OPENING REMARKS
Lawrence Friedl, Director
Applied Sciences Program
NASA EARTH SCIENCE PERSPECTIVES
Dr. Karen St. Germain, Director
Earth Science Division
An Introduction to the NASA Applied Sciences

Dr. Emily Sylak-Glassman, Program Manager
Applied Sciences Program
Develops, launches and operates NASA’s fleet of Earth-observing satellites and instruments

Develops and tests scientific technologies

Supports research that advances knowledge of Earth

Encourages innovative and practical uses of Earth observations and scientific knowledge
Advancing Earth System Science End-to-End
What We Do

• The Applied Sciences Program helps people apply insights from Earth science to benefit the economy, health, quality of life, and environment around the globe.

• We make financial and programmatic investments to generate creative solutions and lower the technical and institutional barriers to using Earth science information.
Capacity Building Program

We provide individuals and institutions with workforce development, training activities, and collaborative projects to strengthen understanding of Earth observations and expand their use around the world.

ARSET
empowers the global community through remote sensing trainings.

DEVELOP
addresses environmental issues & public policy through applying the lens of NASA Earth observations to community concerns.

SERVIR
supports developing countries in applying geospatial technology to environmental decision making.
# How We Work

Our investments magnify the value of the Earth science information that NASA collects, disseminates and integrates with other Earth observations. From global to local scales, we bridge gaps between scientific findings and practical applications to expedite benefits.

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<th>USER-CENTERED</th>
<th>MARKET-ORIENTED</th>
<th>COMMUNITY LEADING</th>
<th>IMPACT-FOCUSED</th>
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<td>Greater emphasis on user-centered ways helps our project teams and partners be more successful in designing and developing sustainable, impactful solutions.</td>
<td>Market-oriented approaches incorporating user information enriches our work in existing areas and the pursuit of new ones.</td>
<td>Our personnel and project teams actively participate in and lead committees and working groups nationally and internationally.</td>
<td>We place a high priority on substantial and lasting impacts – both our own and our communities. We continually assess our methods and outcomes, consider alternative approaches and remain agile.</td>
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We Are Excited You Are Here

- Thank you for joining us in this mission!
- We cannot wait to see how you’re using Earth science information to improve life on our planet.

By working together with Earth science data and knowledge, we can find solutions to our planet’s greatest challenges.
Thank You.
For further questions, please contact Emily Sylak-Glassman at eglassman@nasa.gov
https://appliedsciences.nasa.gov/
Celebrating 20 Years of NASA’s Applied Sciences

Teresa Purello & Monica Namo, NASA Interns
Applied Sciences’ Capacity Building Program
1958 - 2001

TIROS 1 – First Weather Satellite
• Launched April 1, 1960
• First television image from space

Landsat Satellites
• Landsat 1 launched July 23, 1972
• Landsat 7 launched April 15, 1999

Between 1960 – 2001, applied sciences at NASA were done on a demand basis with universities and local governments.
2001 - 2011

• The Applied Sciences Program was officially created in 2001


• Led to more partnerships with federal agencies and a top-down applications approach

• The Program was reviewed in 2007

• Landsat data became available to the public in 2008
2011 - 2021

Currently funded areas:
Capacity Building Program, Disasters, Ecological Forecasting, Food Security and Agriculture, Health and Air Quality, and Water Resources

Other areas:
Urban Development, Transportation and Infrastructure, and Energy

Capacity Building Program created in 2011
Adopted DEVELOP (et.1998), SERVIR (et.2005), and ARSET (et.2009)
Indigenous Peoples Pilot created in 2017

Over the past 10 years, ASP has become more involved in the planning stages of Earth Science missions
Happy 20th Anniversary!
NASA Research & Analysis Coastal Applications

Dr. Laura Lorenzoni, Program Scientist
Ocean Biology & Biogeochemistry Program
Coastal-Related Research

Research funded mainly through

- Core OBB
- Core PO
- Terrestrial Hydrology
- Biodiversity
- RRNES
- IDS
- CCS
- T/A/SNPP
- Ecological Forecasting
- Water Resources and Agriculture Research
- Disasters
  - Coastal hazards
What is it about coasts? Location, location, location
What is it about coasts? Location, location, location

- Sargassum Belt (C. Hu, USF)
- Land/water interface classifications in the Great Lakes Basin (L. Bourgeau-Chavez, MTRI)
- COVID impacts on WQ (Grunert & Tzortziou, CCUNY)
**Adaptation vs. Resilience**

**Resilience**: capacity of a system to absorb disturbance and reorganize while undergoing change so that it still retains essentially the same function, structure, identity, and feedbacks (Walker et al., 2004)

**Adaptation**: Ability to adjust to change.

Science informs/underpins actions.

What to protect/neglect depends on understanding the system, and its use (cannot be isolated)
The Loop

Science

Applications (stakeholders)
WEEK AT A GLANCE

MON AUG 9 – 12:00PM – 3:00PM EDT
- Opening Plenary
- EO User Panel
- Community Social

TUES AUG 10 – 12:00PM – 4:15PM EDT
- Ecological Forecasting
- Disasters
- Afternoon Symposium

WED AUG 11 – 12:00PM – 4:15PM EDT
- Water Management
- Food Security
- Afternoon Symposium

THUR AUG 12 – 12:00PM – 3:00PM EDT
- Health & AQ
- Closing Plenary
- DEVELOP Social
EARTH OBSERVATIONS USER PANEL DISCUSSION

Moderator
Dr. Nicole Ramberg-Pihl
NASA DEVELOP

Panelist
Milagros Becerra
Amazon Conservation

Panelist
Nikki Tulley
Navajo Nation

Panelist
Tanner Yess
Groundwork Ohio River Valley
Nikki Tulley, M.W.R
Ph.D. Candidate, University of Arizona
nikkitulley@email.arizona.edu
Space connection to Navajoland

- Culture context of Indigenous relationship to land
- Preexisting knowledge system
- Communication mechanisms

Source: CDC.gov
DSET Overview

• A collaboration of Sovereignty and Science for the Navajo Nation
• NASA Western Water Applications Office (WWAO)
• Co-developed with the Navajo Nation Division of Water Resources (N.N. DWR), and the Desert Research Institute (DRI)
Navajo Rain Gauge Data

Satellite Data

180 Day SPI (In): June 2021

Modeled Data and Drought Indices

Drought Severity Evaluation Tool
NEXT UP
JOIN US FOR THE APPLICATIONS COMMUNITY SOCIAL ON WONDER

www.wonder.me/r?id=8mmf45-idi6s
THANK YOU!

EARTH SCIENCE APPLICATIONS WEEK 2021