

2. METOC COMMUNICATIONS

2.1. MESSAGE ADDRESSES

2.1.1. AUTOMATIC DIGITAL NETWORK (AUTODIN)

Routine and higher precedence AUTODIN traffic, except Top Secret, is received on the Operations floor via dedicated phone line from NCTS GUAM. Operational and administrative traffic is transmitted via the AUTODIN Gateway (GATEGUARD) Terminal.

METOC observations and requests for services in the Pacific and Indian Oceans should be addressed to Collective Address Designator (CAD) "OCEANO WEST". The CAD includes the following action addressees:

NAVPACMETOCCEN PEARL HARBOR HI
NAVPACMETOCCEN WEST GU
FLENUMMETOCCEN DATA MONTEREY CA
NAVOCEANO DATA STENNIS SPACE CENTER MS
AFGWS OFFUTT AFB NE

Ships transiting between Atlantic and Pacific Oceans and Atlantic and Indian Oceans should include "OCEANO EAST" as info addree on all observations and requests.

NAVPACMETOCCEN WEST is also included on AIG's SIX ONE and FIVE FIVE for receipt of MOVREPS/MOVORDS.

2.1.2. AUTOMATED WEATHER NETWORK (AWN)

The U. S. Air Force holds the responsibility for collecting and distributing environmental data via the AWN. There are three major Automatic Digital Weather Switches (ADWS): Croughton AB, England, serving Europe via the European Meteorological Environmental Data System (EURMEDS); Hickam AFB, HI, serving the Pacific via the Pacific Meteorological Environmental Data System (PACMEDS) and Tinker AFB, OK, serving the Continental United States via the CONTEL Meteorological Workstation (CMW).

2.2. METOC BROADCASTS

2.2.1. PMHH (WESTPAC)/GMWW (IO)

NAVPACMETOCCEN WEST monitors two 75bps radioteletype broadcasts which are carried on channel 8 on the WESTERN PACIFIC FLEET BROADCAST and INDIAN OCEAN FLEET BROADCAST respectively. These broadcasts are designed for units with METOC personnel embarked. Data requirements and contingencies are routed to ADWS TINKER AFB which originates the broadcast via dedicated circuits. Unclassified environmental data keystreams are routed to NCTS GUAM via ADWS HICKAM AFB Hawaii and ANDERSEN AFB Guam where data is encrypted and classified data is inserted. Circuit designator and conductivity paths are detailed in local directives and SOP's.

2.2.2. GUAM FLEET FACSIMILE BROADCAST (GFAX)

GFAX is a METOC HF facsimile broadcast, controlled by SEVENTHFLT and administered by NAVPACMETOCCEN WEST when requested. The broadcast consists of FNMOC Monterey derived

analyses and prognostic charts and selected value-added charts produced by NAVPACMETOCEN WEST Operations forecasters. GFAX is an unencrypted broadcast available to anyone with facsimile reception capabilities. GFAX reception is subject to atmospheric propagation anomalies experienced by all HF broadcasts. Units experiencing reception problems should submit a COMSPOT via immediate AUTODIN message to NCTS GUAM, info NAVPACMETOCEN WEST GU.

The Western Pacific GFAX supports SEVENTHFLT assets located in the western Pacific Basin. Product coverage extends from 66° North to 20° South and from 100° East to 180°. Value-added products for this area include 36, 84 and 120 HR Weather Depictions and a 36 HR Combined Sea Height Prog, as well as numerical products. WESTPAC GFAX broadcast frequencies:

TRANSMISSION SITE	FREQUENCIES
Barrigada, Guam	10255 LSB/USB
	16029.6 LSB
	19860 LSB/USB
Totsuka, JAPAN	4965 USB
	12775 USB
	22324.5 USB

The Indian Ocean GFAX supports SEVENTHFLT and FIFTHFLT assets located in the Indian Ocean, Arabian Gulf and Red Sea. Product coverage extends from 60° North to 20° South and from 20° East to 100° East. Value-added products include the 36 HR Combined Sea Height and 36 HR Weather Depiction. IO GFAX broadcast frequencies:

TRANSMISSION SITE	FREQUENCIES
Barrigada, Guam	5260 LSB/USB
	23010 LSB
Diego Garcia	7580 USB (24 HRS)
	12894 USB (00Z-12Z)
	20300 USB (12Z-00Z)

2.3. EQUIPMENT

2.3.1. AUTOMATED WEATHER DISTRIBUTION SYSTEM (AWDS)

The Automated Weather Distribution System ingests graphic and alphanumeric data for display. There are three functional areas (FA) available at JTWC: the C/DM, BWS and SWO. The C/DM FA (Communications/Data Manager Functional Area) ingests, processes and stores all incoming data to the AWDS. Data requirements are established by the AWDS System Manager. The BWS FA (Base Weather Station) processes, stores and displays all data requested. The BWS also contains the printing capability of the system. The SWO FA (Staff Weather Officer) performs all the functions of the BWS but does not have local printing capability.

The alphanumeric data comes via long haul circuit (KDNY) to the C/DM from Det 7 AFGWC, Tinker AFB OK. All alphanumeric data is handled much the same way as with PACMEDS. Alphanumeric data cannot be used for graphical display or to derive other data types. The graphics data comes via long haul circuit (KDNX) to the C/DM from AFGWC. There are four basic types of graphics data: vector, FBD, UGDF and Raster Scan. Vector graphic data are pregenerated fields and usually contain some form of manual interpretation of those fields. FBD (Formatted Binary Data) are surface and UA observations formatted into a graphical plot for display on a map. UGDF (Uniform Gridded Data Fields) are raw grid point, modeled fields. The model in use is the AFGWC GSM, but AFGWC plans to transfer to the NOGAPS model as the source for these fields. These fields can be displayed in plots as the FBD or used to derive and plot isopleths for other fields on predetermined maps. Finally, Raster Scan data is 8 grayshade DMSP data from the AFGWC Satellite Global Data Base.

2.3.2. SATELLITE SYSTEMS AND EQUIPMENT

The Geostationary Satellite Receiving System (GSRS) is capable of receiving direct read-out of high-resolution imagery and selected data from selected geostationary satellites. The GSRS processes data, allowing the forecaster to display, manipulate and print METOC products. The real-time collection allows for viewing data as it is received and manipulating data after ingest.

The M1000 is a stand-alone CPU connected to the NIPRNET via the LAN. The Satellite Weather Data Imaging System (SWDIS) allows connectivity to other similarly equipped METOC GSRS systems for retrieval of satellite imagery through File Transfer Protocol (FTP). Non-satellite files may also be transferred to the LAN via NIPRNET.

The SMQ-11 Satellite Receiver may be used in the stand-alone mode or interfaced with the TESS-3 unit. SMQ-11 is capable of receiving both polar orbiter and geostationary imagery. Enhancement to imagery is possible with the SMQ-11 via the TESS-3.

JTWC has three satellite systems that are available for data retrieval and may be used in forecasting tropical cyclones. The MARK IV is a stand-alone system capable of retrieving both geostationary and polar orbiting satellites. The MISTIC system receives Special Sensor Microwave/Imagery (SSM/I) data via NIPRNET from FLENUMMETOCEN Monterey. SSM/I calculates wind speeds based on sea surface disruption. The MIDAS system is used to analyze tropical systems. This system utilizes both the MARK IV and GSRS imagery.

2.3.3. TACTICAL ENVIRONMENTAL SUPPORT SYSTEM (TESS)

TESS integrates data communications, processing and display technologies to provide the forecaster with timely and accurate METOC support, including assessments of the effects of the environment upon specific platforms, sensors and weapons systems. METOC data is received from a variety of sources including satellite sensors, transmissions from METOC centers, facilities and detachments, general service messages, direct operator entry, local sensor systems and historical data base. The TESS-3 X-Graphics WorkStation (XGWS) supports the dissemination of METOC data and products. METOC Interest Operations (MIO) provides XGWS users with the capability to retrieve, store, view, edit and manipulate and display data and products within a geographical region. MIO supports the retrieval of geographic data from the Tactical Environmental Data System (TEDS) database.

2.3.4. JOINT MARITIME COMMAND INFORMATION SYSTEM (JMCIS)

JMCIS integrates Command, Control, Communications, Computers and Intelligence (C4I) functions into an automated networked system. A variety of computer platforms, software and network and communications interfaces form the JMCIS architecture.

The Joint Operational Tactical System II (JOTSII) is an automated Command, Control, and Communications display and decision-aid system. It is designed to meet the tactical situation assessment needs of battle group/force commanders, warfare commanders, ship CO's and shore command centers. It receives tactical information from a variety of sources and automatically correlates this data with its existing tactical contact database, which is used to generate computer graphic images for use by tactical decision makers. JOTSII communication capabilities allow for transmission and receipt of OPNOTES between NAVPACMETOCEN WEST and similarly equipped units. Our JOTSII address is "NPMOCW GU."

The Navy Integrated Tactical Environmental Subsystem (NITES) consists of a collection of application programs and system services. Its primary purpose is to collect, manage, display and disseminate environmental data sets which are useful as tactical decision aids to tactical commanders and operators. The TESS Remote Workstation (TRWS) receives gridded field data from the main TESS-3 computer for manipulation and display via JOTS II overlay. Nites Central Site Product Display (NCSPD) allows the user to retrieve, display, annotate and save METOC data from either the TESS-3 system or directly from FLENUMMETOCEN Monterey. Integrated Refractive Effects Prediction System (IREPS) uses a mathematical model to predict the performance

of radar systems and Electronic Support Measure receivers based on radar attributes, target attributes and environmental data. The Imageviewer allows the viewing of satellite imagery received from TESS-3, SMQ-11 or from remote sources via FTP.

2.3.5. NAVAL OCEANOGRAPHY DATA DISPLAY SYSTEM/NAVAL OCEANOGRAPHY DATA DISPLAY SYSTEM FACSIMILE BROADCAST (NODDS/NODDSFAX)

NODDS provides the capability to define a region of interest and display different types of data for that region. All standard meteorological fields are available from FLENUMMETOCCEN Monterey and can be displayed along with a wide range of oceanographic, satellite and acoustic products. NODDS also has the ability to overlay up to three different fields on a single chart or display individual sequence loops.

NODDSFAX uses the basic NODDS program described above to download NODDS data and then transfer the data fields to our WPAC and IO GFAX broadcasts. A recurring schedule and data download is programmed into the system allowing for a continuous 24-hour broadcast of environmental data.

2.3.6. NEXT GENERATION RADAR/WEATHER SURVEILLANCE RADAR (NEXRAD/WSR-88D)

The WSR-88D is the second-generation Doppler radar replacing the non-Doppler meteorological radars. The Radar Data Acquisition (RDA) detects and estimates the meteorological phenomenon being studied. The Radar Product Generator (RPG) performs the meteorological data analysis and preformats the output products for remote display. Both of these units are located at Andersen AFB. The Principal User Processor (PUP) provides user interface and is located in the JTWC Operational spaces. Data received from the WSR-88D is invaluable in forecasting tropical cyclone wind speeds as these systems approach Guam.

2.3.7. MODULAR OCEAN DATA ASSIMILATION SYSTEM (MODAS)

The Modular Ocean Data Assimilation System (MODAS) provides a modular approach to the analysis of ocean data in support of ocean/acoustic and sensor predictions. It is designed to assimilate observed random ocean data, synthetic data, climatology and a first-guess field to generate a quality controlled, smoothed, gridded analysis field.

2.3.8. JOINT DEPLOYABLE INTELLIGENCE SUPPORT SYSTEM (JDISS)

The Joint Deployable Intelligence Support System (JDISS) provides software/hardware capabilities allowing connectivity and interoperability with remote intelligence systems required to support forces in-garrison and deployed in peacetime, crisis and war.

2.3.9. MIDDS

MIDDS consists of multi-tasking software products which are designed to collect and display high-resolution satellite imagery, DIFAX charts and RADAR.

2.3.10. SIPRNET/NIPRNET WEBSITES

NAVPACMETOCCEN WEST Guam maintains a website accessible via either Siplrnet or Niprnet. Numerous products are available on the website including satellite pictures of the Western

Pacific and Indian Oceans, locally produced short, medium and long range weather depictions and specialized forecasts.