

## MANAGEMENT OF AIRNET FIELD DATA

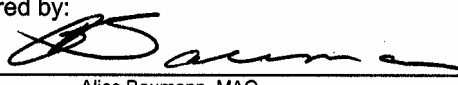
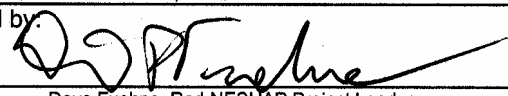
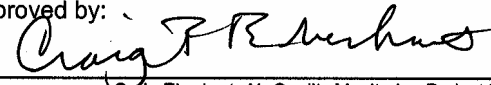
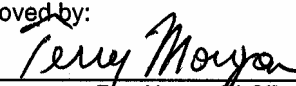
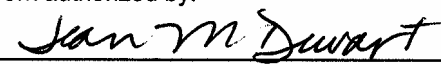
**Purpose** This Meteorology and Air Quality Group (MAQ) procedure describes the steps to electronically record and store the field data on palmtop computers and transfer the data into the Access database.

**Scope** This procedure applies to the data collected pursuant to procedures MAQ-202 and -204 at AIRNET field stations.

In this Procedure	Topic	See Page
	General Information About This Procedure	2
	Who Requires Training to This Procedure?	3
	Field Data Collection	4
	Validating and Verifying the Field Data	5
	Records Resulting from This Procedure	8

**Hazard Control Plan** The hazard evaluation associated with this work is documented in HCP-MAQ-Office Work.

**Signatures**

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### CONTROLLED DOCUMENT

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## General information about this procedure

**Attachments** This procedure has the following attachment:

Number	Attachment Title	No. of pages
1	AIRNET Field Data Validation and Verification Inspection form	1

### History of revision

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	4/16/96	New document.
1	9/10/98	Time deadline for records submission added to "Records" chapter, added numerous detailed steps for transferring data into the database; added chapter and attachment on validation of data.
2	11/4/99	Changes to some steps, update of attachment.
3	7/26/00	Changed the method for calculating end flow and clarified some steps for uploading data.
4	11/1/00	Clarified a few steps for uploading data; added steps to record field comments before uploading.
5	6/13/01	Added steps to create the future Lotus spreadsheet templates to load onto the palmtops.
6	11/01/01	Revised to reflect use of Palm data collection computers.
7	12/10/02	Quick-change revision to add item to list for V&V inspections.

### Who requires training to this procedure?

The following personnel require training before performing this procedure:

- MAQ personnel assigned to collect and process AIRNET filters and tritium cartridges
- AIRNET field data coordinator

Personnel previously trained to revision 6 of this procedure do not require re-training to this revision.

### Training method

The training method for this procedure is **on-the-job training** by a previously trained individual and is documented in accordance with the procedure for training (MAQ-024).

## General information, continued

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**Prerequisites** In addition to training to this procedure, the following training is also required prior to performing this procedure:

- MAQ-202, “Environmental Sampling of Airborne Radionuclides”
- MAQ-204, “Sampling of Airborne Tritium”

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**Definitions specific to this procedure** None.

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**References** The following documents are referenced in this procedure:

- MAQ-024, “Personnel Training”
- MAQ-202, “Environmental Sampling of Airborne Radionuclides”
- MAQ-204, “Sampling of Airborne Tritium”
- MAQ-231, “Installing and Programming the Radio Systems on AIRNET Stations”

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**Note** Actions specified within this procedure, unless preceded with “should” or “may,” are to be considered mandatory guidance (i.e., “shall”).

## Field data collection

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**Description of field data collection** Field data are recorded on Palm®-based computers. The destinations for the data collected are: 1) chain-of-custody forms and 2) the MAQ databases that contain AIRNET field sampling data (currently an MS Access database named “AIRNET”).

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**Sample collection loops** Field sample and corresponding field data collection are done in loops: Area G, Town, Valley, Upper, and White Rock-Truck Route-Pajarito Acres, and Blanks loops. The data on the Palm computers are grouped to correspond to these loops. A sample printout, to show the data currently being collected, is an attachment to procedure MAQ-202.

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**Enter and check field data** Record the field data, collected according to MAQ-202 and -204, for a station in the appropriate field on the Palm computer. The computer will warn if one or more values are outside normal ranges. If data are properly entered but still fall outside the range, make an entry in the “Comment” field to verify and explain the reasons, if necessary.

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**Save entered data** After checking for proper entry, store the data for that station and move on to the next station.

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**Download collected data from Palms** After each day of field collection is complete, use the MS Access program to download data from the Palm to the desktop computer.

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**Upload data files to Palm** Immediately after completing the step above, use the MS Access program to upload data from the desktop computer to the Palm computer. You have the opportunity to edit the information that will be uploaded.

## Validating and verifying the field data

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**Move data to main database** After the collection period is over and all field data have been entered into the “collected data” table on the PC, use the MS Access program’s menu buttons to move the data to the AIRNET database table for verification and validation.

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**Purpose of data evaluation** The data evaluation process determines whether data meet the data quality objectives specified in the AIRNET quality plan (MAQ-AIRNET). All data will be evaluated for one of three outcomes: *accept*, *qualify*, or *reject*. For qualified and rejected data, an explanation must be included for the appropriate record in the database.

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**Check site IDs and print data** Using menu options in the AIRNET database, ensure the master site IDs entered in the database.

Print out the uploaded field data to be checked.

## Validating and verifying the field data, continued

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**Perform V&V inspection** Use the form in attachment 1 as a checklist to review each field record on the query printout (see above block). Look at the acceptable ranges and the comments and use best professional judgment to identify any records that should be “qualified” or “rejected.” Provide an explanation for each qualified or rejected record in the database. Some examples of qualification and rejection are given below:

- If a pump and the timer failed, reject the timer data, filter sample, and silica gel sample.
- For a pump failure with timer reading within the range, qualify the filter and silica gel data.
- For torn filters and those pulled away from the edge of the support, reject the filter.
- For timer failures where the timer reading is estimated, qualify the timer reading.
- When breaker is found off and timer recorded run time appropriately, qualify the filter and silica gel samples. If the timer is not functioning, reject the timer data, filter sample, and silica gel sample.
- If the station was inoperative at changeout time due to pump or power failure, do not use zero as the final flow rate. Assume final flow was the same as the beginning flow and qualify these data.

The above examples provide a limited number of example conditions. Inevitably, other data situations will occur. Use the above examples and best professional judgement to qualify or reject other samples and data.

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**Stations with dataloggers** If there is a question whether a station with a datalogger ran, check the 110V indicator in the saved datalogger files (see MAQ-231). On the status screen, scroll down to “Shadow files.” Look at the data: “00” means no callback; values indicate there was a callback. Click on the values to obtain information about when the station was off.

## Validating and verifying the field data, continued

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**Hand calculate flows** If there are flows that were changed manually by more than 10% during this sampling period, hand calculate flows using the equations below:

nominal air volume = timer reading \* (start flow rate + stop flow rate)/2 \* unit conversion

or

nominal filter air volume = 336 (hr) \* [4.0 + 4.0]/2 (ft<sup>3</sup>/min) \* 60 (min/hr) \* 0.028317 (m<sup>3</sup>/ft<sup>3</sup>) = 2283 m<sup>3</sup>

nominal silica-gel air volume = 336 (hr) \* [200+200]/2 (cm<sup>3</sup>/min) \* 60 (min/hr) \* 1 / 1,000,000 (m<sup>3</sup>/cm<sup>3</sup>) = 4.03 m<sup>3</sup>

Make a note in the comment field that the volumes were hand-calculated.

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**Perform additional checks** Using menu options in the AIRNET database, perform the checks to compare the distillation volumes against the silica gel weight difference, perform other range checks, and calculate the sample flows.

Review the results of these queries and make appropriate qualifications or rejections of the data.

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**Submit records** When done with the checklist, sign it and place it in the field data validation/verification notebook. The notebook is submitted to the records coordinator annually.

## Records resulting from this procedure

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### Records

The following record generated as a result of this procedure is to be included with the “Air Monitoring Field Data Form and Chain of Custody Record” (Attachment 2 to MAQ-202) and stored and submitted as described for that record in procedure MAQ-204:

- AIRNET Field Data Validation and Verification Inspection form

Other records used or modified as a result of this procedure are submitted as records in accordance with the procedures MAQ-202 and -204. Electronic data are stored on the network and backed up according to network backup procedures.



Air Quality Group				
<b>AIRNET Field Data Validation and Verification Inspection</b>				
				This form is from MAQ-216
				<b>11/19/02 version</b>
AIRNET Sample Group #: _____				
Data Element Inspected	Complete in Access Field Sampling database	Agreement between Field Data record and database entry	Within expected range <i>or qualified</i>	Expected range
Chain-of-Custody Form done for all filters	NA	NA	Y - N	7 sampling loops
Chain-of-Custody Form done for all silica gels	NA	NA	Y - N	7 sampling loops
<b>FIELD DATA READY FOR V&amp;V Table</b>				
AIRNET Sample ID number	Y - N - NA	Y - N - NA	Y - N - NA	YYmmdd.nn
Location # = AIRNET ID after decimal point?	Y - N - NA	Y - N - NA	Y - N - NA	01 - 99
Timer reading	Y - N - NA	Y - N - NA	Y - N - NA	100 - 500*
Filter Start Flow	Y - N - NA	Y - N - NA	Y - N - NA	3.6 - 4.4
Filter Stop Flow	Y - N - NA	Y - N - NA	Y - N - NA	1.0 - 6.0*
Gel Start Flow	Y - N - NA	Y - N - NA	Y - N - NA	180 - 220
Gel Stop Flow	Y - N - NA	Y - N - NA	Y - N - NA	20 - 250
Comment	Y - N - NA	Y - N - NA	NA	---
Gel Initial Weight	Y - N - NA	Y - N - NA	Y - N - NA	600 - 800
Gel Final Weight	Y - N - NA	Y - N - NA	Y - N - NA	600 - 800
Master Site Numbers	Y - N	NA	Y - N - NA	100 - 300
Data Qualifiers in use	Y - N	NA	NA	Blank (for A), Q, or R
Hand calculated volumes?	Y - N - NA			
Filter and m <sup>3</sup> corrected, calculated, and entered for bi-weekly volumes	Y - N - NA	NA	NA	
Dates and Times	Y - N - NA	Y - N - NA	NA	
Field logbook entries in database?	Y - N - NA	Y - N - NA	NA	
<b>FIELD DATA TRACKING Table</b>				
Sample Group Number	Y - N			
Verified by:				
_____ Signature	_____ Name (print)	_____ Date		

**Air Quality Group**  
**AIRNET Field Data Validation and Verification Inspection**

This form is from MAQ-216

**11/12/03 version**

AIRNET Sample Group #: \_\_\_\_\_

Data Element Inspected	Complete in Access Field Sampling database	Agreement between Field Data record and database entry	Within expected range <i>or qualified</i>	Expected range
Chain-of-Custody Form done for all filters	NA	NA	Y - N	6 sampling loops
Chain-of-Custody Form done for all silica gels	NA	NA	Y - N	6 sampling loops
<b>FIELD DATA READY FOR V&amp;V Table</b>				
AIRNET Sample ID number	Y - N - NA	Y - N - NA	Y - N - NA	YYmmdd.nn
Location # = AIRNET ID after decimal point?	Y - N - NA	Y - N - NA	Y - N - NA	01 - 99
Timer reading	Y - N - NA	Y - N - NA	Y - N - NA	100 - 500*
Filter Start Flow	Y - N - NA	Y - N - NA	Y - N - NA	3.6 - 4.4
Filter Stop Flow	Y - N - NA	Y - N - NA	Y - N - NA	1.0 - 6.0*
Gel Start Flow	Y - N - NA	Y - N - NA	Y - N - NA	180 - 220
Gel Stop Flow	Y - N - NA	Y - N - NA	Y - N - NA	20 - 250
Comment	Y - N - NA	Y - N - NA	NA	---
Gel Initial Weight	Y - N - NA	Y - N - NA	Y - N - NA	600 - 800
Gel Final Weight	Y - N - NA	Y - N - NA	Y - N - NA	600 - 800
Master Site Numbers	Y - N	NA	Y - N - NA	100 - 350
Data Qualifiers in use	Y - N	NA	NA	Blank (for A), Q, or R
Hand calculated volumes?	Y - N - NA			
Filter and m <sup>3</sup> corrected, calculated, and entered for bi-weekly volumes	Y - N - NA	NA	NA	
Dates and Times	Y - N - NA	Y - N - NA	NA	
Field logbook entries in database?	Y - N - NA	Y - N - NA	NA	
<b>FIELD DATA TRACKING Table</b>				
Sample Group Number	Y - N			

Verified by:

\_\_\_\_\_ Signature

\_\_\_\_\_ Name (print)

\_\_\_\_\_ Date