An MT Exclusive
by Larry Van Horn

The satellite forecaster at the National Hurricane Center (NHC), Miami, Florida, pulls the satellite photograph from the processing equipment and notices an area of brighter clouds in the mid-Atlantic, signifying thunderstorms. Various ship reports indicate freshening winds in the area, and the forecaster's computer produced charts of air pressure and other meteorological parameters indicate to his experienced mind the formation of a tropical depression.

But more data—on the spot—of winds, temperatures, pressure, humidity, and the "state of the sky" in this empty part of the ocean are needed before a valid forecast can be made. The forecaster calls the Air Force Weather Center weather forecasters at the NHC.

Two active duty Air Force units, the 53rd Weather Reconnaissance Squadron "HURRICANE HUNTERS" and the 54th Weather Reconnaissance Squadron "TYPHOON CHASERS," are charged with the seasonal job of flying into the most violent weather known to man. They collect the data vital to the forecasters and their warnings, information that can save the lives of those unfortunate enough to be in the path of a full-scale hurricane or typhoon.

Stationed at Keesler AFB, Biloxi, Mississippi the 53rd (joined by the 920th Weather Recon group of the USAF reserves) is responsible for storm surveillance in the Atlantic Ocean, Caribbean Sea, the Gulf of Mexico and the eastern Pacific Ocean.

The 54th, flying out of Andersen AFB, Guam performs the same task in the western Pacific Ocean. Both units frequently deploy aircraft and aircrews to forward operating bases closer to the area of interest than their home bases.

There are certain meteorological parameters important for the formation of a tropical depression and its future development. Data that the crews of the 53rd and the 54th investigate are reported to the National Weather Service's hurricane forecasters in Miami; these forecasters can be heard on HF frequencies identifying as NHOP Monitor. The men and women of the Hurricane Hunters fly their WC-130's (W stands for weather) Hercules aircraft as low as 500 feet above the chaotic surface.

The data are transmitted in coded (not encrypted) form on HF to the forecasters at the NHC. When the storm is far from land or shipping lanes a penetration to the very center, or "eye," is made every 12 hours. The closer the storm comes to landfall, the more frequent the WC-130 aircraft "fixes" are made. Finally, the "fixes" will become hourly until the storm dissipates over land or submerges out into colder waters to die.

Surface pressure is determined by the release of an instrument known as a "dropsonde," a small metal cylinder packed with meteorological measuring equipment coupled to a small UHF radio transmitter. Released at 10,000 feet, it falls to the water below at 5,000 feet per minute and radios back to a receiver on the aircraft information on temperature, humidity and air pressure of the storm that provides a vertical profile.

Data around the storm are as valuable as those found in the eye; for this reason the hurricane hunters fly large X-shaped patterns across the whole storm. Although each storm is different, most will have moderate to severe turbulence and thunderstorms with large amounts of hail and lightning. The spiral bands of the thunderstorms merge in a circle around the eye, forming a unique phenomena called the wall cloud or "eye wall."

It is the penetration through this formidable rampart of thunderstorms that is the most hazardous part of any hurricane Hunter mission; the Hercules must be taken right through this wall to reach the center of the storm. The eye itself—is anywhere from 5 to 50 miles in diameter—is cloud-free, calm and serene compared to the periphery of the storm.

Storm reconnaissance missions can last anywhere from eight to 16 hours, depending on how far the crew must fly to reach the tempest. These are extremely fatiguing missions, but after fifteen hours of rest on the ground, the crew is called upon to do it again.

The WC-130 requires a six place crew—pilot (the aircraft commander), co-pilot, navigator, weather officer, flight engineer and dropsonde system operator. The weather officer, a professional Air Force meteorologist, along with the navigator directs the course of the flight during the penetration to remain clear of thunderstorms. It is the weather officer who computes the weather data, encodes the observation in a special format and transmits to Miami Monitor.

Observations are made as set forth in the National Hurricane Operations Plan (NHOP). According to the NHOP, USAF and NOAA aircraft will normally transmit reconnaissance observations through the USAF Aeronautical stations via direct phone patch to Miami Monitor (Atlantic and Eastern Pacific) or Hickam Weather Monitor (Central Pacific). Aeronautical stations then provide a discrete frequency for mission use.

View of the forward half of the cockpit aboard a WC-130 showing (from left to right) flight engineer, aircraft commander, and co-pilot.

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Monitor These RTTY Frequencies

MT reader Bill Kirchner has been enjoying his new Kantronics Radiotap and has a list of RTTY stations he has uncovered which he would like to share with fellow listeners.

A few CW stations are thrown in for good measure! Thanks, Bill for sharing this fine list of loggings with fellow Monitoring Times readers.

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FREQ(MHZ)

3.287 MILITARY
3.600 HAM NET
3.624 "
4.059 NEWS AND MIXED LANG
4.152 MILITARY
4.250 "
4.515 MARS
5.215 MARS ARMY NET
5.460 MILITARY
5.483 S AMERICAN NEWS
6.234 SHIPS
6.376 SHIPS
6.444 GULF OF MEXICO WX
6.444 SHIPS
7.090 SALE
7.705 "
8.120 NEWS, ENGLISH
8.200 "
8.300 "
8.306 MILITARY
8.342 RTTY
8.407 CW
8.416 CW
8.444 NEWS, ENGLISH
8.484 SHIP TO SHORE,ATALNTC
8.584 "
8.614 WX
8.665 HOUOTON SHIP TO SHORE CW
8.805 MILITARY
8.888 WX, RTTY
10.464 NEWS, ENGLISH
10.948 S AMERICAN PROPAGANDA
11.010 S AMERICAN NEWS
11.435 MILITARY
11.453 MILITARY
11.475 NEWS,MIXED LANG
11.649 RTTY TEST TAPE
13.032 NEW YORK SHIPPING CW
13.062 MILITARY
13.636 MILITARY
14.000 "
14.200 "
14.240 NEWS, ENGLISH
14.300 "
14.329 "
14.342 "
14.616 RANDOM MSGS
14.820 NEWS, ENGLISH
14.874 "
14.900 "
14.900 PROPAGANDA
14.908 SAN SALVADOR PROPAGANDA
15.480 NEWS, ENGLISH
15.908 SAN SALVADOR NEWS
16.106 NEWS, ENGLISH
16.198 FRENCH NEWS
16.132 FRENCH NEWS
16.136 CUBA PROPAGANDA,ENG
16.165 FRENCH NEWS,ENGLISH
16.185 S AMERICAN PROPAGANDA
16.211 NEWS, ENGLISH
16.348 NEWS, ENGLISH
16.425 FRENCH NEWS

********

Ham Radio Computer Nets

APPLE
14.300-900 SUN 0100 Z
14.329 SUN 1700
7.260 SAT
3.900 SUN 0200
8.230 SAT 0900
ATARI
14.320 SUN 1600 Z
14.395 WED
7.235 SUN 1830
7.230 MON 1800
7.230 SUN 1800
COMMODORE
14.240 SUN 0500 Z
14.240 MON 1730
3.825 ?
TIMEX/SINCLAIR
3.917 ?
7.225 ?
7.228 SAT-SUN 1300Z
7.240 SUN 1100
7.270 SUN 2200
TRS80
14.342 SUN 2000 Z
15.480 NEWS, ENGLISH
16.038 OTHER COMPUTER NETS
16.106 NEWS, ENGLISH
16.198 FRENCH NEWS
16.132 FRENCH NEWS
16.136 CUBA PROPAGANDA,ENG
16.165 FRENCH NEWS,ENGLISH
16.185 S AMERICAN PROPAGANDA
21.400 THUR 2330

RTTY PROPAGANDA

The propaganda encountered on RTTY is often strong as exemplified by this item from TASS, the official Soviet news agency.

"MOSCOW APRIL 5 TASS THE U.S. RULING ELITE WOULD LIKE TO USE THE OLYMPIC GAMES IN THE UNITED STATES TO FURTHER ITS PROPAGANDA GOALS, THE NEWSPAPER "SOVIET-SKYHIGHPORT" SAYS TODAY. THESE GOALS WILL BE PURSUED IN THE FOLLOWING WAY: FIRST, UNBEARABLE CONDITIONS WILL BE CREATED FOR MAJOR RIVALS, FIRST AND FOREMOST, ATHLETES FROM SOCIALIST COUNTRIES;... AND, FINALLY IT IS NECESSARY TO SNARE IN EVERY WAY THE SOVIET UNION,..."

Tail Tales of Tapes

Over the years, many types of permanent records of transmissions have been attempted. Remember the old "ticker tapes"? This month Donald K. de Neuf of Southbury, Connecticut treats us to a sampling of tapes through the ages.

1) Submarine cable transmitting tape. Block signals...dots "up" ---dashes "down".
2) Outgoing syphon recorder tape showing block signals.
3) Syphon recorder tape of incoming signals from France. Signals are extremely "rounded" due to the low-pass filter effect of the long cable. Skilled operators had little difficulty in translating the undulations.
4) Radio Telegraph Wheatstone transmitting tape. Perforations on the tape side of the tape create "mark" or key-down conditions. Holes on the bottom release the mark condition.
5) Radio Telegraph receiving syphon recorder tape. Dots and dashes are clearly indicated by the pen moving "up" for "mark" and "down" for space.
6) Facsimile tape employed by Press Wireless, Inc., to bring ideographic news reports for Japanese and Chinese newspapers in the United States. Strip is in Chinese and reads..."formal diplomatic relations between the two countries, the Government of the Republic of China...."
7) Bell Schreiber tape. Highly successful on radio telegraph circuits. Synchronization was no problem—as one line of print began to slide off the tape a second line above or below began to print. Transmission was by means of a commutator keyboard and received by a spiral scanner drum.

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South Pacific Weather Broadcasts

Two new NOAA weather facilities are scheduled to begin transmitting by the end of this year or by early next year. WX8M5 will serve Guam on 162,550 MHz and WX8N6 will start broadcasting in Salpan on 162,400 MHz.

In push-pull for modulation. Operation is twenty-four hours a day, seven days a week, simulcasting with CKWX which has a country music format and stereo modulation.

As well as being the world's tiniest SWBC voice, CKFX may be one of the very few transmitters emitting AM stereo modulation on HF, and in my ear this improves their intelligibility. Even with 6 MHz/9 phase delays, it sounds good here!

CKFX can put in a respectable signal about an hour before and after Vancouver sunset, which in the winter is before Deutsche Welle sits down on 6080 kHz. Listeners should keep trying until the ozone shuttles, this pipisque through. Also check 6080 kHz when the 5610 - kHz CBC Vancouver transmitter (500 watts) is well above noise level.

The CKFX programming contains plenty of advertising to constitute a DX report, but don't sweat the weeks it may take their secretary to send the distinctive QSL.

Address reports to: CKFX Radio, 1275 Burrard St., Vancouver, BC V6Z 1Z8, Canada, with a reasonable accounting of their "WX1190" ads and music. There are certainly easier ways to hear Vancouver, but this can be "bus radio" can be a star performance when the ionosphere permits.

GIFT TO WEATHERWISE from p28
an entire ANALYSIS message and a sample of the corresponding plotted weather map, as well as broadcast schedules of coast stations, worldwide, which transmit ANALYSIS messages, I recommend an excellent looseleaf publication titled "MANUAL OF MARINE WEATHER OBSERVING" (MANMAR). Priced at CDN $5.00, may be purchased from Atmospheric Environment Service, Distribution Centre, 4905 Dufferin Street, Downsview, Ontario, Canada M3H 9R7.-js should be made payable to the "Receiver General of Canada."

This book (over 200 pages) is quite comprehensive, and includes all the details of the "Ship's Report" code to be discussed next, as well as the ANALYSIS code.

NEXT MONTH: "OBS" - SHIP'S WEATHER REPORTS

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