OPERATIONS

1. Available Aircraft and Deployment Locations

The NOAA WP-3D (P-3) (N42RF and N43RF) aircraft will be available with 1 flight crew each to support back-to-back missions during the 2023 Atlantic Hurricane season. N43RF will be available as early as 1 June and N42RF is expected to be available on 1 August. The Gulfstream IV-SP (G-IV) (N49RF) aircraft is expected to be available 1 June with two flight crews available for back-to-back missions. Operations for all aircraft will primarily base out of the NOAA/OMAO/Aircraft Operations Center (AOC) in Lakeland, FL with deployments to U.S. coastal locations in the western Gulf of Mexico for suitable Gulf storms, as well as other locations along the U.S. East Coast, as well as the U.S. Virgin Islands (St. Croix). International deployment sites include Aruba, Barbados, Bermuda, Sal Cabo Verde, Liberia Costa Rica, and La Paz Mexico. Occasionally, post-mission recovery may be accomplished elsewhere. APPENDIX D shows deployment locations and operating range rings (for 2 h on-station time) for the P-3s (Fig. D-1) and the G-IV (Fig. D-2).

2. Field Program Duration

The HFP-APHEX will be conducted from approximately 1 July through 31 October 2023.

3. Research Mission Operations

The decision and notification process for research-tasked missions is shown, in flow chart form, in APPENDIX B (Figs. B-1, B-2, and B-3). The decision and notification process for HRD participation in EMC-tasked operational missions will follow a similar flow chart. The names of those who receive primary notification at each decision or notification point are also indicated.

Research operations must consider that the aircraft are required to be placed in the National Hurricane Operations Plan (NHOP) of the Day (POD) 24 h before a mission. If operational requirements are accepted, the research aircraft must follow the operational constraints described.

The NOAA P-3s and G-IV, equipped as shown in INSTRUMENT DESCRIPTIONS, will be available for research missions on a non-interference basis with tasked operational missions from 1 June to 31 Oct 2023.

4. Field Operations

4.1 Scientific Leadership Responsibilities

The implementation of the Hurricane Field Program Plan (HFPP) is the responsibility of the [FIELD PROGRAM DIRECTOR (**Jason Dunion**)], who in turn reports directly to the [HRD DIRECTOR (**Frank Marks**) AND HRD DEPUTY DIRECTOR (**Shirley Murillo**)]. In the event of deployment, the [FIELD PROGRAM DIRECTOR] may assign a ground team manager (e.g., [FIELD PROGRAM DEPUTY DIRECTOR (**Heather Holbach**) or FIELD PROGRAM SCIENCE DIRECTOR (**Rob Rogers**)] to assume overall responsibility for essential ground support logistics, site communications, and site personnel who are not actively engaged in flight. Designated Principal Investigators (PIs) are responsible to the [FIELD PROGRAM DIRECTOR], and/or [FIELD PROGRAM DEPUTY DIRECTOR or FIELD PROGRAM SCIENCE DIRECTOR], for the preparation and execution of experiments and their accompanying flight

patterns and modules. While in flight, [LEAD PROJECT SCIENTISTS] are in charge of the scientific aspects of the mission and ensure science goals of the mission are met. They communicate with the AOC flight crew (specifically, the Flight Director) regarding execution of the mission and the planned flight patterns/modules, and address and report issues regarding instrument status to the flight crew and [FIELD PROGRAM DIRECTOR]. The HRD SCIENCE CREW ensures all appropriate mission reports are completed and data downloaded off the aircraft.

4.2 Principal Duties of HRD Scientific Personnel

APPENDIX C describes the possible HRD SCIENCE CREW needed to conduct the experiments and their roles. Actual named assignments are adjusted on a case-by-case basis. Operations will include completion of detailed records by each member of the HRD SCIENCE CREW while on the aircraft or on the ground.

4.3 Communication of HFP Activities

All HFP activities are communicated to the public via the HRD web blog or social media. In addition, more detailed information on activities will be communicated internally to HRD. When field activities are occurring, an HRD conference call at 1300 UTC with APHEX participants and collaborators is possible, followed by an internal email. The internal email will include up-to-date information on the HRD SCIENCE CREW, hotel, storm and mission status, and schedules. The blog is our main forum where we will provide field operation status, including deployment information of aircraft and personnel for operations outside Miami.

NHC will serve as the communications center for information and will provide interface between AOC, NHC, and CARCAH (Chief, Aerial Reconnaissance Coordinator, All Hurricanes). HRD SCIENCE CREW who have completed a flight will provide information to the [FIELD PROGRAM DIRECTOR], as required.

5. Operational Constraints

NOAA aircraft are routinely tasked by NHC and/or EMC through CARCAH to perform operational missions — these always take precedence over research missions. Research objectives can frequently be met, however, through piggybacking these operational missions. Occasionally, HRD may request, through NHC and CARCAH, slight modifications to the flight plan on operational missions. These requests must not deter from the basic requirements of the operational flight as determined by NHC and coordinated through CARCAH.

Hurricane research missions are routinely coordinated with hurricane reconnaissance operations. As each research mission is entered into the planned operation, a block of time is reserved for that mission and operational reconnaissance requirements are assigned. A mission, once assigned, *must be flown in the time period allotted and the tasked operational fixes met.* Flight departure times are critical. Information on delays to, or cancellations of, research flights must be relayed to CARCAH.