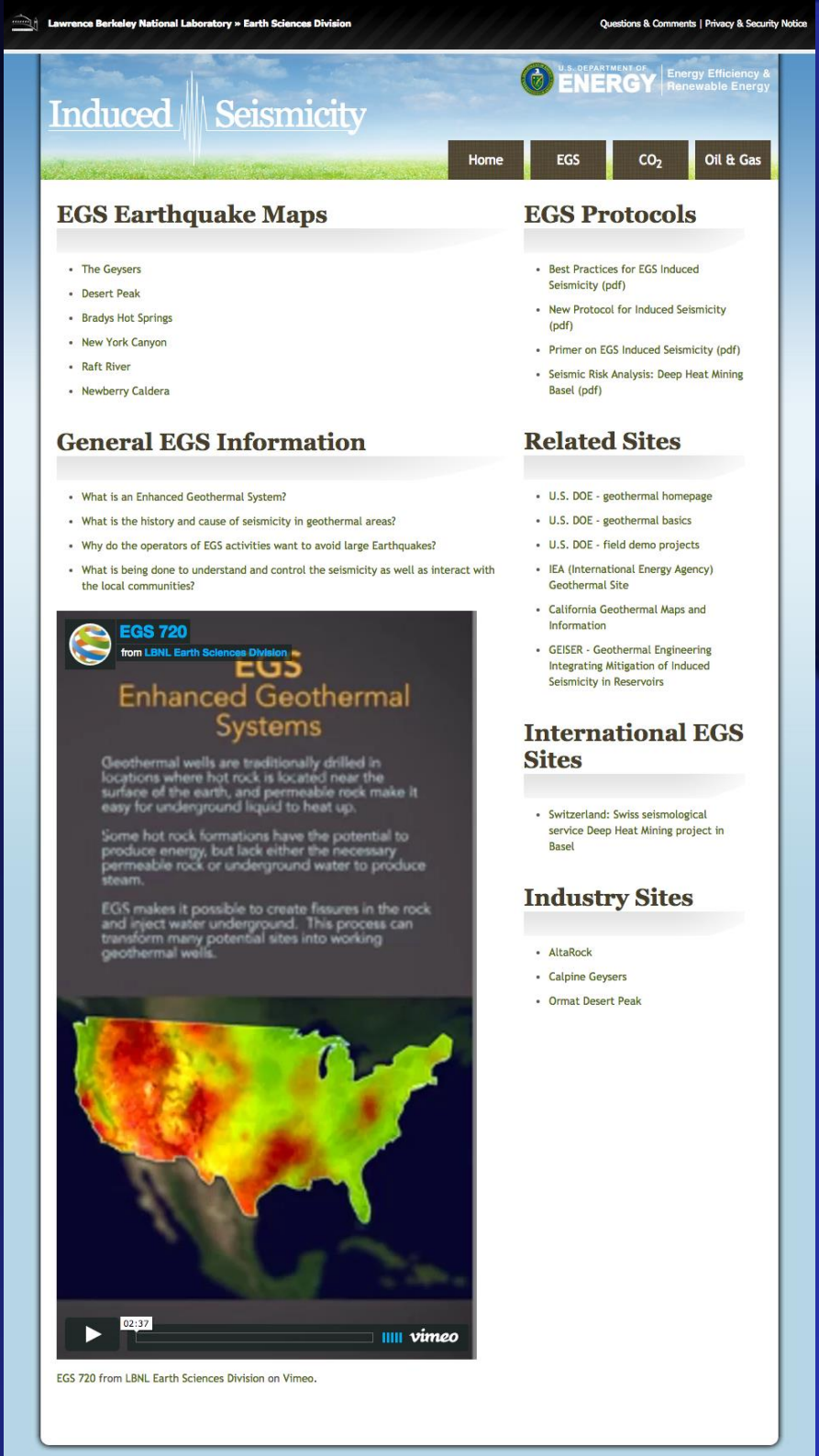
LBNL SMAC Update May 9, 2016

- Operational update
- Initiative update
- A little bit of science
  - The 2014 Mag 6.0 EQ
- Funding update

Operational update

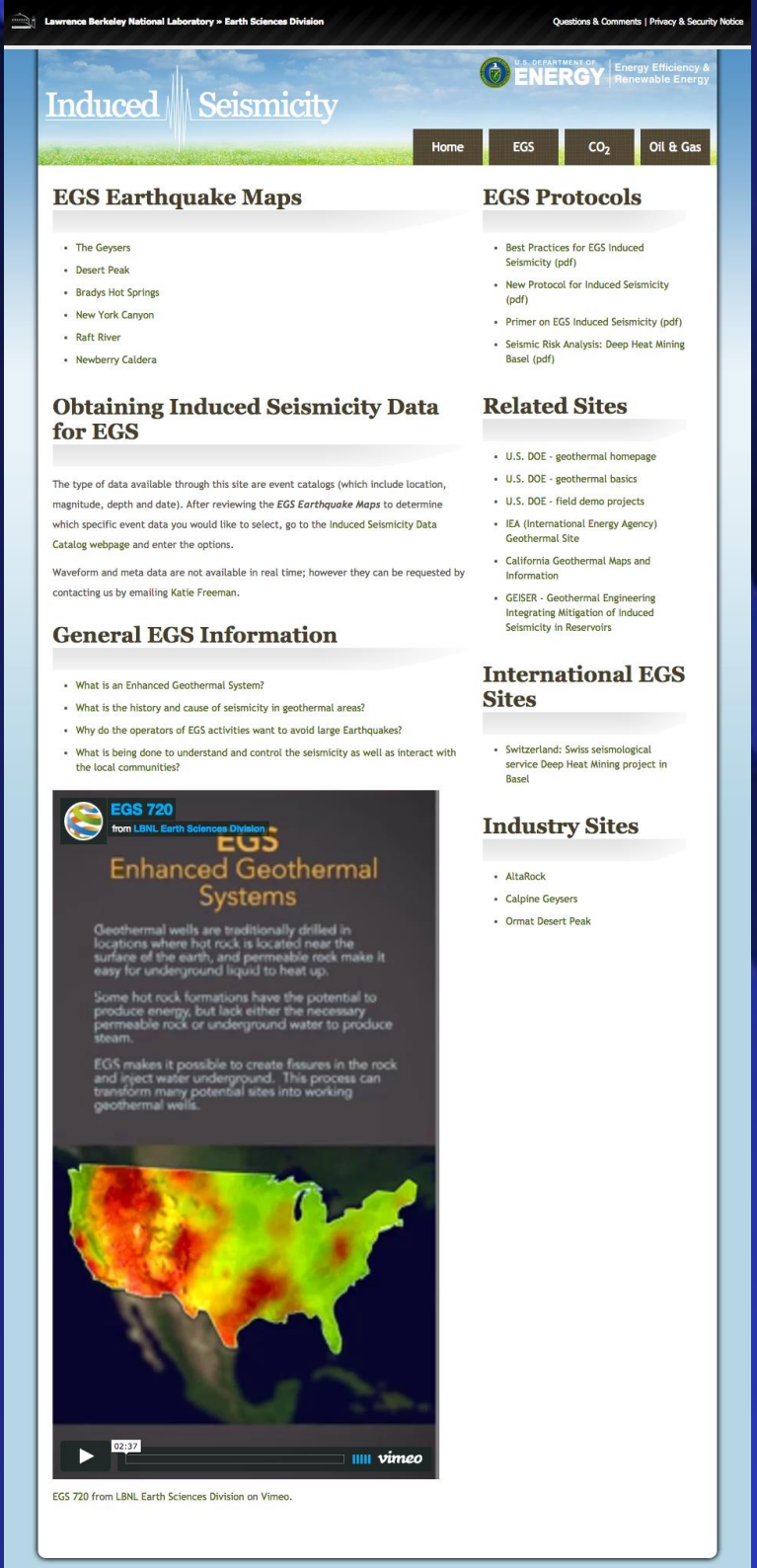
- Current Array (all operational after fire)
  - 34 permanent 3-c station
  - 5 Temp stations around EGS well (Prati 32/31)
- SE part of array augmented with former 500 ft. deep Alta Rock boreholes. All five now instrumented.
- Calpine working with USGS on strong motion data collection
- Web site access
- Adding US geothermal stations (5) on west edge of the production zone (Plant 15)

Current web site



New web site

Operational on June 1,
will Include all data from 2002 to present time.



Induced Seismicity

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Welcome to the Induced Seismicity Data Catalog. Users can request access to data related to induced seismicity for specific networks which are currently being monitored by researchers from the Lawrence Berkeley National Laboratory, Energy Geosciences Division. More Information about these networks (earthquake maps and data) are found under the Enhanced Geothermal Systems (EGS) tab on the Induced Seismicity website.

The form below will return a text file containing the earthquake catalog corresponding to the parameters entered in the form.

Select Network:	Bradys			
Dates (MMDDYY):	Start:		End:	
Decimal Latitude:	Bottom:		Top:	
Decimal Longitude:	Left:		Right:	
Magnitude:	Minimum:		Maximum:	

Submit

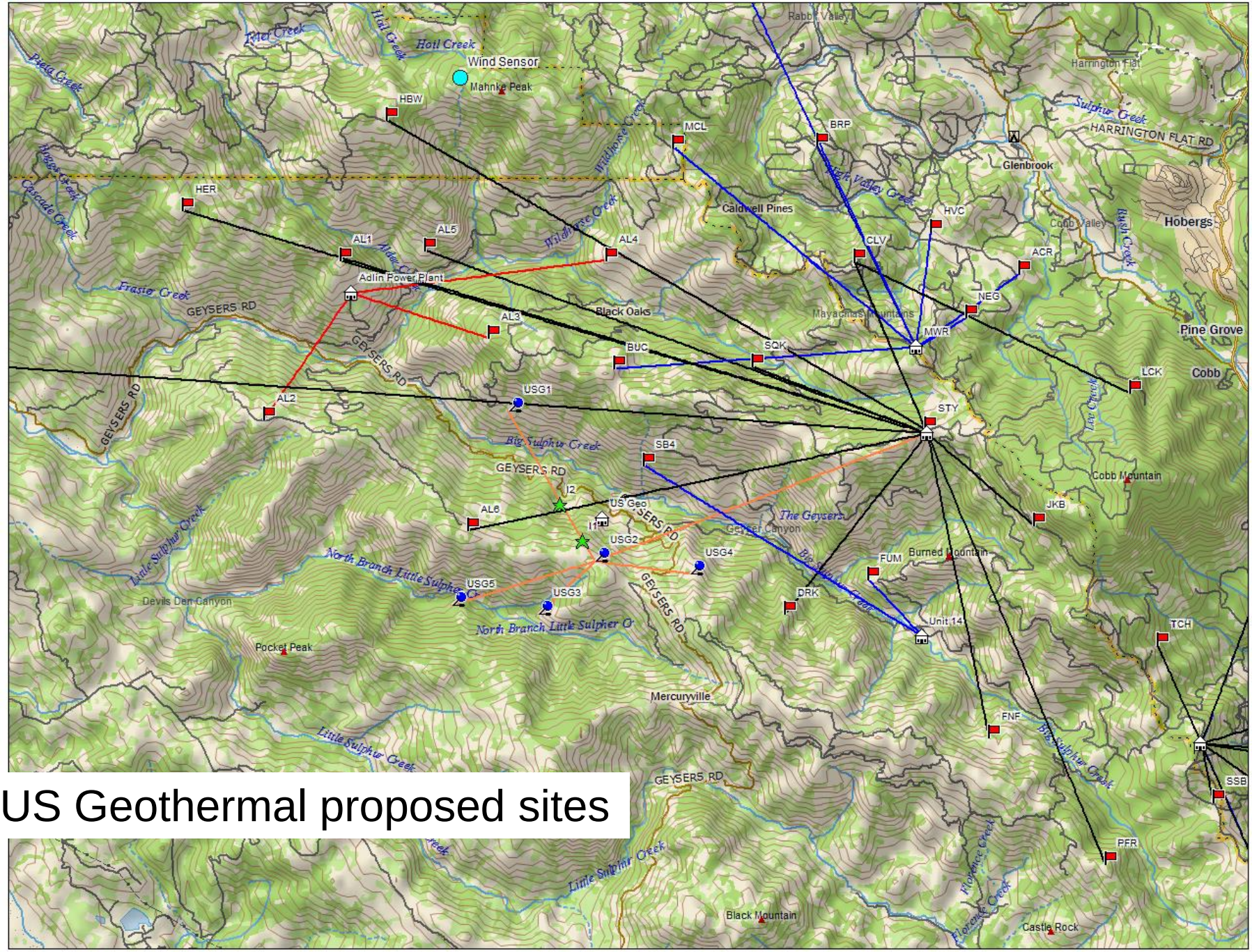
Note: Search options are optional. If no options are entered, all earthquakes will be returned. This is not recommended for the Geysers due to the large number of earthquakes in the catalog.

Return to Induced Seismicity Web Site

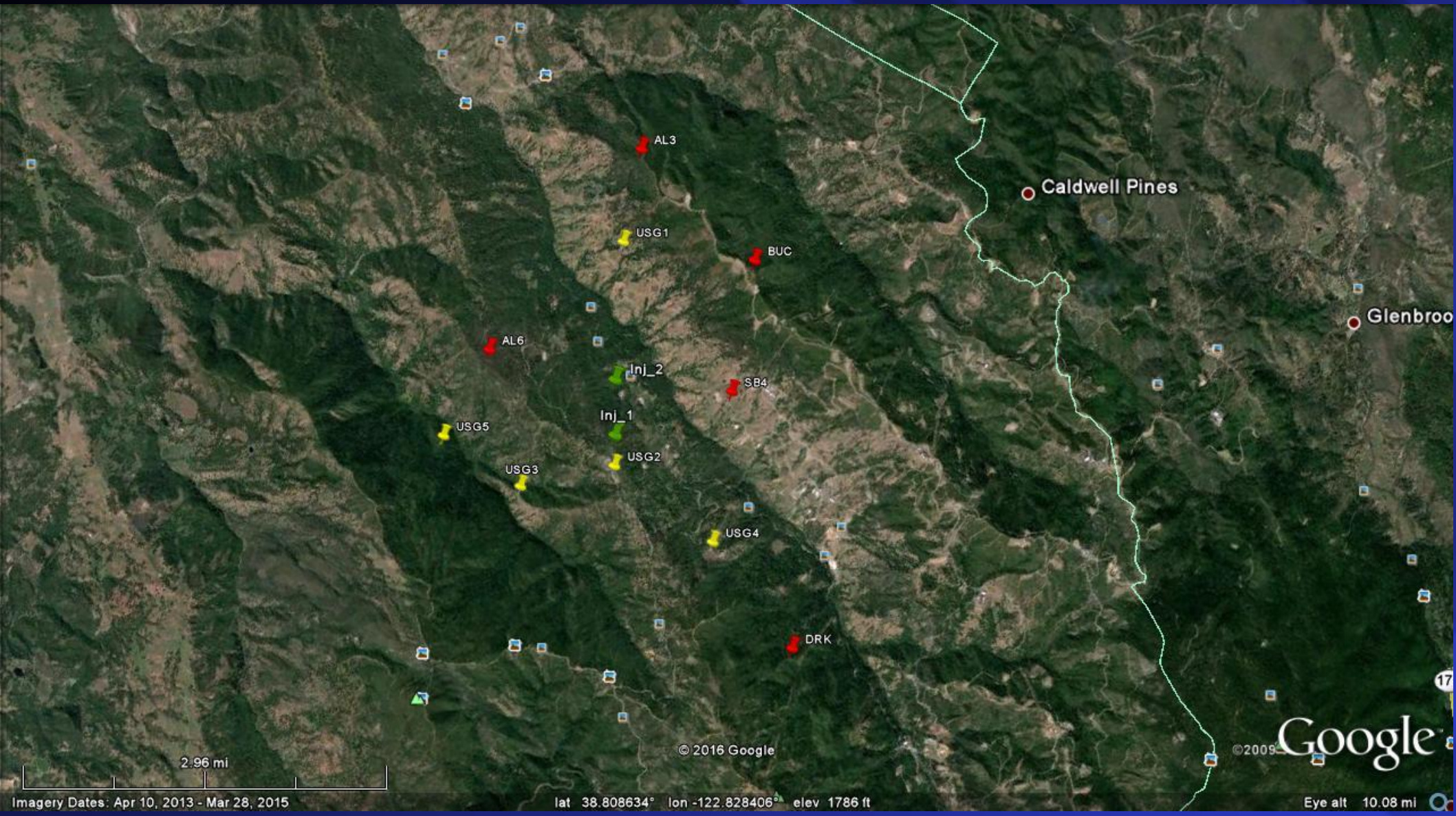
Please use this statement in your publication acknowledgments:
This material is based upon work supported by the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy (EERE), Office of Renewable Power, Geothermal Technologies Office, by Lawrence Berkeley National Laboratory under Award Number DE-AC02-05CH11231.

To request waveform data, or for additional information, contact Steve Jarpe.

New page on website



US Geothermal proposed sites

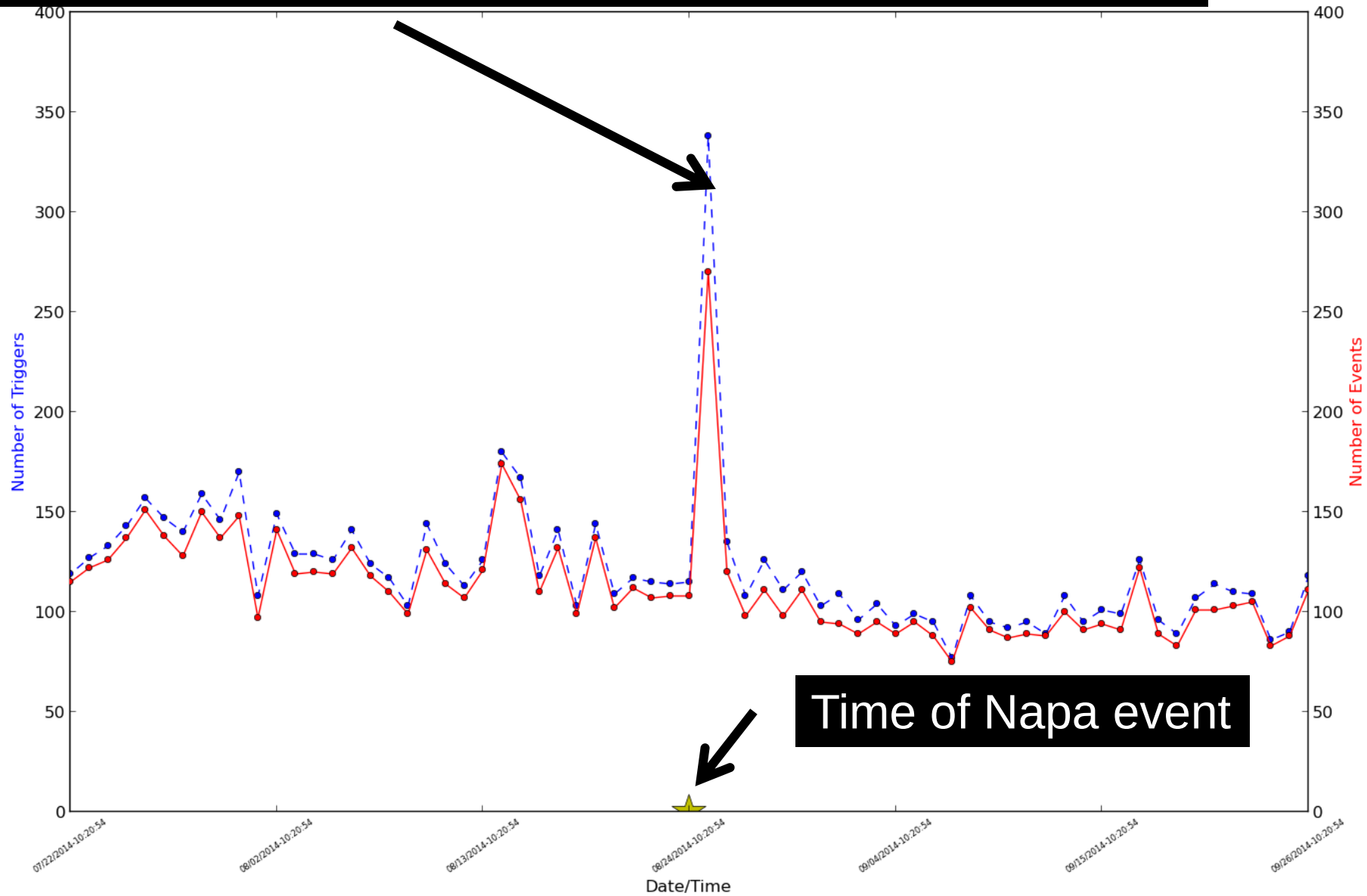

AL3
Caldwell Pines
USG1
BUC
Glenbroo
AL6
Inj_2
SB4
Inj_1
USG5
USG2
USG3
USG4
DRK
© 2016 Google
2.96 mi
Imagery Dates: Apr 10, 2013 - Mar 28, 2015
lat 38.808634° lon -122.828406° elev 1786 ft
Eye alt 10.08 mi
Google

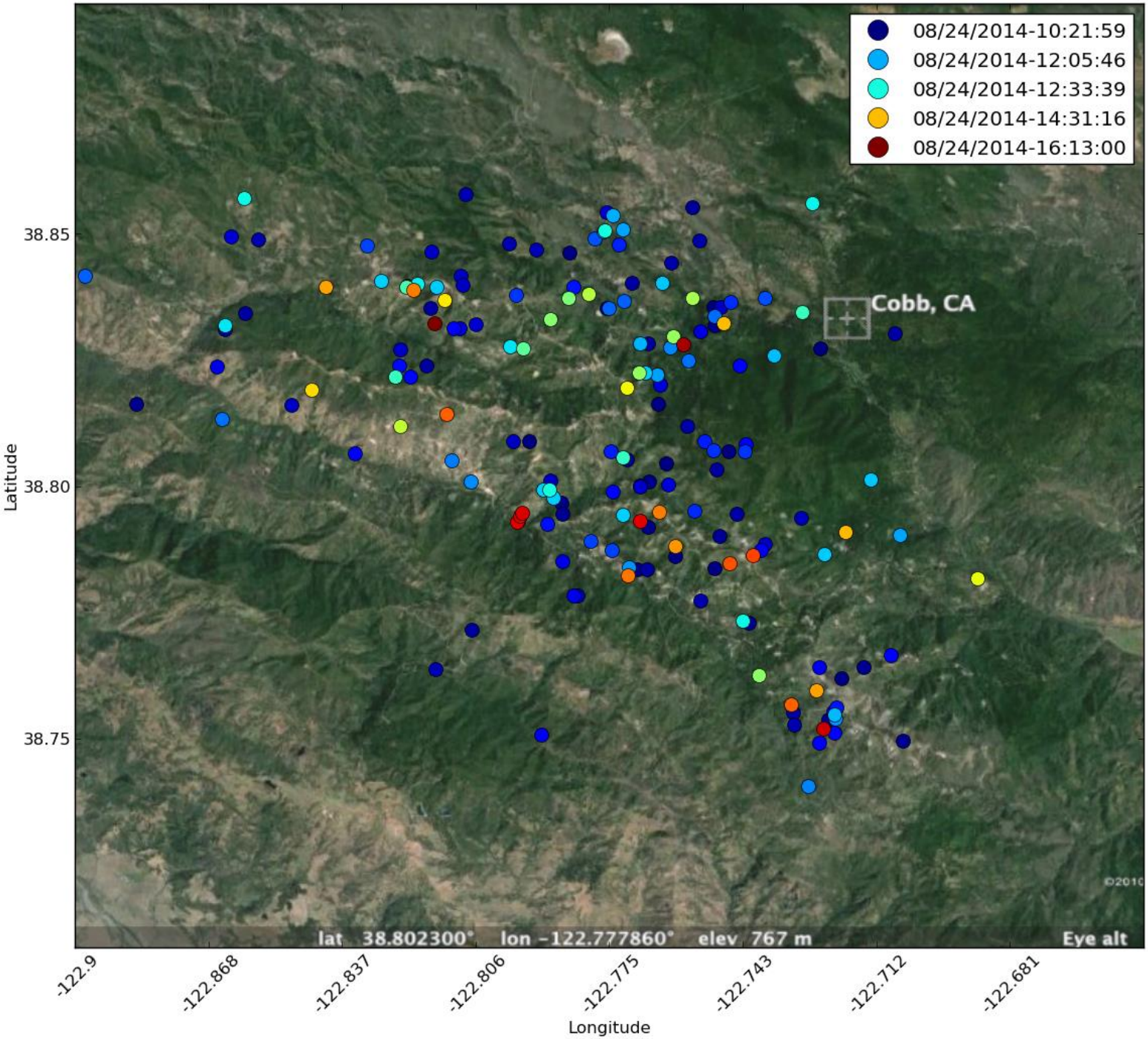
- Two new initiatives in DOE that will have Induced seismicity as one of the main focus areas
  - FORGE(Frontier Observatory for Research in Geothermal Energy) (10 year effort)
    - Dedicated field site for understanding EGS
    - LBNL and USGS involved in two potential sites (Fallon Nevada and Coso, California)
  - SubTER (Grand challenges in subsurface engineering)
    - Proposal by Array Information Technology (with Calpine, USGS, LBNL) to DOE for application of Fiber Optic sensors to measure Deformation with MEQ and strain at The Geysers, Submitted on May 5,2016

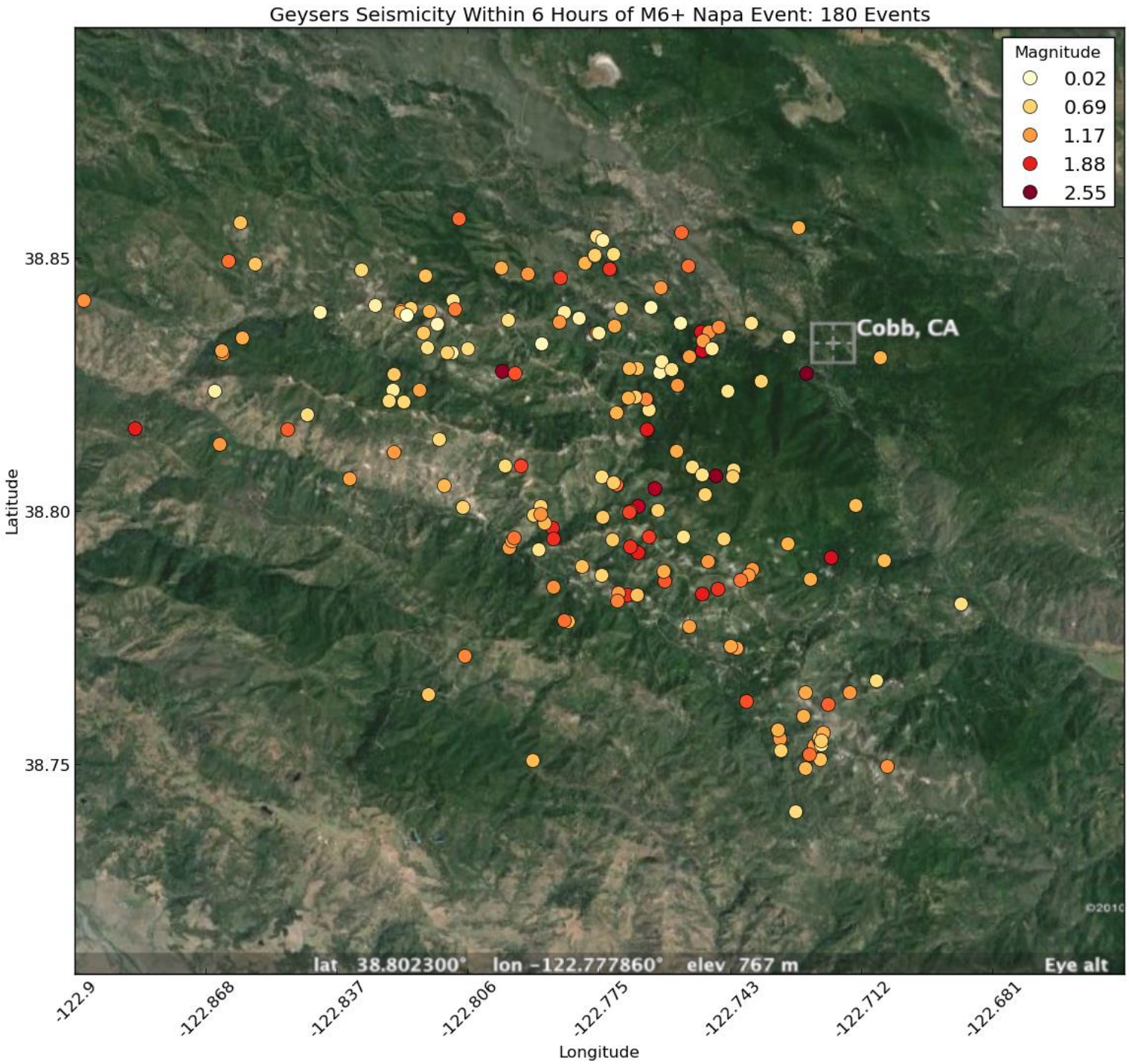
Effect of Aug 2014 “Napa” Mag 6.0 (Katie Freeman)

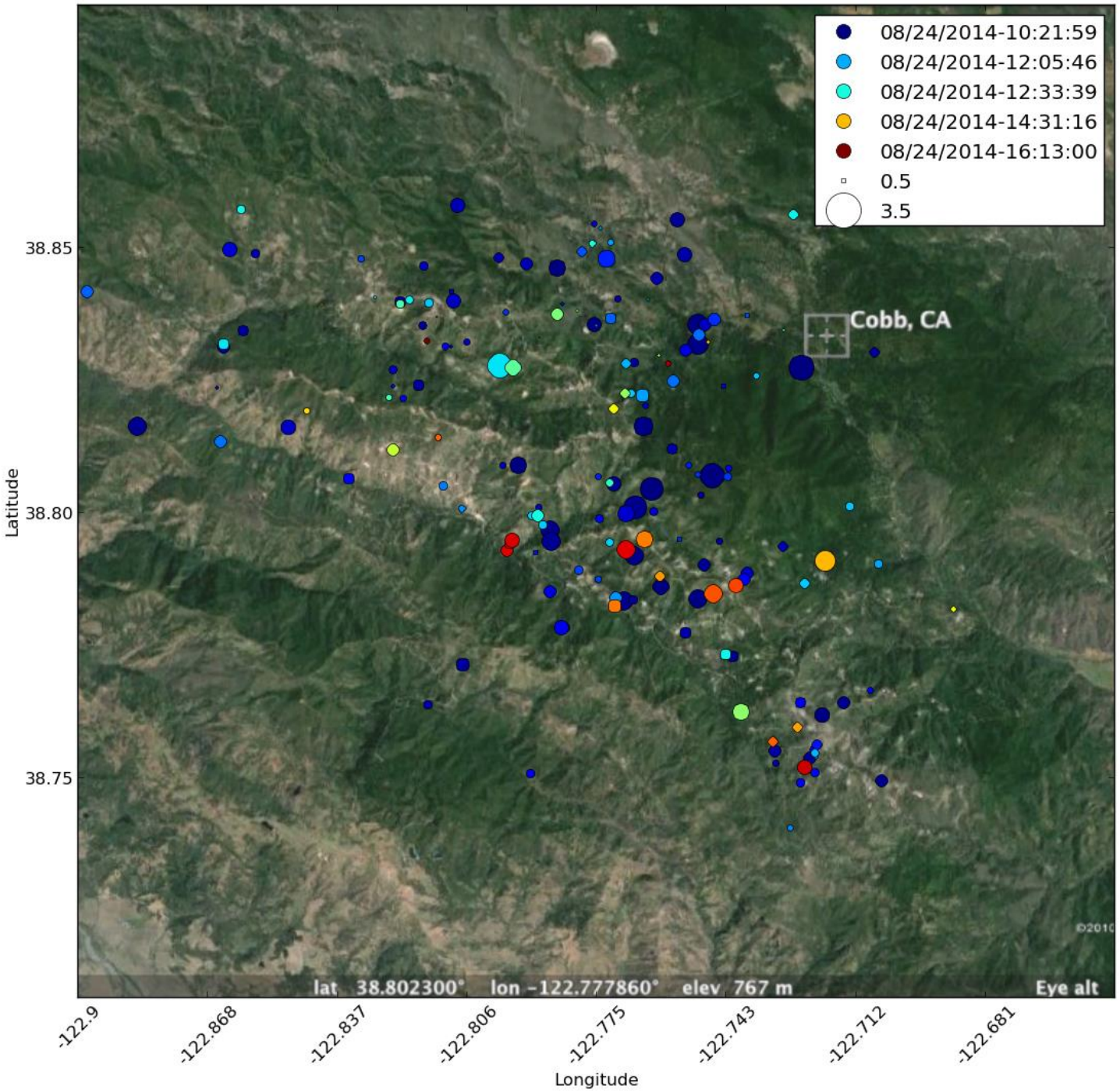
- There have been observations of large distant events triggering smaller events (not just at The Geysers)
- The Japan Mag 9 did not trigger any events at The Geysers (when the energy from the Mag 9 event went by)
- We investigated if the Napa vent did “trigger” local events

Notice large spike in events directly after the Napa event

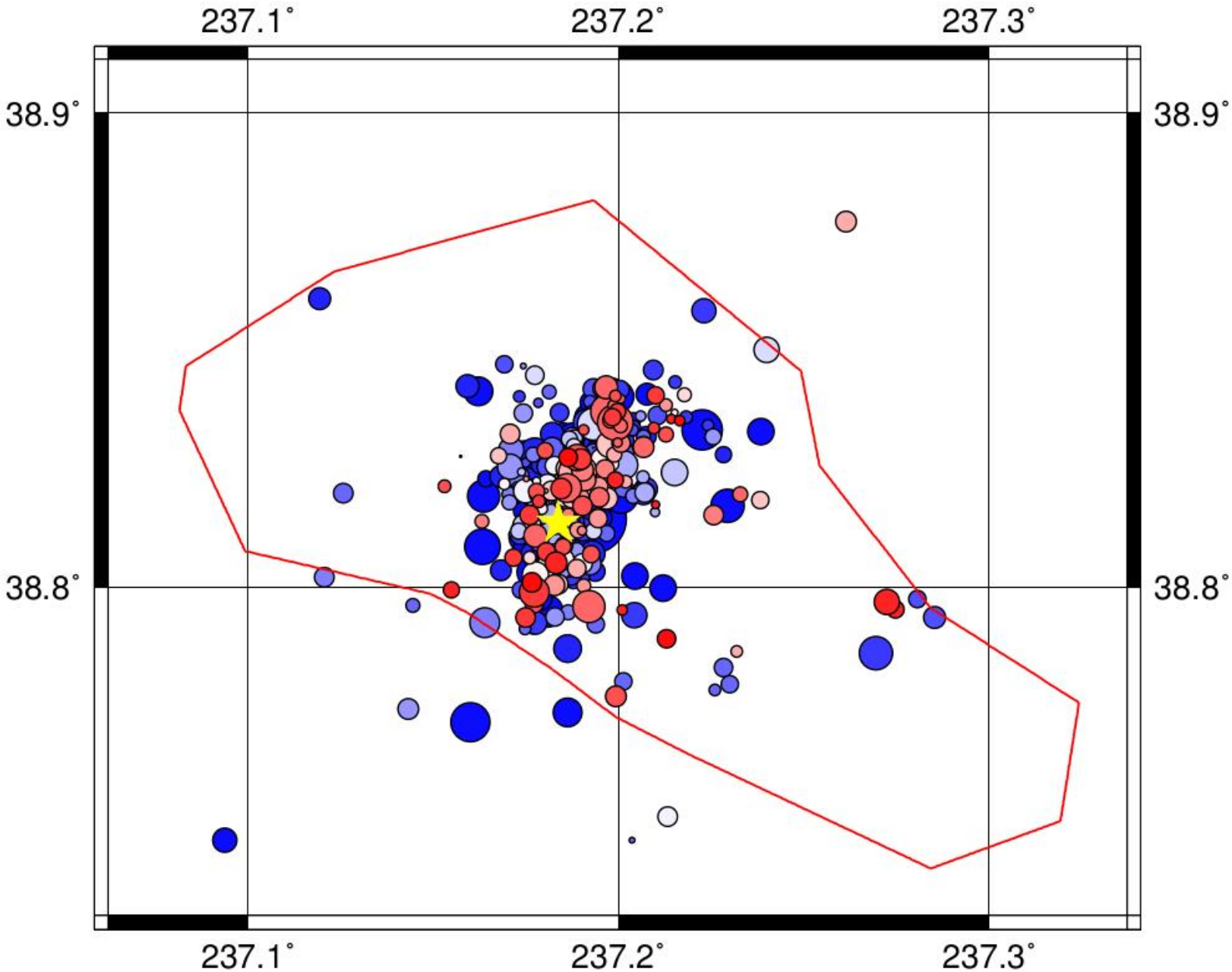



08/24/2014-10:21:59
08/24/2014-12:05:46
08/24/2014-12:33:39
08/24/2014-14:31:16
08/24/2014-16:13:00
Cobb, CA
lat 38.802300° lon -122.777860° elev 767 m
Eye alt
38.85
38.80
38.75
Latitude
-122.9
-122.868
-122.837
-122.806
-122.775
-122.743
-122.712
-122.681
Longitude


Geysers Seismicity Within 6 Hours of M6+ Napa Event: 180 Events
Magnitude
0.02
0.69
1.17
1.88
2.55
Cobb, CA
38.85
38.80
38.75
Latitude
-122.9
-122.868
-122.837
-122.806
-122.775
-122.743
-122.712
-122.681
Longitude
lat 38.802300° lon -122.777860° elev 767 m
Eye alt


08/24/2014-10:21:59
08/24/2014-12:05:46
08/24/2014-12:33:39
08/24/2014-14:31:16
08/24/2014-16:13:00
0.5
3.5
Cobb, CA
38.85
38.80
38.75
Latitude
-122.9
-122.868
-122.837
-122.806
-122.775
-122.743
-122.712
-122.681
Longitude
lat 38.802300° lon -122.777860° elev 767 m
Eye alt

M 4.53 Event



Funding Update

- DOE extended the Lake County Project to Dec 31 2016
- DOE did not extend the data archival effort at the NCEDC
- We have requested FY17 funding to continue data collection after the Lake county project funds are used up (early 2017)