

ICAMS

INTERAGENCY COUNCIL FOR ADVANCING METEOROLOGICAL SERVICES

NATIONAL PLAN FOR DISASTER IMPACT ASSESSMENTS: WEATHER AND WATER DATA

FCM-P33-2026



Washington, DC
August 2026

Left Image: Lukas Medo, a USGS hydrologic technician, installs a water-level sensor in Levy County, Florida, September 26, ahead of Hurricane Ian's landfall. The sensors being deployed are housed in vented steel pipes a few inches wide and range from about a foot to several feet long. They will be installed on bridges, piers, and other structures that have a good chance of surviving the storm. Photo by Patrick Marasco, USGS.

Right Image: Sentinel sensor in Cedar Key, FL, on 25 Sep 2024 at 1:15 pm Eastern

Interagency Council for Advancing Meteorological Services (ICAMS)

Working Group for Disaster Impact Assessments and Plans: Weather and Water Data (WG-DIAP)

National Plan for Disaster Impact Assessments: Weather and Water Data

1325 East-West Highway (SSMC2) Suite 7130
Silver Spring, Maryland 20910

www.ICAMS.gov

FCM-P33-2026
Washington, DC
August 2026

Foreword

The **National Plan for Disaster Impact Assessments: Weather and Water Data (NPDIA)** establishes a unified framework for coordinating federal and partner efforts during significant environmental events.

This document supersedes the March 2017 version, representing a comprehensive restructure designed to meet modern data demands.

Coordination and Purpose

The NPDIA is the product of the Interagency Council for Advancing Meteorological Services (ICAMS) **Working Group for Disaster Impact Assessments and Plans (WG/DIAP)**. This group brings together federal agencies and partner organizations to address the acquisition, preservation, and exchange of perishable environmental data.

In the immediate aftermath of a weather or water event, data is often fleeting. The NPDIA provides a resource for collaborative pre-storm sensor deployment and post-storm data collection beyond already established damage assessments per NWS Directives. This information is captured systematically to inform both immediate recovery and long-term research.

Commitment to Resilience

The success of this plan relies entirely on the sustained cooperation of our working group members and affiliates. Information and procedures in this NPDIA and the Annexes provide the foundational data necessary for successful decision-making, enhanced preparedness, and the long-term mitigation of disaster impacts on our communities.

Michael Bonadonna
ICAMS Director

Summary of Changes

Significant changes to the NPDIA, include the following:

- “Office of Federal Coordinator for Meteorology” was changed to the “Interagency Council for Advancing Meteorological Services.”
- “OFCM” was changed to “ICAMS.”
- Appendices are now attached to the main body.
- “APPENDIX B: Terms of Reference” was deleted because it is specific to the WG-DIAP and not the protocols included in this plan.
- Deleted “APPENDIX C: Participant’s Mission/Purpose and Capabilities” because this information belongs in the WG-DIAP TOR.
- Deleted “APPENDIX D: Support to the National Response Framework.”
- Removed all references to NWS Civil Air Patrol (CAP), including Section 2.3 "Civil Air Patrol Aerial Surveys" and "Appendix F: Civil Air Patrol Support Procedures" , at the request of the NWS.
- The whole NPDIA main body and the “Annex 1: General Protocol” documents were updated and streamlined.
- “Annex 2: Coastal Act Interagency Data Collection Protocol” has light edits; and will be marked “inactive” and reposted for historical information only.
- Added a new Appendix C: Directives and relevant policies table.
- PMSA form and example changed from Appendix E to Appendix B.

Table Of Contents

Foreword	iv
Summary of Changes	v
Table Of Contents	vi
Executive Summary	iv
1: Introduction and Purpose	1
2: Disaster Impact Assessment and Planning Guidance	5
Appendix A: Abbreviations and Acronyms.....	8
Appendix B: DHS Pre-Scripted Mission Assignment (PSMA) Form and Sample PSMA Covering WG-DIAP Activities.....	11
Appendix C: Directives and Relevant Policies	12

Executive Summary

When a disastrous event is imminent or has occurred, the NPDIA and its Annexes provide guidance for coordinated interagency actions. Each Annex provides background and context for the data collection protocols, procedures, and links to event impact databases and websites.

For event types without formal data collection protocols, the NPDIA utilizes a Generic Data Collection Protocol (Annex 1), which establishes criteria for activating the Working Group (WG-DIAP) and outlines initial coordination steps. Unless required by a specific or group of agencies, participation in the protocols outlined in this document is voluntary. All activities remain at the discretion of individual agencies based on their specific mission authorities and available resources.

1: Introduction and Purpose

1.1 History/Background

Since its inception, the NPDIA has evolved to keep pace with the increasing complexities of environmental data collection. The 2010 update marked a pivotal shift from post-event analysis to a comprehensive study of total environmental impacts, introducing the pre-deployment of mobile systems and prioritizing real-time data sharing. This 2026 update formalizes a key governance transition, moving the Working Group from the OFCM to the Interagency Council for Advancing Meteorological Services (ICAMS) to align with modern federal coordination structures.

Several environmental acts direct agencies to collect storm related data. The Consumer Option for an Alternative System to Allocate Losses (COASTAL) Act of 2012 and the National Windstorm Impact Reduction Act (NWIRA) The Coastal Act falls under the National Flood Insurance Program (NFIP) authority. While the Coastal Act is still law under this structure, the money initially provided for NOAA required actions is no longer allocated.

In addition, the COASTAL Act requires the National Oceanic and Atmospheric Administration (NOAA) to collect specific weather and ocean data to produce post-storm assessments. This data is used by the Federal Emergency Management Agency (FEMA) and insurance adjusters to differentiate wind damage from flood damage for certain destroyed properties ("slab" cases). Universities and some federal agencies fund equipment deployment ahead of landfalling systems, such as hurricanes. The location of those pre-storm sensors is shared collaboratively, and collected by the WG-DIAP and others to ensure the most comprehensive data coverage.

NWIRA established the National Windstorm Impact Reduction Program (NWIRP), a multi-agency federal effort led by National Institute of Standards and Technology (NIST), to minimize windstorm damage by improving understanding, developing mitigation, and promoting resilient building practices, coordinating agencies like FEMA, NOAA, and NSF. The program focuses on research, risk assessment, technology transfer, and implementing cost-effective solutions.

Regardless of the COASTAL Act and NWIRP funding/reauthorization, post storm data collection and analysis by Federal Agencies, and pre-storm data collection of landfalling storms by universities is expected to continue. Federal agencies also participate in Air Reconnaissance (ARE) missions to collect data about tropical systems, atmospheric rivers, and atmosphere conditions in advance of a developing snowstorm. ARE missions are funded through NOAA and the DOW with the intention of improving weather models. The NPDIA is focused on data related to impacts from an environmental event.

1.2 Mission

This plan provides a platform for Federal Agency data collection protocols and coordination to ensure Federal agencies and partners collect environmental data efficiently without duplicating efforts.

1.2.1 Why We Collect Data

Agencies assess natural disaster impacts for four primary reasons:

- **Societal Response:** To aid response efforts before, during, and after the event.
- **Future Planning:** To improve infrastructure and evacuation planning for similar future events.
- **Scientific Understanding:** To understand the physical phenomena (e.g., storm surge, wind load) that caused the damage.
- **Statutory Requirements:** To meet legal mandates (e.g., the *National Windstorm Impact Reduction Act Reauthorization of 2015*).
 - Note: While the COASTAL Act of 2012 remains on the books, specific funding for its implementation is currently inactive.
 - Note: The National Windstorm Impact Reduction Act Reauthorization of 2015 (reauthorized decennially) is expected to be reauthorized.

1.3 Goals

This national plan strives to achieve the following three strategic goals:

- **Resource Optimization:** The primary motive is to minimize or eliminate duplication of effort. Because funding is limited and some statutory mandates are unfunded, agencies must coordinate to make the best use of available personnel and equipment.
- **Data Integrity and Urgency:** Physical evidence of a storm is transient and often obliterated immediately after an event. A national plan ensures that highly perishable data is collected urgently and conforms to the accuracy requirements of all users.
- **Standardization and Collaboration:** The plan defines coordination procedures, ensuring agencies collaborate on data sharing, archival, and retrieval.

1.4 Scope

The primary objective of the NPDIA is to capture agency defined data requirements and establish formal coordination mechanisms for data management.

- **Mission Alignment:** This plan does not dictate agency-specific mandates; rather, it harmonizes existing mission directives and federal legislation to eliminate silos.
- **Adaptive Strategy:** The procedures found within the Annex portion of the NPDIA within are living protocols. They are designed to evolve alongside emerging data collection technologies and lessons learned from real-world applications.

1.5 NPDIA Data Collection Protocols

Data collection damaging environmental events have various agency, interagency, and/or affiliate protocols. This plan is a collection of existing protocols and a generic protocol that could be used by any entity for any event that doesn't have a developed protocol.

- Land impacting tropical cyclones and remnants (hurricanes/typhoons, tropical storms, and post-tropical remnants)
- Coastal Storms/Nor'easters

- Severe weather outbreaks (tornadoes, straight-line winds, and derechos)
- Riverine and ice dam flooding, and flash flooding
- Glacier lake dam flooding
- Tsunamis
- Coastal and lake wind waves

1.5.1 Priority of Federal Authorities and Mission Requirements

Each Federal entity determines its own role during a storm based on its specific mission and statutory authority. Participation in this plan and its Data Collection Protocols is discretionary and contingent upon the agency's available resources and legal mandate.

1.5.2 Disaster Impact Data Collection Planning and Assessments Depend on Event Type

The NPDIA Annexes provide a suite of **Data Collection Protocols** organized by the environmental event categories, as identified in Table 2.1. Each annex functions as a standalone document, outlining the specific statutory authorities, agency responsibilities, and activation criteria for that event type.

While specialized protocols cover specific categories, **Annex 1 (the Generic Data Protocol)** guides the WG-DIAP in coordinating data collection for events that do not fall under a defined category. These protocols ensure seamless coordination between multiple agencies. While many federal missions assist in disaster response, this guidance focuses specifically on the collection of data to assess immediate and long-term impacts.

1.6 Working Group for Disaster Impact Assessment and Planning: Weather and Water Data NPDIA Participants

NPDIA data collection involves a broad range of participants, including federal, state, and local agencies, as well as nongovernmental partners. Federal participants are divided into two groups: agencies responsible for collecting and using data, and the Interagency Council for Advancing Meteorological Services (ICAMS).

1.6.1 ICAMS

Housed within NOAA, ICAMS supports and charters the WG-DIAP who leads the NPDIA development and maintenance. ICAMS facilitates coordination for any collections covered by the Generic Data Protocol (Annex 1) or those without a designated lead.

1.6.2 Federal participants

- Department of the Interior (DOI)/U.S. Geological Survey (USGS)
- Department of War (DOW)/U.S. Army Corps of Engineers (USACE)
- Department of Agriculture (USDA)/Natural Resources Conservation Service (NRCS)
- Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA)
- Department of Commerce (DOC)/ National Oceanic and Atmospheric Administration
- (NOAA)/National Weather Service (NWS)

- DOC/NOAA/National Ocean Service (NOS)
- DOC/National Institute of Standards and Technology (NIST)

1.6.2 Affiliate members

- The American Association for Wind Engineering (AAWE)
- Coasts, Oceans, Ports and Rivers Institute (COPRI) of the American Society of Civil Engineers
- The Digital Hurricane Consortium (DHC)

2: Disaster Impact Assessment and Planning Guidance

2.1 Event Categories for Determining the Relevant Data Collection Protocol

The Annexes were developed to provide actionable procedures for various environmental events. The Generic Data Protocol (Annex 1) is listed if there isn't a specific protocol identified for the event. Protocols that are being developed will be listed and identified as "under development."

Table 2.1 matches environmental events with the best Annex for their data protocol needs.

Event Category	Protocol
Land impacting tropical cyclones and remnants (Named storms and post-tropical remnants)	Annex 1: Generic
Coastal extra-tropical storm ("Nor'easter")	
Riverine and ice dam flooding, and flash flooding (Dam or levee failure or potential failure)	
Coastal and lake wind waves	
Other Environmental events	
Severe Weather (Tornadoes, straight-line winds, or Derechos)	<i>Annex 3: Tornado/Windstorm Data (tbd)</i>
Tsunami	<i>Annex 4: Post-Tsunami Protocol</i>
Glacier-dammed Lake	Annex 5: Glacier Dammed Lakes Reconnaissance

2.2 Guidance for Developing Coordinated Data Collections Procedures

The following sections provide guidance for what at a minimum Data Collection protocols should entail. These protocols may be kept in your own Agency and/or as an Annex within the NPDIA structure.

2.2.1 Data collection sections.

The following five main sections are suggested for data collection protocol development;

- Background, if desired
- Roles and Responsibilities
- Activation triggers for multiagency coordination

- Notification and initial response coordination
- Data collection and continuing coordination/communication
- Data archiving and retrieval

2.2.2 Roles and Responsibilities.

Prior to an event, it's best to identify the following:

- Lead (individual and/or Agency)
- Who can notify the lead of a possible trigger for an activation
- Lead (individual and/or Agency) responsible for notifying the wider group.
- Lead (individual and/or Agency) that will maintain a list of contacts and their expected roles in the response
- Identify communication method/s (email, chat, etc) to be used for an activation
- Identify smaller group of cohorts, if needed, who may need a phone call and/or conference/video call to coordinate

2.2.3 Activation triggers for multiagency coordination.

The Annex 1 identifies possible activation triggers for events without a specific Annex. For all events with an Annex or other document for a response, ensure the following are included:

- Specify the event criteria that would trigger the need to collect data.

2.2.4 Notification and Initial Response Coordination.

The beginning of a response can be chaotic. In general, a response will include the following actions once the lead (individual and/or Agency) determines or is notified by a member of the group that an event is expected to meet the criteria for a response criteria the lead will:

2.2.5 Data Collection and Continuing Coordination/Communication.

The Data Collection Protocol may include a list or table of the data types and quantities to be collected and the procedure or collection capability to be used. It may also include references (hyperlinks to web pages) to the details of participants' internal procedures for data collection activities.

2.2.6 Data Archiving and Retrieval.

Data is automatically archived when the response is through the Design-Safe Slack channel. For all other event archives, review the links in Appendix D of the Annex 1: General Data Collection Protocol. If the data being collected is not already a part of existing archival frameworks, ensure archival locations are shared with participants.

2.3 Funding for Coordinated Data Collection

A Data Collection Protocol may or may not include information on funding for coordinated activities. If the protocol does include such information, that takes precedence over the general guidance provided below.

2.3.1 Funding Prior to a Federal Disaster Declaration

FEMA uses a document called a Pre-Scripted Mission Assignment (PSMA), which allows funding for actions before declaration of disaster. The PSMA's aid the FCO by providing a prepackaged set of actions that can be executed easily and quickly, and may be a potential funding source for disaster impact assessment data collection activities. [Appendix B](#) shows the PSMA form used by DHS and includes an example of a PSMA covering WG-DIAP activities under its Section IV, Statement of Work.

2.3.2 Funding after a Federal Disaster Declaration

After the President declares an event location a Federal disaster area, FEMA can more readily release funding using Inter-Agency Agreements (IAAs). IAAs are contract agreements between two Federal agencies to exchange fees for a service. All participating agencies should consider building IAAs with DHS/FEMA to help facilitate funding. IAAs should be drafted, approved, and signed long before any disaster event requires them.

2.3.3 Agency Funding

For many smaller disaster events, it will be up to individual agencies to fund their disaster impact assessment activities. For example, the NWS funds the Quick Response Team in response to a tornado event. For some unusual riverine events, USGS will fund special sensing missions. For some agencies, such as NOAA, the funding for any operation must be available at the agency before work begins. This is true even if it is fairly certain that the operation will be funded at a later date from outside the agency.

Appendix A: Abbreviations and Acronyms

53rd WRS	53rd Weather Reconnaissance Squadron (of the U.S. Air Force Reserve Command)
AAWE	American Association for Wind Engineering
ASP	Aeronautical Survey Program (of NOAA/NOS/NGS)
ATC	Applied Technology Council [DHC participant]
CAMEO	Computer Aided Management to Emergency Operations
CAP	Civil Air Patrol
CMP	Coastal Mapping Program (of NOAA/NOS/NGS)
COASTAL	Consumer Option for an Alternative System to Allocate Losses (Act)
CO-OPS	Center for Operational Oceanic Products and Services
COPRI	Coasts, Oceans, Ports, and Rivers Institute (of the American Society of Civil Engineers)
CSWR	Center for Severe Weather Research [DHC participant]
CU	Colorado University [DHC participant]
DHC	Digital Hurricane Consortium
DHS	U.S. Department of Homeland Security
DOC	U.S. Department of Commerce
DOI	U.S. Department of the Interior
DOW	U.S. Department of War
ERDC	Engineering Research and Development Center
ESF	Emergency Support Function (under the National Response Framework)
FCMP	Florida Coastal Monitoring Program
FCMSSR	Federal Committee for Meteorological Services and Supporting Research
FCO	Federal Coordinating Officer [FEMA position for post-declaration disaster management]
FEMA	Federal Emergency Management Agency
FIU	Florida International University [DHC participant]

GPS	Global Positioning System
GIS	geographic information system
GSD	ground sample distance
HAZMAT	hazardous materials
IAA	Inter-Agency Agreement [FEMA mechanism for post-disaster-declaration funding support]
ICAMS	Interagency Council for Advancing Meteorological Services
JFO	Joint Field Office (FEMA emergency response mechanism to a declared disaster)
LSU	Louisiana State University (DHC participant)
MoA	Memorandum of Agreement
MIT	Mitigation Assessment Team (deployed by FEMA in response to a disaster)
NCEP	National Centers for Environmental Prediction
NCMP	National Coastal Mapping Program (of USACE)
NESDIS	National Environmental Satellite, Data, and Information Service
NGS	National Geodetic Survey (within NOAA/NOS)
NIST	National Institute of Standards and Technology
NMAO	NOAA Marine and Aviation Operations
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NPDI	National Plan for Disaster Impact Assessments: Weather and Water Data
NRCC	National Response Coordination Center (of DHS/FEMA)
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
OAR	[NOAA] Office of Oceanic and Atmospheric Research (also called “NOAA Research”)

OCM	Office for Coastal Management (in NOAA/NOS)
OFCM	Office of the Federal Coordinator for Meteorological Services and Supporting Research (in NOAA)
OR&R	Office of Response and Restoration (in NOAA/NOS)
OU	Oklahoma University [DHC participant]
PSMA	Pre-Scripted Mission Assignment
RGB	red, green, blue [color imagery]
SCAN	Soil Climate Analysis Network
SNOTEL	Snow Telemetry [automated observing station]
SPC	Storm Prediction Center
TTU	Texas Technological University [AAWE and DHC participant]
UAH	University of Alabama at Huntsville [DHC participant]
UF	University of Florida [DHC participant]
URL	Uniform Resource Locator
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WCM	Warning Coordination Meteorologist
WFO	[NWS] Weather Forecast Office
WG-DIAP	Working Group for Disaster Impact Assessments and Plans: Weather and Water Data
WRS	Weather Reconnaissance Squadron (see 53rd WRS)

Appendix B: DHS Pre-Scripted Mission Assignment (PSMA) Form and Sample PSMA Covering WG-DIAP Activities

PSMA Form

MISSION ASSIGNMENT PROPOSED STATEMENT OF WORK (PSOW)					
Federal Department/Agency:		ESF #: Supporting Mitigation Operations		Tracking No.:	
I. Title:				Date: MM-DD-YYYY	
II. Description of Requested Assistance					
IV. Justification/Statement of Work					
IV. Cost Estimate: Total Estimated Cost: TBD					
FEMA COORDINATION					
Organization	Date	Approve/Disapprove	Organization	Date	Approve/Disapprove
Response Div.			OCC		
Recovery/ PA Div.			CFO		
Logistics					
Mitigation					

Appendix C: Directives and Relevant Policies

Policy	Parent Directive	Title	Role in NPDIA Context
NWSI 1-1201	NWSPD 1 - Administration and Management	Obtaining Environmental Data from External Parties	Governs the sharing agreements for data from outside agencies (USGS, etc.).
NWSI 10-102	NWSPD 10 - Operations & Services	Products and Services Change Management	Governs the official changes and updates to the CWWED web portal.
NWSI 10-1603		Significant Event Reporting	Provides the triggers and notification chain used to activate NPDIA protocols.
NWSI 10-1604		Post-Storm Data Acquisition	Governs the field collection of data that populates the CWWED. and is the primary instruction for NWS storm surveys. It outlines the rapid deployment of teams to gather "perishable" data (debris patterns, high-water marks) and defines when to request a Quick Response Team (QRT).
NWSI 10-1605		Storm Data Preparation	Governs how the collected data is entered into the official "Storm Data" publication. It ensures consistency in how events are categorized and rated.
NWSI 10-1606		Service Assessment	Outlines the protocol for large-scale "After-Action Reviews" and National Service Assessments following major events with significant fatalities or economic impact.
NWSI 10-607		Tropical Cyclone Forecast Center Products	Procedural guidance for Tropical Cyclone products
NWS OSTI Coastal Act webpage		NWS OSTI STI Modeling COASTAL Act	Manages the scientific integration between the database and the storm models.
NWIRP		National Windstorm Impact Reduction Program	Established by Congress "...to achieve major measurable reductions in the losses of life and property from windstorms through a coordinated Federal effort, in cooperation with other levels of government, academia, and the private sector, aimed at improving the understanding of windstorms and their impacts and developing and encouraging the implementation of cost-effective mitigation measures to reduce those impacts."
COASTAL Act Appropriations Report			This document provides a comprehensive update on NOAA's progress in implementing the COASTAL Act, including data collection, model development, and interagency coordination efforts.
2018 Summary of NWS COASTAL Act Activities			2018 Slidedeck of a comprehensive overview of the COASTAL Act activities, including project status, accomplishments, plans, and interagency coordination efforts.