

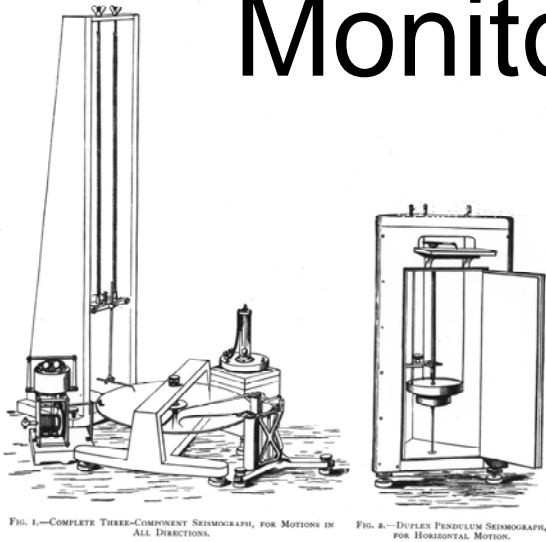
# The Berkeley Digital Seismic Network

B. Romanowicz, D. Dreger, D. Neuhauser,  
W. Karavas, M. Hellweg, R. Uhrhammer, P.  
Lombard, J. Friday, R. Lellinger, J.  
Gardner, R. McKenzie and C. Bresloff

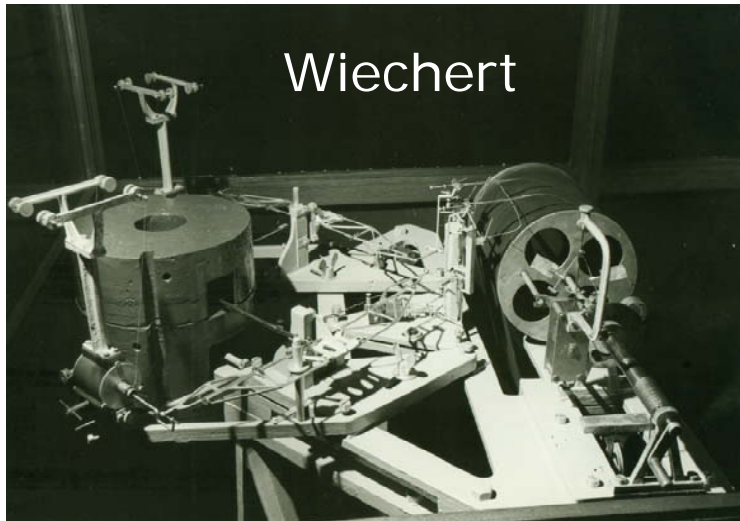
**Berkeley Seismological  
Laboratory**



# Monitoring EQs since 1887



Ewing



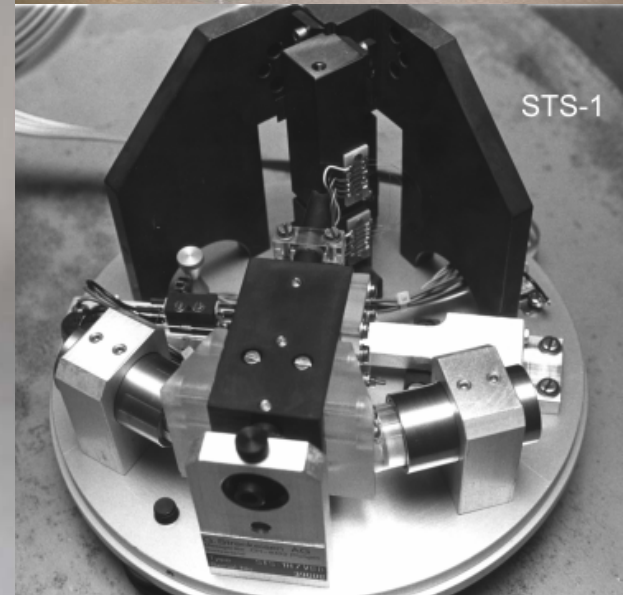
Wiechert



Wood-Anderson

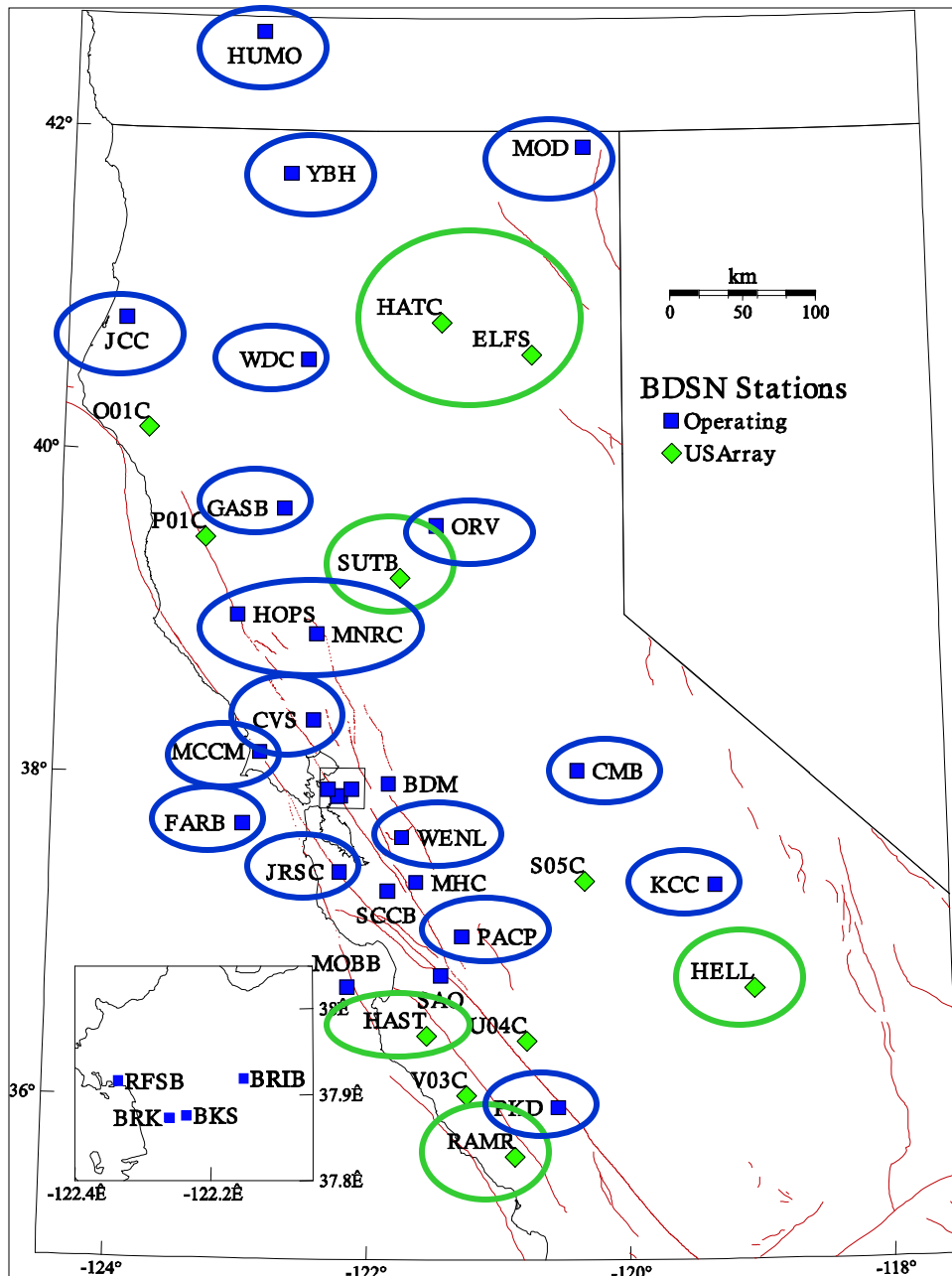


Benioff



STS-1

# Current BDSN Instrumentation

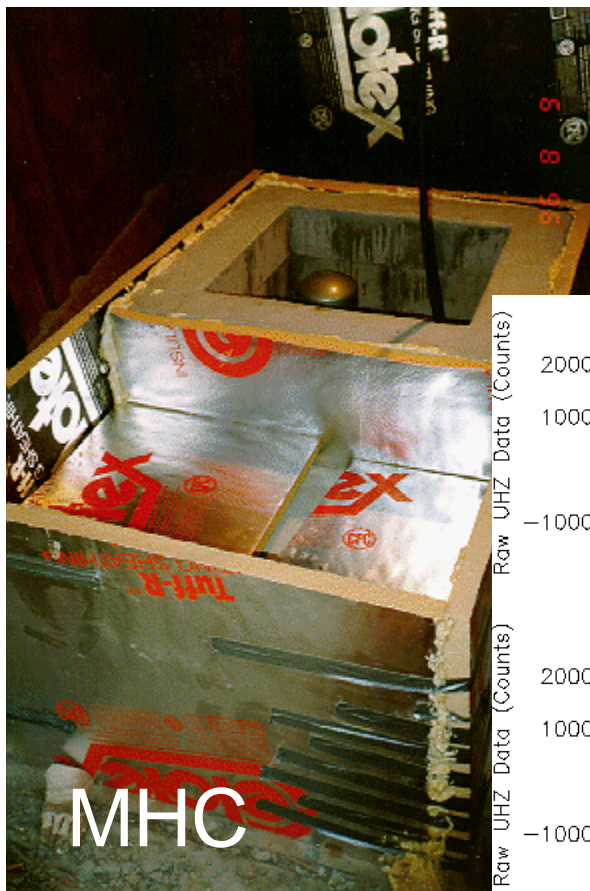


- 26 BB stations
- 1 BB-OBS station
- 2 SM stations
- 19 Stations to USArray
- 6 USArray RT feeds

# BDSN Station Installation

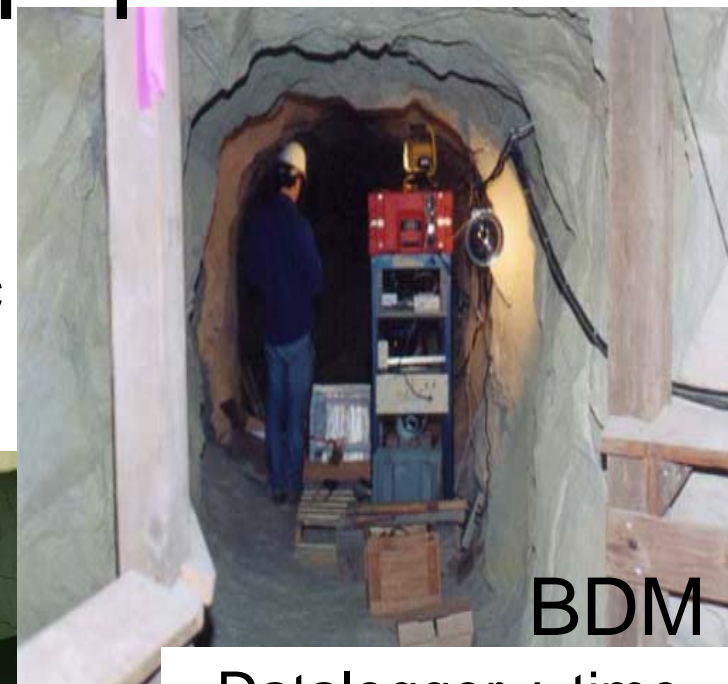
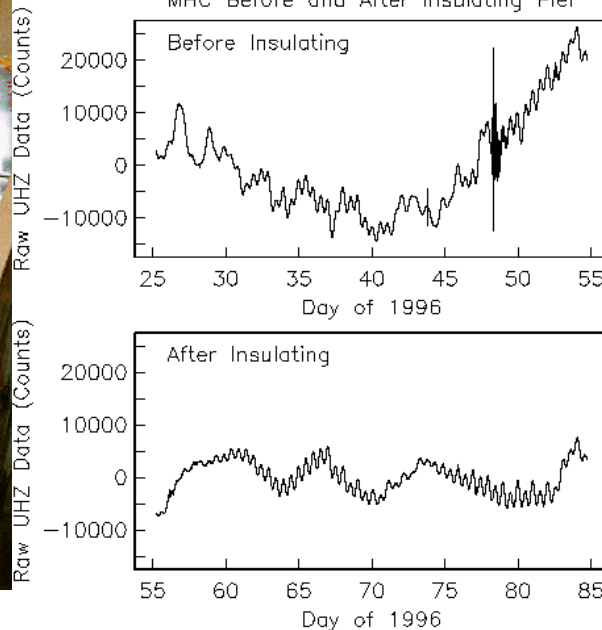


# BDSN Station Equipment



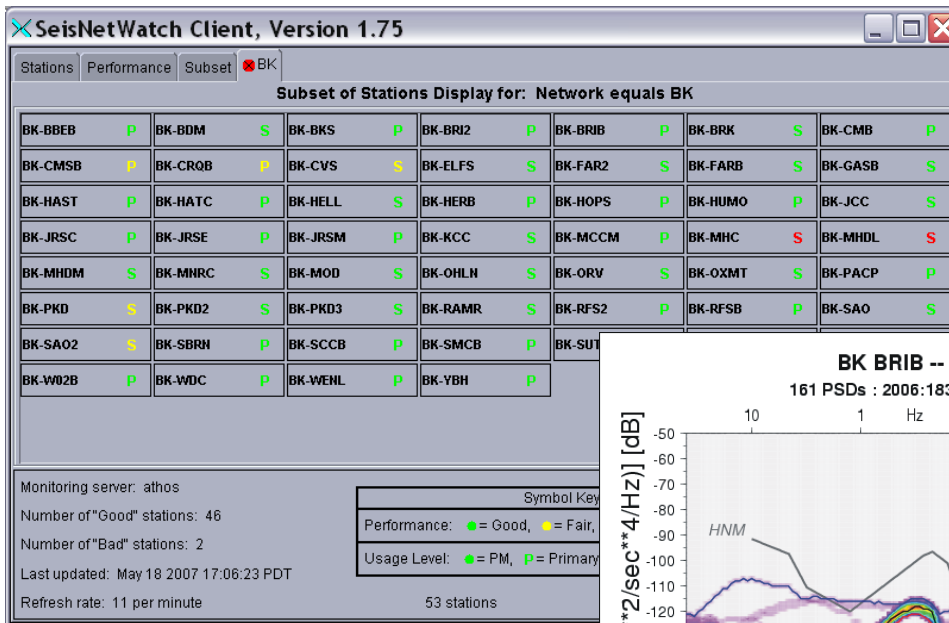
BB seismometer  
Accelerometer  
▶ >200 dB dynamic range

MHC Before and After Insulating Pier

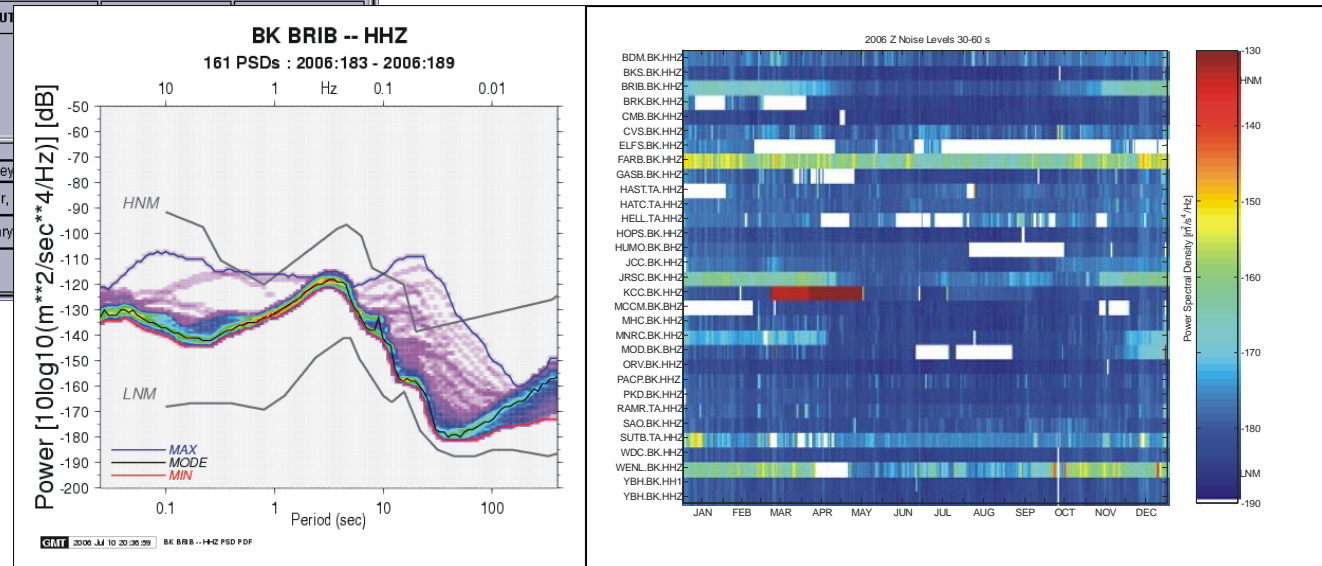


Datalogger + time  
Power supply and  
conditioning,  
Telemetry  
equipment,  
OTHER

# BDSN Station and Network Monitoring



- SNW
- PDFs
- Monitoring software and paging



# BDSN Data Completeness

**Data Completeness Check Window for BK 2007.136**

Seismic Station Select:

<input type="checkbox"/> BBEB	<input type="checkbox"/> BDM	<input type="checkbox"/> BKS	<input type="checkbox"/> BRIB	<input type="checkbox"/> BRK	<input type="checkbox"/> CMB	<input type="checkbox"/> CMSB	<input type="checkbox"/> CRQ
<input type="checkbox"/> FARB	<input type="checkbox"/> GASB	<input type="checkbox"/> HAST	<input type="checkbox"/> HATC	<input type="checkbox"/> HELL	<input type="checkbox"/> HERB	<input type="checkbox"/> HOPS	<input type="checkbox"/> HUM
<input type="checkbox"/> KCC	<input type="checkbox"/> MCCM	<input type="checkbox"/> MHC	<input type="checkbox"/> MHDL	<input type="checkbox"/> MNRC	<input type="checkbox"/> MOD	<input type="checkbox"/> OHLN	<input type="checkbox"/> ORV
<input type="checkbox"/> PKD	<input type="checkbox"/> PKD2	<input type="checkbox"/> RAMR	<input type="checkbox"/> RFSB	<input type="checkbox"/> SAO	<input type="checkbox"/> SBRN	<input type="checkbox"/> SCCB	<input type="checkbox"/> SMC
<input type="checkbox"/> VALB	<input type="checkbox"/> W02B	<input type="checkbox"/> WDC	<input type="checkbox"/> WENL	<input type="checkbox"/> YBH			

Select All           

**Seismic Data QC for BK 2007.137**

File



Version: 1.28 (2006/06/03)  
Network: BK, Date: 2007.137

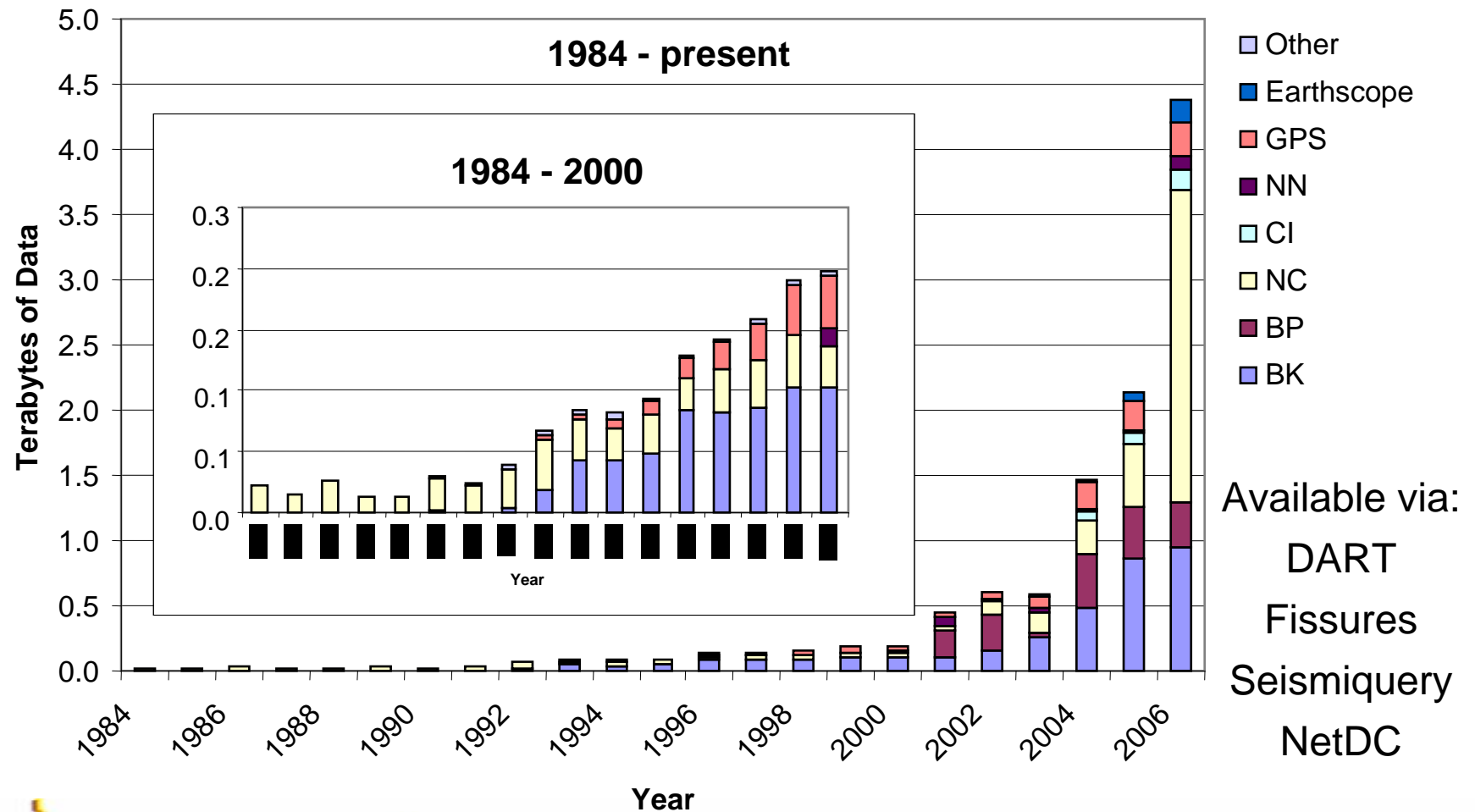
Steps for Quality Control:

Step:	State:	Log:	Finalize:
Data Extraction	idle	See Log	<input type="checkbox"/> Finalize?
Quick Check	idle	See Log	<input type="checkbox"/> Finalize?
Data Completeness Check	idle	See Log	<input type="checkbox"/> Finalize?
SOH Graphics	idle	See Log	<input type="checkbox"/> Finalize?
Timing Correction	idle	See Log	<input type="checkbox"/> Finalize?
Move to Stage	idle	See Log	<input type="checkbox"/> Finalize?
Move to Archive	idle	See Log	<input type="checkbox"/> Finalize?

> 95%

# BDSN (NCEDC) Data Collection, Archival and Availability

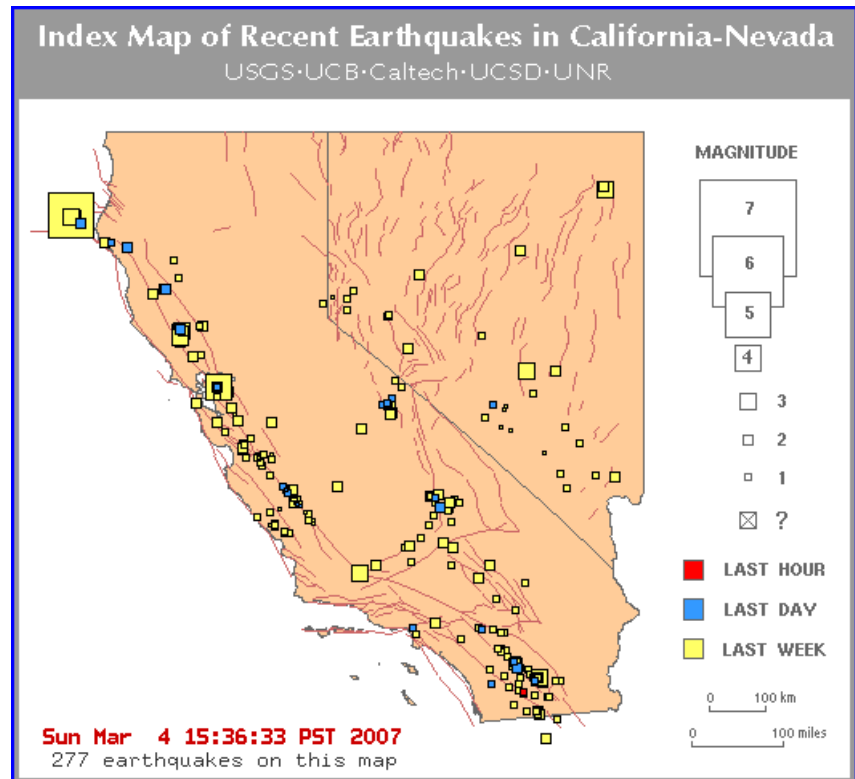
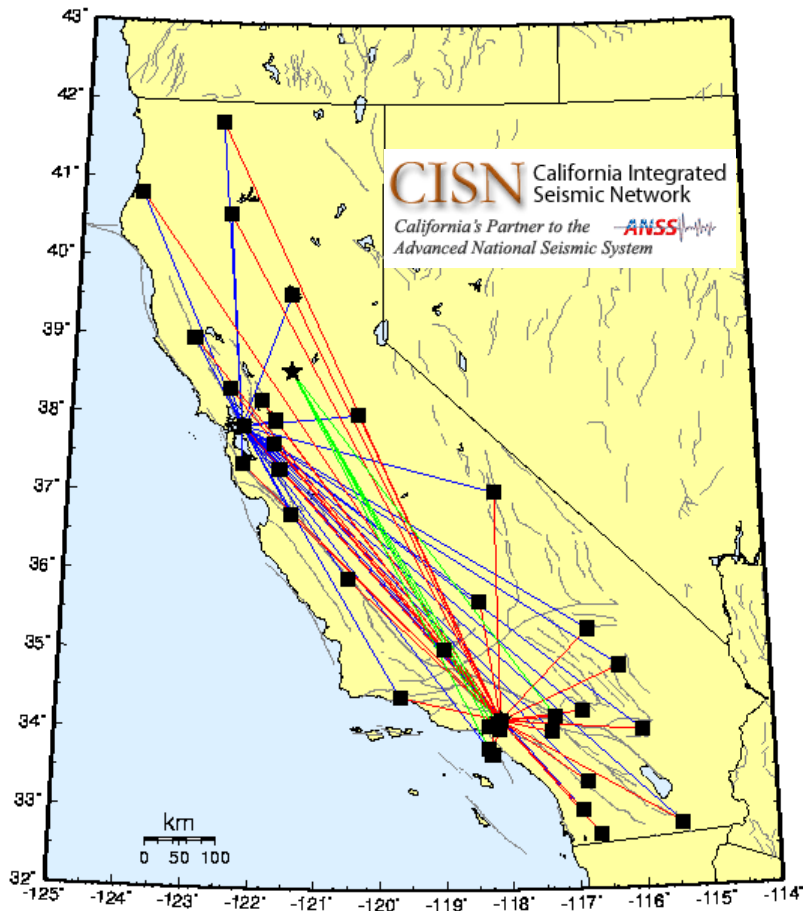
(www.ncedc.org)





# BDSN Realtime Processing and Products

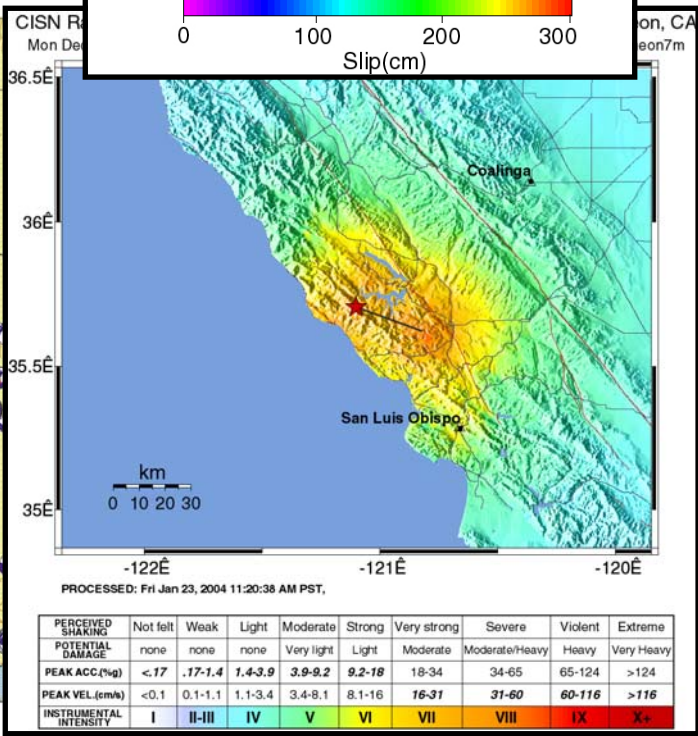
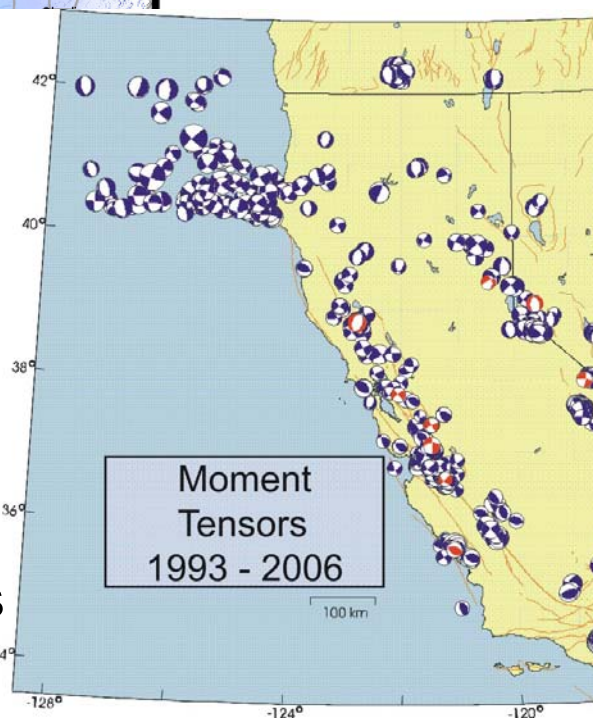
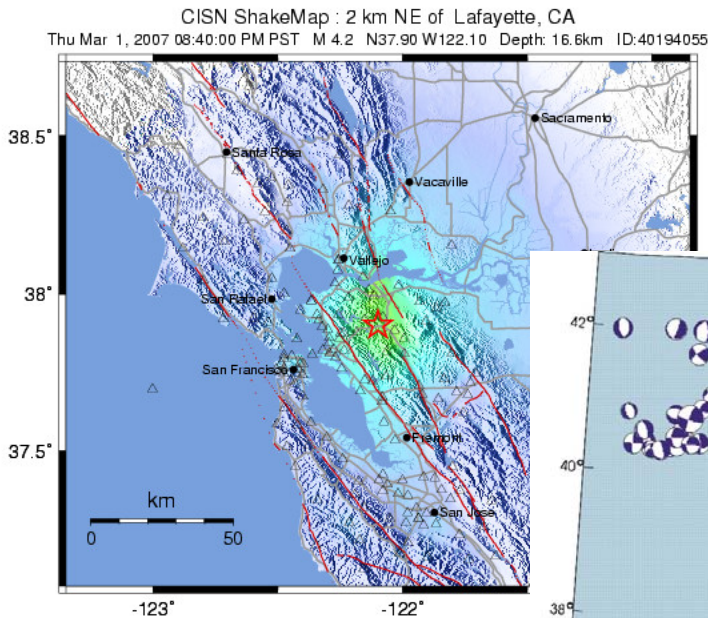
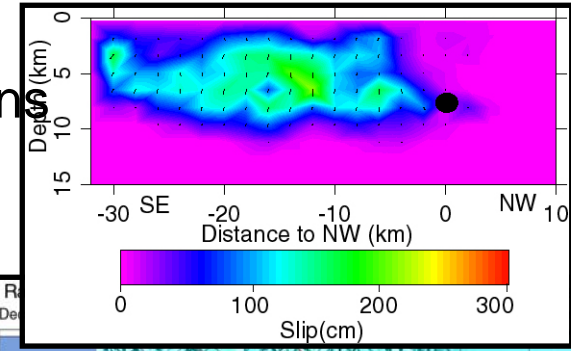
Dual data feeds



Earthquake locations and magnitudes

# BDSN Realtime Processing and Products

## Finite Fault Solution

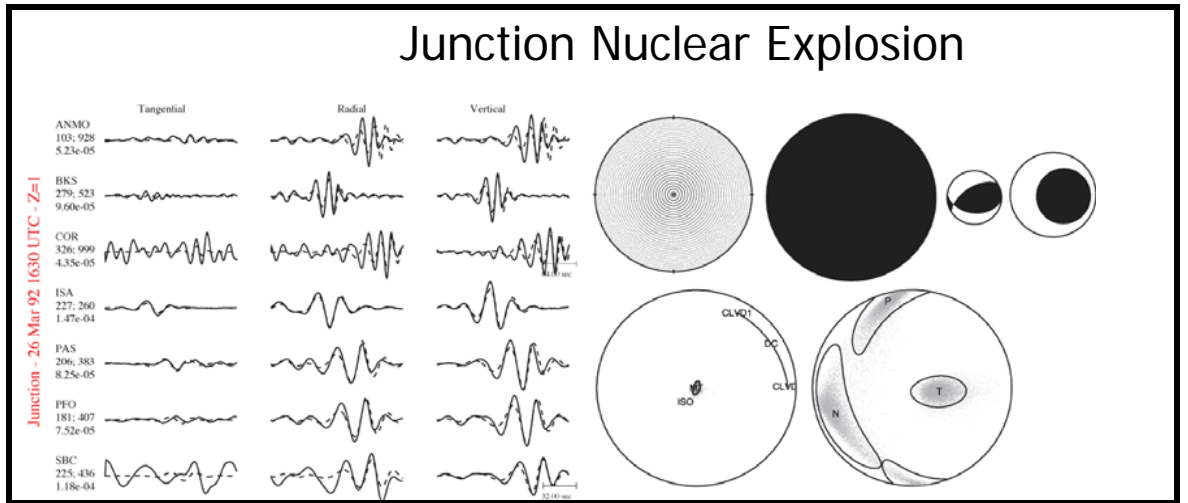
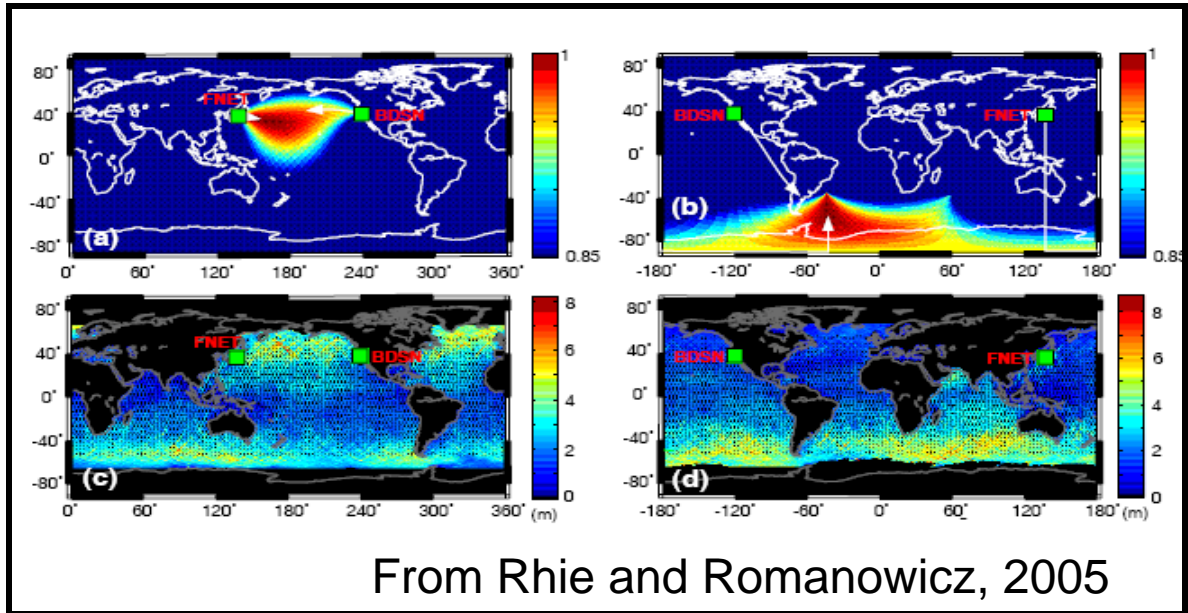
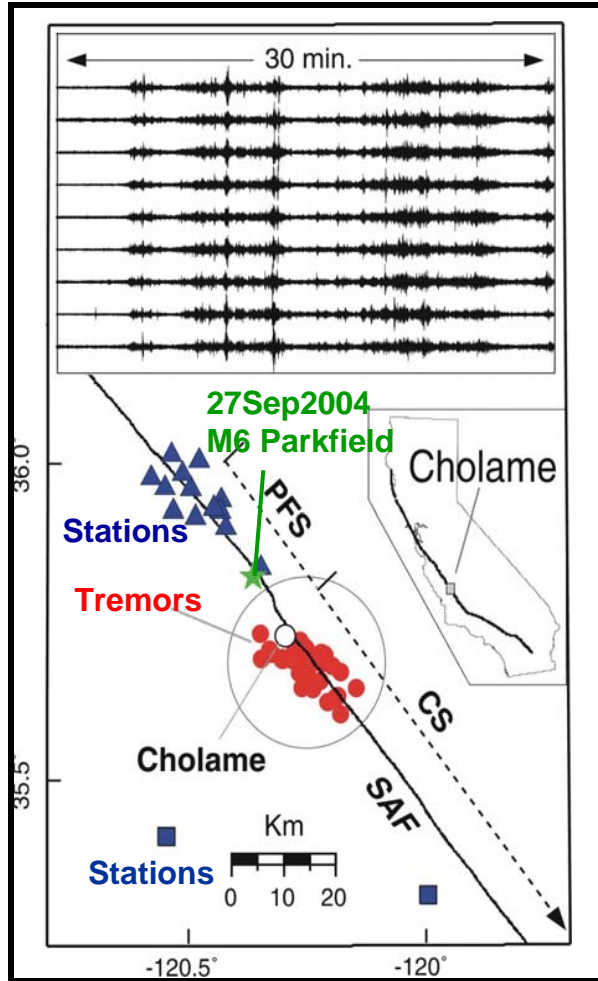


PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy
PEAK ACC (%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65
PEAK VEL (cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII

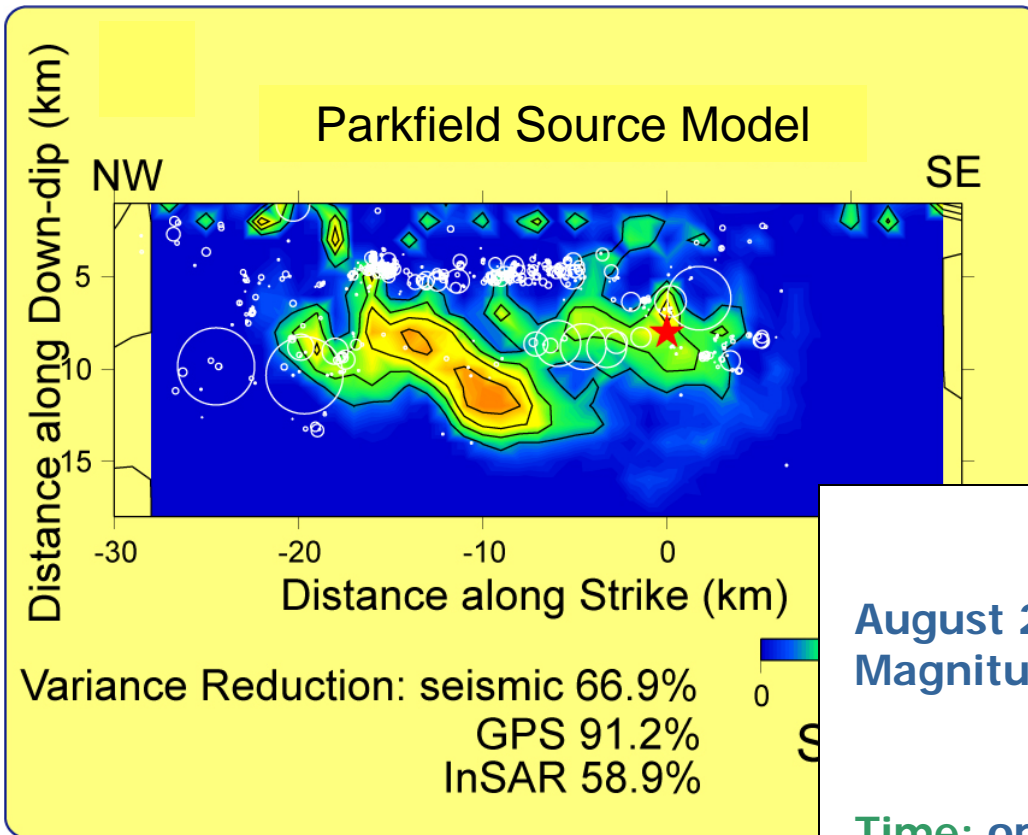
## Shakemaps

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC (%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL (cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

# BDSN and Research



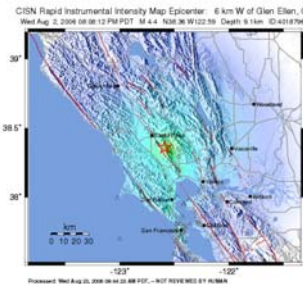
# BDSN and Research



**August 2, 2006  
Magnitude 4.7**

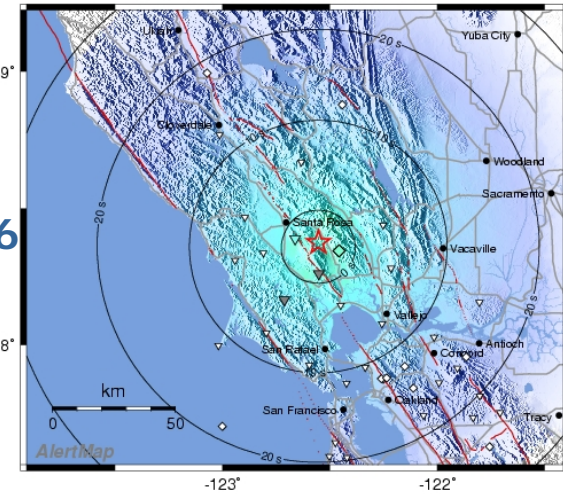
**Time: origin + 6**

## ShakeMap



## AlertMap

ElarmsS Real-Time Hazard Map: Modified Mercalli Intensity  
Time: 6 sec -- Event detected: N38.37 W122.55 M 4.3



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%)	<.17	.17-1.4	1.4-3.0	3.0-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X <sub>s</sub>

# The Berkeley Seismological Laboratory and the BDSN

... to reliably produce seismic  
data of high quality.