DRI
Desert Research Institute

Western Regional Climate Center
Desert Research Institute
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Western Regional
Climate Center

3/3/06
(amended to add Heather Angelof to contacts list, 3/5/2006)

Introduction

This is primarily an informational message about current and upcoming climate inventory activities, and preparation for further contact. But, alas ... there will likely be a need for some homework on your part to help expedite this project.

A recap of project basics:

The project products to networks for the first year of this agreement are:

1. A GIS layer with the location of all known weather stations inside the parks, and relevant stations outside of parks.

2. As much additional data on each weather station that can be obtained. Info will be stored in a database that is linked to the GIS locations. Station details will ideally include items such as: operating agency; period of record; measurement and units; instruments; details on station location changes and equipment changes; etc.

3. An inventory report for each network.

4. A review of weather protocols and SOPs, and recommendations on station siting considerations, data collection procedures, and reporting and analysis procedures.

5. A preliminary strategy for serving the weather data associated with each station. The ideal model is to develop a single web portal, customized for NPS, that accesses multiple distributed data sources.   If all goes well, implementation of a data delivery system would begin next fiscal year.

In developing the climate inventories for the I&M networks, we have outlined a fairly ambitious schedule to produce climate inventory reports for all of the networks by autumn, 2006. Kelly Redmond discussed this schedule and the outline of the contents of these reports at the national I&M meeting in San Diego, and was able to meet there with many network coordinators and other network staff, but not all. In many cases, these climate inventory reports will need to be produced "from scratch"; in other cases we will be able to draw moderately or heavily upon previously-assembled material. By reviewing web-accessible documents and through conversation with each network, we will establish the proper course of action to take.

We realize that during the busy summer months, key people may be hard to contact. The main purpose here is to tip you off that we will be trying to reach all networks during upcoming months, some right away, some a little later.

Western Regional Climate Center (WRCC) project team

Kelly Redmond, PI, project coordination, assistance with report assembly
 775-674-7011 kelly.redmond@dri.edu or krwrcc@dri.edu

Christopher Davey, day to day operations, assembly of network reports.
 775-674-7023 christopher.davey@dri.edu or cdwrcc@dri.edu

Grant Kelly, metadatabase development, web page development
 775-674-7164 grant.kelly@dri.edu or gkwrcc@dri.edu

Greg McCurdy, computer oversight, web pages, data ingest, station operations
 775-674-7165 greg.mccurdy@dri.edu or gmwrcc@dri.edu

David Simeral, GIS, field and station issues
 775-674-7132 dave.simeral@dri.edu or dswrcc@dri.edu

Heather Angelof, metadata assistance
 775-674-7165 heather.angelof@dri.edu or hawrcc@dri.edu

Any of the above can be reached via the group alias: npscip@dri.edu

Project web page
The overall web page we've set up at WRCC for this project (with a link to its counterpart page in Fort Collins) is:

http://www.wrcc.dri.edu/nps

Please note that many aspects of this website are a work in progress.

What are we looking for?

1) Determination of station metadata status
2) Network-specific upcoming needs for climate information
3) Information flow

The details for each of these three items are described below:

1) Determination of metadata status
We would like to discuss with each network coordinator, or designee(s), the general
status of climate/weather inventories of the park units in your network and obtain lists
and other descriptions of stations and small networks we are not likely to already know
about. We have indicated below which climate networks we already have fairly detailed
information about. For other climate networks, we may already know about certain
stations, but we want to double-check against your local knowledge, so it is better to have
duplicate information than none at all.

We will be soliciting input from each network on what stations are now operating, or
have operated in the past and are useful to know about, in or near each park unit. By
"near" we mean useful and relevant for the the various future applications of climate data
in park management and monitoring of conditions, typically within 50 miles, and in data
dense regions, less than that. We can discuss this with each region independently.

We are also requesting the climate station metadata for specialized weather and climate
networks within the NPS that are not currently tracked by WRCC. The following link
contains a copy of this memo, plus additional details on what will be sought:

http://www.wrcc.dri.edu/nps/pub/dev/IandM_network_metadata_request.doc

(Reminder: for above, for some of these web pages, the WRCC project web
account/password are needed; if you don't have them, contact us at npscip@dri.edu).

Important
Without certain required information, a climate station of interest cannot be included at
all in our inventory. These required info needs are highlighted in a table at the end of this
document.

2) Network-specific upcoming needs for climate information
In addition, although we already know many of the general reasons why climate data are
needed, we would like to learn about specific issues in your region and in specific parks
(present and future to the best of your estimation) for which climate data and information
will be an important component. With this latter, we realize there is an element of
prediction and crystal-ball viewing, but many applications require that some kind of
history be available to address an upcoming issue, so the earlier that monitoring can get
started, the better.

3) Information flow
WRCC will be contacting you in another email correspondence to obtain this
information. We are working closely with the I&M staff in Fort Collins. For much of the
detailed information we seek, it will be most efficient to deal directly with each network.
What we obtain will be shared with those in Fort Collins. Because three groups are
interested in this material, for now we are recommending that inventory information that
is supplied be sent directly to WRCC, and cc'd to Margaret Beer in Fort Collins. Please

copy any email correspondence containing detailed station metadata to:

Christopher Davey
 775-674-7023 christopher.davey@dri.edu or cdwrcc@dri.edu

Grant Kelly
 775-674-7164 grant.kelly@dri.edu or gkwrcc@dri.edu

Greg McCurdy
 775-674-7165 greg.mccurdy@dri.edu or gmwrcc@dri.edu

In addition, on any other general network correspondence, please copy:

Kelly Redmond
 775-674-7011 kelly.redmond@dri.edu or krwrcc@dri.edu

Again, for the moment, this is mainly informational, in preparation for further contact.

Regards,

Christopher Davey and Kelly Redmond (WRCC)
Margaret Beer (NPS)

3/3/06

Attachments.

SAN DIEGO PRESENTATION

A presentation at the San Diego "Meeting of the Networks" in February 2006 outlining this project can be found at:

http://science.nature.nps.gov/im/monitor/meetings/SanDiego_06/Weather_KRedmond.ppt.

In this presentation:
Slide 7 gives an outline or template for what each inventory report might look like
Slide 12 gives the tentative timetable for the production and completion of these reports.

WRCC WEATHER/CLIMATE NETWORKS

The following weather/climate networks ARE tracked by WRCC and no station metadata is needed for them:

- Any national NOAA network
- Surface Airway Observations Network (SAO, hourly data)
- Climate Reference Network (CRN)
- National Weather Service Cooperative Observer Program (NWS-COOP)
- Automated Surface Observing System (ASOS)
- US Upper Air Network
- Hourly Precipitation Data (HPD)
- NOAA Buoys Coastal Marine Automated Network (CMAN)
- US Historical Climate Network (USHCN) - this is a subset of the NWS-COOP network
- Automated Weather Observing System (FAA/AWOS)
- Surface Radiation Network (SURFRAD)
- Integrated Surface Irradiance Study (ISIS)
- Automated Local Evaluation in Real Time (ALERT)
- USDA-NRCS Snotel
- USDA-NRCS Snowcourses
- USGS Climate California
- RAWS
- California Irrigation Management Information System (CIMIS)
- AgriMet
- Nevada Test Site (NTS)
- Idaho National Lab (INL)
- Community Environmental Monitoring Network (CEMP)
- Yucca Mountain network
- Automated Weather Data Network (AWDN)

- California Snow Survey
- California Department of Water Resources

CROSS-CHECKED WEATHER/CLIMATE NETWORKS

For the following weather/climate networks, we would like to obtain station metadata in order to verify the currently held metadata at WRCC, i.e., we want to make sure that what WE think you have is what YOU think you have.

- Army Corps of Engineers (only weather and climate parameters)
- Bureau of Reclamation
- USDA-NRCS Snotel
- AMERIFLUX
- Public Agricultural Weather System (PAWS)
- Interagency Monitoring of Protected Visual Environments (IMPROVE)
- Clean Air Status & Trends Network (CASTNet)
- NPS Air Quality
- National Atmospheric Deposition Program (NADP)
- Long-Term Ecological Research network (LTER)
- Depts. of Transportation (DOTs)
- Any ATD network (ATD – Atmospheric Technology Div., National Center for Atmospheric Research, Boulder, Colorado)
- University of Oklahoma Mesonet
- CoAgMet (Colorado Agricultural Meteorological network)
- Florida Automated Weather Network (FAWN)
- SNOWNET

SPECIALIZED NPS WEATHER/CLIMATE NETWORKS

In addition, we need station metadata for any specialized station networks that record weather and climate parameters within the NPS networks and are not listed here. If there is uncertainty as to whether or not a particular site is in one of the aforementioned networks, we would like to obtain the metadata for the site anyway.

METADATA DETAILS

For each station for which we are requesting metadata, we are requesting the items in Table 1 (see next page), with varying degrees of importance:
- REQUIRED.
- GOOD to have, as some applications will utilize this data, but not required.
- NICE to have but not required.

As an absolute minimum, please provide information for the fields identified as "REQUIRED".

Table 1. Requested Metadata

Metadata Field	Notes	REQD.	GOOD	NICE
Station Name		√		
Location Information				
Metadata Field	Notes	REQD.	GOOD	NICE
Latitude	Preferred for WGS 84 or NAD 83	√		
Longitude	Preferred for WGS 84 or NAD 83	√		
Coordinate Units	Decimal degrees, degree-minute-second, etc	√		
Datum	WGS 84, NAD 83, etc.	√		
NPS Unit Code			√	
NPS Unit Name			√	
NPS Unit Type			√	
UTM Zone	If UTM is the only coordinate system available			√
Location Notes	Any useful information not already in "Station Narrative" (see below)			√
Station Characteristics				
Metadata Field	Notes	REQD.	GOOD	NICE
Climate variables	Temperature, precipitation, etc.	√		
Station Type	The principal network that station belongs to (RAWS, CASTNet, etc.)		√	
Installation Date	Date of station installation		√	
Removal Date	Date of station removal		√	
Station Narrative	Anything related to general site description; may include site exposure, surrounding vegetation characteristics, driving directions, etc.		√	
Station Contacts (provide separate information for each person involved with station operation)				
Metadata Field	Notes	REQD.	GOOD	NICE
Full Name		√		
Organization		√		
Contact Type	Station owner, station observer, maintenance person, data manager, etc.		√	
Position Title			√	
Address			√	
City			√	
State			√	
Zip Code			√	
Country			√	
Email Address			√	
Work Phone	And extension number if available		√	
Contact Notes	Other information needed to contact this person		√	
Other Miscellaneous Information				
Metadata Field	Notes	REQD.	GOOD	NICE
Estimated H Error				√
Accuracy Notes				√

ADDITIONAL REQUESTS

If any sites have not been georeferenced recently, then if possible, and as schedules permit, we would like to obtain an updated accurate location with GPS. We strongly prefer that the location coordinates be in latitude/longitude in WGS 84 or NAD 83, as opposed to UTM.

Also, if there are any available photos for a site, we would like to obtain copies of them. For such photos to be of documentary value, they would need to be accompanied by a description of what is being depicted in each photograph (the particular station, the compass direction toward which the photo was taken, etc.). If any of these specialized network sites will be visited and there are currently no photographs of the site, we would like the person visiting the site to bring a camera to take photographs of the site, following the guidelines laid out in Kelly Redmond's photographic documentation report

http://www.wrcc.dri.edu/nps/pub/photodoc/photodocumentation.pdf.

We can supply further information on the best way to do this. For more detailed instructions, please contact us before sending any photographic documentation.