# TABLE 1
# STATION METADATA
# FOR USCRN STATIONS

**Station-specific Metadata are collected throughout the stages of selecting, installing and operating a USCRN station. A definitive list of USCRN Metadata is presented, illustrating the cumulative growth of station metadata, which metadata parameters are added in each step, from Site Survey, Approval, Pre-Installation, Installation, Acceptance, Commissioning, to Operations.**

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
|---|---|---|---|---|---|---|---|
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| | | | | | | | |
| Involved parties and agencies | Survey | X | X | X | X | X | X |
| Landowner | Survey | | X | | | | |
| USCRN partner | Survey | | X | | | | |
| Contact information | Survey | X | | | X | | |
| Site Survey Review slides (including digital photographs (surface in octants, fish-eye view of sky above station, etc.) LANDSAT imagery, and aerial imagery, layout and exposure, and location of buildings, trees, surrounding topography, etc) | Survey | | X | | | | |
| Vegetation types and condition | Survey | | X | | X | | |
| | | | | | | | |
| | | | | | | | |
| Decision Paper | Approval | | X | | | | |
| Site License Agreement | Approval | | X | X | | | |
| Site Specific Legislative Authorizations | Approval | | X | | | | |
| Driving instructions to station | Installation | X | | | | | |
| Site Survey Score | Approval | X | X | | | X | |

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
|---|---|---|---|---|---|---|---|
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| Site Representatives  Score | Approval | | X | | | X | |
| Site Homogeneity  Score | Approval | | X | | | X | |
| Station Long  Name | Pre-Install | X | | | | X | |
| Station Short Name (city and vector) | Pre-Install | X | | | | X | |
| GOES ID# | Pre-Install | X | | | | X | |
| UTC  offset | Pre-Install | X | | | X | X | |
| State | Pre-Install | X | | | X | | |
| WBAN # | Pre-Install | X | | X | X | X | |
| Paired site relationship | Pre-Install | X | | | | X | |
| | | | | | | | |
| | | | | | | | |
| Pre and post installation photos | Installation | | X | | | | |
| As Built Drawings (including instrument locations, height above  ground level,  exposure details) | Installation | | X | | | | |
| Site Install Issues  Form | Installation | | X | | | | |
| Site Install Checklist | Installation | | X | | | | |
| Site Install Components  Checklist | Installation | | X | | | | |
| NOAA Environmental  Checklist | Installation | | X | | | | |
| Soil Type | Installation | X | | | X | | |
| Event  (New station, maintenance) | Installation | X | | | X | X | |
| Event  Date | Installation | X | | | | | |
| Latitude and longitude in decimal degrees and measurement  method (GPS) | Pre-Install | X | | | | | |
| Elevation | Installation | X | | | | | |
| Government  Property ID | Installation | X | | | | X | |
| | | | | | | | |
| **Sensors** | | | | | | | |
| *Temperature  Sensors* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Formula | Installation | X | | | | X | |

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
|---|---|---|---|---|---|---|---|
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| #1, #2, #3 Sensor Serial Number | Installation | X | | | X | | |
| Calibration Coefficient 0, 1, 2 | Installation | X | | | X | | |
| | | | | | | | |
| | | | | | | | |
| *Temperature Aspirated Shield* | Installation | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| *Aspirated Shield Fan* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| #1, #2, #3 Serial Number | Installation | X | | | X | | |
| | | | | | | | |
| *Wind Speed Sensors* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Formula | Installation | X | | | | X | |
| Sensor Serial Number | Installation | X | | | | X | |
| Calibration Coefficient 0,1 | Installation | X | | | | X | |
| | | | | | | | |
| *Rain Gauge (Primary)* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Formula | Installation | X | | | | X | |
| #1, #2, #3 Transducer 1 Serial Number | Pre-Install | X | | | X | | |
| Calibration Coefficient 0, 1, 2 for each of 3 transducers | Installation | X | | | X | | |
| | | | | | | | |
| *Rain Gauge (Secondary)* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Sensor Serial Number | Installation | X | | | X | | |
| | | | | | | | |

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| *Solar Radiation Sensor* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Formula | Installation | X | | | | X | |
| Sensor Serial Number | Installation | X | | | X | | |
| Calibration Coefficient 0, 1 | Installation | X | | | X | | |
| | | | | | | | |
| *Surface Infrared Temperature Sensor* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | |
| Formula | Installation | X | | | | X | |
| Sensor Serial Number | Installation | X | | | X | | |
| Calibration Coefficient 0, 1 | Installation | X | | | X | | |
| | | | | | | | |
| *Relative Humidity/Temperature Sensor* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Sensor Serial Number | Installation | X | | | X | | |
| RH Formula | Installation | X | | | | X | |
| Calibration Coefficient 0, 1 | Installation | X | | | X | | |
| Temperature Formula | Installation | X | | | | X | |
| Calibration Coefficient 0, 1 | Installation | X | | | X | | |
| | | | | | | | |
| *Data Logger* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Serial Number | Installation | X | | | X | | |
| Software Version Number | Installation | X | | | | X | |
| Datalogger Software | Installation | | X | | | | |
| | | | | | | | |
| *Transmission* | | | | | | | |

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
|---|---|---|---|---|---|---|---|
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| Method of transmission | Operations | | X | | | X | X |
| Data format transmitted | Operations | | X | | | X | X |
| Transmission frequency | Operations | | X | | | X | X |
| | | | | | | | |
| *GOES Transmitter* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Serial Number | Installation | X | | | X | | |
| Transmission time | Installation | X | | | | X | |
| Transmission channel | Installation | X | | | | X | |
| Transmitter EPROM software version | Installation | X | | | | X | |
| Antennae angle | Installation | X | | | X | | |
| Antennae orientation | Installation | X | | | X | | |
| GOES satellite assignment | Installation | X | | | X | | |
| | | | | | | | |
| *Datalogger Charger/Controller* | | | | | | | |
| Manufacturer | Installation | X | | | | X | X |
| Model Number | Installation | X | | | | X | X |
| Serial Number | Installation | X | | | X | | |
| | | | | | | | |
| State | Acceptance | X | | | X | | |
| Climate Division | Acceptance | X | | | X | | |
| County | Acceptance | X | | | X | | |
| Climate Summary from nearby site | Commission | | X | | X | | |
| Coop number | Acceptance | X | | | X | | |
| Commission Code | Commission | X | | | | | X |
| Operational Status | Operations | X | | | X | X | |
| | | | | | | | |
| *Manual Quality Control Events* | | | | | | | |
| Suspected data or instrument problems entered into ATS | Operations | | | X | | | |
| Known data problem notes | Operations | | | X | | | |

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
|---|---|---|---|---|---|---|---|
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| | | | | | | | |
| *Site Maintenance Metadata* defined by | | | | | | | |
| Site Event Form – (Host routine maintenance) | Operations | | X | | X | | |
| Annual Visit Form – (Annual maintenance) | Operations | | X | | X | | |
| Site Visit Form – (Non-routine maintenance) | Operations | | X | | X | | |
| | | | | | | | |
| Temporal Changes to any metadata items logged as appropriate | Operations | X | | | X | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

# TABLE 2
# NETWORK METADATA
# FOR USCRN

Metadata that describe the data for the network in its entirety are indispensable for later evaluation of the data. The Categories of these metadata are Instrument Manuals and Documentation, Research Papers, Software, and Data Set Documentation. Each of these categories if listed with details included. The repository and control are also shown.

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
|---|---|---|---|---|---|---|---|
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| **Instrument Manuals and Documentation** | Manufacturers | | X | X | | | |
| instrument type | | | | | | | |
| sampling interval | | | | | | | |
| reporting frequency | | | | | | | |
| recommended scheduled maintenance and calibration procedures, including frequency | | | | | | | |
| manufacturer | | | | | | | |
| model | | | | | | | |
| phenomena measured (temperature, precipitation, wind speed, etc.) | | | | | | | |
| how the instrument functions | | | | | | | |
| data sampling and processing procedures | | | | | | | |
| sampling interval range | | | | | | | |
| measurement range | | | | | | | |
| resolution | | | | | | | |
| accuracy | | | | | | | |
| digital images, including photos, diagrams and scanned copies of specification sheets | | | | | | | |

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
|---|---|---|---|---|---|---|---|
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| service schedule and details, including | | | | | | | |
| service type (installation, preventive maintenance, calibration, etc) | | | | | | | |
| procedure description | | | | | | | |
| standard values | | | | | | | |
| required expertise & equipment | | | | | | | |
| schedule/ frequency. | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| **Research Papers** | USCRN Web | | | | | | |
| CRN program experimental results | | | X | | | | |
| Peered reviewed papers by CRN program | | | X | | | | |
| Peered reviewed papers by the community at large | | | X | | | | |
| Presentations and working documents for meetings as appropriate | | | X | | | | |
| | | | | | | | |
| | | | | | | | |
| **Software Source Code and Documentation** | Operations | | | | | | |
| | | | | | | | |
| *Ingest* | | | | | | | |
| | | | | | | | |
| CRN_INGEST/SRC | | | X | X | X | X | |
| CRN_IO | | | X | X | X | X | |
| LOAD_LRGS | | | X | X | X | X | |
| LOAD_SRRS | | | X | X | X | X | |
| LOAD_NOAAPort | | | X | X | X | X | |
| CRN_Ingest/EXE | | | X | X | X | X | |
| PDA_Ingest | | | X | X | X | X | |
| | | | | | | | |
| *Automated Quality Control* | | | | | | | |
| Quality Control Flags definitions | | | X | X | X | X | |
| CRN_QC software | | | X | X | X | X | |
| | | | | | | | |

| METADATA | SOURCE | REPOSITORY | | | CONTROL | | |
|---|---|---|---|---|---|---|---|
| | | CRN SITES | WSSRD | DATA ADMIN | NM | CM | CI CCB |
| *Archive* | | | | | | | |
| CRN2DB | | | X | X | X | X | |
| CRNARCHIVE | | | X | X | X | X | |
| | | | | | | | |
| *DataSet TD3286 Documentation* | **NCDC web** | | | | | | |
| Manual | | | | X | X | | |
| Known problems with data and their period of record | | | | X | X | | |
| ATS reports | | | | X | X | | |
| Science Source File of interesting data cases | | | | X | X | | |
| | | | | | | | |

**Notes:**

1.      Control indicates NM Network Monitor (NM), Configuration Management (CM) Configuration Item (CI) and Configuration Control Board (CCB).

2.      CRNSITES is the staging area for the NCDC official Station History Database, MI3

3.      WSSRD is currently coming on-line as official Metadata storage for imagery and document metadata.

4.      Temporal changes to any of this information is recorded as well.

# Appendix A    Document Change Log

| Date | Table # and section | Description of Change | Are Redlines Attached? |
|---|---|---|---|
| 08012003 | 1 - Sensors | Added mfg, model and serial # fields for tipping bucket rain gauge. | N |
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