

CHAPTER 2

AIRCRAFT RECONNAISSANCE

2.1 General. All Department of Commerce (DOC) winter storm reconnaissance needs will be requested and provided in accordance with the procedures of this chapter. As currently defined, the winter storm season runs from 1 November through 15 April. The DOC has identified a requirement for, and the Department of Defense (DOD) maintains aircraft to support up to two operational weather reconnaissance sorties per day in the Atlantic. When aircraft are deployed to the Pacific, up to two additional operational sorties for the Pacific theater may be requested, resources permitting. In times of national emergency or war, some or all DOD reconnaissance resources may not be available to fulfill DOC needs.

2.2 Responsibilities.

2.2.1 DOD. The DOD, through the Air Force Reserve Command (AFRC), is responsible for providing operational aircraft for winter storm synoptic tracks in the Atlantic Ocean, Gulf of Mexico, and North Pacific Ocean east of the international date line in response to DOC needs. In order to respond to DOC Pacific Winter Storm requirements, the 53rd Weather Reconnaissance Squadron (53 WRS) can deploy to either Elmendorf AFB, Alaska, or Hickam AFB, Hawaii, during the January and February time frame. The DOC will pre-coordinate with AFRC/53 WRS to determine the amount of required deployed time prior to the winter storm season.

The Global Decision Support System (GDSS) JCS Priority Code for tasked, operational weather reconnaissance is **1A3** (IAW DOD Regulation 4500.9-R and Joint Publications 4-01 and 4-04). The Force Activity Designator (FAD)/Urgency of Need Designator (UND) Supply Priority Designator Determination code is **IIA2** (IAW Joint Publication 4-01 and Air Force Manual 23-110, Volume 2, Part 13, Attachment 3A-2.)

2.2.2 DOC. The DOC, through the NOAA Aircraft Operations Center (AOC), is responsible for aircraft operations that will be used in support of National Centers for Environmental Prediction *line offices* or as backup for 53 WRS aircraft reconnaissance for an East Coast storm or storm threat. Additionally, NOAA AOC aircraft missions may be flown on West Coast storms and storms of research interest as requested by the NOAA line offices. All such flights will be listed by the Chief, Aerial Reconnaissance Coordination, All Hurricanes (CARCAH) in the Winter Storm Plan of the Day (WSPOD) when provided to CARCAH by 1830 UTC.

2.2.3 DOT. The DOT is responsible for providing air traffic control services to aircraft when within airspace controlled by the FAA. This includes offshore oceanic airspace. Detailed procedures for the expeditious handling of winter storm reconnaissance aircraft are outlined in paragraph 2.5, Reconnaissance Flights.

2.3 Operational Control of Aircraft. Operational control of aircraft flying winter storm reconnaissance missions will remain with the operating agencies of DOC or DOD, as appropriate.

2.4 Reconnaissance Planning and Flight Notification.

2.4.1 Requirements. NCEP/HPC will forward mission requirements to CARCAH for tasking in the WSPOD within the responsibilities stated above *for all East Coast/Atlantic missions. For West Coast/Pacific reconnaissance missions, NCEP/HPC will provide the NCEP/NCEP Central Operations (NCEP/NCO) Senior Duty Meteorologist (SDM) with forecast guidance, highlighting areas of concern over the contiguous U.S. which may be better forecast with additional data. The NCEP/NCO SDM will then determine whether or not a flight would be beneficial to NCEP operations and forward West Coast/Pacific mission requirements to CARCAH for tasking in the WSPOD within the responsibilities stated above.*

Both the NCEP/HPC and NCEP/NCO SDM will be responsible for requesting all reconnaissance flights and will provide information as specified in paragraph 2.4.5. NCEP/HPC will also forward NWS mission requirements for the next 24-hour period (1100 UTC to 1100 UTC) and an outlook for the succeeding 24 hours to CARCAH not later than 1530 UTC each day for East Coast requirements, while the NCEP/NCO SDM will forward NWS mission requirements for next day and succeeding day by 1830 UTC for West Coast requirements. CARCAH will pass all tasking, amendments, and cancellations to the flying units.

2.4.2 Change to Requirements. Changes to mission requirements will be accepted by CARCAH based on the following guidelines:

- Early departures will not be requested.
- When notification is received more than 2^{1/2} hours prior to scheduled aircraft departure:
 - Changes to tracks normally will be limited to substitution of one track for another.
 - Departure delays of up to 6 hours will be acceptable in accordance with *HQ AMC C-130J Concept of Operations, Annex C, paragraph 3.4.4.2.*
 - Delays affecting missions operating under Altitude Reservation (ALTRV) procedures may cause cancellation of the ALTRV in accordance with “AVANA” procedures, FAA Order 7610.4, Special Military Operations.
 - When notification is received more than 4 hours prior to scheduled aircraft departure time, departure delay requests will be evaluated in accordance with appropriate flight management directives.

2.4.3 Cancellation of Requirements. Missions should be canceled prior to aircraft departure and as much in advance as possible to allow maximum resource conservation. Cancellation after departure may result in degradation of follow-on mission capability.

2.4.4 Satisfaction of Requirements.

2.4.4.1 Satisfied. Requirements are considered satisfied when an observation is or could have been taken (as in the case where aircraft are diverted from original track) at the specified location (control point) by the expiration time and a sufficient number of drops were accomplished to satisfy the customer's requirements.

2.4.4.2 Missed. Requirements are either satisfied as per paragraph 2.4.4.1 or they are considered missed.

2.4.4.3 Written Assessment. The requesting agency, NCEP, and/or an NWS WFO, may provide CARCAH a written evaluation (Figure 2-1) of the weather reconnaissance mission any time its timeliness and quality are outstanding or substandard. Requirements levied as "resources permitting" will not be assessed for timeliness. These assessments should be mailed *or emailed* to CARCAH at:

CARCAH
National Hurricane Center
11691 SW 17th Street
Miami, FL 33165-2149
ncep.tpc.carcah@noaa.gov

2.4.4.4 Reconnaissance Summaries. CARCAH will maintain seasonal reconnaissance summaries detailing missions actually flown to satisfy levied requirements.

2.4.5 Reconnaissance Winter Storm Plan of the Day (WSPOD).

2.4.5.1 Coordination. NCEP/HPC will coordinate with the appropriate National Weather Service (NWS) field offices as needed and provide WSPOD information (Figure 2-2) to CARCAH by 1530 UTC for East Coast requirements, *and the NCEP/NCO SDM will coordinate with the appropriate NWS field offices as needed and provide WSPOD information (Figure 2-2) to CARCAH by 1830 UTC for West Coast requirements.* Direct discussion in weather situations is also encouraged between the Navy and NCEP with respect to storms or storm threats. The East Coast Navy point of contact is the Naval Atlantic Meteorology and Oceanography Center (NAVLANTMETOCCEN) through their Norfolk Command Duty Officer. NCEP/HPC will provide the following data to CARCAH when applicable:

- Track number.
- Selected trackpoint (control point) and time the aircraft is required at the point.

(Note: On Atlantic tracks, the last required drop position will be the control point.)

- Dropsonde release points and special requirements.
- Expiration time of requirement (latest time at the control point when the mission requirement is regarded as satisfied).
- Succeeding day outlook (anticipated track, control point, control point time).

2.4.5.2 Preparation. Using requirements stated by NCEP/HPC *and/or* NCEP/NCO SDM, CARCAH will prepare the WSPOD daily between November 1 and March 31, and at other times during the year as required. CARCAH will coordinate with DOD and DOC to effect maximum useful data from available resources. Format for the WSPOD is shown in Figure 2-3. The 53 WRS and NOAA AOC flight operations planners will plan tasked missions to meet Control Point/Control Time criteria and will fly the route in the most efficient direction possible, *unless specified otherwise*. If a specific direction is desired (clockwise or counterclockwise), it should be indicated in the WSPOD; e.g., *Track 32 CW or Track 64 CCW*. Tasking agencies should not use the terminology “Reverse” indicated by an “R” when requesting a track.

2.4.5.3 Dissemination. The WSPOD will be made available in message form to all appropriate agencies, such as FAA, DOD, and NOAA, that provide support or control reconnaissance aircraft. The CARCAH will be responsible for disseminating the WSPOD as soon as possible after DOC requirements, including changes, are received. If there are no current day or succeeding-day reconnaissance requirements, a negative report, which covers the appropriate time frame, will be disseminated. Amendments will be disseminated as required. During the month of November, the WSPOD will be disseminated as a NOTE added to the Tropical Cyclone Plan of the Day (TCPOD). *Note: The WSPOD is disseminated under the header "MIAREPRPD" for AWIPS users and "NOUS42 KNHC" for N-TFS users. The WSPOD can be accessed via Internet at www.hurricanehunters.com/wx_data.htm and clicking on Plan of the Day or via the Tropical Prediction Center/National Hurricane Center home page at www.nhc.noaa.gov--click on aircraft reconnaissance and then on Plan of the Day.*

2.4.5.4 Responsiveness.

- Notification of reconnaissance requirements should be made early enough to allow 16 hours plus en route flying time to the control point.
- The succeeding day outlook portion of the WSPOD is designed to allow advance notification.
- When circumstances do not allow the appropriate notification lead time, the mission will be levied as "resources permitting."

DATE

TO: CARCAH

FROM:

SUBJECT: MISSION _____ EVALUATION
(MISSION IDENTIFIER)

I. PUBLISHED REQUIREMENTS

1. CONTROL POINT AND TIME _____
2. FLIGHT TRACK _____
3. EXPIRATION TIME of REQUIREMENT _____
4. MISCELLANEOUS (DROP PSNS, ALTITUDES, etc.) _____

II. RECONNAISSANCE MISSION PERFORMANCE

1. CONTROL PT TIME: _____ ON TIME _____ LATE _____ EARLY _____ MISSED
2. FLIGHT TRACK FLOWN: _____ COMPLETELY _____ PARTIALLY _____ OTHER
3. HORIZONTAL DATA COVERAGE: COMPLETE _____ TIMELY _____ ACCURATE
INCOMPLETE _____ UNTIMELY _____ INACCURATE
4. VERTICAL DATA COVERAGE: COMPLETE _____ TIMELY _____ ACCURATE
INCOMPLETE _____ UNTIMELY _____ INACCURATE

III. OVERALL MISSION EVALUATION

OUTSTANDING

UNSATISFACTORY ___ FOR: COMPLETENESS ___ ACCURACY ___ TIMELINESS
EQUIPMENT ___ PROCEDURES ___ OTHER

IV. REMARKS (BRIEF BUT SPECIFIC) _____

V. REPLY BY ENDORSEMENT ___ YES ___ NO

(Forecaster's Signature)

Figure 2-1. Sample mission evaluation form.

NWSOP Coordinated Request for Aircraft Reconnaissance

_____ 1. No flight is desired or previously requested flight is cancelled.

_____ 2. A flight is requested.

A. Track Number

B. Control point and control point time

C. Expiration time (at control point)

D. Specific instructions (such as dropsonde positions)

3. Succeeding day outlook.

_____ A. Negative

_____ B. Possible Track Number _____

Control point and time _____

4. Coordination (initials)

NCEP/HPC _____

53 WRS _____

AOC _____

CARCAH _____

INSTRUCTIONS: Date and Time _____. Fill in appropriate spaces as required. Pass all requests, changes, or cancellations to CARCAH immediately.

Figure 2-2. National Winter Storms Operations Plan Coordination Request.

FM: CARCAH, NATIONAL HURRICANE CENTER, MIAMI, FL

TO: (AFRC/NOAA APPROVED ADDRESSEES)

SUBJECT: RECONNAISSANCE WINTER STORM PLAN OF THE DAY (WSPOD)
VALID _____ Z (MONTH) TO _____ Z (MONTH) (YEAR)
WSPOD NUMBER.....(YR) -

1. FLIGHT ONE

- A. _____ (TRACK/CONTROL POINT/TIME)
- B. _____ (MISSION IDENTIFIER)
- C. _____ (ESTIMATED DEPARTURE TIME)
- D. _____ (*DROPS REQUIRED/ADDED* POSITIONS)
- E. _____ (ALTITUDE/EXPIRATION TIME)
- F. _____ (REMARKS, if needed)

2. OUTLOOK FOR SUCCEEDING DAY

- A. _____ (ANTICIPATED TRACK/CONTROL POINT/TIME)
- B. _____ (REMARKS, if needed)

Figure 2-3. Winter Storm Plan of the Day (WSPOD) Format.

2.5 Reconnaissance Flights.

2.5.1 General Storm Tracks.

2.5.1.1 Mission Track/Flight Plan Names. The nomenclature for winter storms aircraft reconnaissance is “Winter Storm Reconnaissance Program,” and *the tracks are labeled Track 1-30 for tracks originating in Alaska, Track 31-60 for tracks originating in Hawaii, and Track 61-90 for Atlantic Ocean and Gulf of Mexico tracks. For example, a mission to be flown from Hawaii might be tasked as “Track 33.”* The tracks are published in appendices to this document; *they are also available from the OFCM, upon request from an authorized user.*

2.5.1.2 ATC Communications Backup. When 53 WRS or AOC flights are unable to contact ATC to request an en-route clearance, a clearance request may be relayed through the Chief, Aerial Reconnaissance Coordination, All Hurricanes (CARCAH) or the 53 WRS Mission Commander if the aircraft has the capability to communicate digitally through the satellite communications relay. This communications relay may only be used to preclude an emergency or safety-related situation. (See ATC Clearance procedures letter, Appendix C.)

2.5.1.3 Airborne Diversions. Within operational limitations and with prior FAA Air Route Traffic Control Center (ARTCC) approval, airborne diversions deemed advisable by the airborne meteorologist may be made from these tracks.

2.5.1.4 Permanent Changes to Tracks. Permanent changes to winter storm reconnaissance tracks must be coordinated with DOD, FAA, and DOC at least 30 days in advance of the implementation date.

2.5.2 Flight Plans. Flight plans for reconnaissance flights will be filed with the FAA as soon as practicable before departure time.

2.5.2.1 Prior Coordination. The 53 WRS Mission Commander or the AOC Operations Division, as appropriate, will contact the FAA Central Altitude Reservation Function (CARF) at the Air Traffic Control System Command Center (ATCSCC) and, if appropriate, submit an Altitude Reservation Approval Request (ALTRV APREQ) at least 12 hours prior to an NWSOP mission. Individual exceptions may be made to the 12-hour requirement on a case-by-case basis through coordination between the 53 WRS, AOC, and CARF. Include the following information in the APREQ (see sample APREQ, Appendix D):

- Mission call-sign.
- Track name/identifier.
- Estimated time over start ALTRV point.
- Location of dropsonde release points.
- Requested altitudes/flight levels.
- Any special requests or deviations from published routes.

(**Note:** If the track to be flown is not a published storm track, the ALTRV APREQ shall be

submitted as far in advance as possible, in standard ALTRV format as specified in FAA Handbook 7610.4, Special Military Operations.)

2.5.2.1.1 The 53 WRS Mission Commander and the AOC Flight Operations Division will contact the National Operations Manager (NOM) at the ATCSCC as soon as possible prior to the NWSOP reconnaissance, surveillance, or research mission and provide the information specified in paragraph 2.5.2.1 (Prior Coordination) above. The ATCSCC will then coordinate this information with all FAA facilities impacted. In addition, the 53 WRS and/or AOC shall transmit via facsimile the information in Appendix E to the U.S. NOTAM office no later than 2 hours prior to departure or as soon as possible.

2.5.2.1.2 For Pacific Ocean NWSOP(WSRP-P) missions, 53 WRS or AOC officials may, upon receipt of tasking, coordinate directly with the affected ARTCC. An ALTRV APREQ may be submitted to CARF if the 53 WRS Mission Commander or the AOC Flight Operations Division deem it appropriate to increase the effectiveness of the flight planning process. When submitting an ALTRV APREQ, the procedures in paragraph 2.5.2.1 will be followed.

2.5.2.1.3 CARF will process the ALTRV APREQ and coordinate it with the impacted ATC facilities. The 53 WRS and AOC Project Officers shall coordinate with the agencies specified in FAA Order 7610.4 , Special Military Operations, Chapter 3, Section 5, Originator Responsibilities.

2.5.2.1.4 Tracks flown in support of the NWSOP shall be defined in appendices to the plan. Changes, additions, and deletions to these tracks shall be coordinated between the 53 WRS, AOC , NOAA, and the FAA. These tracks shall be reviewed annually, no later than 1 June.

2.5.2.1.5 The 53 WRS shall only use the call sign “Teal ##,” and AOC shall only use “NOAA ##.” ATC will provide TEAL and NOAA aircraft priority handling when specifically requested.

2.5.2.1.6 For NWSOP missions, 53 WRS crews may request one of five “discreet” Mode 3 Beacon Codes, as issued by the Department of Defense (DOD) Code Manager.

2.5.3 Flight Levels. *Tracks are planned and flown at the highest altitude feasible.* When operating under an Instrument Flight Regulation (IFR) flight plan, reconnaissance aircraft will fly only at Air Traffic Control (ATC) assigned altitudes and will accept altitude changes as directed by ATC.

2.5.4 Dropsonde Releases/Sensor Activations. During NWSOP missions, when in other than Class G airspace, dropsonde instrument releases from FL 190 or higher and sensor activation shall be coordinated with the appropriate ATC by advising of a pending drop or sensor activation at least 10 minutes prior to the event when in direct radio contact with ATC. When contact with ATC is via Aeronautical Radio, Incorporated (ARINC), event coordination shall be included with the

position report prior to the point where the action will take place, unless all instrument release points have been previously relayed to the affected ATC center(s). EXAMPLE: "TEAL 63, SLATN at 1215, FL310, estimating FLANN at 1250. CHAMP next, Weather instrument release at FLANN."

2.5.4.1 Advisory Broadcasts. During NWSOP missions, commencing 5 minutes prior to release of dropsondes from FL190 or higher, the aircraft commander will broadcast in the blind on 121.5 MHZ and 243.0 MHZ to advise any traffic in the area of the pending drop.

2.5.4.2 Aircraft Commander Responsibilities. Aircraft commanders are the sole responsible party for all dropsonde releases or sensor activations. They are also responsible for determining the content and duration of a broadcast, concerning a dropsonde release or sensor activation.

2.5.5 Air Traffic Control (ATC).

2.5.5.1 ATC Priority. If mission requirements dictate, crews may specifically request "Priority Handling" from ATC in accordance with FAA Order 7110.65, Air Traffic Control, paragraph 2-1-4.1. (See ATC Clearance Letter, Appendix C).

2.5.5.2 ATC Separation. The FAA will provide ATC services and separation from nonparticipating aircraft flying on instrument flight rules (IFR) to the 53 WRS and AOC aircraft operating in other than Class G airspace. Aircraft not flying on instrument flight rules may be operating near the storm environment; therefore, adherence to ATC clearances is mandatory for safety purposes.

2.5.5.2.1 It is the responsibility of the aircraft commander to remain clear of obstacles and nonparticipating aircraft when operating in Class G airspace.

2.5.5.2.2 The 53 WRS and AOC are responsible for ensuring that air traffic clearances and messages are relayed to/from the FAA in an accurate manner when those relays are initiated by the 53 WRS or AOC and are routed by some other means other than ARINC.

2.5.5.3 Assigned Altitudes. When storm aircraft cannot maintain assigned altitudes due to turbulence, ATC should be advised. Normal vertical separation of 1000 feet at flight level (FL) 290 and below and 2000 feet above FL 290 will be provided by ATC to aircraft operating in the storm area. Unless otherwise coordinated with ATC, the altitudes between storm-mission aircraft may be used by ATC for nonparticipating aircraft.

2.5.5.4 Military Clearance. For the east coast storms, the U.S. Navy through Commander in Chief, Atlantic Fleet Oceanic Aircraft Coordinator (CINCLANTFLT OAC) will review the WSPOD for each proposed flight to determine if clearance into a particular area will be required. Each mission will need to be coordinated with the regional controlling agencies for each warning area. The reconnaissance unit flying the mission will contact the appropriate clearance agencies prior to entry into any restricted airspace.

2.5.5.5 Coordination of Non-Standard Procedures. Any procedure desired by storm-mission commanders that is outside the above parameters must be coordinated with the appropriate ATC center.

2.5.6 Data Requirements. Data will be coded and transmitted in standard reconnaissance code (RECCO) for flight level observations (Appendix J) or World Meteorological Organization upper-level pressure, temperature, humidity, and wind report from a dropsonde released by carrier balloons or aircraft (WMO TEMP DROP) format for dropsonde soundings (Appendix K). *The accuracy requirements for elements of the vertical sounding are as follows:*

- *Pressure: within 2 hPa.*
- *Temperature: within 1°C.*
- *Dew-point temperature:*
 - From -20°C to +40°C: within 1°C.*
 - Less than -20°C: within 3°C.*
- *Wind direction: within 10 deg.*
- *Wind speed: within 5 kt.*

2.5.7 Mission Identifiers. *All weather messages will include the five-character agency/aircraft indicator, followed by the CARCAH–assigned mission indicator, followed by the track number. The five-character CARCAH–assigned mission indicator will consist of the sequential number of the mission being flown in the given basin, followed by the letters “WS” to signify a winter storm mission, followed by a location identifier based on the mission departure point—A= Atlantic, E= Eastern Pacific, and C = Central Pacific. Due to computer requirements for processing the data, there is no space between “Track” and the number signifying the track being flown.*

--EXAMPLES--

<i>AF984 03WSA TRACK64</i>	<i>(USAF aircraft 984 on the 3rd winter storm mission in the Atlantic basin flying track 64)</i>
<i>NOAA9 11WSC TRACK35</i>	<i>(NOAA aircraft 49RF on the 11th winter storm mission in the Central Pacific basin flying track 35)</i>

