

GENERIC DATA COLLECTION PROTOCOL FOR WG/DIAP COORDINATED ACTIONS

1. Scope and Intent

As explained in Chapter 2 of the *National Plan for Disaster Impact Assessments: Weather and Water Data* (NPDIA), this protocol provides guidance for coordination of data collection actions by Federal members and affiliates of the Working Group for Disaster Impact Assessments and Plans: Weather and Water Data (WG/DIAP) only if the environmental event is not covered by an approved Data Collection Protocol specific to the event category.

Any agency response to an event deemed to be under this protocol shall be at the discretion and within the mission authority and resources of that agency. Under this protocol, the OFCM, through the WG/DIAP, serves as the executive agent to coordinate multiple Federal agency responses. The participating Federal agencies typically have overlapping requirements for event response and impact assessment data types. Agencies often acquire the same data type following an event but may use the data for substantially different purposes. For example, inundation data following a coastal storm may be used by one agency for flood hazard risk assessment purposes, while another agency may use the same data for structural performance evaluation purposes. There may be events where some Federal participants in the WG/DIAP have little or no interest and no mission authority, so they may choose not to participate in the coordination activities. (An overview of agency mission authorities can be found in Appendix B to the NPDIA.)

The intent of the guidance presented here is to ensure that agency responses to mutually examined events are adequate, while minimizing the expenditure of resources on events of interest to only a single agency or events of no common interest. Moreover, the protocol has been organized to allow for changes in the scope of responses to particular types of events and for adoption or implementation of emerging technology, without requiring a revision of the protocol.

Event response under this protocol depends on the type of event and the specifics for a particular event. Setting out and agreeing on these specifics is a key role of the initial and subsequent coordination teleconferences. Individual WG/DIAP member agencies/organizations typically have their own internal procedures and requirements. This protocol therefore provides only general guidelines for coordinating WG/DIAP activities after the Initial Coordination Teleconference, which is when specific roles, responsibilities, and activities will be agreed upon by the teleconference participants.

2. Activation Criteria

Activation criteria for initiating agency responses to an environmental event under this protocol depend upon the event category,¹ as illustrated by the examples in Table 1. Events for which there is typically adequate warning, such as landfalling extratropical storms and inland floods, permit evaluation of the situation as it develops. For other events, such as flash flooding or high wind-waves, there may be little or no warning and little time to assess the initial effects of the event. A timely response to the latter types of events requires that their activation criteria be based upon the presumption that a significant event will occur, rather than direct evidence that the event is serious enough to justify disaster impact assessment.

3. Notification and Initial Response Coordination Teleconference

Any member of the WG/DIAP, upon recognition of (or potential for) a significant event (referenced in Table 2.1 of the NPDIA main document) and the need for a coordinated response, should alert the **WG/DIAP Executive Secretary and the rest of the working group**.

The alert notification mechanism for all event types is by group email: diap.alerts@noaa.gov.² The initial alert email may be sent by any member. The group email account includes all WG/DIAP members and will automatically disseminate the email alert to them.

The initial email should contain:

- A brief description of the event and the source of the event information
- Planned data collection and timelines for the initiator's agency/organization
- Proposed date/time for the Initial Response Coordination Teleconference.
- Depending on the urgency and lead time, the initiator may need to follow up with phone calls to key team members. The member list is maintained by the OFCM, and the most current version can be obtained from the WG/DIAP Executive Secretary (tony.ramirez@noaa.gov).
- Alert email replies may be sent by any WG/DIAP member. (Note: to include all members in replies, the group email address must be included as an addressee).

Table 1. Typical Activation Criteria for Different Event Categories

¹ The event categories used in this Data Collection Protocol correspond to event categories defined in Table 2.1 of the NPDIA. That table also specifies event categories that are covered by a Data Collection Protocol other than this generic protocol.

² The WG/DIAP Executive Secretary at the OFCM maintains the group email list, manages group email access, and facilitates other working group communications, including providing contact information for current representatives of WG/DIAP member agencies and affiliated members.

Event Category	Activation Criteria
Hurricane/tropical cyclone not forecast to make landfall	<p>Annex 2 specifies activation criteria for a storm forecast to make landfall with sufficient intensity to come under the COASTAL Act protocol.</p> <p>For other hurricanes/tropical storms (e.g., not forecast to make CONUS landfall or not of sufficient intensity), activation criteria include:</p> <ol style="list-style-type: none"> 1. Forecast for unusually high surge at particular coastal location 2. Forecast for extended reach of coastline affected by surge, high winds, and/or high precipitation 3. Forecast for high inland flooding potential
Tornado or windstorm (severe convective outbreak)	See Annex 3 activation criteria.
Coastal storm (extratropical storm or non-landfalling tropical cyclone/hurricane)	<ol style="list-style-type: none"> 1. An unusually high surge (in an historical context) is forecast for or has occurred at a particular coastal location, OR 2. An unusually prolonged period (e.g., several days) of elevated coastal water levels, OR 3. An extended reach (hundreds of miles) of affected coastline.
Flooding, riverine (main stem flooding)	<ol style="list-style-type: none"> 1. Precipitation rates resulting in total rainfall that could cause potential flooding or flash-flooding, OR 2. Initial reports of imminent flooding based on upstream gage readings, etc.
Flooding, flash	<ol style="list-style-type: none"> 1. Precipitation rates resulting in total rainfall that could cause potential flooding or flash-flooding, OR 2. Reports of flash flooding
High waves, coastal or lake	<ol style="list-style-type: none"> 1. Prolonged and/or unusually high surface wind speeds, OR 2. Unusually long (> 16s) wind-generated wave periods along the Atlantic and Gulf of Mexico coasts.
Winter storm precipitation	<ol style="list-style-type: none"> 1. Freezing and/or precipitation to the extent that accumulation of snow/ice on roadways, railways, airports, or walkways is expected to cause such modes of transportation to become inoperative, OR 2. Accumulation of snow/ice on the built environment is expected to become a hazard due to structural failure
Tsunami	See Annex 4 for activation criteria.
Glacier-dammed lake	See Annex 5 for activation criteria.
Riverine ice dams (spring melt ice-dam lake)	[activation criteria?]
Dam or levee failure or potential failure	[activation criteria?]

The Initial Response Coordination Teleconference, and subsequent teleconferences, will be facilitated by the WG/DIAP Executive Secretary (or designated OFCM staff member) or by a lead agency for the event category. A simple agenda for the initial teleconference should be prepared by the official/agency initiating the call and distributed via the group email account. Topics to consider for inclusion in a teleconference agenda include but are not limited to the following:

- Name of person initiating teleconference (initiator) and initiator’s home agency/organization and contact information
- Date and time of call (give call time in Coordinated Universal Time (UTC); a local time can be given *in addition to* the UTC time).
- Call-in number and passcode to join the call
- Event descriptors (event type, geographic location, URL for current information updates on event conditions or relevant preceding conditions)
- Additional Potential Agenda Topics
 - “Roll call of teleconference participants” (teleconference leader should do a roll call early in the conference call to identify all participants)
 - “Lead agency activities in progress and planned” (lead agency should provide details of its plans and timeline)
 - “Input/questions from other call participants” (after lead agency representative(s) describe their in-progress and planned activity, call leader should ask for comment and input from each of the other participants)
 - “Next coordination steps” (before the first call ends, participants should consider timing/frequency of additional calls, response team rendezvous locations, etc.)

4. Data Collection and Continuing Coordination/Communication

4.1 Implementing and Updating the Event-Specific Data Collection Plan

Coordination of agency responses to an event is particularly important when there are common activities in a common geographic area and common or overlapping data requirements. After the Initial Response Coordination Teleconference, the lead agency should draft (or adapt from a previous example) an initial version of a Data Collection Plan for the event. This plan should incorporate specifics of the activities of the lead agency and other participants that provided activity input during the teleconference. As the response rolls out, the Data Collection Plan should be updated/revised as needed.

4.2 WG/DIAP Data Acquisition Activities by Event Category

Table 2 summarizes illustrative collection activities and the data types and quantities collected for event categories covered by this Generic Data Collection Protocol. This table is neither comprehensive nor restrictive with respect to which procedures, data types, and data quantities participants may agree to collect for any particular event. It is intended to provide participants with a starting point for discussing and agreeing upon their data acquisition activities for the

event being coordinated. Note that a number of multi-agency data acquisition actions are listed in the table following the single-agency headings.

[NOTE to WG/DIAP: Most of old Table 2.2, Response Procedures, in the 2010 NPDIA consisted of procedures related to either hurricane or tornado/windstorm events. As such, those items are now superseded by Annexes 2 and 3. For this generic protocol, is there a version of Table 2.2 that would be useful—in addition to the included Table 2, which is derived from the old Table 2.3?]

4.3 Subsequent Data Collection Coordination Teleconferences

Subsequent response coordination teleconferences will be convened as needed prior to, during, and after response activities to discuss and coordinate disaster impact assessment activities. These teleconferences may be supplemented by web-based capabilities such as GoToMeeting and Chat services. Teleconference, GoToMeeting, and Chat services may be initiated by the WG/DIAP Executive Secretary (or designated OFCM staff member) or any WG/DIAP member agency having these or similar capabilities.

4.4 Data Archiving and Retrieval

The data collected by each participant should be stored and backed up by the agency/organization that collects the data. Appendix A to this protocol includes agency-specific Internet links to access the collected data or other instructions for how to access the data.

Table 2. Typical WG/DIAP Data Acquisition Activities by Event Category

Data Acquisition Activity	Coastal storm coordinated under Annex 2	Convective storm not under Annex 3	Flooding, riverine/flash	High waves, coastal/lake	Glacial lake dam/ river ice dam	Dam/levee failure	Other weather/ water event
All Agencies							
For Federal, State, local, and tribal situational awareness, identify your personnel working in the field.	X	X	X	X	X	X	X
Store all information about each event (see Section 3.3.3, Data Repository/Retrieval).	X	X	X	X	X	X	X
Department of Homeland Security							
Coordinate with participating agencies for potential data collections locations.	X	X	X	X	X	X	X
Real-Time Collectors. Collect and provide real-time wind speed, wind direction, temperature, humidity, and barometric pressure data from multiple monitoring assets to the NWS and to the Hurricane Research Division of NOAA/OAR.	X	X	-	X	-	-	X
Non-Real-Time Collectors. Collect other non-real-time assets after it is safe to enter the collections areas and disseminate the data.	X	X	X	X	X	X	X
NOAA/National Weather Service							
Assemble and analyze damage survey findings, satellite and radar imagery, videotapes, and other information while determining the structure and organization of the event.	X	X	X	X	X	X	X
Perform post-event surveys documenting extreme conditions that led to flooding (e.g., precipitation and stream flow).	X	-	X	-	X	X	X
Perform post-event surveys documenting maximum inundation and societal impacts (e.g., document effectiveness of the warning system and mitigation measures).	X	-	X	-	X	X	X
Coordinate potential flooding areas with FEMA, USACE, and USGS.	X	-	X	X	X	X	X

Data Acquisition Activity	Coastal storm not coordinated under Annex 2	Convective storm not under Annex 3	Flooding, riverine/flash	High waves, coastal/lake	Glacial lake dam/ river ice dam	Dam/levee failure	Other weather/ water event
NOAA/National Ocean Service							
Collect and provide real-time water level and meteorological data from coastal tide gauges to NWS and via the web.	X	-	-	X	-	-	-
USDA/Natural Resource Conservation Service							
Provide available precipitation, soil erosion, and agricultural damage data.	X	X	X	-	-	-	X
American Association for Wind Engineering							
Coordinate with Federal agencies to provide post-storm damage assessments as needed.	X	X	-	-	-	-	X
Multi-Agency Data Collection Actions							
USGS, USACE, AAWE, NIST, DHC. Collect hydrodynamic and structural effects data and available hydrographs acquired at open ocean/lake and affected coastal locations. Estimates of net sub-sea bottom changes due to the event are desirable.	X	-	-	X	-	-	-
USGS, FEMA, NWS, NIST. Form agency high-water mark collections teams and coordinate collections between agencies.	X	-	X	X	X	X	X
NIST, NOAA. For events involving high winds, provide field teams to assess the event-induced structural damage. Where possible, prepare charts depicting estimates of surface wind speeds inferred from structural effects.	X	X	-	-	-	-	X
USGS, USACE. Take discharge and current velocity measurements.	-	-	X	-	X	X	-

APPENDIX A to Annex 1: DATA ACCESS

Federal Agency Data Disposition

Department of Agriculture, Natural Resource Conservation Service (NRCS)

All climate data collected by the NRCS can be accessed via the NRCS National Water and Climate Center website: <http://www.wcc.nrcs.usda.gov>.

Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA)

National Weather Service (NWS)

The NWS Office of the Chief Operating Officer provides some post-event data for major events at: <http://www.nws.noaa.gov/os/assessments/index.shtml>

Additional information on severe storm events can be accessed from NOAA's National Centers for Environmental Information (NCEI) [Storm Events Database](#).

Imagery and other data captured during CAP missions will be stored by the agency requesting CAP support. Some of the data captured during 53 WRS missions is made available at the National Hurricane Center's Aircraft Surveillance webpage:

<http://www.nhc.noaa.gov/reconlist.shtml>.

National Ocean Service (NOS)

Center for Operational Oceanographic Products and Services (CO-OPS)

Under Development

The [Office for Coastal Management](#) (OCM) archives maps and products in the Charleston, SC, office and sends them via FTP to DHS/FEMA and NOAA ICC during events.

Office of Response and Restoration (OR&R)

Under Development

National Geodetic Survey (NGS)

NGS data are initially stored at NOAA headquarters located in Silver Spring, MD, with a mirrored RAID site in Norfolk, VA. The imagery data are freely available to the public in JPEG format from the [National Geodetic Survey website](#).

DOC, National Institute of Standards and Technology (NIST)

Personnel at the Building and Fire Research Laboratory at NIST investigate the performance of infrastructure after hazard events and produce reconnaissance reports which can be found at: <http://www.bfrl.nist.gov/investigations/investigations.htm>.

Department of Defense (DOD), U.S. Army Corps of Engineers (USACE)

The USACE NCMP lidar data are available online through the NOAA/OCM [Digital Coast Data Access Viewer](#). For all other USACE data please contact the USACE personnel on the WG/DIAP.

Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA)

Under Development

Department of the Interior (DOI), U.S. Geological Survey (USGS)

Various USGS data are stored in different locations depending of the type of data, frequency of recordings, and length of the data record.

Streamflow Monitoring

Real-time water-level and flow data for about 6,800 streamgages are available at <http://waterdata.usgs.gov/nwis/rt>.

Interactive maps of the current National and state level flow conditions (relative to flooding or drought) are available at <http://water.usgs.gov/waterwatch/>.

Maps and tables summarizing recent flooding conditions are available at <http://water.usgs.gov/cgi-bin/wwdp>.

Flood Measurements

Summaries of recent flood measurements (width, depth, velocities, etc.) are distributed at <http://waterdata.usgs.gov/nwis/measurements> for each state and streamgage.

Flood Forensics

Indirect flow measurements are computed and summarized in non-published reports that may be viewed at the relevant USGS state office. Contract information for these state offices is available at http://water.usgs.gov/district_chief.html.

Storm-Tide Monitoring

Real-time storm-surge data (for periods during and immediately after the storm) can be viewed by accessing storm-surge sites listed in the USGS National Water Information System's state streamflow summary tables, available online. The webpage URL format is:

<http://waterdata.usgs.gov/XX/nwis/rt>

where “XX” refers to the 2-letter postal code for the state of interest (e.g., the URL for Virginia is <http://waterdata.usgs.gov/VA/nwis/rt>).

Rapid-Deployable Gages

The data from these stream gages are available at **<http://waterdata.usgs.gov/XX/nwis/rt>** where “XX” refers to the 2-letter postal code for the state of interest.

Flood documentation

When flood data are used by the USGS to construct flood maps, the data are available through USGS publications at <http://pubs.er.usgs.gov/usgspubs/recentpubs.jsp>.

Shoreline Change

State-of-the art research vessels, Global Positioning System (GPS) satellites, and side-scan survey and velocity measurement equipment are used to collect post-storm data. Images and data are available at <http://coastal.er.usgs.gov/shoreline-change/>.

Affiliated Organization Data Disposition

American Association for Wind Engineering (AAWE)

If AAWE members collect storm event data through a coordinated AAWE deployment, AAWE will retain a copy of data collected. AAWE may be contacted to arrange data transfer at the following URL www.aawe.org, and email aawe@aawe.org.

Coasts, Oceans, Ports and Rivers Institute (COPRI)

Under Development

Digital Hurricane Consortium (DHC)

The DHC stores storm event data (field measurements of land falling hurricane wind data as well as metadata) in the following locations: <http://fcmp.ce.ufl.edu/>, and <http://www.digitalhurricane.org/>.