EARTH SCIENCE
APPLIED SCIENCES

EARTH SCIENCE APPLICATIONS WEEK 2022

Opening Plenary

August 9, 2022

EARTH SCIENCE APPLICATIONS WEEK 2022

WELCOME!

DAY 1 – AUGUST 9th: OPENING PLENARY

<u>Event Attendance Guidelines</u>

1. Please stay muted with cameras off
2. Post questions for speakers in the chat & they will be answered there

OPENING REMARKS

Lawrence Friedl
Director
Applied Sciences Program

NASA EARTH SCIENCE PERSPECTIVES

Dr. Julie Robinson
Deputy Director
Earth Science Division

An Introduction to NASA's Applied Sciences

Dr. Emily Sylak-Glassman
Program Manager/Deputy for Applied Sciences
Cara Crosby
Master of Science Industrial/Organizational Psychology

EARTH SCIENCE
APPLICATIONS WEEK 2022

Applied Sciences Lines of Business

Innovative & Practical Applications

Develop, test, prove-out, transition, and extol uses

Capacity Building

Build capabilities in US and developing countries

Mission Planning

Support applications throughout mission lifecycles

Applications Areas

- Applications Areas are our thematic program elements
- They each cover a different area in which Earth science information can serve society in responding to the urgent challenges of our time

A Focus on Decision-Making

Satellite data and information provide evidence for different types of decisions and actions:

- **Planning, management, and response**
  - **Providing damage proxy maps after disasters**

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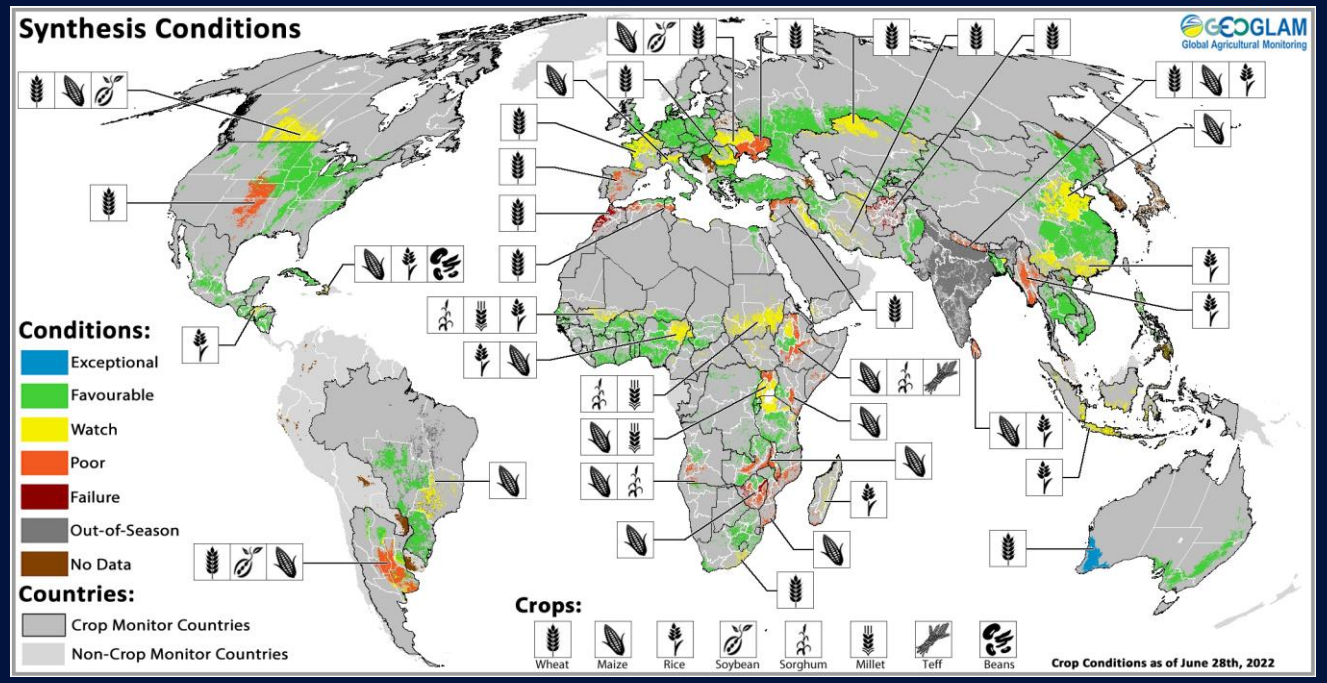
- **Monitoring and tracking impact**
  - **Monitoring crop conditions and examining impact of droughts**



A Focus on Decision-Making

Satellite data and information provide evidence for different types of decisions and actions:

- Planning, management, and response
  - Providing damage proxy maps after disasters
- Monitoring and tracking impact
  - Monitoring crop conditions and examining impact of droughts
- **Alert systems**
  - **Providing early warning on sickening algae blooms in lakes**

Applications Projects

Across all of our application areas, we recognize that applications designed around user needs, with their participation through the development process, are the ones that make an impact and endure.

Individual Project Grants

~100 grants active at any given time; Done in partnership with user organizations.

Research Opportunities in Space and Earth Sciences (ROSES)

https://science.nasa.gov/researchers/sara/grant-solicitations

Longer Term Efforts

For key issues that cross multiple organizations/sectors (agriculture, water management), we establish consortia. Approach allows flexibility and agility in size, scope, and duration of projects.

NASA Harvest Agriculture Consortium

https://nasaharvest.org/

Western Water Applications Office

https://wwao.jpl.nasa.gov/

Problem-Solving Teams

Team members routinely interact with managers on the ground to collaborate on topics of emerging and urgent need.

Health and Air Quality Applied Sciences Team

https://haqast.org/

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Making Earth Data Accessible to All

The Capacity Building Program provides individuals and institutions with workforce development, training activities, and collaborative projects to strengthen understanding of Earth observations and expand their use around the world.

Through our ARSET, DEVELOP and SERVIR programs and our Indigenous Peoples Pilot project, we work with everyone at every level — from first-time users to long-time professional users of Earth observation data.

We work through global networks like CEOS, GEO, and professional societies like AGU, to promote open data access and coordinate capacity building activities focused on users needs.

APPLIED REMOTE SENSING TRAINING

ARSET

The ARSET program offers satellite remote sensing training that builds the skills to integrate NASA Earth Science data into an agency's decision-making activities. Through its trainings, ARSET has reached over 20,000 participants from 160 countries and more than 5,000 organizations worldwide.

Capacity Building Approach:

- Online & in-person trainings
- Live & on-demand
- Thematic-focused (ex. Water resource management) & satellite-focused (ex. NASA EO Fleet)
- Awareness < Fundamentals < Introductory < Advanced
- Training materials offered in Spanish and English

EARLY CAREER WORKFORCE DEVELOPMENT

DEVELOP

DEVELOP addresses environmental issues through interdisciplinary research projects that apply NASA Earth observations to community concerns.

Through 10-week feasibility projects, the program **builds capacity** to use Earth observations in participants (recent graduates, students, and transitioning professionals) and partner orgs (ex. local govt., NGOs, etc.).

Capacity Building Approach:

- Rapid (10 week) feasibility studies
- Focused on user needs and priorities
- Highlight the capabilities of freely-available NASA satellite data
- Interdisciplinary

EEJ Connection

- Work with EJ communities and organizations (ex. GroundworkUSA)
- Listening projects pilot in the spring
- EEJ-focused Fellow

CONNECTING SPACE TO VILLAGE

SERVIR

A joint development initiative of NASA and USAID, SERVIR works in partnership with leading regional organizations world-wide to help developing countries use information provided by Earth observing satellites and geospatial technologies for managing climate risks and land use.

SERVIR empowers decision-makers with tools, products, and services to act locally on climate-sensitive issues such as disasters, agriculture, water, and ecosystems and land use.

Capacity Building Approach:

- Employs a service planning approach
- Focused on co-development
- Offers geospatial tools, services, data, and trainings
- 5 regional hubs focused on needs within each region

Applied Sciences Diversity, Equity, Inclusion, and Accessibility (DEIA)

- Inclusion Activities
  - Increase inclusion via EO strategies, Lunch & Learn discussions, and knowledge management systems
- MSI Engagement
  - Develop engagement strategy so current and future Earth Science missions can engage MSIs more effectively & strategically
- Interactive DEIA Series
  - Develop and facilitate diversity dialogues to increase diversity and inclusion @ NASA

Applied Sciences DEIA

- 2021 Space Apps Hackathon Challenge on Environmental Justice (EJ)
  - Increase global EJ engagement via gamification
- Diversity in Review Panels
  - Consider diversity and inclusion within project proposals and consider diversity and inclusion amongst the panelists themselves
- Demographic Data Analyses in Earth Sciences
  - Collect and analyze internal demographic data to assess whether our DEIA goals are being met

Join Us!

Learn more about how project teams develop applications in the
Earth Applications Guidebook
appliedsciences.nasa.gov/guidebook

Look for **grant opportunities**
science.nasa.gov/researchers/sara/grant-solicitations

Take a challenge
NASA International Space Apps Challenge
www.spaceappschallenge.org

Science in Action Comic Strip Challenge
www.sciartex.net/science-in-action-nasa-earth-comic-strip-contest.html

Check out Capacity Building and Mission Applications

Become an Early Adopter of new mission data
appliedsciences.nasa.gov/what-we-do/earth-science-missions

Take an ARSET training

appliedsciences.nasa.gov/what-we-do/capacity-building/arset

Thanks!

Week Overview

TUESDAY, AUGUST 9, 1:00 - 4:00PM EDT

- WHAT IS APPLIED SCIENCE?
- HEALTH & AIR QUALITY
- ENVIRONMENTAL JUSTICE

WEDNESDAY, AUGUST 10, 1:00 - 4:00PM EDT

- LANDSAT 50TH
- NATIONAL PARKS SERVICE
- WILDLAND FIRE

THURSDAY, AUGUST 11, 1:00 - 4:00PM EDT

- AGRICULTURE
- DISASTERS
- GET INVOLVED

Thank you

RETURN AT 2:00PM