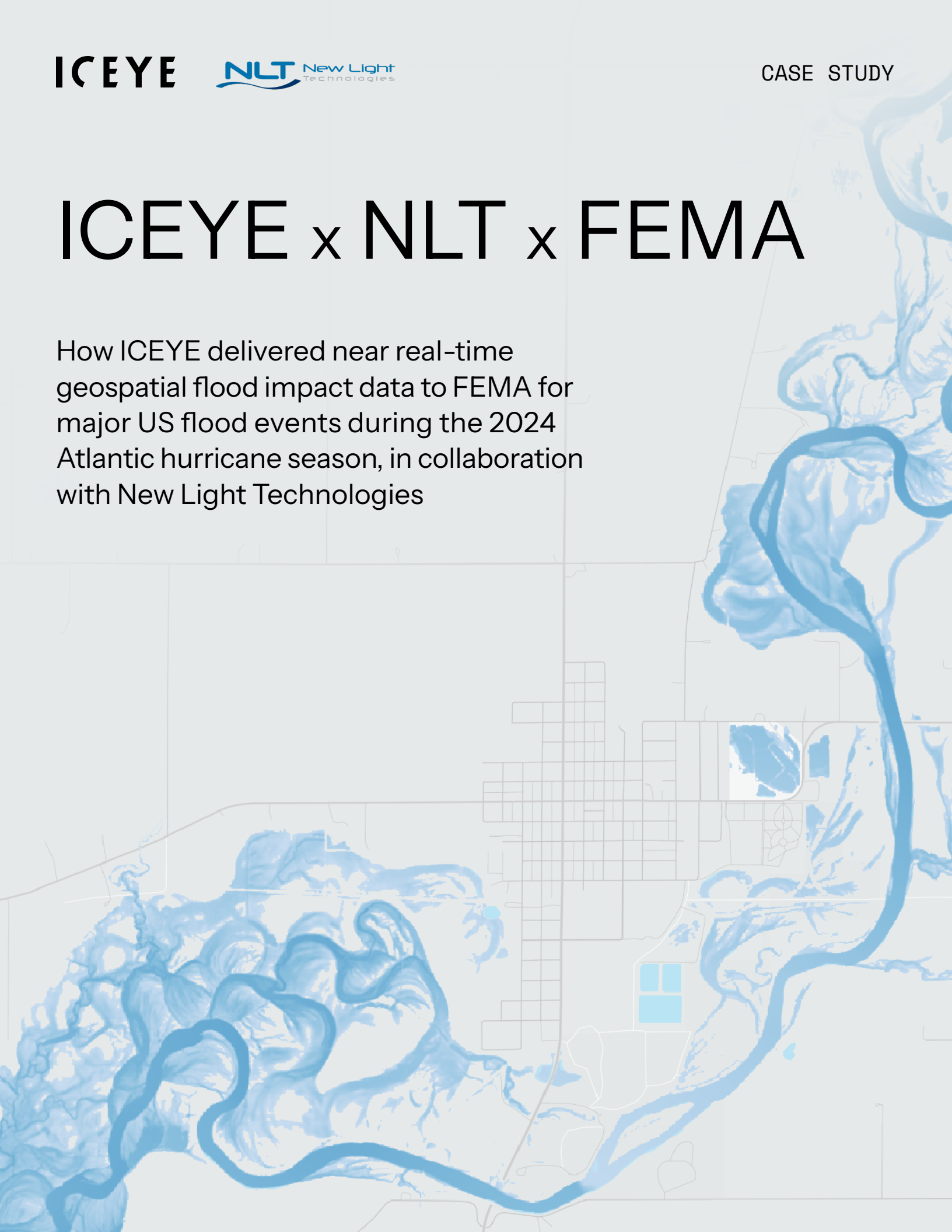


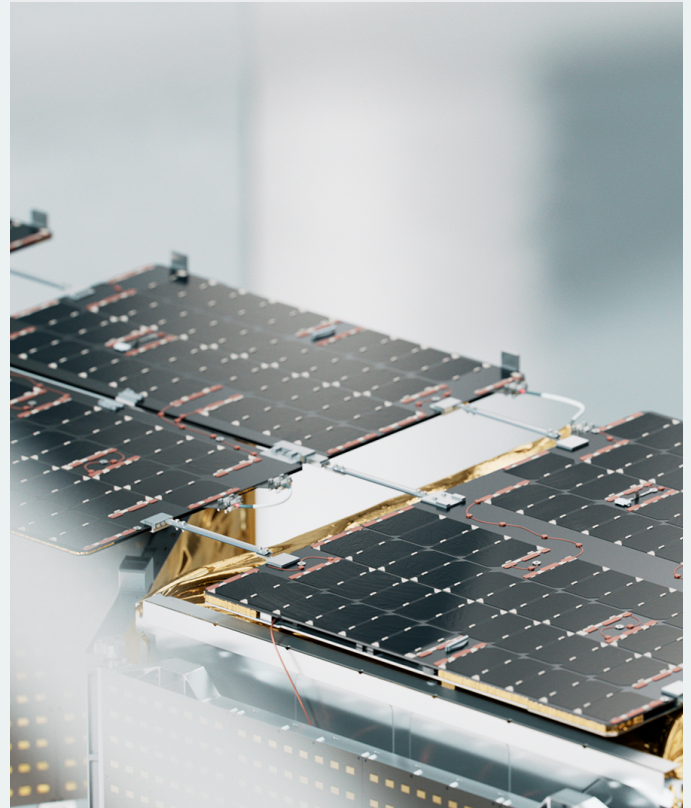
ICEYE x NLT x FEMA

How ICEYE delivered near real-time geospatial flood impact data to FEMA for major US flood events during the 2024 Atlantic hurricane season, in collaboration with New Light Technologies



The client

The US Federal Emergency Management Agency (FEMA) coordinates the federal government's role in preparing, preventing, mitigating the effects, responding, and recovering from all domestic, natural and man-made disasters. For more than 15 years, New Light Technologies (NLT) has served FEMA by providing a range of IT modernization and technical operational support services to facilitate the collection, analysis, and dissemination of disparate information to support decision-making for a range of missions and incidents of national significance. Since 2021, ICEYE, in partnership with NLT, has been providing FEMA with its satellite-based Flood Insights to meet its stated mission to help people before, during, and after disasters.



Over the last few years, Flood Insights has equipped FEMA with observation-based flood extent and depth data for nearly two dozen flood events, from devastating flash floods to long-duration atmospheric river events to catastrophic hurricanes. Using ICEYE's Flood Insights combined with NLT's IT services, FEMA has been able to prioritize immediate response and recovery activities, such as the tasking of Urban Search and Rescue Task Force; prioritizing and expediting preliminary damage assessments and disaster declarations; increasing situational awareness during major flood events and organizing collection plans for airborne imagery as well as on-ground high-water-marks positions.

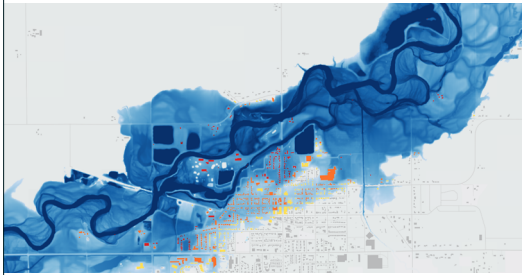
The challenge

One of the main tools in use by FEMA during disasters is the Tool for Emergency Management Prioritization & Operations (TEMPO). Developed for FEMA by NLT, TEMPO is a disaster management decision support system designed to help the agency prioritize resources and understand risks during critical events. Combining real-time hazard data with foundational data and geospatial analytics provides clear intelligence into how disasters impact people and infrastructure and how to prioritize emergency response operations. A critical input for TEMPO's unique algorithm, ICEYE's Flood Insights helps to determine the nature, extent, severity, and impacts of flood events upon vulnerable communities and critical infrastructure.

While the use of Flood Insights and TEMPO over the previous several years helped the agency overcome numerous declared disasters, the 2024 Atlantic hurricane season presented new challenges – notably just how active and destructive it was.

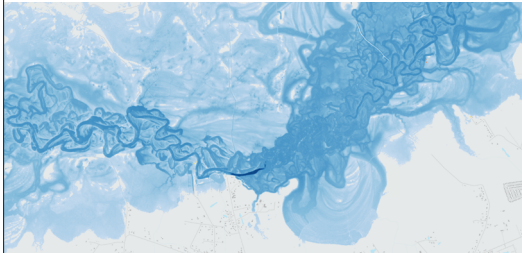
The season produced 18 named storms, including 11 hurricanes (five of which made landfall—one shy of the all-time record). Milton struck the west coast of Florida, just under two weeks after Hurricane Helene caused widespread damage to the Big Bend area of the state. This stretched resources at the federal, state, and local levels for response and recovery missions.

JULY ■ Beryl



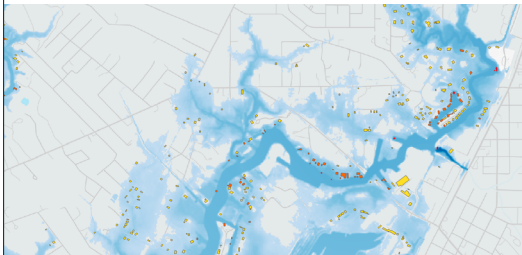
The first landfalling storm of the season was Hurricane Beryl. The storm initially set records while in open waters, becoming the earliest recorded Category 5 hurricane before slamming into the Texas coastline as a Category 1 storm. The combination of storm surge, record rainfall, and extreme wind gusts caused substantial damage not just in Texas but across the Mississippi and Ohio Valleys, Great Lakes, New England, and even Canada as the remnants pushed through, resulting in several dozen fatalities.

AUGUST ■ Debby



Hurricane Debby was another impactful storm, making landfall in August 2024. Due to its slow movement, Debby dropped near record rainfall from Florida north through the Carolinas – and even into the Northeast and southern Canada. At one point, more than 35 million people from Florida to Vermont were under flood watches or warnings.

SEPTEMBER ■ Francine



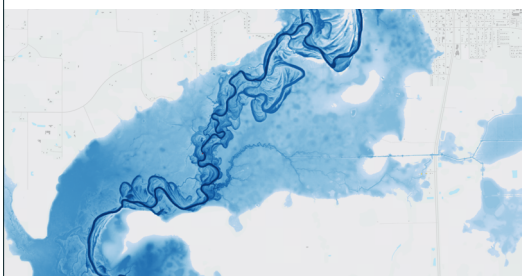
Hurricane Francine made landfall on September 11 as a Category 2 Hurricane. Storm surge and more than 6 inches of rain in New Orleans and the surrounding area lead to flood impacts in Louisiana and Mississippi.

OCTOBER ■ Helene



Hurricane Helene emerged as the most impactful storm of the season. First, record storm surge inundated hundreds of miles of coastline in Florida, impacting hundreds of thousands of people in the process. Then, more than two days of nonstop rain caused catastrophic flooding in Georgia, North Carolina, South Carolina, Tennessee, and Virginia, with some areas seeing their entire annual average of rainfall in under 48 hours.

■ Milton



Less than two weeks after Helene made landfall in the state, Hurricane Milton barreled into the Florida coastline. The storm caused significant storm surge flooding in parts of Southwest Florida, destructive hurricane force winds across the peninsula, and freshwater flooding that persisted for over a week after the storm first made impact.

The ICEYE solution

ICEYE has been partnering with NLT to bring insights to FEMA going back to the 2021 Atlantic Hurricane Season, starting with Hurricane Ida. However, due to the timing and scope of the disasters in 2024, NLT and ICEYE were asked to deliver insights at a speed not previously tested.

In collaboration with NLT, ICEYE was able to step in and deliver its initial flood insights to FEMA in fewer than **24 hours** from the peak of each flood – utilizing its Synthetic Aperture Radar (SAR) technology that can see through clouds, at night, and everywhere on earth multiple times a day.

The flood data was analyzed, visualized, and disseminated through TEMPO, providing FEMA and the disaster management community with critical information that was used widely across the regions.

Flooding from hurricane Helene in Asheville, NC

The results

ICEYE mapped nearly **15,000 sq miles of flooding over 14 states**, impacting several hundred thousand buildings and causing **over \$100 billion of damage**.

Flood Insights was used as a primary data set in approving disaster declarations for all five landfalling hurricanes (Beryl, Debby, Francine, Helene, and Milton). With Hurricanes Helene and Milton, in particular, the declarations were approved at near-record speed due to the ICEYE and NLT partnership, delivering actionable intelligence to FEMA through TEMPO.

In addition to critical situational awareness and more efficient disaster declarations, the data was used to:

- Deploy resources for response and recovery efforts, including the delivery of valuable emergency resources
- Prioritize emergency operations, including damage assessments and search and rescue efforts
- Assess in real-time the impact of flooding to businesses
- Inform leadership through internal briefings
- Identify the most efficient aerial imagery routes to be collected by agencies like NOAA
- Validate predictive models and assess flood plain management strategies



About ICEYE

ICEYE delivers unparalleled persistent monitoring capabilities to detect and respond to changes in any location on Earth, faster and more accurately than ever before.

Owning the world's largest synthetic aperture radar (SAR) satellite constellation, ICEYE provides objective, near real-time insights, ensuring that customers have unmatched access to actionable data, day or night, even in challenging environmental conditions. As a trusted partner to governments and commercial industries, ICEYE delivers intelligence in sectors such as defense and intelligence; insurance; natural catastrophe response and recovery; security; maritime monitoring; and finance.

ICEYE operates internationally with offices in the US, Finland, Poland, Spain, the UK, Australia, Japan, UAE, and Greece. We have more than 700 employees, inspired by the shared vision of improving life on Earth by becoming the global source of truth in Earth Observation.

About NLT

New Light Technologies Inc. (NLT) is a leading provider of integrated science, technology, and mission services with over 20 years of experience serving government and commercial organizations. Offering renowned expertise in cloud, agile software development, cybersecurity, data science, geospatial, and remote sensing, NLT provides comprehensive consulting, research, digital transformation services, and fit-for-purpose analytics solutions for various industries, from emergency management to economics to health. NLT offers distinctive capabilities in delivering secure cloud-native platforms and web-based decision support tools and has pioneered predictive disaster risk analytics in support of homeland security missions. To learn more, visit
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