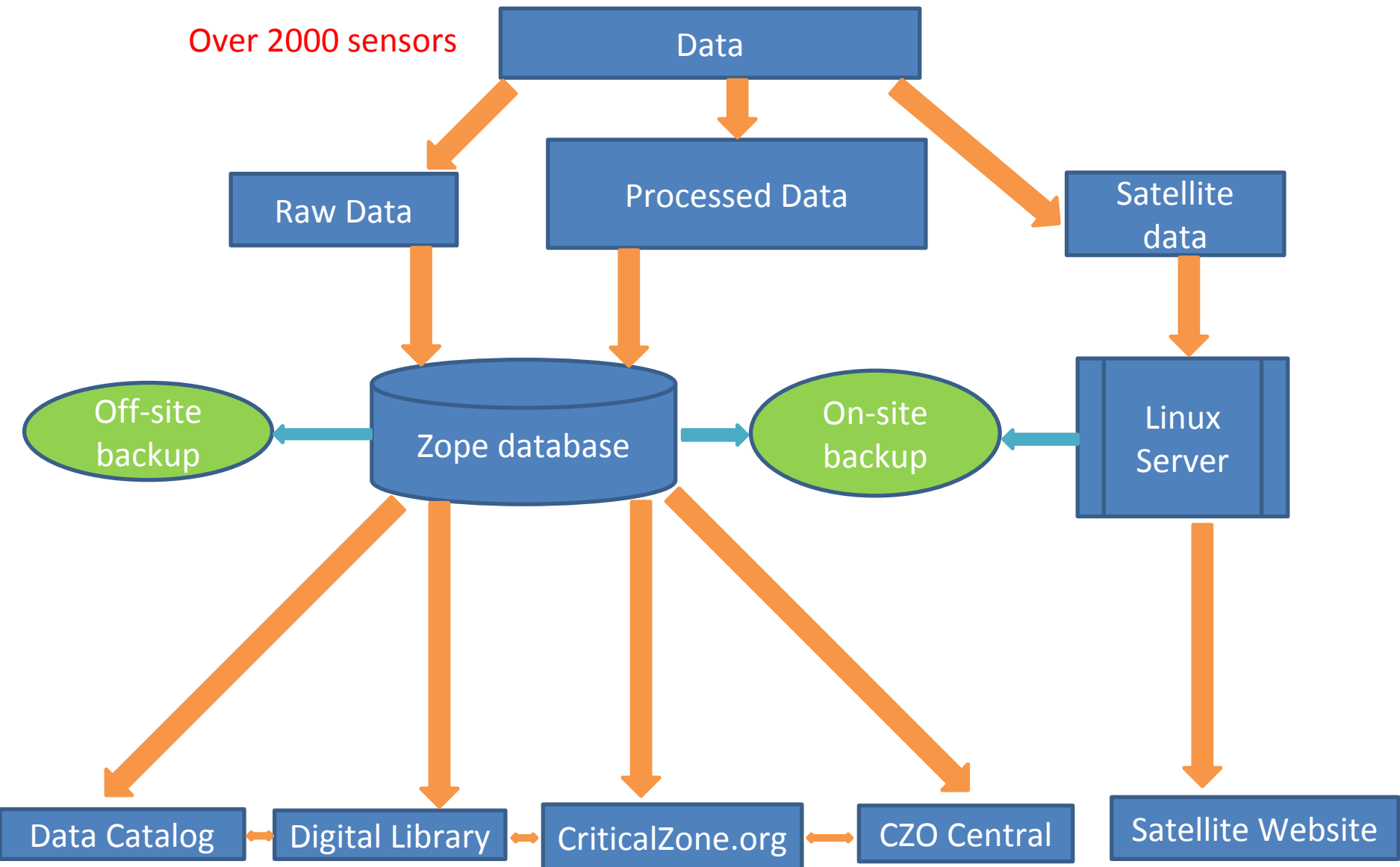


# SSCZO Data Management

## Data Management Infrastructure



# SSCZO Digital Library

<https://eng.ucmerced.edu/snsjho/files/MHWG/Field/Southern Sierra CZO KREW>

Before log in

The screenshot shows the website's home page with a navigation menu on the left containing links for Home, About, Files, Links, and People. A search bar is located below the menu. The main content area displays a list of folders and files under the heading "Southern Sierra CZO - KREW". The list includes folders such as Bull Creek, Bull Creek Lower Met, Bull Creek Upper Met, Critical Zone Tree, CZO metadata template, CZOMicroclimate, Deep Vadose Zone, Documents, Education and Outreach, Maps, metadata\_for\_site\_methods, MODIS\_NDVI, P301 Flux Tower, P301 Water Balance Transect, Photos, Providence Creek, Providence Creek Lower Met, Providence Creek Upper Met, Shorthair Creek Flux Tower, SJER Flux Tower, Soaproot Saddle Flux Tower, Studies, and Hydrology.enl. A file named Hydrology.enl is also listed. At the bottom of the page, there is a "Registration" section with a form for new users to register.

After

The screenshot shows the website's home page after login. The navigation menu on the left is the same as in the "Before log in" screenshot. The main content area displays a list of folders and files under the heading "Southern Sierra CZO - KREW". The list includes folders such as Bull Creek, Bull Creek Lower Met, Bull Creek Upper Met, Critical Zone Tree, CZO metadata template, CZO Shared Vocabulary Registry, CZO web site, Deep Vadose Zone, Documents, Education and Outreach, Maps, metadata\_for\_site\_methods, MODIS\_NDVI, P301 Flux Tower, P301 Water Balance Transect, Photos, Providence Creek, Providence Creek Lower Met, Providence Creek Upper Met, Shorthair Creek Flux Tower, SJER Flux Tower, Soaproot Saddle Flux Tower, Studies, and Hydrology.enl. A file named Hydrology.enl is also listed. At the bottom of the page, there is a "Registration" section with a form for new users to register. A blue arrow points from the "New User Registration" text to the "Registration" section. Another blue arrow points from the "Upload New File(s), Edit and Move File(s)" text to the "Browse..." button in the file management area.

New User Registration

Upload New File(s), Edit and Move File(s)

# Data Sharing

**People**

Role	Name	Registered	Email	Groups
	Adhikari, Diganta	2008/08/28	dadhikari@ucmerced.edu	Ecology, Harmon, Otters
	Aguilar, Andres	2014/09/04	aagull67@calstatela.edu	Ecology, Harmon
	Alvarez, Otto	2008/06/20	oalvarez@ucmerced.edu	CZO, SEKI
	alvarez, otto	2010/01/21	oalvarez00@gmail.com	
	Araki, Sayaka	2011/12/01	saraki@uwyo.edu	CZO
	Bales, Nora H	2014/07/01	nora.bales@gmail.com	Bales, Wawona
	Bales, Roger	2007/04/25	rbales@ucmerced.edu	American_RV, Bales, CZO, SEKI, SNAMP, TPR, Wawona
	Barnes, Morgan E	2015/04/09	mbarnes7@ucmerced.edu	CZO
	Barnes, Patrick Arthur	2008/09/15	pbarnes2@ucmerced.edu	Ecology, Harmon
	Baumsteiger, Jason	2008/09/23	jbaumsteiger@ucmerced.edu	Ecology
	Berlow, Eric Layani	2008/06/18	eberlow@ucmerced.edu	
	Bess, Zachary	2013/05/23	zabess@ucdavis.edu	
	Blankinship, Joseph C	2011/05/13	jblankinship@ucmerced.edu	
	Borda, Susan	2013/04/01	sborda@ucmerced.edu	American_RV
	Bouchez, Julien	2012/06/13	julien.bouchez@gfz-potsdam.de	CZO
	boyer, elizabeth	2012/02/19	ewb100@psu.edu	CZO
	Boyer, Elizabeth W	2007/10/12	boyer@nature.berkeley.edu	
	Burgfeld, Kyndall M	2010/09/09	kburgfeld@ucmerced.edu	Harmon
	Busse, Nick G	2015/05/28	nbusse@ucmerced.edu	CZO
	Butler, Christopher A	2007/04/17	cbutler@ucmerced.edu	
	Carrillo, Charlie	2012/04/10	ccarrillo5@ucmerced.edu	
	Chamorro, Anlela	2012/02/01	anlelachamorro@neo.tamu.edu	
	Chovanes, Anna	2015/06/16	anna.chovanes@my.wheaton.edu	
	Clegg, Joshua E	2014/06/13	jclegg@ucmerced.edu	
	Clower, Matthew	2012/09/28	mclower@ucmerced.edu	

**Permissions**

level0\_LowMetN\_soil\_snow\_wy2012.pdf

Group	User
American_RV	Meng, Xiande
Bales	Martin, Sarah
CZO	Lucas, Ryan Geoffrey
Conklin	Park, Yeonjeong

**View/Access:**

Group	User
American_RV	Meng, Xiande
Bales	Martin, Sarah
CZO	Lucas, Ryan Geoffrey
Conklin	Park, Yeonjeong

☐ Public

Save Cancel Reset

**Graphs**

Type	Name
PDF	level0_LowMetN_soil_snow_wy2012.pdf
PDF	LowMetN_soil_snow_2011.JNB
PDF	LowMetN_soil_wy2010.PDF

Cut Copy Paste | Delete Rename Permissions

☐ Browse... No file selected. Upload UploadBatchMetadata

**Create a New Group For Users**

**Change Permissions**

# Metadata and Tools

/snsjho/files/MHWG/Field/Southern\_Sierra\_CZO\_KREW/Providence\_Creek\_Lower\_Met/Water\_Balance\_Instrument\_Cluster/North\_Cluster/Level\_0/Graphs?sort\_on=id&sort\_dir=as

» Southern Sierra CZO - KREW » Providence Creek Lower Met » Water Balance Instrument Cluster » North Cluster » Level 0 » Graphs

## Graphs

Type	Name	Size	Last Modified
PDF	level0_LowMetN_soil_snow_wy2012.pdf	4.93 MB	2013-02-14 15:35:41

[Download all](#)

» Southern Sierra CZO - KREW » Providence Creek Lower Met » Water Balance Instrument Cluster » North Cluster » Level 0 » Graphs

### Metadata

level0\_LowMetN\_soil\_snow\_wy2012.pdf (application/pdf)  
[https://eng.ucmerced.edu/snsjho/files/MHWG/Field/Southern\\_Sierra\\_CZO\\_KREW/Providence\\_Creek\\_Lower\\_Met/Water\\_Balance\\_Instrument\\_Cluster/North\\_Cluster/Level\\_0/Graphs/level0\\_LowMetN\\_soil\\_snow\\_wy2012.pdf](https://eng.ucmerced.edu/snsjho/files/MHWG/Field/Southern_Sierra_CZO_KREW/Providence_Creek_Lower_Met/Water_Balance_Instrument_Cluster/North_Cluster/Level_0/Graphs/level0_LowMetN_soil_snow_wy2012.pdf)  
added by [Xiande Meng](#) on 2013-02-14 15:35:41, last modified on 2013-02-14 15:35:41

#### Doc Group

**Key Words**

**Title**

**Abstract**

**Investigator Contact Info**

**Variable Names**

**Citation**

**Publications**

- Series Level attribute definitions 1
- Series Level attribute definitions 2
- Value Level attributes
- Contributors
- Temporal
- Spatial
- Processing

[Save Changes](#) [Cancel](#) [Reset](#) [Export](#)

Logout Zope Metadata Maps

Download all files in the folder

Metadata page

# Search

The screenshot displays a web application interface with a top navigation bar, a left sidebar, and a main content area. The top bar includes a menu (File, Edit, View, History, Bookmarks, Tools, Help) and a search bar. The left sidebar contains a 'Search' section with a search bar and an 'Advanced' link, and a 'Catalog' section with a sidebar menu (Home, About, Files, Links, People) and another search bar. The main content area shows a file browser for 'Level 0' with a table of files and an 'Advanced Search' section with various filters.

**Level 0**

Type	Name	Size	Last Modified
Graphs			2013-02-14 15:35:41
20080206_LowMetN.dat		99 KB	2009-08-27 15:26:56
20080221_LowMetN.dat		111 KB	2009-08-27 15:26:56
20080227_LowMetN.dat		93 KB	2009-08-27 15:26:56
20080319_LowMetN.dat		323 KB	2009-08-27 15:26:56
20080409_LowMetN.dat		665 KB	2009-08-27 15:26:56
20080414_LowMetN.dat		759 KB	2009-08-27 15:26:56

**Advanced Search**

Name:

Type:

Submitted by:

Submitted on:   /  /

Last Modified:   /  /

Key Words:

Lab Technician:

Data Processor:

Start Date:   /  /

End Date:   /  /

Level:

# Data Catalog

The screenshot shows a web browser window with the address bar displaying [https://czo.ucmerced.edu/dataOverview\\_sierra.html](https://czo.ucmerced.edu/dataOverview_sierra.html). The page title is "Southern Sierra Critical Zone Observatory (CZO)". The main content area is titled "Data Overview" and is divided into several sections:

- Data Levels**
  - Public* access data: "Level 1" is formatted with noise removed. "Level 2" is gap filled, also averaged (hourly, daily). Some "Level 0" (raw) data are also available.
  - Private* access data: Requires a login to access other data. For more information, email our [data manager](#).
  - A document defining data levels in more detail is available [here](#).
- Time Series data**
  - CZO water-balance instrument-cluster data are available in the Sierra Nevada San Joaquin Hydrologic Observatory (SNSJHO) [digital library](#). Direct link: [field data](#)
  - Note: Some data in the Digital Library are public and some are available to those with a registered username/password. Please [register](#) first in order to have access to the password-protected data.
  - [Digital Library overview](#), Sept 2007
  - Samples of snow depth & soil moisture data: [UpMetN\\_Open](#)
  - Selected KREW discharge & meteorological data are available through the USFS: [HydroDB](#)
- Spatial data**
  - The CZO is located in the Sierra National Forest, which maintains many spatial data layers. See SNF's 2007 [data dictionary](#)
  - Note that the CZO is part of the King's River Experimental Watersheds (KREW), which lies within the larger King's River Project (KRP). More detailed data layers are available for KRP vegetation and soils, and some other forest attributes. See 2003 KRP [data dictionary](#)
  - CZO watershed boundaries: Arc GIS 9 [zip file](#) || same for [Bull](#) || [SJER](#)
- Metadata**
  - Metadata for the Southern Sierra CZO are in the Digital Library, along with the data.
  - The 3 CZO's are moving toward a common metadata standard. Following are some background documents.
  - [Link](#) to LTER EML metadata info || [NWT metadata](#)
- Other background information**
  - Southern Sierra CZO draft publication & data [policy](#)
  - Data-model integration papers from Chris Duffy:
    - [1.](#) Shared Data Model to Support Environment Sensor Network Data in Hydrologic Models
    - [2.](#) Bridging the Gap between Geohydrologic Data and Distributed Hydrologic Modeling
    - [3.](#) An Object Oriented Shared Data Model for GIS and Distributed Hydrologic Models
  - [analysis0405](#)
- Planning**
  - Dec 2008: Maidment [Ppointe](#) || [notes \(Winword\)](#) || [data summary \(Winword\)](#)

# Photos/Images

File Edit View History Bookmarks Tools Help

SNSIHO

https://eng.ucmerced.edu/snsjho/files/MHWG/Field/Southern\_Sierra\_CZO\_KREW/Photos/CZMicro

Home » Files » MHWG » Field » Southern Sierra CZO - KREW » Photos » CZMicro

Home  
About  
Files  
Links  
People

Search

CZMicro

Size Last Modified

DSCN1043.JPG	996 KB	2012-04-18 14:06:36
DSCN1044.JPG	980 KB	2012-04-18 14:07:06
DSCN1045.JPG	1019 KB	2012-04-18 14:07:30
DSCN1080.JPG	1003 KB	2012-04-18 14:08:09
DSCN1082.JPG	988 KB	2012-04-18 14:08:29
DSCN1092.JPG	998 KB	2012-04-18 14:10:31
DSCN1093.JPG	1.87 MB	2012-04-18 14:10:01

Cut Copy Paste Delete Rename Permissions

Browse... No file selected. Upload UploadBatchMetadata

Image Gallery

File Edit View History Bookmarks Tools Help

SNSIHO

https://eng.ucmerced.edu/snsjho/files/MHWG/Field/Southern\_Sierra\_CZO\_KREW/Photos/CZMicro/imageGallery


Home » Files » MHWG » Field » Southern Sierra CZO - KREW » Photos » CZMicro

Home  
About  
Files  
Links  
People

Search

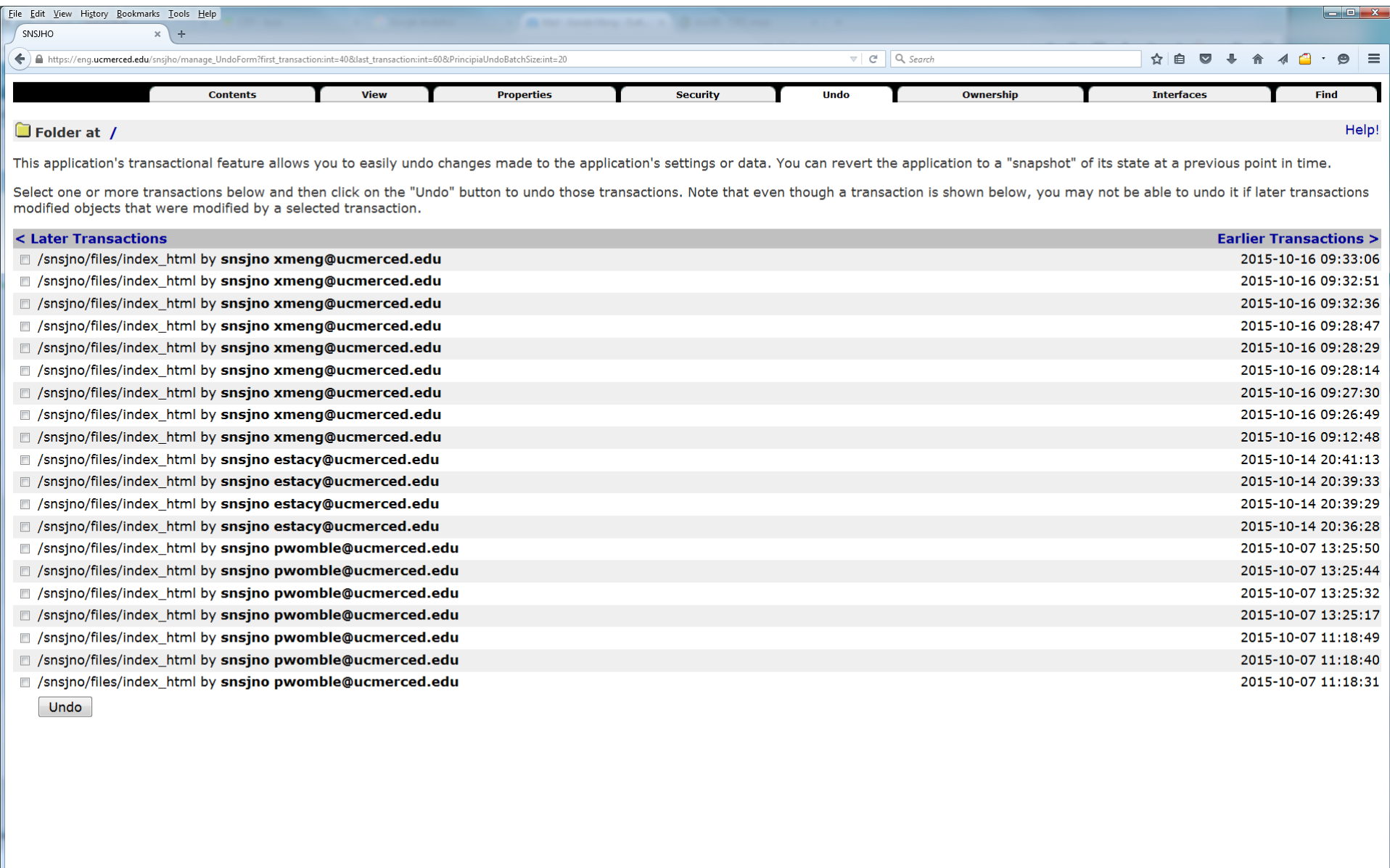
CZMicro

The image thumbnails (shown below) provide a link to the original image.





# Data Recovery and Backup



The screenshot shows a web browser window with the address `https://eng.ucmerced.edu/snsjho/manage_UndoForm?first_transaction:int=40&last_transaction:int=60&PrincipiaUndoBatchSize:int=20`. The application has a menu bar (File, Edit, View, History, Bookmarks, Tools, Help) and a toolbar with icons for star, folder, mail, download, home, search, and others. Below the toolbar is a tabbed interface with tabs for Contents, View, Properties, Security, Undo, Ownership, Interfaces, and Find. The 'Undo' tab is active, showing a list of transactions. The list is titled 'Folder at /' and includes a 'Help!' link. A paragraph explains the transactional feature: 'This application's transactional feature allows you to easily undo changes made to the application's settings or data. You can revert the application to a "snapshot" of its state at a previous point in time. Select one or more transactions below and then click on the "Undo" button to undo those transactions. Note that even though a transaction is shown below, you may not be able to undo it if later transactions modified objects that were modified by a selected transaction.'

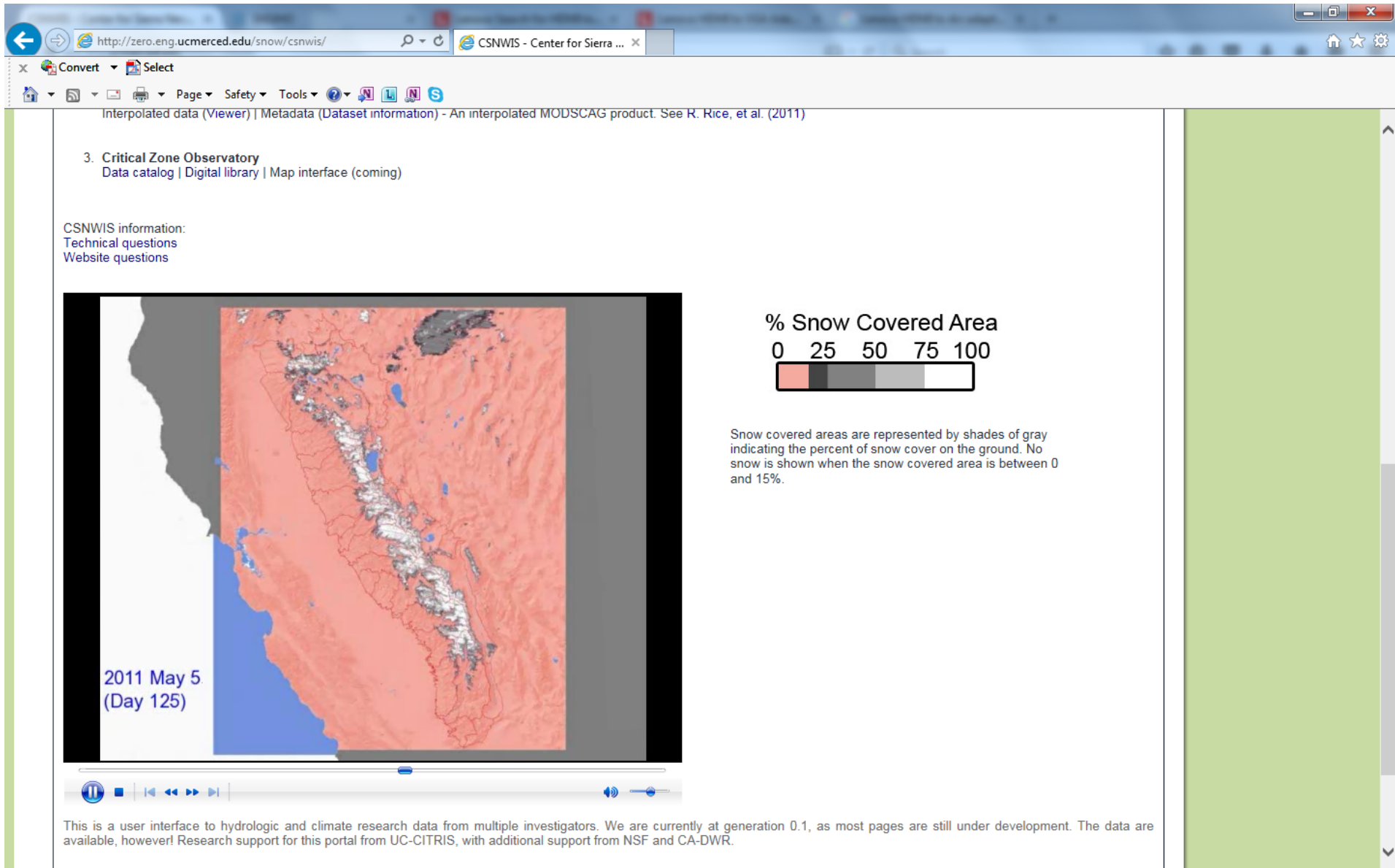
< Later Transactions	Earlier Transactions >
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:33:06
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:32:51
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:32:36
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:28:47
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:28:29
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:28:14
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:27:30
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:26:49
<input type="checkbox"/> /snsjho/files/index_html by snsjno xmeng@ucmerced.edu	2015-10-16 09:12:48
<input type="checkbox"/> /snsjho/files/index_html by snsjno estacy@ucmerced.edu	2015-10-14 20:41:13
<input type="checkbox"/> /snsjho/files/index_html by snsjno estacy@ucmerced.edu	2015-10-14 20:39:33
<input type="checkbox"/> /snsjho/files/index_html by snsjno estacy@ucmerced.edu	2015-10-14 20:39:29
<input type="checkbox"/> /snsjho/files/index_html by snsjno estacy@ucmerced.edu	2015-10-14 20:36:28
<input type="checkbox"/> /snsjho/files/index_html by snsjno pwomble@ucmerced.edu	2015-10-07 13:25:50
<input type="checkbox"/> /snsjho/files/index_html by snsjno pwomble@ucmerced.edu	2015-10-07 13:25:44
<input type="checkbox"/> /snsjho/files/index_html by snsjno pwomble@ucmerced.edu	2015-10-07 13:25:32
<input type="checkbox"/> /snsjho/files/index_html by snsjno pwomble@ucmerced.edu	2015-10-07 13:25:17
<input type="checkbox"/> /snsjho/files/index_html by snsjno pwomble@ucmerced.edu	2015-10-07 11:18:49
<input type="checkbox"/> /snsjho/files/index_html by snsjno pwomble@ucmerced.edu	2015-10-07 11:18:40
<input type="checkbox"/> /snsjho/files/index_html by snsjno pwomble@ucmerced.edu	2015-10-07 11:18:31

Undo

Hourly, daily, weekly and monthly on-site backup and daily off-site backup with SDSC

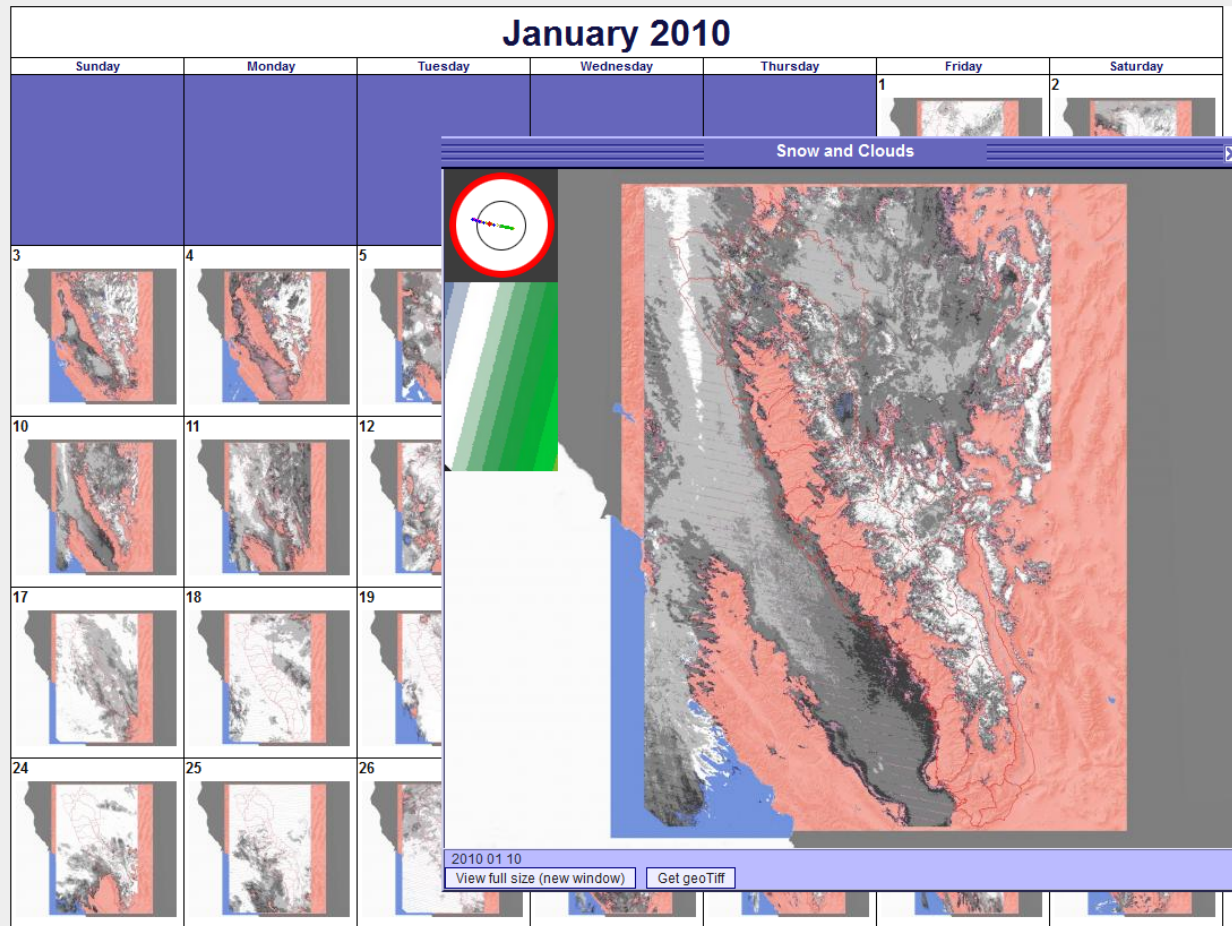
# Satellite Data System

(<http://zero.eng.ucmerced.edu/snow/csnwis/>)



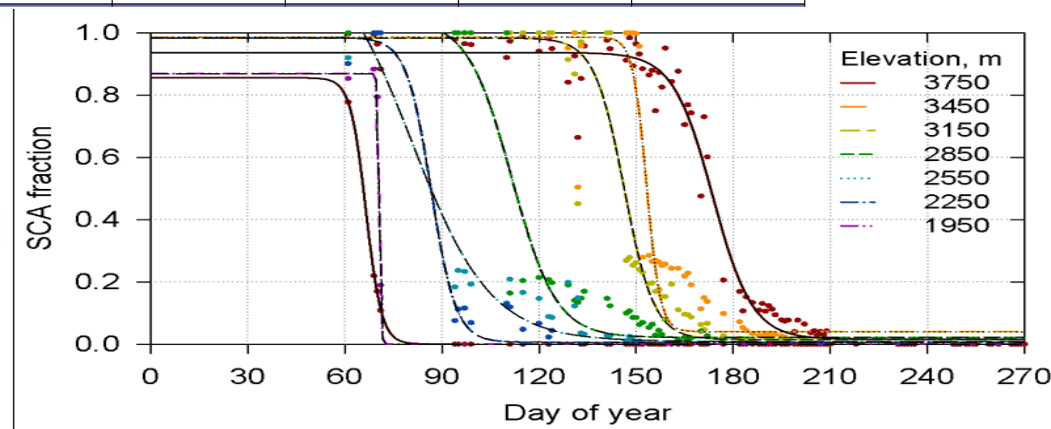
## Snow and cloud cover (calendar format)

Calendar  
Starting year:  
  
month:  
  
Complete below for range  
Ending year:  
  
month:  
  
Select basin



Detailed View/  
Download

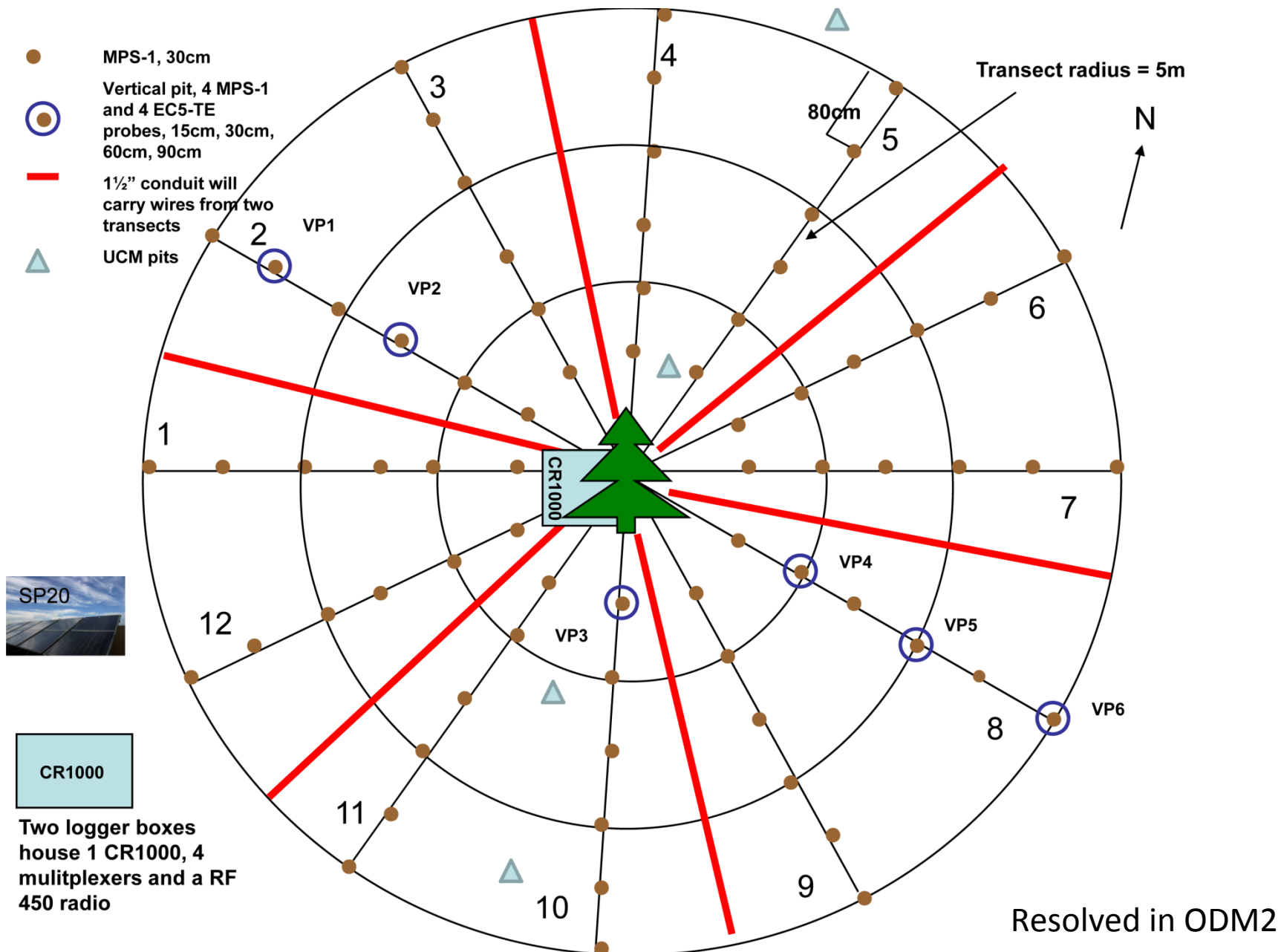
Analysis Results



## **Data Types from SSCZO**

- text/csv, spreadsheets, binary files (climate, soil, sap flow, stream flow and etc.)
- spatial layers (DEM, boundaries and sensor location)
- images/photos (satellite data and photos)
- model results (RHESSys)
- video files
- reports and software/programs for data collection and processing
- Total about 30GB yearly, plus satellite images

## Some problems with ODM database harvest



## Help find right terms for the highlighted variables from CZO controlled vocabularies

HEADERS FOR CALIFORNIA EDDY COVARIANCE DATA			
Header	Decription with units	Range typical min	Range typical max
1 'TIME'	date	1-Jan-06	31-Dec-13
2 'USTAR'	Friction velocity (m/s)	-0.2	4
3 'WDIR'	Wind Direction (degrees)	0	360
4 'WSPD'	Wind Speed (m/s)	0	15
5 'T_HMP'	Air temperature, actual (C)	-30	50
6 'TSonic'	Sonic Temperature (°C)	-30	50
7 'TACTUAL'	Sonic temperature adjusted for water content (K)	243	323
8 'RAIN'	Total per 30 minutes (mm)	0	20
9 'RH'	Relative Humidity (fraction)	0	1
10 'H2O_HMP'	Water Vapor Concentration Measured by Relative Humidity Probe	0	30
11 'PAR_IN'	micromol photons /m2 /s	-50	2500
12 'PAR_OUT'	micromol photons /m2 /s	-50	1000
13 'SOLAR_IN'	Solar Radiation Incoming (W/m2)	-30	1600
14 'SOLAR_OUT'	Solar Radiation Reflected (W/m2)	-30	500
15 'RNET'	Radiation, net(W/m2)	-300	1000
16 'G'	Ground heat flux (W/m2)	-200	200
17 'SENSIBLE_HEAT'	Sensible heat flux(W/m2)	-400	1000
18 'LATENT_HEAT'	Latent Heat Flux(W/m2)	-600	1200
19 'CO2_FLUX'	micromol CO2 /m2/s	-40	30
20 'H2O_FLUX'	millimol H2O / m2/s	-15	30
21 'NDVI'	Normalized Difference Vegetation Index	0	1
22 'T_Soil_Surface'	Soil surface temperature (C)	-10	30
23 'Soil_Moisture_1'	Soil Moisture in top 30 cm (m3 water/m3 soil)	0	1
24 'Soil_Moisture_2'	Soil Moisture in top 30 cm (m3 water/m3 soil)	0	1
25 'Soil_Moisture_3'	Soil Moisture in top 30 cm (m3 water/m3 soil)	0	1
26 'Soil_Moisture_4'	Soil Moisture in top 30 cm (m3 water/m3 soil)	0	1
27 'StartT_5cm'	Initial Temperature (before heating) Soil Matric Potential Sensor at 5 cm Depth (C)	-10	30
28 'StartT_10cm'	Initial Temperature (before heating) Soil Matric Potential Sensor at 10 cm Depth (C)	-10	30
29 'StartT_25cm'	Initial Temperature (before heating) Soil Matric Potential Sensor at 25 cm Depth (C)	-10	30
30 'StartT_50cm'	Initial Temperature (before heating) Soil Matric Potential Sensor at 50 cm Depth (C)	-10	30
31 'StartT_100cm'	Initial Temperature (before heating) Soil Matric Potential Sensor at 100 cm Depth (C)	-10	30
32 'StartT_200cm'	Initial Temperature (before heating) Soil Matric Potential Sensor at 200 cm Depth (C)	-10	30
33 'DelT_5cm'	Temperature Change of Soil Matric Potential Sensor at 5 cm Depth (C)	0	4
34 'DelT_10cm'	Temperature Change of Soil Matric Potential Sensor at 10 cm Depth (C)	0	4
35 'DelT_25cm'	Temperature Change of Soil Matric Potential Sensor at 25 cm Depth (C)	0	4
36 'DelT_50cm'	Temperature Change of Soil Matric Potential Sensor at 50 cm Depth (C)	0	4
37 'DelT_100cm'	Temperature Change of Soil Matric Potential Sensor at 100 cm Depth (C)	0	4
38 'DelT_200cm'	Temperature Change of Soil Matric Potential Sensor at 200 cm Depth (C)	0	4
39 'USTAR_SOURCE_FLAG'	Diagnostic	1	3
40 'SENSIBLE_HEAT_SOURCE_FLAG'	Diagnostic	1	3
41 'LATENT_HEAT_SOURCE_FLAG'	Diagnostic	1	3
42 'CO2_FLUX_SOURCE_FLAG'	Diagnostic	1	3
43 'H2O_FLUX_SOURCE_FLAG'	Diagnostic	1	3



## Questions

1. How can CZOData team help publish datasets to public archival data centers with DOI? The same type of data from all CZOs better goes to the same data center, and the YODA-file format should meet the data center needs.
2. what, where and how to publish level 1, level 2 data and the same level with different versions? (need cross-czo recommendations)
3. All CZOs should follow the same data level standard for the publications. Can CZOData team make the data level definitions for CZOs?
4. Preferred portals for data publications with some notes ( not just a list), and need a sustainable archive and guidance on how to package the data, how big of a package (5 years, all data to date, etc.), how to add data? Should we publish one year at a time, by topic (all water balance together, e.g.)?
5. To improving access – need acompact data catalog with links into digital library, also compact cross-czo searcher-friendly instead of programmer friendly - one page catalog versus 20 page catalog.
6. Is there a way to organize photos, videos, publications through the data archive so one can view all photo albums at once like flicker? Same for all videos and talks? this is an issue for the data servers and web-based organization

## Questions (Cont.)

7. How can we update the metadata which has been already harvested into the central CZO database (ODM1/ODM2)? (E.g., we got more accurate locations (lat/lon) of some sensors, how can we overwrite the old data with the more accurate data in the central CZO database?)
8. How can we provide an open access link to papers as well as the journal link?
9. are data sets associated with model inputs and outputs being archived/shared through the CZO system? E.g. RHESys
10. Can the current data systems handle bioinformatical data (DNA/RNA sequence information) from microorganisms?