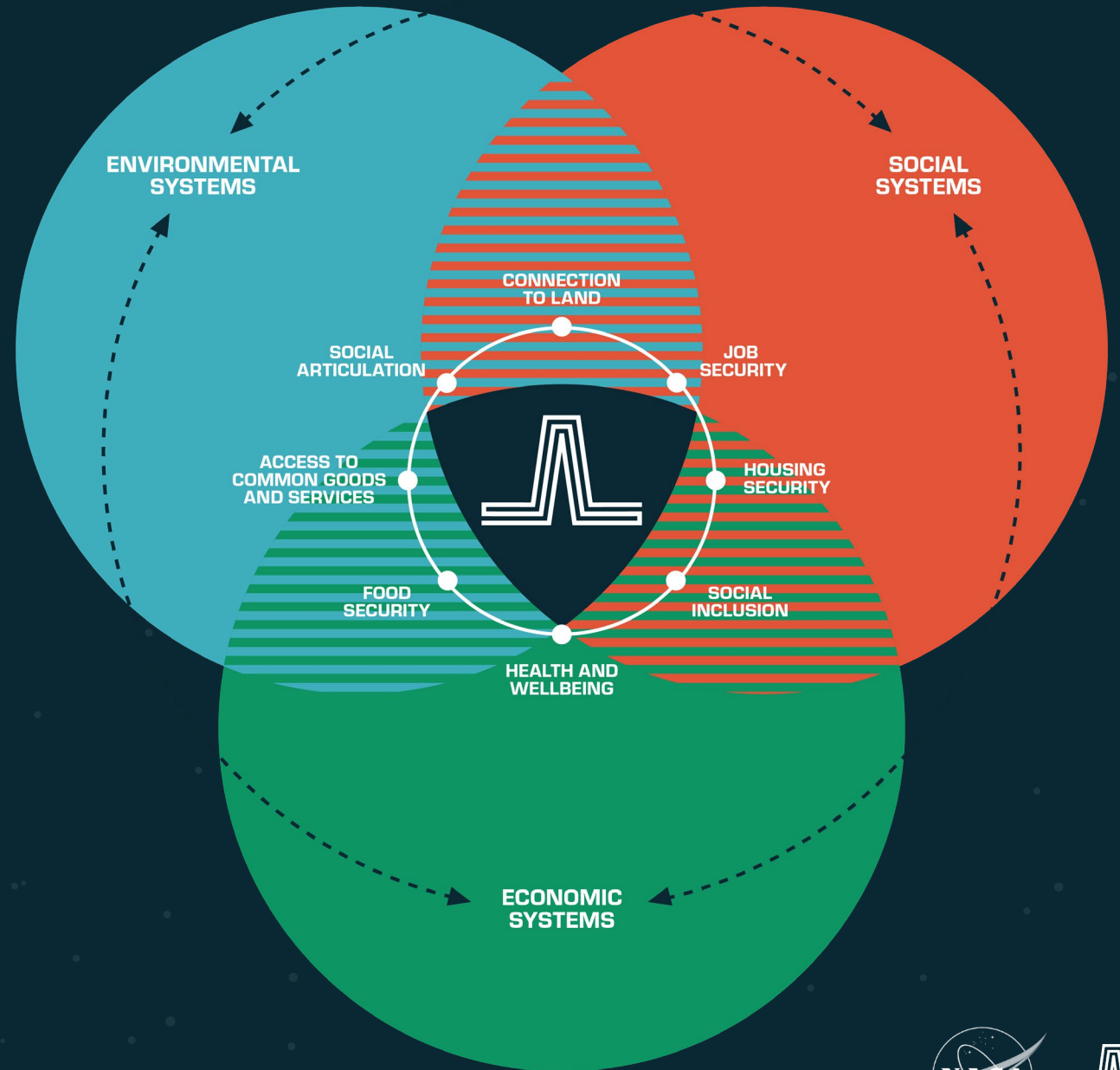
- ✓ More timely decision-making through real-time and predictive modelling
- ✓ Decision-making supported by greater accuracy of data
- ✓ Greater confidence in the decision-making process
- ✓ Greater accountability across stakeholders



How are humanitarians using satellite data?

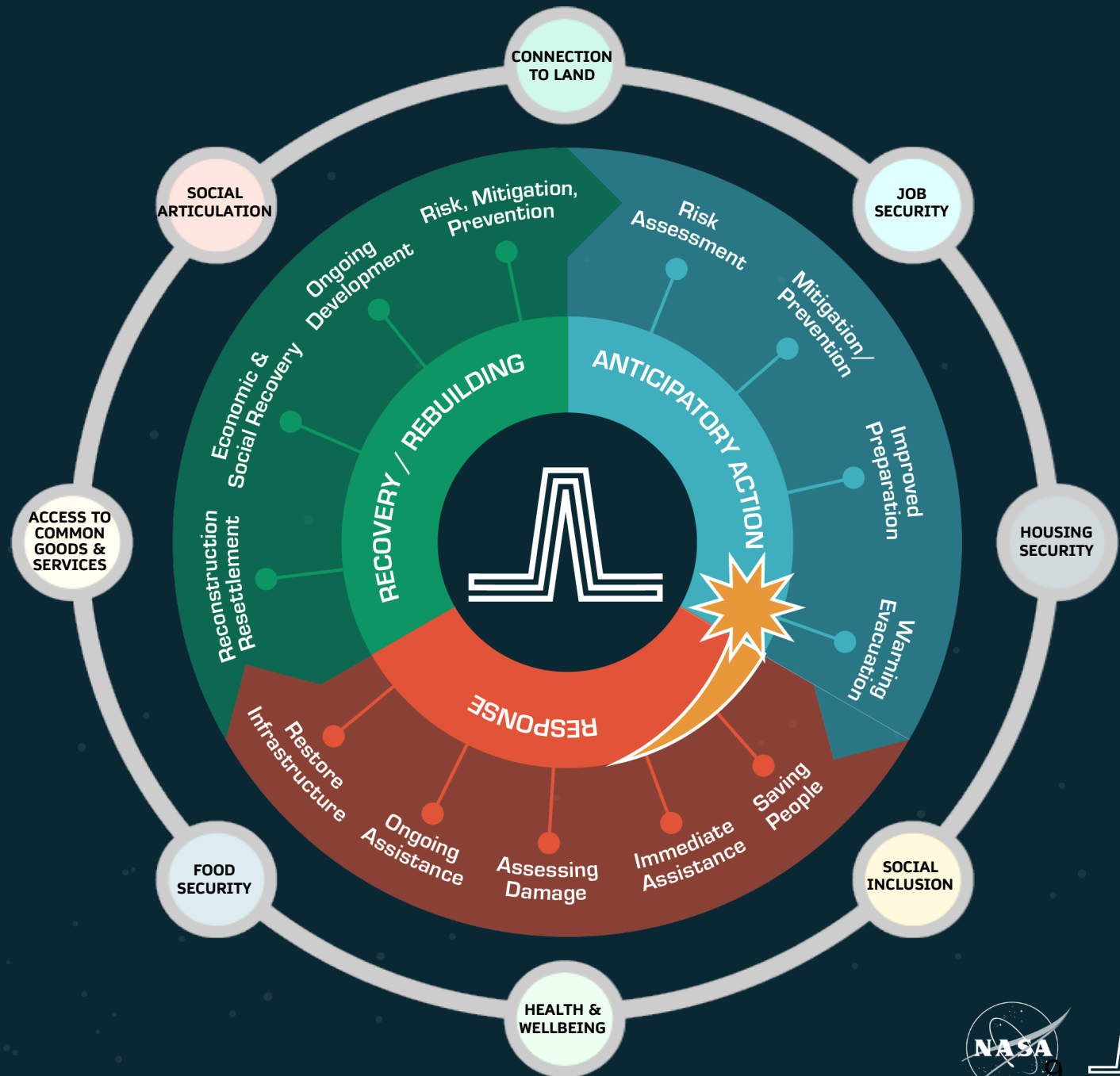
- Damage and needs assessments
- Population mapping
- Population migration
- Refugee camp mapping
- Access to local food
- Access to health services
- Risk exposure to hazards
- Predicting disease outbreaks
- Urban heat resilience
- Planning evacuation routes
- Prosecuting human rights abuses
- Access to clean water and air
- Coastal resource mapping
- Shelter planning

And many more use cases

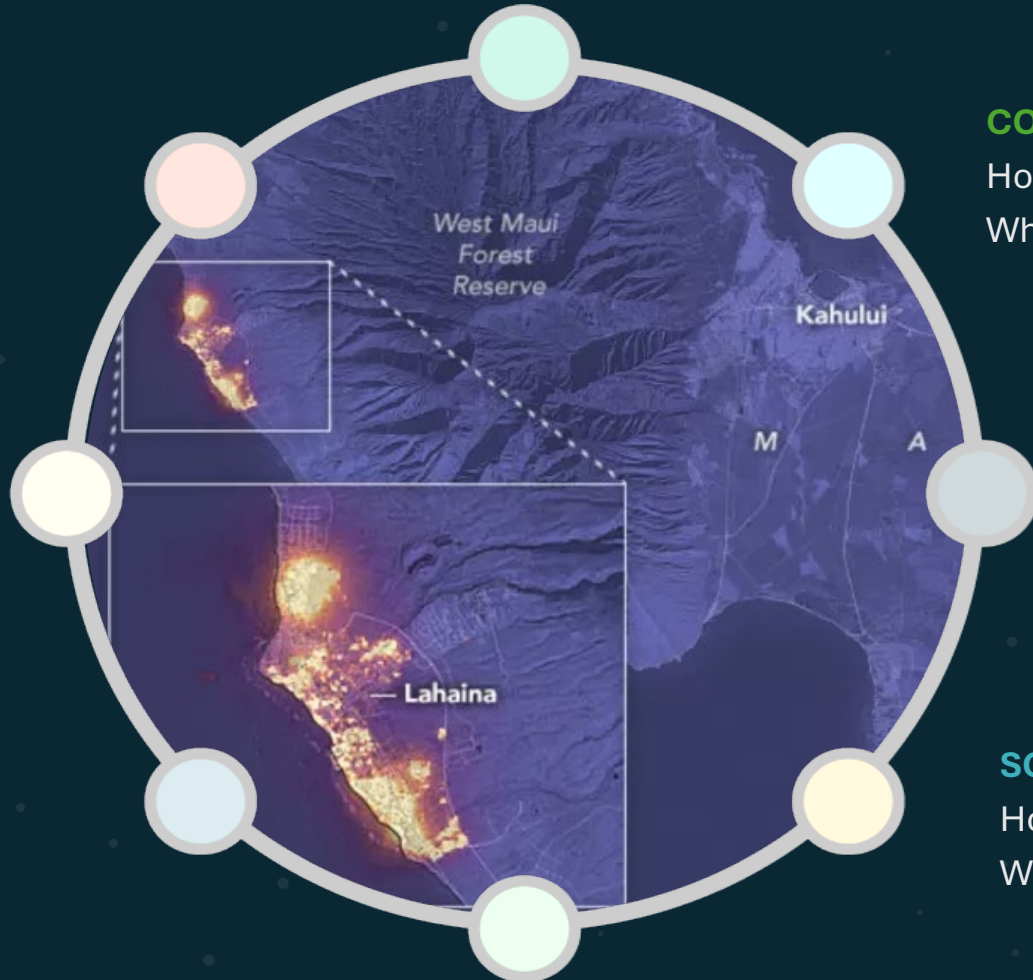


Earth science is a lens that helps truly understand system complexity against the timeframes and phases of a humanitarian crisis.

Environmental, social, and economic systems, and the related community indicators of success from job security to health and wellbeing to connection to land, are all dimensions that can be observed and modeled using Earth science. These are the foundational elements of community resilience and areas where improved humanitarian information is needed.



Earth Science in Action: Maui Wildfires



CONNECTION TO LAND

How do we monitor vegetation encroachment on transmission lines?
What natural resources and infrastructure are at risk during an event?

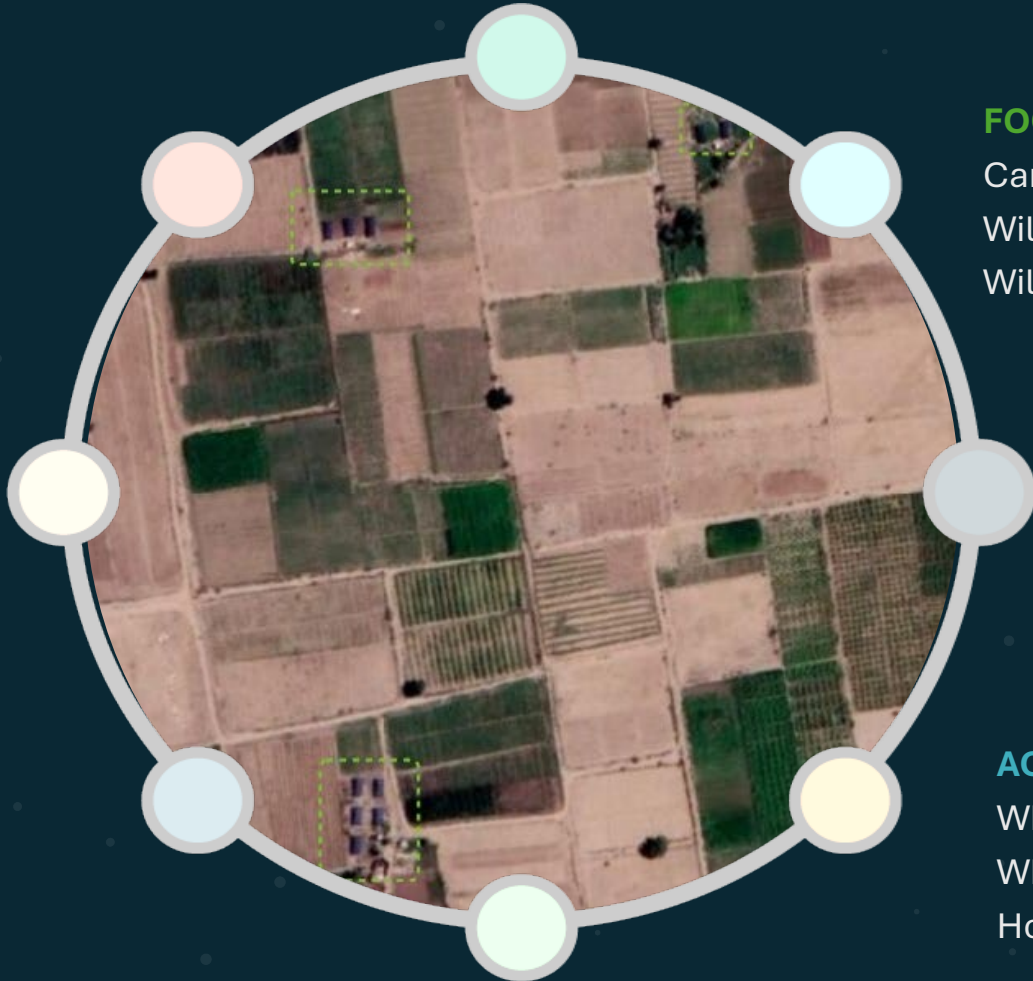
HOUSING

How do I best take care of property to prevent wildfire spread?
Which properties are at risk during an event?
Which properties have been damaged and how badly?

SOCIAL ARTICULATION

How can data build trust across stakeholders?
Which communities are most affected and should inform priorities?

Earth Science in Action: Yemen crisis



FOOD SECURITY

Can the soil tolerate such heavy rains after long periods of drought?
Will flooding from disasters inundate staple crops too long?
Will farmers have access to their fields?

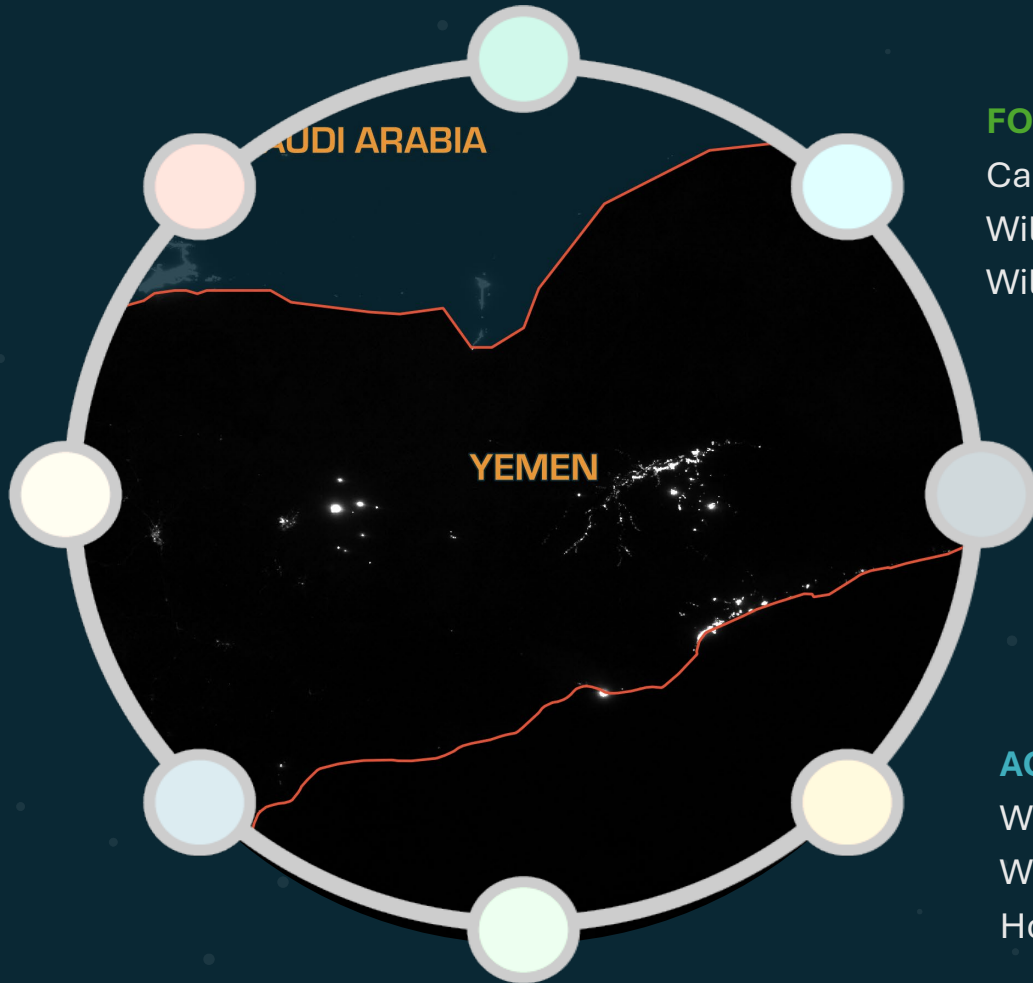
HEALTH & WELL BEING

What is the risk of a cholera outbreak?
Which populations are most vulnerable?
How should healthcare resources be distributed?

ACCESS TO COMMON GOODS & SERVICES

What water sources are at risk of spreading illness?
What communities have access to clean drinking water?
How to provide clean drinking water to vulnerable populations?

Earth Science in Action: Yemen crisis



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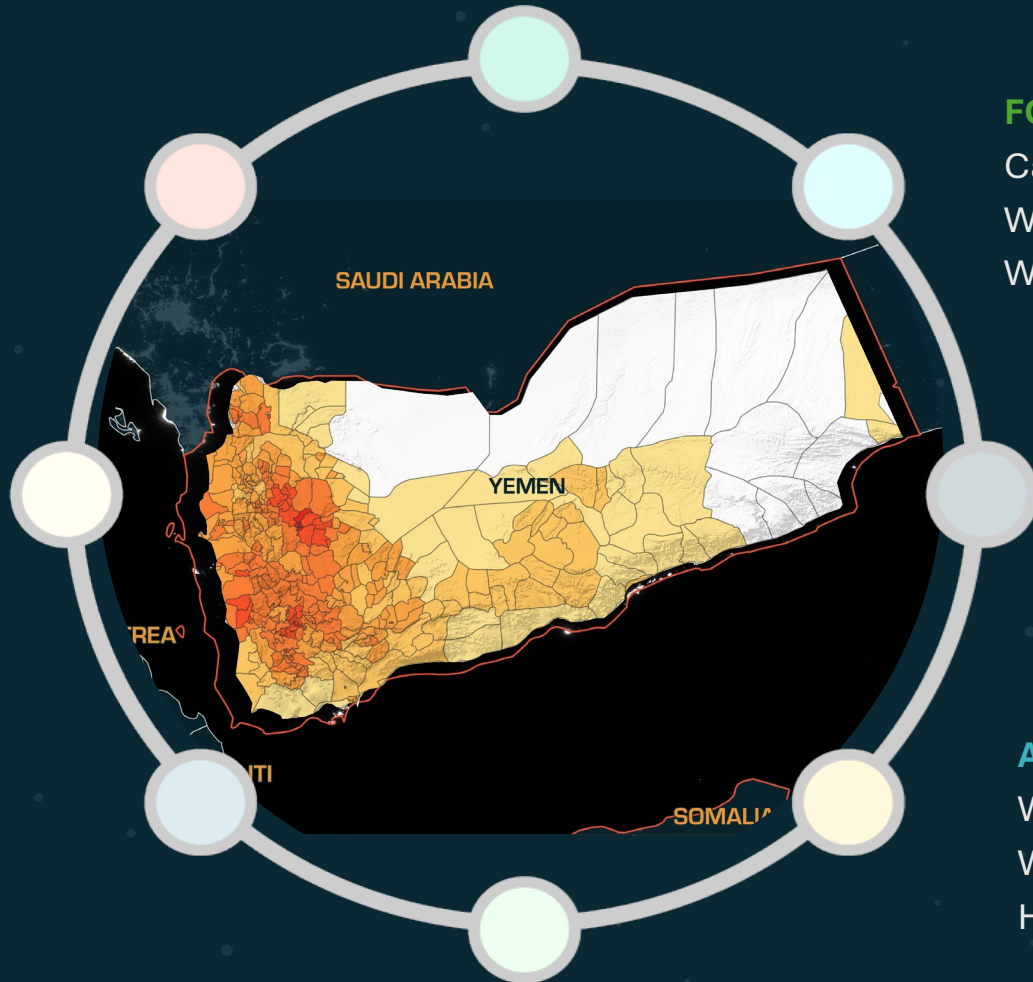
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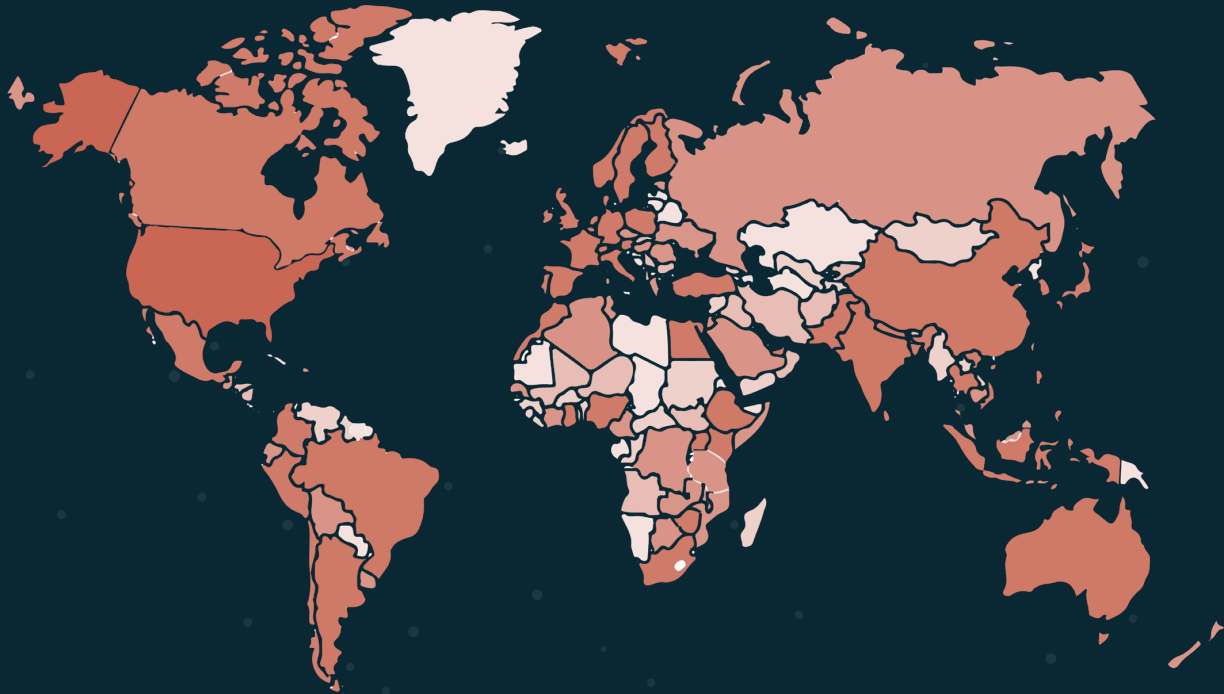
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GIS ANALYSTS
AGRONOMISTS
OCEANOGRAPHERS
SPATIAL EPIDEMIOLOGISTS
AI/ML ENGINEERS
STATISTICIANS
EARTH SCIENTISTS
FRONTLINE WORKERS
POPULATION MODELERS
ECONOMISTS
POLITICAL SCIENTISTS
CONSERVATIONISTS
JOURNALISTS
URBAN PLANNERS
SOCIOLOGISTS
METEOROLOGISTS



COMMUNITY



Map 1. Country Representation in NASA Lifelines Community. These are the countries where folks reside who have visited our website and signed up for our programs.

143

Countries represented

14

Countries on IRC Watchlist where NASA Lifelines community is represented

17,722

visitors to website

734

Program sign-ups

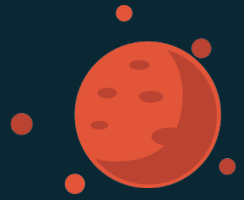
10

Community building programs launched

50+

Humanitarian organizations already engaged





SUPPER CLUBS

Our Supper Clubs bring together small groups of experts for informal discussions over a meal. Topics range from any numbers of themes relating to humanitarian action using satellite data.

May 15&16

June 19&20

July 16

Sept 10

Oct 16

Nov 13

@SatSummit

@Understanding Risk

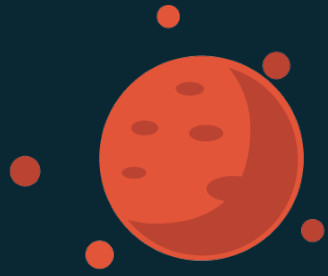
@GLOBE Annual Mtg

@FOSS4G

@Simulation Hubs

@UN World Data Forum





SUPPER CLUBS

- ✓ How do space agencies better partner with development banks?
- ✓ How do humanitarian organizations build strong partnerships with satellite data providers?
- ✓ How do we better open and democratize Earth science?
- ✓ How do we bridge the gap between research and humanitarian applications?





MURAL CONTEST

Our murals tell stories about the value of satellite data and tools for local humanitarian issues.

In the first year of the murals program, five US cities are unveiling murals. Next year, we go international.

St. Louis, MO
New Orleans
Washington, DC
Nashville
Detroit

July 19th
August 13th
August 28th
coming soon
coming soon





MURAL CONTEST

Our artists are painting about
food deserts, urban heat
resilience, aid logistics,
migration, disaster
preparedness, and air quality –
just a few areas where
satellites are addressing
community needs.





HUMANITARIAN SIMULATION

**October
15-17**

Lifelines' global, collaborative crisis simulation brings together humanitarians, scientists, researchers, and technologists to creatively use satellite data and tools to support early warning, response and protracted recovery scenarios.





HUMANITARIAN SIMULATION



A crisis set in Democratic Republic of Congo unfolding over three days.

First, testing an early warning approach for conflict hotspots when an unexpected disaster occurs amid a global pandemic. The humanitarian crisis continues as sudden onset flooding wreaks more havoc.





HUMANITARIAN SIMULATION

Play a role in the crisis while working with a team to solve real-life humanitarian information challenges using satellite data and tools.

Answering questions around risk and community needs and impacts on communities and the environment and economics, to name just a few.

Thermal Infrared (TIR) (3 - 15 μm)

- **Applications:** Measures heat emitted from Earth's surface, allowing for temperature assessments of soil and rock, vegetation health monitoring, and the detection of heat from forest fires and geothermal phenomena. It's critical for studying urban heat islands and monitoring water.
- **NASA Sensors/D** studying Earth's
- **Commercially A** distribution of T
- **Openly Availab** Japan, and U.S. t

Microwave (1mm)

- **Applications:** En conditions, day a analyzing vegeta including earthq
- **NASA Sensors/D** climate studies.
- **Commercially A** Germany) offer s environmental m
- **Openly Availab**

LIDAR (Light Dete

- **Applications:** Pr areas. It's invalu mapping flood m precision agricult
- **NASA Sensors/D** valuable data on
- **Commercially A** topographic surv
- **Openly Availab** detailed forest m

Radar (Synthetic A

- **Applications:** Cr crucial for moni discoveries usin

HFS DATA STUDIO

PKG : EARTHQUAKE RESPONSE ENHANCEMENT

What's in this Package?

This package is designed to assist humanitarian efforts in earthquake-prone areas. It includes geospatial datasets, educational documents, and resources to facilitate rapid response and efficient resource allocation during seismic events.

CONTENTS

DATA

Datasets from OCHA's HDX: Includes real-time seismic activity data, demographic information of affected regions, resource distribution maps, Statistics on historical earthquake impacts, infrastructure vulnerability assessments, and community readiness indices

- Earthquake_Data_2023.csv
- Regional_Population_Demographics.xlsx
- Resource_Distribution_Maps_2023.gdb
- Historical_Earthquake_Impacts_2000-2023.csv
- Infrastructure_Vulnerability_Assessment_2023.xlsx
- Community_Readiness_Index_2023.csv

WHO IS THIS FOR?

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TECHNICAL REGS.

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LEARNING

Documents

- Seismic_Data_Interpretation_Guide.pdf
- Earthquake_Risk_Assessment_Methodologies.docx
- Emergency_Response_Best_Practices.pdf

Tutorials & Webinars

- Geospatial_Tools_for_Earthquake_Prediction >
- Data_Driven_Decision_Making_in_Crisis_Situations >
- Introduction_to_Seismic_Activity_Mapping >

DOWNLOAD 1.2 GB





www.nasalifelines.org