
well-n-calm Documentation

Release 0.0.1

Seogi Kang

Mar 08, 2019

Contents

1	Contents:	3
2	Feedback:	7
3	Contributors:	9

The well-n-calm is a resource to guide archiving various well data related to groundwater problems in California. Currently, it is focused to provide a consistent format to organize compiled well data in Environmental Geophysics group at Stanford. We share our lessons learned to compile well data in our group for past 5 years while solving groundwater problems in California. List of major projects including well data are:

- Butte
- Kaweah (Tulare)
- Indian Wells Valley
- San Louis Obispo

With the organization of well data in these projects, we also develop a basic python code base such that one can easily explore the existing data sets, import new data, and export the data sets to various formats (e.g. LAS, CSV).

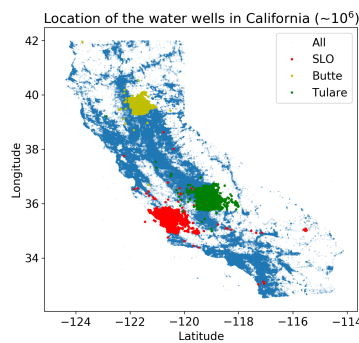


Fig. 1: Location of the water wells in California. Around milllon wells are plotted.

1.1 Data Sources

1.1.1 WCR

Well Completion Report (WCR)

- Provider: California Department of Water Resources (DWR)
- Data types: PDF version of Lithology logs and geophysical logs (not discretized as readable to computer; ~10⁶)
- **Web links:**
 - <https://data.ca.gov/dataset/well-completion-reports>

1.1.2 CASGEM

The California Statewide Groundwater Elevation Monitoring (CASGEM) Program

- Provider:
- Data types:
- **Web links:**
 - <https://water.ca.gov/Programs/Groundwater-Management/Groundwater-Elevation-Monitoring-CASGEM>

1.1.3 DOGGR

Division of Oil, Gas, and Geothermal Resources (DOGGR)

- Provider: California Department of conservation

- Data types: lithology logs, geophysical logs (resistivity, self-potential, gamma, ...)
- **Web links:**
 - <https://www.conservation.ca.gov/dog/Pages/WellFinder.aspx>

1.1.4 GAMMA

Groundwater Ambient Monitoring and Assessment (GAMMA) Program

- Provider: California Water Boards
- Data types: water quality data (~282,000 wells)
- **Web links:**
 - https://www.waterboards.ca.gov/water_issues/programs/gama/about.html

1.1.5 SGMA

Sustainable Groundwater Management Act (SGMA).

- Provider: California Department of Water Resources (DWR)
- Data types:
- **Web links:**
 - https://www.waterboards.ca.gov/water_issues/programs/gama/about.html

1.1.6 EM resistivity

- SkyTEM
- towed-TEM

1.2 Data Format

To organize the well data, we consider two different file formats:

1. Interval file
2. Collar file

1.2.1 Common Variables

- Project:
- ID:
- ReferenceDepth:
- From:
- To:
- Projection

- Zone
- X:
- Y:

1.3 Data Types

- Lithology log
- Water level data
- Water quality data (e.g. total dissolved solids(TDS))

1.4 Data explorer

Data explorer is a python code base which allows us to explore the organized well data connected to specific projects in our Environmental Geophysics group.

1.5 Lessons Learned

Exploring well data in California, and convert them into a usable format such that one can extract useful information about groundwater is not simple. Main roadblock for this is ...

CHAPTER 2

Feedback:

Have comments or suggestions? Submit feedback [here](#).

CHAPTER 3

Contributors:

- Akash Ahamed
- Alex Kendrick
- Ian Gottschalk
- Matt Lees
- Meredith Goebel
- Noah Dewar
- Rosemary Knight
- Seogi Kang ([@sgkang](#))