



The ISC Event Bibliography: A Useful Tool For Studying Notable Seismic Events

D. Di Giacomo^{1,*}, D.A. Storchak¹, N. Safronova¹, P. Ozgo¹, and J. Harris¹

¹International Seismological Centre, Thatcham, UK

*Corresponding author: domenico@isc.ac.uk

http://www.isc.ac.uk/event_bibliography/index.php

http://colossus.iris.washington.edu/event_bibliography/index.php

Poster #34

1) 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.

Great East Japan earthquake 2011?

Higashihihon daishinsai?

Tohoku tsunami?



Sendai earthquake?

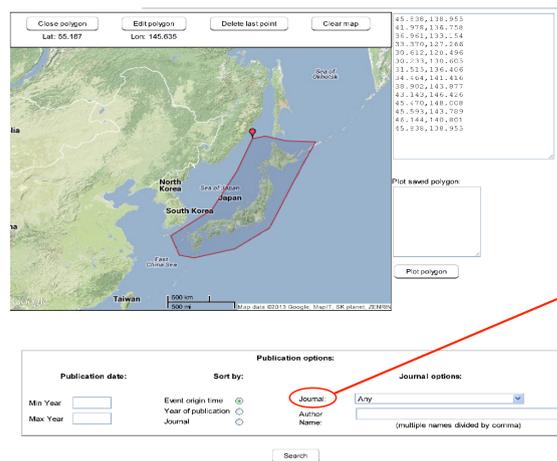
Fukushima?

Tohoku earthquake?

The results then have to be merged and the unavoidable duplicates removed.

2) Searching the ISC Event Bibliography

The ISC Event Bibliography database allows searching for publications linked to seismic events in the ISC Bulletin. This association, therefore, enables users to perform searches based on event parameters (e.g., location and time of the event) and/or publications parameters (e.g., author name, journal, year of publication). The spatial search is global by default or polygons can be drawn on a Google map. The temporal search is limited to one year by default but it can be expanded to 100+ years. Additionally, users can search also for publications in a specific journal and/or author(s) and year of publication.



Approximately 500 titles are included in the ISC Event Bibliography, and about 300 of them are routinely checked at present.

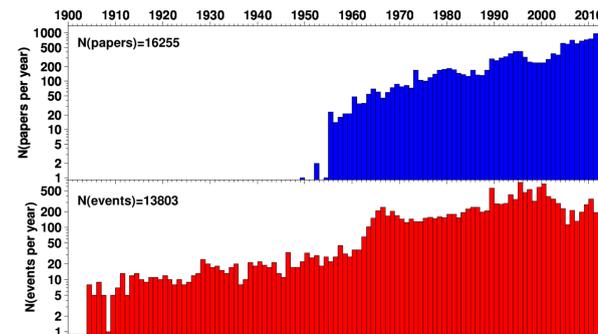


For each event, the output shows:

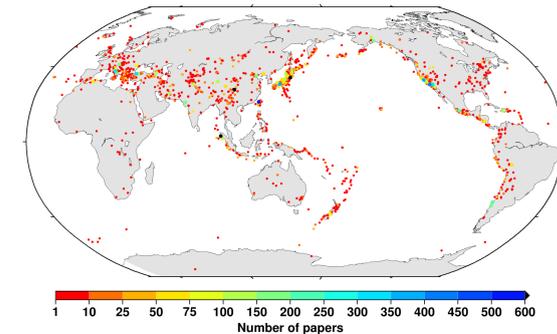
- The event header line with the ISC event identifier, the prime hypocentre along with the agency, the preferred magnitude estimation, the total number of publications linked to the event, and, finally, if available, the Event code. Links to the ISC Bulletin for the events found are also provided.
- References in a format widely accepted by most journals. If available, links to the papers are provided via the DOI, or to the journal home page.

3) Content of the ISC Event Bibliography

The database is a continuation and extension of the Bibliography of Seismology, which was produced at the ISC between 1965 and 1995 (although ceased in 1995, is still available at www.isc.ac.uk/projects/bibliography/). Exploiting the references collected by the ISC since the 1970s, in year 2000 the ISC linked about 4,000 publications in the period 1971-1995 with the ISC event identifier. In order to resume and improve this service, in 2012 we started to link ISC event identifiers to publications that deal with specific seismic events and published in the period 1996 to present. Hence, about 50 years of publications considering earthquakes or man-made events are available in the Event Bibliography database.



The Event Bibliography database contains over 16,000 references from about 500 titles. Although the oldest publications in the database were published in the 1950s, some events were also studied several decades after the event occurrence. Thus notable events at the beginning of 20th century are also present (e.g., 1906 San Francisco earthquake).



Spatial distribution of the seismic events in the ISC Event Bibliography coded by number of publications. Not surprisingly, the events with most publications occurred in Japan, California and the Euro-Mediterranean region.

4) Use of the ISC Event Bibliography: Examples From Two Notable Events in 2013: the Lushan and Sea of Okhotsk earthquakes

Although the Lushan and Sea of Okhotsk 2013 earthquakes occurred only a few months ago, many papers dedicated to these events are already published. In particular, the Lushan earthquakes was the subject of a special issue of *Seismological Research Letters*. Excerpts of the ISC Event Bibliography search outputs are shown below:

| ISC Event Agency | Origin time | Lat | Lon | Depth | Magnitude | Article_total | Event code |
|---------------------------|-------------------------|-------|--------|-------|----------------|---------------|------------|
| 602866228 | MOS 2013-04-20 00:02:48 | 30.30 | 102.96 | 33.0 | Mw(GCMT) = 6.6 | 54 | IJSHAN2013 |

Jiang, Z., Wang, M., Wang, Y., Wu, Y., Che, S., Shen, Z.-K., Bürgmann, R., Sun, J., Yang, Y., Liao, H. and Li, Q., 2014. GPS constrained coseismic source and slip distribution of the 2013 Mw6.6 Lushan, China, earthquake and its tectonic implications, *Geophys. Res. Lett.*, 41, 2, 407-413, DOI: [10.1002/2013GL058812](https://doi.org/10.1002/2013GL058812)

Shi, Z., Wang, G., Wang, C.-Y., Manga, M. and Liu, C., 2014. Comparison of hydrological responses to the Wenchuan and Lushan earthquakes, *Earth planet. Sci. Lett.*, 391, 193-200, DOI: [10.1016/j.epsl.2014.01.048](https://doi.org/10.1016/j.epsl.2014.01.048)

Xu, C. and Xu, X., 2014. The spatial distribution pattern of landslides triggered by the 20 April 2013 Lushan earthquake of China and its implication to identification of the seismogenic fault, *Chin. Sci. Bull.*, 59, 13, 1418-1424, DOI: [10.1007/s11434-014-0202-0](https://doi.org/10.1007/s11434-014-0202-0)

Li, Y., Jia, D., Wang, M., Shaw, J.H., He, J., Lin, A., Xiong, L. and Rao, G., 2014. Structural geometry of the source region for the 2013 Mw 6.6 Lushan earthquake: Implication for earthquake hazard assessment along the Longmen Shan, *Earth planet. Sci. Lett.*, 390, 275-286, DOI: [10.1016/j.epsl.2014.01.018](https://doi.org/10.1016/j.epsl.2014.01.018)

Lei, J., Zhang, G. and Xie, F., 2014. The 20 April 2013 Lushan, Sichuan, mainshock, and its aftershock sequence: tectonic implications, *Earthq. Science*, 27, 1, 15-25, DOI: [10.1007/s11589-013-0045-9](https://doi.org/10.1007/s11589-013-0045-9)

He, L.M., Wu, L.X., De Santis, A., Liu, S.J. and Yang, Y., 2014. Is there a one-to-one correspondence between ionospheric anomalies and large earthquakes along Longmenshan faults?, *Ann. Geophys.*, 32, 2, 187-196, DOI: [10.5194/angeo-32-187-2014](https://doi.org/10.5194/angeo-32-187-2014)

Zhang, Y., Wang, R., Chen, Y., Xu, L., Du, F., Jin, M., Tu, H. and Dahm, T., 2014. Kinematic Rupture Model and Hypocenter Relocation of the 2013 Mw 6.6 Lushan Earthquake Constrained by Strong-Motion and Telesismic Data, *Seismol. Res. Lett.*, 85, 1, 15-22, DOI: [10.1785/0220130126](https://doi.org/10.1785/0220130126)

Xie, J., Li, X., Wen, Z. and Wu, C., 2014. Near-Source Vertical and Horizontal Strong Ground Motion from the 20 April 2013 Mw 6.8 Lushan Earthquake in China, *Seismol. Res. Lett.*, 85, 1, 23-33, DOI: [10.1785/0220130121](https://doi.org/10.1785/0220130121)

Wang, Y., Wang, F., Wang, M., Shen, Z. and Wan, Y., 2014. Coulomb Stress Change and Evolution Induced by the 2008 Wenchuan Earthquake and Its Delayed Triggering of the 2013 Mw 6.6 Lushan Earthquake, *Seismol. Res. Lett.*, 85, 1, 52-59, DOI: [10.1785/0220130111](https://doi.org/10.1785/0220130111)

Parsons, T. and Segou, M., 2014. Stress, Distance, Magnitude, and Clustering Influences on the Success or Failure of an Aftershock Forecast: The 2013 Mw 6.6 Lushan Earthquake and Other Examples, *Seismol. Res. Lett.*, 85, 1, 44-51, DOI: [10.1785/0220130100](https://doi.org/10.1785/0220130100)

The publications linked to the 2013 Lushan cover a large range of features of the earthquake itself and the consequences. For example, the Lushan earthquake has been studied in conjunction with the larger 2008 Wenchuan earthquake, whereas other studies focused on the landslide triggering, strong motion analyses, etc.

| ISC Event Agency | Origin time | Lat | Lon | Depth | Magnitude | Article_total | Event code |
|---------------------------|--------------------------|-------|--------|-------|----------------|---------------|----------------|
| 603007131 | NEIC 2013-05-24 05:44:48 | 54.89 | 153.22 | 598.1 | Mw(GCMT) = 8.3 | 6 | SEAOKHOTSK2013 |

Chen, Y., Lianxing, W. and Chen, J., 2014. A Cascading Failure during the May 24 2013 Great Okhotsk Deep Earthquake, *J. geophys. Res.*, DOI: [10.1002/2013JB010926](https://doi.org/10.1002/2013JB010926)

Špičák, A. and Vaněk, J., 2014. Kamchatka subduction zone, May 2013: the Mw 8.3 deep earthquake, preceding shallow swarm and numerous deep aftershocks, *Studia geophys. geod.*, 58, 1, 76-83, DOI: [10.1007/s11209-013-1038-9](https://doi.org/10.1007/s11209-013-1038-9)

Zhan, Z., Kanamori, H., Tsai, V.C., Helmberger, D.V. and Wei, S., 2014. Rupture complexity of the 1994 Bolivia and 2013 Sea of Okhotsk deep earthquakes, *Earth planet. Sci. Lett.*, 385, 89-96, DOI: [10.1016/j.epsl.2013.10.028](https://doi.org/10.1016/j.epsl.2013.10.028)

Wei, S., Helmberger, D., Zhan, Z. and Graves, R., 2013. Rupture complexity of the Mw 8.3 sea of Okhotsk earthquake: Rapid triggering of complementary earthquakes?, *Geophys. Res. Lett.*, 40, 19, 5034-5039, DOI: [10.1002/grl.50977](https://doi.org/10.1002/grl.50977)

Ye, L., Lay, T., Kanamori, H. and Koper, K.D., 2013. Energy Release of the 2013 Mw 8.3 Sea of Okhotsk Earthquake and Deep Slab Stress Heterogeneity, *Science*, 341, 6152, 1380-1384, DOI: [10.1126/science.1242032](https://doi.org/10.1126/science.1242032)

Fewer publications are linked so far to the great 2013 Sea of Okhotsk deep earthquake. Many seismological aspects of this interesting earthquake are investigated and these papers represent an important reference for any author studying this remarkable event. Hence, the ISC Event Bibliography will also be helpful in facilitating the work of authors, reviewers and journal editors during the entire process of scientific article publication.

5) Summary

- The ISC Event Bibliography includes publications linked to events in the ISC Bulletin. Those earthquakes that are part of a large catalogue (like the GCMT, EHB, ISC-GEM, etc.) are not linked to the ISC Event Bibliography, nor are the publications that deal with seismicity of specific regions or include large regional earthquake catalogues;
- We make no judgement of the quality of scientific articles;
- The database is updated on a monthly basis as new publications become available; we invite our users to help us with necessary updates (see www.isc.ac.uk/event_bibliography/submit.php/);
- We follow many journals in order to encompass a wide range of disciplines related to geoscience and available at various databases. This feature makes the ISC Event Bibliography an attractive tool for multidisciplinary studies and useful for researchers and students from different fields, as well as journal editors and reviewers.