WG/HWSOR ACTION ITEM SUMMARY

(Current as of 7 Mar 2014)

ACTION ITEMS FOR 68TH IHC (2014)		
1	**Title**	**NHOP Change – Chapter 2: Responsibilities of Cooperating Federal Agencies**
	Submitter	Robert Falvey, JTWC
	Date Submitted	**16 Dec 2013**
	Discussion	For the eastern and central North Pacific, JTWC relies on NHC and CPHC for TC forecasts, including genesis potential. JTWC is required to provide DoD 24 hours notice of TC formation and accomplishes this via the Tropical Cyclone Formation Alert (TCFA) graphic and bulletin. In order to successfully provide this required lead-time, closer coordination between NHC and CPHC as 90-series "suspect" areas progress through the formation probabilities on the Tropical Weather Outlook (TWO) and Graphical Tropical Weather Outlook (GTWO) is needed.
	Recommendation	1. Add the following to the NHOP, Chapter 2, paragraph 2.2.2. Support to DOD, at the end of the sixth bullet which starts with "Eastern Pacific Ocean…": **The NHC will notify JTWC prior to the issuance of a Special Tropical Weather Outlook (TWO).** 2. Add the following to the NHOP, Chapter 2, paragraph 2.2.2. Support to DOD, at the end of the seventh bullet which starts with "Central Pacific Ocean…": **The CPHC will notify JTWC prior to the issuance of a Special Tropical Weather Outlook (TWO).** Incorporate changes into the 2014 NHOP.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: APPROVED & CLOSED** Approved proposed requirement for NHC and CPHC will notify JTWC of issuance of a Special TWO; OFCM will update NHOP to reflect the two paragraph changes indicated above.
2	**Title**	NHOP Change – Remove references to TCPOD being considered a Request for Assistance (RFA)
	Submitter	K Neal Snyder, AFRC/A3OO
	Date Submitted	18 Dec 2013
	Discussion	A Request for Assistance (RFA) is the means by which a federal agency requests assistance from another federal agency IAW the Stafford Act or the Economy Act. The current NHOP states that the CARCAH's TCPOD for weather reconnaissance "…will be considered the agency's request for assistance (RFA) to DoD." This language should be deleted from the NHOP for the following reasons: a. There is no DoD authority to treat the CARCAH's TCPOD as an RFA. b. Because weather reconnaissance is an assigned mission of the 53 WRS and is conducted using AFRC appropriations, a RFA is not required. c. Because the weather reconnaissance mission is not conducted in response to a national disaster, a Presidential declaration of emergency or National Special Security Event (NSSE) and does not support law enforcement activities, it is not a Defense Support of Civil Authorities (DSCA) mission as defined in AFI 10-801, Defense Support of Civil Authorities (DSCA). d. If weather reconnaissance were a DSCA mission for which support was requested IAW either the Stafford Act) or the Economy Act, DoDD 3025.18, Defense Support of Civil Authorities (DSCA) requires that the RFA be submitted through the DoD Executive Secretary and obligate funds for the requested support. This would delay deployment beyond the 16-hour launch window and require NOAA to obligate funds beyond its appropriations. e. Because the mission is funded using AFRC appropriations, it must be conducted under AFRC command authority to preclude a potential violation of the Purpose Act, 31 USC 1301, and/or the Anti-Deficiency Act, 31 USC 1341.
	Recommendation	Remove references to treating the CARCAH's TCPOD as a "Request for Assistance," specifically: a. Delete unnumbered bullet in para. 2.3. which reads, "Consider the Tropical Cyclone Plan of the Day (TCPOD) as a request for assistance (RFA) from NOAA." b. Delete the portion of the last sentence in para. 5.5.1.1. which reads, "...will be considered the agency's request for assistance (RFA) to DoD and…"; and

		c. Delete para. 5.5.3.1.1.1. which reads, "The coordinated TCPOD is the agency's RFA to DOD. Since DOD's support to NOAA is congressionally mandated and funded through the DOD Appropriations Act, the coordinated TCPOD is considered a validated and approved RFA."
	Action	Incorporate changes into the 2014 NHOP.
	3 Mar 2014	**WG/HWSOR Meeting Decisions: DEFERRED / OPEN** Representative not present due to winter storm and Wash DC gov't closure.
3	**Title**	**NOAA Item 13-39**: **Proposed Changes to the 2014 National Hurricane Operations Plan (NHOP)**
	Submitter	*Dr. James McFadden, A. Barry Damiano, Paul T. Flaherty, John R. Parrish (NOAA/AOC) and James Franklin (NOAA/NWS/NHC)*
	Date Submitted	Jan 6, 2014
	Discussion	The Aircraft Operations Center (AOC) is formally requesting a change to Figure 5.10 found on page 5-23 of the 2013 NHOP. The schematic on the next page is to replace the current image displaying the WMO message transmission routing from NOAA aircraft to the NWS Telecommunications Gateway. AOC is requesting this change since the ASDL system is no longer used. **Current Figure 5-10**

Recommendation

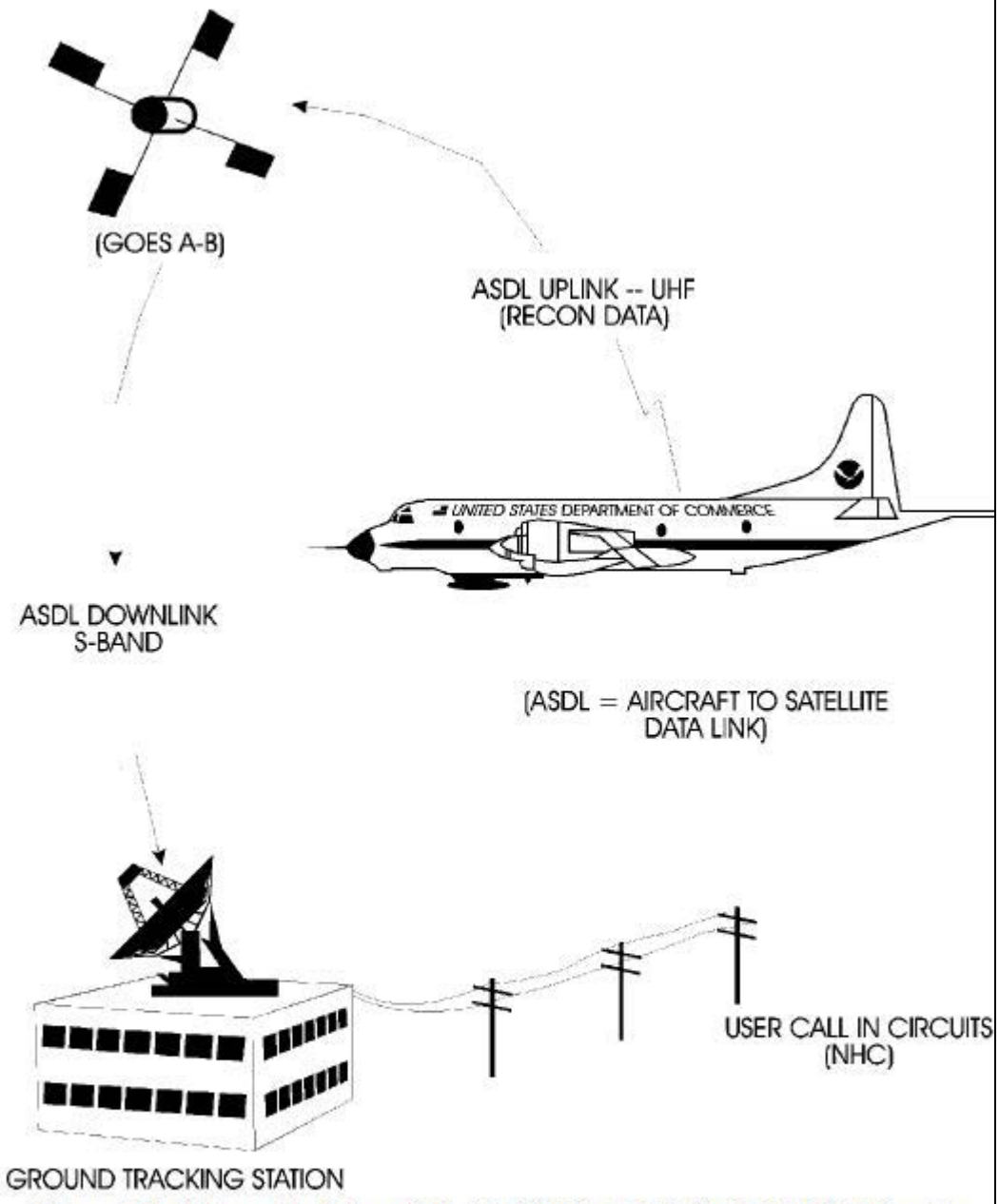
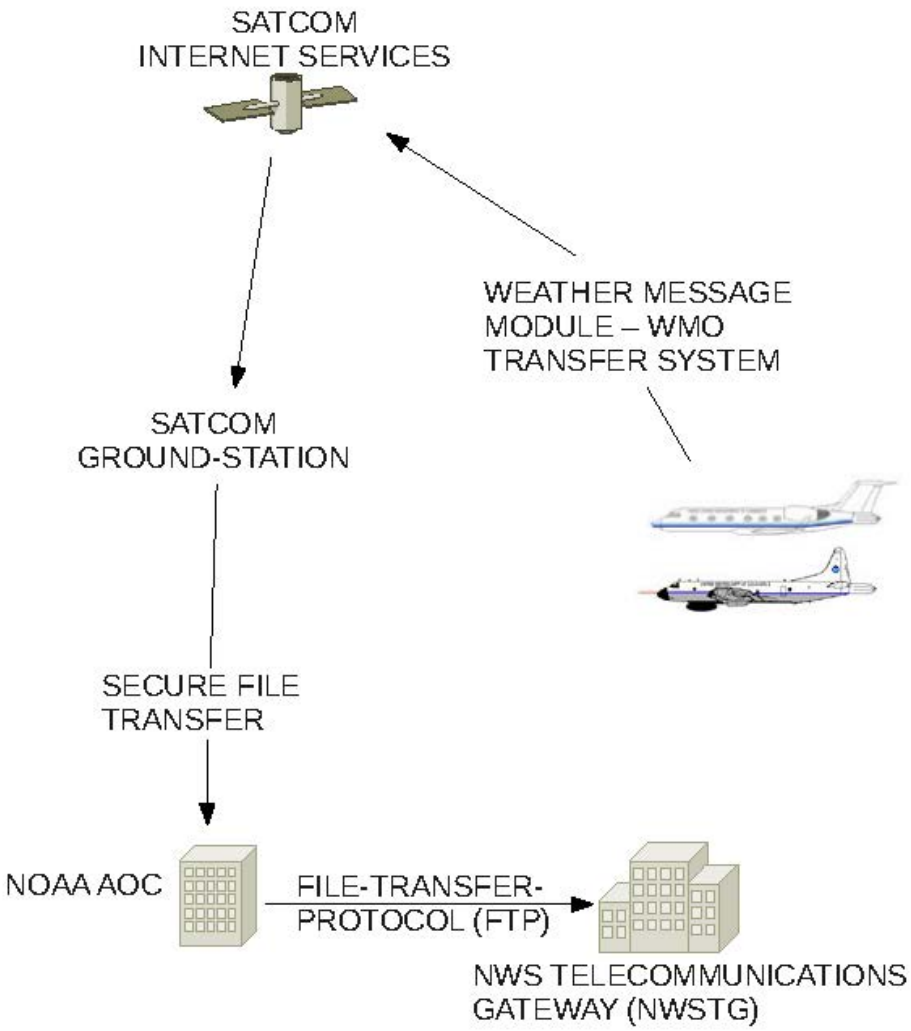


Figure 5-10. Schematic of Aircraft-To-Satellite Data Link for NOAA P-3 Aircraft

5-23

Proposed REVISED Figure 5-10



Schematic of WMO Message Path for NOAA G-IV and P-3 Aircraft

In addition, AOC is requesting three additional changes to the NHOP:

1. RECOMMENDATION: The format of the overall MAX WIND at flight level, and the MAX outbound wind in the Remarks section of the Vortex Message be amended to include a space on either side of the "/", and to include a space and the letters "NM" after the distance value.

This change in format would be consistent to the current format for the MAX flight level temperature if not within 5 nm of the flight level center in the Remarks section of the Vortex message.

Current Format:

MAX FL WIND 73 KT 081/25 23:30:30Z
MAX OUTBOUND FL WIND 55 KT 083/14 01:36:00Z
MAX OUTBOUND AND MAX FL WIND 55 KT 083/14 01:36:00Z

Proposed Format Change:

MAX FL WIND 73 KT 081 / 25 NM 23:30:30Z
MAX OUTBOUND FL WIND 55 KT 083 / 14 NM 01:36:00Z
MAX OUTBOUND AND MAX FL WIND 55 KT 083 / 14 NM 01:36:00Z

2. Change the Remarks section of the Vortex message.

RECOMMENDATION: AOC proposes to insert the storm center dropsonde wind direction and wind speed values at splash in the Remarks section of the Vortex message:

Proposed Format Change:

CNTR DROPSONDE SFC WIND 265 / 12 KT

OFCM Clarification Question: This appears to apply to remarks section of VDM, Table 5-2 block P and Fig 5-4 example VDM. There are 5 required remark entries; where should this additional remark entry be inserted relative to the existing 5 required entries?

UPDATE/RESPONSE From AOC Flight Director
26 Feb 2014:

AOC suggests two options:

1) In Table 5-2 block P the proposed center dropsonde surface wind direction and speed be inserted between items 3 and 4. For Figure 5-3 Vortex Data Message Worksheet block P the proposed center dropsonde surface wind direction and speed be inserted after SLP EXTRAP FROM (Below 1500 FT/ 925 MB/ 850 MB/ DROPSONDE).

2) In Table 5-2 block P append the proposed change to item 4 as an OR choice similar to item 5. If the center sea level pressure is extrapolated then either no dropsonde was deployed or the dropsonde was deployed but failed prior to splash. Otherwise (OR) a dropsonde was deployed and optimally functioned at splashed providing surface wind direction and speed. Have a separate entry for surface wind direction and speed in Figure 5-3 Vortex Data Message Worksheet block P inserted after SLP EXTRAP FROM (Below 1500 FT/ 925 MB/ 850 MB/ DROPSONDE) as suggested in option 1 above.

3. Update legacy text regarding flight altitudes for tropical cyclone center fixes.

Prior to the 2008 NHOP, item 5.4.1, Meteorological Parameters in the NHOP, stated that, "Center sea-level pressure determined by dropsonde or extrapolation from within 1,500 feet of the sea surface or from the computed 925 hPa or 850 hPa height".

Beginning with the 2008 NHOP, item 5.4.1 had the text "700 hPa height" included.

The Vortex Data Message Worksheet (Figure 5.3) in the 2013 NHOP, Item H has "minimum sea level pressure computed from dropsonde or extrapolated from flight level. If extrapolated, clarify in Remarks". Notice that a flight level value is not specified.

In the Remarks (Item P) section of the Vortex Data Message Worksheet (Figure 5.3), an example of what the text should be is provided: "SLP Extrapolated from (below 1,500 feet/925 MB/850 MB/Dropsonde). Here, 925 MB and 850 MB are present, but not 700 MB.

In the Vortex Data Message Entry Explanation (Table 5-2), Item H has the following: "The minimum sea level pressure (SLP) to the nearest hectopascal observed at the coordinates reported in item BRAVO". Preface the SLP with "EXTRAP" (extrapolated) when the data are not derived from dropsonde or when the SLP is extrapolated from a dropsonde that terminated early. Clarify the difference in remarks (e.g. SLP EXTRAPOLATED FROM BELOW 1,500 FEET/850 hPa/DROPSONDE).

Here, the 850hPa is present but not the 925hPa or 700hPa altitudes.

RECOMMENDATION: AOC is proposing that the legacy text in the Vortex Data Message Worksheet and the Vortex Data Message Entry Explanation be modified to so as to be consistent with the altitudes in Item 5.4.1 and that "hPa" be replaced with "mb" in Item 5.4.1.

Current Format In Item 5.4.1:

5.4.1. Meteorological Parameters. Data needs in priority order are as follows:

- Geographical position of the flight level vortex center (vortex fix) and relative position of the surface center, if known.
- Center sea-level pressure determined by dropsonde or extrapolation from within 1,500 ft of the sea surface or from the computed 925 hPa, 850 hPa, or 700 hPa height.
- Minimum 700, 850 or 925 hPa height, if available.
- Wind data (continuous observations along the flight track) for surface and flight level.
- SFMR surface wind.
- High density three-dimensional Doppler radial velocities of the tropical cyclone core circulation.
- Temperature at flight level.
- SFMR rain rate.
- Sea-surface temperature.
- Dew-point temperature at flight level

Proposed Format Change:

5.4.1. Meteorological Parameters. Data needs in priority order are as follows:

- Geographical position of the flight level vortex center (vortex fix) and relative position of the surface center, if known.
- Center sea-level pressure determined by dropsonde or extrapolation from within 1,500 ft of the sea surface or from the computed 925 mb, 850 mb, or 700 mb height.
- Minimum 700, 850 or 925 mb height, if available.
- Wind data (continuous observations along the flight track) for surface and flight level.
- SFMR surface wind.
- High density three-dimensional Doppler radial velocities of the tropical cyclone core circulation.
- Temperature at flight level.
- SFMR rain rate.
- Sea-surface temperature.
- Dew-point temperature at flight level

Current Format For The Vortex Message Entry Explanation (Table 5-2):

The minimum sea level pressure (SLP) to the nearest hectopascal observed at the coordinates reported in item BRAVO. Preface the SLP with "EXTRAP" (extrapolated) when the data are not derived from dropsonde or when the SLP is extrapolated from a dropsonde that terminated early. Clarify the difference in remarks (e.g. SLP EXTRAPOLATED FROM BELOW 1,500 FEET/850 hPa/DROPSONDE).

Proposed Format Change for the Vortex Data Message Entry Explanation (Table 5-2):

The minimum sea level pressure (SLP) to the nearest millibar observed at the coordinates reported in item BRAVO. Preface the SLP with "EXTRAP" (extrapolated) when the data are not derived from dropsonde or when the SLP is extrapolated from a dropsonde that terminated early. Clarify the difference in remarks (e.g. SLP EXTRAPOLATED FROM BELOW 1,500 FEET/925 mb/850 mb/700 mb/DROPSONDE).

Current Format for the Vortex Data Message Worksheet (Figure 5.3):

The Remarks (Item P) section of the Vortex Data Message Worksheet (Fig. 5.3), an example of what the text should be is provided: "SLP Extrapolated from (below 1,500 feet/925 MB/850 MB/Dropsonde)".

Proposed change for the Vortex Data Message Worksheet (Figure 5.3):

The Remarks (Item P) section of the Vortex Data Message Worksheet (Fig. 5.3), an example of what the text should be is provided: "SLP Extrapolated from (below 1,500 feet/925 mb/850 mb/700 mb/Dropsonde)".

Action
3 Mar 2014

WG/HWSOR Meeting Decisions: APPROVED & CLOSED

WG approved this AI in its entirety.

3.a. Approved proposed change to Figure 5-10; OFCM will remove "ASDL" from para 5.9.1.

		3.b. Approved recommendation 1 above, to alter format of MAX WIND and MAX OUTBOUND coding in NHOP [Fig 5-3 Block P, Table 5-2 Block P, and Fig 5-4 Example VDM]. Forward action to OS-21, and NHC will forward RA-IV. Implement option 1 provided by the AOC. OFCM will update these figures and tables in the NHOP. 3.c. Approved recommendation 2 above, to add storm center dropsonde wind direction and speed at splash to remarks section of VDM [Fig 5-3 Block P, Table 5-2 Block P, and Fig 5-4 Example VDM]. Implement option 1, surface wind rounded to nearest 5 degrees, forward to OS-21, and NHC will forward to RA-IV. OFCM will update these figures and tables in the NHOP. 3.d. Approved recommendation 3 above, to consistently reference altitude in mb rather than hPa in VDM [Paragraph 5.4.1., Table 5-2, and Fig. 5.3]. OFCM will update these figures and tables in the NHOP. 3.e. 53 WRS will provide OFCM with an updated VDM example for fig 5-4 of the NHOP.
4	**Title**	**NOAA Item 13-22: Revise "Individual/Interval Probability" Name; Provide Higher Time Resolution Wind Speed Probability Increments**
	Submitter	*Pablo Santos (NOAA/NWS/WFO MIA), Robert Molleda (NOAA/NWS/WFO MIA), and Dave Sharp (NOAA/NWS/WFO MLB)*
	Date Submitted	6 Jan 2014
	Discussion	Tropical cyclone wind speed probabilities are now an integral component to our nation's hurricane program, as these data provide quantitative probabilistic information for emergency managers and the public to help make decisions when a tropical cyclone threatens. The wind speed probabilities – for tropical storm force (34 kt. and 50 kt.) and hurricane force (64 kt.) sustained winds - provide the chance that the wind speed event will begin to occur during an individual time interval ("Individual/Interval Probability"), the chance that the event will occur during a given time period ("Incremental Probability"; used as part of WFO Expressions of Uncertainty in their official public and marine forecasts), as well as the chance that the wind speed event will occur anytime cumulatively up to 5 days total ("Cumulative Probability"). In gridded form, the incremental and cumulative wind speed probabilities are available at 6 hour time steps. The individual/interval probability is computed from the cumulative probability sets. WFOs are using the cumulative probabilities in their briefings as well as in their tropical cyclone impacts graphics product suite and the incremental via briefings and also through the official public and marine forecasts (expressions of uncertainty) during tropical cyclone events. Only the individual/interval and cumulative probabilities are available through the NHC product. The 6 hour incremental and cumulative wind speed probabilities are also available through the official NDFD website. Unfortunately, the distinction between "Individual/Interval" and "Incremental" is important, but subtle, and many users (likely including many within NWS) confuse the two. Such confusion can be minimized with a simple name change of the existing "Individual/Interval Probability" to something more intuitive. Additionally, the current time intervals that the wind speed probabilities are given in the PWS product are at 12 hours for two days and 24 hours from day two to five. Emergency managers are making life and death decisions regarding preparations and evacuations with a much finer resolution time scale. Having significantly enhanced frequency of wind speed probabilities (that are still scientifically justifiable) may be of benefit to decision makers. As a hypothetical example, see below for the actual wind speed probabilities issued during Hurricane Sandy in 2012 for New York City. The current individual/interval Probabilities for 34 kt. winds were 1% for the 12 hour period of 06Z-18Z Sunday, while they jumped to 29% for the 12 hour period of 18Z Sunday-06Z Monday. Finer time resolution wind speed probabilities – if they were available – would have indicated that the 29% would have primarily been in the 00Z-06Z Monday time interval (24%) and much less of a chance for the onset to occur in the 18Z Sunday-00Z Monday time frame (only 5%). Knowing that the onset of 34 kt. winds would very likely occur starting Sunday night (local time) rather than Sunday afternoon might be quite important for timing and completion of evacuations.
	Recommendation	RECOMMENDATION 1: **Change the title from "Individual/Interval Probability" to "Onset Probability."** Incremental and cumulative remain as they are. Include wind speed probabilities at 6 hour increments through 48 hours and a 12 hour increment from 48 to 120 hours in the PWS product. Note: If you cannot include all columns in the current ASCII product, you can consider breaking up rows for short range and extended. Alternatively, this could be accomplished through a web based product. **Online Format:**

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II. WIND SPEED PROBABILITY TABLE FOR SPECIFIC LOCATIONS

CHANCES OF SUSTAINED (1-MINUTE AVERAGE) WIND SPEEDS OF AT LEAST
   ...34 KT (39 MPH... 63 KPH)...
   ...50 KT (58 MPH... 93 KPH)...
   ...64 KT (74 MPH...119 KPH)...
FOR LOCATIONS AND TIME PERIODS DURING THE NEXT 5 DAYS

PROBABILITIES FOR LOCATIONS ARE GIVEN AS IP(CP) WHERE
    IP  IS THE PROBABILITY OF THE EVENT BEGINNING DURING
        AN INDIVIDUAL TIME PERIOD (INDIVIDUAL PROBABILITY)
   (CP) IS THE PROBABILITY OF THE EVENT OCCURRING BETWEEN
        06Z SAT AND THE FORECAST HOUR (CUMULATIVE PROBABILITY)

PROBABILITIES ARE GIVEN IN PERCENT
X INDICATES PROBABILITIES LESS THAN 1 PERCENT
PROBABILITIES FOR 34 KT AND 50 KT ARE SHOWN AT A GIVEN LOCATION WHEN
THE 5-DAY CUMULATIVE PROBABILITY IS AT LEAST 3 PERCENT.
PROBABILITIES FOR 64 KT ARE SHOWN WHEN THE 5-DAY CUMULATIVE
PROBABILITY IS AT LEAST 1 PERCENT.


  - - - - WIND SPEED PROBABILITIES FOR SELECTED LOCATIONS - - - -

               FROM     FROM     FROM     FROM     FROM     FROM     FROM
  TIME      06Z SAT 18Z SAT 06Z SUN 18Z SUN 06Z MON 06Z TUE 06Z WED
PERIODS        TO       TO       TO       TO       TO       TO       TO
           18Z SAT 06Z SUN 18Z SUN 06Z MON 06Z TUE 06Z WED 06Z THU

FORECAST HOUR    (12)    (24)     (36)     (48)     (72)     (96)    (120)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

LOCATION       KT

...

NEW YORK CITY  34  X   X( X)   1( 1)  29(30)  34(64)   2(66)   X(66)
NEW YORK CITY  50  X   X( X)   X( X)   3( 3)  17(20)   1(21)   X(21)
NEW YORK CITY  64  X   X( X)   X( X)   1( 1)   5( 6)   1( 7)   X( 7)
```

New Format

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II. WIND SPEED PROBABILITY TABLE FOR SPECIFIC LOCATIONS

CHANCES OF SUSTAINED (1-MINUTE AVERAGE) WIND SPEEDS OF AT LEAST
   ...34 KT (39 MPH... 63 KPH)...
   ...50 KT (58 MPH... 93 KPH)...
   ...64 KT (74 MPH...119 KPH)...
FOR LOCATIONS AND TIME PERIODS DURING THE NEXT 5 DAYS

PROBABILITIES FOR LOCATIONS ARE GIVEN AS OP(CP) WHERE
    OP  IS THE PROBABILITY OF THE EVENT BEGINNING DURING
        AN INDIVIDUAL TIME PERIOD (ONSET PROBABILITY)
   (CP) IS THE PROBABILITY OF THE EVENT OCCURRING BETWEEN
        06Z SAT AND THE FORECAST HOUR (CUMULATIVE PROBABILITY)

PROBABILITIES ARE GIVEN IN PERCENT
X INDICATES PROBABILITIES LESS THAN 1 PERCENT
PROBABILITIES FOR 34 KT AND 50 KT ARE SHOWN AT A GIVEN LOCATION WHEN
THE 5-DAY CUMULATIVE PROBABILITY IS AT LEAST 3 PERCENT.
PROBABILITIES FOR 64 KT ARE SHOWN WHEN THE 5-DAY CUMULATIVE
PROBABILITY IS AT LEAST 1 PERCENT.


  - - - - WIND SPEED PROBABILITIES FOR SELECTED LOCATIONS - - - -

               FROM     FROM     FROM     FROM     FROM     FROM     FROM     FROM     FROM     FROM     FROM     FR
  TIME      06Z SAT 12Z SAT 18Z SAT 00Z SUN 06Z SUN 12Z SUN 18Z SUN 00Z MON 06Z MON 18Z MON 06Z TUE 18Z
PERIODS        TO       TO       TO       TO       TO       TO       TO       TO       TO       TO       TO       T
           12Z SAT 18Z SAT 00Z SUN 06Z SUN 12Z SUN 18Z SUN 00Z MON 06Z MON 18Z MON 06Z TUE 18Z TUE 06Z

FORECAST HOUR    (06)     (12)     (18)     (24)     (30)     (36)     (42)     (48)     (60)     (72)     (84)     (
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
LOCATION       KT

...

NEW YORK CITY  34  X   X( X)   X( X)   X( X)   X( X)   1( 1)   5( 6)  24(30)  24(54)  10(64)   1(65)   1(
NEW YORK CITY  50  X   X( X)   X( X)   X( X)   X( X)   X( X)   1( 1)   2( 3)  12(15)   5(20)   1(21)   X(
NEW YORK CITY  64  X   X( X)   X( X)   X( X)   X( X)   X( X)   X( X)   1( 1)   3( 4)   2( 6)   1( 7)   X(
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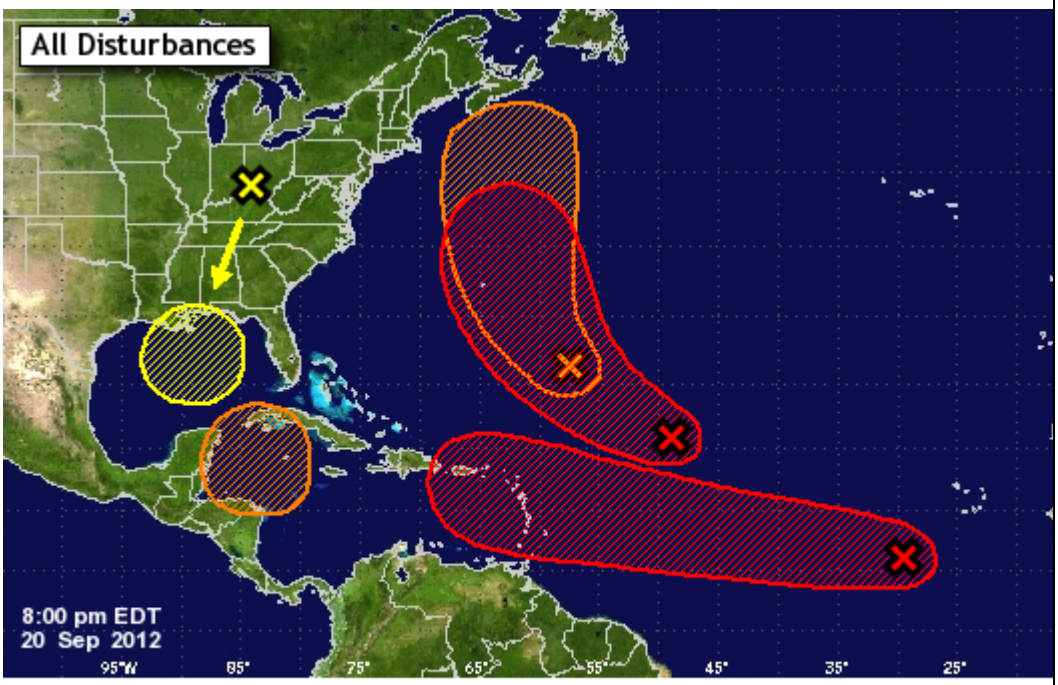
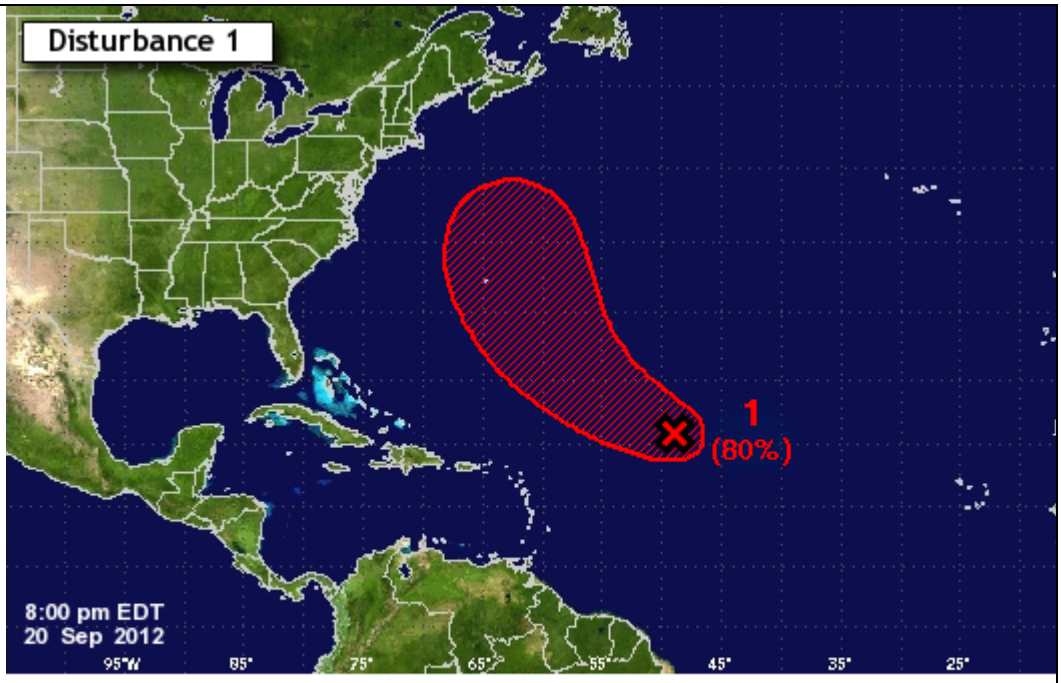
RECOMMENDATION 2:

Modify NWS directives accordingly and forward to IHC and RA-IV for informational purposes.

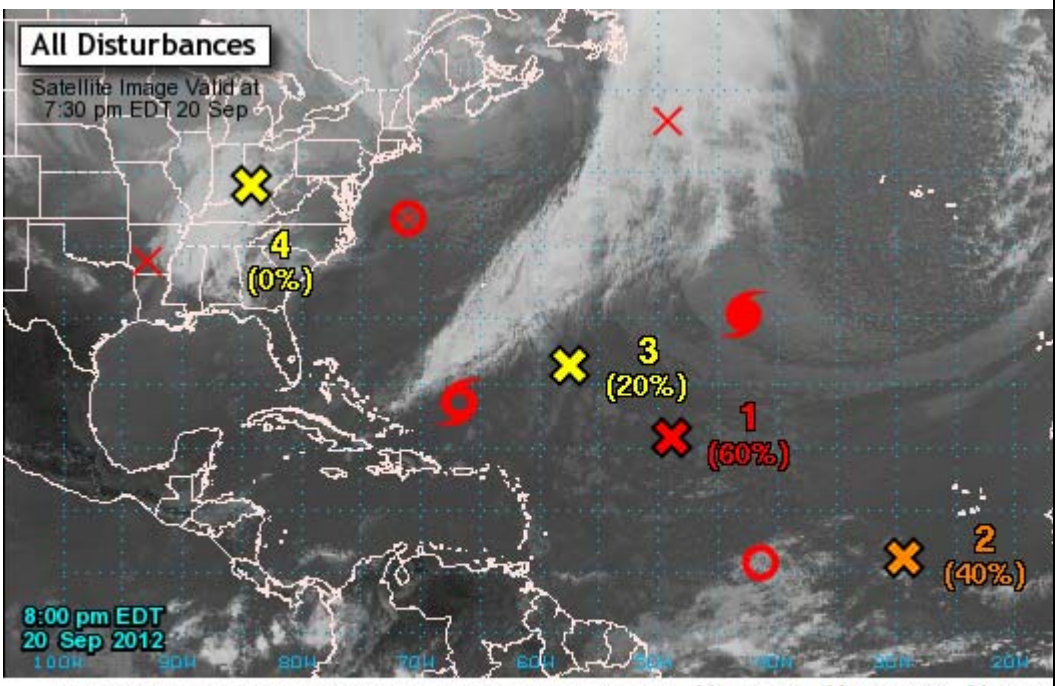
Item 13-22 ACTION: *12/4/13: The [NOAA Hurricane] meeting agreed to change the title "Individual/Interval Probability" to "Onset Probability" in section II of the Surface Wind Speed Probabilities Text Product. NHC will examine other options for timing information for Emergency Management (EM) decision information which will be discussed with the Regions.*

	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: INFORMATIONAL ONLY / CLOSED** 4.a. WG/HWSOR was briefed for informational purposes on Recommendation 1 above (title change of "Individual/Interval Probability" to "Onset Probability" in section II of the surface wind speed probabilities test product, and increased time resolution for probabilities). 4.b. Possibility for other implications of the change was discussed, and the WG decided no additional actions are needed by the WG/HWSOR.
5	**Title**	**NOAA Item 13-23: Elimination of the Intensity Probability Table**
	Submitter	*Dan Brown and Michael Brennan, NOAA/NWS/NHC*
	Date Submitted	6 January 2014
	Discussion	In 2008, NHC replaced its original intensity probability table with intensity probabilities derived from the same Monte Carlo (MC) wind speed probability program that produces the location-specific wind speed probabilities found in the NHC Wind Speed Probabilities text and graph products. The new intensity probability table using the MC technique extended the intensity probabilities to 120 hours and began representing land in the calculations. Although the probabilities now more accurately account for land interaction, some users of this product have been trying to use it to extract landfall intensity probabilities (e.g. probability of the maximum wind speed of a tropical cyclone falling within the various intensity stages and Saffir-Simpson Hurricane Wind Scale categories at landfall). Since the technique incorporates track error, the probabilities given in the table represent the chance a tropical cyclone will be within a certain intensity stage/category at a particular time and not location. When a tropical cyclone is forecast to be near land, many of the realizations used to calculate the probabilities will have already indicated that the cyclone has crossed the coast and weakened over land. As a result, the probabilities for tropical cyclones forecast to be near land will typically be spread out over the various intensity stages/categories. This can result to misapplications of the table. Because the table provides very little usable information for the decision makers in which it was originally designed, this item proposed that the intensity probability table in the NHC text Wind Speed Probabilities product be removed and that the stand-alone graphic also be eliminated until a more suitable replacement can be developed.
	Recommendation	RECOMMENDATION: Remove the wind speed intensity probability table (Part I) of the text Wind Speed Probability (PWS) product and also eliminate the stand-alone graphical Maximum 1-minute Wind Speed Forecast Table. NOAA mtg Item 13-23 ACTION: *12/4/13: Recommendation ("Remove the wind speed intensity probability table (Part I) of the text Wind Speed Probability (PWS) product and also eliminate the stand-alone graphical Maximum 1-minute Wind Speed Forecast Table") is accepted. Forward to IHC and RA-IV. OS21 will issue a Service Change Notice (SCN).*
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: INFORMATIONAL ONLY / CLOSED** 5.a. WG/HWSOR was briefed for informational purposes on the Recommendation above that was accepted at the NOAA Hurricane Meeting. 5.b. Possibility for other implications of the change was discussed, and the WG decided no additional actions are needed by the WG/HWSOR.
6	**Title**	**NOAA Item 13-27: Tropical Weather Outlook (TWO) Changes**
	Submitter	*James Franklin, NOAA/NWS/NHC*
	Date Submitted	6 January 2014
	Discussion	Currently, the genesis probabilities are contained in sentence form within the text discussion of each disturbance. This was done during 2013 to minimize the amount of coding that would need to be done in order to continue to produce the Graphical TWO, but conveying the percentages this way has some drawbacks. It needlessly lengthens the product, and in some situations the verbiage sounds awkward, odd, or even contradictory to the discussion that immediately precedes it (e.g. when the short- and medium-range numbers are the same). In 2013, the 5-day genesis forecasts were experimental. Based on user feedback, NHC wishes to make these forecasts operational in 2014.

		In 2013, NHC was not ready to disseminate a graphical representation of the 5-day genesis forecasts. Based on in-house experimentation during the season, NHC expects to be ready to go public with an experimental 5-day genesis graphic in 2014. Workload constraints and other considerations, however, will require some changes to the current 48-hour Graphical TWO. Rather than manually produce two graphics, NHC will manually draw the 5-day graphic and the 48-hour graphic will be produced automatically, based on information in the 5-day graphic. The 48-hour graphic will no longer indicate the current locations of disturbances by encircling them; instead, locations of current disturbances will be marked with an "X". This is to avoid having marked areas refer to current location on the 48-hour graphic but future location on the 5-day graphic.
	Recommendation	<u>RECOMMENDATIONS:</u> 1. Move the genesis probabilities out of the text and present them in semi-tabular form after the discussion as shown below: "A broad area of low pressure located a couple of hundred miles south-southwest of Jamaica is accompanied by showers and thunderstorms. This disturbance remains disorganized, and development, if any, should be slow to occur of the next couple of days while it moves slowly northwestward. Environmental conditions are expected to be marginally conducive for some development when the system moves over the northwestern Caribbean Sea and the southern Gulf of Mexico later this week. Locally heavy rainfall is possible over portions of Haiti and Jamaica today, and will likely spread across the Cayman Islands and eastern Cuba on Tuesday. * Formation chance through 48 hours...low...10 percent * Formation chance through 5 days...medium...30 percent" Here are more current examples of the graphics for this item:  Tropical Cyclone Formation Potential for the Five-Day Period Ending at 8:00 pm EDT 25 Sep Chance of Cyclone Formation in 5 Days: Low < 30% Medium 30-50% High > 50 X indicates current disturbance location; shading indicates potential formation area.



Tropical Cyclone Formation Potential for the Five-Day Period Ending at 8:00 pm EDT 25 Sep
Chance of Cyclone Formation in 5 Days: Low < 30% Medium 30-50% High > 50
X indicates current disturbance location; shading indicates potential formation area.



Disturbances and 48-Hour Cyclone Formation Chance: < 30% 30-50% > 50
Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane
Post-Tropical Cyclone Remnants

NOAA mtg Item 13-27 ACTIONS: *12/5/13: Recommendations accepted. Forward to IHC and RA-IV. OS21 will issue SCN(s) for operational implementation of the 5 day text TWO and changes to the graphical TWO. OS21 will also issue a PNS for experimental 5 day graphical TWO.*

CPHC will work with NHC on the transfer of coding, knowledge and expertise on the 5 day text and graphical TWO so that CPHC can internally test them during the 2014 hurricane season.

		NHC will provide outreach materials to accompany the changes so offices can educate their customers/partners.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: INFORMATIONAL ONLY / CLOSED** 6.a. WG/HWSOR was briefed for informational purposes on the Recommendation above that was accepted at the NOAA Hurricane Meeting. 6.b. Possibility for other implications of the change was discussed, and the WG decided no additional actions are needed by the WG/HWSOR.
7	**Title** **Submitter** **Action** **3 Mar 2014**	**WITHDRAWN – NOAA may choose to resubmit in 2015.** (NOAA Item 13-29: Use of Mixed Case for Tropical Weather Discussions (TWDAT, TWDEP)) *Chris Landsea (NOAA/NWS/NHC) and Hugh Cobb (NOAA/NWS/NHC/TAFB)* **CLOSED / INFORMATIONAL ONLY**
8	**Title** **Submitter** **Date Submitted** **Discussion**	**NOAA Item 13-30: Use of Mixed Case for Tropical Cyclone Forecast Discussions and Tropical Weather Outlooks** *Chris Landsea, NOAA/NWS/NHC* 6 January 2014 The NWS (and the Weather Bureau before it) has long used all capital letters and limited punctuation ("…") for its text products, initially for dissemination via teletype machines. That era has long since ended, yet the all-CAPS and limited punctuation format remains. This format is difficult to read by our customers and may lead to lack of clarity and less effective communication. Moreover, those WMO RA-IV member countries that responded to an informal survey early in 2013 were in favor of switching to mixed case format for NHC's text products. Finally, NWS has numerous offices that are in the process of switching their format for many of their text products to mixed case as well in trials that were underway during 2013. RECOMMENDATIONS: 1. Obtain concurrence from those WMO countries that have yet to respond to the survey. If technical resources permit within NHC, transition the Tropical Cyclone Discussions (TCDs) to mixed case for the 2014 hurricane season, and if possible, also transition the Tropical Weather Outlooks (TWOs). Below are examples of both products in mixed case. TCD ZCZC MIATCDAT4 ALL TTAA00 KNHC DDHHMM TROPICAL STORM ISAAC DISCUSSION NUMBER 29 NWS NATIONAL HURRICANE CENTER MIAMI FL AL092012 400 AM CDT TUE AUG 28 2012 Reports from the Air Force Hurricane Hunter aircraft indicate that the central pressure has dropped a little more, but so far, the maximum flight-level and SFMR-observed surface winds still do not quite support hurricane intensity. The current intensity is held at 60 kt pending additional observations from the Hurricane Hunters. Although the wind field remains rather broad and relatively flat, recent aircraft data suggest that the maximum winds are now occurring somewhat closer to the center over the northern semicircle of the cyclone. This would suggest that the inner core circulation is becoming better defined, and strengthening might be imminent. Upper-level outflow is well-established over the southern semicircle of the system, but central convection continues to fluctuate. The latter is presumably due to a continued intrusion of dry air into the core region. The statistical-dynamical guidance is a little lower than in previous runs, and the storm has only about 12-24 hours before moving inland. The official intensity forecast is just slightly lower than the previous one. Center fixes from the aircraft indicate that the storm has wobbled on a generally westward course over the past few hours. This is believed to be temporary, however, and the longer-term motion estimate is about 305/10. The current and forecast steering regime is basically the same as in the previous package. Isaac is expected to move into a weakness in the subtropical ridge near the north-central Gulf coast, with some slowing of forward speed during the next couple of days as a ridge builds a little to the northwest of the cyclone. Later on, the system should turn northward and northeastward into the Ohio Valley region as it

moves around the western periphery of a mid-level anticyclone.

Isaac is a large tropical cyclone. A dangerous storm surge, heavy rainfall, and strong winds extend well away from the center and are expected to affect a large portion of the northern Gulf coast. For this reason, IT IS IMPORTANT NOT TO FOCUS ON THE EXACT CENTER LOCATION. The threat of heavy rainfall and flooding is also expected to spread inland over the Lower Mississippi Valley region during the next few days.

Forecast Positions and Maximum Winds

Init	28/0900Z	27.5N	88.1W	60 KT	70 MPH
12H	28/1800Z	28.5N	89.1W	70 KT	80 MPH
24H	29/0600Z	29.5N	90.1W	75 KT	85 MPH...NEAR THE COAST
36H	29/1800Z	30.3N	90.9W	55 KT	65 MPH...INLAND
48H	30/0600Z	31.4N	91.5W	45 KT	50 MPH...INLAND
72H	31/0600Z	34.5N	92.5W	25 KT	30 MPH...INLAND
96H	01/0600Z	38.0N	91.5W	20 KT	25 MPH...POST-TROP/REMNT LOW
120H	02/0600Z	40.5N	87.0W	15 KT	15 MPH...POST-TROP/REMNT LOW

$$
Forecaster Pasch

NNNN

TWO

TROPICAL WEATHER OUTLOOK
NWS NATIONAL HURRICANE CENTER MIAMI FL
200 PM EDT MON OCT 14 2013

For the North Atlantic, Caribbean Sea and the Gulf of Mexico:

A broad area of low pressure located a couple of hundred miles south-southwest of Jamaica is accompanied by showers and thunderstorms. This disturbance remains disorganized, and development, if any, should be slow to occur of the next couple of days while it moves slowly northwestward. Environmental conditions are expected to be marginally conducive for some development when the system moves over the northwestern Caribbean Sea and the southern Gulf of Mexico later this week. Locally heavy rainfall is possible over portions of Haiti and Jamaica today, and will likely spread across the Cayman Islands and eastern Cuba on Tuesday.
Formation chance through 48 hours...low...10 percent
Formation chance through 5 days...medium...30 percent

Forecaster Franklin

TWO

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Tropical Weather Outlook
NWS National Hurricane Center Miami FL
200 pm EDT Mon Oct 14 2013

For the North Atlantic, Caribbean Sea and the Gulf of Mexico:

The National Hurricane Center is issuing advisories on newly
formed Tropical Depression Eleven, located in the central Gulf of
Mexico.

Systems with the potential to become a tropical cyclone during the
next 48 hours...

A broad area of low pressure located a couple of hundred miles
south-southwest of Jamaica is accompanied by showers and
thunderstorms.  This disturbance remains disorganized, and
development, if any, should be slow to occur of the next couple of
days while it moves slowly northwestward.  Environmental
conditions are expected to be marginally conducive for some
development when the system moves over the northwestern Caribbean
Sea and the southern Gulf of Mexico later this week.  Locally
heavy rainfall is possible over portions of Haiti and Jamaica
today, and will likely spread across the Cayman Islands and
eastern Cuba on Tuesday.
* Formation chance through 48 hours...low...10 percent
* Formation chance through 5 days...medium...30 percent

A westward-moving tropical wave is producing showers and
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		thunderstorms across the Windward Islands. However, upper-level winds are becoming unfavorable for further development of this system. * Formation chance through 48 hours...low...10 percent * Formation chance through 5 days...low...10 percent Other systems with the potential to become a tropical cyclone beyond 48 hours... A non-tropical area of low pressure could develop over the next couple of days a few hundred miles east of Bermuda, and this low will have some potential to gradually acquire tropical characteristics as it moves slowly southward. * Formation chance through 48 hours...low...near 0 percent * Formation chance through 5 days...low...20 percent && Public Advisories on Tropical Depression Eleven are issued under WMO header WTNT31 KNHC and under AWIPS header MIATCPNT1. Forecast/Advisories are issued under WMO header WTNT21 KNHC and under AWIPS header MIATCMNT1. $$ Forecaster Franklin 2. Modify the directives accordingly and forward to IHC and RA-IV for informational purposes.
	Recommendation	NOAA Item 13-30 ACTIONS: *12/5/13: Meeting endorses moving forward as resources permit. Further coordination with OCWWS Fire and Public Weather Services Branch (OS22) is needed as other products outside the tropical program are involved. PNS will be issued. Forward to IHC and RA-IV for informational purposes.* **WG/HWSOR Meeting Decisions: INFORMATIONAL ONLY / CLOSED** WG/HWSOR was briefed for informational purposes on the recommendation above that was accepted at the NOAA Hurricane Meeting. SCN has already been sent. No actions by WG/HWSOR required.
	Action **3 Mar 2014**	
9	**Title**	**NOAA Item 13-36: Provide Eye Radar Imagery from Aircraft Reconnaissance Fix Missions**
	Submitter	*Chris Landsea, NOAA/NWS/NHC*
	Date Submitted	6 Jan 2014
	Discussion	Aircraft reconnaissance observations provide crucial information on tropical cyclones in NHC's area of responsibility. One item that is provided in a text description is the Eye Character (including eye shape, orientation, and diameter). Both the Air Force C-130 and the NOAA P-3 aircraft have nose radars (the P-3s also have a belly radar as well) from which this information is derived by the Flight Director and included within the Vortex Data Message. Providing the actual radar reflectivity imagery to NHC in real-time would be a significant enhancement and allow for better analysis of rainband/eyewall structure including development of secondary eyewalls. While having access to continuous imagery from the aircraft would be ideal, such access likely may be problematic from a bandwidth perspective, especially from the C-130s. As a first step, sending one screen shot per Vortex Data Message in real-time via the Chief, Aerial Reconnaissance Coordination, All Hurricanes (CARCAH) would quite helpful to NHC for the 2014 hurricane season. If even this is not possible during the 2014 season because of bandwidth issues, then simply sending a photo to CARCAH of the radar imagery at the conclusion of the flight would still be of significant benefit. RECOMMENDATIONS: Include within the NHOP a requirement by reconnaissance aircraft conducting tasked fix missions for radar reflectivity imagery to be sent, at a minimum, of one image per mission, but ideally one image per vortex fix. Forward to IHC.
	Recommendation	NOAA Item 13-36 ACTION: *12/5/13: Recommendations accepted. Add to section 5.4.1. of the National Hurricane Operations Plan: "Radar reflectivity imagery of the tropical cyclone's inner core" as an additional priority. Add to section 5.4.6. as a new second sentence: "The inner core radar reflectivity*

		imagery would be provided at a rate of one image per Vortex Data Message and be sent within 30 minutes of transmission of the Vortex Data Message." Add to section 5.7.1. as a new second sentence: "The inner core radar reflectivity imagery would be provided at a rate of one image per Vortex Data Message and be sent within 30 minutes of transmission of the Vortex Data Message."
	Action	**WG/HWSOR Meeting Decisions: APPROVED / CLOSED** 9.a. OFCM will add "*Radar reflectivity imagery of the tropical cyclone's inner core*" to NHOP para 5.4.1.; this parameter will be placed in the prioritized list as indicated in 9.d. 9.b. OFCM will add *"The inner core radar reflectivity imagery would be provided at a rate of one image per Vortex Data Message and be sent within 30 minutes of transmission of the Vortex Data Message."* as new second sentence of para 5.4.6. 9.c. OFCM will add *"The inner core radar reflectivity imagery would be provided at a rate of one image per Vortex Data Message and be sent within 30 minutes of transmission of the Vortex Data Message."* as new second sentence of para 5.7.1. 9.d OFCM will reorder paragraph 5.4.1 with the following prioritized list: • Geographical position of the flight level vortex center (vortex fix) and relative position of the surface center, if known. • Wind data (continuous observations along the flight track) for surface and flight level. • Center sea-level pressure determined by dropsonde or extrapolation from within 1,500 ft of the sea surface or from the computed 925 hPa, 850 hPa, or 700 hPa height. • Minimum 700, 850 or 925 hPa height, if available. • SFMR surface wind and rain rate. • Radar reflectivity imagery • High density three-dimensional Doppler radial velocities of the tropical cyclone core circulation. • Temperature at flight level. • Sea-surface temperature. • Dew-point temperature at flight level. 9.e. AOC, CARCAH, 53 WRS, and NHC will coordinate (NHC lead) to draft a proposal for imagery collection and distribution that would fully meet the requirement.
10	**Title**	**Provide Updated Names Lists**
	Submitter	*Gary Kubat, OFCM*
	Date Submitted	3 Mar 2014
	Discussion	Tropical cyclone names listed in Chapter 3 of the NHOP need to be updated and verified as the 2013 lists are outdated, and the revolving list may need to be updated.
	Recommendation	1. NOAA provide OFCM with updated versions of NHOP Tables 3-1 and 3-2 (Atlantic Tropical Cyclone Names, and Eastern Pacific Tropical Cyclone Names), with the names for 2013 removed and names for 2019 added. 2. NOAA review Tables 3-3 and 3-4 (Central Pacific Tropical Cyclone Names, and International Tropical Cyclone Names for the Northwest Pacific and South China Sea), and provide updates to OFCM if needed.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: APPROVED /CLOSED (recurring annual AI)** NHC will forward names lists to OFCM and Mike Dion after the RA-IV meeting (where the names are voted on by international partners). The RA-IV meeting is scheduled for 7-10 Apr 2014. OFCM will update the names lists in the NHOP.
11	**Title**	**Caribbean Hurricane Awareness Tour (CHAT) Coordination**
	Submitter	*Gary Kubat, OFCM (and Neal Snyder, HQ AFRC/A3OO)*
	Date Submitted	9 Dec 2013
	Discussion	The process for the next CHAT coordination should be discussed. DoD Inst 4515.13-R requires an Exception to Policy (ETP) for invitational travel orders (ITOs) for the non-DoD aircraft passengers on DoD

		aircraft. This past year's CHAT had an ETP request from Dr. Titley to OSD; it may serve as a template for the next CHAT.
	Recommendation	Discuss. [Current year CHAT ETP request is in coordination with the office of NOAA's Deputy Under Secretary for Operations.]
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: APPROVED /CLOSED** Process is underway and appears to be working on an annually recurring basis now; no further action or tracking needed by WG/HWSOR.
12	**Title**	**FAA Directed Separation Changes**
	Submitter	*Hank Tracy, FAA*
	Date Submitted	30 Jan, 2014
	Discussion	FAA proposes revising Chapter 6 of the NHOP with a full Chapter 6 with revised numbering. The following is an extract of the proposed revision to be inserted between para 6.2.1.2. (International Airspace) and 6.2.1.3. (IFR Procedures and Clearance). **6.2.1.3. ATC Clearance to Operate in the ODA.** • ARRIVALS INTO ODA: • Prior to entering the ODA, the entering aircraft must obtain the position and altitude of each aircraft already in the ODA. • Arriving aircraft will enter the ODA at FL150, unless otherwise coordinated with ATC and other participating aircraft • The aircraft entering the ODA will verify the center coordinates of the ODA with other participating aircraft and ATC. The center coordinates will be used for the duration of the flight. If the ODA must be moved due to operational reasons, a different center point will be coordinated between all participating aircraft and ATC. • Once inside the ODA, the entering aircraft will be responsible for separation from all other participating aircraft in the area using the procedures outlined in Paragraph 6.2.1.5 **6.2.1.4. Departures from the ODA.** • Aircraft will depart the ODA at FL140 unless otherwise coordinated with ATC and other participating aircraft. The departing aircraft will establish positive altitude and lateral separation (as defined in 6.2.1.5) from other participating aircraft and communications with the Primary ATC Facility prior to departing the ODA. • Departing aircraft will maintain positive separation from other participating aircraft until crossing the ODA boundary and receiving additional IFR clearance. • Departing aircraft will report "leaving the ODA" to other participating aircraft in the area. **6.2.1.5. Separation within the ODA** • Aircraft will maintain communications with all participating aircraft at all times. • Aircraft will operate within the ODA at or below FL140 unless otherwise coordinated. Vertical separation of at least 1000 ft will be

	Recommendation **Action** **3 Mar 2014** **Update** **26 Mar 2014**	maintained using a common altimeter setting of 29.92 in Hg. • Prior to descending or climbing through the altitude(s) of other participating aircraft, positive separation will be ensured by reference to the ODA center point using the aircraft's navigation systems. An aircraft may transition through the altitude of other participating aircraft if they are separated by 30 NM or more as defined by TCAS, ADS-B, aircraft radar, air-to-air TACAN, or other systems. If separation is less than 30 NM, aircraft will confirm that they are not on converging vectors prior to the altitude change. The aircraft that is changing altitudes will report out of the other participating aircraft's altitude when clear. Altitude changes through the altitude of another participating aircraft will not be accomplished without two-way radio communications. • If participating aircraft are in VMC and one aircraft has visual contact with the other, the altitude change may be accomplished using visual separation. The aircraft that is changing altitudes will report when vertical separation is established. • Should an aircraft lose communications with the other participating aircraft, they will maintain their last altitude that was coordinated with the other aircraft until they exit the ODA. If navigation systems become unreliable, the aircraft will terminate the mission and exit the ODA at their last coordinated altitude, or as coordinated if radio communications are available. Discuss. Exec Sec recommends accepting the revision in full. [Group could not reach consensus or approval of this Action Item as further discussion and coordination is needed.] **WG/HWSOR Meeting Decisions: DEFERRED / OPEN** Tabled for further coordination internally by FAA (goal to resolve internal coordination within 45 days) before WG/HWSOR will consider making changes to NHOP. POC: AJV-8 OFCM will explore option of having senior NOAA leadership request NOAA aircraft be recognized under MARSA flight rules, and discuss further with DoD ATSC and NOAA AOC. Update: (Coordinated with Karen Chiodini, FAA National Headquarters, karen.l.chiodini@faa.gov) A meeting with all affected FAA parties, including General Counsel, will be conducted within 45 days to discuss the issue. It is understood that a resolution to the action item may not be established at this meeting, but it is starting point to correctly address the concern. Karen Chiodini's office will arrange this internal FAA coordination meeting, and the POC is Steven Pinkerton. Following this meeting FAA with discuss with WG/HWSOR leadership on appropriate follow on steps to address the open WG action item.
13	**Title** **Submitter** **Date Submitted** **Discussion**	**Administrative Additions for DoD Air Traffic Services Cell** *Lt Col Joseph Blake, USAF* 4 Dec 2013 DoD ATSC would like to add contact info and a clarifying organization description to the NHOP as listed below: Page I-2: Air Traffic Services Cell Com 540-422-4250 DSN 510-422-4250 Page M-1 Appendix M: ATSC-Air Traffic Services Cell Page N-1 Appendix N (Glossary): ATSC (Air Traffic Services Cell): The Air Traffic Services Cell (DoD ATSC/ HAF/A3OP) is a Joint Military and Civil organization which provides liaison, facilitation, and coordination between emergency preparedness and operations organizations as the DoD representative. Additionally the ATSC ensures efficient flow of DoD aircraft in response to wartime mobilization, contingencies, and natural disasters

		throughout the National Airspace System (NAS). The ATSC is physically located at the FAA ATC Systems Command Center, Warrenton, VA.
	Recommendation	**Discuss to ensure WG members are aware of the DoD ATSC function. Accept the additions in their entirety.**
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: APPROVED /CLOSED** OFCM will update the NHOP with the changes indicted above.
14	**Title**	**Update Dedicated NORAD Mode 3/A Transponder Codes.**
	Submitter	LCDR Kibbey
	Date Submitted	26 Feb 2014
	Discussion	Paragraph 6.1.2.3. lists outdated aircraft transponder codes. The NHOP should state: Old: 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
	Recommendation	New: "One change that we recently found out was our transponder codes for this coming season. We have been assigned 5051 - 5054 and 5064 by the 601st Air and Space Operations Center for 15 May 2014 - 31 December 2014."
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: APPROVED /CLOSED** OFCM will update the NHOP with the changes indicted above.

ACTION ITEMS FROM 67TH IHC (2013)		
9	**Title**	**Procedures to be used for aircraft operating within the New York Oceanic CTA/FIR**
	Submitter	**Wolfgang Lerch, FAA New York ARTCC, wolfgang.lerch@faa.gov, 631-468-1018**
	Date Submitted	3 January 2012
	Discussion	Hurricane Operations in the New York Oceanic CTA/FIR Operations in an oceanic non-radar environment are much different than in a RADAR/VHF environment. Lack of surveillance and immediate direct pilot/controller communications does not allow for the same level of service to be provided as when operating within RADAR and VHF coverage. As such, certain requirements must be met in order to operate in the New York Center Oceanic CTA/FIR. The following procedures will be required when hurricane operations are planned to take place in any portion of the New York Center Oceanic CTA/FIR. Hurricane Operations in the New York Oceanic CTA/FIR Operations in an oceanic non-radar environment are much different than in a RADAR/VHF environment. Lack of surveillance and immediate direct pilot/controller communications does not allow for the same level of service to be provided as when operating within RADAR and VHF coverage. As such, certain requirements must be met in order to operate in the New York Center Oceanic CTA/FIR. The following procedures will be required when hurricane operations are planned to take place in any portion of the New York Center Oceanic CTA/FIR. 1. Coordination for flights FAA order 7110.65, chapter 2-1-11c states: *DOD shall ensure that military pilots requesting special-use airspace/ATCAAs have coordinated with the scheduling agency, have obtained approval for entry, and are familiar with the appropriate MARSA procedures. ATC is not responsible for determining which military aircraft are authorized to enter special-use airspace/ATCAAs.* As such, a scheduling agency (CARCAH) should be determined and CARCAH should be responsible for the coordination of all areas with all affected Air traffic Service Units and aircraft that intend to operate in it. Prior to departure, all flights that intend to operate in the New York Center Oceanic CTA/FIR should be coordinated with the New York Military Operations Specialist (Appendix I) through CARCAH. This

coordination should include, as a minimum:

1. The call sign of the aircraft
2. The area in which the aircraft intends to operate. This should include center point and distance from the center.
3. The times in which the aircraft intends to operate
4. The altitude(s) that the aircraft intends to operate at

This information should be transmitted no less than 4 hours prior to departure.

2. Flight Planning

As long as the procedures in this document are followed, there is no need to file an FPL with New York Oceanic (KZWYZOZX).

Flight plans could be filed with a delay **if** a domestic flight plan format is used (not an ICAO FPL). If any portion of the flight will operate in the New York Oceanic CTA/FIR then a delay should not be filed for **any** fix located in the New York Oceanic CTA/FIR. Delays at a fix should only be filed for fixes that reside in RADAR airspace.

3. Designation of and operations into and out of the Operational Area (ATCAA)

After being advised by CARCAH of the requested area of operation, an operational area within or overlapping the New York Center Oceanic CTA/FIR with specific entry and exit routes will be created and disseminated amongst all affected ARTCC's. This area of operation would be large enough (approximately 300 miles) to allow the aircraft to freely operate vertically and laterally without having to continuously make altitude or route requests. The following advantages will be gained by creating a large enough area of operation:

- This would not require an FPL to be filed with New York Oceanic (KZWYZOZX)
- Airspace would be blocked for as long as needed:
  - Laterally and longitudinally from all other IFR traffic
  - Vertically from Surface up to and including top of block
- Can contain either Single entry and exit or multiple entry and exit entry points
- Clearance for entry and exit into the operational area obtained via VHF/UHF
- Airspace in the New York Center Oceanic CTA/FIR reserved for this operation.
- No contact required between aircraft and New York Center Oceanic CTA/FIR.

The following examples demonstrate these procedures:

Example 1- A 250 miles area of operation has been coordinated and approved for operations in the New York Oceanic CTA/FIR (red circle, figure 1). The area is centered on the eye of a hurricane. The aircraft is departing from TXKF and intends to return to TXKF. A flight plan with a delay is filed to a point within the operational area but not within the New York Center Oceanic CTA/FIR. Prior to allowing the aircraft to enter the operational area, the New York Sector 81 controller would call the appropriate New York Oceanic Sector. The New York Oceanic Sector, after verifying that the airspace is active in Ocean21 and that it reflects what the aircraft is requesting, will grant approval for entry into the area. The aircraft would then be cleared to operate in the area and would call again when in VHF range of Bermuda for clearance back to TXKF.

Example 1

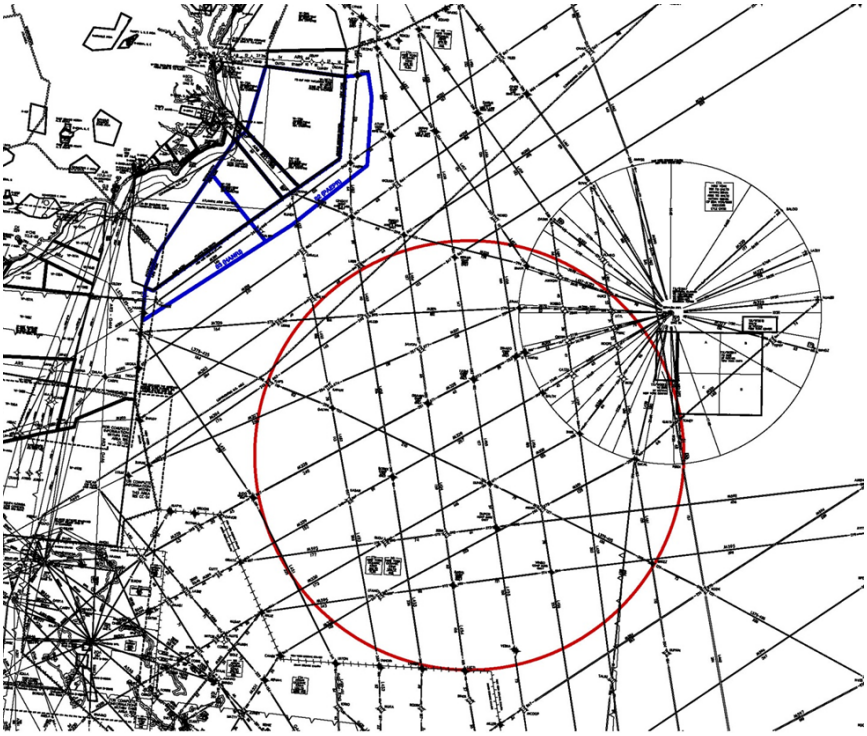


Figure 1

In this particular example, the overlap could occur with an adjacent facility sector such as Miami TOOMS. If that were the case then the Miami TOOMS controller would make the initial call, clear the aircraft into the ATCAA and the aircraft would then call Miami on VHF when ready to Return to Base (RTB).

Example 2- In this example, the aircraft is requesting to orbit within 250 miles of the eye. The aircraft is departing and returning to MYNN. This would be coordinated and approved by the New York Center Military Operations Specialist after coordination by CARCAH. After departure, the aircraft would request approval to enter the area from Miami Center. Miami Center would grant this approval after verbal coordination with the appropriate New York Oceanic Sector. This example (figure 2) depicts a corridor which would allow the aircraft to enter and exit the operational area without having to communicate on HF or make position reports while within the ATCAA. When ready to RTB, the aircraft would exit via the corridor and contact Miami on VHF prior to exiting.

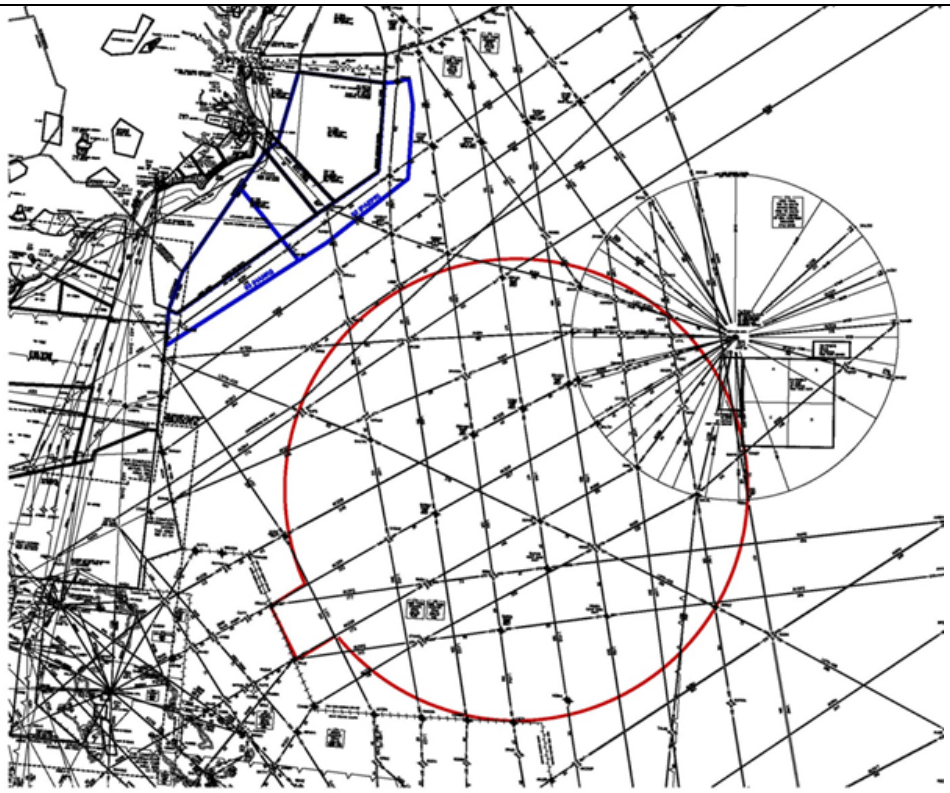


Figure 2

Example 3- In this example, there are separate corridors for entry and exit into the operations areas. This would be used in situations where the departure point and destination were different. As in example 2, the aircraft would receive permission to enter the area via VHF and would also contact ATC on VHF just prior to exiting the area

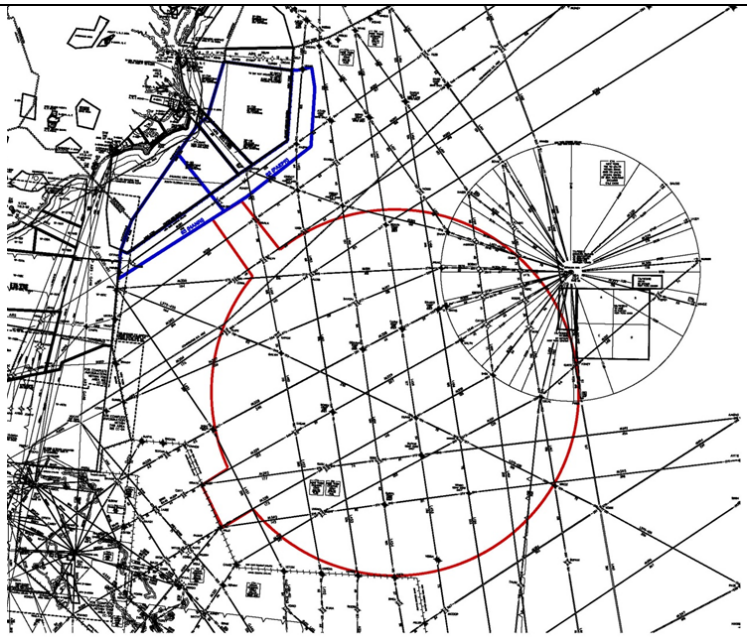
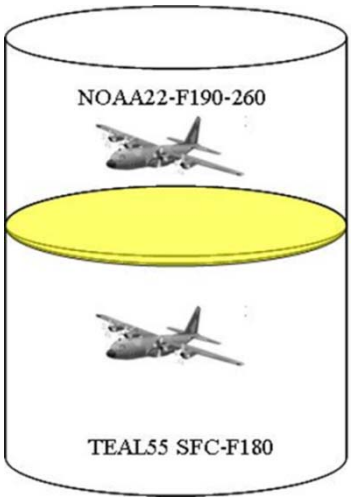


Figure 3

4. Aircraft to Aircraft Separation

4. Multiple aircraft operating within the same geographic area

If MARSA is not authorized or allowed between multiple participating aircraft then separate ATCAA's must be defined in order to provide the appropriate non-RADAR oceanic separation. New York Center Oceanic cannot separate aircraft within the same reserved airspace. Separate airspace reservations can be developed that overlay each other but which contain different altitude stratums.



Discuss**.**

Recommendation

1. FAA NY ARTCC representative needs to provide (a) issues list, and (b) recommended NHOP wording to WG's Exec Sec (gary.kubat@noaa.gov).
2. Exec Sec will forward recommended NHOP wording for review by affected agencies.
3. Exec Sec will coordinate a meeting with appropriate agencies for further discussion.
4. Discussion needed involving the following agencies to implement, tabled meanwhile:
   a. HQ FAA: Karen Chiodini
   b. ARTCC Reps: NY, Miami
   c. NATCA: Jorge Rivera
   d. FAA Cmd Ctr: Ron Fisher
   e. NOAA/AOC: CAPT Halverson
   f. 53 WRS: Lt Col Talbot; actual airspace specialist with participate
5. Once action-officer level coordination between affected agencies is complete, then ensure discussion/approval by respective agency decision makers.

Table until 2015; unable to address with current resources this year.

		WG/HWSOR Meeting Decisions: CLOSED Action Items 9-15 are subsumed under 68th IHC AI #12.
	Action **3 Mar 2014**	
10	**Title**	**Modify procedures for coordination of missions with affected ARTCC's**
	Submitter	Wolfgang Lerch, FAA New York ARTCC, wolfgang.lerch@faa.gov, 631-468-1018
	Date Submitted	3 January 2012
	Discussion	An ARTCC should not be responsible for the planning or coordination of missions amongst multiple ARTCC's. See ZNY oceanic NHOP procedures (change #1) for changes to scheduling agency procedures.
	Recommendation	1. Strike the following bullets from 6.1.1.2: Coordinate with the impacted ARTCCs as required and designate a Primary ARTCC when the Operations Area includes multiple ARTCCs. And 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. Coordinate with all impacted Center and Terminal facilities within their area of responsibility. And 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, And 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. 2. Strike the words "affected ARTCCs and" from the first bullet in 6.1.2.1 3. Strike the words "affected ARTCCs 1-2 hours prior to flight departure time." From 6.1.2.1 4. OFCM will facilitate meeting as needed, and record progress and outcomes. Can include all airspace Action Items 9-16. **OPEN** In conjunction with AI 9. **Withdrawn**. Will be included in Airspace Chap 6 revision.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: CLOSED** Action Items 9-15 are subsumed under 68th IHC AI #12.
11	**Title**	**International Flight Planning Requirements**
	Submitter	Wolfgang Lerch, FAA New York ARTCC, wolfgang.lerch@faa.gov, 631-468-1018
	Date Submitted	3 January 2012
	Discussion	6.1.2.6. Flight Plan Filing Procedures talks about the procedures to be followed when filing a delay in an "International Flight Plan". It is not possible to file a delay in Item 15 of an ICAO FPL. Additionally, New York Center does not want any aircraft wishing to operate within the confines of the New York

		Oceanic CTA/FIR to file a delay in the route portion of a Domestic flight plan for a fix that is within the New York Oceanic CTA/FIR. See ZNY oceanic NHOP procedures (change #1) for proposed changes to keep a flight plan open for flights returning from non-radar operations. Current NHOP Wording 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: 6-4 • "EET" to FIR boundaries, • Navigation Performance (ex. RNP-10); and • "RMK/MDCN" diplomatic clearance information.
	Recommendation	**Withdrawn**. Will be included in Airspace Chap 6 revision.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: CLOSED** Action Items 9-15 are subsumed under 68th IHC AI #12.
12	**Title**	**Amend the definition of a typical ATCAA volume**
	Submitter	Wolfgang Lerch, FAA New York ARTCC, wolfgang.lerch@faa.gov, 631-468-1018
	Date Submitted	3 January 2012
	Discussion	New York Oceanic intends to block a large area of airspace to preclude using aircraft from having to make tactical requests while outside of VHF range. See ZNY oceanic NHOP procedures (change #1)**.**
	Recommendation	Amend the following in section 6.2.1.5 "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. To read…… "The Operational Delay Area is ATC Assigned Airspace (ATCAA) and will be tactically defined on a daily basis based upon the users request and Air Traffic operational needs. It will normally be a cylinder of airspace typically defined by a block altitude at or below FL280, with a radius not to exceed 300 nm around a set of center coordinates. **Withdrawn**. Will be included in Airspace Chap 6 revision.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: CLOSED** Action Items 9-15 are subsumed under 68th IHC AI #12.
13	**Title**	**Position Reporting Requirements**
	Submitter	Wolfgang Lerch, FAA New York ARTCC, wolfgang.lerch@faa.gov, 631-468-1018
	Date Submitted	3 January 2012
	Discussion	Position reports are not required when operating within the New York Oceanic CTA/FIR if the procedures outlined in ZNY oceanic NHOP procedures (change #1) are followed.
	Recommendation	Amend 6.2.1.5 "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." To read….. "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." Note that position reporting (including OPS Normal reports) is not required when operating within an approved ATCAA in the New York Oceanic CTA/FIR and shall not be made".

		Withdrawn. Will be included in Airspace Chap 6 revision.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: CLOSED** Action Items 9-15 are subsumed under 68th IHC AI #12.
14	**Title**	**Modify procedures for coordination of missions with affected ARTCC's**
	Submitter	Wolfgang Lerch, FAA New York ARTCC, wolfgang.lerch@faa.gov, 631-468-1018
	Date Submitted	3 January 2012
	Discussion	An ARTCC should not be responsible for the planning or coordination of missions amongst multiple ARTCC's. See ZNY oceanic NHOP procedures (change #1) for changes to scheduling agency procedures.
	Recommendation	Amend the following in section 6.2.1.5 "Any changes to the operating area will be coordinated with the primary ARTCC." To read ….. "Any changes to the operating area prior to departure will be coordinated through CARCAH. Any changes to the operating area once inside of the area shall be made to the controlling ARTCC. **Withdrawn**. Will be included in Airspace Chap 6 revision.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: CLOSED** Action Items 9-15 are subsumed under 68th IHC AI #12.
15	**Title**	**OPS Normal Position Reporting Requirements**
	Submitter	Wolfgang Lerch, FAA New York ARTCC, wolfgang.lerch@faa.gov, 631-468-1018
	Date Submitted	3 January 2012
	Discussion	Since areas of airspace (ATCCA) are to be sterilized by New York Oceanic for hurricane operations, New York Oceanic will not need these reports. Any reports needed by the flying unit for SAR functions shall be made directly to the flying units as necessary.
	Recommendation	Modify the note after 6.2.1.6 [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).] To read….. [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).] These reports are not necessary nor shall they be made, when within the New York Oceanic CTA/FIR and operating within an approved ATCAA. **Withdrawn**. Will be included in Airspace Chap 6 revision.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: CLOSED** Action Items 9-15 are subsumed under 68th IHC AI #12.
16	**Title**	**Appendix K Maps**
	Submitter	Wolfgang Lerch, FAA New York ARTCC, wolfgang.lerch@faa.gov, 631-468-1018
	Date Submitted	3 January 2012
	Discussion	Appendix K

	Recommendation	Add maps to depict the RADAR coverage, as it extend into or overlies the New York Oceanic CTA/FIR for the following ARTCC's: New York, Miami Jacksonville, San Juan New York Center to provide maps displaying non radar airspace and the extent of radar coverage.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: OPEN** Wolfgang Lerch will provide RADAR coverage maps to OFCM for inclusion in Appendix K of the NHOP. Maps should be forwarded to gary.kubat@noaa.gov and daniel.melendez@noaa.gov.

ACTION ITEMS FROM THE 66TH IHC (2012)		
8	**Title**	**Revise the wording for overall tropical cyclone MAX WIND location in the Remarks Section of the VORTEX message for the 2012 season (previously action item 21 from 65th IHC)**
	Submitter	NOAA/AOC – A. Barry Damiano
	Submitted	19 Jan 2012
	Discussion	The 2011 Interdepartmental Hurricane Conference approved an action item to provide the bearing and range (rather than the quadrant) when reporting maximum winds in the Remarks section of the Vortex Data Message. The old and new formats are as listed below: Old format: MAX FLT LVL WIND 77 KTS N QUAD 1234Z MAX OUTBOUND FLT LVL WIND 77 KTS N QUAD 1234Z MAX OUTBOUND AND MAX FLT LVL WIND 77 KTS N QUAD 1234Z
	Recommendation	New format: MAX FLT LVL WIND 77 KTS 357/12 1234Z MAX OUTBOUND FLT LVL WIND 77 KTS 357/12 1234Z MAX OUTBOUND AND MAX FLT LVL WIND 77 KTS 357/12 1234Z In addition, via subsequent discussions NHC, AOC, and the 53WRS agreed that the reference to "any portion of the storm" in NHOP Table 5-2 Item P, will refer to an octant (i.e., 337.5-22.5 degrees, 22.5-67.5 degrees, etc.). Table 5-2 will require a wording change to reflect this.
	Status **66th IHC**	From the 66th IHC, this item remained OPEN. AF and NOAA agreed to keep item open until the 53 WRS is able to make software adjustments; implementation delayed until 2013.
	10 Jan 2013	The 53 WRS completed software changes. NHC, AOC, and 53 WRS concurred with NWS/OS21 issuing Service Change Notice with effective date of 15 May 2013. Next steps are for the Exec Sec to amend NHOP for 2013, as applicable, and then forward info to WMO RA-IV and RA-V committees for considerations.
	4 Mar 2013	Status update 3/4/13: Further action on whether software is installed on aircraft is budget dependent. NWS has already sent out a Service Change Notice that could potentially affect international partners and commercial vendors if this is not installed as planned. Further coordination between affected offices is required this spring and/or summer. Updates to be provided to WG within approx 3 weeks.
	18 Mar 2013	Status update 3/18/13: Per 53 WRS there is AFRC to complete the aircraft software update. Exec Sec will coordinate exact edits to publish in 2013 NHOP with NOAA/AOC and 53 WRS.
	Action **3 Mar 2014**	**WG/HWSOR Meeting Decisions: CLOSED** Action item subsumed and closed under 68th IHC AI #3.
11	**Title**	**Use of the "EYE" Remark in TEMP DROP Code**
	Submitter	53 WRS (AFRC)
	Submitted	31 Jan 2012
	Discussion	Some dropsonde operators use the word "EYE" in remarks of all sondes released in the center of a cyclone. Since there are often multiple sondes released in and around a storm, "EYE" flags *this* is the sonde dropped in the center, and not intended to indicate the storm has an actual eye. Other flight meteorologists have

		pointed to the definition of "EYE" used for the Vortex message (must have at least 50% of an eyewall), and do not use the EYE remark on the sonde unless the storm meets that criterion. An alternative is to create a standard remark, "CENTER" or "CTR" in the Aspen and AVAPS programs. Although the software change is relatively simple, it would require that OS21 would have to issue a Software Change Notice (SCN), and we do not have the desired 120-day lead time for this, according to Timothy Schott (NOAA). If the community wants to add a "CENTER" remark as an option, this should be proposed now for implementation in 2013. James Franklin (NHC) requested we use the word "EYE" for all center drops in the meantime (or forever, if no one objects to using "EYE" on a tropical depression/tropical storm dropsonde). Since "EYE" already exists as a standard remark, no change to the software or WMO code is required to continue using EYE this way, merely clarification and standardization of the use of the word.
	Recommendation	**Change para 5.8.1.2. Vortex fix data.** …. Center dropsonde data will also be provided for scheduled fixes made at 850 hPa or above. The dropsonde will be released at the flight-level center coordinates (item BRAVO of the vortex data message), *and may be marked with the word "EYE" in the 62626 section of the TEMP DROP code, for all tropical cyclones regardless of whether an actual eye exists.* **Appendix N, Glossary, Pg N-3** **Eye**. The relatively calm center of the tropical cyclone that is more than one half surrounded by wall cloud. *Note: when used in the remarks of a TEMP DROP message, it only means the sonde was released in the center of a tropical cyclone, regardless of whether an actual eye exists.* *For 2013, remove/ignore the above changes in red text (they're not in current NHOP), and add:* **Appendix G TEMP DROP CODES** Identifier: **62626** – This is the remarks section. Only the remarks EYE, CENTER, EYEWALL XXX, MXWNDBND, or RAINBAND will be used.
	Status 66th IHC	From 66th IHC, this item remains OPEN. At this time, there will be no changes to the 2012 NHOP. NOAA and the 53 WRS determined at the NOAA Dropsonde User Group meeting (Apr 2012) that the term "center" is the appropriate term to use. In order to ensure that there is enough time to conduct software changes as well as the desired 120-day lead time for the issuance of the Software Change Notice (SCN), the above proposal is tabled and will be addressed next year for changes to the 2013 NHOP.
	10 Jan 2013	NHC, AOC, and 53 WRS concurred with NWS/OS21 issuing a Service Change Notice with an effective date of 15 May 2013. Next step is for the Exec Sec to amend NHOP for 2013 as applicable.
	4 Mar 2013	Status update 3/4/2013: 53 WRS will confirm delivery of change notice, and NHOP will be amended to close the item.
	18 Mar 2013	Status update 3/18/2013: 53 WRS has confirmed Aspen code has been changed to include "CENTER". Executive Secretary will proceed with publishing change in 2013 NHOP and close item. **Approved**. Software updated. Add "CENTER" as indicated below to NHOP, p.G-14: **Appendix G TEMP DROP CODES** Identifier: **62626** – This is the remarks section. Only the remarks EYE, CENTER, EYEWALL XXX, MXWNDBND, or RAINBAND will be used.
	Action 3 Mar 2014	**WG/HWSOR Meeting Decisions: CLOSED** Action item subsumed and closed under 68th IHC AI #3.
13	**Title**	**DoD, Joint Staff (JS) Requests NHOP Coordination with Office of Secretary of Defense (OSD)**
	Submitter	DoD, Joint Staff (JS), J4, Distribution Division (Larry Kinder, 703-571-9891 (DSN 671-9891), KinderL@js.pentagon.mil)
	Submitted	17 Jan 2012
	Discussion	Request NHOP be vetted through the Office of the Secretary of Defense (OSD) to allow validation of recommended changes. It is important that the interagency operations plan reflect current authorities and guidance.
	Recommendation	Include OSD in future annual NHOP coordination.
	Status (As of 3/5/2012)	At the 66th IHC, this item was **DEFFERED** due to further coordination with Joint Staff required.
	Status (As of 5/1/2012)	Per 1 May 2012 phone conversation with Mr. Larry Kinder (JCS J4 DD) and Col William Carle (NOAA Military Liaison), on the DOD side, the plan is to staff the 2012 NHOP with the OSD/AT&L, C3 & Cyber, once the revised MOA is signed. Requested 2012 NHOP coordination with OSD delayed, awaiting DOD signatures on revised MOA.

	Status (As of 11/19/2012)	USTRANSCOM corrected para 3.J. of revised MOA, and then passed to AFRC for concurrence/signature. See 66th IHC action item #14 for additional details.
	Status (As of 3/4/2013)	Status update: 1. Vetting of NHOP will be channeled through DOD/AT&L upon MOA approval. 2. MOA dated 2000 in NHOP should be updated and approved prior to engaging OSD. Currently under review. MOA not yet signed by NWS/AA. 3. Coordination with OMAO as required.
	Action 3 Mar 2014	**WG/HWSOR Meeting Decisions: OPEN** OFCM discuss with OSD/ATL rep how to proceed now that GFMG apportions the WC-130s to SECAF (no longer to TRANSCOM).
14	**Title**	**Issuance Of Invitational Travel Orders (ITO)**
	Submitter	DoD, Joint Staff (JS), J4, Distribution Division (Larry Kinder, 703-571-9891 (DSN 671-9891), KinderL@js.pentagon.mil)
	Submitted	17 Jan 2012
	Discussion	Based on review of 2011 NHOP, recommend paragraph 2.5.4 be replaced with the edited version below. Unable to find standing authority for AFRC to provide non-reimbursable transportation. In the MOA, appendix F of the NHOP, the authority cited is with DOC, which appears to make this a DOC mission. Additionally, Joint Federal Travel Regulations don't support the issuance of ITO to U.S. government employees. **Current NHOP Wording** **2.5.4.** The synergy created by all participants traveling together on the 53rd WRS WC-130 aircraft is essential to efficiently accomplishing the overall objectives of the mission while exercising fiscal responsibility. AFRC will fly the mission and issue invitational travel orders (ITO) on a noninterference, non-reimbursable basis for: the Director of the National Hurricane Center (NHC) of the National Weather Service (NWS) National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce (DOC); the NHC Hurricane Warning Program staff, NWS staff, other U.S. officials, and the media.
	Recommendation	**Recommended NHOP Wording** **2.5.4.** The synergy created by all participants traveling together on the 53rd WRS WC-130 aircraft is essential to efficiently accomplishing the overall objectives of the mission while exercising fiscal responsibility. AFRC may support the mission on a reimbursable, non-interference basis for: U.S. Department of Commerce (DOC) and National Oceanic and Atmospheric Administration (NOAA) staff, and other U.S. officials as appropriate. Media support may be provided within appropriate public affairs guidelines.
	Status (As of 3/5/2012)	At the 66th IHC, the item **DEFFERED** due to further coordination with Joint Staff required.
	Status (As of 7/6/2012)	Per 1 May 2012 phone conversation with Mr. Larry Kinder (JCS J4 DD) and Col William Carle (NOAA Military Liaison), since the current MOA (singed in 2000) lacks guidance/authority with respect to ITOs, the plan is wait for the signing of the revised MOA since it includes the appropriate verbiage (para 3.g.(3)). Once the revised MOA is approved, then the 2012 NHOP will be staffed with OSD/AT&L, C3 & Cyber (Ms. Marsha Karose). The revised MOA currently being worked allows any party to request additional support through the Economy Act to include passenger or cargo transportation for other than 53 WRS personnel or assistance with projects or programs other than weather reconnaissance and surveillance activities. As of this date, the MOA has yet to be signed. Progress on this action item is linked to above 66th IHC action item #13 as well as the signing of the revised MOA.
	Status (As of 3/4/2013)	Status update: 1. 53 WRS will provide updated wording for para 2.5.4. on travel orders, and funding exception to policy process and history 2. Exec Sec will publish in 2013 NHOP.
	Action 3 Mar 2014	**WG/HWSOR Meeting Decisions: CLOSED** Action item subsumed and closed under 68th IHC AI #11.

ACTION ITEMS: FROM 65th IHC (2011)		
2	**Title**	**Reconnaissance Support for Development of In-Situ Ocean Data Base for use in Initializing/Validating Navy and NOAA Operational Air-Sea Coupled Tropical Cyclone Prediction Models**
	Submitter	Peter Black, Naval Research Lab, Marine Meteorology Division and SAIC, Inc. CDR Elizabeth Sanabia, United States Naval Academy
	Discussion	Overcoming earlier restrictions in obtaining ocean thermal structure data via AXBT deployment, NRL has developed a Mobile Ocean Observing System (MOOS) consisting of two portable processing-receiving-recording units for use on WC-130J reconnaissance aircraft and demonstrated the capability for real-time processing and transmission of ocean thermal profiles, accomplishing data ingest into Navy TC and ocean prediction models. A supply of several thousand de-mil'd AXBT probes has been identified for future use at minimal cost for shipping and fumigation. Deployment of 1,000 of these probes over 2 years has demonstrated an overall 92% success rate. Over 100 additional AXBTs were deployed from operational reconnaissance flights in 2011 with similar results. The capability to transmit AXBT data in real time for real-time QC and assimilation into COAMPS-TC was successfully demonstrated. In 2012, the Navy coupled COAMPS-TC model, in addition to NOAA coupled models, will be run operationally, requiring ocean as well as atmospheric data inputs for initialization and validation.
	Recommendation	53rd WRS is requested to support Navy TC coupled operational numerical model forecast development by deploying AXBT data during operational TC missions tasked by the National Hurricane Center on a not-to-interfere basis with normal reconnaissance operations for a minimum of two additional seasons on a trial basis. AFRC is requested to support crew augmentation by one addition loadmaster with dropsonde and AXBT deployment training. NOAA/NCEP/EMC is planning on operational implementation of their regional hurricane model (HWRF) coupled to HYCOM for the 2012 hurricane season. This coupled modeling system has advanced real-time ocean DA capabilities within the system. EMC and NRL are designing a work plan in collaboration with AOML and RSMAS to demonstrate impact of assimilating AXBT datasets (collected during past TC research missions and potential future deployment of AXBTs using operational and research flights of opportunity from both WC-130J and WP-3D aircraft) on hurricane intensity forecasts using their respective coupled models. NRL will work with the 53rd WRS to refine WC-130J AXBT launch and data acquisition procedures for use on requested hurricane reco flights on a not-to-interfere basis with routine mission requirements.
	Status (1/16/2012)	The first year of the hurricane ABXT demo project mandated at the 65th Interdepartmental Hurricane Conference Working Group for Hurricanes and Winter Storms has been completed. A total of 107 AXBTs were deployed and transmitted in near-time from WC-130J aircraft on 12 flights in 4 storms, including Hurricane Irene where 40 ABXTs were deployed. A total of 85 AXBTs passed the quality control tests and were ingested into the Stennis ocean model and the coupled COAMPS-TC model. Initial model runs for Emily and Irene showed that including AXBT data resulted in a significant change in initial ocean analyses with a small impact on intensity prediction.
	Status (3/4/2012)	Item remains OPEN at 66th IHC. The 53 WRS received approval for the next 2 seasons. Work will ultimately require significant aircraft upgrade (potential modification to launcher and receiver equipment, pending requirement from NHC). Estimated 3000 AXBTs remaining. Need to pursue additional sensors if research warrants continued usage. Explore deployment strategy for operations. Progress and results will be presented during the NOAA Hurricane Conference in December 2012 and the 67th IHC in 2013.
	Status (1/11/2013)	Continued analysis of 2011 cases (Emily and Irene) confirmed that AXBTs significantly increased the accuracy of the initial ocean analyses (in both NCOM and HYCOM), resulted in slight improvements to coupled model track and intensity forecasts in 33% of coupled COAMPS-TC data denial studies, and provided a mechanism by which to identify possible errors in SHIPS intensity forecasts. During the summer of 2012, 294 AXBTs were dropped in 23 flights in 3 storms (and a training flight), including 80 AXBTs in 7 back-to-back WC-130J flights into TS Ernesto and 130 in 12 WC-130J flights into Hurricane Isaac. Of these, 248 were accepted into the Stennis ocean models and uploaded to the GTS in near-real-time. Initial analysis of the Isaac case (using the NCODA adjoint) revealed that AXBTs were the most valuable ocean observation type in reducing error to the HYCOM model between 24 August - 04 September 2012. Coupled model data denial studies are in progress as is a SHIPS intensity analysis. Coordination is in progress with HFIP Physics group to quantify AXBT impact and with HRD / AOC to improve operations planning and data distribution.
	Status (3/4/2013)	Status update: Program will continue through last programmed/planned year. CDR Sanabia will provide a more detailed status update and projected way-ahead to be included with this summary.

	Status (1/6/2014)	While substantial progress was made in the first two years of this project, due to TC inactivity, operational missions during 2013 were limited to 4 invest flights, 1 fix mission, and several training flights. As a result, an extension of the current operational reconnaissance support provided by the 53rd WRS is requested for an additional 3-year period to increase the number of cases, and to evaluate coupled model performance for higher-intensity TCs. Funding and AXBTs to support the continuation of this AXBT demonstration project have been procured, enabling it to be conducted on a no cost/not-to-interfere basis for the 53rd WRS. The data have been shown to improve both initialization of the ocean and ocean forecasts in HYCOM, and to improve forecasts of track and intensity in the coupled COAMPS-TC model. Continued analyses of these ocean data and the Isaac case is underway at NRL MRY (coupled COAMPS-TC), NOAA/NCEP/EMC (HWRF), URI (GFDL), and USNA/NOAA/NRL MRY (SHIPS), and available results will be presented at the next working group meeting.
	Action 3 Mar 2014	**WG/HWSOR Meeting Decisions: ONGOING INFORMATIONAL / OPEN** WG recommends continuing support for this endeavor.

ACTION ITEMS: FROM 62ND IHC (2008)		
10	**Title**	**Update Memorandum of Agreement between United States Air Force Reserves and NOAA**
	Submitter	NOAA
	Discussion	The Memorandum of Agreement (MOA) between the U.S. Air Force Reserves and NOAA was last updated in 2000, seven years ago. AOC recently received a couple of phone calls from other DOD agencies inquiring about revision and update to this MOA.
	Recommendation	Request Office of the Federal Coordinator for Meteorology (OFCM) to facilitate the update of the MOA.
	Status (2/24/09)	*MOA has been updated and completely reorganized. NOAA/NWS has signed the MOA (Dr. Jack Hayes); AFRC is reviewing the MOA.*
	Status (01/26/10)	*AFRC still has not signed the MOA.*
	Status (03/10/10)	*The Joint Staff is staffing a tasking to AFRC to take action on the MOA.*
	Status (01/18/2011)	The MOA is now at USTRANSCOM, which will be the DoD signatory element.
	Status (03/09/2011)	USTRANSCOM working with AFRC to staff to signatory element.
	Status (11/18/2011)	USTRANSCOM internal coordination still underway.
	Status (02/26/2012)	USTRANSCOM internal coordination still underway. At the 66th IHC (5 March 2012) meeting, the following actions were identified: 1. USTRANSCOM is awaiting AFRC MOA signature before commencing formal signatory coordination with the NWS. 2. Federal agency representatives need more time to review, discuss, and work solutions within their respective agencies before the annual WG/HWSOR meeting. Therefore, the WG/HWSOR Executive Secretary will solicit action items from the working group members by mid-December of each year instead of the former January-February timeframe. NOAA has agreed to try to provide its action items in December. The WG/HWSOR Executive Secretary will then consolidate and distribute action items NLT 60 days prior to the annual working group meeting. This will give members more time to coordinate, work solutions, obtain consensus, and request leadership approval (if needed) within their respective agencies before the annual working group meeting.
	Status (As of 11/19/2012)	Awaiting DOD signatures on revised MOA. USTRANSCOM corrected para 3.J. of revised MOA, and then passed to AFRC for concurrence/signature.
	(As of 3/4/2013)	**CLOSE,** merge with related 66th IHC action item #14. Repeat of above; MOA still needs coord on DoD side and re-coord through NWS.
	As of 3/20/2013	**OPEN** The Exec Sec and Chair further discussed this AI and determined leaving the AI OPEN and not merging it with the 66th IHC AI #14 would be in the best interest of tracking this action to completion. Significant coordination remains in coordinating the MOA between USTRANSCOM, AFRC, and NOAA. **WG/HWSOR Meeting Decisions: OPEN** OFCM will re-initiate discussion between AFRC and NOAA regarding a bilateral MOA, without TRANSCOM involvement.