

NATIONAL WEATHER SERVICE INSTRUCTION 10-1301

January 16, 2008

Operations and Services

Surface Observing Program (Land), NWSPD 10-13

Surface Observing (Land)

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OPR: W/OS7 (J. Heil)

Certified by: W/OS7 (K. Schrab)

Type of Issuance: Routine.

SUMMARY OF REVISIONS: This instruction supersedes NWSI 10-1301, “Surface Observing (Land),” dated August 31, 2005. Changes are: (1) added OOS and OS&T to NWS HQ Responsibilities, (2) updated hyperlink to NOAA forms, and (3) deleted the statement, in Appendix B, that “station elevation was not required at COOP sites.”

Signed _____

January 2, 2008

James E. Hoke

Date

Director, Office of Climate,

Water, and Weather Services (Acting)

Surface Observing - Land

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1. General. This instruction describes surface weather observing programs at land stations staffed or managed by the National Weather Service (NWS).

2. Introduction. The surface observing program is a part of the total observation concept. The concept integrates manually observed weather observations, automated weather observations, supplementary observations from the surface observing program and data from complementary remote sensing systems. Together, these elements provide the necessary surface weather observing components to meet NWS mission requirements. The NWS utilizes the total observation concept to provide quality forecasts and warnings.

2.1 Aviation Observing Programs. NWS provides aviation observations in support of national requirements and international commitments. The NWS provides quality observations through automated means whenever possible at designated locations. At other locations, aviation observations are provided through manual methods. NWS staff responsible for aviation

weather observations should provide those observations as described in Federal Aviation Administration Order 7900.5, "Surface Weather Observing."

2.1.1 Automated Surface Observing Systems (ASOS). An unattended ASOS meets all requirements to support the forecast and warning programs of the NWS. In the Alaska and Pacific Regions, NWS staff will augment and backup ASOS in accordance with the Aviation Service Levels assigned to their station. A current list of assigned service levels can be found at: <http://www.avmet.com/awad/AWADReport.cfm>. Augmentation and backup will be performed as an ASOS basic weather watch (see Appendix A).

2.1.2 Supplementary Aviation Weather Reporting Stations (SAWRS). The NWS will support the aviation industry through the management of the SAWRS program. Details on the operation of SAWRS are given in NWSI 10-1306, "Supplementary Aviation Weather Reporting Station Program." Observations at SAWRS are provided as described in NWS Observing Handbook No. 8, "Aviation Weather Observations for SAWRS."

2.1.3 Aviation Paid (A-Paid) and Aviation Voluntary (A-Voluntary) Observing Program. The NWS regions may fund and establish A-Paid and A-Voluntary observing stations in order to carry out their aviation forecast responsibilities. Site these stations and their equipment in accordance with NWSI 10-1302, "Instrument Requirements and Standards for the NWS Surface Observing Programs (Land)."

2.2 Synoptic Observation Program. NWS provides synoptic observations in support of national requirements and international commitments. NWS will provide observations through automated means at designated ASOS sites. At other locations synoptic observations will be provided by manual methods. NWS staff responsible for synoptic weather observations should produce the observations as described in Federal Meteorological Handbook No. 2 (FMH-2), "Surface Synoptic Codes."

2.3 Supplementary Observation Program. All NWS staffed offices and snow-paid sites provide Supplementary Climate Data (SCD) observations in support of national requirements. NWS staffed offices are encouraged to provide Supplemental Data Observations (SDO). Details on these observations are found in NWSM 10-1311, "Supplementary Observations."

2.4 Cooperative Observing Program (COOP). The NWS will provide observations in support of climatological requirements and field operations support. The primary method of providing these observations is through the COOP. The NWS will provide observations through automated means whenever possible at designated locations. At other locations cooperative observations will be provided by manual means. Details on the cooperative program are found in NWSI 10-1307, "Cooperative Station Management."

2.5 Snow-Paid Observing Program. The NWS will establish snow-paid observing stations to meet Local Climate Data requirements. Site these stations and their equipment in accordance

with NWSI 10-1302, “Instrument Requirements and Standards for the NWS Surface Observing Programs (Land).”

2.6 Other NWS Observing Programs. NWS Forecast Offices should develop local observing programs to meet national and regional forecast, warning, and verification requirements. Other NWS surface observing programs are covered in NWS Directive System policy and procedure directives pertaining to marine reporting stations, agricultural weather stations, fire weather observation stations, severe storm reporting networks.

2.7 Compensation. Paid observers are usually paid on a per observation basis. The payment rates will be determined by the regional headquarters. For COOP, some (not all) observers are paid a token monthly rate that is given to them on a quarterly basis.

3. Responsibilities of NWS Organization.

3.1 National Weather Service Headquarters. National coordination for development, drafting and issuance of policy and guidance for provision of surface observations is shared by three offices. These offices are Office of Climate, Water, and Weather Services (OCWWS), Office of Operational Systems (OOS), and Office of Science and Technology (OST). Their responsibilities are described below.

OCWWS provides guidance and direction for the execution of the surface observation program. To carry out this responsibility OCCWS:

- a. Establishes requirements for surface observing programs.
- b. Coordinates and negotiates with other government agencies on all national and international matters pertaining to surface observing.
- c. Sets standards for accuracy and siting of weather instruments.
- d. Prepares and distributes documentation and forms for use in surface observing programs.

OOS provides guidance and direction for operation and maintenance of the systems that provide surface observations. To carry out this responsibility OOS:

- a. Develops policy and procedures for operation and maintenance of surface observing systems.
- b. Manages national operational surface observing systems. This includes, but is not limited to, developing implementation plans for surface observing systems and managing execution of the plans; conducting routine and ad hoc meetings and leading and coordinating inter agency efforts to identify and resolve operational issues;

managing the Operations & Maintenance (O&M) budget for surface observing systems, and; providing help desk operational support from the Sterling Field Support Center.

- c. Tests and evaluates new systems and integration of subsystems prior to implementation, provides guidance for software development to support new systems, and tests new software loads prior to implementation.
- d. Provide direction and guidance to field maintenance personnel, conduct engineering studies of system performance and initiate corrective actions as necessary, requisition shipment of systems and subcomponents to field sites and control logistic supply.

OST provides project management for developing, acquiring, and initially deploying new technology and systems.

- a. Manages execution of project management and development programs. Access science and technology options, prepares solutions and develops plans to meet service requirements. Plans, coordinates, and manages technical infusion and evolution program.
- b. Leads and manages systems engineering, development, integration, testing of and initial deployment observing systems. Approves all systems engineering changes; reviews system performance; identifies needs for system changes. Manages risk reduction activities.

3.2 National Weather Service Regional Headquarters. NWS regional headquarters are responsible for field office compliance with directives established by OCWWS. They coordinate with other government agencies at the regional level. Regions will:

- a. Ensure field offices implement surface observing programs in compliance with national directives.
- b. Review and approve or disapprove requests of field offices to establish or close the following types of observing stations:
 - (1) A-Paid, A-Voluntary, and Snow-Paid.
 - (2) SAWRS.
 - (3) COOP.
- c. Document agreements, and any fees, for observing services between the NWS and the observer. Use NOAA Form 36-14 for the A-Paid and Snow-Paid programs.

NOAA Form 36-14 is available at:

<http://www.corporateservices.noaa.gov/~noaaforms/numerical.html>

- d. Provide Contract Officer's Technical Representative(s) for contract observing sites.
- e. Perform station visitations/inspections.
- f. Notify OCWS of suspension of any observing program.

3.3 National Weather Service Field Offices. The data provided by the surface observing programs is vital to the completion of the NWS mission. The Meteorologist-in-Charge (MIC) ensures personnel and resources are directed to:

- a. Provide and disseminate observations.
- b. Manage/supervise observing programs.
- c. Perform quality control of observations.
- d. Perform station visitations/inspections.
- e. Maintain a technical library. The library will consist at a minimum of the following:
 - (1) Office of Federal Coordinator for Meteorology (OFCM) Handbooks:
 - (a) FMH #1, Surface Weather Observations and Reports
 - (b) FMH #2, Surface Synoptic Codes
 - (c) OFCM - Siting of Meteorological Sensors at Airports
 - (2) Observing Handbooks:
 - (a) WSOH #7 Surface Observations
 - (b) WSOH #8 Aviation Weather Observations for SAWRS
 - (c) FAA Order 7900.5 Surface Weather Observing
 - (3) ASOS Documentation:
 - (a) ASOS Software Users Manual

- (b) ASOS User's Guide
- (c) ASOS Ready Reference Guide
- (4) Training Documentation:
 - (a) Training Guide in Surface Weather Observations
 - (b) International Cloud Atlas (abridged Atlas) or cloud chart

Appendix A - ASOS Basic Weather Watch Procedure

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1. <u>Definition.</u> An ASOS basic weather watch (ABWW) requires a recurring, but not continuous, evaluation of the accuracy and representativeness of the current ASOS observation. Staff performing an ABWW are not expected to detect and report all weather changes immediately as they occur.	
2. <u>Procedure for performing an ABWW.</u> The observer will augment METAR observations in accordance with the appropriate service level standards. This includes periodically checking the current observation to determine if a SPECI has been generated requiring augmentation or backup. The observer will conduct an evaluation of the representativeness and accuracy of the current observation when advised by any reliable source the existing conditions differ from those reported.	
3. <u>Definition of Representativeness.</u> An observation is representative if it accurately portrays the weather conditions present at the primary instrument approach. If the observation differs by reportable values, but the differences do not change operations of the airport or aircraft, then the differences are not operationally significant. The observation would continue to be representative.	

Appendix B -Managing Weather Observing Programs

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1. Definition of “Observation Program.” As used in this instruction, observation program refers to all station activities, equipment, schedules, and procedures related to making, recording, or disseminating the observations for which the station is responsible.

2. Procedures for Establishing Observation Sites. New sites may be established if:

- a. funds, both one-time and recurring, are available, and
- b. the Meteorologist-in-Charge or their representative has determined the location satisfies all applicable siting criteria defined in; Federal Meteorological Handbook Number 1 (FMH-1), Federal Standard for Siting Meteorological Sensors at Airports (FCM-S4-1994), and NWSI 10-1302. The site location must allow the observer to evaluate all elements within the period of the observation.

3. Procedure for Discontinuing Observation Programs Due to Station Closures. Adhere to the following procedures when a decision is made to close a station:

- a. NWS will not maintain observations at closed stations.
- b. NWS may agree to requests by others wishing to continue the observation program. In such a case, the requesting party must agree to assume responsibility for funding all costs of the program above and beyond costs incurred by NWS to provide normal support functions.
- c. If a non-Federal Government party assumes observational responsibility, all NWS owned surface observation equipment will be removed and retained by the NWS forecast offices for future use or returned to the National Logistics Support Center (NLSC), Kansas City, Missouri.

4. Historical File of Surface Observation Forms. Retain corrected carbon copies of the surface observation forms on station for 90 days. After 90 days the copies may be offered to a local public library, public institution, or university, etc., capable of archiving the data for public use. If no local user can be found, the forms may be destroyed after the retention requirement has been satisfied.

5. Determination of Station Elevation (Hp). At new airport stations, Hp will be equal to the Field Elevation (Ha) rounded to the nearest foot. At non-airport stations, Hp should be equal to the height of the barometer (Hz) rounded to the nearest foot. At existing stations, Hp will be revised in accordance with the above whenever there is some other reason to issue new elevation data for the station and the difference between the old and revised Hp exceeds 50 feet. Changes in Hp are made by HQ.

5.1 Preparation of Pressure-reduction Tables. HQ will prepare these tables for individual stations upon request. To obtain these tables, the following information must be provided:

- a. Station name and type,
- b. Field elevation (Ha), station elevation (Hp), and height of barometer (Hz), all to the nearest foot, and
- c. Latitude and longitude (in degrees and minutes).
- d. Average annual temperature for the station.