

NATIONAL WEATHER SERVICE INSTRUCTION 10-1604

July 29, 2011

**Operations and Services
Performance, NWSPD 10-16**

POST-STORM DATA ACQUISITION

NOTICE: This publication is available at: <http://www.nws.noaa.gov/directives/>.

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SUMMARY OF REVISIONS: This directive supersedes NWS Instruction 10-1604, Post-Storm Data Acquisition, dated April 23, 2008.

1. Changed formatting and section 1 from “Overview” to “Introduction” as per NWS 1-101.
2. Revised all references of “National PSDA Plan” to “[National Plan for Disaster Impact Assessments: Weather and Water Data \(NPDIA\)](#)”, and all references of the “Working Group for Post Storm Data Acquisition” to “Working Group for Disaster Impact Assessments and Plans: Weather and Water Data” as per the OFCM.
3. Revised sections 3.1.1.3, 3.1.1.4 and 3.3 to more accurately reflect the roles of WFOs, regional headquarters and OCWWS.
4. Revised section 3.1.3 to include “To receive credit for completing the EF-Scale Training, you need to take the two training modules through the DoC E-learning LMS.”

Signed 7/15/11
David B. Caldwell Date
Director, Office of Climate, Water, and
Weather Services

Post-Storm Data Acquisition

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1 Introduction

The Post-Storm Data Acquisition (PSDA) activity includes the acquisition and assembly of highly perishable data necessary for accurate post-event analysis. It requires the rapid deployment of trained teams following the event to gather damage evidence, e.g., storm debris damage patterns, that can be used to accurately identify and describe the event. In cases of prolonged events, it may be appropriate to collect data during the event.

Information gained from PSDA enables the NWS to increase the knowledge of extreme events, learn how to better use existing equipment, improve NWS warning programs, and provide accurate storm damage information and EF-Scale/Saffir-Simpson Scale ratings to the news media and academia. During long-duration events, such as flooding, data acquisition and overflights may be valuable to both document the event and to enhance ongoing forecast services.

For the purposes of this instruction, PSDA applies NWS activities that are a subset of the interagency PSDA effort coordinated by the Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM). The level of detail, and the efforts and the processes described here, apply only to the NWS and its component offices.

2 Scope

The procedures outlined here apply only to NWS participation in the PSDA process, as described in the National Plan for Disaster Impact Assessments: Weather and Water Data. These procedures apply in all 50 states, the Commonwealth of Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, Republic of Marshall Islands, Federated States of Micronesia, Republic of Palau, and the Commonwealth of the Northern Mariana Islands. This section defines the role of the NWS and coordination procedures between the NWS and agencies participating in the acquisition of post-storm environmental data. This activity is one of many Federal missions undertaken in the response and recovery process that follows a significant hydrometeorological event. For example, the U.S. Geological Survey has primary responsibility for collecting post-storm hydrologic data (high water marks, discharge amounts, etc.)

3 Organizational Roles

3.1 Weather Forecast Offices

Local offices initiate a “first review” of a significant extreme hydrometeorological event. In a “first review,” the local Meteorologist in Charge (MIC), their designated representative, or the local Official in Charge (OIC) at OCONUS Weather Service Offices (WSO), goes to the site, surveys the damage, and obtains overflight capabilities through contacts with state or county police, National Guard, and other local resources. If they believe the situation is of national importance (e.g., a service assessment team may be fielded or the survey of the damage will have significant scientific interest), they may request their region to recommend the activation of an OFCM PSDA QRT (Quick Response Team). If emergency management personnel or media coverage indicates an extreme event (e.g., EF4 or EF5 tornado, catastrophic damage, or large

number of deaths) the MIC should notify region about possible activation of an OFCM PSDA QRT prior to completing a site survey.

Consideration for fielding an OFCM PSDA QRT includes:

1. tornado or wind damage possibly greater than EF3;
2. large number of deaths;
3. catastrophic damage;
4. profound coastal or inland flooding; or
5. scientific interest.

3.1.1 Determining Tornado EF-scale

After a tornado, there is considerable public and media interest in an assessment of the tornado's intensity including maximum wind speeds. WFOs, service assessment teams, and PSDA QRTs need to exercise caution in assigning intensity ratings until all information is received and analyzed. This is especially true when damage is extreme or a high number of casualties have occurred. To ensure the highest level of accuracy in the final EF-scale rating, the following process should be followed:

1. If a WFO observes tornado damage potentially greater than EF3 or is notified of extreme damage, the WFO may request a QRT through their regional headquarters;
2. Until a final EF-scale is determined, all references to the event will be characterized as "potentially greater than EF3;"
3. The regions maintain an active list of recognized wind damage experts willing to support a QRT. OCWWS helps coordinate this effort;
4. WFOs and PSDA QRTs may remotely consult wind damage experts (e.g. ask damage questions by sharing digital photographs) during their evaluation process;
5. Other NWS personnel not on the QRT list can be considered as wind damage experts and serve on a QRT, if they demonstrate extensive PSDA experience and are recommended as a national authority by their regional office; and
6. Regional headquarters personnel will contact one of the listed wind damage experts and provide them with logistical information about the affected WFO.

[Note: The Department of Commerce has regulations (15 C.F.R. Part 15, subpart B) governing testimony by employees at legal proceedings. These regulations generally prohibit NWS employees from appearing as witnesses in litigation not involving the United States, and require attorneys or their representatives to submit a written request for testimony in connection with potential or pending legal proceedings.]

3.1.2 EF-Scale Rating Assessment and Notification

1. Where no NWS service assessment or PSDA QRT is deployed, the WFO serving the affected area determines the EF-scale.
2. If a QRT is deployed, the MIC, with input from the QRT, and/or mutual aid NWS assessment teams, will determine the final rating for all suspected EF4 and EF5 tornadoes. The local MIC, or designee of the affected area, will provide the official EF-

Scale rating to the public.

3. Once a final EF-scale determination is made, all personnel will adhere to the rating.

3.1.3 Training and Resources in EF-Scale Determination

The NWS – Warning Decision Training Branch has developed training and resources available at <http://www.wdtb.noaa.gov/courses/EF-scale/index.html>. To receive credit for completing the EF-Scale Training, NOAA personnel are required to take two training modules through the [DoC E-learning LMS](#). Each region should conduct yearly refresher training on EF-scale wind determination. Relevant parts of the Warning Coordination Meteorologist Training Course at the NWSTC should be conducted by a wind engineer or someone recognized as an expert on EF-scale wind determination.

3.2 Regional Headquarters

Each region will ensure timely notification of significant hydrometeorological events to OCWWS and recommend whether damage surveys can be conducted by the local office, or whether this should be elevated to the national OFCM PSDA process. The region(s) coordinate with the impacted WFO(s) to ensure NWS personnel, supporting PSDA requirements, are dispatched to the disaster area(s), maintain close contact with the WFO, and assist in coordinating with local and state officials in gaining access to the disaster area(s).

3.3 Office of Climate, Water, and Weather Services (OCWWS)

OCWWS maintains an NWS representative to the OFCM’s Working Group for Disaster Impact Assessments and Plans: Weather and Water Data and contributes to the *National Plan for Disaster Impact Assessments: Weather and Water Data*. OCWWS coordinates with the OFCM on DOD- USAF Civil Air Patrol (CAP) overflight support. This includes the DOD-DOC Umbrella Agreement, Annual Agreements and the CAP request forms and protocol. During a significant hydrometeorological event, OCWWS can provide the affected region(s) and National Centers for Environmental Prediction (NCEP) Service Center(s) with logistical support for a CAP support request and/or a PSDA QRT. The composition of the QRT will be determined by the regions in collaboration with OCWWS and NCEP. NWS funds activities according to procedures defined in the National Plan for Disaster Impact Assessments: Weather and Water Data.

3.4 Storm Prediction Center

The Storm Prediction Center may provide a heads-up message to wind damage experts in the days leading up to an outbreak.

3.5 River Forecast Centers (RFCs)

RFCs may request an OFCM PSDA QRT through their regions. RFC requests typically focus on information about the current status of ongoing flooding, such as areas inundated and locations of levee failures, as well as on the significance of the event to their respective program.

3.6 Office of the Federal Coordinator for Meteorological Services & Supporting Research

The OFCM maintains the *National Plan for Disaster Impact Assessments: Weather and Water Data* (NPDIA) and coordinates interagency PSDA efforts. The OFCM maintains the NPDIA and the Memorandum of Understanding (MOU) with the Civil Air Patrol (appendix A). The

OFCM also processes Civil Air Patrol mission support requests submitted by the NWS or other Federal agencies. In the rare occasion that the Civil Air Patrol is not available, the Regions, with the assistance of OCWWS, may secure air support through the OMAO. The Working Group for Disaster Impact Assessments and Plans: Weather and Water Data is responsible for the creation of the NPDIA.

3.7 Civil Air Patrol

Upon request, Civil Air Patrol (CAP) provides mission support on a reimbursable basis. CAP support will be coordinated through their National Operations Center (NOC) and the OFCM. NWS has been granted authority to utilize CAP aircraft for aerial assessment flights. The NWS mission will fall under the following event types to be considered covered by this MOU:

1. Pre-storm environment (e.g., coastal assessment);
2. Post-storm damage assessment (e.g. hurricanes; severe convective outbreaks, including tornadoes, hail, and high winds; wildfires; tsunamis; river flooding; winter storms; volcanic eruptions); or
3. Monitoring of longer-term events (e.g., inland flooding, ice movement),

3.8 Office of Marine and Aviation Operations (OMAO)

OMAO is responsible for NOAA's fleet of aircraft and aviation operations, including the Aviation Safety requirements (e.g. training) for all on-duty NOAA employees. The NWS will conform to [NOAA OMAO's safety policy and procedures](#). NWS utilization of CAP was approved by OMAO (appendix B).

4 Deployment

The local MIC or designee should initiate post-storm data collection within 12 hours (or less) following notification of a significant hydrometeorological event. WFO personnel deployed for PSDA activities should take a completed DOC Form CD-29 Blanket (no cost order) Travel Order with them in the field. If needed, the MIC or designee should identify a source for overflight support to PSDA activities as soon as possible.

4.1 Civil Air Patrol Overflight Support

Once the need for an overflight is determined, request CAP support as soon as possible. The current *NWS Procedures for utilizing Civil Air Patrol (CAP)*, and templates for the *NWS form for requesting Civil Air Patrol (CAP) overflight support* and the *NWS mission report form after utilizing Civil Air Patrol (CAP)* are maintained on the ["PSDA Procedures" section of the OCWWS intranet site](#). These procedures are maintained here to protect the confidentiality of the contacts. If CAP is not utilized for overflight support, the only other option is to coordinate an approved flight through the OMAO.

4.2 Other Options for Overflight Support

If the MIC or designee determines that CAP is not a viable option for overflight support, the only options available are determined by [OMAO's Aviation Safety Program policy](#).

1. Use of non-NOAA aircraft, follow OMAO's procedures, including application forms and contact information, on their web site:
<http://www.oma.noaa.gov/aviationsafety/nonnoaa.html>.

2. For use of NOAA aircraft in support of NWS operations, follow OMAO's procedures, including the application form and contact information, on their web site at: <http://www.oma.noaa.gov/fleettimereq.html>.

5 Reporting and Documentation Process

Personnel representing the NWS portion of the OFCM PSDA QRT should create a report and analysis map as soon as possible after data collection to satisfy NWS requirements, and to provide input to service assessment reports. A preliminary report and mapped analysis is due to the NWS representative of the OFCM's Working Group for Disaster Impact Assessments and Plans: Weather and Water Data three weeks following the completion of the data/information collection. The final report, graphics and mapped analyses should be completed within 60 days of the original deployment. The contents of both preliminary and final reports are outlined in Sections 5.1 and 5.2.

5.1 NWS Report Content Outline

Each PSDA QRT report should include the following, as appropriate:

1. Text event description and its impact;
2. Key digital photographs that convey EF-scale determination and damage impacts;
3. Text event analysis; and
4. Text description of phenomena with graphical analysis to include:
 1. Tornadoes – Path length, path width, begin/ending date and time, and EF-scale;
 2. Hurricanes/Typhoons – Include the Saffir-Simpson scale, first and second eyewall maximum wind speed and direction, and isopleths of peak wind gusts; storm surge indicating the maximum surge height, and inundation areas.; and
 3. Flooding – Reaches of rivers affected, high water marks, levee failures.

5.2 Report Distribution

At the service assessment team leader's discretion, the PSDA QRT report may be attached to or integrated into the service assessment report. All reports will be posted on the OCWWS Web site at: <http://www.nws.noaa.gov/om/data/stormdata.html>. The NWS Working Group for Disaster Impact Assessments and Plans: Weather and Water Data representative will e-mail appropriate interests to notify them of the report's availability. Requests for certified copies of the PSDA QRT reports should be forwarded to the OCWWS National Warning Coordination Meteorologist.

APPENDIX A - DOC-DOD MOU regarding use of CAP

Memorandum of Understanding
Pursuant to the Economy Act
Through Which
The Office of the Federal Coordinator for Meteorological Services and Supporting Research
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
Will Agree to Purchase Aerial Support Services
From The Department of Defense

A. PARTIES AND PURPOSE

This Memorandum of Understanding (MOU) establishes an agreement between the Deputy Chief of Staff, Operations, Plans and Requirements (A3/5), Headquarters U.S. Air Force (USAF), U.S. Department of Defense (DOD) and the Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM), National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce (DOC), herein after referred to as the Parties, through which DOC will pay USAF to provide support under the Economy Act for the collection and delivery of perishable data surrounding significant meteorological events. It shall extend until September 30, 2011.

This MOU establishes that USAF/A3/5 is the Air Force office responsible for coordinating the services of the Civil Air Patrol when acting as the Air Force Auxiliary to provide aerial assessments/survey flights in support of pre- and/or post-storm scientific weather damage study operations to the OFCM. The Civil Air Patrol (CAP) is a federally chartered, private corporation that may act as an auxiliary of the Air Force when the Air Force assigns a non-combat program or mission to CAP. As required by statute, CAP may only act in its capacity as an auxiliary of the Air Force when performing missions under the provisions of this agreement. Thus, the term "CAP" as used in this MOU refers to the Civil Air Patrol when tasked in accordance with AFI 10-2701 to perform Air Force assigned missions (AFAM).

This MOU does not constitute an actual Economy Act order and does not obligate funds. Instead, the parties agree to enter into an annual funding agreement each fiscal year, which will obligate an estimated amount for the year. This annual agreement may be amended if further funds are required, to transfer additional funds, subject to the availability of funds. Each such agreement shall be supported by a Statement of Determination and Finding, required under Federal Acquisition Regulation paragraph 17.503, signed by a NOAA contracting officer.

The Air Force may, but is not required, to append a Military Interdepartmental Purchase Request (MIPR) to the MOU that reflects the same transaction. Such MIPR shall be incorporated into the annual agreement by reference, and the agreement shall be incorporated into the MIPR by reference. The parties shall ensure that there are no conflicts between the annual agreement and any MIPR that may be signed.

APPENDIX B - OMAO approval letter for NWS use of CAP



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
OFFICE OF MARINE AND AVIATION OPERATIONS
Silver Spring, Maryland 20910

AUG 13 2007

MEMORANDUM FOR: Mary Glackin
Acting Assistant Administrator
NOAA National Weather Service

FROM: *Samuel P. De Bow, Jr.*
Rear Admiral Samuel P. De Bow, Jr., NOAA
Director, NOAA Commissioned Officer Corps and
NOAA Marine and Aviation Operations

SUBJECT: Civil Air Patrol Exemption

NMAO has reviewed the attached Exemption Request from NOAA, National Weather Service to use the U.S. Air Force Auxiliary Civil Air Patrol (CAP) to provide aerial assessments and survey flights in support of pre- and/or post storm scientific weather damage study operations. When the initial request was made in May 2005, certain deficiencies were noted. In the attached memo dated 24 May 2005, I outlined the standards which should be incorporated into the MOU to correct the deficiencies. On June 8, 2007 you notified OMAO that the MOU was revised to incorporate NOAA operational standards.

The revised MOUs have been reviewed for compliance and reconsideration of the CAP exemption request. The necessary NOAA operational standards correcting the noted deficiencies have been addressed and incorporated into the terms and conditions of the MOU between Department of Commerce, NOAA, Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM), Office of Air and Space Operations (AS), U.S. Air Force (USAF), and the U.S. Department of Defense (DOD).

An exemption is granted to allow NWS personnel to fly on CAP aircraft operated in accordance with the terms and conditions specified in these MOUs signed and dated May 2007, and in accordance with the NOAA Aviation Safety Policy.

Attachments

cc: Jim Hoke
Bob McLeod
Chris Maier
Jim Kelley
Terry Brisbin
Hugh Schratwieser
Jim Harrison
Mary Cairns
Vickie Nadolski

