



32 Partner Organizations

21 Projects





21 Projects

18 States









3 Countries





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32 Partner Organizations

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21 Projects

ACADEMIC

Northern Brazil Agriculture



Community Concern: Brazilian crop yield variations affect food supply globally, and the El-Niño-Southern Oscillation causes dryer than average conditions in N. Brazil.

Partners:

- USDA Foreign Agriculture Service, International Production Assessment Division
- USDA Office of the Chief Economist

Earth Observations:

- Landsat 5 TM
- Landsat 7 ETM+
- Landsat 8 OLI/TIRS
- Landsat 9 OLI-2/TIRS-2

Impact: Maps depicting NDVI at a sub-state level will supplement state-level crop yield data. Trends in production will inform partners' efforts to produce crop production outlooks during El Niño.



Idaho & Oregon Agriculture

Community Concern: Ranchers in the northwest want to use novel livestock management to reduce predation of their livestock. Night penning helps reduce predation, but has unknown effects on vegetation and soil.



Partners:

- USDA Animal & Plant Health Inspection
 Service National Wildlife Research Center
- Alderspring Ranch

Earth Observations:

- Landsat 8 OLI
- Landsat 9 OLI-2
- Sentinel-2 MSI

Impact: Impact maps will inform ranchers on future grazing practices and the US Forest Service will better understand the impacts of night penning and if they should continue to allow the practice on federal lands.



Oklahoma Agriculture



Community Concern: Agricultural pasture and rangeland management impact ecosystem health as well as crop and livestock yields.

Partners:

- Noble Research Institute
- Colorado State University

Earth Observations:

- Landsat 5 TM
- Landsat 7 ETM+
- Landsat 8 OLI
- Landsat 9 OLI-2

Impact: NPP maps and NPP time series will inform end users about grassland productivity and influence pasture management going forward. Collaborators at Colorado State University will also have a better understanding of how rangeland management affect soil carbon and nitrogen fluxes.



Southern California Water Resources



Impact: By providing a methodology to acquire and use the data, the SCCWRP believes they can create an occupancy model for seagrass to help them with their conservation efforts. **Community Concern:** As of 2014, NOAA recommended California become a no-net loss eelgrass habitat. SCCWRP has been assessing the health of the seagrass beds solely with ground efforts, but there are still data gaps that can be filled with NASA EO.

Partners:

- Southern California
 Coastal Water Research
 Project (SCCWRP)
- NOAA National Marine Fisheries Service West Coast Region
- State of California San Diego Regional Water Quality Control Board

Earth Observations:

- Landsat 8 OLI
- Landsat 9 OLI
- Landsat 8 TIRS
- Landsat 9 TIRS
- Sentinel-2 OLI
 - ECOSTRESS

• Planetscope



California – J

Platte River Water Resources

Community Concern: As urban areas spread across established floodplains, there is a greater risk of flooding throughout the Great Plains which may impact infrastructure, urban greenspaces, and bird habitats.

Partners:

Audubon
 Great Plains

Earth Observations:

- Landsat 5 TM
- Landsat 8 OLI
- Landsat 9 OLI-2
- Sentinel-1 SAR
- Sentinel-2 MSI



Impact: The Audubon Great Plains is selecting sites for their Urban Woods and Prairies initiative to protect habitats and mitigate flood risks. This project will assist in site selection by identifying areas of considerable population size, habitat connectivity, public access, and other criteria.



Coastal Virginia Ecological Conservation

Community Concern: Wetlands are an important natural resource for humans, animals, and plants alike. Unfortunately, wetlands are at risk due to ever-growing sea level rise, and therefore, are decreasing in numbers.

Partner:

Wetlands Watch



Earth Observations:

- Sentinel-1 C-Band SAR
- ALOS L-Band SAR (PALSAR)
 SRTM
- Sentinel-2 MSI
- Landsat 5 TM
- Landsat 8 OLI

Impact: Identifying suitable habitat where wetlands may be inclined to migrate, or are already migrating, in response to sea level rise may help the Wetlands Watch visualize and advocate for those areas in need of protections for future conditions.



Landsat 9 OLI-2

Jefferson County Ecological Conservation

Community Concern: Over the past 30 years, the Camas National Wildlife Refuge and Mud Lake Wildlife Management Area in southeastern Idaho have undergone negative hydrologic and ecologic changes: the wetland complex is disappearing which is a key stopping ground for migrating birds. In response, the U.S. Fish and Wildlife Service and Idaho Fish and Game have begun restoration projects and hope to gauge the efficacy and impact of their efforts.

Earth Observations:

Partners:

- Landsat 5 TM
- Landsat 8 OLI
- Landsat 9 OLI-2
- Sentinel-1 C-SAR
- Sentinel-2 MSI
- ISS ECOSTRESS

- U.S. Fish and Wildlife
- Service, Camas National Wildlife Refuge
- Idaho Department of Fish
 - and Game, Mud Lake
 - Wildlife Management Area



Impact: This project will create wetland classification and forecasting maps, along with a workflow for monitoring hydrologic and ecologic dynamics with Earth observations. The project will directly influence & inform the partners' \$7-10 million dollar restoration efforts, helping them leverage remote sensing for monitoring past, present, and potential future conditions.



Rhode Island Ecological Conservation



Community Concern: Over one third of birds breeding on Rhode Island Audubon Refuges are experiencing longterm population declines.

Partners:

 Audubon Society of Rhode Island

Earth Observations:

- Landsat 8 OLI
- Landsat 9 OLI-2
- Sentinel-2 MSI

Impact: Land cover maps will inform future Audubon Society land acquisitions to protect habitats.





Big Bend Ecological Conservation

Community Concern: Non-Native grasses, African bufflegrass and Lehmann's lovegrass are impacting Big Bend National Park by increasing fire risk, serving as breeding ground for invasive fauna, and negatively affecting ecological health.

Partners:

• National Park Service, Big Bend National Park

Earth Observations:

- Landsat 9 OLI-2
- Landsat 8 OLI
- Landsat 7 ETM+
- Sentinel-2 MSI
- WorldView 2
- WorldView 3



Impact: Resulting maps and methodology assessment can support NPS in prioritization of mitigation and eradication efforts, conservation of endangered cactus species, protection of employee housing, and mitigation of wildland fire risk.



Cape Hatteras Ecological Conservation

Community Concern: Frequent storms in North Carolina's Outer Banks bring on heavy winds and treacherous waters, and the oceanfront and shorelines are susceptible to erosion leading to damage to transportation infrastructure and endangered species habitat.

Partner:

 National Park Service, Cape Hatteras National Seashore

Earth Observations:

- Sentinel-1 C-SAR
- Landsat 8 OLI
- Sentinel-2 MSIWorldView-2/3/4
- Landsat 9 OLI-2 PlanetScope

Impact: This project will support decision making relating to prioritization of investments in mitigation, strategic planning for transportation corridor adaptations including potential relocation of infrastructure, dredging projects, placement of beach nourishment efforts, and more.





Alaska Ecological Conservation

Community Concern: In Northwestern Alaska, warming temperatures have led to changes in river ice phenology. The National Park Service is interested in assessing if this phenomena has contributed to recent shifts in caribou migration patterns.

Partner:

 National Park Service, Gates of the Arctic National Park & Preserve

Earth Observations:

- Landsat 7 ETM+
- Landsat 8 OLI
- Landsat 9 OLI-2
- Sentinel-2 MSI

Impact: Shifts in river ice phenology have the potential to challenge the Western Arctic Herd's cross-river migration. Better understanding the impacts of these changes can help mitigate population decline and inform future hunting regulations in areas of cross-river migration.





Coronado Disasters

Community Concern: Park staff at the Cornado National Memorial is concerned with prioritizing mitigation of damage to border fencing and roads due to geohazards such as rock falls as well as restoration of those already damaged.



Earth Observations:

- Landsat 8 OLI
- Landsat 9 OLI-2
- SRTM
- Maxar

Partner:

National Park Service, Coronado National Memorial

Impact: Due to the location of the monument, border fencing and roads have been in ongoing construction since 2019 but geohazards are impacting this new construction. The NPS is not currently taking action against this damage, but should the responsibility of these efforts fall on the NPS, this project would assist in decisionmaking and prioritization as well as justifying federal funding.



California Disasters

Partner: California Department of Water Resources

Community Concern: California saw major storms and rainfall caused by multiple atmospheric rivers in late 2022 and early 2023, causing floods throughout the state. These flooding events caused \$4.6 billion in property damage and 22 deaths, particularly impacting low-income communities in Merced and Monterey counties.



Earth Observations:

- GPM IMERG
- SMAP
- Landsat 8 OLI
- Landsat 9 OLI-2
- ECOSTRESS
- Sentinel-2 MSI
- Sentinel-1 C-SAR

Impact: The DWR will apply project results and methods into their flood preparedness efforts working with communities at risk and be able to integrate NASA precipitation and soil moisture data into their emergency management during future flooding events.





Kentucky Disasters



Community Concern: In July 2022, 14–16 inches of rain caused a "1-in-1000-year" flood in eastern KY. One year later, another historic flood occurred in western KY. Floods are the most frequent natural disaster in KY, with some KY counties among those with the most federally declared disasters since 1990.

Partners:

- Kentucky Climate Center
- NOAA, National Weather Service Jackson, KY Forecast Office
- NOAA National Weather Service Paducah, KY Forecast Office

Earth Observations:

• SMAP

Impact: Flood risk maps will support the KCC and NWS Offices to promote flood resilience in KY.



Intermountain West Wildland Fires

Community Concern: As wildfires continue to increase in frequency, size and intensity, there has been increasing concern on local communities across the intermountain west. The US Forest Service developed a wildfire crisis strategy to identify priority sites for management practices which includes fuel reduction work.

Partners:

• USDA, US Forest Service, Region 4

Earth Observations:

- Landsat 8 OLI
- Landsat 9 OLI-2
- ISS GEDI

Impact: The goal of this project is to determine high fuel loading areas near development to address community safety from wildfires and inform forest management decision-making efforts on the ground.





EARTH ACTION

Bridgeport Urban Development

Community Concern: High densities of impervious surfaces and a lack of green space has heightened Bridgeport, CT's vulnerability to urban heat. Groundwork Bridgeport is interested in investigating the city's urban heat island effect to better understand how to mitigate its impacts on various communities.



Earth Observations:

- Landsat 8 OLI
- Landsat 8 TIRS
- Landsat 9 OLI-2
- Landsat 9 TIRS-2
- ISS ECOSTRESS

Partners:

Groundwork USA, Groundwork Bridgeport

Impact: Urban heat vulnerability maps will help Groundwork Bridgeport identify areas to connect with residents for their Cool Corridors project and other cooling interventions. These projects aim to help mitigate the impacts of urban heat, particularly in the disadvantaged East Side community.





Cali Urban Development

Community Concern: Wetlands in Cali, Colombia are vital for ecosystem health and biodiversity, but they face declination as urbanization and agriculture expand.

Earth Observations:

- Landsat 5 TM
- Landsat 7 ETM+
- Landsat 8 OLI
- Landsat 9 OLI-2
- Sentinel-1 C-SAR
- Sentinel-2 MSI
- Suomi-NPP VIIRS
- PlanetScope

Partners:

- Fundación Dinamizadores Ambientales
- Departamento Administrativo de Gestión del Medio
 - Ambiente (DAGMA)



California – Ame

Impact By providing methodologies for wetland extent time series and land cover change maps, the partners will have the tools for strategic urban planning.



San Joaquin Valley Health & Air Quality II

Community Concern: In addition to experiencing poor air quality due to agricultural burning and transportation corridors, Stockton, California also faces environmental justice issues stemming from urban heat.

Partner:

• Little Manila Rising

Earth Observations:

- Landsat 8 OLI
- Landsat 8 TIRS
- Landsat 9 OLI-2
- Landsat 9 TIRS-2



Impact: Little Manila Rising will receive materials that identify the areas in Stockton most vulnerable to heat, as well as the areas which experience converging sociodemographic, public health, and agricultural smoke vulnerabilities, to support its advocacy efforts and help inform the action of their community outreach program.



Baltimore Energy & Infrastructure

Community Concern: The Maryland Transit Administration (MTA) is seeking urban heat island (UHI) data to incorporate into their Adaptation and Resiliency Toolbox to ultimately inform mitigation and management efforts surrounding bus infrastructure in an equity framework.



Partners:

 Maryland Department of Transportation, Maryland Transit Administration

Earth Observations:

- Landsat 8 OLI
- Landsat 8 TIRS
- Landsat 9 OLI-2
- Landsat 9 TIRS-2
- ISS ECOSTRESS

Impact: The team will create maps and visualizations which will quantify urban heat and heat vulnerability as they intersect with bus stops and routes across Baltimore, MD. These products will assist the partners with their resiliency planning by determining the extent and type of need at bus stops to ensure comfortability of their patrons during extreme heat events.'



Sarasota Climate

Community Concern: Sarasota County is one of the fastest growing regions in the country, and the county's construction of urban infrastructure to meet the population demand is exacerbating the effects of urban heat islands.

Partners:

 Sarasota County Government

Earth Observations:

- Landsat 8 OLI
- Landsat 8 TIRS
- Landsat 9 OLI-2
- Landsat 9 TIRS-2
- ISS ECOSTRESS



Impact: This project will identify current urban heat island conditions and their intersection with vulnerable communities. The partner hopes to communicate the results in their community outreach campaign and advocate for ideal placement of cooling centers.



Hawaii Climate

Community Concern: Water temperature is one of the critical factors affecting fish habitats, making it a crucial issue to monitor, in particular the 2019 Marine Heat Wave event. Historically, Hawaii has had over 500 Loko i'a, or fishponds, that supplied vital sustenance to native communities, now, because of climate change there are only about 20 active fishponds.

Partners:

- Kua'aina Ulu
 'Auamo
- University of Hawaii, Manoa
- NOAA Pacific
 Islands Regional
 Office

Earth Observations:

- ISS ECOSTRESS
- Sentinel-2 MSI
- Sentinel-3 OLCI
- Sentinel-3 SLSTR
- Landsat 8 OLILandsat 8 TIRS

Impact: KUA will use the data and methodologies collected during the project term and apply them to their restoration efforts as they begin to locate new sites for fishponds.



California – .

EARTH ACTION