

## APPENDIX I

# GLOSSARY

### A

**ACTIVE USW**—A method for determining the location and distance of a submarine by measuring the time interval between the transmission of a sound signal and its reflection back to the projector.

**AEROSOLS**—Small droplets (solid or liquid) suspended in a gas.

**AFMEDS**—Air Force Meteorological Data System.

**AFWA**—Air Force Weather Agency headquartered at Offutt AFB, NB.

**AIG**—Address indicator group.

**ALGORITHM**—A step-by-step procedure for solving a mathematical problem.

**ANALOG**—Proportional and continuous. An analog recorder draws continuous lines proportional to the electronic signal input.

**AOR**—Area of responsibility.

**APT**—Automatic picture transmission. The automatic transmission of images by polar-orbiting satellites.

**ARQ**—Automatic response to query. A method of obtaining data using AFMEDS.

**ASOS**—Automated surface observing system.

**AUTODIN**—Automatic digital network:

**AWN**—Automated weather network; the complex worldwide collection and distribution network of meteorological data operated by the Air Force.

**AZIMUTH**—The horizontal angular measurement from a fixed reference to a point. The navy uses angular measurements in clockwise degrees from 0 to 360. When 0 is referenced to true north, the result is a true azimuth bearing. When referenced to an arbitrary direction, such as the bow of a ship, the result is a relative azimuth bearing.

### B

**BATHYTHERMOGRAPH**—Any device used to measure and record temperatures through a column of water.

**BAUD**—A measurement unit of electronic data transmission speed.

**BT**—Abbreviation for break transmission, used to indicate the beginning and end of a message body.

**BULLETIN BOARD**—A communications system that uses standard telephone lines to dial-in and access computer networks.

**BYTE**—A group of adjacent binary digits (bits).

### C

**CAD**—Collective address designator.

**CCTV**—Closed-circuit television.

**CHAFF**—Material (such as strips of foil) ejected into the air in order to confuse enemy radar devices.

**COMSEC**—Communications security.

**CONFIDENTIAL**—Classified information that if disclosed could be expected to cause damage to national security.

**COTS**—Commercial-off-the-shelf.

**CPU**—Central processing unit of a computer.

**CW**—Continuous wave radio transmission.

### D

**DATA BASE**—A collection of data organized for rapid search and retrieval by a computer.

**DIFAX**—Digital facsimile.

**DMSP**—Defense meteorological satellite program.

**DPVS**—Distributed plain language verification system.

**DSN**—Defense switched network, an upgrade and name change to the automatic voice network (AUTOVON).

**DUCT**—A layer in the atmosphere that readily traps electromagnetic energy permitting extended transmission ranges.

**DUCTING**—The process occurring within a duct, also known as trapping.

## E

**E-MAIL**—Electronic mail.

**ELECTROMAGNETIC SPECTRUM**—The total range of the various radiation frequencies and corresponding wavelengths.

**ELECTRO-OPTICS**—General term used to describe weapons that make use of electromagnetic energy in order to function. These systems normally operate in the visible and infrared portions of the electromagnetic spectrum.

**ESM**—Electronic support measures. Radar surveillance conducted in passive mode designed to intercept hostile radar emissions.

## F

**FAA**—Federal Aviation Administration.

**FALLOUT**—Radioactive particles resulting from a nuclear explosion and descending through the atmosphere.

**FAX**—Short form of facsimile, referring to weather facsimile or a telefacsimile transmission.

**FLIB**—Forward-looking infrared radar.

**FMCR**—Fleet multi-channel broadcast.

## G

**GCCS-M**—Global command and communications system-maritime.

**GFMP**—Geophysics fleet mission program library.

**Ghz**—Gigahertz. One billion hertz or cycles per second.

**GIGABYTE**—A unit of information equal to one billion bytes.

**GOTS**—Government-off-the-shelf.

**GWCS**—Global weather communications system.

## H

**HECTOPASCAL (hPa)**—A unit of 100 pascals used to measure pressure, exactly equivalent to 1 millibar.

**HERTZ**—A frequency defined as one cycle per second.

**HF**—High-frequency. Radio waves between 3 MHz to 30 MHz.

**HOME PAGE**—The first page or index of a particular website.

**HTML**—Hypertext Markup Language.

## I

**INFRARED (IR)**—The portion of the electromagnetic spectrum with wave lengths just slightly longer than visible light energy (thermal energy).

**INTERNET**—A connection of several wide area networks. The Internet is also a term that is synonymous with the World Wide Web.

## K

**KILOBYTE**—A unit of information equal to one thousand bytes. Also abbreviated as "KB".

**KHz**—Kilohertz. One thousand hertz or cycles per second.

## L

**LAN**—Local area network.

**LASER**—Light amplification by stimulated emission of radiation, approximately equal to 1.06 microns.

**LCD**—Liquid crystal diode. A gray or black display of numbers or shapes commonly used in electronics.

**LPM**—Lines per minute. A setting used for HF radio weather facsimile transmissions.

**LUF**—Lowest usable frequency.

## M

**MANOP**—Formatted weather message header that identifies the product type, originator, and area covered by the product.

**MEGABYTE**—A unit of information equal to one million bytes.

**MET**—U.S. Navy mobile environmental team.

**METEOROLOGY**—The study of phenomenon of /the atmosphere.

**MHz**—Megahertz. One million hertz or cycles per second.

**METMF**—U.S. Marine Corps meteorological mobile facility. Weather personnel who operate USMC Metvans.

**MSI**—Modified surf index. A single dimensionless number that is used to provide a relative measure of conditions likely to be encountered in a surf zone during amphibious operations.

**MTF**—Editor-Message text format. The AUTODIN message formatting software endorsed by the Navy.

**MUF**—Maximum usable frequency.

## N

**NATO**—North Atlantic Treaty Organization.

**NAVAID**—An acronym for navigation aid, usually referring to an aircraft navigation aid.,

**NAVMETOCOM**—Short title for Naval Meteorology and Oceanography Command headquartered at the Stennis Space Center, Mississippi.

**NAVOCEANO**—Short title for the Naval Oceanographic Office, Stennis Space Center, MS. Also NAVO.

**NEXRAD**—Next generation radar. The weather surveillance radar-1988-Doppler (WSR-88D).

**NIMA**—National Imagery and Mapping Agency, headquartered in Washington, D.C.

**NIPRNET**—Nonsecure Internet protocol routing network used by the military.

**NITES**—Navy integrated tactical environmental system.

**NOAA**—National Oceanic and Atmospheric Administration, a division of the U.S. Department of Commerce.

**NOTAM**—Notice to airmen.

## O

**OA**—Abbreviation for shipboard aviation operations division, the shipboard division for which most Aerographer's Mates work.

**OAML**—Oceanographic and atmospheric master library.

**OMNI-DIRECTIONAL**—An antenna capable of sending or receiving radio waves in all directions.

**OTCIXS**—Officer in tactical command information exchange system.

## P

**PASSIVE USW**—A method for detecting submarines that evaluates a signal received by a hydrophone.

**PLA**—Plain language address used with AUTODIN messages.

**PMSV**—Pilot-to-meteorological service.

**PSN**—Processing sequence number used with AUTODIN messages.

## R

**RADFO**—An acronym for radiological fallout.

**RATT**—Radio teletype.

**REFRACTIVITY**—The study of how electromagnetic energy is bent (refracted) as it moves through different density layers within the atmosphere.

## S

**SAR**—Search and rescue.

**SECRET**—Classified information that if disclosed could cause serious damage to national security.

**SERVER**—A fast computer connected to the Internet full time. It directs Internet traffic to its proper destination.

**SHF**—Super-high frequency radio waves. Generally between 3 GHz and 30 GHz.

**SIPRNET**—Secure Internet protocol routing network used by the military.

**SMOOS**—Shipboard meteorological and oceanographic observation system.

**SPECIAL-HANDLING MARKING**—Designation applied to messages requiring special handling procedures. Special handling markings ensure messages so marked will be handled and viewed by authorized personnel only.

**SSIC**—Standard subject identification code.

**STU-III**—Secure telephone unit-third generation.

**SYNOPTIC**—In general, pertaining to or affording an overall view. In meteorology, this term has become specialized in referring to the use of meteorological data obtained simultaneously over a wide area for presenting a comprehensive picture of the state of the atmosphere.

## T

**TADIXS**—Tactical data information exchange system.

**TAF**—Terminal Aerodrome Forecast.

**TOP SECRET**—Classified information that if disclosed could cause exceptionally grave damage to national security.

## U

**UHF**—Ultra-high frequency radio transmission, generally between 300 MHz and 3 GHz.

**URL**—Uniform resource locator.

**USMTF**—United States message text format.

**USW**—Undersea warfare.

## V

**VALID**—Effective, good.

**VHF**—Very-high frequency radio transmission, generally between 30 MHz and 300 MHz.

## W

**WAN**—Wide area network.

**WEBSITE**—A collection of one or more web pages created by a person, company, or organization on the Web.

**WEFAX**—An acronym for weather facsimile, specifically the NWS service providing satellite imagery and graphic products via a geostationary satellite data broadcast.

**WMO**—World meteorological organization.

**WORLD WIDE WEB**—The large hypertext network of the Internet. Generally refers to the collection of websites on the Internet and the information that can be accessed from them.

**WPM**—Words per minute.

## X

**XBT**—Expendable bathythermograph, usually referring to the probe that is dropped in the water and not recovered.

## APPENDIX II

# MANOP CODES

Environmental data messages use coded MANOP headings to facilitate the rapid automatic switching of the information at the AWN Automated Weather Data Switch (AWDS), as well as to provide recognition of the data contents. Refer to Chapter 1 of this module for a discussion on the format of MANOP headers.

### *TT-* DATA CONTENT IDENTIFIERS

|    |   |    |  |
|----|---|----|--|
| AB | Weather summaries; current conditions, previous day conditions, tropical weather summaries and outlooks, agricultural summaries, and agricultural advisories.   | FB | Forecast, flight level winds/temps, navy altimeter setting, aviation area, public, prognostic discussions.   |
| AC | Convective analysis.  | FC | Terminal forecast valid 12 hours or less.  |
| AN | Analysis of satellite imagery and radar observations.   | FD | Forecasts; flight level wind/temp.   |
| AR | Radar analysis.   | FE | Forecasts, general surface, extended and outlooks; ice synopsis and outlook, upper air forecast and outlook.   |
| AS | Analysis, surface level, pressure, fronts.  | FJ | Forecasts, parcel trajectory.  |
| AU | Analysis, constant pressure levels, heights, centers.   | FK | Forecast, air pollution potential.   |
| AW | Analysis, wind.   | FM | Forecast, temperature extremes, special temperatures, convective gust potential.   |
| AX | Analysis, miscellaneous: ice edge, satellite weather summaries, skew-t, terminal forecast receipt summaries, tropical cyclone, graphic analysis plots, analysis discussions, upper air, thickness analysis, flight hazards, snow depth, tropical weather summaries, observation receipt summary, alerts of significant tropical feature in satellite imagery, surface analysis, surface forecasts, upper-air observation receipt summary. | FN | Forecasts; general area weather (regional).  |
| CA | Noncurrent scheduled TAF.   | FO | Forecasts, Military: air routes, mission control, mission planning, operation area, air-refueling areas; paradrop zone, helo landing zone, SAR, High Interest Area upper winds/temps;<br>Also, automated forecast guidance for military locations of MOS, NGM, LFM, and trajectory models (numerous parameters). |
| CB | Soil moisture.  | FP | Public forecasts; general weather, coastal marine, lakes, mid-ocean;<br>Special public forecasts; ozone, UV, lightning.  |
| CM | Noncurrent scheduled METAR.   | FQ | Height prog for standard isobaric levels.  |
| CO | Monthly means (Oceanic).  | FR | Forecasts, Air-routes.   |
| CS | Monthly means (Surface).  | FS | Forecasts, Surface coded: Pressure, temperatures, winds;   |
| CT | Soil temperature reports.   |    | Forecasts, 1000-hPa level.   |
| CU | Monthly means (Upper-air).  |    |  |
| DF | Forecast, radiological fallout winds.   |    |  |
| FA | Forecast, aviation area weather (some with flight level winds/temps), aviation SAR weather.   | FT | Forecast, Terminal Aerodrome (TAF) bulletins with valid periods of 12 hours or greater.  |

|    |  |    |   |
|----|--|----|---|
| FU | Forecasts, Upper Air: Heights (IAC code), winds, temperatures, D-values, turbulence, vertical motion.  | OS | Ocean surface, spectral sea data.                                     |
| FX | Forecasts, Miscellaneous: any and every type of forecast-Specialized military operation forecasts, FNMOC Navy forecast support packages, forest fire forecasts, NBC nuclear EDFs and chemical CDFs, and forecaster discussions;<br><br>Forecaster guidance bulletins, miscellaneous. | PD | Prognostic discussions (forecaster reasoning or model comparisons).   |
| FY | Forecasts, Upper level temperatures, winds.  | PL | Automated wind data.  |
| FZ | Forecasts, Marine, SAR, small craft advisories;<br><br>Forecaster guidance bulletins for marine shipping areas.  | PW | WARNINGS, point weather (military).                                   |
| GH | Gridded 500-hPa level forecasts.   | RW | River report.   |
| GP | Gridded surface analysis.  | SA | Aviation hourly observations.   |
| GT | Gridded upper-level temperature forecasts.   | SE | Seismograph earthquake observations.                                  |
| GW | Gridded upper-level wind forecasts.  | SF | Atmospheric observations.   |
| HE | Solar significant-event alerts.  | SH | Ship synoptic report.   |
| HF | Solar flux high frequency radio propagation conditions/forecasts.  | SI | Synoptic surface observation, intermediate hours (3-hourly synoptic). |
| HI | Ionosphere observations.   | SM | Synoptic surface observation, main hours (6-hourly synoptic)          |
| HM | Geomagnetic (magnetometer) observations.   | SN | Hourly synoptic report.   |
| HO | Solar optical observations.  | SO | BATHY observations.   |
| HR | Solar radio-emission observations.   | SP | Special (aviation hourly) observations.                               |
| HS | Solar observations from satellites.  | SR | River stage and special service observations.                         |
| HX | Solar products, miscellaneous.   | SS | Drifting buoy report.   |
| IU | Geophysical alert, stratospheric alert.  | ST | Ice report.   |
| MM | Civil emergency warning.   | SW | Supplementary aviation weather reports.                               |
| MS | Marine, combined wind wave/sea swell.  | SX | Miscellaneous data.   |
| MT | Marine, sea-surface temperature analysis.  | TB | Satellite orbital prediction data                                     |
| MV | Marine, sound channel data.  | TC | Satellite tropical disturbance bulletin.                              |
| NO | Notices, weather circuit delays or changes, or product changes;<br><br>Notices about temporary special support products;<br><br>Notices, schedules, frequency changes.   | TP | METSAT tropical storm position data.                                  |
| OB | Oceanographic, beach surf-height forecasts (SURFCSTs).   | TR | Satellite clear radiance data.  |
|    |  | TS | WMO satellite wind data.  |
|    |  | TU | Satellite vertical temperature soundings.                             |
|    |  | TW | Satellite cloud motion derived wind data.                             |
|    |  | TX | Data buoy position data.  |
|    |  | UA | Aircraft observations: PIREP, AIREP, AMDAR.                           |
|    |  | UD | Maximum wind.   |
|    |  | UE | RAOB (part D).  |
|    |  | UF | RAOB (part C/D).  |
|    |  | UG | PIBAL (part B).   |
|    |  | UH | PIBAL (part C).   |

|    |  |    |  |
|----|--|----|--|
| UI | PIBAL (part A/B).  |    | WARNINGS, gale, storm, High Wind, small craft, harbor.                 |
| UJ | RAOB/PIBAL (all parts).  |    | Bulletin, tropical disturbance status (U.S.)                           |
| UK | RAOB (part B).   |    | Hazardous weather reports;.  |
| UL | RAOB (part C).   |    | Severe PIREPs, AIREPs;   |
| UM | RAOB (part A/B).   |    | Severe radar reports;  |
| UN | Rocketsonde observations.  |    | Special weather statements;  |
| UP | PIBAL (part A).  |    | Urgent specials.   |
| UQ | PIBAL (part D).  |    |  |
| US | RAOB (part A).   | WP | WARNINGS, and advisories for the public (Canada).                      |
| UT | Aircraft report.   | WR | WARNINGS, flash flood.   |
| UV | Wind vector difference.  | WS | Flight advisories, SIGMETs.  |
| UX | Upper Air, miscellaneous.  | WT | WARNINGS, tropical cyclone.  |
| UY | PIBAL (part C/D).  | WU | WARNINGS, severe thunderstorm.   |
| UZ | Dropsonde data.  | WW | WARNINGS, Weather, general;  |
| WA | Flight advisories, AIRMET/SIGMET.  |    | Advisories, tropical disturbance (Australia);                          |
| WD | Tropical cyclone forecaster discussions;   |    | WARNINGS, tropical cyclone (Indian Ocean, Bay of Bengal, Arabian Sea); |
|    | Tropical cyclone advisories;   |    | WARNINGS, gale, storm;   |
|    | Significant weather summaries.   |    | WARNINGS, Tsunami (Japan);   |
| WE | WARNINGS, Tsunami.   |    | WARNINGS, point weather (Navy-Mediterranean);                          |
| WF | WARNINGS, Tornado and special marine.  |    | WARNINGS, High Wind/High Sea;  |
| WH | WARNINGS, Tropical Cyclone, including formation alerts;  |    | WARNINGS, marine Sub-tropical cyclone;                                 |
|    | WARNINGS, High Winds.  |    | Summary, destructive/severe weather reports;                           |
|    | Forecast, Strike Probability.  |    | WATCH, severe weather;   |
| WM | WARNINGS, High Seas;   |    | WARNINGS, severe weather;  |
|    | WARNINGS, Severe Weather (Indian Ocean);   |    | Special weather statements;  |
|    | WARNINGS, Special Marine.  |    | WARNINGS, (military) gale, small craft, gust.                          |
| WN | Nuclear bulletins.   |    |  |
| WO | WARNINGS, Severe Weather, High water, Marine shipping;   | WX | WARNINGS, miscellaneous (military).                                    |
|    | WARNINGS, Marine, High Winds, high surf, high tide (storm surge), flooding, thunderstorm, tornado; | XN | Automated METAR.   |
|    |  | XT | Forecasts, military planning.  |
|    |  | YS | Worldwide METAR specials.  |

# AA - GEOGRAPHICAL OR REGIONAL IDENTIFIERS

Most MANOP headings do not use specific country codes for products, but rather use regional identifiers. The following are the regional identifiers most frequently used in MANOP headings:

|    |                  |    |                       |
|----|------------------|----|-----------------------|
| AA | Antarctica       | JP | Japan                 |
| AC | Arctic Region    | KA | Caroline Islands      |
| AE | Southeast Asia   | KO | South Korea           |
| AF | Africa           | LU | Aleutian Islands      |
| AK | Alaska           | MC | Central Mediterranean |
| AM | Central Africa   | ME | Eastern Mediterranean |
| AO | West Africa      | MM | Mediterranean         |
| AP | Southern Africa  | MV | Maldives              |
| AR | Arabian Sea      | MW | Western Mediterranean |
| AS | Asia             | MX | Mexico                |
| AU | Australia        | MY | Marianas Islands      |
| BN | Bahrain          | NA | North America         |
| BQ | Baltic Sea       | NT | North Atlantic        |
| CA | Caribbean        | OC | Oceania               |
| CI | China            | OH | Sea of Okhotsk        |
| CN | Canada           | PA | Pacific               |
| EA | East Africa      | PE | Persian Gulf          |
| EC | East China Sea   | PH | Philippines           |
| EE | Eastern Europe   | PK | Pakistan              |
| EM | Middle Europe    | PN | North Pacific         |
| EN | Northern Europe  | PQ | Western North Pacific |
| EU | Europe           | PS | South Pacific         |
| EW | Western Europe   | PW | Western Pacific       |
| FE | Far East         | PZ | Eastern Pacific       |
| GA | Gulf of Alaska   | RS | Russia (Europe)       |
| GL | Greenland        | SA | South America         |
| GM | Guam             | SD | Saudi Arabia          |
| GX | Gulf of Mexico   | SE | Southern Oceanic Area |
| HW | Hawaiian Islands | SJ | Sea of Japan          |
| IO | Indian Ocean     | SS | South China Sea       |



|    |   |    |  |
|----|---|----|--|
| ST | South Atlantic                                      | XS | Southern Hemisphere                                  |
| UK | United Kingdom                                      | XT | Tropical Belt  |
| US | United States                                       | XW | Western Hemisphere (between 0 and 180 degrees West)  |
| XE | Eastern Hemisphere (between 0 and 180 degrees East) | XX | For use when other designations are not appropriate. |
| XN | Northern Hemisphere                                 |    |  |



## APPENDIX III

# REFERENCES USED TO DEVELOP THE TRAMAN

**NOTE:** Although the following references were current when this TRAMAN was published, their continued currency cannot be assured. You therefore need to be sure you are studying the latest revision.

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