A new ISC service: the Event Bibliography (1900-2013)

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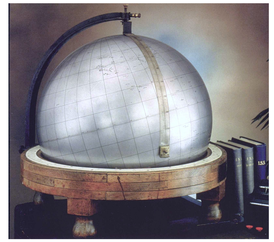
Poster #27



Motivation

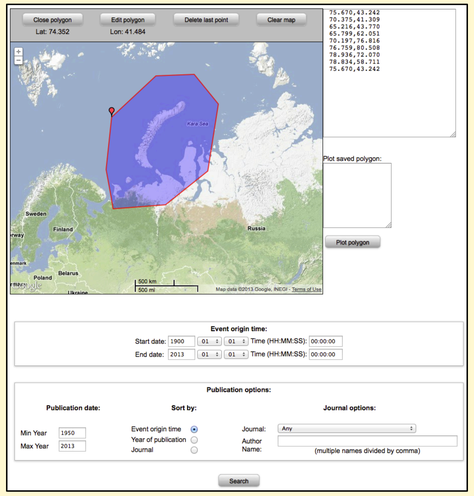
Seismologists often need to identify scientific articles related to specific seismic events that occurred at particular times or in specific regions.

Most advanced bibliographical searches such as Google Scholar would require them to type a text string containing a commonly used name for the earthquake or the region and date it occurred.

The search may need to be repeated several times to account for all possible transliterations of a place name in English, several different ways of specifying a date and a variety of names of the area where the earthquake has occurred.

The results then have to be merged and the unavoidable duplicates removed. The procedure is daunting and often leads to unstable results.

Why use the ISC Bibliography?



- **An interactive map-based search** provides **references to scientific publications** linked to both **natural** and **anthropogenic** events based on:
  - event location and time and/or
  - publication parameters (author name, journal, year of publication).
- **References to publications cover:**
  - Seismology,
  - Earthquake engineering,
  - Tectonics,
  - Structural geology,
  - Geodesy,
  - Remote sensing,
  - Nuclear test monitoring,
  - Tsunami,
  - Landslides,
  - Environmental studies,
  - Coastal science,
  - Natural disasters,
  - Hydrology,
  - Geochemistry,
  - Atmospheric sciences,
  - Geomagnetism

Who are the potential users?

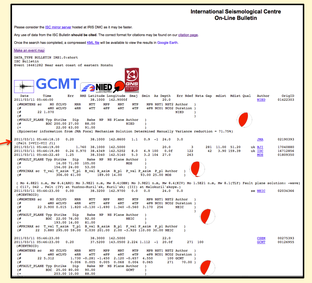
- Geoscientists
- Engineers
- Students
- Teachers
- Journal Editors
- Peer reviewers
- Authors of scientific articles
- General public

An Example of Output

An example of a search for all articles written by Kanamori for the 2011 Tohoku earthquake and tsunami.

The event identificator provides a link with the ISC Bulletin where all major parameters of this earthquake are listed.

References to articles are listed in one of the standard formats, with DOI where available, and a link to the relevant journal website where an article can be obtained.



16461282
NEIC 2011-03-11 05:46:24
38.30 142.37 29.0 Mw(GCMT) = 9.1
532
TOHOKU2011

Total number of articles associated to this earthquake in the entire ISC Event Bibliography

Tsai, V.C., Ampuero, J.-P., Kanamori, H., and Stevenson, D.J., 2013. Estimating the effect of Earth elasticity and variable water density on tsunami speeds, *Geophys. Res. Lett.*, 40, 1, , DOI: 10.1002/grl.50147

Colombelli, S., Zollo, A., Festa, G., and Kanamori, H., 2012. Early magnitude and potential damage zone estimates for the great Mw 9 Tohoku-Oki earthquake, *Geophys. Res. Lett.*, 39, 22, L22306, DOI: 10.1029/2012GL053923

Zhan, Z., Helmberger, D., Simons, M., Kanamori, H., Wu, W., Cubas, N., Duputel, Z., Chu, R., Tsai, V.C., Avouac, J.-P., Hudnut, K.W., Ni, S., Hetland, E., and Ortega Culaciati, F.H., 2012. Anomalously steep dips of earthquakes in the 2011 Tohoku-Oki source region and possible explanations, *Earth planet. Sci. Lett.*, 353–354, 11, 121 - 133, DOI: 10.1016/j.epsl.2012.07.038

Ritsema, J., Lay, T., and Kanamori, H., 2012. Fukushima Daiichi: The 2011 Tohoku Earthquake, *Elements*, 8, 3, 183-188, DOI: 10.2113/gselements.8.3.183

Simons, M., Minson, S.E., Sladen, A., Ortega, F., Jiang, J., Owen, S.E., Meng, L., Ampuero, J.-P., Wei, S., Chu, R., Helmberger, D.V., Kanamori, H., Hetland, E., Moore, A.W., and Webb, F.H., 2011. The 2011 magnitude 9.0 Tohoku-Oki earthquake: Mosaicking the megathrust from seconds to centuries, *Science*, 332, 6036, 1421-1425, DOI: 10.1126/science.1206731

Lay, T. and Kanamori, H., 2011. Insights from the great 2011 Japan earthquake, *Physics Today*, 64, 12, 33-39, DOI: 10.1063/PT.3.1361

Lay, T., Yamazaki, Y., Ammon, C.J., Cheung, K.F., and Kanamori, H., 2011. The 2011 Mw 9.0 off the Pacific coast of Tohoku Earthquake: Comparison of deep-water tsunami signals with finite-fault rupture model predictions, *Earth Planets Space*, 63, 7, 797-801, DOI: 10.5047/eps.2011.05.030

Lay, T., Ammon, C.J., Kanamori, H., Xue, L., and Kim, M.J., 2011. Possible large near-trench slip during the 2011M w 9.0 off the Pacific coast of Tohoku Earthquake, *Earth Planets Space*, 63, 7, 687-692, DOI: 10.5047/eps.2011.05.033

Lay, T., Ammon, C.J., Kanamori, H., Kim, M.J., and Xue, L., 2011. Outer trench-slope faulting and the 2011 Mw 9.0 off the Pacific coast of Tohoku Earthquake, *Earth Planets Space*, 63, 7, 713-718, DOI: 10.5047/eps.2011.05.006

Koper, K.D., Hutko, A.R., Lay, T., Ammon, C.J., and Kanamori, H., 2011. Frequency-dependent rupture process of the 2011 Mw 9.0 Tohoku Earthquake: Comparison of short-period P wave backprojection images and broadband seismic rupture models, *Earth Planets Space*, 63, 7, 599-602, DOI: 10.5047/eps.2011.05.026

Duputel, Z., Rivera, L., Kanamori, H., Hayes, G.P., Hirshorn, B., and Weinstein, S., 2011. Real-time W phase inversion during the 2011 off the Pacific coast of Tohoku earthquake, *Earth Planets Space*, 63, 7, 535-539, DOI: 10.5047/eps.2011.05.032

Ammon, C.J., Lay, T., Kanamori, H., and Cleveland, M., 2011. A rupture model of the 2011 off the Pacific coast of Tohoku Earthquake, *Earth Planets Space*, 63, 7, 693-696, DOI: 10.5047/eps.2011.05.015

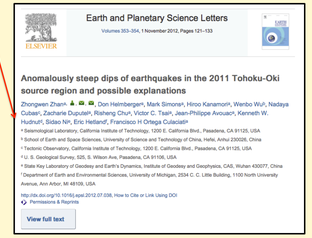
Chu, R., Wei, S., Helmberger, D.V., Zhan, Z., Zhu, L., and Kanamori, H., 2011. Initiation of the great Mw 9.0 Tohoku-Oki earthquake, *Earth planet. Sci. Lett.*, 308, 3-4, 277-283, DOI: 10.1016/j.epsl.2011.06.031

Ye, L., Lay, T., and Kanamori, H., 2012. The Sanriku-Oki low-seismicity region on the northern margin of the great 2011 Tohoku-Oki earthquake rupture, *J. geophys. Res.*, 117, B2, B02305, DOI: 10.1029/2011JB008847

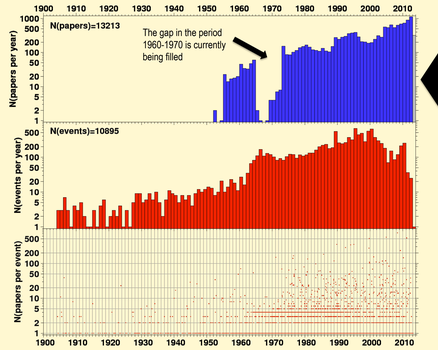
Lay, T., Kanamori, H., Ammon, C.J., Koper, K.D., Hutko, A.R., Ye, L., Yue, H., and Rushing, T.M., 2012. Depth-varying rupture properties of subduction zone megathrust faults, *J. geophys. Res.*, 117, B4, B04311, DOI: 10.1029/2011JB009133

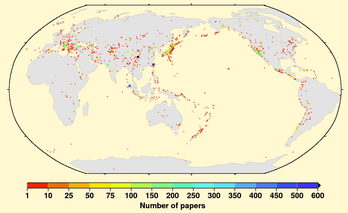
Zhao, D., Huang, Z., Umino, N., Hasegawa, A., and Kanamori, H., 2011. Structural heterogeneity in the megathrust zone and mechanism of the 2011 Tohoku-oki earthquake (Mw 9.0), *Geophys. Res. Lett.*, 38, 17, L17308, DOI: 10.1029/2011GL048408

Yamazaki, Y., Lay, T., Cheung, K.F., Yue, H., and Kanamori, H., 2011. Modeling near-field tsunami observations to improve finite-fault slip models for the 11 March 2011 Tohoku earthquake, *Geophys. Res. Lett.*, 38, L00G15, DOI: 10.1029/2011GL049130



Content of the ISC Event Bibliography





As of April 2013, the ISC Event Bibliography includes:

- scientific articles published in the last 60 years and related to seismic events that occurred in the last 110 years;
- 13,213 scientific articles relating to 9,539 earthquakes and 1,312 anthropogenic seismic events

First 20 journals and authors with the largest number of articles in the ISC Event Bibliography

Journal	Articles
Bull. seism. Soc. Am.	1624
Geophys. Res. Lett.	917
J. geophys. Res.	869
Tectonophysics	532
Geophys. J. Int.	484
Earth Planets Space	388
Earthq. Spectra	325
Seismol. Res. Lett.	306
Acta seism. sin.	287
Pure appl. Geophys.	261
EOS. Trans. Am. geophys. Un.	220
Chinese J. Geophys.	194
Nat. Hazards Earth Syst. Sci.	184
Nature	169
Phys. Earth planet. Interiors	169
J. Seismol.	165
Annls Geophys.	154
Earthquake	147
Zisin	146
Natural Hazards	146

Author	Articles
Kanamori,H.	146
Satake,K.	70
Bürgmann,R.	67
Helmberger,D.	64
Okal,E.A.	62
Lay,T.	61
Sato,T.	61
Hayakawa,M.	57
Liu,J.	57
Hasegawa,A.	56
Singh,S.K.	56
Jackson,J.A.	54
Mori,J.	52
Dreger,D.	52
Irikura,K.	52
Hartzell,S.	50
Hauksson,E.	44
Zhang,J.	44
Ma,K.-F.	42
Tanioka,Y.	41

"The most studied events"

Event origin time	N	Code
2008–05–12 06:27:59	748	WENCHUAN2008
2004–12–26 00:58:52	559	SUMATRA2004
2011–03–11 05:46:24	532	TOHOKU2011
1999–09–20 17:16:16	510	CHI–CHI1999
1995–01–16 20:46:51	347	SHYOGO1995
1989–10–18 00:04:14	347	LOMAPRIETA1989
1994–01–17 12:30:54	337	NORTHRIDGE1994
1992–06–28 11:57:35	282	LANDERS1992
1999–08–17 00:01:38	271	IZMIT1999
2009–04–06 01:32:42	252	L'AQUILA2009
1985–09–19 13:17:50	182	MEXICOCITY1985
1976–07–27 19:42:53	165	TANGSHAN1976
2001–01–26 03:16:40	149	BHUJ2001
2011–02–22 00:51:43	149	SANFERNANDO1971
2010–04–13 23:48:51	144	MAULE2010
1976–05–06 20:00:12	139	FRIULI1976
1980–11–23 18:34:52	134	CAMPANIA1980
2004–09–28 17:15:24	119	PARKFIELD2004
1988–12–07 07:41:24	118	ARMENIA1988
2004–10–23 08:55:58	117	MID–NIIGATA2004
2003–09–25 19:50:07	116	TOKACHI–OKI2003
2001–11–14 09:26:10	110	KUNLUN2001
1999–10–16 09:46:45	108	HECTOR–MINE1999
2002–11–03 22:12:41	106	DENALI2002
2005–03–28 16:09:35	100	NIAS2005

Event origin time	N	Code
1999–11–12 16:57:19	100	DUZCE1999
1983–05–26 02:59:58	96	SEAJAPAN1983
2003–12–26 01:56:53	93	BAM2003
2005–10–08 03:50:35	83	KASHMIR2005
1979–10–15 23:16:57	79	IMPERIAL1979
1997–09–26 09:40:25	73	UMBRIA–MARCHE1997B
2010–09–03 16:35:46	73	DARFIEL2010
2010–01–12 21:53:10	72	HAITI2010
1960–05–22 19:11:14	70	CHILE1960
1972–12–23 06:29:42	70	MANAGUA1972
2000–10–06 04:30:17	68	IOTORI2000
1977–03–04 19:21:54	66	VRANCEA1977
2007–07–16 10:13:26	64	NIIGATA2007
1952–03–04 11:13:21	62	CHUETSU–OKI2007
1984–09–30 20:48:51	61	NAGANO1984
2010–04–13 23:49:37	60	YUSHU2010
1984–04–24 21:15:19	60	MORWAN1984
1994–06–09 00:33:16	59	BOLIVIA1994
1988–12–07 07:41:24	57	ELASSMA1988
1987–10–01 14:42:18	57	WHITTIER1987
2008–06–13 23:43:46	56	IWATE–MIYAGI2008
1964–03–28 03:36:13	54	ALASKA1964
2007–03–25 00:41:57	50	NOTO–HANTO2007
1993–09–29 22:25:50	50	LATUR1993
1959–08–18 06:37:15	49	HEBGEN–LAKE1959

Events versus articles:

- Majority of seismic events attract just one or two articles.
- Some events attract many tens or even hundreds of articles.

For instance:

- Wenchuan 2008
- Sumatra 2004
- Tohoku 2011

If, whilst using the ISC Event Bibliography, you notice that an important article related to the event of your interest is missing, then the "Submit your Article" webpage allows you to fill in this gap. Your help will be most appreciated by the ISC.

Final Comments

- This is the first release of the ISC Event Bibliography which includes articles from a wide range of Geoscience research fields.
- The Event Bibliography lists both natural and anthropogenic seismic events that are described in at least one scientific publication.
- **Articles describing general seismicity of specific regions are not included. Nor are the articles describing large regional or global catalogues such as Abe, Gutenberg-Richter, GCMT, Centennial or EHB.**
- With rare exceptions, we include only those publications that contain titles and abstracts in English.
- **We make no judgement about the quality of scientific articles.**
- The Event Bibliography is not yet comprehensive to include all relevant articles. We continue to include further entries and will be inviting scientific publishers, individual researchers and authors to help us with necessary updates.
- Improvements to the ISC Event Bibliography for the first part of the 20th century are expected as a result of further work on the ISC-GEM Catalogue.
- We expect that the ISC Event Bibliography will be useful to geoscientists, engineers, students, teachers, journal editors, reviewers and article authors.