

MARINE CORPS ORDER 1510.105

From: Commandant of the Marine Corps
To: Distribution List

Subj: INDIVIDUAL TRAINING STANDARDS (ITS) SYSTEM FOR OCCFLD 68,
WEATHER SERVICE

Ref: (a) MCO 1510.34b
(b) MCO 1553.1B
(c) MCO 1553.2
(d) MCO 1553.3

Encl: (1) Components of an ITS
(2) ITS Management
(3) Index of Tasks by Training Location, Level of
Training, Sustainment, and Grade to Standard
(4) Common ITS Listing
(5) Training Support
(6) Individual Training Standards for Occupational Field
(OccFld) 68, Weather Service

1. Purpose. To publish the ITS System for OccFld 68.

2. Background

a. The references establish the system used to publish all training standards, provide policy, and assign responsibilities for applying the Systems Approach to Training (SAT).

b. ITS's provide a common base of training for all Marines who have the same MOS. They provide the basis for the SAT of all individual training. ITS's are to be used by institutional and unit commanders to determine proficiency of individual Marines, to establish training plans and courses of instruction, and to maintain a progressive and systematic method to monitor training impacts on Individual Career Development Plans.

c. ITS's are derived from Mission Performance Standards which come from combat requirements of the Fleet Marine Forces. Changes to doctrine, force structure, and the introduction of new weapons and equipment will require revision of this Order on a regular basis.

3. Information

a. ITS's are to be used by institutional and unit commanders to design, develop, conduct, and evaluate their individual training of Marines. Institutional commanders will derive Terminal Learning Objectives (TLO) and Enabling Learning Objectives (ELO) from the tasks and performance steps set forth herein. Task lists reported on Course Descriptive Data (CDD) submissions will consist of task titles contained in this Order. Unit commanders will use the tasks contained in this Order as the basis of individual training in their long-range, short-range, and near-term training plans.

b. The ITS system for OccFld 68 contains the following:

(1) Enclosure (1) contains the components of an ITS.

(2) Enclosure (2) sets forth the ITS management, as it relates to use and maintenance.

(3) Enclosure (3) is an index of tasks by training location, level of training, sustainment, and grade to standard.

(4) Enclosure (4) is a listing of tasks common to two or more MOS's in OccFld 68.

(5) Enclosure (5) lists training support in four categories:

(a) Appendix A, Training Devices, Simulators, and Training Aids.

(b) Appendix B, Training Equipment.

(c) Appendix C, Ammunition, Explosives, and Pyrotechnics.

(d) Appendix D, Training Materials.

(6) Enclosure (6) lists ITS's for each MOS in OccFld 68.

4. Action

a. Commanding General, Marine Corps Combat Development Command (MCCDC)

(1) Ensure that all units and institutions are using this Order to train personnel to the standards required of their grade and MOS.

(2) Ensure that the Marine Corps Institute (MCI) and the Training and Audiovisual Support Centers (TAVSC) provide standardized job aids and other training support requirements to facilitate training in units.

(3) Review, revise, and manage the upkeep of this Order in coordination with FMF Commanders, MOS/OccFld sponsors and with subject matter experts.

(4) Ensure coordination occurs with the Commander, Marine Corps Systems Command (MARCORSYSCOM).

b. Commanding Generals of the Marine Forces Atlantic/Pacific and Supporting Establishment Commands; and Commanders of Separate Organizations not Commanded by a General Officer

(1) Use this Order to implement the SAT process for WEATHER SERVICE training.

(2) Establish managed on-the-job training (MOJT) programs to train Marines using the tasks to form the basis of initial, sustainment, or refresher training proficiencies in units both for Weather Service and command training plans.

5. Submission of Recommendations and Requirements. Recommendations concerning the contents of this Order are invited. Submit recommendations for change and recommended training requirements to the Commanding General, MCCDC (C461) via the appropriate chain of command.

6. Mobilization. All ITS's in this Order will remain in effect during mobilization.

7. Reserve Applicability. This Order is applicable to the Marine Corps Reserve.

B. B. KNUTSON, JR.
By direction

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COMPONENTS OF AN ITS

1. General. ITS's contain six components; task, condition(s), standard, performance steps, reference(s), and administrative instructions.

2. Alphanumeric System. Each ITS is identified by the MOS followed by a series of numbers which identify the Duty Area, and Task.

a. The MOS is identified by four Arabic numbers. The four numbers are the ones assigned to the MOS in the MCO P1200.7 (MOS Manual). For the WEATHER SERVICE OFFICER MOS, the numeric designators would be 6802.X.X.

b. Duty areas are identified by ascending Arabic numerals and are numbered consecutively by MOS. The designator for the first duty area under MOS 6802 would be 6802.1.X.

c. Tasks within a duty area are numbered consecutively. The first task under the first duty area of MOS 6802 is numbered 6802.1.1. The second task under the third duty area of MOS 6802 is numbered 6802.3.2, and so forth.

3. ITS Components

a. Task. The task describes what a Marine has to do. It is a clearly stated, performance oriented action requiring a learned skill. Knowledge or enrichment topics which are required for the performance of a specific task are included in the Administrative Instructions. This type of information may very well comprise a separate class with its own TLO/ELO, but is not a separate task.

b. Condition(s). The conditions set forth the real world or wartime circumstances in which the tasks are to be performed. This element of an ITS underscores "realism" in training. When resources or safety requirements limit the conditions, this should be stated. It is important to understand that the conditions set forth in this Order are the minimum, and may be adjusted when applicable.

c. Standard. A standard is inviolate. It is not guidance, but a very carefully worded statement which sets the proficiency level expected when the task is performed. The standard should summarize the performance steps.

d. Performance Steps. There must be at least two performance steps for each task. Performance steps specify actions required to fulfill the proficiency established by the standard.

e. Reference(s). Reference(s) are doctrinal publications which provide the authority vested in the performance steps and references. References should be publications which are readily available.

f. Administrative Instructions. Administrative Instructions provide the trainer/instructor with special circumstances relating to the ITS such as safety, real world limitations, and knowledge or enrichment topics which may be a prerequisite to successful accomplishment of the ITS.

ITS MANAGEMENT

1. ITS Use

a. ITS's are the basis for all individual training in units and formal schools. Since ITS's are written for every MOS they specify every proficiency Marines are required to achieve as individuals in support of their unit combat missions.

b. ITS's provide measures of performance that must be used by unit commanders to both diagnose individual deficiencies and to evaluate training. Deficiencies should be recorded and scheduled on future training plans. ITS's which are mastered should be recorded in individual training records and scheduled for sustainment/refresher training in the future.

c. Institution commanders are responsible for providing instruction based on ITS's. These selected ITS's appear as tasks on item number 24 of the Course Descriptive Data. Using the SAT process, institutional commanders formulate programs of instruction (POI) which fulfill the requirements of the operating forces.

d. Unit and institution commanders must work in tandem so that individuals continue to receive instruction until mandated proficiencies are achieved. Individual training cannot and should not cease upon graduation from a formal school. Schools do not have the resources (people, time, money) to teach every ITS required for MOS proficiency. Unit commanders must recognize this and continue individual training. When Marines do achieve proficiencies, unit commanders must systematically record these proficiencies and establish periodic sustainment training according to the frequency set forth in enclosure (3).

2. ITS Maintenance

a. ITS's exist because of the threat. Changes which occur must be reflected in ITS's as a team effort of the formal schools, the operating forces, and staff agencies at Headquarters, U.S. Marine Corps and at the Marine Corps Combat Development Command. Changes in the threat, new weapons/equipment and doctrine will require new or updated training proficiencies.

b. ITS's are validated when they are used by institution and unit commanders. Changes can be initiated by units, institutions, or higher headquarters. To ensure quality training, ITS's must be updated continuously. Input will be systematically collected, staffed, and incorporated into ITS's at least annually.

ENCLOSURE (2)

c. ITS users should be critical of the ITS's as a whole as they support or fail to support a particular MOS.

d. Specific components of an ITS should also be examined for realism and pertinence.

e. ITS Management is dynamic. User maintenance is the key to refining proficiencies which best serve unit missions.

INDEX OF TASKS BY TRAINING LOCATION, LEVEL OF TRAINING,
SUSTAINMENT, AND GRADE TO STANDARD

1. This enclosure identifies WHERE ITS's are taught, Training Location; the Level of Training regarding proficiency, "P" for preliminary, not to standard, and "S" for trained to standard; and the lowest grade required to demonstrate proficiency in each ITS.
2. The Training Location is either Formal School (FS) or MOJT.
3. Sustainment training is always the responsibility of the unit commander. The number in the MOJT column represents the number of months between evaluation or retraining to maintain the proficiency required by the standard.

TASK NUMBER	TASK	FS	MOJT SUST	Grade
MOS 6802, WEATHER SERVICE OFFICER				
6802.1.1	IDENTIFY DOCTRINAL DEFICIENCIES		S/3	WO1
6802.1.2	DEVELOP METEOROLOGICAL AND OCEANOGRAPHIC (METOC) ANNEX (H) FOR OPERATIONS ORDER		S/3	WO1
6802.1.3	PROVIDE INPUT TO COMMUNICATIONS ANNEX (ANNEX K) OF THE OPERATIONS ORDER		S/4	WO1
6802.1.4	CONDUCT SEMIANNUAL INVENTORY OF EQUIPMENT AND MATERIALS		S/1	WO1
6802.1.5	VERIFY A QUALITY DEFICIENCY REPORT (QDR)		S/3	WO1
6802.1.6	SUBMIT TEMPORARY ADDITIONAL DUTY (TAD) REQUIREMENTS		S/6	WO1
6802.1.7	CONDUCT STAFF STUDIES		S/1	WO1
6802.1.8	DEVELOP STANDING OPERATING PROCEDURES		S/12	WO1
6802.1.9	ESTABLISH LIAISON WITH OTHER SERVICE COUNTERPARTS		S/12	WO1

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TASK NUMBER	TASK	FS	MOJTSUST	Grade
6802.1.10	CONDUCT PREDEPLOYMENT SCREENINGS/INSPECTIONS		S/4	WO1
6802.1.11	MONITOR OPERATING BUDGET		S/3	WO1
6802.1.12	BRIEF METEOROLOGICAL AND OCEANOGRAPHIC (METOC) CAPABILITIES		S/1	WO1
6802.1.13	CONSOLIDATE HOST AND TENANT CUSTOMER REQUIREMENTS		S/12	WO1
6802.1.14	RELEASE MEACONING, INTRUSION, JAMMING AND INTERFERENCE FEEDER (MIJI) REPORT		S/3	WO1
6802.1.15	ESTABLISH A SECURITY PROGRAM		S/3	WO1
6802.2.1	CONDUCT CERTIFICATION PROCEDURES FOR WEATHER PERSONNEL		S/2	WO1
6802.2.2	CERTIFY TOWER CONTROLLERS IN THE FUNCTIONAL AREA OF TOWER VISIBILITY		S/3	WO1
6802.2.3	ESTABLISH A METEOROLOGICAL AND OCEANOGRAPHIC (METOC) TRAINING PROGRAM TO SATISFY MAGTF REQUIREMENTS		S/12	WO1
6802.3.1	REPORT EQUIPMENT CASUALTIES TO HIGHER HEADQUARTERS		S/1	WO1
6802.3.2	PROVIDE INFORMATION FOR BASE ENGINEERING SITE EVALUATION PLAN (BESEP) EQUIPMENT STUDIES		S/6	WO1
MOS 6821, WEATHER OBSERVER				
6821.1.1	DETERMINE CLOUD HEIGHT	S	1	PVT
6821.1.2	CONDUCT PILOT BALLOON OBSERVATIONS	S	1	PVT
6821.1.3	OBSERVE OCEANOGRAPHIC ELEMENTS	S	1	PVT
6821.1.4	OBSERVE THUNDERSTORM ACTIVITY	S	1	PVT

ENCLOSURE (3)

TASK NUMBER	TASK	FS	MOJT SUST	Grade _____
6821.1.5	ANALYZE SKEW-T, LOG P DIAGRAM		S/1	PVT
6821.1.6	DETERMINE PRESSURE CHANGE	S	1	PVT
6821.1.7	DETERMINE CLOUD TYPE, COVERAGE, AND DIRECTION	S	1	PVT
6821.1.8	DETERMINE THE TYPE AND CHARACTER OF PRECIPITATION	S	1	PVT
6821.1.9	DETERMINE VISIBILITY	S	1	PVT
6821.1.10	DETERMINE WIND SPEED, DIRECTION, CHARACTER, AND SIGNIFICANT WIND EVENTS	S	1	PVT
6821.1.11	DETERMINE TYPE AND DIRECTION OF OBSCURATION TO VISION		S/1	PVT
6821.1.12	DETERMINE PRESSURE TENDENCY	S	1	PVT
6821.1.13	DETERMINE AMOUNT OF ACCUMULATED PRECIPITATION	S	1	PVT
6821.1.14	DETERMINE WET BULB TEMPERATURE	S	1	PVT
6821.1.15	DETERMINE DRY BULB TEMPERATURE	S	1	PVT
6821.1.16	READ MINIMUM TEMPERATURE	S	1	PVT
6821.1.17	READ MARINE BAROGRAPH	P	S/1	PVT
6821.1.18	READ ANEROID BAROMETER	S	1	PVT
6821.1.19	COMPUTE ALTIMETER SETTING	S	1	PVT
6821.1.20	DETERMINE WET BULB GLOBE TEMPERATURE INDEX	S	1	PVT
6821.1.21	COMPUTE DEWPOINT	S	1	PVT
6821.1.22	COMPUTE RELATIVE HUMIDITY	S	1	PVT
6821.1.23	COMPUTE DENSITY ALTITUDE	S	1	PVT
6821.1.24	COMPUTE PRESSURE ALTITUDE	S	1	PVT
6821.1.25	CALCULATE SEA LEVEL PRESSURE IN HECTOPASCALS	S	1	PVT

ENCLOSURE (3)

TASK NUMBER	TASK	FS	MOJTSUST	Grade
6821.1.26	DETERMINE MAXIMUM TEMPERATURE	S	1	PVT
6821.2.1	SUMMARIZE 24 HOUR WEATHER DATA	S	1	PVT
6821.2.2	ENCODE SYNOPTIC OBSERVATIONS	S	1	PVT
6821.2.3	MAINTAIN LOCAL OBSERVATIONAL WORKSHEETS	P	S/1	PVT
6821.2.4	PLOT CONSTANT PRESSURE CHARTS	S	1	PVT
6821.2.5	PLOT SKEW-T LOG P DIAGRAM	S	1	PVT
6821.2.6	RECORD WEATHER INFORMATION ON OBSERVATION FORMS	P	S/1	PVT
6821.2.7	DECODE SYNOPTIC OBSERVATIONS	S	1	PVT
6821.3.1	PLOT WARNINGS ON CHART	S	1	PVT
6821.3.2	DISSEMINATE WEATHER WARNINGS		S/1	PVT
6821.3.3	UPDATE LOCAL PRESENT WEATHER DISPLAY	S	1	PVT
6821.3.4	COLLATE WEATHER ALPHANUMERIC SCANS	S	1	PVT
6821.3.5	DISPLAY CENTRALLY PRODUCED PRODUCTS	S	1	PVT
6821.3.6	ADVISE FORECASTER OF SIGNIFICANT WEATHER EVENTS	P	1	PVT
6821.4.1	OPERATE TEMPERATURE SENSING DEVICES	S	1	PVT
6821.4.2	OPERATE AUDIO VISUAL SYSTEMS	P	S/1	PVT
6821.4.3	CONDUCT A MINI-RAWIN SOUNDING	P	S/1	PVT
6821.4.4	OPERATE A HYDROGEN GENERATOR	P	S/12	PVT
6821.4.5	OPERATE A RADIO RECEIVER	S	1	PVT
6821.4.6	OPERATE A THEODOLITE	S	1	PVT
6821.4.7	OPERATE CLOUD HEIGHT MEASURING EQUIPMENT	P	1	PVT

ENCLOSURE (3)

TASK NUMBER	TASK	FS	MOJT SUST	Grade
6821.4.8	OPERATE MANUAL CALCULATING DEVICES	S	1	PVT
6821.4.9	DISSEMINATE WEATHER INFORMATION	P	S/1	PVT
6821.4.10	PERFORM CORROSION CONTROL ON A METEOROLOGICAL MOBILE FACILITY	P	S/1	PVT
6821.4.11	INSTALL THERMOSCREEN AND COMPONENTS	S	1	PVT
6821.4.12	INSTALL WBGTI SET	P	S/1	PVT
6821.4.13	OBTAIN WIND MEASUREMENT	P	S/1	PVT
6821.4.14	OBTAIN A PRESSURE READING	S	1	PVT
6821.5.1	PLOT A SURFACE CHART	S	1	PVT
6821.5.2	DECODE UPPER AIR DATA	S	1	PVT
6821.5.3	PLOT RADAR OBSERVATIONS ON MAP	S	1	PVT
6821.6.1	PREPARE ASTRO, CLIMO, AND TIDAL DATA	P	S/1	PVT
6821.6.2	BRIEF ONCOMING WATCH	P	S/1	PVT
	MOS 6842, WEATHER FORECASTER			
6842.1.1	PREPARE TERMINAL AERODROME FORECASTS (TAF)	S	3	SGT
6842.1.2	FORECAST SEVERE WEATHER	S	3	SGT
6842.1.3	PREPARE FLIGHT WEATHER BRIEFING DD FORM 175-1	S	3	SGT
6842.1.4	FORECAST TROPICAL CYCLONE DEVELOPMENT AND MOVEMENT	S	3	SGT
6842.1.5	PREPARE A FLIGHT WEATHER PACKET	S	3	SGT
6842.1.6	PRODUCE SPECIALIZED FORECASTS	S	3	SGT
6842.1.7	GENERATE WEATHER WARNINGS	S	3	SGT

TASK NUMBER	TASK	FS	MOJT SUST	Grade
6842.1.8	EXTRACT MISSION PLANNING AIDS UTILIZING MOBILE WEAPON, RADAR, AND COMMUNICATION SYSTEMS	S	3	SGT
6842.1.9	FORECAST FROM A SKEW-T LOG P DIAGRAM	S	3	SGT
6842.1.10	PREPARE A SURF FORECAST	S	3	SGT
6842.1.11	UTILIZE OPTIMUM PATH AIRCRAFT ROUTING SYSTEM (OPARS)	S	3	SGT
6842.2.1	BRIEF REFRACTIVE PRODUCTS	S	3	SGT
6842.2.2	BRIEF SATELLITE IMAGERY	S	3	SGT
6842.2.3	BRIEF RADAR IMAGERY	P	S/3	SGT
6842.2.4	BRIEF FLIGHT ENROUTE WEATHER FORECASTS	S	3	SGT
6842.2.5	CONDUCT INSTRUMENT GROUND SCHOOL BRIEFS	S	3	SGT
6842.2.6	CONDUCT A DEPLOYMENT BRIEF	S	3	SGT
6842.2.7	CONDUCT A PRE-DEPLOYMENT BRIEF	S	3	SGT
6842.2.8	CONDUCT SEARCH AND RESCUE (SAR) BRIEFS	S	3	SGT
6842.2.9	CONDUCT TROPICAL CYCLONE BRIEFS	P	S/3	SGT
6842.2.10	BRIEF METEOROLOGICAL AND OCEANOGRAPHIC FEATURES FROM ANALYZED PRODUCTS	S	3	SGT
6842.2.11	CONDUCT WARFARE BRIEFS	S	3	SGT
6842.2.12	CONDUCT A WATCH RELIEF BRIEF	P	S/3	SGT
6842.3.1	PREPARE METEOROLOGICAL AND OCEANOGRAPHIC (METOC) STATION REPORTS		S/12	GYSGT
6842.3.2	EVALUATE WORK STATION REQUIREMENTS		S/12	MSGT

TASK NUMBER	TASK	FS	MOJT SUST	Grade _____
6842.3.3	COORDINATE THE ACTIVITIES OF THE METEOROLOGICAL MOBILE FACILITY (METMF)	P	S/12	MSGT
6842.3.4	CONDUCT QUALITY ASSURANCE CHECKS	P	S/3	SGT
6842.3.5	COMPLETE METEOROLOGICAL AND OCEANOGRAPHIC (METOC) INCIDENT REPORTS	S	3	SGT
6842.4.1	ANALYZE 300/250/200/150/100 MB CHART	S	S/3	SGT
6842.4.2	ANALYZE 850/700/500/400 MB CHART	S	S/3	SGT
6842.4.3	VERIFY CENTRALLY PREPARED PRODUCTS	S	3	SGT
6842.4.4	ANALYZE SURFACE PRESSURE CHARTS	S	S/3	SGT
6842.4.5	PERFORM A STREAMLINE ANALYSIS	S	S/3	SGT
6842.5.1	INTERPRET CONVENTIONAL RADAR DISPLAYS	S	3	SGT
6842.5.2	INTERPRET DOPPLER RADAR	S	1	SGT
6842.5.3	INTERPRET SATELLITE IMAGERY	S	3	SGT
6842.5.4	PROG SYNOPTIC FEATURES	S	3	SGT
6842.6.1	UTILIZE DESKTOP COMPUTER SYSTEMS TO GENERATE METEOROLOGICAL AND OCEANOGRAPHIC (METOC) PRODUCTS	P	3	SGT
6842.6.2	OPERATE SATELLITE RECEIVING SYSTEM	P	3	SGT
6842.6.3	OPERATE DOPPLER RADAR SYSTEM	P	1	SGT

COMMON ITS LISTING

1. General. This enclosure provides a cross reference of ITS's common to more than one MOS within OccFld 68. It is designed to assist the trainer in consolidating training for common tasks. Essential subjects ITS's are not listed since all Marines, regardless of MOS or grade, must be able to achieve the standard for those tasks.

2. Format. The enclosure lists the Task Title for each common task within the Occfld. Common Task Numbers follow each Task Title.

TASK NUMBER EXAMPLE: 6802.3.1

- o 6802 refers to the applicable WEATHER SERVICE OFFICER.
- o .3 refers to the Duty Area within the MOS; in this case, "PERFORM NON-EQUIPMENT OPERATIONAL PROCEDURES".
- o .1 refers to the Task; in this case, "Adjust electrical loads".

TASK TITLE

COMMON TASK NUMBERS

TRAINING SUPPORT

1. This enclosure identifies training support in four categories for each MOS or the OccFld as a whole. Some of the support items are identified by tasks, groups of tasks, or for the entire task list as follows:

Appendix A: Training Devices, Simulators, and Training Aids

Appendix B: Training Equipment

Appendix C: Ammunition, Explosives, and Pyrotechnics

Appendix D: Training Materials

2. If support identified in any appendix does not apply, the appendix will be included stating: "DOES NOT APPLY TO THIS MOS/OCCFLD."

TRAINING DEVICES, SIMULATORS, AND TRAINING AIDS

DOES NOT APPLY TO THIS OCCUPATIONAL FIELD

TRAINING EQUIPMENT

NOMENCLATURE	NAME
AN/UMQ-12	MINI RAWIN SET
ALDEN 9315TR	FAX RECORDER
AN/UGC-74B&C	TELETYPE
AN/GRC-171	RADIO, RECEIVE & TRANSMIT
AN/UMQ-T	WIND SPEED AND DIRECTION INDICATOR
RT-1446/URC	RADIO, RECEIVE & TRANSMIT
R-2368/URR	RADIO, RECEIVE
AN/TMQ-35	DMSP, TRANS TERM
AN/PMQ-3	HAND HELD WIND SYSTEM
AN/UYK-83	MOSS COMPUTER
22-2095	CLOUD HEIGHT PROJECTOR
ML-119	CLINOMETER
ML-474/GM	THEODOLITE
45-7223	MARINE BAROGRAPH
ML-448	ANEROID BAROMETER
ML-450-A	ELECTRIC PSYCHROMETER
CCTV	REMOTE VIDEO/AUDIO SYSTEM
SAT/COMM MODULES	
ML-303/TM	HYDROGEN GENERATOR
8987	WINDS ALOFT PLOTTING BOARD
CMW	CONTEL METEOROLOGICAL WORKSTATION WITH
PRINTER &	PROCESSOR
AN/GMQ-29	AUTOMATIC WEATHER STATION
UMQ-5A	WIND SPEED AND DIRECTOR INDICATOR
AN/GMQ-32	RUNWAY VISUAL RANGE-TRANSMISSOMETER
GMQ-13	ROTATING BEAM CEILOMETER
GMQ-27	WEATHER VISION
ML-41	THERMOSCREEN
CP-165A/UM	PSYCHOMETRIC COMPUTER WHEEL
CP-718/UM	DENSITY ALTITUDE COMPUTER WHEEL
MAXIMUM AND MINIMUM THERMOMETERS	
ML-217	FOUR INCH RAIN GUAGE
DIFAX	DIGITAL FACSIMILE
OKIDATA 293	PRINTER FOR DIFAX
SISWRITER 00-D MODEM	
ML-121	CEILING LIGHT PROJECTOR
ML-54	TOWNSEND SUPPORT
ML-641	AIR TEMPERATURE SENSOR/GMQ-29
ML-643	DEW POINT SENSOR/GMQ-29
ML-558	TIPPING BUCKET RAIN GUAGE/GMQ-29
MC1114D	MICROFICHE VIEWER
GENERAL ELECTRIC DESTRUCTIVE WEATHER NET RADIO	
Z-386 COMPUTER W/PRINTER	
STORM AND PIBAL (PLOTTING AND TRACKING) PROGRAMS	
HELIUM TANK AND REGULATORS	
10 AND 30 GRAM BALLOONS	
ML-41	ROTOR PSYCHROMETER

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WBGTI EQUIPMENT	GLOBE, FLASK, THERMOMETERS, WICK
RADIDS	RADAR, INFORMATION DISPLAY SYSTEM
LDATS	LIGHTNING DETECTION AND TRACKING SYSTEM
TABLES	PRESSURE, PIBAL, RBC, CEILING HEIGHT,
TEMP	CONVERSION, WIND CHILL
TECHNICAL WEATHER LIBRARY	
MODDS	NAVAL OCEANOGRAPHIC DATA DISTRIBUTION
SYSTEM	
OPARS	OPTIMUM PATH AIRCRAFT ROUTING SYSTEM
GTIS	GOES TAP IMAGERY SYSTEM
METRO	RCA PILOT TO FORECASTER RADIO
CD ROM	INTERNATIONAL STATION METEOROLOGICAL
CLIMATE	
	SUMMARY
STU III	SECURE TELEPHONE

AMMUNITION, EXPLOSIVES, AND PYROTECHNICS

DOES NOT APPLY TO THIS OCCUPATIONAL FIELD

TRAINING MATERIALS

ACP 121, ALLIED COMMUNICATIONS PROCEDURES (ACP)	6802.1.14			
ACP 190, ALLIED COMMUNICATIONS PROCEDURES (ACP)	6802.1.14			
AG-1&C, AEROGRAPHERS MATE 1ST CLASS AND CHIEF	6842.1.6 6842.4.4	6842.2.4 6842.4.5	6842.4.1 6842.5.4	6842.4.2
AG-2, AEROGRAPHERS MATE 2ND CLASS	6821.5.2	6821.5.3	6842.5.4	
AG-3, AEROGRAPHERS MATE 3RD CLASS	6821.1.10 6821.1.15 6821.1.3 6821.3.1 6821.4.11 6821.4.3 6821.5.1 6842.5.4	6821.1.11 6821.1.16 6821.1.4 6821.3.3 6821.4.13 6821.4.6 6821.5.2	6821.1.13 6821.1.17 6821.1.5 6821.3.5 6821.4.14 6821.4.7 6821.5.3	6821.1.14 6821.1.18 6821.2.4 6821.4.1 6821.4.2 6821.4.8 6842.1.10
AWS TR 212, APPLICATION OF METEOROLOGICAL SATELLITE DATA IN ANALYSIS AND FORECASTING	6842.2.2			
AWS TR 240, FORECASTER'S GUIDE TO TROPICAL WEATHER	6842.2.9			
AWSP 105-52, VOL III, WEATHER COMMUNICATIONS (WEATHER MESSAGE CATALOG)	6821.3.4			
AWSP 105-58, WEATHER BRIEFER'S HANDBOOK	6842.2.10 6842.2.5	6842.2.11 6842.2.6	6842.2.12 6842.2.7	6842.2.3 6842.2.9
AWSP 105-58, WEATHER BRIEFERS' HANDBOOK	6842.2.4			

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CMS 4L, COMMUNICATIONS SECURITY MATERIAL SYSTEM MANUAL	6802.1.15		
EQUIPMENT OPERATION MANUAL	6821.4.1	6821.4.11	6821.4.2
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DUTY AREA 1 - ADMINISTRATION

TASK: 6802.1.1 IDENTIFY DOCTRINAL DEFICIENCIES

CONDITION(S): Given a request for meteorological and oceanographic (METOC) support that is not identified in doctrine.

STANDARD: Develop Fleet Operational Needs Statement (FONS) when doctrinal discrepancies are identified.

PERFORMANCE STEPS:

1. Document requirements that are not covered by doctrine.
2. Develop FONS to satisfy discrepancy.
3. Submit FONS to higher headquarters through chain of command.

REFERENCE(S):

1. MCO P3900.4, USMC Program Initiation Requirements

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6802.1.2 DEVELOP METEOROLOGICAL AND OCEANOGRAPHIC (METOC) ANNEX (H) FOR OPERATIONS ORDER

CONDITION(S): Given warning order for operation.

STANDARD: Annex (H) must provide METOC support for a specific operation.

PERFORMANCE STEPS:

1. Identify customer requirements.
2. Identify METOC assets available.
3. Develop plan to satisfy METOC requirements.

4. Submit plan to operations staff.

REFERENCE(S):

1. FM 100-5, Operations
2. Joint Pub 5-03 Series, Joint Operation Planning and Execution System
3. FM 34-130, Intelligence Preparation of the Battlefield

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6802.1.3 PROVIDE INPUT TO COMMUNICATIONS ANNEX (ANNEX K) OF THE OPERATIONS ORDER

CONDITION(S): Given an Operations Warning Order.

STANDARD: Provide meteorological and oceanographic (METOC) communications requirements for inclusion to Annex K for a specific operation.

PERFORMANCE STEPS:

1. Determine METOC communications requirements based on Annex H.
2. Provide METOC communications requirements to the communications officer for inclusion in Annex K.

REFERENCE(S):

1. FM 100-5, Operations
2. JPUB 5-03 Series, Joint Operations Planning Execution System
3. JPUB 3-59, Joint Doctrine for Meteorological and Oceanographic Support

ADMINISTRATIVE INSTRUCTIONS:

1. Ensure compliance with applicable directives.

TASK: 6802.1.4 CONDUCT SEMIANNUAL INVENTORY OF EQUIPMENT AND MATERIALS

CONDITION(S): Charged with accountability for meteorological and oceanographic (METOC) equipment, and given custody cards and an inventory checklist.

STANDARD: The completed semiannual inventory results in an adequate supply of required METOC equipment/materials to support the mission.

PERFORMANCE STEPS:

1. Verify all METOC equipment on accounts by applicable nomenclature and national stock numbers.
2. Sign custody cards for all verified METOC inventory.
3. Supervise the requisition of replacement equipment/material or noted deficiencies.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1, U.S. Navy Oceanographic and Meteorological Support System Manual
2. NAVAIR 13670.1, Policy and Responsibility for Management of Mobile Facilities Under the Cognizance of Naval Air Systems Command
3. SPAWARS PUB QL-23, USMC METMF Equipment and Materials Allowance Listing

ADMINISTRATIVE INSTRUCTIONS:

1. Accountable items are signed for from the Marine Aviation Logistics Squadron (MALS) Supply Officer.

TASK: 6802.1.5 VERIFY A QUALITY DEFICIENCY REPORT (QDR)

CONDITION(S): Given meteorological and oceanographic equipment that does not perform to acceptable standards, and Standard Form 360.

MCO 1510.105

STANDARD: Standard Form 360 must conform to OPNAVINST 4790.2 Volume Two guidelines.

PERFORMANCE STEPS:

1. Identify quality deficiencies in METOC equipment.
2. Prepare the QDR.
3. Review QDR for accuracy.
4. Submit QDR.

REFERENCE(S) :

1. OPNAVINST 4790.2, Vol Two, Naval Aviation Maintenance Program

ADMINISTRATIVE INSTRUCTIONS:

1. QDR's will be verified and submitted as required.

TASK: 6802.1.6 SUBMIT TEMPORARY ADDITIONAL DUTY (TAD) REQUIREMENTS

CONDITION(S): Given a requirement to submit annual TAD projections.

STANDARD: Establish annual agenda and requirement for TAD, to include conferences and training with budget estimates.

PERFORMANCE STEPS:

1. Identify travel requirements.
2. Estimate cost for travel.
3. Prepare list of TAD requirements.
4. Submit annual TAD budget request.
5. Conduct review.

REFERENCE(S) :

1. NAVCOMPT Manual

Appendix A to
ENCLOSURE (6)

2. NAVSO P3013-1&2, Financial Management of Resources

ADMINISTRATIVE INSTRUCTIONS:

1. Establish coordination with Occupational Field Sponsor on agenda for conferences/training.
2. Submit annually for local command requirements.

TASK: 6802.1.7 CONDUCT STAFF STUDIES

CONDITION(S): Given a staff study objectives and availability of required resources.

STANDARD: Submit a finalized conclusion or recommendation to a staff study.

PERFORMANCE STEPS:

1. Evaluate the objectives of an assigned staff study.
2. Research applicable resources of information.
3. Compile the data necessary to satisfy the objectives of the assigned study.

REFERENCE(S):

1. FMFM 3-3, Command and Staff Action
2. FM 101-5, Staff Organization and Operation

ADMINISTRATIVE INSTRUCTIONS:

1. Each new DOD weapons system acquisition requires a meteorological and oceanographic (METOC) staff study to determine specific METOC effects and impacts on that system.

MCO 1510.105

TASK: 6802.1.8 DEVELOP STANDING OPERATING PROCEDURES

CONDITION(S): Given assignment to a weather unit.

STANDARD: The standing operating procedures (SOP) must outline local procedures and conform to doctrine and policy that governs Marine Corps practices and requirements.

PERFORMANCE STEPS:

1. Review existing or previous SOP's.
2. Assess meteorological and oceanographic (METOC) support requirements.
3. Document standing operating procedures.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS:

1. Review the SOP annually.

TASK: 6802.1.9 ESTABLISH LIAISON WITH OTHER SERVICE COUNTERPARTS

CONDITION(S): Given a requirement to maintain interoperability with other services.

STANDARD: This liaison provides a means by which services may assist one another in the accomplishment of meteorological oceanographic (METOC) functions, to include coordination of research and development efforts, to avoid duplication and ensure commonalty in the improvement of METOC capabilities.

PERFORMANCE STEPS:

1. Monitor other services' research and development programs.
2. Identify programs which could be of use to the Marine Corps.
3. Implement programs identified for Marine Corps use.

Appendix A to
ENCLOSURE (6)

REFERENCE(S) :

1. NAVOCEANCOMINST 3140.7_, Fleet Liaison Program

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6802.1.10 CONDUCT PREDEPLOYMENT SCREENINGS/INSPECTIONS

CONDITION(S): Given functional area checklist and upon notification of impending operation, or as needed to ensure unit readiness to deploy.

STANDARD: Screening/inspections indicate whether meteorological and oceanographic (METOC) unit is capable of providing services per the mission in support of MAGTF.

PERFORMANCE STEPS:

1. Evaluate, by functional area, capability to perform all functions using IG inspection checklist.
2. Assign grade (mission capability or non-mission capability).
3. Utilize findings to correct deficiencies.

REFERENCE(S) :

1. MCO 5040.6_, USMC Inspections

ADMINISTRATIVE INSTRUCTIONS:

1. Self inspection should be completed when a new officer reports aboard and assumes responsibility for weather unit.
 2. Self inspections should be scheduled if deployments do not allow maintaining a regular inspection requirement.
-

MCO 1510.105

TASK: 6802.1.11 MONITOR OPERATING BUDGET

CONDITION(S): Upon assignment as the responsible officer for meteorological and oceanographic (METOC) assets.

STANDARD: Funding is identified for operational and training requirements.

PERFORMANCE STEPS:

1. Identify support to be provided.
2. Identify assets utilized to provide support.
3. Determine operating and maintenance costs, to include training.
4. Submit to fund administrator.
5. Conduct Quarterly Review.
6. Notify fund administrator of any cost increases anticipated.

REFERENCE(S):

1. MCO P7100.8K, Field Budget Guidance Manual

ADMINISTRATIVE INSTRUCTIONS:

1. Coordinate closely with fund administrator for submission and review procedures.

TASK: 6802.1.12 BRIEF METEOROLOGICAL AND OCEANOGRAPHIC (METOC) CAPABILITIES

CONDITION(S): Given requests for METOC impacts on mission.

STANDARD: Brief current METOC mission support capabilities so that the customer can make decisions regarding METOC impacts.

PERFORMANCE STEPS:

1. Assess the METOC requirements of the targeted audience.
2. Prepare the METOC capabilities brief.

3. Conduct the METOC capabilities brief.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6802.1.13 CONSOLIDATE HOST AND TENANT CUSTOMER REQUIREMENTS

CONDITION(S): Given a listing of host and tenant customer requirements.

STANDARD: Meteorological oceanographic (METOC) support must be consolidated so as not to duplicate requirements or omit deficiencies. All discrepancies must be noted and the consolidated list must address all host and tenant requirements.

PERFORMANCE STEPS:

1. Issue annual survey to all customers.
2. Follow up to ensure completeness of survey response.
3. Match like requirements.
4. Place requirements in appropriate local instruction for action by weather personnel.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS:

1. This task is performed more frequently as new tenant units come aboard.
-

TASK: 6802.1.14 RELEASE MEACONING, INTRUSION, JAMMING AND INTERFERENCE FEEDER (MIJI) REPORT

CONDITION(S): Given the requirement to report Meaconing, Intrusion, Jamming, and Interference Reports (MIJI), including electro optic, and MIJI reports.

STANDARD: The MIJI reports ensure interference is not self induced, or locally produced. MIJI feeder report is transmitted to the Commander, Joint Task Force (CJTF) for action.

PERFORMANCE STEPS:

1. Verify cause for requirement locally.
2. Submit report to Commander Joint Task Force (CJTF).
3. Maintain copy of MIJI report per local communication instructions.

REFERENCE(S):

1. ACP 121, Allied Communications Procedures (ACP)
2. ACP 190, Allied Communications Procedures (ACP)

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6802.1.15 ESTABLISH A SECURITY PROGRAM

CONDITION(S): Given COMSEC equipment and classified material.

STANDARD: The established security program provides for safeguarding of COMSEC equipment and classified material.

PERFORMANCE STEPS:

1. Maintain access letters.
 - a. Ensure Marine has required clearance (from S-1).
 - b. Request access from proper authority via the chain of command.
 - c. Maintain copy of letter granting access until no longer required, per current directives.

2. Maintain standing operating procedures (SOP) for security.
 - a. Ascertain if SOP is available.
 - b. Ensure existing SOP is up-to-date with all applicable directives, and that it includes all current classified material and COMSEC equipment.
 - c. Write/revise SOP to ensure completeness and accuracy.
3. Maintain physical security evaluation (PSE).
 - a. Request PSE from cognizant authority via the chain of command.
 - b. Maintain file copy of PSE until new one is accomplished or no longer required.
 - c. Review as required.

REFERENCE(S) :

1. OPNAVINST 5510.1, Information and Personnel Security Program Regulation
2. CMS 4L, Communications Security Material System Manual

ADMINISTRATIVE INSTRUCTIONS:

1. Clearance information on Marines is located at command's administrative office.
-

DUTY AREA 2 - TRAINING

TASK: 6802.2.1 CONDUCT CERTIFICATION PROCEDURES FOR WEATHER PERSONNEL

CONDITION(S): Given an evaluation test, published individual training standards, and a requirement to certify weather personnel.

STANDARD: The weather officer reviews results of the Marine's evaluation, the board recommendations, and makes a certification determination.

PERFORMANCE STEPS:

1. Select evaluators.
2. Task the Marine to prepare a forecast or to take an observation.
3. Question Marine on reasoning and logic concerning his forecast product or his observation.
4. Consider input of all evaluators.
5. Make a decision to certify or not certify.
6. Sign certificate for successful forecasters or observers.

REFERENCE(S):

1. NAVMETOCCOMINST 1500.2_, Naval Oceanography Command Training and Certification Program

ADMINISTRATIVE INSTRUCTIONS:

1. Personnel whose certification has been revoked, or have repeatedly failed certification may be recommended for further administrative action.
-

TASK: 6802.2.2 CERTIFY TOWER CONTROLLERS IN THE FUNCTIONAL AREA OF TOWER VISIBILITY

CONDITION(S): Given a blank certificate, programmed instruction with tests, and a requirement to certify Air Traffic Control (ATC) personnel as tower visibility observers.

STANDARD: Certify the tower controller as a qualified Visibility Observer, per NAVOCEANCOMINST 1500.3-.

PERFORMANCE STEPS:

1. Obtain results of tower visibility test from weather training NCO.
2. Sign certificate(s).
3. Return signed certificates to ATC officer.

REFERENCE(S):

1. NAVOCEANCOMINST 1500.3_, Procedures for Qualification and Certification of Naval and Marine Corps Air Traffic Controllers as Tower Visibility Observers
2. FMH-1B, Manual Of Surface Observations
3. NAVEDTRA 40181A/40182A, Programmed Instruction With Tests (U.S. Navy)

ADMINISTRATIVE INSTRUCTIONS:

1. Certification to be performed upon arrival of ATC personnel to duty station upon recommendation from ATC officer.

TASK: 6802.2.3 ESTABLISH A METEOROLOGICAL AND OCEANOGRAPHIC (METOC) TRAINING PROGRAM TO SATISFY MAGTF REQUIREMENTS

CONDITION(S): Given the requirement to provide joint interoperable METOC support for any contingency.

STANDARD: Training is directed to satisfy all METOC support requirements for MAGTF components, and all forces operating jointly.

PERFORMANCE STEPS:

1. Establish component's requirements for METOC support as directed in Operations Plan Annex H and doctrinal publications.
2. Develop a comprehensive training plan utilizing TQL.
3. Implement the training plan, to include deployment of personnel and assets and rear area security.

REFERENCE(S):

1. FM 34-130, Intelligence Preparation of the Battlefield
2. FM 34-81/81 105-4, Weather Support for Army Tactical Operations
3. FM 34-81-1, Battlefield Weather Effects

ADMINISTRATIVE INSTRUCTIONS:

1. Weather officers will coordinate implementation with MWSG Weather Officer

DUTY AREA 3 - SUPPLY

TASK: 6802.3.1 REPORT EQUIPMENT CASUALTIES TO HIGHER HEADQUARTERS

CONDITION(S): Given a meteorological and oceanographic (METOC) equipment casualty.

STANDARD: Report equipment casualties to higher headquarters within 24 hours, using the required format.

PERFORMANCE STEPS:

1. Identify an equipment casualty.
2. Research reporting procedures.
3. Draft the casualty report.
4. Submit the casualty report for release.

REFERENCE(S) :

1. NAVMETOCCOMINST 13950.1_, Meteorological Equipment Management and Planning Policy
2. NWP 10-1-10, Operational Reports

ADMINISTRATIVE INSTRUCTIONS:

1. Casualty report must be submitted to immediate and higher chain of command.

TASK: 6802.3.2 PROVIDE INFORMATION FOR BASE ENGINEERING SITE EVALUATION PLAN (BESEP) EQUIPMENT STUDIES

CONDITION(S): Given notification of future installation of equipment.

STANDARD: BESEP is complete and allows adequate time for preparation of facilities to install equipment.

PERFORMANCE STEPS:

1. Identify future equipment installation requirements.
2. Assist S-4/facilities officer in identifying location of installation.
3. Review draft BESEP.
4. Provide comments.

REFERENCE(S) :

1. SPAWARINST 2804.1_, BESEP Policy and Procedures

ADMINISTRATIVE INSTRUCTIONS:

1. Coordinate closely with S-4/facilities to ensure BESEP is correct.
-

MOS 6821, WEATHER OBSERVER

DUTY AREA 1 - DETERMINING OBSERVATIONAL ELEMENTS

TASK: 6821.1.1 DETERMINE CLOUD HEIGHT

CONDITION(S): Using standardized methods.

STANDARD: Range of Heights Values: Standards: 5,000 ft or less - nearest 100 ft; 5,000 ft to 10,000 ft to nearest 500 ft; Above 10,000 ft - nearest 1000 ft.

PERFORMANCE STEPS:

1. Observe clouds to estimate height.
2. Make comparisons with available tools/methods which may include:
 - a. Rotating beam ceilometer (GMQ-13).
 - b. Height of known objects.
 - c. Skew-T log P Diagram.
 - d. Ceiling balloon.
 - e. Pilot reports.
 - f. Ceiling light and clinometer.
 - g. Convective cloud height diagram.
 - h. Other station reports.
 - i. Laser beam ceilometer (ASOS).

REFERENCE(S):

1. FMH-1B, Manual Of Surface Observations

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6821.1.2 CONDUCT PILOT BALLOON OBSERVATIONS

CONDITION(S): Given an operational meteorological data system with shelter manned, an emplaced theodolite, uninflated balloon and a quantity of calcium hydride charges or a bottle of compressed helium or hydrogen.

STANDARD: Balloon must be inflated and tracked until it disappears from view. The entire task is completed within 30 minutes and all safety precautions must be followed.

PERFORMANCE STEPS:

1. Determine color of balloon needed and inflate to proper level.
2. Level and orient theodolite.
3. Launch according to required safety procedures.
4. Track balloon using local theodolite and stop watch making azimuth and elevation entries every 60 seconds on a given form.
5. Enter observed elevation and azimuth into given software or plotting boards and tables.
6. Retrieve computed data.
7. Encode data for dissemination.

REFERENCE(S):

1. FMH-5, Winds Aloft Observations
2. FMH-6, Upper wind Code

ADMINISTRATIVE INSTRUCTIONS:

1. Plotting board or computer software may be used to compute acquired elevation and azimuth.
2. Atmospheric phenomena may be used to consider accuracy.
3. Safety standards may include, but are not limited to, notification and clearance from the air traffic control tower for intended launch.
4. Calcium hydride charges should be considered hazardous material, and applicable safety precautions should be taken for its use and disposal.

TASK: 6821.1.3 OBSERVE OCEANOGRAPHIC ELEMENTS

CONDITION(S): When given equipment and when conditions warrant.

STANDARD: All performance steps must be completed during the period of observation.

PERFORMANCE STEPS:

1. Observe surf conditions.
2. Observe swell conditions to include period, height, and interior.
3. Observe surface water temperature.
4. Determine littoral current speed.
5. Determine sea state.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. The accuracy of observed elements is dependent upon the method of observation and the mission requirement.

TASK: 6821.1.4 OBSERVE THUNDERSTORM ACTIVITY

CONDITION(S): When meteorological conditions exist.

STANDARD: The time between observations is not to exceed 10 minutes and must be accomplished with 100% accuracy.

PERFORMANCE STEPS:

1. Listen for thunder and watch for accompanying lightning.
2. Determine intensity from obtained data.

3. Track and report movement.

REFERENCE(S) :

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Tracking of movement may be obtained through various data and equipment.
-

TASK: 6821.1.5 ANALYZE SKEW-T, LOG P DIAGRAM

CONDITION(S): Given a plotted Skew-T, Log P diagram.

STANDARD: Must be within the following tolerance: Nearest plus or minus 100 feet for height and nearest tenth of a degree for Celsius.

PERFORMANCE STEPS:

1. Analyze Showalter Stability Index (SSI).
2. Analyze level of free convection.
3. Analyze convective condensation level.
4. Analyze lifted condensation level.
5. Analyze freezing level.
6. Analyze contrail levels.

REFERENCE(S) :

1. NAVAIR 50-1P-5, The Use of The Skew-T, Log P Diagram in Analysis and Forecasting
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Skew-T, Log-P diagrams may be plotted manually or through the use of computer software.
2. Other analytical requirements may be imposed locally.

TASK: 6821.1.6 DETERMINE PRESSURE CHANGE

CONDITION(S): Given the pressure over a period of time.

STANDARD: This must be performed at 100% accuracy and must be recorded in column 13 of the observation form as directed by the reference.

PERFORMANCE STEPS:

1. Obtain local pressure value.
2. Obtain ending pressure value.
3. Calculate/change inches.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. This pressure change may be used for determination of additive data.

TASK: 6821.1.7 DETERMINE CLOUD TYPE, COVERAGE, AND DIRECTION

CONDITION(S): Observing a cloud layer or layers, and using the International Cloud Atlas.

STANDARD: Must use standardized methods and must be performed at least once per hour every hour.

PERFORMANCE STEPS:

1. Determine cloud height.

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2. Determine state of the sky or cloud type.
3. Determine cloud coverage.
4. Determine direction of clouds from observation point.
5. Check each step for accuracy by available means.

REFERENCE(S) :

1. International Cloud Atlas
2. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. This task is accomplished when conditions warrant an observation.

TASK: 6821.1.8 DETERMINE THE TYPE AND CHARACTER OF PRECIPITATION

CONDITION(S): Given observed characteristics of precipitation.

STANDARD: Task must be accomplished at least once every 24 hours or within the established time limits and with 100% accuracy during the period of observation.

PERFORMANCE STEPS:

1. Examine characteristics of precipitation and clouds.
2. Compare the characteristics to references.
3. Select type of precipitation and character.

REFERENCE(S) :

1. International Cloud Atlas
2. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. This task is accomplished when conditions warrant an observation and precipitation is occurring.
-

TASK: 6821.1.9 DETERMINE VISIBILITY

CONDITION(S): Given known visibility markers and the FMH-1B.

STANDARD: To the nearest reportable value.

PERFORMANCE STEPS:

1. Observe appearance of known visibility markers.
2. Estimate visibility in all quadrants of the horizon.
3. Convert estimated values to prevailing and sector visibility using reportable values and rules.
4. Monitor visibility values during the period of observation to determine the prevailing visibility.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. This task is performed when conditions warrant an observation.
-

TASK: 6821.1.10 DETERMINE WIND SPEED, DIRECTION, CHARACTER, AND SIGNIFICANT WIND EVENTS

CONDITION(S): Using available wind equipment and tables.

STANDARD: Must be within the tolerances of available equipment and tables.

PERFORMANCE STEPS:

1. Obtain average wind speed and direction as required by type of observation.
2. Examine wind history to determine significant events such as wind shifts, peak winds, gusts, squalls, variable winds, or maximum winds.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. This task is performed when conditions warrant an observation.

TASK: 6821.1.11 DETERMINE TYPE AND DIRECTION OF OBSCURATION TO VISION

CONDITION(S): Given observed conditions of an obscuring phenomena.

STANDARD: With 100% accuracy.

PERFORMANCE STEPS:

1. Examine characteristics of obstruction to vision.
2. Compare these characteristics to criteria tables or references.
3. Select type of obstruction to vision.
4. Determine direction and distance.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. This task is performed when conditions warrant an observation.
-

TASK: 6821.1.12 DETERMINE PRESSURE TENDENCY

CONDITION(S): Given a series of pressure readings over a three hour period or a barogram.

STANDARD: Must be in agreement with the references.

PERFORMANCE STEPS:

1. Determine if pressure tendency has increased, decreased or remained the same.
2. Match pressure tendency to tables.
3. Read code figure from table.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6821.1.13 DETERMINE AMOUNT OF ACCUMULATED PRECIPITATION

CONDITION(S): Given precipitation

STANDARD: Measurements must be obtained to the nearest .01 inches.

PERFORMANCE STEPS:

1. Determine water equivalent, if snow has fallen.
2. Read rain gauge or water equivalent for that time period (for three or six hour accumulated precipitation value).
3. Review summarized recorded amounts for the period (for 24 hour accumulated precipitation values).

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REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6821.1.14 DETERMINE WET BULB TEMPERATURE

CONDITION(S): Given necessary equipment.

STANDARD: Must be to the nearest 0.1 degree.

PERFORMANCE STEPS:

1. Wet wick on wet bulb until saturated.
2. Ventilate until lowest temperature is reached.
3. Read temperature.
4. Avoid error of parallax.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Differences in procedures exist due to differences in equipment.
-

TASK: 6821.1.15 DETERMINE DRY BULB TEMPERATURE

CONDITION(S): Given the equipment.

STANDARD: Must be read to the nearest 0.1 degree.

PERFORMANCE STEPS:

1. Check for proper operation.
2. Read directly from source.
3. Avoid error of parallax.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Differences in procedures exist due to differences in equipment.

TASK: 6821.1.16 READ MINIMUM TEMPERATURE

CONDITION(S): Using the various methods available.

STANDARD: Must be read to the nearest whole degree.

PERFORMANCE STEPS:

1. Read temperature from source.
2. Reset source if applicable.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Minimum temperature may be obtained through direct readout, specialized thermometer, or recorded temperature comparison.

MCO 1510.105

TASK: 6821.1.17 READ MARINE BAROGRAPH

CONDITION(S): Given a Marine barograph.

STANDARD: Must be read to the nearest .1 hectopascals.

PERFORMANCE STEPS:

1. Examine ink trace for pressure characteristic to include barograph V's.
2. Read pressure using graduations on barograph.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. The Marine Barograph is used only when the primary pressure instrument is inoperative, when a Barogram V is recorded, or to assist in determining the pressure tendency.

TASK: 6821.1.18 READ ANEROID BAROMETER

CONDITION(S): Given a barometer.

STANDARD: To the nearest 0.1 hectopascal.

PERFORMANCE STEPS:

1. Tap barometer lightly to release friction.
2. Read barometer using mirror strip to avoid error in parallax.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Task is performed when conditions warrant an observation.

TASK: 6821.1.19 COMPUTE ALTIMETER SETTING

CONDITION(S): Given station pressure value and method of determination applicable to station.

STANDARD: To the nearest 0.01 inches.

PERFORMANCE STEPS:

1. Obtain correction value.
2. Apply correction value to station pressure value.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. Local Pressure Computation Tables

ADMINISTRATIVE INSTRUCTIONS:

1. Task is performed when conditions warrant an observation.

TASK: 6821.1.20 DETERMINE WET BULB GLOBE TEMPERATURE INDEX

CONDITION(S): Given a WBGTI set.

STANDARD: To .1 degrees F.

PERFORMANCE STEPS:

1. Take reading from dry bulb, natural wet bulb, and black globe thermometer.
2. Enter readings onto locally prepared forms.
3. Apply standard calculations to readings.

4. Compare sum of corrected readings to index table.

REFERENCE(S):

1. MCO 6200.1, Heat Casualties

ADMINISTRATIVE INSTRUCTIONS:

1. This is a seasonal task.
2. Disseminate according to local procedures.
3. Maintenance of WBGTI equipment is required.

TASK: 6821.1.21 COMPUTE DEWPOINT

CONDITION(S): Given dry bulb temperature, wet bulb temperature, station pressure, and available devices or tables.

STANDARD: To the nearest 0.1 degree.

PERFORMANCE STEPS:

1. Enter dry bulb temperature and wet bulb temperature into available devices or tables.
2. Read dew point from available devices or tables.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Dew point may be determined by direct readout.
 2. Various devices may be used to obtain these computations.
-

TASK: 6821.1.22 COMPUTE RELATIVE HUMIDITY

CONDITION(S): Given temperature, dew point, and available devices or tables.

STANDARD: To the nearest whole percent.

PERFORMANCE STEPS:

1. Enter temperature and dew point into available devices or tables.
2. Read relative humidity from available devices or tables.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Relative humidity may be determined by direct readout.
2. Various devices may be used to obtain these computations.

TASK: 6821.1.23 COMPUTE DENSITY ALTITUDE

CONDITION(S): Given the station pressure value, temperature, dew point, and density altitude computer.

STANDARD: To the nearest 10 feet.

PERFORMANCE STEPS:

1. Enter given values.
2. Read values of density altitude.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Various devices may be used to compute these values.

TASK: 6821.1.24 COMPUTE PRESSURE ALTITUDE

CONDITION(S): Given station pressure value and a method of determination.

STANDARD: To the nearest 10 feet.

PERFORMANCE STEPS:

1. Enter station pressure into available device or table.
2. Read pressure altitude from device or table.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Various devices may be used to obtain these computations.

TASK: 6821.1.25 CALCULATE SEA LEVEL PRESSURE IN HECTOPASCALS

CONDITION(S): Given the station pressure value and a method of determination applicable to the station

STANDARD: To the nearest 0.1 hectopascal.

PERFORMANCE STEPS:

1. Obtain correction value if applicable.
2. Apply correction to station pressure value.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Correction value may be obtained from a variety of sources.

TASK: 6821.1.26 DETERMINE MAXIMUM TEMPERATURE

CONDITION(S): Given temperatures over a specific period of time.

STANDARD: Read to the nearest whole degree.

PERFORMANCE STEPS:

1. Read temperature from source.
2. Reset if applicable.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Maximum temperature may be obtained through digital readout, specialized thermometer or recorded temperature comparison.

DUTY AREA 2 - RECORDING OBSERVATIONAL ELEMENTS

TASK: 6821.2.1 SUMMARIZE 24 HOUR WEATHER DATA

CONDITION(S): Given a standard form and 24 hour weather data.

STANDARD: Encode with 100% accuracy.

PERFORMANCE STEPS:

1. Review 24 hour weather data.
2. Encode data in correct columns.
3. Check all entries for accuracy.

MCO 1510.105

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Data may be obtained from locally produced data sheet.

TASK: 6821.2.2 ENCODE SYNOPTIC OBSERVATIONS

CONDITION(S): Given observed elements and references.

STANDARD: With 100% accuracy.

PERFORMANCE STEPS:

1. Convert observed elements to required units of measure.
2. Encode into proper format.
3. Check for accuracy.

REFERENCE(S):

1. FMH-2, Surface Synoptic Code

ADMINISTRATIVE INSTRUCTIONS:

1. Land or ship codes may be used as situation dictates.

TASK: 6821.2.3 MAINTAIN LOCAL OBSERVATIONAL WORKSHEETS

CONDITION(S): Given observational worksheet and observed elements.

STANDARD: Must be within prescribed guidelines and tolerances as required by local directives.

PERFORMANCE STEPS:

1. Enter required elements on worksheet.

2. Perform calculations.
3. Check for accuracy.

REFERENCE(S) :

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Examples of local worksheets may include pressure computation, temperature or WGBTI, worksheets.

TASK: 6821.2.4 PLOT CONSTANT PRESSURE CHARTS

CONDITION(S): Given appropriate upper air data, references, and charts.

STANDARD: Within locally prescribed time.

PERFORMANCE STEPS:

1. Consolidate data.
2. Decode
3. Check for accuracy.
4. Plot decoded data on charts.

REFERENCE(S) :

1. FMH-6, Upper Wind Code
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Constant pressure charts are plotted for various pressure levels i.e., 850 MB, 700 MB, 500 MB, 300 MB, 250 MB, 200MB, 150 MB.
2. PIREP/satellite data corresponding to various pressure levels may also be utilized.

TASK: 6821.2.5 PLOT SKEW-T LOG P DIAGRAM

CONDITION(S): Given adequate sounding, and a Skew-T Log P diagram.

STANDARD: Without error to the nearest .1 degree.

PERFORMANCE STEPS:

1. Plot pressure altitude curve.
2. Plot temperature curve.
3. Plot dew point temperature curve.
4. Plot wind profile.
5. Fill out legend block.

REFERENCE(S):

1. NAVAIR 50-IP-5, Use of Skew-T Log P Diagram in Analysis and Forecasting

ADMINISTRATIVE INSTRUCTIONS:

1. A straight edge and colored pencils are required.
-

TASK: 6821.2.6 RECORD WEATHER INFORMATION ON OBSERVATION FORMS

CONDITION(S): Given an FMH-1B, a number 2 pencil, observed weather elements, and an observation form.

STANDARD: Must be within the time limits prescribed for the type of observation.

PERFORMANCE STEPS:

1. Convert data to format required for each column.
2. Enter data.
3. Check for accuracy.

REFERENCE(S) :

1. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Data is obtained throughout another duty area.
2. Time allotted for data entry is determined by the type of observation.

TASK: 6821.2.7 DECODE SYNOPTIC OBSERVATIONS

CONDITION(S): Given a synoptic observation and FMH-2.

STANDARD: 100% accuracy is required.

PERFORMANCE STEPS:

1. Identify the type of observation.
2. Enter coded elements into applicable tables.
3. Decode into required format.
4. Check for accuracy.

REFERENCE(S) :

1. FMH-2, Surface Synoptic Code
2. WMO # 306, Manual On Codes

ADMINISTRATIVE INSTRUCTIONS:

1. Land or ship synoptic codes may be used as the situation dictates.
-

DUTY AREA 3 - DISSEMINATING WEATHER DATA

TASK: 6821.3.1 PLOT WARNINGS ON CHART

CONDITION(S): Given various weather warnings.

STANDARD: No later than 15 minutes from receipt.

PERFORMANCE STEPS:

1. Select scale.
2. Plot warnings.
3. Check plots for accuracy.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Warnings may be SIGMETS, AIRMETS, WW'S, Convective SIGMETS, Point Warnings, Tropical Cyclone Warnings, etc..
-

TASK: 6821.3.2 DISSEMINATE WEATHER WARNINGS

CONDITION(S): Given a weather warning and established methods.

STANDARD: Within 30 minutes.

PERFORMANCE STEPS:

1. Determine appropriate distribution.
2. Locate established methods.
3. Follow established methods.

REFERENCE(S) :

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS:

1. Dissemination will be determined by locally established methods.

TASK: 6821.3.3 UPDATE LOCAL PRESENT WEATHER DISPLAY

CONDITION(S): Given needed data.

STANDARD: 100% accuracy is required.

PERFORMANCE STEPS:

1. Erase previous data.
2. Enter data in proper columns.
3. Check for legibility and accuracy.

REFERENCE(S) :

1. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Requirements for the contents of and format for a present weather display are locally determined.

TASK: 6821.3.4 COLLATE WEATHER ALPHANUMERIC SCANS

CONDITION(S): Given an alphanumeric output device.

STANDARD: Within 15 minutes.

PERFORMANCE STEPS:

1. Obtain alphanumeric scans from output device.

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2. Identify and separate by data type.
3. Display according to local procedure.

REFERENCE(S) :

1. AWSP 105-52, Vol III, Weather Communications (Weather Message Catalog)

ADMINISTRATIVE INSTRUCTIONS:

1. The observer must be alert to warnings and other significant events on the scan.

TASK: 6821.3.5 DISPLAY CENTRALLY PRODUCED PRODUCTS

CONDITION(S): Given a source of centrally prepared products.

STANDARD: Products must depict significant features as prescribed by the requester with 100% accuracy.

PERFORMANCE STEPS:

1. Remove charts from source and sort accordingly.
2. Identify significant features.
3. Highlight significant features using standard symbology and colors.
4. Annotate date and time group.
5. Post in assigned place.

REFERENCE(S) :

1. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Products must depict significant features.

TASK: 6821.3.6 ADVISE FORECASTER OF SIGNIFICANT WEATHER EVENTS

CONDITION(S): Given an occurrence of significant events or receipt of significant weather scans.

STANDARD: Must notify the duty forecaster within 15 minutes of receipt of occurrence.

PERFORMANCE STEPS:

1. Identify significant weather events or scans.
2. Notify duty forecaster of the significant weather event or scan.

REFERENCE(S):

1. NAVOCEANCOMINST 1500.2, Naval Oceanography Command Training and Certification Program

ADMINISTRATIVE INSTRUCTIONS:

1. All weather warnings and significant weather events should be considered with the greatest urgency.

DUTY AREA 4 - OPERATING EQUIPMENT

TASK: 6821.4.1 OPERATE TEMPERATURE SENSING DEVICES

CONDITION(S): Given a temperature sensing device.

STANDARD: As prescribed by the references and without damage to the equipment.

PERFORMANCE STEPS:

1. Check device for proper operation.
2. Obtain desired reading to the degree of accuracy required of the element/ability of the device.
3. Perform preventive maintenance as required.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. AG-3, Aerographers Mate 3rd Class
3. Equipment Operation Manual

ADMINISTRATIVE INSTRUCTIONS:

1. This may include electric psychrometer, maximum and minimum thermometers, automatic weather stations, rotor psychrometer, WBGTI equipment, sling psychrometer.

TASK: 6821.4.2 OPERATE AUDIO VISUAL SYSTEMS

CONDITION(S): Given an audiovisual system, operator manuals, and data to be input.

STANDARD: As prescribed by the equipment operation manuals, without damage to equipment, and must produce the product intended.

PERFORMANCE STEPS:

1. Perform operational checks.
2. Enter/edit data in the manner as prescribed by the equipment operation manual.
3. Check input for accuracy.

REFERENCE(S):

1. Equipment Operation Manual
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. This task may include, but is not limited to, the GMQ-27, CCTV.

TASK: 6821.4.3 CONDUCT A MINI-RAWIN SOUNDING

CONDITION(S): Given a balloon, a mini-rawinsonde, AN/UMQ-12, a helium or hydrogen source.

STANDARD: To obtain an atmospheric sounding.

PERFORMANCE STEPS:

1. Ensure operator maintenance is accomplished.
2. Gather equipment.
3. Prepare and start-up AN/UMQ12.
4. Prepare balloon and radiosonde.
5. Enter surface observation and coefficients.
6. Inflate balloon and connect rawinsonde.
7. Tune radiosonde to AN/UMQ-12 for strong signal and fill out data sheet.
8. Check AN/UMQ-12 for strong signal and compare current readings with surface observation to insure accuracy.
9. Set AN/UMQ-12 to track and monitor tracking.
10. Launch according to local required safety standards.
11. Load software for coded data, upon sounding termination.
12. Print coded data and complete data sheet for submission.

REFERENCE(S):

1. Equipment Operation Manual
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Coefficients may be done manually or by using enclosed tape.
2. Inflation of balloon can be done at anytime (closer to launch time is suggested)

3. Safety standards may include, but are not limited to notifying the air traffic control tower of intended launch.
4. Contact maintenance personnel during outage.

TASK: 6821.4.4 OPERATE A HYDROGEN GENERATOR

CONDITION(S): Given TMQ-3, calcium hydride charges, safety equipment, and a container of water.

STANDARD: While observing all safety precautions and producing a properly inflated balloon.

PERFORMANCE STEPS:

1. Check to see if operator maintenance has been accomplished.
2. Open calcium hydride charges.
3. Attach charges to generator.
4. Attach generator to balloon.
5. Immerse generator into container of water.
6. Inflate balloon to desired level.
7. Dispose of charges according to local regulations.

REFERENCE(S):

1. Equipment Operation Manual
2. FMH-5, Winds Aloft Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Extreme caution must be taken when performing this task due to the amount of heat generated and the possibility of an explosion.

TASK: 6821.4.5 OPERATE A RADIO RECEIVER

CONDITION(S): Given a radio receiver, a list of available frequencies, and equipment operator's manual.

STANDARD: To obtain legible data.

PERFORMANCE STEPS:

1. Select best frequency for desired product.
2. Tune frequency for optimum reception.
3. Monitor output and adjust as needed.
4. Patch receiver to appropriate output device.

REFERENCE(S):

1. Equipment Operation Manuals
2. Worldwide Marine Radiofacsimile Broadcast Schedules
3. Selected Worldwide Marine Weather Broadcast

ADMINISTRATIVE INSTRUCTIONS:

1. This may include an AN/GRC-171, RT-1446-URC, OR R2368/URR.

TASK: 6821.4.6 OPERATE A THEODOLITE

CONDITION(S): Given a theodolite, a tripod, operator manuals, and required materials.

STANDARD: To the nearest .1 degree of azimuth and elevation.

PERFORMANCE STEPS:

1. Determine observation site.
2. Assemble theodolite and attach to tripod/permanent mount.
3. Level the theodolite and orient to true north.
4. Focus the theodolite.

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5. Perform azimuth and elevation tracking.

REFERENCE(S) :

1. Equipment Operation Manual
2. AG-3, Aerographers Mate 3rd Class
3. FMH-5, Winds Aloft Observations

ADMINISTRATIVE INSTRUCTIONS:

1. Orientation of the theodolite may be made by magnetic compass or through the use of previously established orientation points.

TASK: 6821.4.7 OPERATE CLOUD HEIGHT MEASURING EQUIPMENT

CONDITION(S): Given cloud height measuring equipment and manuals.

STANDARD: To obtain a cloud height measurement within the tolerance of the equipment used.

PERFORMANCE STEPS:

1. Conduct operational checks.
2. Read/calculate values from equipment.
3. Apply necessary corrections/conversions.
4. Perform maintenance as required.

REFERENCE(S) :

1. Equipment Operation Manual
2. AG-3, Aerographers Mate 3rd Class
3. FMH-1B, Manual of Surface Observations

ADMINISTRATIVE INSTRUCTIONS:

1. This may include GMQ-13 Rotating Beam Ceilometer, ML-121 Ceiling Light, and ML-119 Clinometer.

TASK: 6821.4.8 OPERATE MANUAL CALCULATING DEVICES

CONDITION(S): Given a manual calculating device and required input data.

STANDARD: 100% accuracy must be obtained at all times.

PERFORMANCE STEPS:

1. Check to see if operator maintenance has been accomplished.
2. Perform operational checks.
3. Enter input data.
4. Obtain required values.
5. Quality check values.
6. Perform operator maintenance as required.

REFERENCE(S):

1. Equipment Operation Manual
2. AG-3, Aerographers Mate 3rd Class
3. FMH-1B, Manual of Surface Observation

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6821.4.9 DISSEMINATE WEATHER INFORMATION

CONDITION(S): Given weather information and a dissemination list.

STANDARD: Determined by type of weather information.

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PERFORMANCE STEPS:

1. Gather weather information.
2. Gather dissemination list.
3. Disseminate information as required.

REFERENCE(S):

1. FMH-1B, Manual of Surface Observations
2. Local Statements of Agreement

ADMINISTRATIVE INSTRUCTIONS:

1. Urgency of dissemination depends on type of information.
2. Urgency will be determined by the duty forecaster.

TASK: 6821.4.10 PERFORM CORROSION CONTROL ON A METEOROLOGICAL MOBILE FACILITY

CONDITION(S): Given sandpaper, eye protection, paints and additives, and locally required safety and environmental equipment.

STANDARD: Corrosion control measures must observe local environmental and safety rules and must be in accordance with the corrosion control plan.

PERFORMANCE STEPS:

1. Review corrosion control plan and environmental/safety rules.
2. Inspect METMF for areas of corrosion.
3. Remove corrosion.
4. Apply primer or required corrosion resistant material.
5. Paint as per applicable directives.

REFERENCE(S) :

1. Material Safety Data Sheets (MSDS)
2. Material Instructions
3. NAVAIR 19-25-158, Marine Expeditionary Van Complex (Meteorological) Air Transportable

ADMINISTRATIVE INSTRUCTIONS:

1. Close supervision is required.
2. Environmental/safety regulations must be closely followed.

TASK: 6821.4.11 INSTALL THERMOSCREEN AND COMPONENTS

CONDITION(S): Given a thermoscreen, stand, associated thermometers and necessary hardware

STANDARD: To correct specifications without error.

PERFORMANCE STEPS:

1. Choose site.
2. Construct stand.
3. Mount thermoscreen to stand.
4. Secure thermoscreen/stand to site.
5. Install thermometers and components inside of thermoscreen.

REFERENCE(S) :

1. Equipment Operation Manual
2. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS:

1. Thermoscreen must be ten feet or greater from vertical obstructions.

2. Orient thermoscreen to true north in northern hemisphere, true south in southern hemisphere.
-

TASK: 6821.4.12 INSTALL WGBTI SET

CONDITION(S): Given WGBTI components

STANDARD: Must be installed to correct specifications without error.

PERFORMANCE STEPS:

1. Install mounting stand.
2. Install components on stand.
3. Verify installation is correct.
4. Perform maintenance as required.

REFERENCE(S):

1. MCO 6200.1, Heat Casualties

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6821.4.13 OBTAIN WIND MEASUREMENT

CONDITION(S): Using wind measuring equipment and equipment operator's manuals.

STANDARD: Task must be performed without damage to the equipment and according to the steps and directions outlined in the operator's manual.

PERFORMANCE STEPS:

1. Choose equipment to be used.
2. Conduct operational check on chosen equipment.
3. Perform orientation/calibration.
4. Follow directions in operator's manual.

5. Perform preventive maintenance as required.

REFERENCE(S) :

1. AG-3, Aerographers Mate 3rd Class
2. FMH-1B, Manual of Surface Observations
3. Equipment Operator's Manuals

ADMINISTRATIVE INSTRUCTIONS:

1. Equipment may be PMQ-3, UMQ-5, GMQ-29, ASOS, or Belt Weather Kit

TASK: 6821.4.14 OBTAIN A PRESSURE READING

CONDITION(S): Using an Aneroid Barometer, Marine Barograph, or a Digital Altimeter Setting Indicator (DASI) or some other pressure sensing device.

STANDARD: The pressure reading must be 100% free of error.

PERFORMANCE STEPS:

1. Select pressure sensing device.
2. Check operability of equipment.
3. Perform calibration required for reading.
4. Perform preventive maintenance as required.

REFERENCE(S) :

1. AG-3, Aerographers Mate 3rd Class
2. FMH-1B, Manual of Surface Observations
3. Equipment Operator's Manuals

ADMINISTRATIVE INSTRUCTIONS: (NONE)

DUTY AREA 5 - DECODING

TASK: 6821.5.1 PLOT A SURFACE CHART

CONDITION(S): Given data, charts and plotting guide.

STANDARD: Must complete at least 20 legible plots in ten minutes.

PERFORMANCE STEPS:

1. Determine data type.
2. Decode data type and check for accuracy.
3. Plot chart using standard symbology.
4. Check chart for accuracy.

REFERENCE(S):

1. FMH-2, Surface Synoptic Code
2. AG-3, Aerographers Mate 3rd Class
3. WMO #306, Manual on Codes

ADMINISTRATIVE INSTRUCTIONS:

1. Data may be in a variety of codes and formats.
2. Scale of chart may vary with application.

TASK: 6821.5.2 DECODE UPPER AIR DATA

CONDITION(S): Given coded upper air data and upper air code tables.

STANDARD: Decoding must be done with 100% accuracy.

PERFORMANCE STEPS:

1. Determine data type (PIREP, AIRREP, RAWINSONDE, PIBAL, ETC).

2. Select appropriate code table.
3. Enter coded values into tables.
4. Read value of decoded data.

REFERENCE(S) :

1. AG-2, Aerographers Mate 2nd Class
2. AG-3, Aerographers Mate 3rd Class
3. FMH-6, Upper Wind Code

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6821.5.3 PLOT RADAR OBSERVATIONS ON MAP

CONDITION(S): Given alphanumeric radar observation and a map.

STANDARD: Must be plotted with 100% accuracy.

PERFORMANCE STEPS:

1. Gather data.
2. Plot data.
3. Check for accuracy.

REFERENCE(S) :

1. AG-2, Aerographers Mate 2nd Class
2. AG-3, Aerographers Mate 3rd Class
3. FMH-7, Weather Radar Observations
4. National Weather Service Radar Code User's Guide

ADMINISTRATIVE INSTRUCTIONS:

1. Data can be plotted as digital or graphic.
-

DUTY AREA 6 - ADMINISTRATIVE

TASK: 6821.6.1 PREPARE ASTRO, CLIMO, AND TIDAL DATA

CONDITION(S): Given equipment, software and manuals.

STANDARD: Must meet specifications of the requester.

PERFORMANCE STEPS:

1. Determine global area.
2. Analyze the type of requirement.
3. Retrieve required data.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual
2. GFMPL/MOSS User's Guide

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6821.6.2 BRIEF ONCOMING WATCH

CONDITION(S): At the end of duty.

STANDARD: Watch is relieved when the performances have been completed and no discrepancies exist.

PERFORMANCE STEPS:

1. Tour duty area to review duty happenings, and ensure that all tasks are complete.
2. Review all log books and ensure supplies are brought up and full.
3. Brief oncoming watch covering all watch aspects in terms of weather information, equipment conditions, things needed to be accomplished and all orders passed on.

4. Ensure oncoming watch is present, in the uniform of the day, and ready to assume duty and fully posted before concluding relief.
5. Ensure watch relief

REFERENCE(S) :

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS: (NONE)

MOS 6842, WEATHER FORECASTER

DUTY AREA 1 - GENERAL WEATHER FORECASTING FUNCTIONS

TASK: 6842.1.1 PREPARE TERMINAL AERODROME FORECASTS (TAF)

CONDITION(S): Given available meteorological products, to include desktop computer, communications equipment, and locally prepared worksheet.

STANDARD: At six hour intervals, update as required.

PERFORMANCE STEPS:

1. Forecast minimum altimeter setting.
2. Forecast cloud types, amounts and layer heights.
3. Forecast precipitation types, intensities, and duration.
4. Forecast surface visibility.
5. Forecast weather and obstructions to visibility.
6. Forecast maximum/minimum temperature.
7. Forecast wind speed, direction and character.
8. Forecast icing.
9. Forecast turbulence.
10. Encode TAF reports.

REFERENCE(S):

1. NAVOCEANCOMINST 3143.1, Terminal Aerodrome Forecast (TAF) Code

ADMINISTRATIVE INSTRUCTIONS:

1. The TAF is a 24 hour forecast that is continually updated.

TASK: 6842.1.2 FORECAST SEVERE WEATHER

CONDITION(S): Given METOC equipment and data, knowledge of atmospheric physics and atmospheric dynamics.

STANDARD: The forecast conforms to current theoretical concepts.

PERFORMANCE STEPS:

1. Compute vertical wind shear gradients.
2. Compute horizontal wind shear gradients.
3. Analyze severe weather warning bulletins for development of forecasts.
4. Forecast severe weather features utilizing locally and centrally prepared products.
5. Forecast destructive weather phenomena.
6. Monitor weather radar output, local and remote, for severe weather signatures.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual
2. METOC 50-1P-002, Introduction to Forecasting
3. OPNAVINST 3140.24, Warnings and Conditions of Readiness Concerning Hazardous or Destructive Weather Phenomena

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.1.3 PREPARE FLIGHT WEATHER BRIEFING DD FORM 175-1

CONDITION(S): When provided a DD Form 175/ICAO Form 1801 and alphanumeric and graphical products.

STANDARD: The flight weather briefing DD Form 175-1 conforms to NAVOCEANCOMINST 3140.14.

PERFORMANCE STEPS:

1. Evaluate existing conditions.

2. Evaluate enroute and destination forecast and significant weather conditions.
3. Evaluate for all hazards to flight.
4. Enter all required items on DD Form 175-1.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.14, Procedures Governing Flight Weather Briefings and Preparing DD form 175-1 and U.S. Navy Flight Forecast Folder

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.1.4 FORECAST TROPICAL CYCLONE DEVELOPMENT AND MOVEMENT

CONDITION(S): Given METOC products indicating conditions conducive to tropical cyclone development.

STANDARD: Forecast is based on sound meteorological reasoning using computer generated products.

PERFORMANCE STEPS:

1. Forecast tropical cyclone movement and intensity using computer generated tropical cyclone models and available centrally prepared products.
2. Modify computer generated tropical cyclone models and available centrally prepared products.
3. Forecast tropical cyclone movement and intensity using satellite data.
4. Interpret METOC data parameters.
5. Correlate centrally/locally prepared products for system intensification and movement.

REFERENCE(S):

1. METOC 50-1P-002, Introduction to Forecasting

ADMINISTRATIVE INSTRUCTIONS:

1. Centrally produced products are those that are not produced locally.

TASK: 6842.1.5 PREPARE A FLIGHT WEATHER PACKET

CONDITION(S): Given a request, appropriate forms, and a requirement for a flight weather packet.

STANDARD: Construct a complete flight weather packet within 2 hours of receipt of request. The packet must contain all items listed in the performance steps.

PERFORMANCE STEPS:

1. Construct horizontal weather depiction.
2. Construct ditch heading chart.
3. Construct altimeter setting chart.
4. Construct upper-level wind chart(s).
5. Construct sea surface temperature chart.
6. Prepare USN flight forecast folder (OPNAV 3140/25).
7. Include DD Form 175-1.
8. Include mission essential products.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.14, Procedures Governing Flight Weather Briefings and Preparing DD Form 175-1 and U.S. Navy Flight Forecast Folder

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.1.6 PRODUCE SPECIALIZED FORECASTS

CONDITION(S): Given meteorological situations, METOC equipment and data.

STANDARD: The specialized forecast conforms to sound meteorological reasoning and current theoretical concepts.

PERFORMANCE STEPS:

1. Forecast temperature related data.
2. Forecast pressure related data.
3. Forecast sky condition related data.
4. Forecast precipitation related data.
5. Forecast hazardous weather conditions.
6. Forecast wind related data.
7. Forecast atmospheric stability indices.
8. Forecast astronomical data effects on operations.
9. Provide meteorological parameters for NBC format message.
10. Produce chemical downwind messages (CDM).

REFERENCE(S) :

1. SW 226-AB-MMO-010, Ballistic Wind and Density for Naval Gunfire
2. AG-1&C, Aerographers Mate 1st Class and Chief
3. NAVOCEANCOMINST 3140.__, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.1.7 GENERATE WEATHER WARNINGS

CONDITION(S): Given local forms and weather conditions.

STANDARD: A weather warning is generated within sufficient lead time for area of responsibilities.

PERFORMANCE STEPS:

1. Ensure weather warnings are disseminated.
2. Generate severe thunderstorm warnings.
3. Generate thunderstorm warnings.
4. Generate wind warnings.
5. Generate cross wind component warnings.
6. Generate gale and storm warnings.
7. Generate flash flood warnings.
8. Generate freeze/hard freeze warnings
9. Generate tornadic activity warnings/watches.
10. Generate significant precipitation warnings.
11. Generate small craft warnings.
12. Utilize lightning detection and tracking system for appropriate threshold values in conjunction with the issuance of warnings.

REFERENCE(S) :

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual
2. OPNAVINST 3140.24, Warnings and Conditions of Readiness Concerning Hazardous or Destructive Weather Phenomena

ADMINISTRATIVE INSTRUCTIONS:

1. The lead time depends on the required support requirements as determined by local command authority.

TASK: 6842.1.8 EXTRACT MISSION PLANNING AIDS UTILIZING MOBILE WEAPON, RADAR, AND COMMUNICATION SYSTEMS

CONDITION(S): Given a computer, software, mission requirements, and reference materials.

STANDARD: Obtain task-tailored products that fulfill the mission requirement.

PERFORMANCE STEPS:

1. Assemble the MOSS.
2. Ensure mission essential data is entered.
3. Produce products for electromagnetic propagation conditions.
 - a. Identify sub, super, and normal ducting refractivity conditions.
 - b. Forecast surface and upper-level trapping layers.
 - c. Identify applicable search radar ranges.
 - d. Forecast communication ranges.
4. Produce products for electro-optics support of weapons systems.
 - a. Determine effects of aerosols.
 - b. Determine precipitation effects.
 - c. Determine cloud cover effects.
 - d. Determine obscurent effects.
5. Evaluate atmospheric conditions and their impact on refractivity.
 - a. Maximize sensor performance.
 - b. Identify conditions for maximum radar efficiency.
 - c. Identify limitations on weapons systems and platforms.

REFERENCE(S) :

1. IREPS Manual

2. GFMPL/MOSS User's Manuals

ADMINISTRATIVE INSTRUCTIONS:

1. GFMPL/MOSS and EOTDA software may be classified.

TASK: 6842.1.9 FORECAST FROM A SKEW-T LOG P DIAGRAM

CONDITION(S): Given a plotted Skew-T Log P Diagram.

STANDARD: The forecast is within prescribed tolerances as set forth by the Forecaster's Handbook.

PERFORMANCE STEPS:

1. Compute lifted index and K index.
2. Compute sweat index.
3. Compute total totals.
4. Compute negative and positive energy areas.
5. Compute equilibrium levels.
6. Compute turbulent areas.
7. Compute tops of convective activity.
8. Compute contrails.
9. Compute icing levels.
10. Compute hail.
11. Compute thunderstorm gusts.
12. Compute maximum and minimum temperatures.
13. Compute freezing level.
14. Compute turbulent areas.
15. Compute areas of significant moisture.
16. Compute D-values.
17. Compute RH percentage.

18. Compute PA/DA.

REFERENCE(S) :

1. NAVAIR 50-1P-5, The Use of the Skew-T, Log P Diagram in Analysis and Forecasting

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.1.10 PREPARE A SURF FORECAST

CONDITION(S): Given a desktop computer with applicable software and given the requirements for an amphibious operation.

STANDARD: The surf forecast provides the commander amphibious landing force surf information required to accomplish the mission.

PERFORMANCE STEPS:

1. Forecast significant breaker height.
2. Forecast maximum breaker height.
3. Forecast breaker period.
4. Forecast breaker type.
5. Forecast breaker angle.
6. Forecast littoral current speed and direction.
7. Forecast modified surf index.
8. Forecast wind conditions in surf zone.
9. Obtain beach profile data.

REFERENCE(S) :

1. AG-3, Aerographers Mate 3rd Class

ADMINISTRATIVE INSTRUCTIONS: (NONE)

MCO 1510.105

TASK: 6842.1.11 UTILIZE OPTIMUM PATH AIRCRAFT ROUTING SYSTEM (OPARS)

CONDITION(S): Given an OPARS request, reference material, and a requirement to interpret the data.

STANDARD: Obtain required OPARS output.

PERFORMANCE STEPS:

1. Verify input parameters.
2. Obtain OPARS output (AUTODIN/computer terminal).
3. Validate output.

REFERENCE(S):

1. FLENUMOCEANCENINST 3701.1, Optimum Path Aircraft Routing System (OPARS) User's Manual

ADMINISTRATIVE INSTRUCTIONS:

1. Routing errors may require the knowledge of the use of DOD flip charts.
 2. Aircraft remote areas may require output via AUTODIN to their location.
 3. Interpretation implies the ability to process, obtain, and brief information.
-

DUTY AREA 2 - METEOROLOGICAL AND OCEANOGRAPHIC BRIEFINGS

TASK: 6842.2.1 BRIEF REFRACTIVE PRODUCTS

CONDITION(S): Given a requirement to conduct a brief of refractive products.

STANDARD: The brief depicts existing conditions to satisfy briefing requirements and incorporates data into task tailored briefs.

PERFORMANCE STEPS:

1. Brief historical environmental prediction condition (HEPC) summary.
2. Brief foreword looking infrared radar (FLIR).
3. Brief electromagnetic (EM) effects prediction system products.
4. Brief EM propagation from refractive index profile.
5. Brief radar coverage diagrams.
6. Brief propagation loss (radar).
7. Brief maximum detection ranges (radar).
8. Brief probability of detection (radar).
9. Brief electronic support measures (ESM).
10. Brief electronic countermeasures (ECM).
11. Brief platform vulnerability.

REFERENCE(S):

1. NOSC Technical Document 1369, Effective Use of the Electromagnetic Products of TESS and IREPS
2. MOSS Users Manual (Mobile Oceanography Support System)

ADMINISTRATIVE INSTRUCTIONS: (NONE)

MCO 1510.105

TASK: 6842.2.2 BRIEF SATELLITE IMAGERY

CONDITION(S): As directed by mission needs.

STANDARD: Depict satellite imagery conditions per AWS TR 212.

PERFORMANCE STEPS:

1. Brief the jet stream location.
2. Brief the pressure center locations.
3. Brief the cloud types.
4. Brief the infrared (IR) temperature enhancements.
5. Brief the areas of fog.
6. Brief the troughs, and ridges.

REFERENCE(S):

1. AWS TR 212, Application of Meteorological Satellite Data in Analysis and Forecasting
2. NAVEDTRA 40960, Satellite Imagery Interpretation for Forecasters
3. GOES Users Manual

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.3 BRIEF RADAR IMAGERY

CONDITION(S): As directed by mission needs.

STANDARD: Radar imagery conditions are analyzed per the references.

PERFORMANCE STEPS:

1. Brief the determined precipitation.
2. Brief the determined distance, and movement of features.
3. Brief the determined anomalous propagation (AP).
4. Brief the determined radar attenuation.

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5. Brief the determined radar echo intensity.
6. Brief the determined velocity products (Doppler).
7. Brief the determined storm track information (Doppler).
8. Brief the determined severe weather products (Doppler).

REFERENCE(S):

1. National Weather Service Radar Code Users Guide
2. FMH-7, Weather Radar Observations
3. AWSP 105-58, Weather Briefer's Handbook

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.4 BRIEF FLIGHT ENROUTE WEATHER FORECASTS

CONDITION(S): Given references and as directed by mission needs.

STANDARD: Flight enroute weather forecasts are prepared per the mission requirement and the references.

PERFORMANCE STEPS:

1. Brief the determined OPARS outputs.
2. Brief the determined severe weather areas.
3. Brief the determined AIRMETS and SIGMETS.
4. Brief the determined local area warnings.
5. Brief the determined runway conditions.
6. Brief the determined take off conditions.
7. Brief the determined destination weather forecast.
8. Brief the ditch headings and altimeter settings.
9. Brief the determined radar observation reports.
10. Brief the determined hazards to flight.
11. Brief the determined flight level winds.

REFERENCE(S) :

1. FLENUMOCEANCENINST 3701.1, Optimum Path Aircraft Routing System (OPARS) Users Manual
2. FLENUMOCEANCENINST 3710.3, OPARS C9B Overwater Procedures Manual
3. AWSP 105-58, Weather Briefers' Handbook
4. AG-1&C, Aerographers Mate 1st Class and Chief
5. NAVOCEANCOMINST 3140.14, Procedures Governing Flight Weather Briefings and Preparing DD Form 175-1 and U.S. Navy Flight Forecast Folder

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.5 CONDUCT INSTRUMENT GROUND SCHOOL BRIEFS

CONDITION(S): Given references, local Standing Operating Procedures (SOP), and a requirement to conduct a instrument ground school brief.

STANDARD: The brief depicts existing conditions to satisfy briefing requirements and incorporates data per the references.

PERFORMANCE STEPS:

1. Brief basic meteorological parameters.
2. Brief Surface Aviation Observation, TAF, and Meteorological Aviation Report (METAR).
3. Brief code formats.
4. Brief pilot reporting procedures.
5. Brief flight weather products.
6. Brief on types of severe weather warnings (WW) and advisories.
7. Brief OPARS procedures.
8. Brief NATOPS requirements.
9. Brief additional services available.

REFERENCE(S) :

1. AWSP 105-58, Weather Briefer's Handbook
2. OPNAV 3710.7 NATOPS General Flight and Operating Instructions

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.6 CONDUCT A DEPLOYMENT BRIEF

CONDITION(S): Given reference, local Standing Operating Procedures (SOP), and a requirement to conduct a brief.

STANDARD: The brief depicts existing conditions and incorporates data per the reference.

PERFORMANCE STEPS:

1. Brief basic meteorological parameters.
2. Brief Surface Aviation Observation, TAF, and Meteorological Aviation Report (METAR).
3. Brief code formats.
4. Brief pilot reporting procedures.
5. Brief flight weather products.
6. Brief on types of severe weather warnings (WW) and advisories.
7. Brief OPARS procedures.
8. Brief NATOPS requirements.
9. Brief additional services available.

REFERENCE(S) :

1. AWSP 105-58, Weather Briefer's Handbook
2. OPNAVINST 3710.7, NATOPS General Flight and Operating Instructions

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.7 CONDUCT A PRE-DEPLOYMENT BRIEF

CONDITION(S): Given reference, local Standing Operating Procedures (SOP), and a requirement to conduct a pre-deployment brief.

STANDARD: The brief depicts existing conditions and incorporates data per the reference.

PERFORMANCE STEPS:

1. Brief climatological summaries of tropical cyclone tracks.
2. Brief climatological summaries of METOC conditions.
3. Brief climatological summaries of extra-tropical cyclone tracks.
4. Brief climatological summaries of refractive conditions.
5. Brief METOC services available.

REFERENCE(S):

1. AWSP 105-58, Weather Briefer's Handbook

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.8 CONDUCT SEARCH AND RESCUE (SAR) BRIEFS

CONDITION(S): Given references, local Standing Operating Procedures (SOP), and a requirement to conduct a search and rescue brief.

STANDARD: The brief depicts existing conditions and incorporates data per the reference.

PERFORMANCE STEPS:

1. Determine areas of rescue operations.
2. Brief on SAR planning.
3. Brief METOC conditions in search area.

4. Brief on personnel survivability.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual
2. MOSS User's Manuals
3. NAVEDTRA 40740, Search and Rescue

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.9 CONDUCT TROPICAL CYCLONE BRIEFS

CONDITION(S): Given references, local Standing Operating Procedures (SOP), and a requirement to conduct a tropical cyclone brief.

STANDARD: The brief depicts existing conditions and incorporates data per the references.

PERFORMANCE STEPS:

1. Interpret tropical cyclone advisories and warnings.
2. Brief climatological summaries of tropical cyclone storm tracks.
3. Brief tropical cyclone conditions of readiness recommendations.
4. Brief tropical cyclone evasive action.
5. Brief tropical cyclone storm surge forecasts.

REFERENCE(S):

1. AWSP 105-58, Weather Briefer's Handbook
2. AWS TR 240, Forecaster's Guide to Tropical Weather
3. NAVEDTRA 40620, Tropical Synoptic Models

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.10 BRIEF METEOROLOGICAL AND OCEANOGRAPHIC FEATURES FROM ANALYZED PRODUCTS

CONDITION(S): Given references, local Standing Operating Procedures (SOP), and a requirement to conduct a METOC brief.

STANDARD: The brief depicts existing conditions and incorporates data per the references.

PERFORMANCE STEPS:

1. Brief synoptic weather charts.
2. Brief thickness charts.
3. Brief constant pressure charts.
4. Brief tropical cyclone warning displays.
5. Brief HWDS.
6. Brief Electro-Optical sensors, weapons, and communication performance.
7. Brief nephanalysis charts.
8. Brief SKEW-T, Log P diagrams.
9. Brief streamline charts.
10. Brief radar summary charts.
11. Brief composite charts.

REFERENCE(S):

1. AWSP 105-58, Weather Briefer's Handbook

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.11 CONDUCT WARFARE BRIEFS

CONDITION(S): Given local Standing Operating Procedures (SOP), and a requirement to conduct a warfare brief.

STANDARD: The brief depicts existing conditions and incorporates data per the reference.

PERFORMANCE STEPS:

1. Brief radiological forecasts.
2. Brief climatological summaries.
3. Brief forecasted METOC conditions enroute.
4. Brief target METOC conditions.
5. Brief METOC effects on weapons platforms.
6. Brief METOC effects on radar systems.
7. Brief slant range visibilities.
8. Brief BINGO field conditions.
9. Brief METOC effects on mine warfare operations.
10. Brief METOC effects on communications systems.
11. Brief METOC effects on amphibious operations.
12. Brief METOC effects on special operations.
13. Brief METOC effects on strike warfare operations.
14. Brief METOC effects on anti-surface warfare operations.
15. Brief METOC effects on anti-air warfare operations.

REFERENCE(S):

1. AWSP 105-58, Weather Briefer's Handbook
2. OPNAVINST 3710.7, NATOPS General Flight and Operating Instructions

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.2.12 CONDUCT A WATCH RELIEF BRIEF

CONDITION(S): Upon assumption of duties.

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STANDARD: The watch relief brief is conducted per the reference and within 15 minutes of the watch relief.

PERFORMANCE STEPS:

1. Brief current synoptic situation.
2. Brief issued warnings.
3. Brief equipment status.
4. Brief pending briefs.
5. Brief personnel status.
6. Brief special orders.
7. Brief supply status.
8. Review log entries.

REFERENCE(S):

1. AWSP 105-58, Weather Briefer's Handbook

ADMINISTRATIVE INSTRUCTIONS: (NONE)

DUTY AREA 3 - ADMINISTRATIVE

TASK: 6842.3.1 PREPARE METEOROLOGICAL AND OCEANOGRAPHIC (METOC) STATION REPORTS

CONDITION(S): Given references and standing operating procedures, applicable forms, typewriter or personal computer with printer, training plan, and access to required information.

STANDARD: The required METOC station report is prepared per NAVOCEANCOMINST 3140.1J.

PERFORMANCE STEPS:

1. Prepare watch schedule.
2. Prepare recall roster.
3. Conduct annual survey.

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4. Prepare annual station report.
5. Review monthly records of transmittal.
6. Submit morning report.
7. Coordinate leave, TADs and details.
8. Conduct arrival/departure inspections and briefs.
9. Monitor certification checklist.
10. Monitor quality assurance program.
11. Maintain compliance with Checklist.
12. Establish directives system.
13. Draft required correspondence.
14. Monitor preventive maintenance plan.
15. Prepare QDRs.
16. Program CMW.
17. Maintain forecasters ready reference.
18. Conduct training.
19. Review forecasters handbook.
20. Update forecasters handbook.
21. Review SOP.
22. Update SOP.
23. Submit work requests.
24. Ensure compliance with training requirements.
25. Review log book entries.
26. Monitor requisition and supply accounts.
27. Verify incident report submissions.
28. Monitor equipment shipment procedures.
29. Maintain interactive video disk equipment and library.

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REFERENCE(S) :

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.3.2 EVALUATE WORK STATION REQUIREMENTS

CONDITION(S): In a fixed or mobile facility.

STANDARD: Must be tailored to the end users' needs.

PERFORMANCE STEPS:

1. Assist in the implementation of Annex H and K of the Operations Order.
2. Determine external METOC support.
3. Determine local METOC support.
4. Review operational orders for integration and compliance.
5. Monitor observation programs for compliance with existing directives.

REFERENCE(S) :

1. FM 100-5, Operations
2. FM 34-81/81 105-4, Weather Support for Army Tactical Operations

ADMINISTRATIVE INSTRUCTIONS:

1. The duties contained herein are commensurate with the rank of MSGT.
-

TASK: 6842.3.3 COORDINATE THE ACTIVITIES OF THE METEOROLOGICAL MOBILE FACILITY (METMF)

CONDITION(S): Assigned as the senior enlisted Marine in the METMF and given references.

STANDARD: METMF activities are monitored continually and as required, per the applicable references.

PERFORMANCE STEPS:

1. Monitor pre-deployment pack up.
2. Monitor consumables.
3. Monitor preventive maintenance program.
4. Monitor utilization of equipment.
5. Maintain safe operations of the METMF.
6. Monitor setup procedures.
7. Monitor resupply channels.
8. Coordinate heavy equipment support.
9. Monitor daily logistics/communications support.

REFERENCE(S):

1. SPAWARS Pub QL-23, USMC METMF Equipment and Materials Allowance Listing
2. METMF Manuals

ADMINISTRATIVE INSTRUCTIONS:

1. This function is normally a responsibility of a MSgt; however, if not assigned, the senior enlisted person assumes the responsibility.

TASK: 6842.3.4 CONDUCT QUALITY ASSURANCE CHECKS

CONDITION(S): Given references and a requirement to identify deficiencies.

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STANDARD: Quality assurance is conducted on a continual basis, per NAVOCEANCOMINST 3140.1J.

PERFORMANCE STEPS:

1. Verify generated warnings.
2. Verify terminal aerodrome forecasts.
3. Verify flight weather packets.
4. Verify locally disseminated forecasts.
5. Verify analyzed products.
6. Verify centrally prepared products.
7. Verify timely dissemination of products.
8. Verify climatological requests.
9. Verify locally prepared products.

REFERENCE(S):

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS:

1. A detailed monthly report should be generated to identify trends in deficiencies.

TASK: 6842.3.5 COMPLETE METEOROLOGICAL AND OCEANOGRAPHIC (METOC) INCIDENT REPORTS

CONDITION(S): Given METOC references and standard forms.

STANDARD: METOC forms are completed without error, per NAVOCEANCOMINST 3140.1_.

PERFORMANCE STEPS:

1. Complete earthquake occurrence reports.
2. Compile Sunami occurrence reports.

3. Complete aircraft mishap occurrence reports.

REFERENCE(S) :

1. NAVOCEANCOMINST 3140.1_, U.S. Navy Oceanographic and Meteorological Support System Manual

ADMINISTRATIVE INSTRUCTIONS:

1. (NONE)

DUTY AREA 4 - ANALYZING AND INTERPRETING WEATHER CHARTS AND DIAGRAMS

TASK: 6842.4.1 ANALYZE 300/250/200/150/100 MB CHART

CONDITION(S): Given reference materials and upper air charts.

STANDARD: Utilizing prescribed intervals, complete the analysis without violating data.

PERFORMANCE STEPS:

1. Construct isoheights.
2. Construct isotachs.
3. Depict high and low height centers.
4. Depict long waves.
5. Depict jet axis.
6. Depict jet maxima.
7. Depict warm and cold pockets.
8. Depict warm sinks and cold domes.

REFERENCE(S) :

1. AG-1&C, Aerographers Mate 1st Class and Chief
2. METOC 50-1P-002, Introduction to Forecasting

3. NAVOCEANCOMINST 3140.2, Local Area and Area of Responsibility Forecaster's Handbook
4. NAVOCEANCOMINST 3140.5, Certification Requirements for Observers, Analysts/Briefers, and Forecasters

ADMINISTRATIVE INSTRUCTIONS:

1. Draw past history at required intervals.

TASK: 6842.4.2 ANALYZE 850/700/500/400 MB CHART

CONDITION(S): Given reference materials and upper air charts.

STANDARD: Utilizing prescribed intervals, complete the analysis without violating data.

PERFORMANCE STEPS:

1. Construct isoheights.
2. Construct isotherms.
3. Depict areas of significant moisture.
4. Depict major shortwave axis (troughs, and ridges).
5. Depict minor shortwave axis (troughs, and ridges).
6. Depict high and low height centers.
7. Depict warm and cold pockets.
8. Depict upper fronts.

REFERENCE(S):

1. AG-1&C, Aerographers Mate 1st Class and Chief
2. METOC 50-1P-002, Introduction to Forecasting
3. NAVOCEANCOMINST 3140.2_, Local Area and Area of Responsibility Forecaster's Handbook

ADMINISTRATIVE INSTRUCTIONS:

1. Draw past history at required intervals.

TASK: 6842.4.3 VERIFY CENTRALLY PREPARED PRODUCTS

CONDITION(S): Given Alphanumeric and graphic products from central process sites.

STANDARD: Verify the products by incorporating limitations and seasonal limitations of modeling.

PERFORMANCE STEPS:

1. Verify initialization.
2. Reanalyze products to meet mission requirements.

REFERENCE(S):

1. FLENUMOCEANCENIST 3145.2, U.S. Naval Oceanography Command Numerical Environmental Products Manual

ADMINISTRATIVE INSTRUCTIONS:

1. Initialization implies a complete screening of the limitations and seasonal variations.

TASK: 6842.4.4 ANALYZE SURFACE PRESSURE CHARTS

CONDITION(S): Given reference materials, and plotted regional surface charts.

STANDARD: Utilizing prescribed intervals, complete the analysis without violating data.

PERFORMANCE STEPS:

1. Construct isobars.
2. Depict fronts.
3. Highlight weather symbols.

4. Depict high and low pressure centers.
5. Depict troughs.
6. Label air masses.
7. Identify dry lines.
8. Depict instability lines.
9. Construct isallobars.
10. Construct isodrosotherms.
11. Identify outflow boundaries.

REFERENCE(S):

1. AG-1&C, Aerographers Mate 1st Class and Chief
2. METOC 50-1P-002, Introduction to Forecasting
3. NAVOCEANCOMINST 3140.2_, Local Area and Area of Responsibility Forecaster's Handbook

ADMINISTRATIVE INSTRUCTIONS:

1. Draw past history at required intervals.

TASK: 6842.4.5 PERFORM A STREAMLINE ANALYSIS

CONDITION(S): Given reference materials and plotted regional surface charts.

STANDARD: Utilizing analysis procedures, complete analysis without violating data.

PERFORMANCE STEPS:

1. Construct streamlines.
2. Identify asymptotes (convergent/divergent).
3. Identify singular points.
4. Identify neutral points.

5. Label cyclonic and anticyclonic centers.
6. Construct isotachs.
7. Depict wind maximums and wind minimums.

REFERENCE(S):

1. AG-1&C, Aerographers Mate 1st Class and Chief
2. NAVOCEANCOMINST 3140.2_, Local Area and Area of Responsibility Forecaster's Handbook

ADMINISTRATIVE INSTRUCTIONS: (NONE)

DUTY AREA 5 - PERFORMING WEATHER RADAR FUNCTIONS

TASK: 6842.5.1 INTERPRET CONVENTIONAL RADAR DISPLAYS

CONDITION(S): Given operational displays, conventional radar set AN/FPS-106, and a requirement to interpret the presentation.

STANDARD: Provide an accurate depiction/description of radar echoes.

PERFORMANCE STEPS:

1. Interpret precipitation echoes.
2. Interpret non-precipitation echoes.
3. Analyze direction, distance of speed and movement of radar echoes.
4. Analyze intensity changes.
5. Evaluate amplitude and range.
6. Analyze freezing level on radar.

REFERENCE(S): None.

ADMINISTRATIVE INSTRUCTIONS:

1. Interpretation implies the ability to obtain, process, and brief information.

TASK: 6842.5.2 INTERPRET DOPPLER RADAR

CONDITION(S): Given Doppler Radar products, reference materials, and a requirement to utilize Doppler Radar theory.

STANDARD: Identify significant weather features.

PERFORMANCE STEPS:

1. Interpret precipitation products.
2. Interpret velocity products.
3. Interpret spectrum width products.
4. Interpret severe weather products.

REFERENCE(S):

1. FMH-11, Doppler Radar Meteorological Operations
2. Operational Support Facility Job Sheets

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.5.3 INTERPRET SATELLITE IMAGERY

CONDITION(S): Using geostationary and polar orbiting satellite receiving equipment.

STANDARD: Identify significant weather features within prescribed guidelines and procedures.

PERFORMANCE STEPS:

1. Analyze jet stream locations.
2. Analyze pressure center locations.

3. Identify cloud types.
4. Analyze fronts, troughs and ridges.
5. Analyze severe weather features.
6. Identify land features.
7. Identify significant weather phenomena.

REFERENCE(S):

1. GOES User's Guide

ADMINISTRATIVE INSTRUCTIONS:

1. Utilization of satellite equipment implies obtaining, manipulating, and programming of equipment. Programming and operation of satellite equipment is taught MOJT.

TASK: 6842.5.4 PROG SYNOPTIC FEATURES

CONDITION(S): Given requirements for propping.

STANDARD: Prog to empirical rules.

PERFORMANCE STEPS:

1. Prog intensity changes in major short waves (troughs/ridges).
2. Prog intensity changes in upper highs and lows.
3. Prog isotherms in major short wave features.
4. Prog moisture in major short wave features.
5. Prog movement of minor short waves.
6. Prog cyclogenesis of baroclinic lows.
7. Prog dissipation of baroclinic lows.
8. Prog anticyclogenesis of baroclinic highs.
9. Prog dissipation of baroclinic highs.

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10. Prog intensity changes in synoptic surface features.
11. Prog movement of surface synoptic features.
12. Prog movements of fronts.
13. Prog synoptic scale precipitation.
14. Prog long wave patterns.
15. Prog movement of jet maxes.

REFERENCE(S) :

1. METOC 50-1P-002, Introduction to Forecasting
2. AG-3, Aerographers Mate 3rd Class
3. AG-2, Aerographers Mate 2nd Class
4. AG-1&C, Aerographers Mate 1st Class and Chief

ADMINISTRATIVE INSTRUCTIONS: (NONE)

DUTY AREA 6 - OPERATING COMPUTER SYSTEMS

TASK: 6842.6.1 UTILIZE DESKTOP COMPUTER SYSTEMS TO GENERATE METEOROLOGICAL AND OCEANOGRAPHIC (METOC) PRODUCTS

CONDITION(S): Given hardware, peripherals, software, and operator guides.

STANDARD: Supply necessary computer generated products conforming to standards outlined in reference manuals.

PERFORMANCE STEPS:

1. Setup systems.
2. Install software.
3. Configure the system.
4. Access and run programs.
5. Manipulate products.

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ENCLOSURE (6)

6. Produce final output.

REFERENCE(S) :

1. Equipment Operation Manuals

ADMINISTRATIVE INSTRUCTIONS: (NONE)

TASK: 6842.6.2 OPERATE SATELLITE RECEIVING SYSTEM

CONDITION(S): Given equipment, ephemeris data, and technical manuals.

STANDARD: Obtain satellite imagery for forecasting applications.

PERFORMANCE STEPS:

1. Compute data necessary to track specified satellite.
2. Determine satellite acquisition data and time.
3. Input parameters.
4. Obtain hard and soft copy products.
5. Transmit pictures via long line system.
6. Track desired satellite using automatic/manual procedures.
7. Perform functions for operation of decryption devices.
8. Archive data as necessary.
9. Retrieve archived data.

REFERENCE(S) :

1. Equipment Operation Manuals

ADMINISTRATIVE INSTRUCTIONS:

1. Tech manuals will vary, depending on the equipment used.
2. Programming and operation of satellite equipment is trained MOJT.

TASK: 6842.6.3 OPERATE DOPPLER RADAR SYSTEM

CONDITION(S): Given a Principal User's Processor, and references.

STANDARD: Perform manual operating procedures to derive Doppler products.

PERFORMANCE STEPS:

1. Operate system console.
2. Operate graphic tablet and puck.
3. Operate alphanumeric display.
4. Monitor self-maintenance system.
5. Archive data to SCSI disk.
6. Retrieve data from SCSI disk.

REFERENCE(S):

1. FMH-11, Doppler Radar Meteorological Observations
2. PUP User's Guide

ADMINISTRATIVE INSTRUCTIONS: (NONE)
