

CHAPTER 6

AIRSPACE OPERATIONS

6.1. Pre-mission Coordination.

6.1.1. Federal Aviation Administration (FAA) Coordination.

6.1.1.1. Responsibilities. The Air Traffic Control System Command Center (ATCSCC) and Air Route Traffic Control Centers (ARTCC) are responsible for coordination in support of the NHOP.

6.1.1.2. ATCSCC Procedures.

- Review the TCPOD available at <http://www.nhc.noaa.gov/reconlist.shtml>, by 1830 UTC. Normal notification of scheduled NHOP flights is accomplished through the TCPOD (1 June through 30 November).
- Activate the Hurricane Desk, when required.
- Review the Mission Coordination Sheet (see Appendix L). Prepare a public Flow Evaluation Area (FEA) based on the latitude/longitude points specified in the Mission Coordination sheet when a mission is scheduled to be flown. The FEA naming convention is the aircraft call sign. Modify the FEA when requested by the affected facilities. (The flying unit will fax their Mission Coordination Sheet to the ATCSCC and affected ARTCCs 1-2 hours prior to flight departure time).
- Coordinate with the impacted ARTCCs as required and designate a Primary ARTCC when the Operations Area includes multiple ARTCCs.
- In the event of an unscheduled mission that is not listed on the TCPOD, the flying unit will contact the ATCSCC. The ATCSCC will initiate a conference call with the unit and all affected ARTCCs.
- When requested, assist ARTCCs with traffic flow priorities if the hurricane reconnaissance flight will impact air traffic. The hurricane reconnaissance flight receives priority as specified in JO Order 7110.65.
- Coordinate with Air Traffic Services Cell (ATSC), as needed, when informed by an ARTCC of a disapproval of hurricane reconnaissance flight to enter a Special Use Airspace (SUA) or Special Activity Airspace (SAA).
- Conduct hurricane and customer teleconferences, as necessary.

6.1.1.3. ARTCC Procedures.

- Review the TCPOD at <http://www.nhc.noaa.gov/reconlist.shtml>, by 1830 UTC. Normal notification of scheduled NHOP flights is accomplished through the TCPOD (1 June through 30 November).
- Review the Mission Coordination Sheet (see Appendix L) - the flying unit will fax their Mission Coordination Sheet to the ATCSCC and affected ARTCCs 1-2 hours prior to flight departure time.
- Coordinate with all impacted Center and Terminal facilities within their area of responsibility.

- Coordinate with all impacted military facilities (e.g., FACSFAC) through the applicable Military Operation Desks within their area of operations and responsibility to ensure all offshore airspace (i.e., Warning Areas, SUA, SAA) that is activated by the military is protected for NHOP flights, when required. If SUA or SAA release is not approved, contact the ATCSCC.
- When requested, assign 53 WRS and NOAA aircraft the dedicated NORAD transponder code associated with their call sign, which is listed on the Mission Coordination Sheet.
- When designated by ATCSCC as the Primary ARTCC, responsibilities will include:
 - Coordinate with CARCAH and aircrew(s) on flight plan specifics, when necessary.
 - If the mission profile changes, coordinate with the ATCSCC for FEA modifications, and ensure affected ARTCCs are aware of the change.
 - Advise the ATCSCC and affected ARTCCs of any mission cancellation or delay information received from the flying unit.

6.1.2. Pre-Mission Coordination.

6.1.2.1. Flying Agencies (other than the 53 WRS or NOAA AOC) Pre-mission Coordination.

- NASA, NRL, NSF or any other agency planning research missions, including Unmanned Aircraft Systems (UAS), into or around the forecast or actual storm location will coordinate with affected ARTCCs and CARCAH as soon as possible prior to all flights.
- The flying unit will fax their Mission Coordination Sheet to the ATCSCC and affected ARTCCs 1-2 hours prior to flight departure time.
- Flights in support of the NHOP (conducted by the 53 WRS and NOAA AOC operations) are normally published in the TCPOD at <http://www.nhc.noaa.gov/reconlist.shtml> by 1830 UTC. Reference the TCPOD to assist in de-confliction efforts. Required operational reconnaissance missions flown by the 53 WRS and NOAA AOC will be outlined in the TCPOD. Flights other than 53 WRS and NOAA AOC tasked operational missions should be listed in the TCPOD remarks section.
- CARCAH coordination is normally restricted to what is required between the 53 WRS, NOAA AOC, NHC, and ARTCCs in support of operational tasking. Due to staffing constraints, the CARCAH unit's operating hours vary and often depend on the requirements levied. Its ability to coordinate non-operational missions is extremely limited. Research missions can only be considered on a non-interference basis when flown concurrently with a tasked mission or when data collected will be directly beneficial to NHC in real time. However, CARCAH will need to have advance notification of *all* planned research missions in areas where operations are being conducted, including proposed flight tracks, aircraft altitudes, and locations where expendables may be deployed; this information can be e-mailed to ncep.nhc.carcah@noaa.gov or faxed to 305-553-1901 (please indicate "CARCAH" on faxed materials).
- IAW JO 7110.65, only 53 WRS and NOAA aircraft performing tasked

operational missions will have priority for access to the operations area.

- **Dedicated NORAD Mode 3/A Transponder Codes.** N/A.

6.1.2.2. CARCAH Pre-mission Coordination. CARCAH's pre-mission coordination procedures include:

- Publishing the TCPOD when required.
- Coordinating with the affected ARTCCs and ATCSCC as required.
- For unscheduled missions, notifying the flying units and ATCSCC.
- Notifying 53 WRS and NOAA AOC flight crews when other research missions will be airborne in the operations area at the same time.

6.1.2.3. 53 WRS and NOAA AOC Pre-mission Coordination.

- **Mission Coordination Sheet.** As soon as possible, but no later than 1-2 hours prior to departure time, fax the Mission Coordination Sheet (see Appendix L) to the ATCSCC and affected ARTCCs (see Appendix I).
- **Missions Not Listed in the TCPOD.** In the event of an unscheduled mission, the flying unit will contact the ATCSCC. The ATCSCC will initiate a conference call with the unit and all affected ARTCCs.
- **Dedicated NORAD Mode 3/A Transponder Codes.** 53 WRS and NOAA NHOP missions have dedicated NORAD mode 3/A transponder codes. These codes are only applicable in FAA controlled airspace in the Gulf of Mexico and Atlantic. They are issued by the 601st Air & Space Operations Center, Airspace Management Team (DSN 523-5837 or COM 850-283-5837) and must be renewed on an annual basis. For season 2012 the codes are as follows:
 - TEAL 70–79: 7552-57 & 7560-63 (expire 31 Dec 2012)
 - NOAA 42, 43, and 49: 5050-5054

6.1.2.4. Mission Coordination Sheet. All missions must provide a Mission Coordination Sheet to the affected ARTCCs and the ATCSCC 1-2 hours prior to departure time (see Appendix L).

6.1.2.5. Aircraft Call Signs.

- 53 WRS: "TEAL 70 through 79" (WC-130J aircraft)
- NOAA AOC: "NOAA 42 and 43" (WP-3D aircraft); "NOAA 49" (G-IV aircraft)
- NASA: "NASA817" (DC-8 aircraft); "NASA 871 & 872" (Global Hawk UAS)
- NRL: "WARLOCK 587" (NP-3 aircraft)
- NSF/NCAR: "N677F" (G-V aircraft)

6.1.2.6. Flight Plan Filing Procedures. Flight plans must be filed with the FAA as soon as practicable before departure time. For flights into all U.S. FIRs, include delay time in the Route portion of the International Flight Plan - this will keep the IFR flight plan active throughout operations in the delay area while in FAA controlled airspace. Due to limited information that is displayed on FAA controller screens, it is recommended that only the following remarks be included in the "Other Information" block:

- “EET” to FIR boundaries,
- Navigation Performance (ex. RNP-10); and
- “RMK/MDCN” diplomatic clearance information.

6.1.2.7. Mission Cancellation. When a mission is cancelled or delayed, the unit flying the mission must notify the Primary ARTCC as soon as possible.

6.1.3. Annual Liaison Meetings.

6.1.3.1. At a minimum, an annual liaison meeting will be conducted between the following participants: 53 WRS, NOAA AOC, the ATCSCC and affected ARTCCs. This meeting will review the previous season’s operations, any proposed changes to the current NHOP, FAA liaison flights, and ICAO operations. This meeting will take place annually, normally in conjunction with the OFCM-sponsored Interdepartmental Hurricane Conference (IHC).

6.1.3.2. Annual ARTCC and ATCSCC visits and briefings by 53 WRS and NOAA AOC aircrews and FAA Military Liaisons are encouraged. These joint visits emphasize the unique challenges and non-standard operational procedures, communication and coordination required to successfully and safely accomplish the Hurricane Hunter mission.

6.1.4. FAA Familiarization Flights. FAA Familiarization Flights on USAF (IAW AFI 11-401 and DOD 4515.13-R) and NOAA Hurricane Hunter aircraft are authorized and encouraged. These flights are important to ensure FAA controllers have a better understanding of Hurricane Hunter operations and how these missions play a vital role to inform emergency planners and coastal citizens on the storm’s track and intensity as they approach the U.S. coastline.

6.2. Mission Execution.

Note: No procedure in the NHOP precludes Aircraft Commanders from exercising their authority in the interest of safety or during an aircraft emergency.

6.2.1. NHOP Missions (At or Below FL150). NOAA and 53 WRS NHOP (and NWSOP) missions have dedicated NORAD mode 3/A transponder codes associated with call signs TEAL 70–79 (7552-57 & 7560-63) (expire 31 Dec 2012) and NOAA 42, 43, and 49 (5050-5054), respectively. Both NOAA and 53 WRS aircrews will request to be assigned their dedicated mode 3/A code on the ground or after airborne.

6.2.1.1. Priority Handling. When requested by the aircrew, ATC will provide TEAL and NOAA aircraft priority handling. The aircraft commander will only ask for priority handling when necessary to accomplish the mission.

6.2.1.2. International Airspace. International Airspace is defined as the Airspace beyond a Sovereign State’s 12nm territorial seas limit. Beyond this limit ICAO rules apply. In International Airspace, VFR flight is not allowed at night. In Class A Controlled Airspace, aircraft must operate using IFR procedures; ATC separation is provided between IFR aircraft. In Class E Controlled Airspace, both VFR and IFR operations are allowed; separation is

provided between IFR aircraft but not with VFR traffic; traffic information is provided to VFR traffic and about VFR traffic, as far as practical. In Class F and G Uncontrolled Airspace, both VFR and IFR operations are allowed. When operating in uncontrolled airspace, flight information service, which includes known traffic information, is provided and the pilot is responsible for arranging the flight to avoid other traffic (ICAO, Annex 11).

6.2.1.3. IFR Procedures and Clearance. Aircrews will conduct flight operations to the maximum extent possible utilizing IFR procedures and will not normally conduct flight operations under the provisions of "Due Regard." While entering, within, or exiting the Operational Delay Area, if the aircraft commander determines that mission, weather, and/or safety requirements dictate, then they may exercise their operational prerogative and declare "Due Regard." When conducting "Due Regard" operations, aircrews will comply with as many IFR procedures as possible. Before declaring "Due Regard," the aircrew will notify ATC of their intentions – ATC will retain flight plan information. If an aircrew is unable to notify ATC beforehand, they will inform them when able. As soon as practical, the aircrew will notify ATC that they are terminating "Due Regard" operations and request resumption of IFR services. These procedures do not preclude aircraft commanders from exercising their authority in the interest of safety or during an aircraft emergency.

6.2.1.4. Altitude Assignment and Aircraft Separation. Authorized aircraft may request to operate at a single altitude or within a block. Multiple aircraft may operate in the same vicinity but at different altitudes at the same time. In order to promote mission effectiveness, aircrews from NOAA AOC and the 53 WRS will file and request the minimum block altitudes to meet their mission requirements (i.e., do not request the block at or below FL150 if the mission can be accomplished in the block FL090-110).

- **Operations in Controlled Airspace.** While IFR, ATC will assign an altitude or a block of altitudes and provide standard vertical separation between all IFR aircraft and will provide VFR traffic advisories as far as practical. Prior to departing controlled airspace, advise ATC and state your intentions; ATC will not cancel your IFR flight plan.
- **Operations in Uncontrolled Airspace (Class F and G).** Per JO 7110.65, ATC is not authorized to assign altitudes in nor provide separation between aircraft in uncontrolled airspace. While in uncontrolled airspace, the Aircraft Commander is the IFR clearance authority. In addition, aircrews are responsible for maintaining their own separation from the surface of the sea, obstacles, and oil platforms while operating below the Minimum IFR Altitude (MIA). In Class F and G Uncontrolled Airspace, both VFR and IFR operations are allowed. When operating in uncontrolled airspace, flight information service, which includes known traffic information, is provided and the pilot is responsible for arranging the flight to avoid other traffic (ICAO, Annex 11).

[Note: When an aircraft declares "Due Regard," ATC will not be responsible for that aircraft's separation from other aircraft, but the Operational Delay Area will remain active.]

6.2.1.5. Operational Delay Area. The Operational Delay Area is ATC Assigned Airspace (ATCAA) and is a cylinder of airspace *typically* defined by a block altitude at or below FL150, with a radius of 150 nm around a set of center coordinates. The operations

area may include several different classifications of airspace and environments: controlled, uncontrolled, radar contact, non-radar contact, oceanic, international airspace, domestic airspace, and/or terminal areas and may encompass several controlling agencies. This area excludes the terminal areas (Class D Airspace) depicted on the NHOP Operational Maps (see Appendix K), and any other airspace within 50 NM of the CONUS shoreline until radio contact is established with ATC. If not in radar contact within the area as shown on the NHOP Operational Maps (see Appendix K), the aircrew will make position reports in relation to designated navigational aids as requested by ATC along the coast. Any changes to the operating area will be coordinated with the primary ARTCC.

6.2.1.6. ATC Communications. The aircrew normally maintains ATC communications with only the primary ARTCC. When operating within an ATC Terminal Area depicted on the NHOP Operational Maps (see Appendix K), the aircrews will be in contact with both the primary ARTCC and the Terminal Facility if it is operating. Normally, VHF, UHF or HF radios will be used for communications with ATC, when within range. In the storm environment, HF exhibits poor propagation tendencies. When HF is unusable, satellite communications (SATCOM) may be used as a back-up (see Appendix I). IFR aircraft flying in domestic or international airspace are required to maintain continuous two-way communications with the ATC/FIR even while flying in Uncontrolled Airspace (Class F or G). Monitor the active ATC radio frequency for any traffic transiting the Area.

[Note: While in international airspace, aircrews will make periodic “Operations Normal” calls to the primary ARTCC if not in radar contact and no transmissions have been made within the previous 20–40 minutes (reference: ICAO 4444/RAC 501/12 VI, 2.1).]

6.2.1.7. Backup ARTCC Communications Procedures. CARCAH maintains contact with participating aircraft at all times and is allowed to relay ATC clearances through any means available. CARCAH is responsible for ensuring that ATC clearances, clearance requests and messages are relayed in an accurate manner. Only use this method when the aircraft or ATC is unable to contact each other.

6.2.1.8. Participating Aircraft/Aircrew Procedures. A “Participating Aircraft/Aircrew” is defined as an Aircraft, Remote Piloted Aircraft (RPA) or Unmanned Aerial System (UAS) listed in the TCPOD or conducting a tasked operational mission. CARCAH will advise aircrews when other participating aircraft, RPA or UAS will be in the operations area and brief call signs and mission information.

The following actions will be taken by the aircrews to de-conflict operations and enhance situational awareness with other participating aircraft while in the Operational Delay Area:

- Set 29.92 (inches Hg) in at least one pressure altimeter per aircraft.
- Contact (Primary: VHF 123.05 MHZ, Secondary: UHF 304.8 MHZ, Back-up: HF 4701 KHz) the other participating aircraft and confirm (as a minimum) the pressure altitude, location relative to a center point position, true heading, and operating Altitude or Block Altitude. Continue to monitor the frequency during the duration of the flight.
- Even if aircraft are cleared by ATC to operate in blocks altitudes that are 1,000 feet apart (i.e., TEAL 70 is Block 090-110 and NOAA 42 is Block 060-

080), aircrews will not fly within 2,000 feet (vertical) if closer than 10NM (using Air-to-Air TACAN and/or TCAS) of other participating aircraft operating in the same area of interest without concurrence of the other participating aircraft. **Note:** If unable to maintain assigned altitude or block, immediately notify all participating aircraft and take actions to ensure sufficient vertical and/or lateral separation is maintained or attained as soon as practical.

- While in the Operational Delay Area use: “see and avoid” operations, operating in a different operational area sector (NW, NE, SW, SE), airplane-to-airplane communication position reports, Air-to-Air TACAN, TCAS, RADAR, GPS and situational displays/maps to maintain awareness of the other aircraft’s location.

6.2.1.9. Weather Dropwindsonde Instrument Release. The aircraft commander is the sole responsible party for all dropwindsonde releases or sensor activations. Aircraft commanders will ensure coordination with other participating aircraft prior to release or activation. (Examples of weather instruments are dropwindsondes and oceanographic profilers (OP)).

6.2.2. Buoy Deployment Mission. Regardless of the Designated Class of Airspace (A through G) the following rules apply:

6.2.2.1. Flight Plan. A normal IFR flight plan will be filed for this mission. The coordinates for some of the planned deployments may need to be changed while en route to adjust to the forecast track of the storm. The aircraft routing will not be altered by ATC because the buoys must exit the aircraft in a specified order and they cannot be rearranged in flight.

6.2.2.2. IFR Procedures and Clearance. It is preferred that these missions be filed and flown using IFR procedures in either controlled or uncontrolled airspace. However, with the concurrence of the aircraft commander, they may be flown VFR. If this change is made en route, ATC flight following and traffic advisories will be requested by the aircrew, and any changes to the route of flight must be relayed to ATC by the aircrew.

6.2.2.3. Altitude. Aircrews are responsible for maintaining their own clearance from the surface of the sea, obstacles, and oil platforms while operating below the Minimum IFR Altitude (MIA).

6.2.2.4. Communications. See paragraphs 6.2.1.6 – 6.2.1.7.

6.2.2.5. Participating Military Aircraft (does not apply to NOAA aircraft). If there are two or more TEAL aircraft deploying buoys in the same area at the same time, they can accept MARSA operations with each other and must relay that to ATC. This will not cancel their IFR clearance but will allow ATC to no longer be responsible for providing aircraft separation between TEAL aircraft. The TEAL aircraft must be in communication with each other and have operating TCAS on at least one of the aircraft. At least one of these aircraft will have SATCOM data relay capability on board.

6.2.2.6. Priority Handling. ATC will provide aircraft priority handling to and

from the deployment area only when specifically requested by the aircrew. The aircraft commander will only ask for priority handling when necessary to accomplish the mission.

6.2.3. High Altitude Synoptic Track Missions.

6.2.3.1. Flight Plan. A normal IFR flight plan will be filed for this mission. An Altitude Reservation (ALTRV) request is not required.

6.2.3.2. NOTAM. A NOTAM will be submitted by the 53 WRS, NOAA AOC, NASA, NSF, or NRL for any High Altitude Synoptic Track mission that will release weather instruments. The NOTAM must contain individual coordinates or an area defined by coordinates for all releases. Submit NOTAM request per Appendix D procedures.

6.2.3.3. Priority Handling. ATC must provide priority handling, for TEAL and NOAA mission aircraft during Synoptic Track Missions only when specifically requested by the aircrew.

6.2.3.4. Release of Dropsondes. During NHOP missions and when operationally feasible, dropsonde instrument releases from FL 190 or higher and sensor activation must be coordinated with the appropriate ARTCC/CERAP (Combined Center/RAPCON) by advising of a pending drop or sensor activation about 10 minutes prior to the event when in direct radio contact with ATC. When ATC has radar contact with the aircraft, they will notify the aircrew of any known traffic below them that might be affected. The aircraft commander is solely responsible for release of the instrument after clearing the area by all means available.

- When contact with ATC is via ARINC, event coordination must 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). Contact between participating aircraft must be made using the frequencies listed in paragraph 6.2.1.8., second bullet.
- During NHOP missions, approximately five (5) minutes prior to release the aircrew will broadcast in the blind on radio frequencies 121.5 MHZ and 243.0 MHZ to advise any traffic in the area of the impending drop. Pilots must not make these broadcasts if they will interfere with routine ATC communications within the vicinity of an ATC facility. The aircraft commander is responsible for determining the content and duration of a broadcast, concerning the release or sensor activation.