

The ISEE earthquake catalog, “Catalog of Damaging Earthquakes in the World”, “ISEE-NET”, and BRI strong motion observation

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1



IISEE earthquake catalog

IISEE's CMTs, Aftershock Distributions, Fault planes, and Rupture processes for recent large earthquakes in the world

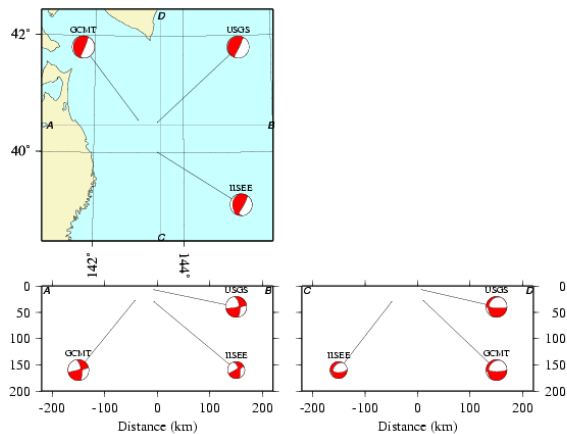
- This catalog contains the following earthquake information for large ($M_w \geq 7.2$) earthquakes in the world that occurred since 1994.

Earthquake information	Period	Data	Method	No. of events
Centroid moment tensor	1994~ 2010 Oct.	Long period body waves recorded at GSN stations.	Grid search approach by Hara (2004, 2005)	145
Aftershock distribution and fault plane	1994~ 2007	P-wave arrivals from ISC CD-ROMs	The modified JHD method (Hurukawa and Imoto, 1992)	100
Rupture process	1994~ 2007 Nov.	Tele-seismic P waves recorded at GSN stations	Waveform inversion by Yagi and Fukahata (2008)	47

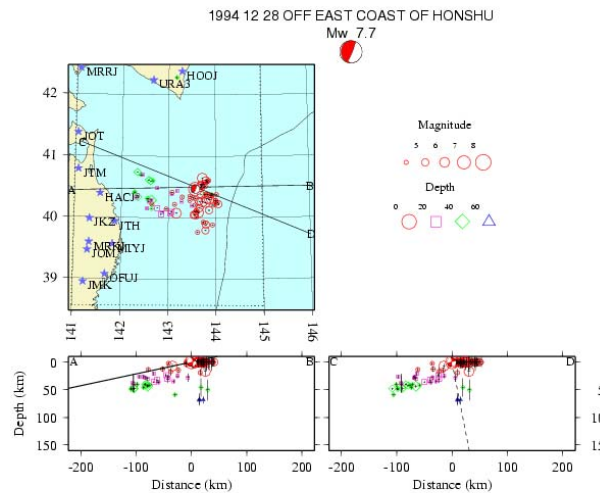
An example of earthquake information

The 1994 far east off Sanriku earthquake (Mw 7.7)

Centroid moment tensor
from long period body wave



Aftershock distribution
and corresponding
fault plane



Rupture process
model

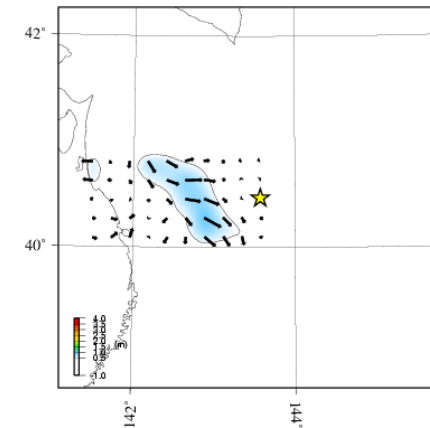
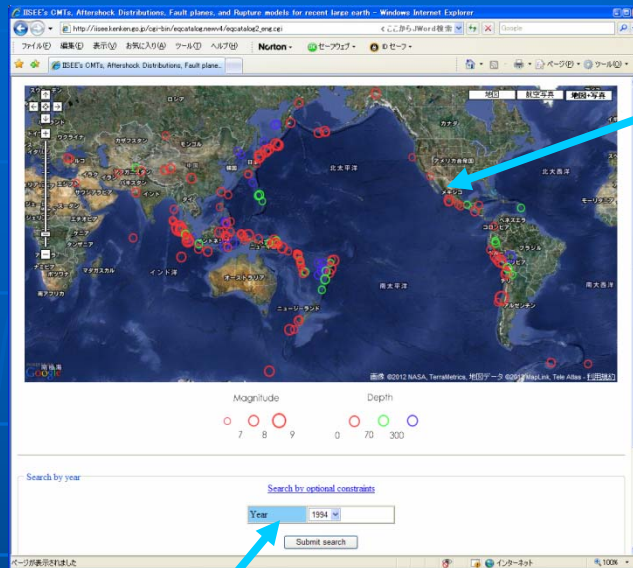


Figure 1. An example of the solutions in the catalog. The event is the 1994 far east off Sanriku earthquake.

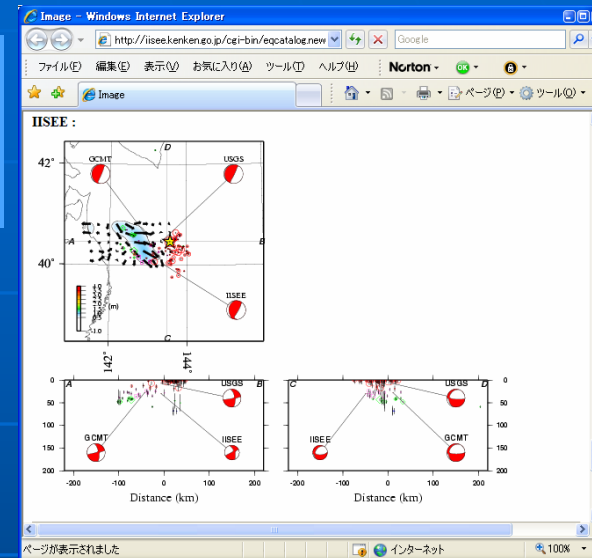
Search page of the catalog

Search page top



An event can be selected on Google Map

Earthquake information



List of events

Events can be selected by setting conditions

YR	MO	DA	HR	MN	SEC	LAT	LONG	DEPTH	M _w	Earthquake information	Region	Other information
1994	03	09	23	28	7.7	-178.5	564	7.6	17.77	<input type="checkbox"/> MT (<input type="checkbox"/> Harvard <input type="checkbox"/> BRI <input type="checkbox"/> USGS) <input type="checkbox"/> Aftershock distribution (<input type="checkbox"/> ISC <input type="checkbox"/> BRI) <input type="checkbox"/> Rupture process	FUJI ISLANDS REGION	
1994	06	02	18	17	36.8	-112.98	39	7.8	10.47	<input type="checkbox"/> MT (<input type="checkbox"/> Harvard <input type="checkbox"/> BRI <input type="checkbox"/> USGS) <input type="checkbox"/> Aftershock distribution (<input type="checkbox"/> ISC <input type="checkbox"/> BRI) <input type="checkbox"/> Rupture process	SOUTH OF JAWA, INDONESIA	Utsu Catalog
1994	06	09	00	33	16.4	-67.56	637	8.2	13.83	<input type="checkbox"/> MT (<input type="checkbox"/> Harvard <input type="checkbox"/> BRI <input type="checkbox"/> USGS) <input type="checkbox"/> Aftershock distribution (<input type="checkbox"/> ISC <input type="checkbox"/> BRI) <input type="checkbox"/> Rupture process	NORTHERN BOLIVIA	Utsu Catalog
1001	01	12	03	26	22.0	162.41	32	4.4	1.33	<input type="checkbox"/> MT (<input type="checkbox"/> Harvard <input type="checkbox"/> BRI <input type="checkbox"/> USGS) <input type="checkbox"/> Aftershock distribution (<input type="checkbox"/> ISC <input type="checkbox"/> BRI) <input type="checkbox"/> Rupture process	STANLEY CREEK, ANTARCTICA	

Expansion of Database of Aftershock Distributions and Fault planes

- We analyzed large ($M \geq 7$) events that occurred since 1976 to determine their aftershock distributions and fault planes.
- We obtained results for 214 events.
- The results are available at http://iisee.kenken.go.jp/cgi-bin/eqcatalog.newv6/mjhdcatalog_eng.cgi.

Tsunami simulation

- Results of tsunami simulations and tsunami waveform inversions for recent large earthquakes are available at the IISEE web site.
- After searching the catalog, in case the corresponding tsunami simulation result is available, the link to it is shown in the search result.

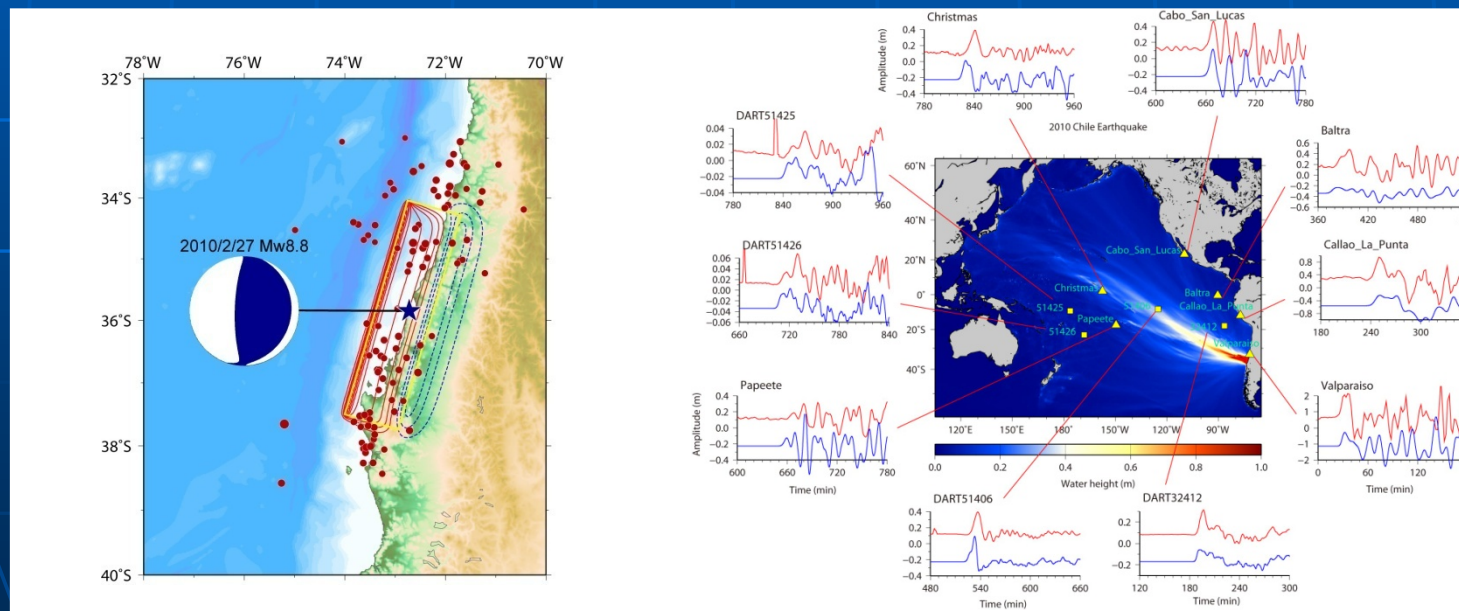


Fig. 2. Tsunami simulation results for the February 27, 2010 Chile earthquake.

Strong ground motion simulation

- Software of strong ground motion simulation for seismic bedrock using stochastic Green's function method (Onishi and Horike, 2000) was developed.
- A function to export earthquake source parameters in the catalog to calculations of intensities, PGV, and PGA using attenuation relations is implemented at the search page.

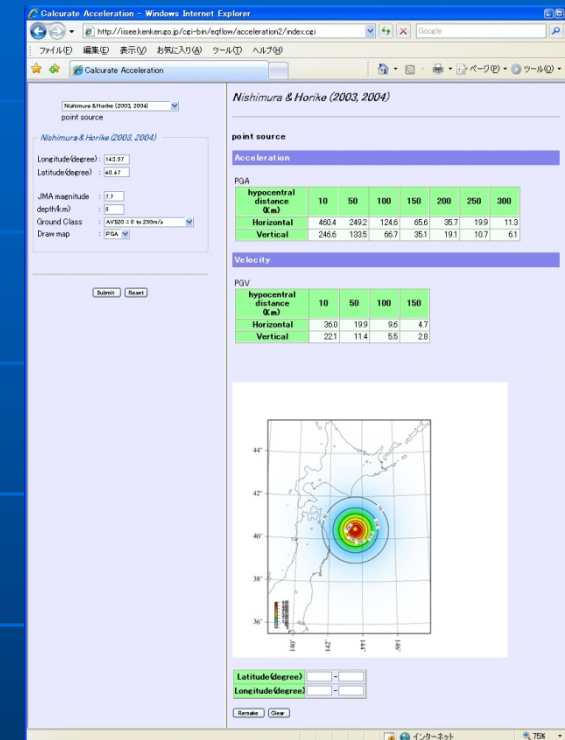


Fig. 3. The interface of the calculator using attenuation relations.

Catalog of Damaging Earthquakes in the World

- Dr. Tokuji Utsu, Professor Emeritus of Tokyo University, compiled a catalog, "Catalog of Damaging Earthquakes in the World," (Utsu, 1990; Utsu, 2002; Utsu, 2004. The later updates are added by the International Institute of Seismology and Earthquake Engineering).
- The IISEE has inherited this catalog and its search page, and is continuously updating the catalog.

Catalog of Damaging Earthquakes in the World: Search page

Search page top

Search result

Utsu Search - Windows Internet Explorer

http://iisee.kenken.go.jp/utsu/utsuengbak_eng.html

Search parameters

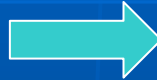
Year(AD) -
 Latitude (degrees) - Longitude (degrees) -
 Depth(kilometers) - km
 Magnitude >=

Additional parameters (you can choose multiple conditions)

Japanese Earthquakes (including events which occurred outside Japan that caused Tsunami damage)
 Casualty >= 100
 Events caused Tsunami damage
 Keyword Events include the keyword
 Exclude events that are marked with ?, +, -
 Country Afghanistan

Search under the above conditions

Set the above parameters and click "Search under the above conditions". The maximum number of events to be displayed is set to 100. When the number of events exceeds 100, please change the parameters. When you do not put numbers in the first four conditions, the assumed minimum and maximum numbers are assigned, respectively. Please use negative numbers for latitudes in the southern hemisphere and longitude in the western hemisphere. Also, please use negative numbers to specify years before 0 A.D.



Result - Windows Internet Explorer

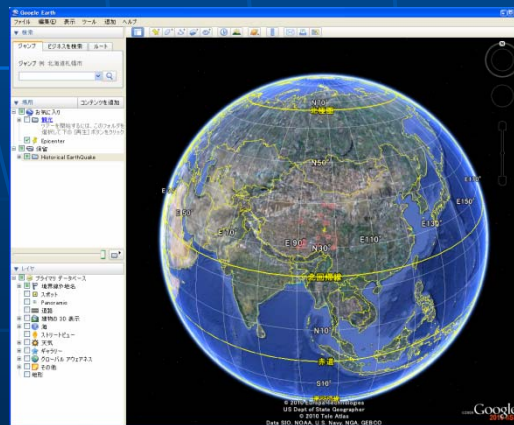
http://iisee.kenken.go.jp/cgi-bin/utsu/result_eng.cgi

1 earthquake is found.

Source	Year	Month	Day	Time	Latitude	Longitude	Depth	M	Tidal waves	Dead	Injured	Damage	Remark	Make map	INFOR at IISEE
S	2008	1	3	19:43U	-0.41	132.88	17	7.5	t	5	250	lmi	Indonesia(Irian Jaya) Manokwari,Sorong 7.7W	MAP	EQ INFOR TSUNAMI

Get a KML file

Cross-reference between two catalogs



IISEE's CMTs, Aftershock Distributions, Fault planes, an

http://iisee.kenken.go.jp/cgi-bin/eqcatalog/eqcatalog2_eng.cgi

YR	MO	DA	HR	MIN	SEC	LAT	LONG	DEPTH	Mw	Earthquake information	Region	Other information
2008	01	03	19	43	50.65	-0.41	132.88	17	7.7	<input type="checkbox"/> MT (<input type="checkbox"/> GCMT <input type="checkbox"/> USGS <input type="checkbox"/> IISEE) <input type="checkbox"/> Aftershock distribution (<input type="checkbox"/> IISEE) <input type="checkbox"/> Rupture process	IRIAN JAYA REGION, INDONESIA	Utsu Catalog
2008	01	03	22	33	40.29	-0.69	133.3	23	7.4	<input type="checkbox"/> MT (<input type="checkbox"/> GCMT <input type="checkbox"/> USGS <input type="checkbox"/> IISEE) <input type="checkbox"/> Aftershock distribution (<input type="checkbox"/> IISEE) <input type="checkbox"/> ISC <input type="checkbox"/> IISEE) <input type="checkbox"/> Rupture process	IRIAN JAYA REGION, INDONESIA	Utsu Catalog

A KML file for the selected events is available.

Information Network on Earthquake Disaster Prevention Technologies (IISEE-NET)

- The IISEE conducted a research project to accumulate and disseminate various technical information effective for disaster prevention efforts in earthquake-vulnerable countries, which includes
 - seismic design codes
 - seismic networks and activities
 - seismic damages
 - microzonation
- The output of this project is available at:
<http://iisee.kenken.go.jp/net/index.htm>
and is referred to “IISEE-NET”.

BRI strong motion observation

- The Building Research Institute (BRI) has been conducting strong motion observation for building structures since 1957.
- At present, the BRI is operating more than seventy strong motion stations deploying in major cities throughout Japan.
- The search page for the BRI strong motion database is at <http://smo.kenken.go.jp/smdb>.
- At <http://smo.kenken.go.jp/smreport>, reports of recent strong earthquakes are also available.

Group Training Courses of IISEE

- Annual Course
 - 12 months (October to September)
 - Three main sub courses:
 - Seismology
 - Earthquake Engineering
 - Tsunami
- Global Seismological Observation Course
- China Seismic Building Course

Program of Annual Course

- October – May
Group training including lectures, study trips, and colloquiums
- June – August
Individual studies on participants' respective subjects
- September
 - Presentation & discussion on results of individual studies
 - Closing Ceremony: Certificate, Diploma and Master's degree