

The California Integrated Seismic Network

The CISN Program Management Group with the help of many engineers, programmers, data analysts and researchers.



CGS



USGS



OES



Caltech



UC
Berkeley

The California Integrated Seismic Network

Goal: Statewide reporting of earthquakes for emergency management, the public



CGS



USGS



OES

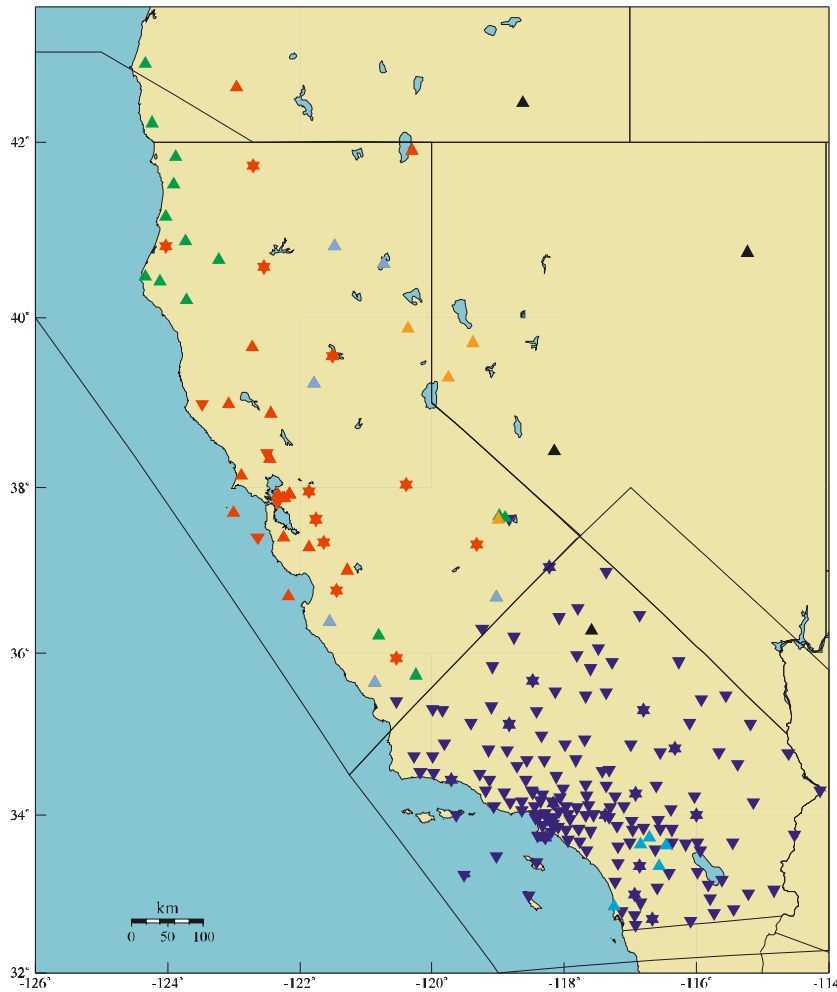


Caltech



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CISN Seismic Stations



CISN partners
operate more
than 3000
seismic stations

Broadband

USGS MP

UCB

Caltech/USGS Pasadena

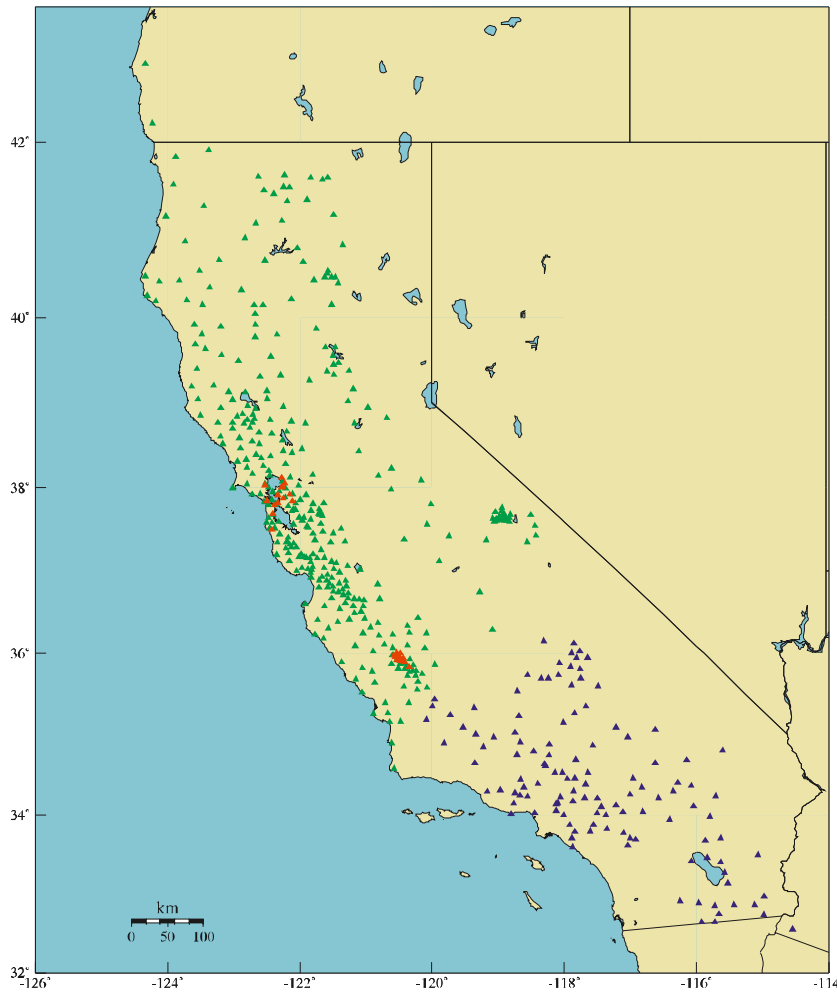
UCSD

UNR

USArray

23 May 2007 Acapulco

CISN Seismic Stations



CISN partners
operate more
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seismic stations

Short Period

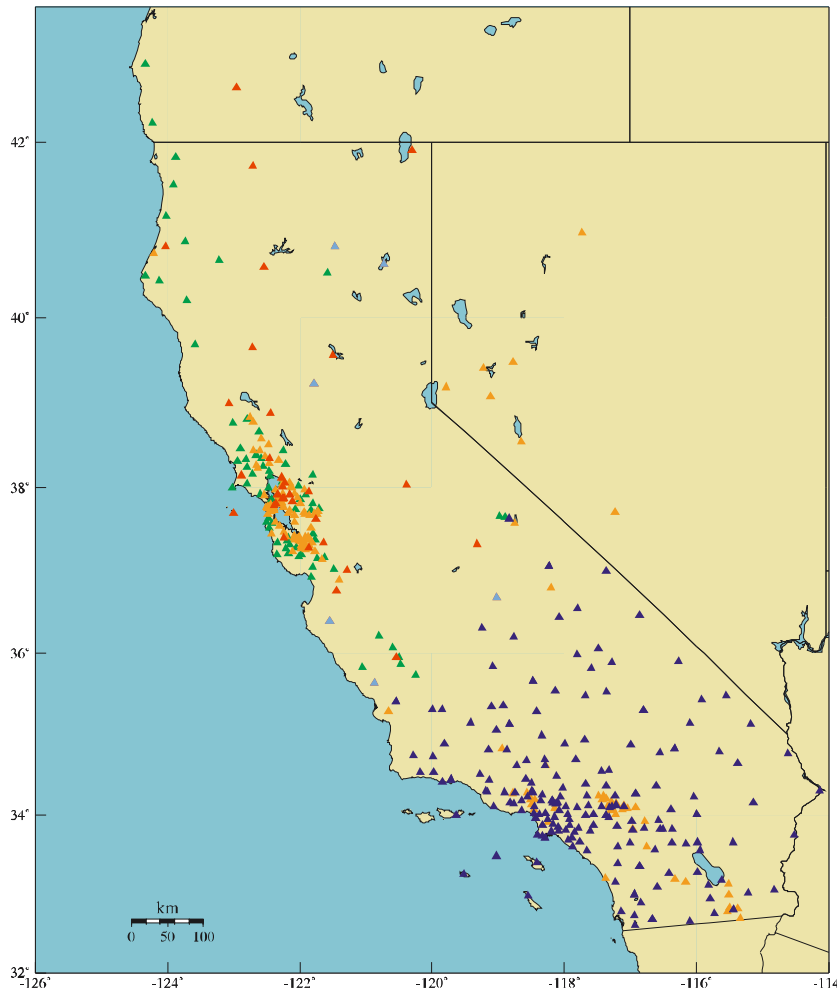
USGS MP

UCB

Caltech/USGS Pasadena

23 May 2007 Acapulco

CISN Seismic Stations



CISN partners
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seismic stations

Strong Motion

USGS MP

UCB

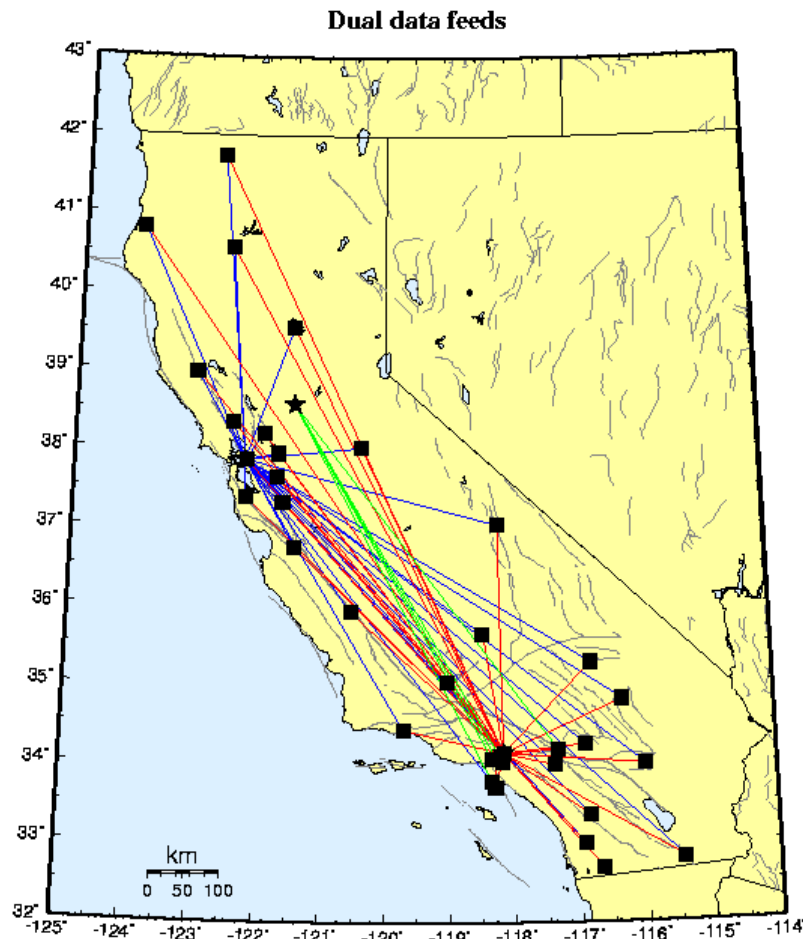
Caltech/USGS Pasadena

UNR

CGS/USGS NSMP

23 May 2007 Acapulco

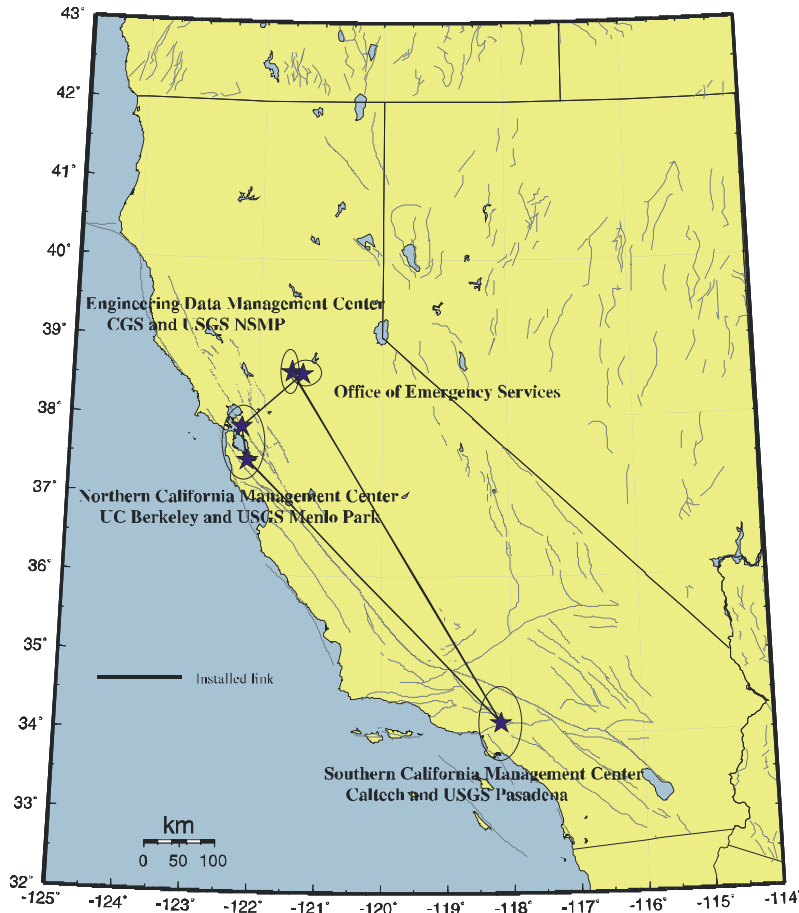
CISN Robustness



Dual station feeds

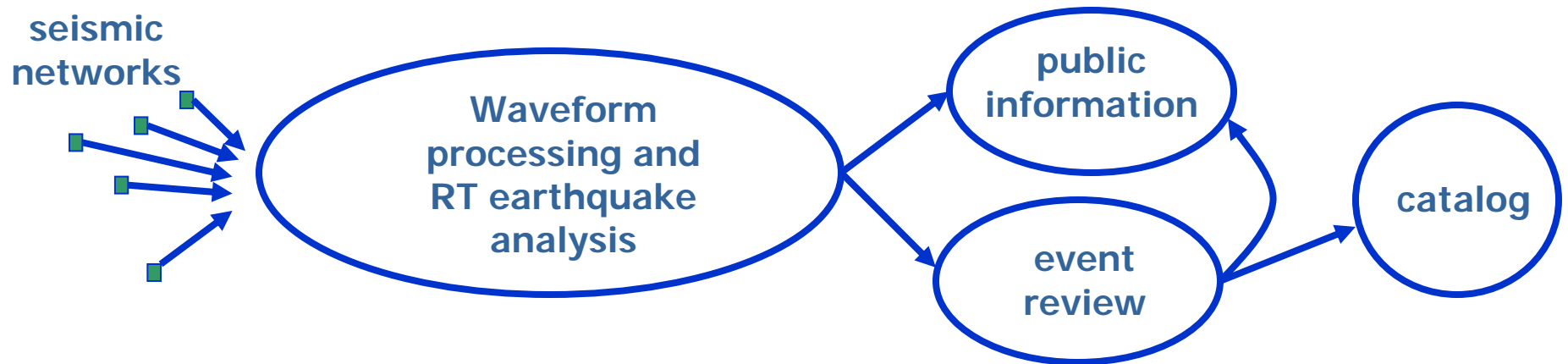
- from 15 BK broadband stations to CI
- from 15 CI broadband stations to BK

CISN Data Exchange and Processing

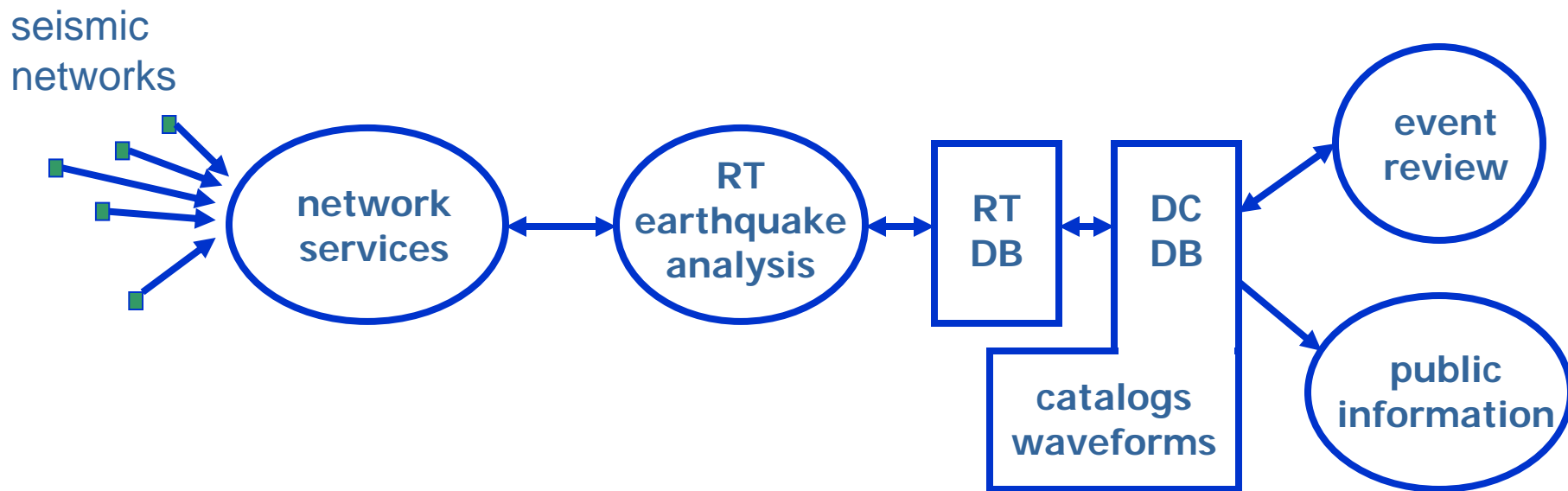


T1 ring connects all data centers and the California Office of Emergency Services

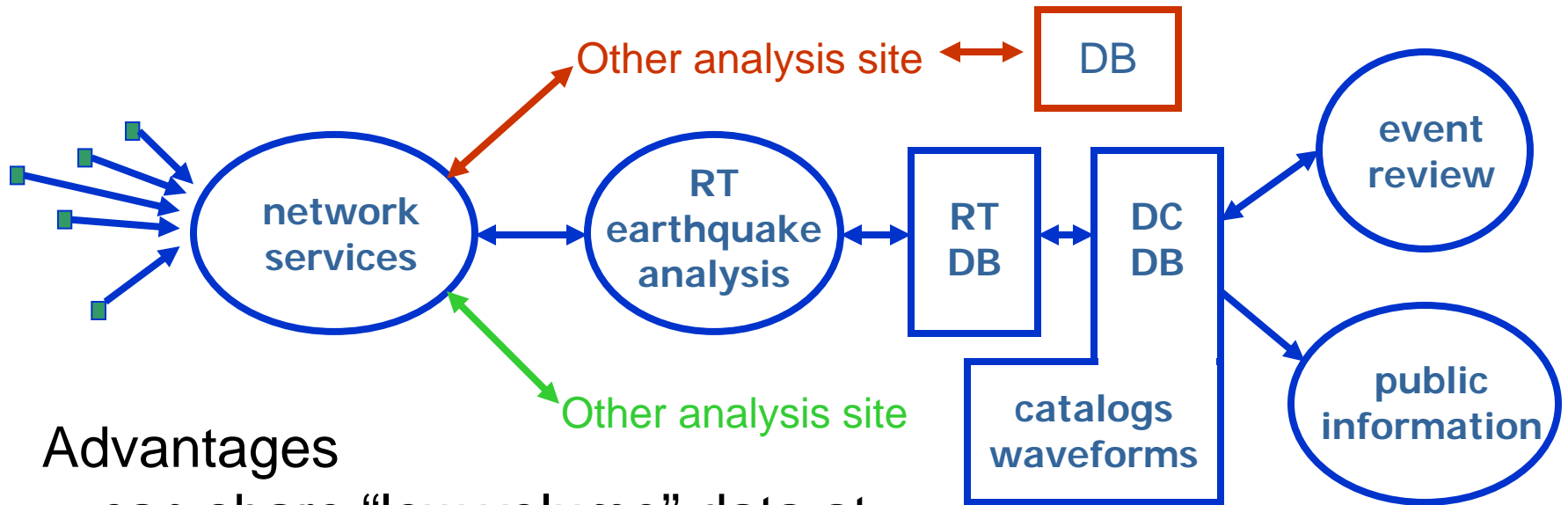
CISN RT Processing Software and Integrated Database System



CISN RT Processing Software and Integrated Database System



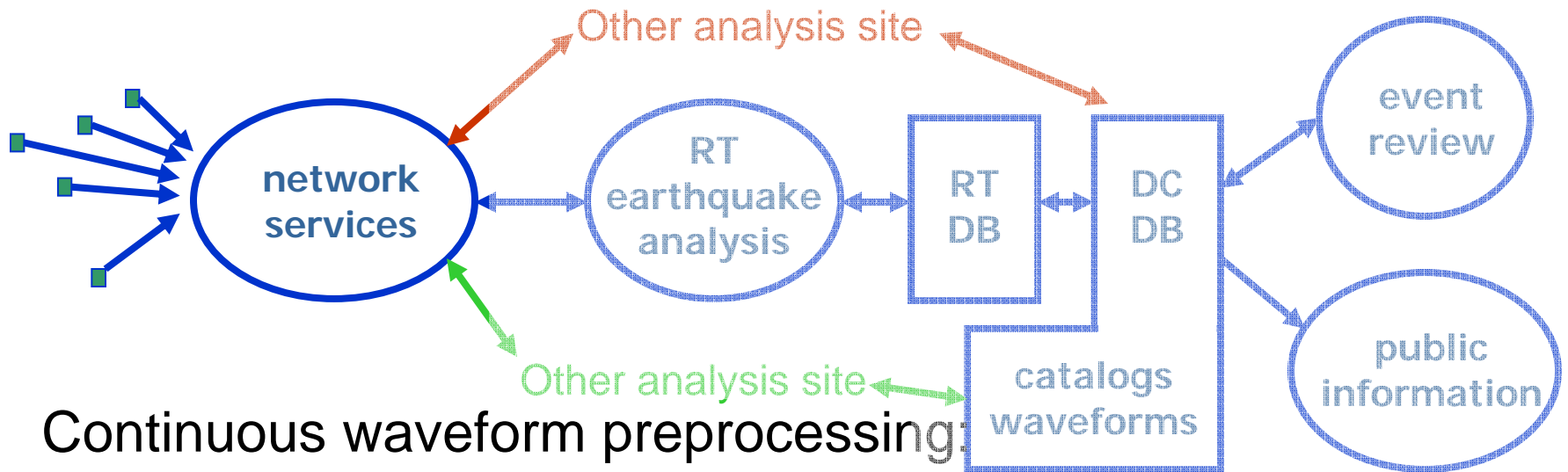
CISN RT Processing Software and Integrated Database System



Advantages

- can share “low volume” data at many datacenters for processing
- most uptodate information always from database
- catalog/data automatically available from database

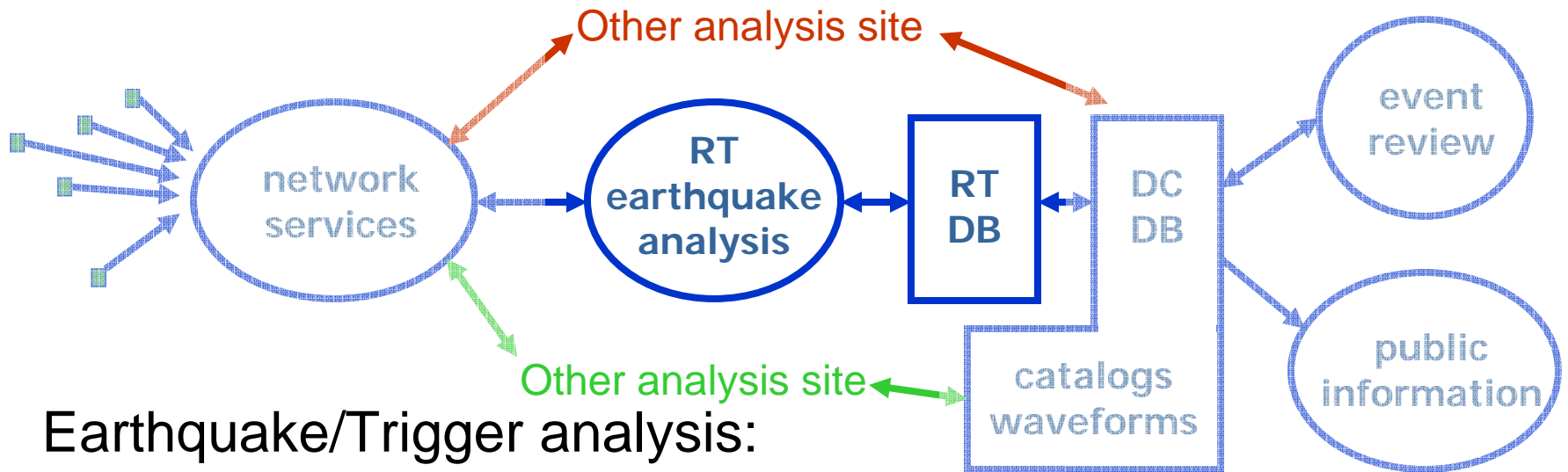
CISN Network Services



Continuous waveform preprocessing:

- picks, triggers
- codas (soon)
- amplitudes for M_L , M_e
- ground motion estimates for ShakeMap
- waveforms

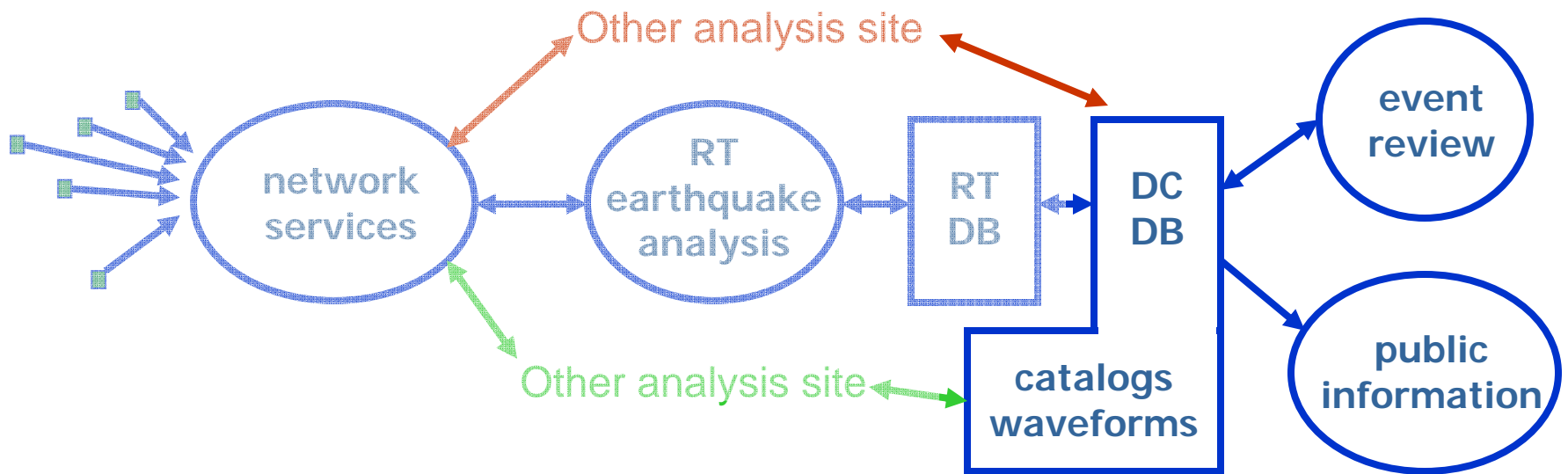
CISN RT Processing



Earthquake/Trigger analysis:

- locations
- origin time
- magnitude (M_L , M_e , M_d , M_w)
- ShakeMap (ground motion estimates)
- finite fault

CISN Post-Processing

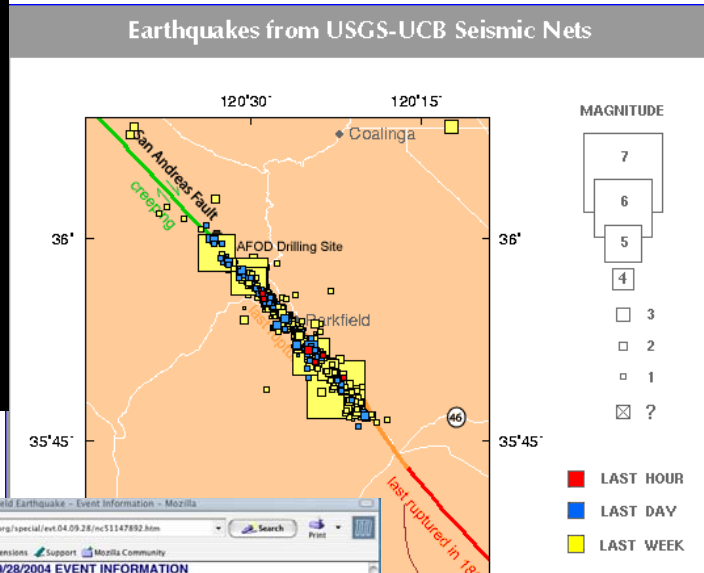
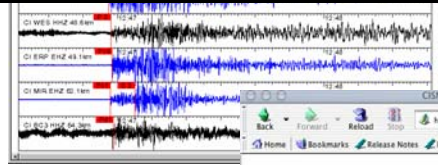
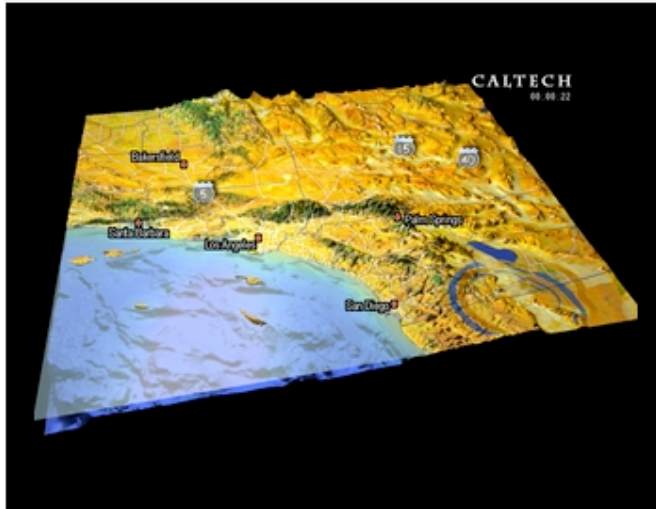


- Event notification according to alarming rules
- Waveform gathers for events
- Event review (Jiggle)

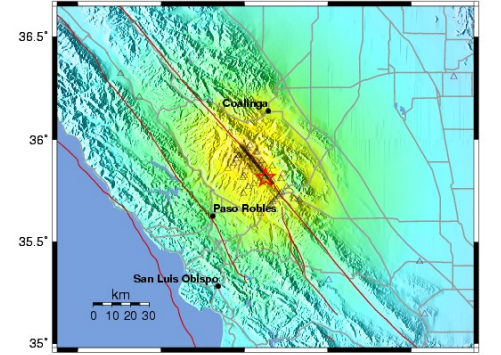
Event: 51147892
 Sep 28, 2004 17:15:24.30 UTC (10:15:24.30 PDT)

PKR: NC US2	8 km	
PKR: NC US2	8 km	
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CISN Products



CISN Rapid Instrumental Intensity Map for Parkfield Earthquake
 Tue Sep 28, 2004 10:15:24 AM PDT M 6.0 N35.81 W120.37 Depth: 7.9km ID:51147892



Processed: Fri Oct 8, 2004 12:55:49 PM PDT.

PARAMETER	None	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
PEAK ACC (cm)	<.17	.17-1.4	1.4-3.0	3.0-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VCL (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

Berkeley Earthquake of 4 Sep 2003, 18:39:53 PM PDT, 3.9Ml - Microsoft Internet Explorer

The Berkeley Earthquake of 04 Sep 2003
 3.9 ML, 06:39:53 PM PDT, 37.52N 122.22W Depth 12.4km

Information on Earthquake [Hypocenter](#) [ShakeMap](#)

Stations listed in increasing [Epentral Distance](#) (Alternatively, select [alphabetical listing](#))

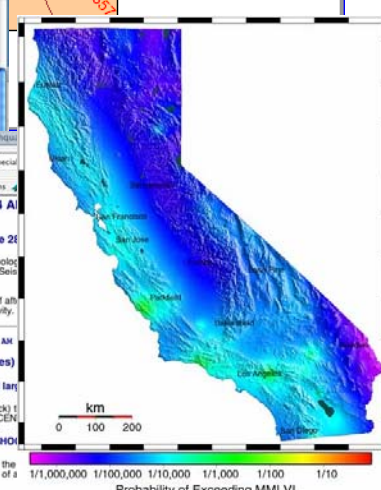
Station Name	Station No.	Network	Dist. (km)	Horiz	Apk (d)	View	Download
				Ground	Struct.		
Piedmont - Jr. High School Grounds A	58780	C08	2.9	.049	--		
Berkeley - Lawrence Berkeley Lab	58471	C08	4.2	.027	--		
Alameda - Fire Station #1	01755	US00	9.3	.025	--		
Richmond - Point Isabel WWTF	01822	US00	11	.011	--		
Richmond - City Hall Grounds	58505	C08	15	.016	--		
Walnut Creek - 3-story Hospital	58199	C08	15	.012	.032		
Pleasant Hill - Fire Stn #2	01691	US00	16	.008	--		
San Francisco - Fire Stn. 41	01676	US00	18	.021	--		
San Francisco - 8-story Govt Office Bldg	58768	C08	19	.022	.038		
San Francisco - Pacific Heights	58121	C08	19	.013	--		
San Fran - FS 17 Hunters Pl.	01675	US00	19	.009	--		
Concord - Clayton & Ellis	58867	C08	22	.011	--		
Hayward - 4-story City Hall	58769	C08	23	.008	.023		
Hayward - Fire Station 1	01754	US00	23	.016	--		
Hayward - PL Eden Way (APEEL 1D)	58376	C08	26	.014	--		

Return to Home Page

09/28/2004 EVENT INFORMATION
 PRELIMINARY EARTHQUAKE REPORT
 California Integrated Seismic Net
 USGS/Caltech/UCB/UCSD/USC/USP

persades any earlier reports of this event.
 an Andrees fault section near Parkfield.
 red at 10:15:24 AM (PDT) on Tuesday, September 28, 2004.
 occurred 11 km (7 miles) SSE of Parkfield, CA.
 9 km (5 miles).

6.0 - regional moment magnitude
 Tuesday, September 28, 2004
 Tuesday, September 28, 2004
 Parkfield, CA - 11 km (7 miles)
 Shandon, CA - 18 km (11 miles)
 San Miguel, CA - 30 km (19 miles)
 Paso Robles, CA - 34 km (21 miles)
 San Jose City Hall, CA - 217 km (134 miles)
 35 deg. 48.9 min. N (35.815N)
 7.9 km (4.9 miles)
 Good
 Nst=248, Nph=248, Dmin=3 km
 degrees
 nc51147892
 map with fault names
 Topo.map centered at earth



HAIKSHOCK: Tue 28 Sep 2004 10:15:24 AM
 11 km (7 miles)
 STRONG AFTERSHOCKS (Magnitude 5 and larger)
 At this time (one hour after the mainshock) the NEXT 7 DAYS is approximately 50 PERCENT
 EARTHQUAKES LARGER THAN THE MAINSHOCK
 Most likely, the recent mainshock will be the (APPROXIMATELY 5 TO 10 PERCENT) of a 1/1,000,000 1/100,000 1/10,000 1/1,000 1/100 1/10
 WEAK AFTERSHOCKS (Magnitude 3 to 5)
 In addition, approximately 30 to 70 SMALL AFTERSHOCKS are expected in the same 7-DAY PERIOD and may be felt locally.

Background Information About Aftershocks

Like most earthquakes, the recent earthquake is expected to be followed by numerous aftershocks. Aftershocks are additional earthquakes that occur after the mainshock and in the same geographic area. Usually, aftershocks are smaller than the mainshock, but occasionally an aftershock may be strong enough to be felt widely throughout the area and may cause additional damage, particularly to structures already weakened in the mainshock. As a rule of thumb, aftershocks of magnitude 5 and larger are considered potentially damaging.

USGS Community Internet Intensity Map (9 miles S of Parkfield, CA)
 ID:51147892 10:15:24 PM SEP 28 2004 Mag=6.0 Latitude=N37 Longitude=W120.44
 (Map last updated on Fri Jun 18 15:20:52 2005)

Intensity Legend:
 I: None
 II: Weak
 III: Light
 IV: Moderate
 V: Strong
 VI: Very Strong
 VII: Severe
 VIII: Violent
 IX: Extreme

Source Composition:
 Type Percent
 IS 98.8
 CLAD 1.2
 Iso 0.0

Event Date/Time: September 28 2004 10:15:24 PM
 Event ID: nc51147892
 Moment Tensor: Scale = 10⁺²⁴
 Component Value
 Mxx -0.792
 Myy -3.801
 Mzz -1.965
 Mxy 9.034
 Myz -0.131
 Mxz -0.058

CISN Delivery Mechanisms

The top left screenshot shows the USGS Earthquake Hazards Program - Southern California website. It features a navigation menu with options like 'Latest Quake Info', 'General Quake Info', and 'EQ Hazards & Preparedness'. A central map displays recent earthquakes in California-Nevada, with a legend for magnitude (2 to 7) and age (1 to 5 days). The top right screenshot shows the CISN Display software interface, which includes a map of the region and a data table of recent seismic events.

Time	Magnitude	Age
2005/10/10 04:09:05	5.8	1 day
2005/10/10 04:12:54	1.2	1 day
2005/10/10 04:25:30	4.8	1 day
2005/10/10 04:27:45	1.4	1 day
2005/10/10 04:37:05	1.1	1 day
2005/10/10 04:38:33	2.5	1 day
2005/10/10 05:38:11	5.0	1 day
2005/10/10 05:45:00	4.6	1 day
2005/10/10 06:51:40	1.8	1 day
2005/10/10 06:11:00	1.5	1 day
2005/10/10 06:11:16	1.6	1 day
2005/10/10 06:17:13	2.7	1 day
2005/10/10 06:28:16	4.9	1 day
2005/10/10 06:50:16	1.0	1 day
2005/10/10 07:13:48	2.2	1 day
2005/10/10 07:15:08	4.6	1 day
2005/10/10 07:23:09	1.7	1 day
2005/10/10 07:28:44	4.2	1 day
2005/10/10 07:34:40	2.6	1 day
2005/10/10 08:08:00	4.1	1 day
2005/10/10 09:07:00	5.0	1 day
2005/10/10 09:11:57	1.7	1 day
2005/10/10 09:22:05	2.4	1 day
2005/10/10 09:51:44	1.5	1 day
2005/10/10 10:02:01	1.8	1 day
2005/10/10 10:11:14	1.9	1 day
2005/10/10 10:23:43	2.4	1 day
2005/10/10 11:38:40	3.2	1 day

The bottom screenshot shows the CISN website's main content area, including a 'Welcome to the CISN' message and a 'Recent News' section with links to various reports and publications.

