Extending the CISN Earthquake Early Warning (EEW) Web Site into the CISN EEW Testing Center

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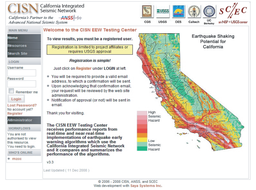
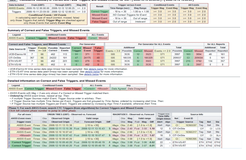
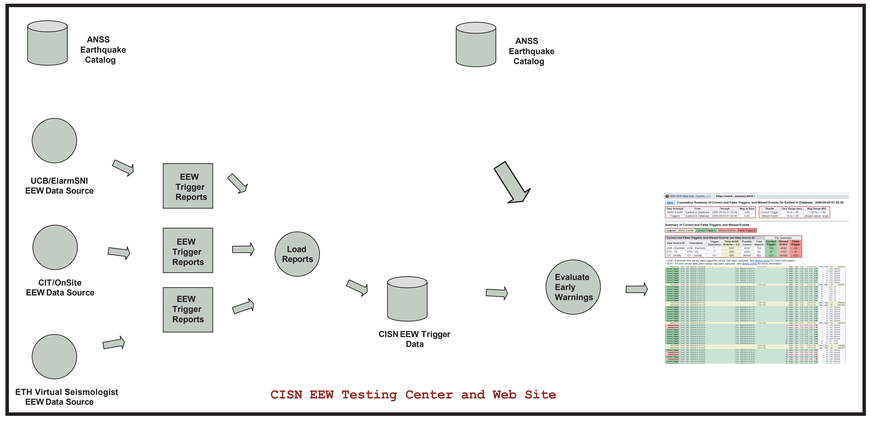
As a part of the California Integrated Seismic Network (CISN) earthquake early warning (EEW) algorithm development, funded through USGS NEHRP, we have developed the CISN EEW web site to collect the results of multiple EEW algorithms and to display these results in a comparative manner. The CISN EEW algorithm development group has defined a set of EEW algorithm evaluation tests (termed performance summaries) that compares EEW algorithm reports against seismicity data in the ANSS catalog.





CISN EEW Testing Center: www.scec.org/eew



Above: CISN EEW Testing Center collects CISN earthquake early warning triggers and evaluates the triggers against ANSS Catalog Data

Preliminary Results: The CISN EEW Trigger Performance summary below shows a list of ANSS Events (yellow rows) and associated EEW Triggers (green or red rows). Green rows indicate a CISN EEW trigger that reported accurate location and magnitude information about event. Red lines indicates either either time or magnitude misses. The table entries identify the EEW algorithm (UCB-ElarmSNI, CIT-Onsite, or ETH-Virtual Seismologist) that produced the EEW information.The time required to produce the warning (either algorithm or alert time) required to produced the data is also shown.

CISN EEW Trigger Summaries

ANSS Event	Times	Obs	2008-12-06 04:18:42		[-10 to +30]	Mags	Obs	5.10	[-1.0 to +1.0]	Alert	Algo	CI	14408052	Tag	Net	Sta
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:52	10	Mags	Obs	5.10	Fcst	5.83	**0.73**	15	10	CIT-OnSite		CIT	CI	DSC
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:54	12	Mags	Obs	5.10	Fcst	4.89	**-0.21**	21	12	CIT-OnSite		CIT	CI	JVA
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:54	12	Mags	Obs	5.10	Fcst	5.62	**0.42**	22	12	CIT-OnSite		CIT	CI	RRX
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:56	14	Mags	Obs	5.10	Fcst	5.85	**0.75**	22	14	CIT-OnSite		CIT	CI	GSC
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:57	15	Mags	Obs	5.10	Fcst	5.51	**0.41**	29	15	CIT-OnSite		CIT	CI	MCT
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:58	16	Mags	Obs	5.10	Fcst	5.60	**0.50**	24	16	CIT-OnSite		CIT	CI	BBR
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:59	17	Mags	Obs	5.10	Fcst	6.08	**0.98**	28	17	CIT-OnSite		CIT	CI	TUQ
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:01	19	Mags	Obs	5.10	Fcst	5.75	**0.65**	30	19	CIT-OnSite		CIT	CI	DAN
Missed Event	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:02	20	Mags	Obs	5.10	Fcst	4.06	**-1.04**	26	20	CIT-OnSite		CIT	CI	SVD
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:02	20	Mags	Obs	5.10	Fcst	4.91	**-0.19**	28	20	CIT-OnSite		CIT	CI	DEV
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:02	20	Mags	Obs	5.10	Fcst	4.89	**-0.21**	30	20	CIT-OnSite		CIT	CI	LUG
Missed Event	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:04	22	Mags	Obs	5.10	Fcst	6.10	**1.00**	33	22	CIT-OnSite		CIT	CI	BBS
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:04	22	Mags	Obs	5.10	Fcst	5.22	**0.12**	49	22	CIT-OnSite		CIT	CI	MGE
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:05	23	Mags	Obs	5.10	Fcst	5.44	**0.34**	33	23	CIT-OnSite		CIT	CI	LDF
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:05	23	Mags	Obs	5.10	Fcst	6.10	**1.00**	50	23	CIT-OnSite		CIT	CI	SHO
Missed Event	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:06	24	Mags	Obs	5.10	Fcst	3.99	**-1.11**	30	24	CIT-OnSite		CIT	CI	TA2
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:07	25	Mags	Obs	5.10	Fcst	5.45	**0.35**	35	25	CIT-OnSite		CIT	CI	RSS
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:07	25	Mags	Obs	5.10	Fcst	5.29	**0.19**	36	25	CIT-OnSite		CIT	CI	BFS
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:08	26	Mags	Obs	5.10	Fcst	4.96	**-0.14**	48	26	CIT-OnSite		CIT	CI	CTC
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:08	26	Mags	Obs	5.10	Fcst	5.64	**0.54**	50	26	CIT-OnSite		CIT	CI	MLS
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:08	26	Mags	Obs	5.10	Fcst	5.76	**0.66**	53	26	CIT-OnSite		CIT	CI	PDU
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:10	28	Mags	Obs	5.10	Fcst	5.38	**0.28**	35	28	CIT-OnSite		CIT	CI	NSS2
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:19:12	30	Mags	Obs	5.10	Fcst	5.53	**0.43**	38	30	CIT-OnSite		CIT	CI	TUQ
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:41	-1	Mags	Obs	5.10	Fcst	5.40	**0.30**	24	--	ETH-VS-RT		ETH	ETHZ	ETHZ
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:41	-1	Mags	Obs	5.10	Fcst	5.34	**0.24**	26	--	ETH-VS-RT		ETH	ETHZ	ETHZ
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:42	0	Mags	Obs	5.10	Fcst	5.27	**0.17**	29	--	ETH-VS-RT		ETH	ETHZ	ETHZ
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:42	0	Mags	Obs	5.10	Fcst	5.38	**0.28**	33	--	ETH-VS-RT		ETH	ETHZ	ETHZ
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:42	0	Mags	Obs	5.10	Fcst	5.48	**0.38**	38	--	ETH-VS-RT		ETH	ETHZ	ETHZ
Correct Trigger	Times	Obs	2008-12-06 04:18:42	Fcst	2008-12-06 04:18:42	0	Mags	Obs	5.10	Fcst	5.48	**0.38**	43	--	ETH-VS-RT		ETH	ETHZ	ETHZ
ANSS Event	Times	Obs	2008-11-16 05:43:15		[-10 to +30]	Mags	Obs	4.60	[-1.0 to +1.0]	Alert	Algo	NC	51211307	Tag	Net	Sta
Correct Trigger	Times	Obs	2008-11-16 05:43:15	Fcst	2008-11-16 05:43:17	2	Mags	Obs	4.60	Fcst	3.88	**-0.72**	--	10	UCB-Elarms-NI		UCB	ELRM	ELRM
Correct Trigger	Times	Obs	2008-11-16 05:43:15	Fcst	2008-11-16 05:43:17	2	Mags	Obs	4.60	Fcst	3.88	**-0.72**	--	12	UCB-Elarms-NI		UCB	ELRM	ELRM
Correct Trigger	Times	Obs	2008-11-16 05:43:15	Fcst	2008-11-16 05:43:18	3	Mags	Obs	4.60	Fcst	4.42	**-0.18**	--	15	UCB-Elarms-NI		UCB	ELRM	ELRM
Correct Trigger	Times	Obs	2008-11-16 05:43:15	Fcst	2008-11-16 05:43:22	7	Mags	Obs	4.60	Fcst	4.53	**-0.07**	--	19	UCB-Elarms-NI		UCB	ELRM	ELRM
Correct Trigger	Times	Obs	2008-11-16 05:43:15	Fcst	2008-11-16 05:43:22	7	Mags	Obs	4.60	Fcst	4.57	**-0.03**	--	24	UCB-Elarms-NI		UCB	ELRM	ELRM
Correct Trigger	Times	Obs	2008-11-16 05:43:15	Fcst	2008-11-16 05:43:20	5	Mags	Obs	4.60	Fcst	4.29	**-0.31**	--	29	UCB-Elarms-NI		UCB	ELRM	ELRM
Correct Trigger	Times	Obs	2008-11-16 05:43:15	Fcst	2008-11-16 05:43:20	5	Mags	Obs	4.60	Fcst	4.29	**-0.31**	--	34	UCB-Elarms-NI		UCB	ELRM	ELRM

Trigger Summaries: The CISN EEW Trigger summaries (left) indicate whether the EEW algorithms accurately forecast both the location and magnitude of ANSS events. CIT OnSite is a single station Trigger. ETH-VS and UCB-ElarmS triggers require multiple stations, and their warning information is updated during the event. Currently CIT-Onsite and ETH-Virtual Seismologists report Southern California events, and UCB-ElarmS reports Nothern California events. State-wide reporting by all algorithms is in development.

The trigger summaries (left) show that for a Mw5.1 near Barstow both the CIT-OnSite Algorithm and the ETH-VS Algorithm issued warnings, with a CIT-OnSite single station warning available within 16 seconds after origin time, and a multi-station ETH-VS available 24 seconds after origin time. Also, an ElarmS trigger summary is shown for a Mw4.0 Petrolia off-shore event. The current ElarmS system produced a warning with 10 seconds of network data after origin time and updated it during the event.

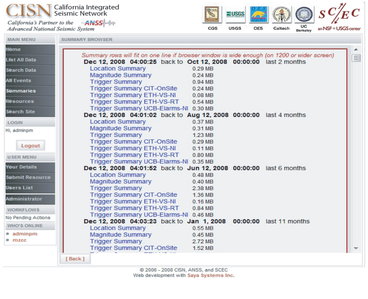
Magnitude Summaries: The magnitude summaries for this event (below left) show that the CIT-OnSite single station magnitudes varied above and below the final magnitude but remained within 1.0 magnitude units for 20 stations. The ETH-VS magnitude estimate was within 0.5 units throughout the event. The ElarmS magnitude estimates varied but remained within 0.8 units throughout the event.

Location Summaries: The location summaries (below right) for the CIT-OnSite algorithm use the station location as the event location. The table shows that the CIT-OnSite algorithm magnitude estimates were reasonable even for stations up to 150 km from epicenter. For ETH-VS the location information was accurate within 4km throughout the event. The ElarmS location for an off-shore event was within 36km throughout the event.

CISN EEW Magnitude Summaries

ANSS Event	Alert	Algo	Mags	Obs	5.10	Fcst	Mag	Diff	2008-12-06 04:18:42	Diff	CI	14408052	Tag	Net	Sta
CIT-OnSite	15	10	Mags	Obs	5.10	Fcst	5.83	**-0.731**	2008-12-06 04:18:52	**10**	CIT-OnSite		CIT	CI	DSC
CIT-OnSite	21	12	Mags	Obs	5.10	Fcst	4.89	**0.210**	2008-12-06 04:18:54	**12**	CIT-OnSite		CIT	CI	JVA
CIT-OnSite	22	12	Mags	Obs	5.10	Fcst	5.52	**-0.417**	2008-12-06 04:18:54	**12**	CIT-OnSite		CIT	CI	RRX
CIT-OnSite	22	14	Mags	Obs	5.10	Fcst	5.85	**-0.752**	2008-12-06 04:18:56	**14**	CIT-OnSite		CIT	CI	GSC
CIT-OnSite	29	15	Mags	Obs	5.10	Fcst	5.51	**-0.415**	2008-12-06 04:18:57	**15**	CIT-OnSite		CIT	CI	MCT
CIT-OnSite	24	16	Mags	Obs	5.10	Fcst	5.60	**-0.504**	2008-12-06 04:18:58	**16**	CIT-OnSite		CIT	CI	BBR
CIT-OnSite	28	17	Mags	Obs	5.10	Fcst	6.08	**-0.979**	2008-12-06 04:18:59	**17**	CIT-OnSite		CIT	CI	TUQ
CIT-OnSite	30	19	Mags	Obs	5.10	Fcst	5.75	**-0.650**	2008-12-06 04:19:01	**19**	CIT-OnSite		CIT	CI	DAN
CIT-OnSite	28	20	Mags	Obs	5.10	Fcst	4.91	**0.185**	2008-12-06 04:19:02	**20**	CIT-OnSite		CIT	CI	DEV
CIT-OnSite	30	20	Mags	Obs	5.10	Fcst	4.89	**0.211**	2008-12-06 04:19:02	**20**	CIT-OnSite		CIT	CI	LUG
CIT-OnSite	49	22	Mags	Obs	5.10	Fcst	5.22	**-0.123**	2008-12-06 04:19:04	**22**	CIT-OnSite		CIT	CI	MGE
CIT-OnSite	33	23	Mags	Obs	5.10	Fcst	5.44	**-0.336**	2008-12-06 04:19:05	**23**	CIT-OnSite		CIT	CI	LDF
CIT-OnSite	50	23	Mags	Obs	5.10	Fcst	6.10	**-0.998**	2008-12-06 04:19:05	**23**	CIT-OnSite		CIT	CI	SHO
CIT-OnSite	35	25	Mags	Obs	5.10	Fcst	5.45	**-0.348**	2008-12-06 04:19:07	**25**	CIT-OnSite		CIT	CI	RSS
CIT-OnSite	36	25	Mags	Obs	5.10	Fcst	5.29	**-0.189**	2008-12-06 04:19:07	**25**	CIT-OnSite		CIT	CI	BFS
CIT-OnSite	48	26	Mags	Obs	5.10	Fcst	4.96	**0.141**	2008-12-06 04:19:08	**26**	CIT-OnSite		CIT	CI	CTC
CIT-OnSite	50	26	Mags	Obs	5.10	Fcst	5.64	**-0.541**	2008-12-06 04:19:08	**26**	CIT-OnSite		CIT	CI	MLS
CIT-OnSite	53	26	Mags	Obs	5.10	Fcst	5.76	**-0.655**	2008-12-06 04:19:08	**26**	CIT-OnSite		CIT	CI	PDU
CIT-OnSite	35	28	Mags	Obs	5.10	Fcst	5.38	**-0.277**	2008-12-06 04:19:10	**28**	CIT-OnSite		CIT	CI	NSS2
CIT-OnSite	38	30	Mags	Obs	5.10	Fcst	5.53	**-0.433**	2008-12-06 04:19:12	**30**	CIT-OnSite		CIT	CI	TUQ
Repeat ANSS Event	Alert	Algo	Mags	Obs	5.10	Fcst	Mag	Diff	2008-12-06 04:18:42	Diff	CI	14408052	Tag	Net	Sta
ETH-VS-RT	24	--	Mags	Obs	5.10	Fcst	5.40	**-0.297**	2008-12-06 04:18:41	**-1**	ETH-VS-RT		ETH	ETHZ	ETHZ
ETH-VS-RT	26	--	Mags	Obs	5.10	Fcst	5.34	**-0.236**	2008-12-06 04:18:41	**-1**	ETH-VS-RT		ETH	ETHZ	ETHZ
ETH-VS-RT	29	--	Mags	Obs	5.10	Fcst	5.27	**-0.169**	2008-12-06 04:18:42	**0**	ETH-VS-RT		ETH	ETHZ	ETHZ
ETH-VS-RT	33	--	Mags	Obs	5.10	Fcst	5.38	**-0.277**	2008-12-06 04:18:42	**0**	ETH-VS-RT		ETH	ETHZ	ETHZ
ETH-VS-RT	38	--	Mags	Obs	5.10	Fcst	5.48	**-0.379**	2008-12-06 04:18:42	**0**	ETH-VS-RT		ETH	ETHZ	ETHZ
ETH-VS-RT	43	--	Mags	Obs	5.10	Fcst	5.48	**-0.384**	2008-12-06 04:18:42	**0**	ETH-VS-RT		ETH	ETHZ	ETHZ
ANSS Event	Alert	Algo	Mags	Obs	4.60	Fcst	Mag	Diff	2008-11-16 05:43:15	Diff	NC	51211307	Tag	Net	Sta
UCB-Elarms-NI	--	10	Mags	Obs	4.60	Fcst	3.88	**0.719**	2008-11-16 05:43:17	**2**	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	--	12	Mags	Obs	4.60	Fcst	3.88	**0.719**	2008-11-16 05:43:17	**2**	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	--	15	Mags	Obs	4.60	Fcst	4.42	**0.178**	2008-11-16 05:43:18	**3**	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	--	19	Mags	Obs	4.60	Fcst	4.53	**0.071**	2008-11-16 05:43:22	**7**	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	--	24	Mags	Obs	4.60	Fcst	4.57	**0.031**	2008-11-16 05:43:22	**7**	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	--	29	Mags	Obs	4.60	Fcst	4.29	**0.313**	2008-11-16 05:43:20	**5**	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	--	34	Mags	Obs	4.60	Fcst	4.29	**0.313**	2008-11-16 05:43:20	**5**	UCB-Elarms-NI		UCB	ELRM	ELRM

CISN EEW Location Summaries

ANSS Event	Obs	5.10	Diff	2008-12-06 04:18:42	Diff	Lat	34.81	Diff	Lon	-116.42	Diff	km	Alert	Algo	CI	14408052	Tag	Net	Sta
CIT-OnSite	Fcst	5.83	0.73	2008-12-06 04:18:52	10	Lat	35.143	-0.329	Lon	-116.164	-0.315	Dist	46.525	15	10	CIT-OnSite		CIT	CI	DSC
CIT-OnSite	Fcst	4.89	-0.21	2008-12-06 04:18:54	12	Lat	34.366	0.447	Lon	-116.613	0.194	Dist	52.794	21	12	CIT-OnSite		CIT	CI	JVA
CIT-OnSite	Fcst	5.52	0.42	2008-12-06 04:18:54	12	Lat	34.875	-0.062	Lon	-116.997	0.578	Dist	53.198	22	12	CIT-OnSite		CIT	CI	RRX
CIT-OnSite	Fcst	5.85	0.75	2008-12-06 04:18:56	14	Lat	35.302	-0.489	Lon	-116.806	0.387	Dist	64.743	22	14	CIT-OnSite		CIT	CI	GSC
CIT-OnSite	Fcst	5.51	0.41	2008-12-06 04:18:57	15	Lat	34.227	0.587	Lon	-116.041	0.378	Dist	73.872	29	15	CIT-OnSite		CIT	CI	MCT
CIT-OnSite	Fcst	5.60	0.50	2008-12-06 04:18:58	16	Lat	34.352	0.551	Lon	-116.921	0.502	Dist	76.606	24	16	CIT-OnSite		CIT	CI	BBR
CIT-OnSite	Fcst	6.08	0.98	2008-12-06 04:18:59	17	Lat	35.436	-0.623	Lon	-115.924	-0.495	Dist	82.573	28	17	CIT-OnSite		CIT	CI	TUQ
CIT-OnSite	Fcst	5.75	0.65	2008-12-06 04:19:01	19	Lat	34.638	0.176	Lon	-116.381	-1.038	Dist	96.859	30	19	CIT-OnSite		CIT	CI	DAN
CIT-OnSite	Fcst	4.91	-0.19	2008-12-06 04:19:02	20	Lat	33.936	0.877	Lon	-116.178	0.159	Dist	98.648	28	20	CIT-OnSite		CIT	CI	DEV
CIT-OnSite	Fcst	4.89	-0.21	2008-12-06 04:19:02	20	Lat	34.366	0.448	Lon	-117.367	0.948	Dist	100.048	30	20	CIT-OnSite		CIT	CI	LUG
CIT-OnSite	Fcst	5.22	0.12	2008-12-06 04:19:04	22	Lat	33.918	0.995	Lon	-116.369	-0.050	Dist	110.727	49	22	CIT-OnSite		CIT	CI	MGE
CIT-OnSite	Fcst	5.44	0.34	2008-12-06 04:19:05	23	Lat	35.131	-0.317	Lon	-115.184	-1.235	Dist	117.937	33	23	CIT-OnSite		CIT	CI	LDF
CIT-OnSite	Fcst	6.10	1.00	2008-12-06 04:19:05	23	Lat	35.900	-1.086	Lon	-116.275	-0.144	Dist	121.499	50	23	CIT-OnSite		CIT	CI	SHO
CIT-OnSite	Fcst	5.45	0.35	2008-12-06 04:19:07	25	Lat	33.973	0.840	Lon	-117.327	0.908	Dist	125.165	35	25	CIT-OnSite		CIT	CI	RSS
CIT-OnSite	Fcst	5.29	0.19	2008-12-06 04:19:07	25	Lat	34.226	0.587	Lon	-117.659	1.240	Dist	138.329	36	25	CIT-OnSite		CIT	CI	BFS
CIT-OnSite	Fcst	4.96	-0.14	2008-12-06 04:19:08	26	Lat	33.655	1.158	Lon	-115.990	0.429	Dist	134.683	48	26	CIT-OnSite		CIT	CI	CTC
CIT-OnSite	Fcst	5.64	0.54	2008-12-06 04:19:08	26	Lat	34.005	0.809	Lon	-117.562	1.143	Dist	138.138	50	26	CIT-OnSite		CIT	CI	MLS
CIT-OnSite	Fcst	5.76	0.66	2008-12-06 04:19:08	26	Lat	34.121	0.693	Lon	-117.638	1.219	Dist	139.721	53	26	CIT-OnSite		CIT	CI	PDU
CIT-OnSite	Fcst	5.38	0.28	2008-12-06 04:19:10	28	Lat	33.556	1.258	Lon	-115.946	-0.473	Dist	146.477	35	28	CIT-OnSite		CIT	CI	NSS2
CIT-OnSite	Fcst	5.53	0.43	2008-12-06 04:19:12	30	Lat	35.436	-0.623	Lon	-115.924	-0.495	Dist	82.573	38	30	CIT-OnSite		CIT	CI	TUQ
Repeat ANSS Event	Obs	5.10	Diff	2008-12-06 04:18:42	Diff	Lat	34.81	Diff	Lon	-116.42	Diff	km	Alert	Algo	CI	14408052	Tag	Net	Sta
ETH-VS-RT	Fcst	5.40	0.30	2008-12-06 04:18:41	-1	Lat	34.807	0.006	Lon	-116.410	0.009	Dist	1.094	24	--	ETH-VS-RT	ETH	ETHZ	ETHZ
ETH-VS-RT	Fcst	5.34	0.24	2008-12-06 04:18:41	-1	Lat	34.834	-0.021	Lon	-116.422	0.003	Dist	2.373	26	--	ETH-VS-RT	ETH	ETHZ	ETHZ
ETH-VS-RT	Fcst	5.27	0.17	2008-12-06 04:18:42	0	Lat	34.841	-0.028	Lon	-116.402	-0.017	Dist	3.439	29	--	ETH-VS-RT	ETH	ETHZ	ETHZ
ETH-VS-RT	Fcst	5.38	0.28	2008-12-06 04:18:42	0	Lat	34.842	-0.029	Lon	-116.398	-0.021	Dist	3.751	33	--	ETH-VS-RT	ETH	ETHZ	ETHZ
ETH-VS-RT	Fcst	5.48	0.38	2008-12-06 04:18:42	0	Lat	34.832	-0.019	Lon	-116.404	-0.015	Dist	2.527	38	--	ETH-VS-RT	ETH	ETHZ	ETHZ
ETH-VS-RT	Fcst	5.48	0.38	2008-12-06 04:18:42	0	Lat	34.832	-0.019	Lon	-116.404	-0.015	Dist	2.527	43	--	ETH-VS-RT	ETH	ETHZ	ETHZ
ANSS Event	Obs	4.60	Diff	2008-11-16 05:43:15	Diff	Lat	40.31	Diff	Lon	-124.60	Diff	km	Alert	Algo	NC	51211307	Tag	Net	Sta
UCB-Elarms-NI	Fcst	3.88	-0.72	2008-11-16 05:43:17	2	Lat	40.453	0.139	Lon	-124.254	0.349	Dist	33.364	--	10	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	Fcst	3.88	-0.72	2008-11-16 05:43:17	2	Lat	40.453	0.139	Lon	-124.254	0.349	Dist	33.364	--	12	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	Fcst	4.42	-0.18	2008-11-16 05:43:18	3	Lat	40.498	0.184	Lon	-124.254	0.349	Dist	35.950	--	15	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	Fcst	4.53	-0.07	2008-11-16 05:43:22	7	Lat	40.310	0.004	Lon	-124.608	0.005	Dist	8.591	--	19	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	Fcst	4.57	-0.03	2008-11-16 05:43:22	7	Lat	40.302	-0.049	Lon	-124.549	-0.054	Dist	7.002	--	24	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	Fcst	4.29	-0.31	2008-11-16 05:43:20	5	Lat	40.362	0.048	Lon	-124.254	0.349	Dist	30.065	--	29	UCB-Elarms-NI		UCB	ELRM	ELRM
UCB-Elarms-NI	Fcst	4.29	-0.31	2008-11-16 05:43:20	5	Lat	40.362	0.048	Lon	-124.254	0.349	Dist	30.065	--	34	UCB-Elarms-NI		UCB	ELRM	ELRM

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