

61st IHC ACTION ITEMS

1. Title: **Use of TCU to Modify U.S. Watches/Warnings – Informational**

Submitter: NOAA

Discussion: Currently the NWS directive 10-601, regarding Tropical Cyclone Updates (TCU), Section 1.4.2.2 (Issuance Criteria) reads “Issued by NHC and CPHC in lieu of or preceding special advisories to inform users of unexpected changes in tropical cyclone, or post/cancel watches”. The NWS will re-word the NWS directive 10-601, Section 1.4.2.2 to read as follows: "TCUs are issued by NHC and CPHC in lieu of or preceding special advisories to inform users of unexpected changes in tropical cyclones. The TCU may also be used to announce changes to international watches or warnings made by other countries, and to cancel U.S. watches or warnings."

Recommendation: Forward to IHC and RA-IV as informational.

Action: *Accept recommendation, but also include the revision to NWS directive 10-601, Section 1.4.2.2 in paragraph 3.2.6 of the NHOP.*

2. Title: **Satellite Ocean Surface Vector Winds Operational Impacts and Requirements**

Submitter: NOAA

Discussion: A workshop was conducted at TPC in June 2006 to assess the operational utilization and impacts of ocean surface vector winds (OSVW) retrieved by current research satellites, and to establish new NOAA operational requirements for OSVW measurements from future satellites. The workshop established satellite-derived OSVW measurements are an important tool in daily NOAA forecast and warning operations and current and planned satellite missions do not satisfy the new requirements. A workshop report has been completed and widely distributed, and high-level NWS officials have been briefed on the outcomes of the workshop and have acknowledged the needs it expresses. However, NOAA has no plans for an operational OSVW satellite mission that will meet the new requirements or even maintain capabilities provided by current research satellites (primarily the NASA QuikSCAT). Data provided to NOAA by new operational satellites operated by other countries (e.g., the EUMETSAT METOP) will also not meet the

new requirements or maintain current research satellite capabilities. Therefore, the quality of NOAA operational forecasts and warnings will be compromised once QuikSCAT is no longer operating (it has already exceeded its design life span). Several workshop participants are advocating a satisfactory future OSVW satellite mission via the NOAA PPBES process and other available avenues within NOAA. Support from the Department of Defense (DOD) on such a mission could greatly increase the chances of it coming to fruition, but the level of DOD support is uncertain. The NOAA Hurricane Conference endorses the needs expressed in the report.

Recommendation: Seek response from DOD to encourage joint NOAA/DOD advocacy for an OSVW mission.

Action: *Dr. Richard Knabb (TPC/NHC) and LCDR David Roberts (Navy Liaison to TPC/NHC) will prepare a short position statement jointly expressing the NOAA/NWS/NHC and Navy perspective, regarding the loss of required ocean surface vector winds (currently provided by NASA's QuikSCAT). With the position statement, the conference agenda item, and the new OFCM interagency strategic research plan, the Federal Coordinator will send a letter to NOAA/NESDIS, on behalf of the Interdepartmental Hurricane Conference, expressing concern over the loss of these important data.*

3. **Title:** **Status of HDOBS Recon Messages (NOAA/AOC and 53 WRS)**

Submitter: NOAA

Discussion: To date, the USAF/53 WRS and NOAA AOC issue high-density observations under different WMO headers – SXXX50 KNHC (dummy header for USAF) and UR..40 KWBC (NOAA/AOC). Currently, implementation efforts are underway to retrofit the USAF WC-130J aircraft with SFMR instrumentation. Consequently, a need has been identified to transmit these products under similar WMO headers and utilize a standard format. These new formats will be issued under the following headers:

NOAA AOC:

WMO ID	CCID	PIL	PRODUCT TYPE
URNT15	KWBC	none	Atlantic HDOBS message
URPN15	KWBC	none	East/Cent. Pacific HDOBS message
URPA15	KWBC	none	West Pacific HDOBS messages

USAF 53rd WRS:

WMO ID	CCID	PIL	PRODUCT TYPE
URNT15	KNHC KBIX	none	Atlantic HDOBS message
URPN15	KNHC KBIX	none	East/Cent. Pacific HDOBS message
URPA15	KNHC KBIX	none	West Pacific HDOBS messages

Under the current implementation schedule, the USAF will outfit a portion of the WC-130J Fleet with the SFMR prior to or during the 2007 hurricane season and target final retrofit to be complete before the 2008 hurricane season. During the 2007 season, all USAF aircraft will transmit HDOBS using the standardized product under the new UR..15 header – those aircraft not outfitted with SFMR will transmit using the new format with missing data values of 999 or similar as place holders. This schedule is subject to change.

Recommendation: Update NHOP Appendix G with the new HDOBS format specification and retain the USAF SXXX50 HDOBS format specification for one year and denote it as legacy.

Action: *Accept recommendation.*

4. **Title: Content Change Request for Tropical Cyclone ICAO Message - Informational**

Submitter: NOAA

Discussion: Per WMO FTCM Doc 13, the ICAO tropical cyclone message provides current tropical cyclone information and forecast information for forecast intervals of +12, +18 and +24 hours. Those products are issued utilizing the following WMO header information:

WMO ID	CCID	PIL	PRODUCT TYPE
FKNT2{1-5}	KNHC	TCANT{1-5}	Atlantic ICAO bulletin
FKPZ2{1-5}	KNHC	TCAPZ{1-5}	East Pacific ICAO bulletin
FKPA2{1-5}	PHFO	TCAPA{1-5}	Central Pacific ICAO bulletin

The NWS will add an interpolated 6 HR forecast information to message body and notify external users of change effective May 15, 2007.

Note - Bolded text denotes the addition of the +06 forecast hr information.

FKNT25 KNHC 310900
TCANT
TROPICAL STORM TEST ICAO ADVISORY NUMBER 27
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL242007
0900 UTC SUN OCT 21 2007

TC ADVISORY
DTG: 20071021/0900Z
TCAC: KNHC
TC: ERNESTO
NR: 027
PSN: N3000 W08012
MOV: N 13KT
C: 0998HPA
MAX WIND: 045KT
FCST PSN + 06 HR: 211200 N3106 W07951
FCST MAX WIND + 06 HR: 045KT
FCST PSN + 12 HR: 211800 N3206 W07930
FCST MAX WIND + 12 HR: 050KT
FCST PSN + 18 HR: 220000 N3321 W07903
FCST MAX WIND + 18 HR: 045KT
FCST PSN + 24 HR: 220600 N3436 W07836
FCST MAX WIND + 24 HR: 040KT
NXT MSG: 20071021/1500Z

Recommendation: Report to IHC as informational.

Action: *Informational—no action necessary.*

5. Title: **Message Standardization of Fix Messages**

Submitter: NOAA

Discussion: Several organizations issue tropical cyclone center and intensity "fix" bulletins. Product formats vary between offices and within offices. To better facilitate and expedite data use by parsing software at operational Centers, it would be advantageous to standardize at least some portions of the format.

Recommendation: Form a team of DOD and NOAA subject experts to develop a standard tropical cyclone fix product format.

Action: *Withdrawn.*

6. Title: **Tropical Cyclone Watch/Warnings for Johnston Island, Midway Island, and Northwest Hawaiian Islands – Informational**
- Submitter: NOAA
- Discussion: Johnston and Midway Islands are unincorporated territories of the US, administered by the U.S. Fish and Wildlife Service (USFWS) as part of the Pacific Island Wildlife Refuges (however the DOD still “owns” Johnston Island). The Northwest Hawaiian Islands are a U.S. National Marine Monument managed by NOAA’s National Ocean Service National Marine Sanctuaries. Normally Midway Island and some of the Northwest Hawaiian Islands are inhabited while Johnson Island is uninhabited but research, maintenance, and recreational mariners sometimes visit the island. Johnston Island has dock facilities and limited shelter. During the passage of Hurricane Ioke when it was uncertain whether there was anyone on Johnston Island, CPHC issued a hurricane warning 24 hours prior to it hitting the island. It was later confirmed that a working research vessel and crew was on Johnston Island and the Captain and crew decided to dock their ship on the leeward side of the island and sought shelter in a former army concrete bunker. The Captain and crew safety survived the hurricane and the ship sustained limited damage.
- Because CPHC often doesn’t have complete information on where and how many people are on these island, it will now be CPHC’s policy to always issue tropical cyclone watches and warnings for Johnston Island, Midway Island, and the Northwest Hawaiian Islands as necessary and to convey these watches and warnings to USFWS, the military, National Marine Sanctuaries, and National Marine Fisheries Service activities involved with these islands.
- Recommendation: Report to IHC as informational
- Action: *Information regarding this increased level of support by CPHC will be incorporated into the NHOP. (CPHC to provide input.)*
7. Title: **Recommend retirement of tropical cyclone names Daniel, Emilia, Estelle, Fabio, Fausto, Fernanda, Gil, Gilma, Guillermo, Jimena, John, Jova, and Kenneth from the East Pacific list**
- Submitter: NOAA (Central Pacific Hurricane Center)

Discussion:

Hawaii State Civil Defense has requested these names from the East Pacific list be retired and not used again. These names represent storms that have had significant and/or repeated impacts to the Hawaiian Islands, including activation of emergency response and assignment of resources, evacuations, damages from flooding, surf, and winds, and fatalities.

Daniel 2000	Significant high surf and heavy rains
Daniel 2006	Significant surf and high winds
Emilia 1994	Close proximity to islands, wind and surf damage, Category 5
Estelle 1986	Damaging surf on 3 islands (\$2 million), two deaths
Estelle 2004	Repeated close proximity
Fabio 1988	Close proximity, significant high surf, flooding
Fernanda 1993	Significant flooding
Gilma 1983, 1988, and 1994	Repeated close proximity, category 5 1994
Guillermo 1997 and 2003	Repeated close proximity, significant surf
Jimena 2003	Close proximity, significant high surf and flooding
John 1988, 1994, and 2004	Repeated close proximity, evacuations on Johnston Island 1994
Jova 2005	Close proximity, significant rainfall and flooding
Kenneth 2005	Close proximity, heavy rains

Recommendation:

IHC endorse the request to retire the names listed above and recommend the following 3 possible replacement names for each be forwarded to the WMO RA IV Hurricane Committee for their consideration:

For Daniel, suggest replacement names Derek, Donald, Duane
For Emilia, suggest replacement names Earlena, Elsa, Esme
For Estelle, suggest replacement names Elaine, Edwina, Emma
For Fabio, suggest replacement names Felipe, Flavio, Fermin
For Fernanda, suggest replacement names Flor, Fausta, Florinia
For Gilma, suggest replacement names Galenia, Getrudes, Gitana
For Guillermo, suggest replacement names Gaspard, Gervasio, Gaulterio
For Jimena, suggest replacement names Jacinta, Julina, Joaquina
For John, suggest replacement names James, Jacob, Jasper
For Jova, suggest replacement names Juana, Jordana, Jaime
For Kenneth, suggest replacement names Kent, Kipp, Kipling

Action:

Forward to WMO RA-IV for approval. If approved, update the

NHOP with replacement names.

8. Title: **Recommend Retirement/Change of Selected Central Pacific Tropical Cyclone Names - Informational**

Submitter: NOAA

Discussion: Ioke became a record-breaking category 5 storm in the Central and West Pacific in 2006, and CPHC intends to retire this name. In consultation with the University of Hawaii's Native Language program, CPHC will change or remove the following names from the list of central Pacific tropical cyclone names:

Akoni	Aka	Alika	Ana
Emā	Ekeka	Ele	Ela
Hana Hone	Hali Hene	Huko	Halola
Ia Iona	Iolana	Ioke Iopa	Iune
Keli	Keoni	Kika	Kimo Kilo
Lala	Li Lino	Lana	Loke
Moke	Mele	Maka	Malia
Nela Nolo	Nona	Neki	Niala
Oka Olana	Oliwa	Oleka Omeka	Oke Oho
Peka Pena	Paka Pama	Peni Pewa	Pali
Ueki Ulana	Upana	Ulia Unala	Ulika
Wila Wale	Wene	Wali	Walaka

Recommendation: Forward to IHC as informational.

Action: *Accept recommended name changes and incorporate into the NHOP.*

9. Title: **Reporting Outbound Wind Maxima in Vortex Messages**

Submitter: NOAA

Discussion: Item F in the reconnaissance vortex data message (VDM) product is the maximum flight-level wind observed on the inbound leg prior to the storm center fix. Currently if a higher wind is observed on the outbound leg it is reported in Item P on the subsequent vortex message usually two hours later. In addition wind maxima observed after the final fix of a mission are not transmitted through a subsequent VDM.

Recommendation: If an observed outbound wind maximum is higher than the inbound wind reported in Item F then the outbound maximum will be reported in the VDM for the fix just obtained. If after the transmission of the VDM a higher outbound wind maximum is observed, then a corrected vortex message will be transmitted at the conclusion of the outbound leg with the updated outbound maximum. Outbound wind maxima will be reported in Item P.

Action: *Accept recommendation and incorporate procedural change into the NHOP.*

10. Title: **Task Dropwindsonde Releases at 850 MB and Above**

Submitter: 53 WRS (DOD)

Discussion Reconnaissance aircraft have the capability to release dropwindsondes at 850mb and above. Historically, dropwindsondes have not been tasked to be released on cyclone missions flown below 700mb due to the short data stream and limited data points available from the instrument.

If this information is valuable to the community then consider lowering the altitude for tasked dropsonde releases to 850mb.

Recommendation: Task reconnaissance aircraft to release dropsondes when tasked for fixes at 850mb and higher.

Action: *Accept recommendation and incorporate procedural change into the NHOP.*

11. Title: **Operational Tropical Cyclone Forecast and Advisory Products in a GIS-Ready Format in Real Time.**

Submitter: USDA

Discussion: The NOAA/USDA Joint Agricultural Weather Facility (JAWF) requests that the NOAA National Hurricane Center provide operational tropical cyclone forecast and advisory products in a GIS-ready format in real time.

Following are NOAA/USDA JAWF GIS data and product requirements:

1. Tropical Cyclone Track and Watch/Warning map related data:

- Potential day 1-3 track area (i.e., cone) in polygon shapefile format
- Potential day 1-5 track area (i.e., cone) in polygon shapefile format
- Shapefiles available when the GIF image is posted on the NHC web site

2. Cumulative Wind Distribution map related data:

- Tropical Storm force wind swath (34 knot) in polygon shapefile format
- Hurricane force wind swath (64 knot) in polygon shapefile format
- Shapefiles available when the GIF image is posted on the NHC web site

* Although not currently displayed on the Cumulative Wind Distribution map, the 50 knot wind swath in polygon shapefile format would also be desirable.

3. Tropical Cyclone Surface Wind Speed Probabilities map related data:

- Probabilities of winds of at least 34 knots in polygon shapefile format
- Probabilities of winds of at least 50 knots in polygon shapefile format
- Probabilities of winds of at least 64 knots in polygon shapefile format
- Shapefiles available when the GIF images are posted on the NHC web site

4. Storm-total rainfall reports:

- Text file in a comma delimited format
- Each row contains: Station, Latitude, Longitude, Storm total rainfall, Notes
- Text file updated as new data become available or at a predefined interval

5. Maximum sustained wind speed reports:

- Text file in a comma delimited format
- Each row contains: Station, Latitude, Longitude, Max. sustained winds, Notes
- Text file updated as new data becomes available or at a predefined interval

6. Maximum wind speed (gust) reports:

- Text file in a comma delimited format
- Each row contains: Station, Latitude, Longitude, Max. wind speed (Gust), Notes
- Text file updated as new data becomes available or at a predefined interval

Justification: The first three products identified above are already produced operationally by NHC in a GIF format. The NOAA/USDA JAWF requests that these products be made available in a shapefile format as well. The shapefile format would enable USDA meteorologists to more quickly and precisely overlay NHC products on USDA agricultural data in a GIS, and

hence facilitate a more accurate assessment of hurricane impacts on domestic agriculture.

The latter three data sets identified above are not available as operational NHC products. These data are sometimes contained in the Public Advisories and Discussions associated with individual storms, but are not always made available. We request that NHC provide station reports of storm-total rainfall, maximum sustained wind speed, and maximum gusts in a comma delimited text (or shapefile) format as these data become available during and immediately after a storm. We understand that these data would be considered preliminary, but it would significantly improve USDA capabilities to assess hurricane impacts on agriculture if USDA used the same data that NHC receives.

The primary motivation for our requests is to ensure that the data and products that USDA uses in preparing hurricane-related agricultural weather assessments are identical to the data and products that NHC analyzes, generates, and disseminates to their customers. We have been unable to maintain this consistency by importing NHC GIF images into a GIS, and we frequently find differences in point rainfall and wind speed measurements when comparing data from multiple data providers. Although hurricane-related data and products can be obtained from numerous sources (e.g., FEMA, private weather firms, educational institutions), we recognize that NHC is considered the Federal government authority on hurricanes and the official source for related information. Given this recognition and increasing requests for hurricane-related data and products by USDA decisions makers, USDA meteorologists would prefer to use only NHC-endorsed data and products in preparing agricultural weather assessments. This single source for information would help reduce questions about the differences, reliability, and accuracy of hurricane-related data and products, allowing USDA meteorologists to focus more on explaining the underlying science and messages conveyed by these data and products.

Recommendation: NOAA National Hurricane Center provide operational tropical cyclone forecast and advisory products in a GIS-ready format in real time.

Action: *Products 1-3 (in GIS-ready format) are under development and should be available operationally in 2008. Products 4-6 are not available through TPC/NHC. OFCM (Bob Dumont) and NWS (Scott Kiser) will work with USDA (Brad Rippey) to find an alternate source of this information.*

12. Title: **Change to NHOP – Sections 2.3 and 6.4**
- Submitter: Air Force Weather Agency (AFWA)
- Discussion: Due to recent personnel and funding cuts, the Air Force Weather Agency (AFWA) can no longer dedicate the resources needed to sustain tropical cyclone satellite imagery surveillance and analysis support to the National Hurricane Operations Plan. This cessation of support requires changes in the NHOP to reflect the AFWA termination but continuance of support on request, resources permitting, by the 17th Operational Weather Squadron Meteorological Satellite Operations (SATOPS) Flight (17 OWS/WXJ), Joint Typhoon Warning Center, Pearl Harbor, HI to the Central Pacific Hurricane Center.
- Recommendation: Requested changes to the NHOP listed below be incorporated.
1. Page 2-4, para 2.3, 7th sub-bullet. Update to reflect cessation of AFWA analysis support activities.
 - Provide, resources permitting, through the 17th Operational Weather Squadron Meteorological Satellite Operations (SATOPS) Flight (17 OWS/WXJ), Joint Typhoon Warning Center, Pearl Harbor, HI, surveillance support with fixes and/or intensity to the Central Pacific Hurricane Center through analysis of available satellite imagery. The JTWC SATOPS Flight support focuses on the Indian Ocean and the Central, South, and Northwest Pacific Ocean.
 2. Page 6-6, para 6.4. Update to reflect cessation of AFWA analysis support activities

6.4 Air Force Support and the Defense Meteorological Satellite Program (DMSP). Data covering the National Hurricane Operations Plan areas of interest are received centrally at the Air Force Weather Agency (AFWA) and distributed to Operational Weather Squadrons (OWS) and the Navy's Fleet Numerical Meteorology and Oceanography Center (FNMOC) at Monterey, CA. Satellite data covering the Central Pacific area are received at or shipped to the 17th OWS Meteorological Satellite Operations (SATOPS) Flight (17 OWS/WXJ), Joint Typhoon Warning Center, Pearl Harbor, HI. The 17 OWS/WXJ uses all available meteorological satellite data when providing fix and or intensity information to Central Pacific Hurricane Center forecasters.

3. Page 6-6, para 6.4.1 Update to reflect cessation of AFWA support activities

6.4.1. Central Pacific Surveillance. The 17 OWS/WXJ (JTWC Satellite Operations Flight) will provide, resources permitting, fix and/or intensity information to the CPHC on systems upon request.

4. Page 6-6, para 6.4.2. Delete

5. Page 6-7, Figure 6.2. Delete

Action: *Accept proposed changes and update NHOP.*

13. Title: **Changes to NHOP, Table 6-2**
- Submitter: Air Force Weather Agency (AFWA)
- Discussion: Update Table 6-2 for DMSP Equator crossing times and additional satellite.

Page 6-12, Table 6-2 Update local equator times:

- DMSP F-12, to “0349D/1549A”
- DMSP F-13, to “0633D/1833A
- DMSP F-14, to “0543D/1743A
- DMSP F-15, to “0756D/1956A”
- DMSP F-16, to “0809D/2009A

Add new satellite – DMSP F-17 0534D/1734A
Type of Data: OLS Imagery (recorded and direct), *SSM/IS*

Recommendation: Update NHOP.

Action: *Accept recommendation.*

14. Title: **Clarification of CARCAH’s Continuity of Operations Plan in NHOP**
- Submitter: NOAA/53 WRS
- Discussion: In the event the CARCAH facility housed at the NHC becomes inoperable, the plan to ensure the continued transmission of reconnaissance data is not well documented in the NHOP.

Recommendation: Ensure that the capability to continue reconnaissance operations and the flow of data continues should the NHC/CARCAH facility become inoperable.

Develop a plan to ensure the data flow between the following NOAA/DOD agencies: Keesler to NHC (should CARCAH become inoperable), CARCAH to HPC (should NHC become inoperable), and Keesler to HPC (should CARCAH and NHC become inoperable).

Propose that the Air Force Reserve Command (AFRC) be the lead agency in drafting an addendum to Chapter 5, "Aircraft Reconnaissance," of the NHOP to better define the CARCAH continuity of operations plan.

Action: *Accept recommendation. 53 WRS (Lt Col Jon Talbot) will provide draft input by April 15, 2007.*

15. Title: **Elimination of the Supplementary Vortex Data Message(SVM)**

Submitter: 53WRS (DOD)

Discussion: The SVM (URNT14) was implemented prior to High Density Data generation (IWRS) to provide information on the tropical cyclone environment along the inbound and outbound alpha pattern legs. Now that higher resolution 30 sec and 1 min High Density Data are provided to all users, and to the general public, on the entire flight track from the WC-130 and WP-3, the requirement to generate the SVM should be eliminated as it is redundant. Users of High Density Data can generate much higher resolution data field products from transmitted high resolution data.

Recommendation: Remove references to the SVM from Table 5-1, paragraph 5.4.6, Figures 5-5 and 5-6, and Appendix K.

Action: *Forward to WMO RA-IV for acceptance and will also provide WMO RA-IV members alternatives for obtaining data. With WMO RA-IV concurrence, the requirement for the SVM will be eliminated from the NHOP.*

OLD ACTION ITEM STATUS

1. Title: **Change Request for Vortex Message**
- Submitter: NOAA
- Discussion: Propose adding Storm Number Identifiers to Part P of the Vortex Message for use in facilitating automatic ingest into NHC, CPHC, and DOD Tropical Cyclone Forecast computing systems.

Proposed addition to Part P:

P. AF302 1712A KATRINA OB 16 <**Storm-ID**>

Examples:

P. AF302 1712A KATRINA OB 16 AL122005

P. AF305 01CCA INVEST OB 10 AL932005

Storm Number Identifiers are formatted as **BBCCYYYY**

BB: Ocean Basin

AL - North Atlantic basin...north of the Equator

SL - South Atlantic basin...south of the Equator

EP - North East Pacific basin...eastward of 140.0W

CP - North Central Pacific basin.between
the Dateline and 140.0W

WP - North West Pacific basin...westward of the
Dateline

IO - North Indian Ocean basin...north of the
Equator between 40.0E and 100.0E

SH - South Pacific Ocean Basin and South Indian
Ocean basin

CC: Cyclone Number

Numbers 01 through 49 are reserved for tropical and subtropical cyclones. A cyclone number is assigned to each tropical or subtropical cyclone in each basin as it develops. The numbers are assigned in chronological order.

Numbers 50 through 79 are reserved for internal use by operational forecast centers.

Numbers 80 through 89 are reserved for training, exercises and testing.

Numbers 90 through 99 are reserved for tropical disturbances which have the potential to become tropical or subtropical cyclones. Although not required, the 90's should be assigned sequentially and reused throughout the calendar year.

YYYY: Four-digit year
This is the calendar year for the Northern Hemisphere. For the Southern Hemisphere, the year begins July 1, with calendar year plus one.

Recommendation: Request action completed by CARCAH, 53 WRS, and NOAA AOC prior to start of 2006 hurricane season. Make appropriate changes in NHOP.

Action: "Storm ID" will be implemented in the message title. AOC will implement for the 2006 season; implementation for the 53 WRS will be delayed to the 2007 season.

Current Status: **Closed.**

2. **Title:** **Expendable Bathythermograph (AXBT) Observations on Tasked Reconnaissance Missions**

Submitter: NOAA

Discussion: A need has been identified by EMC for routine AXBT data to be collected on hurricane reconnaissance and research flights. The purpose of this data is to support initial testing efforts for the new HWRF coupled hurricane model. Currently there are no real time in situ ocean observations that define the upper ocean structure. EMC would like to test the usefulness of AXBT observations in coupled HWRF model runs in 2006 and beyond, beginning initially with data from the NOAA P3's and then from the AFRC WC-130J reconnaissance aircraft after 2007, when the HWRF model is expected to become operational.

Recommendation: Request AXBT deployments (minimum of 12), using present second-hand inventory, on each WP-3D tasked reconnaissance mission.

Action: 1. NCEP/EMC, TPC/NHC, and AOC will coordinate to obtain AXBT observations on selected tasked missions during the 2006 season to help establish the requirements for upper ocean observations.

2. The NOAA HRD and AOC will investigate the development of an AXBT that can be deployed through the AVAPS system.

3. The 53 WRS will investigate the feasibility of deploying AXBT's.

4. NWS will take action to identify needed resources for upper ocean observations through the PPBES process.

Current Status: **NCEP/EMC is currently developing the requirements document for AXBT (upper ocean) observations, which is the driver for actions 2-4 above.**

3. Title: **New Format for HDOB/MINOB Data**

Submitter: NOAA

Discussion: High density flight-level observations from NOAA P-3 and AFRES C-130 reconnaissance aircraft currently are transmitted using different formats (MINOB and HDOB, respectively), although the content of these messages are extremely similar. With the addition of SFMR data to the Air Force aircraft, the required redesign of the C-130 HDOB message offers an excellent opportunity to settle on a single format for these data.

Recommendation: NOAA and AFRC (53 WRS) should use a single message format for the transmission of high-density flight-level data. A proposed format for the new HDOB message is attached that would replace NHOP Figures G-2 and G-3 and Table G-3 and G-4. Eliminate all references to "MINOB" in the NHOP.

Action: Implementation of the new HDOB message was deferred until the 2007 season. NOAA/AOC, 53 WRS, and TPC/NHC will coordinate to finalize the required formatting and processing of the message by May 1, 2006, to ensure the information is available for the WC-130J contractor.

Current Status: **See 61st IHC AI #3.**

4. Title: **CARCAH Manning**

Submitter: AFRC

Discussion: Historically, the CARCAH positions have been funded by the Air Force. The number of individuals assigned has varied and as technology has changed from voice HF to SATCOM data communications, the number of positions has been reduced to three. One Chief and two data monitors. The Air Force has funded these positions since most of the data in the past has been from Air Force Aircraft. In recent years, the NOAA P-3 and G-IV have flown an increasing number of operational missions and the job responsibilities of the position have changed to a more multiagency monitoring role with CARCAH personnel handling Air Force and NOAA data monitoring duties and other duties at the NHC. Funding for these positions should be shared as well.

Recommendation: Air Force and NOAA should develop a plan to share the funding costs of the CARCAH positions which is more representative of the actual division of duties, i.e., if 70% of the CARCAH duties involve Air Force missions and 30% involve NOAA missions the Air Force should fund 70% and NOAA 30% of the cost of these positions.

Action: NOAA representative could not commit to the recommendation, citing legal prohibitions on the transfer of funds for the stated purposes but will provide a HQ NOAA point of contact for further discussions.

Current Status: **Closed.**

5. Title: **Caribbean Hurricane Awareness Tour (CHAT)**

Submitter: AFRC

Discussion: The Caribbean Hurricane Awareness Tour (CHAT) has been flown by both the NOAA P-3 and the AFRC WC-130. Historically, the NOAA P-3 has been used for the East Coast Awareness Tour and the WC-130 for the CHAT since the configuration of the aircraft makes it more efficient to use in these theaters. These missions are important to educate the public about the threat of hurricanes and to continue an effective liaison with the weather services of the countries visited.

Through the NHOP, the DOD, DOC, and DOT have agreed to cooperate on arranging and executing this trip, the cost of the CHAT has steadily increased while the Air Force Reserve budget has been continuously reduced.

Recommendation: Develop a plan where the DOD and DOC share the expense of the CHAT. Proposal is for the DOD to cover the flying hours, landing fees, and crew funding costs and for DOC to provide funding for billeting and transportation.

Action: NOAA representative could not commit to the recommendation, citing legal prohibitions on the transfer of funds for the stated purposes but will provide a HQ NOAA point of contact for further discussions. In addition, NOAA will work with the 403rd Wing to request financial support from U.S. Southern Command which has responsibility for liaison and outreach in the CHAT area.

Current Status: **Closed.**

6. Title: **Access to Operational Storm Surge SLOSH Output**

Submitter: NOAA

Discussion: When tropical cyclones are forecast to make landfall within a predetermined period, TPC produces, resources permitting, operational storm surge SLOSH model runs for potentially affected basins. The model output is stored on TPC's anonymous ftp server for partners and users to download. The anonymous ftp server is connected to the internet world via T1 lines. During the busy season of 2005, the internet traffic to TPC's ftp server for various data was so overwhelming that some agencies had to spend more than 20 minutes to download SLOSH output.

The access time by federal, state, and local government agencies could be reduced significantly if they can go to other servers outside of NCEP and TPC network to download those files.

Recommendation: DOD sets up an ftp server for DOD agencies to access SLOSH data. DHS/FEMA sets up an ftp server for all federal, state, and local emergency management offices to download SLOSH data. TPC will update the SLOSH data on both servers.

Action: OFCM will coordinate with the Air Force/AFWA, Navy, and DHS/FEMA to investigate the identification of ftp servers to speed access to SLOSH data for the individual agencies.

Current Status: **TPC/NHC (Chris Sisko), Navy (LCDR Dave Roberts), and OFCM (Bob Dumont for DHS/FEMA) will investigate the identification of ftp servers to speed availability of data.**