

Remote Sensing Collaboration for Disaster Response

Hurricane Dorian in the Bahamas



Preparing the volunteers for the future

Hurricane Dorian in Bahamas

- Hurricane Dorian made landfall in the Bahamas on 1 September as a Category 5 storm bringing maximum sustained winds of 185 mph, making it the strongest hurricane on record to affect the Bahamas. Multiple deaths and injuries resulted as well as unimaginable damage to the environment.
- The archipelago islands were battered by the storm for 2 days which decimated whole areas, leaving houses without roofs, scattered debris and flooding as up to 35 inches of rain fell. Dorian also dropped an estimated 3.0 ft. (0.91 m) of rain over the Bahamas.
- Damage was estimated at more than \$7 billion.
- Across the Bahamas, the storm left at least 70,000 people homeless. An estimated 13,000 homes, constituting 45% of the homes on the Abacos and Grand Bahama, suffered severe damage or were completely destroyed. UN officials reported 60,000 people required food aid and clean water.

A Look at One Aspect of Response

- Look at just one aspect of the disaster response to underscore collaboration between the International Charter Space and Major Disasters consortium and the AmericaView Consortium.
- <https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-urban-in-bahamas-activation-620->



Support National Needs

The Charter is a worldwide collaboration, through which satellite data are made available for the benefit of disaster management. By combining Earth observation assets from different space agencies, the Charter allows resources and expertise to be coordinated for rapid response to major disaster situations; thereby helping civil protection authorities and the international humanitarian community.

This unique initiative is able to mobilize agencies around the world and benefit from their know-how and their satellites through a single access point that operates 24 hours a day, 7 days a week and at no cost to the user.

Contributing

In addition to the space agencies that form the Charter, national and regional disaster monitoring organizations also support the Charter's efforts as co-operating bodies. Members and co-operating bodies join an international initiative to provide support to those in need following major disasters, and benefit from the wide distribution of data that the Charter offers.

Disaster Relief Organizations

Following a successful activation of the Charter, end-users - typically disaster relief organizations - may receive satellite data of affected areas within a matter of hours or days; depending on the type of the disaster and available satellite resources.

Since 2007, the Charter has been activated 40 times per year on average.

Charter in Numbers

631 Activations

12/10/2019

126 Countries

17 Charter Members

61 Contributing Satellites

Prepared for NGAC Lightning Session December 2019

04 SEPTEMBER 2019

Hurricane Dorian in Bahamas

[Browse activations on map ▶](#)



Type of Event:	cyclone
Location of Event:	Bahamas
Date of Charter Activation:	2019-09-04
Time of Charter Activation:	14:08
Time zone of Charter Activation:	UTC-05:00
Charter Requestor:	EROS on behalf of The Bahamas National Emergency Management Administration (NEMA)
Activation ID:	620
Project Management:	University of Louisiana at Lafayette

Hurricane Dorian made landfall in the Bahamas on 1 September as a Category 5 storm bringing strong wind speeds of 185mph and heavy rainfall. At least 20 people have been killed with many more missing, injured and displaced.

International Charter Activation Assignment

Type of Event:	cyclone
Location of Event:	Bahamas
Date of Charter Activation:	2019-09-04
Charter Requestor:	EROS on behalf of The Bahamas National Emergency Management Administration (NEMA)
Activation ID:	620
Project Management	University of Louisiana at Lafayette

University of Louisiana at Lafayette point of contact is Brent Yantis.

Brent is both the AmericaView PI for LouisianaView and the Board Chair.

He and Teresa Howard of TexasView are often requested to be the Project Managers given the number of disaster responses in the Gulf of Mexico.

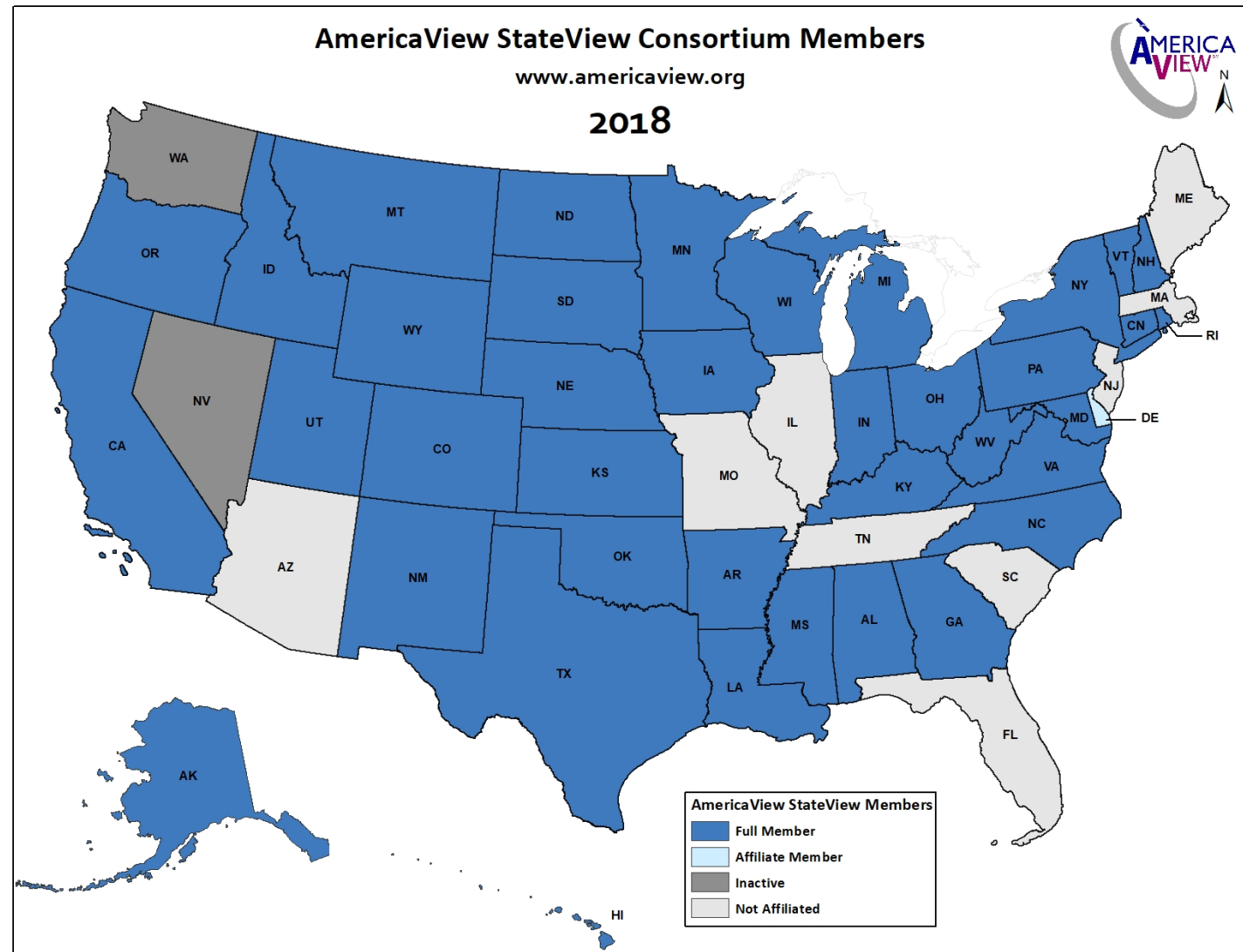
However, Ramesh Sivanpillai from Wyoming View has also served as a Project Manager for the November 2018 fires in California.

Several AmericaView members have been trained to serve as Project Managers to understand the process and to be ready to offer support if needed.

AmericaView is a nationwide partnership of remote sensing scientists who support the use of [Landsat](#) and other public domain remotely sensed data through applied remote sensing research, K-12 and higher STEM education, workforce development, and technology transfer.

Funded primarily by a grant from the [U.S. Geological Survey](#), the AmericaView consortium is comprised of university-led, state-based consortia working together to sustain a network of state and local remote sensing scientists, educators, analysts, and technicians.

Typically those IC program managers, who are AV StateView PIs report on their work but during Dorian response, Brent decided to request some volunteer support from other StateViews.



Collaborative OverView

- Other Team Participants
 - River Parishes Community College
 - Specialist at the USGS Center in Lafayette
 - Staff at the University of Arkansas
- Remote sensing datasets
 - Landsat
 - Sentinel
 - Radarsat
 - Digital Globe's WorldView and GeoEye
 - TerrasarX
 - Civil Air Patrol imagery
- Results delivered to
 - NEMA
 - Pacific Disaster Center

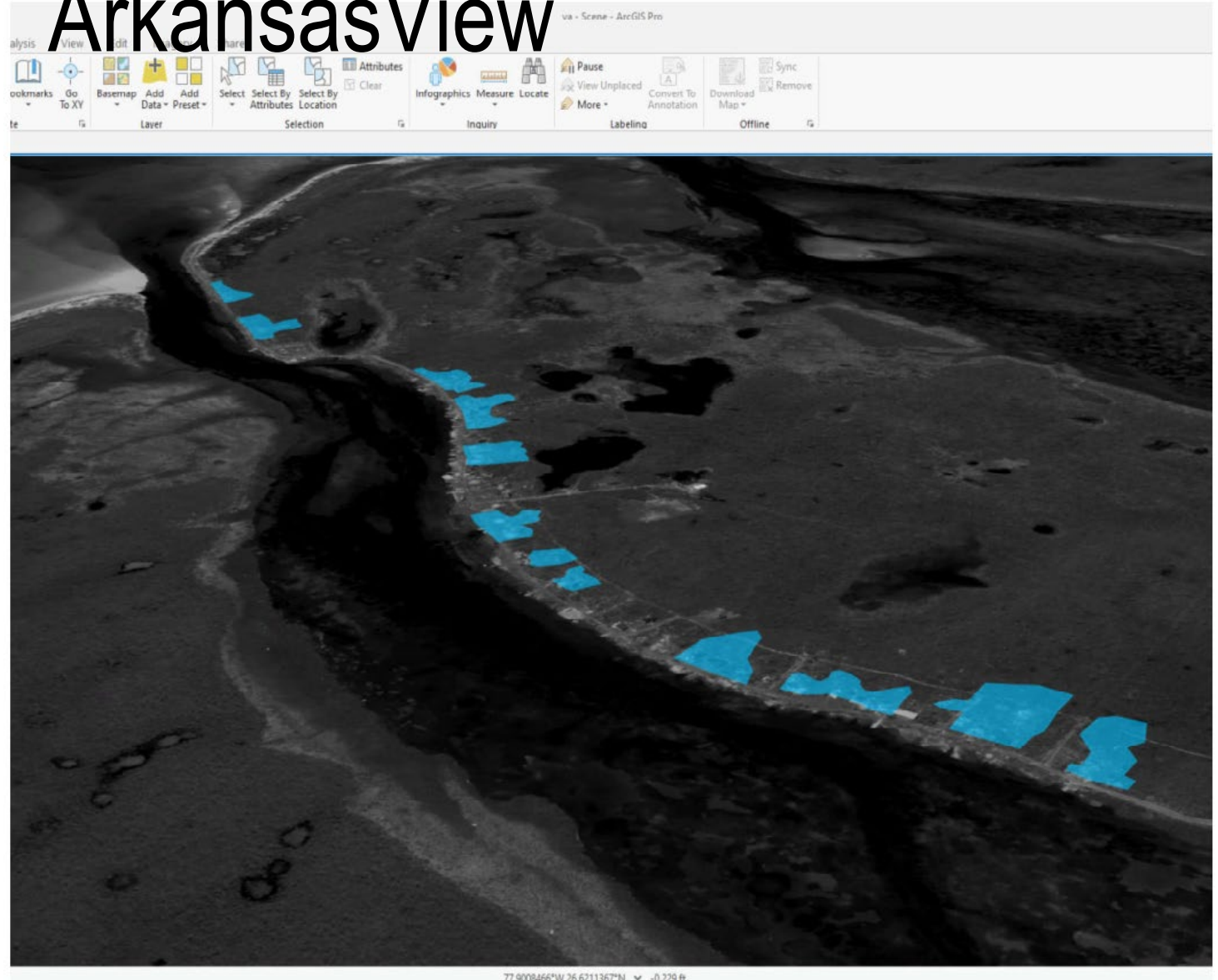
University of Arkansas Involvement

ArkansasView

The attached shows polygons of debris fields in East Grand Bahama created by students using WorldView 1 data collected 10 Sep 2019. This information became part of the IC support.

Two short testimonials from students who participated are on the next slide.

12/10/2019



University of Arkansas Involvement ArkansasView

“The work we did to download and organize imagery for the International Charter activation helped us establish an **effective group-oriented workflow for future needs**. We quickly learned that one person needed to be assigned to a particular job such as downloading imagery, or removing cloud-obscured imagery and then we needed to be able to communicate our work with others in a timely manner. **I got a better sense of our different strengths as individuals and I think we figured out how to use collaborative software, like Microsoft Teams, to keep each other apprised of our work and make sure nothing was being needlessly duplicated.** The digitizing of impacted areas in and of itself is relatively simple, but learning to coordinate those efforts among a team was really valuable experience for me.”

Cassandra Howe, PhD Geosciences student and Distinguished Doctoral Fellow, University of Arkansas

“Working with the AmericaView network for Hurricane Dorian emergency response was **both helpful as a student in geospatial technologies and as a young professional looking to pursue careers in natural hazards and risk mitigation.** On one hand, I gained experience working with Enterprise GIS and aerial imagery interpretation. On the other hand, I also learned how geospatial technologies can be broadly integrated into disaster responses and a glimpse into the time, manpower and needs of such emergency efforts.”

Tia Francis, MS Geography student, University of Arkansas; Tia previously lived in Nassau, Commonwealth of the Bahamas