

Paul C. Dunn
Brandt Bates
GEOG 625
3/30/16

Web Mapping Project Proposal: Caspar Creek Watershed Database and Spatial Analysis Toolset

Purpose:

Provide public researchers with a data portal for USFS RSL environmental data archives. Scope limited to air temp and precipitation for prototype.

Goal:

Search air temperature and precipitation data across all stations and return single formatted file in CSV format.

Design for scale and expansion; limit to SPA design (single page application) with index page for data not incorporated into prototype database.

Provide a rich geospatial visualization of the research extent, including tile and feature services.

Team members and roles:

Paul Dunn (Developer Analyst), Brandt Bates (Geospatial Sciences Analyst)

Audience:

Publically funded and hosted data arrives for 1.) affiliated researchers familiar with data instrumentation and acquisition methods, and 2.) general public research and analysis capabilities for interpretation of Northern California Coastal Forest ecology.

Functionality Summary:

- JavaScript based station/field data search – see Figure 3 conceptual data model.
- Save output as CSV to desired path.
- Highlight search area (station polygons).
- Geocoder and Zoom services.
- ESRI base map with Hybrid Topo/Sat Image.
- Extensible data model; RDBMS features to join by station, spatial, feature and temporal IDs.
- Site details in info window for each station.

Access URL: URL: <http://unixlab.sfsu.edu/~pdunn/GEOG625HTMLLabProject.htm>

Repository: <https://github.com/Geog6252016/CCEWProject>

Data Sources:

Temperature metadata (requires update – see webpage):

http://www.fs.fed.us/psw/topics/water/caspar/cdrom4/temperature/temperature_readme.html

Rainfall metadata (requires update – see webpage):

http://www.fs.fed.us/psw/topics/water/caspar/cdrom4/rainfall/rainfall_readme.html

Preprocessing: TBD

Sample files:

Precipitation: <http://www.fs.fed.us/psw/topics/water/caspar/cdrom4/rainfall/instantaneous/>

Sample format:

| DATE | TIME | PPT | CODE |
|------------|----------|--------|------|
| 08/06/1999 | 03:14:18 | 0.0100 | 00 |
| 08/06/1999 | 06:14:53 | 0.0100 | 00 |
| 08/08/1999 | 23:40:32 | 0.0100 | 00 |
| 08/10/1999 | 19:45:39 | 0.0100 | 00 |
| 08/10/1999 | 23:01:20 | 0.0100 | 00 |
| 08/11/1999 | 02:19:50 | 0.0100 | 00 |
| 08/11/1999 | 05:09:39 | 0.0100 | 00 |
| 09/09/1999 | 09:08:17 | 0.0100 | 00 |
| 09/09/1999 | 09:11:48 | 0.0100 | 00 |

Sample files:

Temperature [only 2 sites (ARF & QUE) are listed online]:

<http://www.fs.fed.us/psw/topics/water/caspar/cdrom4/temperature/hourly/>

Sample format:

| DATE | TIME | ATEMP | WTEMP | CODE |
|------------|-------|-------|-------|------|
| 08/01/1999 | 00:00 | 12.71 | 13.20 | 00 |
| 08/01/1999 | 01:00 | 12.59 | 13.13 | 00 |
| 08/01/1999 | 02:00 | 12.51 | 13.04 | 00 |
| 08/01/1999 | 03:00 | 12.36 | 13.04 | 00 |
| 08/01/1999 | 04:00 | 12.41 | 12.97 | 00 |
| 08/01/1999 | 05:00 | 12.31 | 12.95 | 00 |
| 08/01/1999 | 06:00 | 12.29 | 12.90 | 00 |
| 08/01/1999 | 07:00 | 12.54 | 12.83 | 00 |
| 08/01/1999 | 08:00 | 12.99 | 12.88 | 00 |
| 08/01/1999 | 09:00 | 13.32 | 12.90 | 00 |
| 08/01/1999 | 10:00 | 15.51 | 13.13 | 00 |
| 08/01/1999 | 11:00 | 16.87 | 13.46 | 00 |
| 08/01/1999 | 12:00 | 18.18 | 13.72 | 00 |
| 08/01/1999 | 13:00 | 19.38 | 14.14 | 00 |

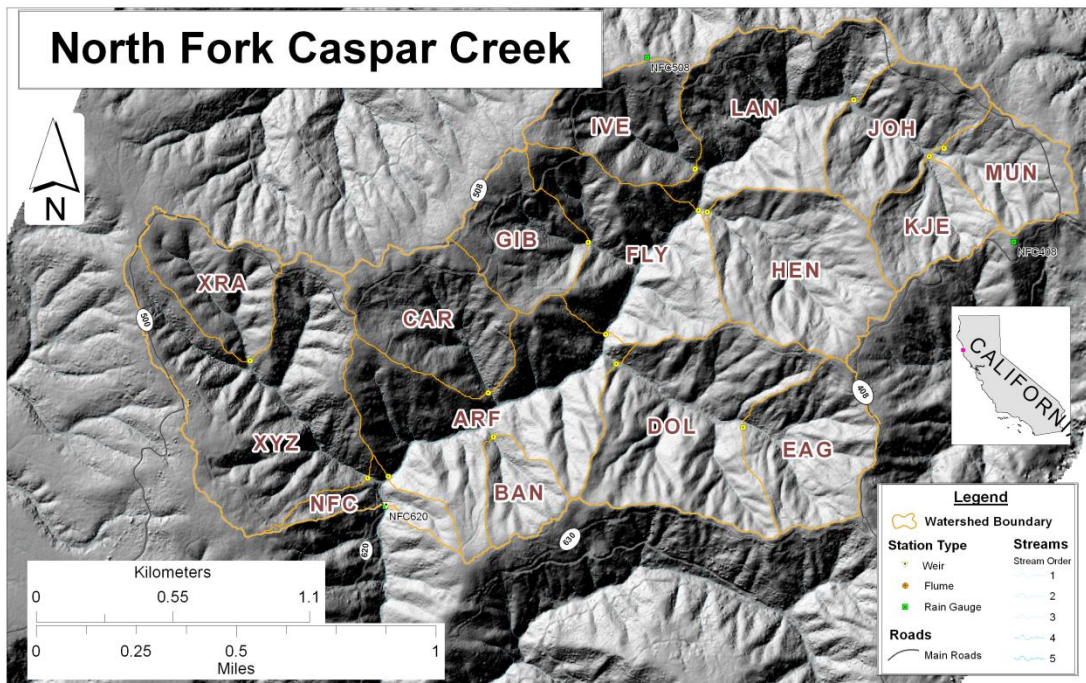


Figure 1: North Fork CCEW Precipitation Stations

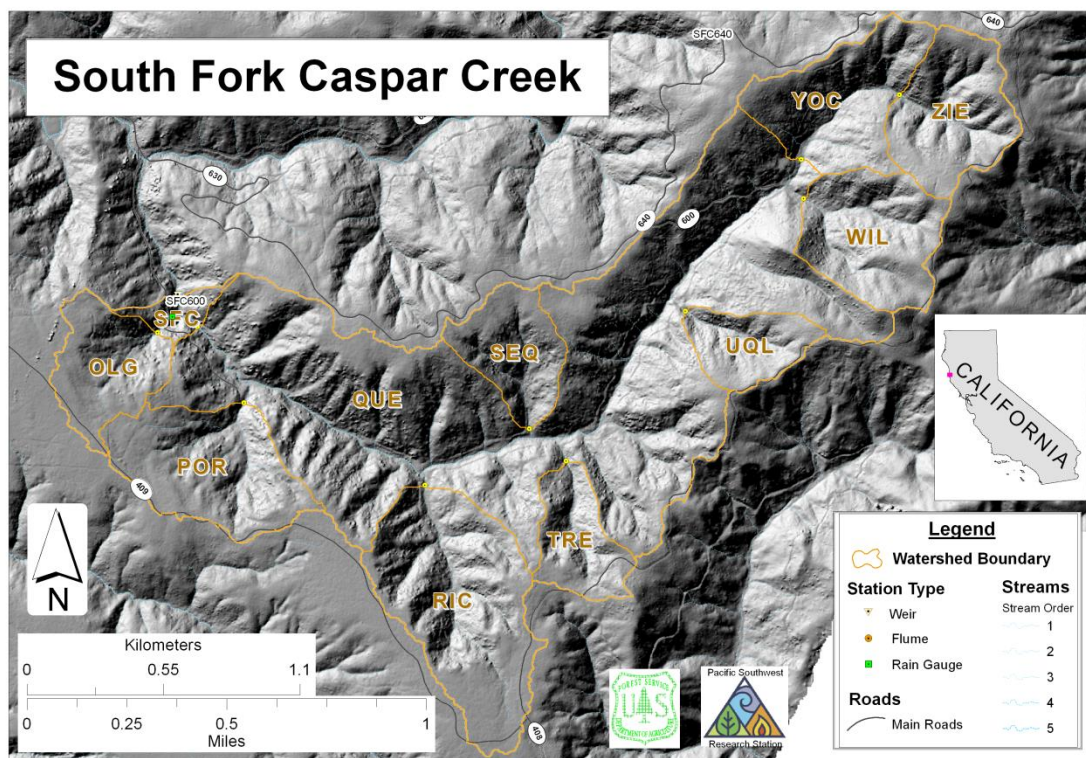


Figure 2: South Fork CCEW Precipitation Stations

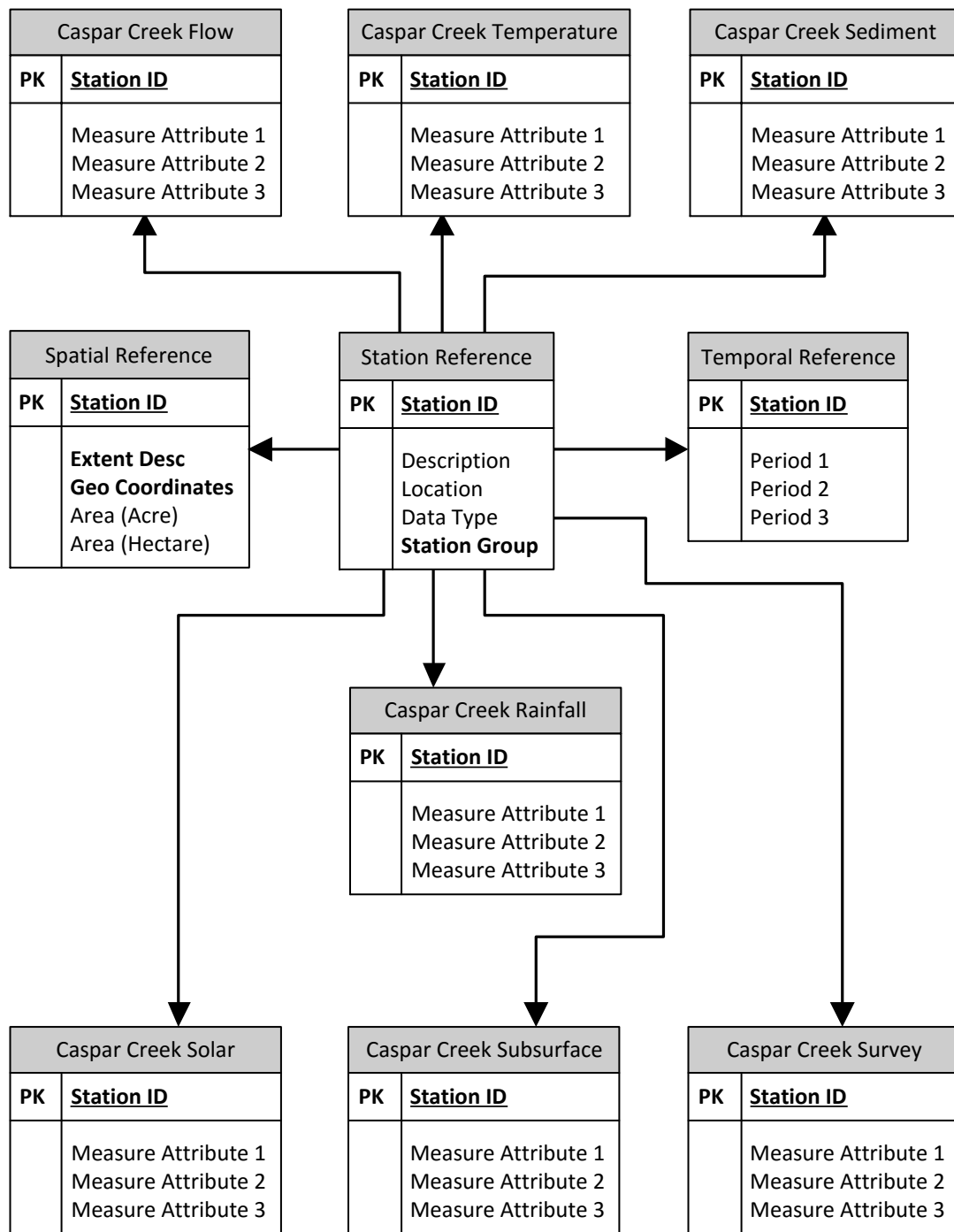


Figure 3: Conceptual Data Model