

NATIONAL WEATHER SERVICE INSTRUCTION 10-1312

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Operations and Services

Surface Observing Program (Land), NWSPD 10-13

Complementary Data Sources and Networks

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Complementary Data Sources and Networks

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1. Purpose. This instruction and attached appendices describe the National Weather Service (NWS) process for the acquisition, use and transmission of complementary data sets. This instruction emphasizes the NWS role in weather data acquisition and dissemination. This process should be capable of bringing together diverse data sets, advancing the ability to understand weather and climate variability and change.

In order to accomplish its mission the NWS must be able to identify and predict mesoscale weather phenomena. Observations from complementary sources enhance this identification and prediction. NWS offices are encouraged to identify, collect, and use complementary surface based data in their forecast and warning programs. These observations are produced by a wide range of automated sources and not from manual spotters or other observers. Some complementary observation sources may not meet NWS observational standards as stated in NWSI 10-1302. It is the responsibility of NWS staff to exercise their best judgement in the use of the data, but the data can and should be used. These data sets can add valuable information to supplement traditional data networks.

2. General. Current Observations are often driven by different mission needs and tend to focus on the measurement of discrete variables at specific locations. Most non-NWS observing systems are not designed to meet existing NWS requirements. However, post-processing schemes for QC will allow the NWS to utilize these observations more readily to support agency programs. To increase the value of these disparate observing systems the NWS needs to (1) link qualifying observing systems into a network of integrated systems, (2) formulate agreements across a set of federal, state and private sector partners to create structure for such an integrated observing system, and (3) provide a framework that encourages the integration of new observations into a broader strategy involving research and operations.

3. Instructions. NWS policy is to make data or information in its possession available to public and private sector users without restriction to the extent practical and within resource constraints. An exception to this policy is when the NWS agrees to restrictions on dissemination or use as a condition of receiving the data or information. When negotiating terms for the acquisition of complementary data, NWS officials should seek to avoid agreeing to restrictions and, failing that, seek to negotiate the least restrictive terms possible. All new agreements containing restrictions must be signed by the Assistant Administrator for Weather Services or his designee. The NWS will follow the instructions in this paragraph for the acquisition, use and transmission of complementary data.

3.1 Assessment. Assess the value of the data for use.

- a. Perform this assessment using best judgment based on metadata provided by the data platform owner.
- b. All assessments should be made at the appropriate level of the NWS depending upon the scope of sensor deployment.
- c. Data may be used by NWS when required metadata is available.

3.2 Documentation. The acquisition, use and transmission of data not in the public domain will be documented. Each WFO and RFC will document all agreements for the routine ingest of non-Federal automated data, and send the documentation to the appropriate Division of their respective Regional Headquarters for review. The Regional headquarters will then forward the documentation to the Office of Science and Technology (OS&T) Programs and Plans Division (W/OST1) which will coordinate with the Office of Climate, Water and Weather Services (OCWWS) Observing Services Division (W/OSO7). The Programs and Plans Division must receive this documentation within one year of the effective date of this policy. Any agreements made after the effective date of this instruction will be completed as described below.

- a. Appendix B is an agency approved standard form to formalize agreements where the data provider imposes no restrictions on the data. The signatory may be a NWS Regional or Office Director who may delegate this authority.
- b. The Assistant Administrator for Weather Services will sign all agreements where the data provider seeks to impose restrictions. OST1 is responsible for

coordinating these agreements with OS7. Send draft agreements, with supporting justification, to OST1 for coordination.

3.2.1 “Click-through,” “Shrink-wrap,” or Similar Agreements. Some methods of data acquisition, especially via internet, impose conditions of use by a “click-through” agreement. The user “clicks” a button and by doing so agrees to the terms of use of the data. This directive applies to such “click-through” agreements or any similar agreement.

- a. If the “click-through” agreement imposes no restriction on use of the data by NWS, a copy of the agreement should be attached to the form provided in Appendix B and the documentation procedures of 3.2.a above followed.
- b. If the “click-through” agreement imposes restrictions on the use of the data by NWS, the documentation procedures of 3.2.b above apply.

3.3 Metadata. Ensure metadata is available to the NWS.

- a. Appendix C lists the required and recommended metadata elements.
- b. Metadata will also be available to outside users if the NWS transmits the data. This requirement is considered to be met if the metadata is available in the public domain.
- c. The data provider/owner is responsible for timely updating of their metadata.

3.4 Quality Control. The NWS cannot require the data owner to perform data quality control, but should encourage them to do so.

3.5 Use of Discretion. Offices should exercise discretion in the use and transmission of all complementary data, whether quality controlled or not.

3.6 Transmission of Data. Complementary data may be transmitted without disclaimer if: the data source meets NWS standards for siting and accuracy, the data has been quality controlled, and there are no restrictions placed on the data by the data provider or other government agencies. If the data is deemed by the NWS to be unreliable, the agency reserves the right to cease any transmission of the data.

3.7 Disclaimers for Data. Complementary data not meeting the requirements of paragraph 3.6 may be transmitted if accompanied by a disclaimer, or set apart by other means. An example of a disclaimer is, “This data is from non-NWS sources and has not been quality controlled.” When possible transmit quality control “flags” with the data.

3.8 Data Formats. Provide data owners/providers information on data formats, encoding software, as well as, sensor standards for performance and siting as described in NWSI 10-1302.

3.9 Data Standards. Adhere to Advanced Weather Interactive Processing System code standards when converting complementary data. Other formats may be used for local purposes.

APPENDIX A - Definitions

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1. Acquisition. The automated retrieval or receipt of electronic files at NWS offices.
2. Complementary Data. Data not from NWS nationally supported surface observing platforms assessed to be of sufficient quality to support NWS climate and/or warning forecast and service.
3. Complementary Data Networks. One or more surface observing stations incorporated into a collection of stations. These stations may include complementary data sources managed by government agencies, universities and/or other public and private entities.
4. Metadata. Metadata are “data about data” describing the content, quality, condition, and other characteristics of observational data, including any known errors or discontinuities. Metadata contain information relevant to instruments, calibration coefficients and location histories, instrument sampling time, calibration dates, validation of sensor performance, exposure, and QA flags.
5. Quality Control. An automated or manual assessment of data quality of the observing elements. This will also include the ability to terminate or stop transmission of obviously erroneous or incorrect data.
6. Use. The evaluation or assimilation of data to support the NWS mission.

7. Transmission. The active relaying of data over NWS communication services to the public.
8. Public Domain. Products with no protection of copyright or specific instructions for use.
9. Restriction. Any terms or conditions which limit the NWS use and/or transmission of data for either internal or external purposes.

APPENDIX B - Agreement for NWS Acquiring Complementary Data

AGREEMENT FOR NWS ACQUIRING COMPLEMENTARY DATA			
1. Data Provider Point Of Contact	NWS Point Of Contact		
Name:	Name:		
Location:	NWS Office:		
Phone:	Phone:		
2. NWS will acquire the data through:	Internet Address:		
3. Location of metadata (URL):			
3b. Details on type of metadata available (LAT?/LON?/Elevation?, name, etc.)			
4. Maintenance done on data collection platform by provider? (list any information available)			
5. Quality Control done on observations by provider? (list any information available)			
<p>GENERAL TERMS AND CONDITIONS</p> <p>DURATION OF AGREEMENT, AMENDMENTS, AND MODIFICATIONS</p> <p>This agreement is subject to the availability of funds. This agreement will become effective when signed by both parties. This agreement will terminate 5 years from the date it becomes effective, but it may be terminated, revised, amended, renewed, or extended for another 5 year period at any time by mutual consent of the parties. Either party may terminate this agreement by providing 30 days written notice to the other party. The Government reserves the right to terminate the agreement immediately at the convenience of the Government.</p> <p>RESOLUTION OF DISAGREEMENTS</p> <p>Should disagreement arise on the interpretation of the provisions of this agreement, or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement on interpretation is not reached within 30 days, then the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution.</p> <p>All information in this agreement shall comply with Weather Service Instruction 10-1312. This agreement allows NWS to use the data without restriction and for any purpose. Any expenses associated with this agreement incurred by either signatory will remain exclusive to the signatory.</p>			
For the National Weather Service Signature	Date	For the Data Provider Signature	Date
Name Title - printed		Name Title - printed	

APPENDIX C - Metadata Requirements

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1. Required Metadata. The NWS will not accept complementary data if the following metadata elements are unavailable.
 - a. Mesonet owner.
 - b. Station names and identifiers.
 - c. Station location in degrees, minutes and seconds or latitude and longitude in degrees decimal.
 - d. Station elevation in meters or feet.
 - e. Environmental parameters measured by mesonet sensors, including units.
 - f. Reporting frequency.
 - g. Description of the observation time stamps for each station in the mesonet, e.g GMT or local time. For the latter, time zone information and whether the station clock represents daylight savings or standard time.

2. Recommended Metadata. The NWS should acquire the following metadata elements if available from complementary data sources.
 - a. Description of the site's location and exposure. This could include digital panoramic photos, drawings, or text.
 - b. Type of sensors and manufacturer.
 - c. Sensor accuracy and performance characteristics.
 - d. Algorithm(s) used to calculate data.
 - e. Level of quality control performed by the mesonet data provider.
 - f. Frequency of maintenance.

APPENDIX D - Transmission of Complementary Data over NWS Communication Circuits

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1. Evaluation. First evaluate data for accuracy and level of compliance to NWS standards as found in NWSI 10-1302. If data meets NWS standards, it may be transmitted without disclaimer.

2. Scope. If the scope of complementary data is inter-regional or national, the NWS Office of Climate, Water and Weather Services, Observing Services Division (W/OS7), must complete the “AGREEMENT FOR THE NWS ACQUIRING COMPLEMENTARY DATA” (Appendix B) with the data provider/owner. Agreements formulated by OS7 will be signed by the Office Director or their designee. In other situations the regional office soliciting the data source must complete the form. Agreements formulated by the regions will be signed by the Regional Director or their designee. The Regional Director may delegate this responsibility to the Meteorologist in Charge if the network resides solely within a field office’s county forecast and warning area. Copies of the completed agreement must be sent to W/OS7 for documentation and inclusion into the national database.

3. Procedure. Permission to transmit data over NWS communication circuits, acquisition of site identifiers and/or bulletin headers will be achieved through normal Data Review Group procedures.