

Contributing to the *Clarus* System

The Environmental Sensor Stations (ESS) within the Road Weather Information System (RWIS) should report observations to a central server within the agency where one or more files are created. Many agencies create atmospheric, surface, and/or subsurface files usually in a comma separated value (CSV) format. The *Clarus* System needs to collect these files through one of two methods:

- Access the files directly from the agency's server (pull method); or
- Access the files from an FTP site created on the *Clarus* System where the agency places the files (push method).

With the pull method, the agency will provide a path to the files using FTP or HTTP. The access can require a user name and password for security. The *Clarus* System will access the files at scheduled times to copy the files.

With the push method, the agency will place the files in a designated folder using a user name and password on the *Clarus* System FTP site. The *Clarus* System will access the files at scheduled times to copy the files.

File Identification

The *Clarus* System is based on Universal Time Coordinated (UTC) and expressed using a 24-hour clock. File names should include the creation date and time based on UTC for easy identification. The timestamp of file creation may be expressed differently as shown below.

atmos.20070423.1523.txt 17 KB 4/23/2007 9:23:00 AM

File Data Descriptions

The *Clarus* System must be able to read the observations contained within the file. A header row is expected describing the elements within the file. Each column must be mapped to a description within the *Clarus* System. For example, consider the following header row, observations, and its description below.

Sysid, RPUid, SenId, DtTm, AirTemp, Dp, Rh
351,13,0,12/29/06 23:45,220,120,93

Sysid = 351	(System Identifier)
RPUid = 13	(RPU Identifier)
SenId=0	(Sensor Identifier or Sensor Index)
DtTm=12/29/06 23:45	(Date/Time Stamp UTC)
AirTemp=220	(obsTypeName=essAirTemperature, null value=65535, units=Celsius, Scale Factor=.01)
Dp=120	(obsTypeName=essDewpointTemp, null value=65535, units=Celsius, Scale Factor=.01)

Rh=93

(obsTypeName=essRelativeHumidity, null
value=101, units=Percent, Scale Factor=1)

Collection Frequency

The *Clarus* System will collect files at scheduled intervals based upon when the system expects the files to be made available by the agency. This time interval is usually between 10 and 30 minutes apart. For example, if the agency places the files on the server every 10 minutes, the *Clarus* System will access the files every 10 minutes or 6 times in an hour.

More detailed explanations of the preceding and the worksheets required to complete can be found in the *System Interface Guide for Contributors* at www.Clarusinitiative.org.

Metadata

There are two types of metadata – required (also known as critical) and optional. Information about the contributing agency and the sites, stations, and sensors are required elements for the *Clarus* System to collect, quality check, and disseminate observations. Excel worksheets will be provided with required fields highlighted to assist in the creation and submission of metadata. The optional fields are exactly that – optional. If you wish to submit the optional metadata elements, they will be entered into the *Clarus* System database and will be made available for agencies, weather providers, and general use.

Required metadata for agency contacts:

- Name
- Title
- Phone Number
- Email Address
- Mailing Address
 - Street
 - City
 - State
 - Zip
 - Country

Required metadata for the ESS site:

- Id (This will be permanently assigned by the *Clarus* System. During creation of the spreadsheet, the contributor will assign a temporary value for reference.)
- State Site Identifier
- Description of Site
- Climate Record Identifier (Climate records have been created across the United States based on National Weather Service climatological divisions. A default value can be used for this element. If a unique climate records needs to be created for this site, additional information will be required. The *Clarus* administrator will provide more information upon request.)

Required metadata for the ESS station:

- Id (This will be permanently assigned by the *Clarus* System. During creation of the spreadsheet, the contributor will assign a temporary value for reference.)
- Station Code (This code is usually the same as the State Site Identifier in the site table.)
- Category (The value is usually “P” for permanent.)
- SiteId (The value assigned by the contributor during the creation of the site spreadsheet. This value maps to the correct Id established for the site where the station is located.)
- Latitude

Longitude
Elevation

Required metadata for the station sensors:

Id (This will be permanently assigned by the *Clarus* System. During creation of the spreadsheet, the contributor will assign a temporary value for reference.)

StationId (The value assigned by the contributor during the creation of the station spreadsheet. This value maps to the correct Id established for the station where the sensor is located.)

Sensor Index (This is used to identify multiple like observations from the same sensor such as surface temperatures.)

obsTypeId (This value maps to the obsType table id. For example, if the sensor measures air temperature, the value would be 5733 for *essAirTemperature*.)

Distribution Group (The value is usually “2” for available to everyone.)

sensorTypeId (This value maps to the sensorType table id. For example, if the sensor is a SSI Themo Scan 1000, then the value would be 7.)

For each sensorType, default values have been established for quality checking and can be seen in the sensorObsTypeDefaults table. If you choose to use the default values, then no additional information is needed for sensors. If not, then the Clarus System needs the information below.

Minimum Range

Maximum Range

Rate Positive

Rate Negative

Persistence Interval

Persistence Threshold

Like Instrument Threshold

More detailed explanations of the preceding and the required and optional fields can be found at www.Clarusinitiative.org. The spreadsheets to complete the metadata will be provided by the *Clarus* administrator upon award.
