Ryukyu-Taiwan PSHA workshop
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Japan Strong-Motion Database: Current status and Data around Ryukyu area

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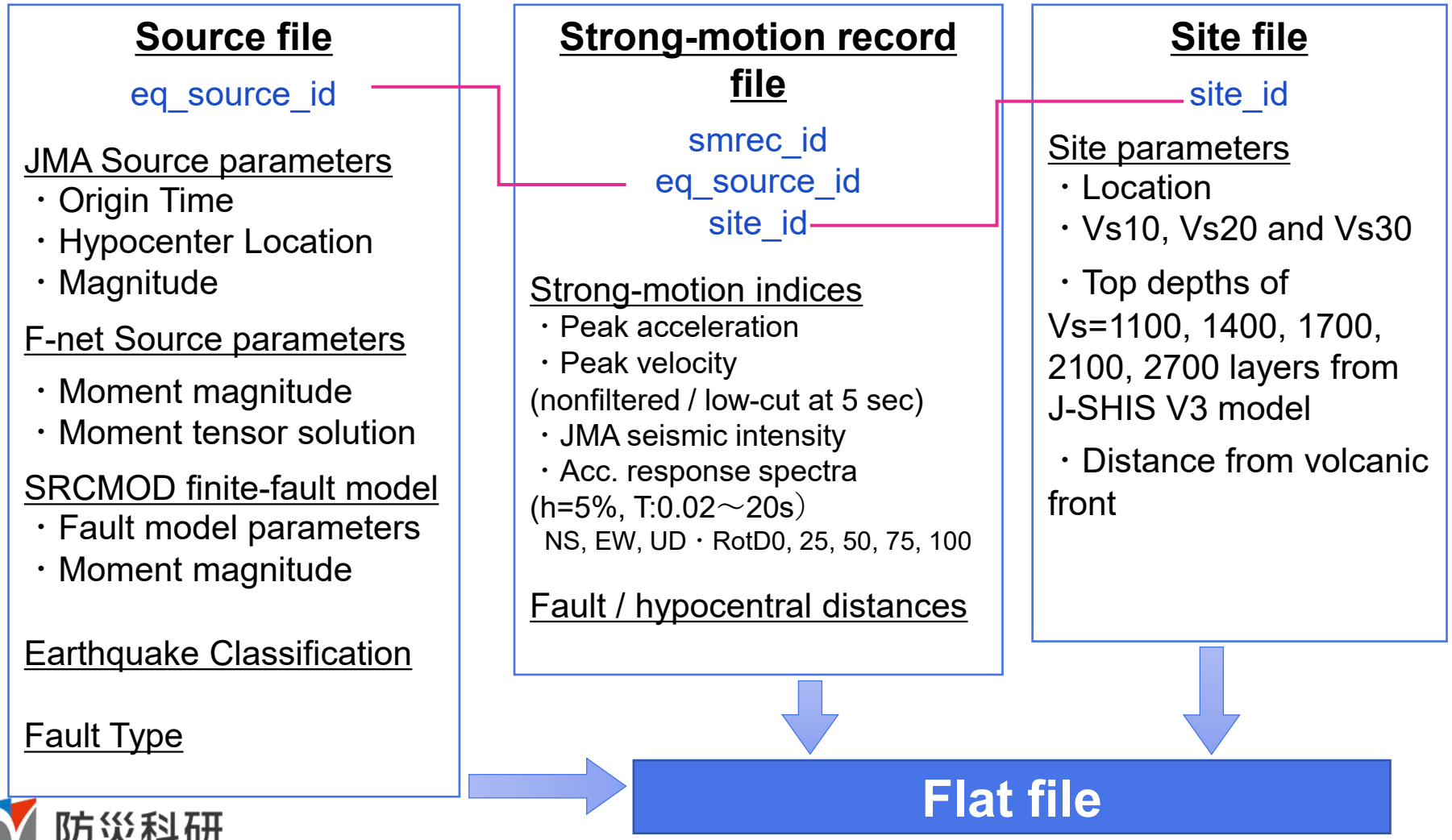
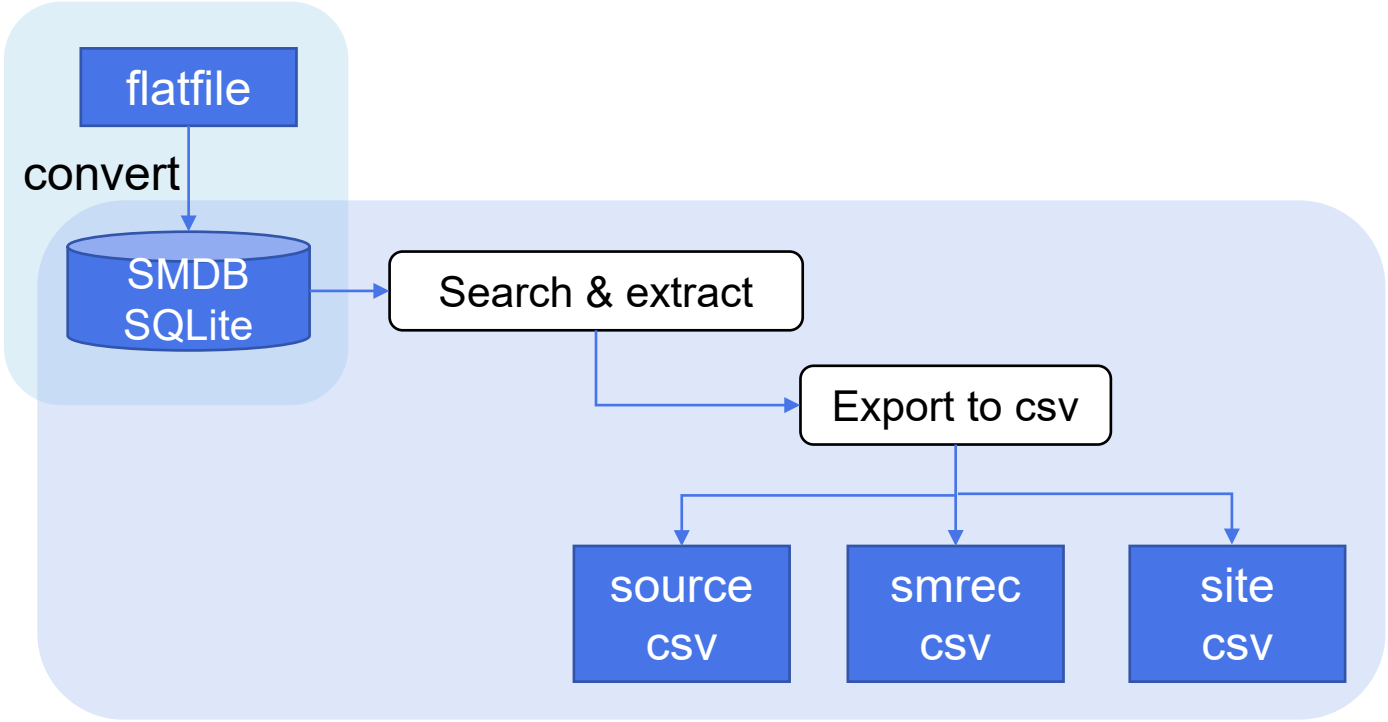
Prototype Strong-motion Database

All K-NET and KiK-net open-data 1996 - 2022
(~ 1.3 million records)



Database Search Tool

Users can search, extract, and sort the database by source, smrec, site parameters.

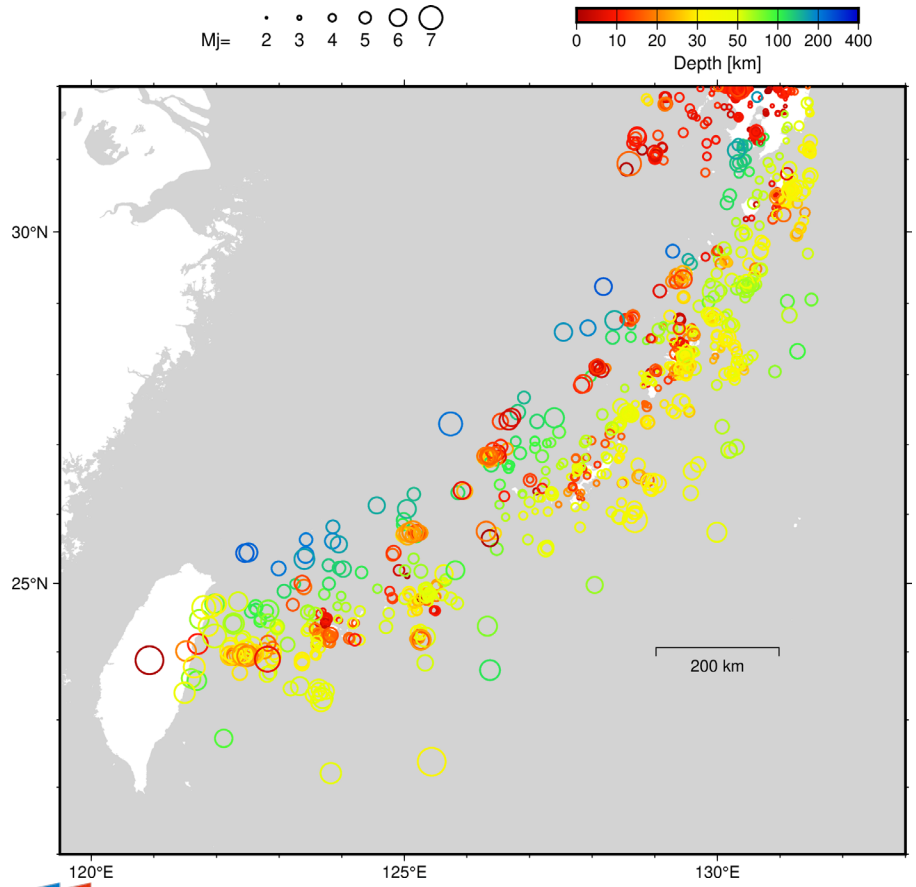


Database search tool can be downloaded together with the flatfile.

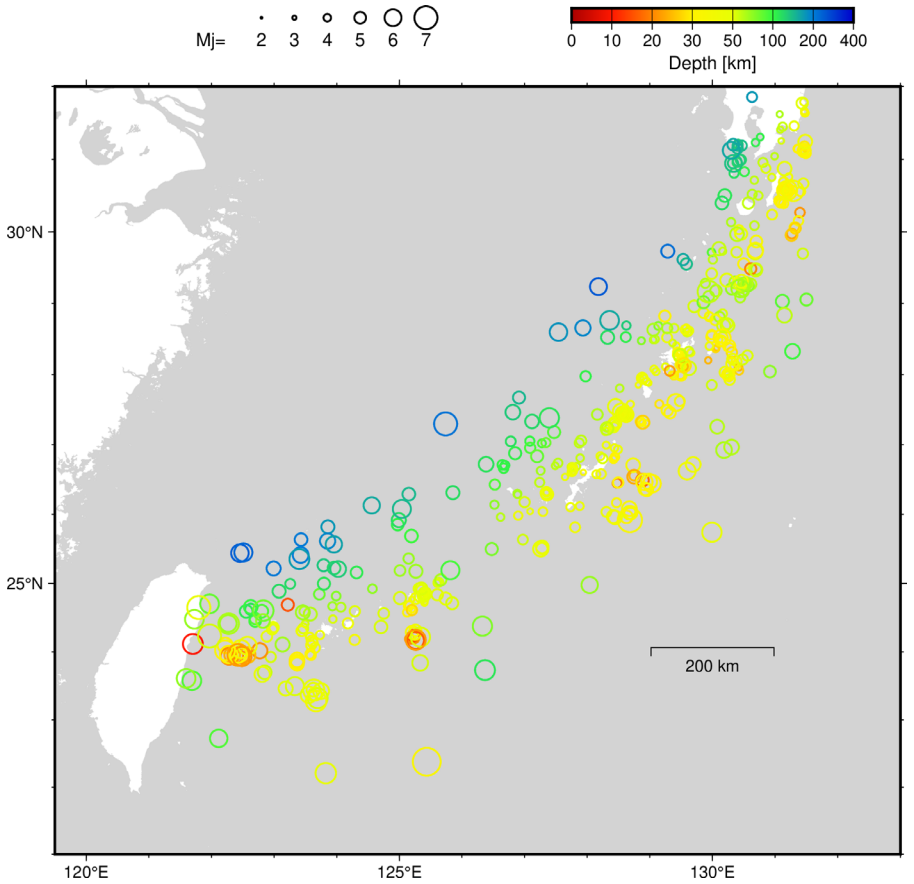
Data around Ryukyu Trench

NIED K-NET & KiK-net
Date:1996-05 ~ 2022-12
13712 records (1214 events / 698 sites)

All events



Inter- and Intra-plate events



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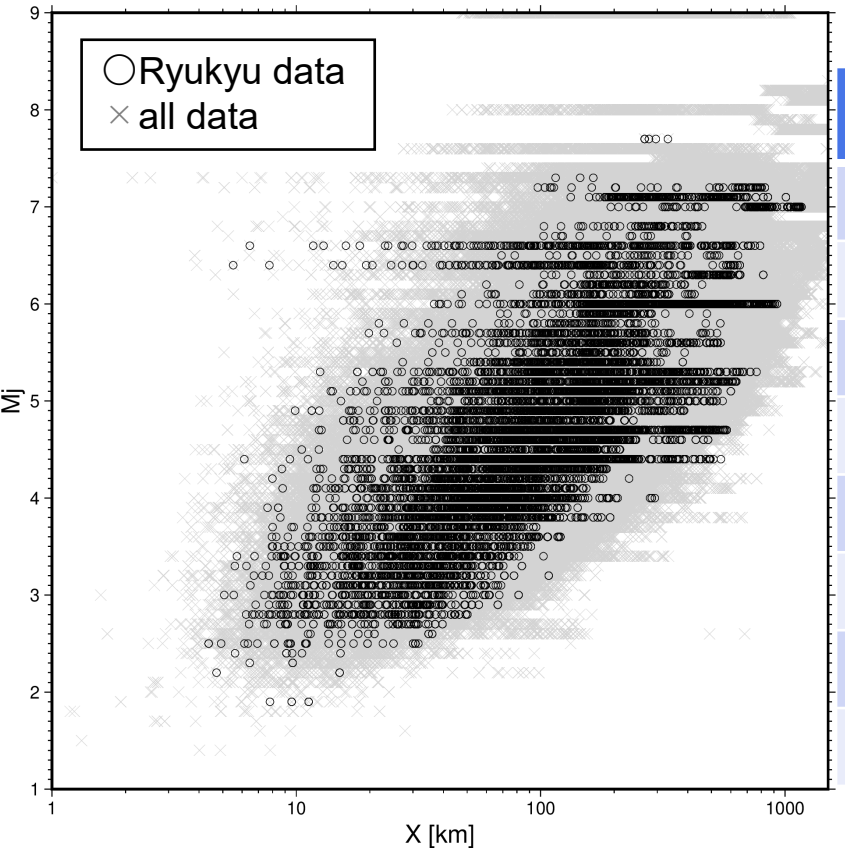


List of Mj>=7 events

From JMA database

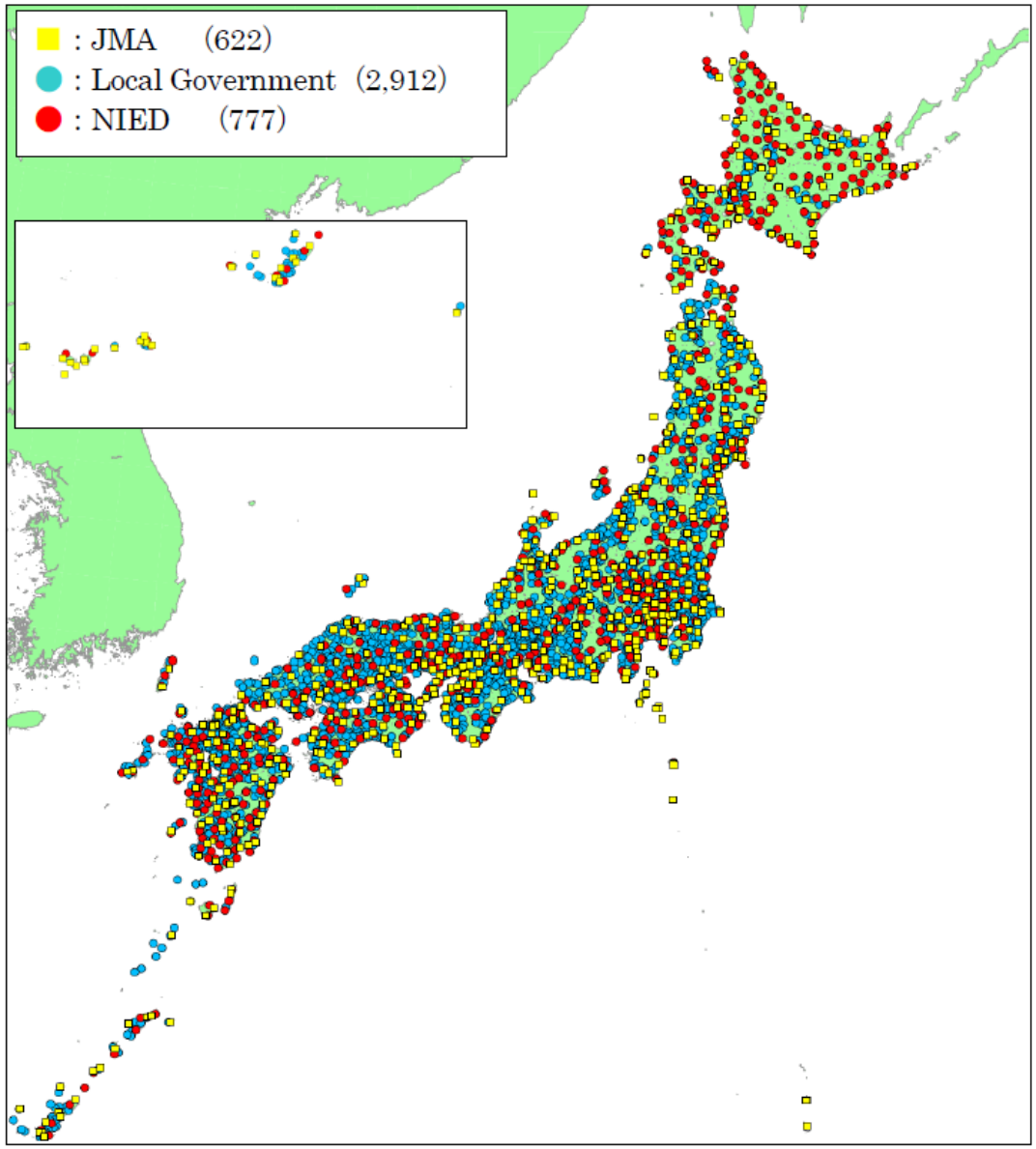
Mj	JST (UTC+9)	Location	Depth, km	Sites	Max. Int.
7.7	1998-05-04 08:30	石垣島南東沖	35	3	3
7.7	1999-09-21 02:47	台湾集集地震	0	2	2
7.3	2001-12-18 13:02	与那国島近海	8	3	4
7.2	2010-02-27 5:31	沖縄本島近海	37	64	5-
7.1	2015-11-14 5:51	薩摩半島西方沖	10	300	4
7.0	2002-03-31 15:52	台湾付近	37	3	2
7.0	2002-05-15 12:46	台湾付近	35	2	2
7.0	2011-11-08 11:59	沖縄本島北西沖	217	122	4

Seismic Intensity Meters of Japan

https://www.jma.go.jp/jma/en/Activities/earthquake.html

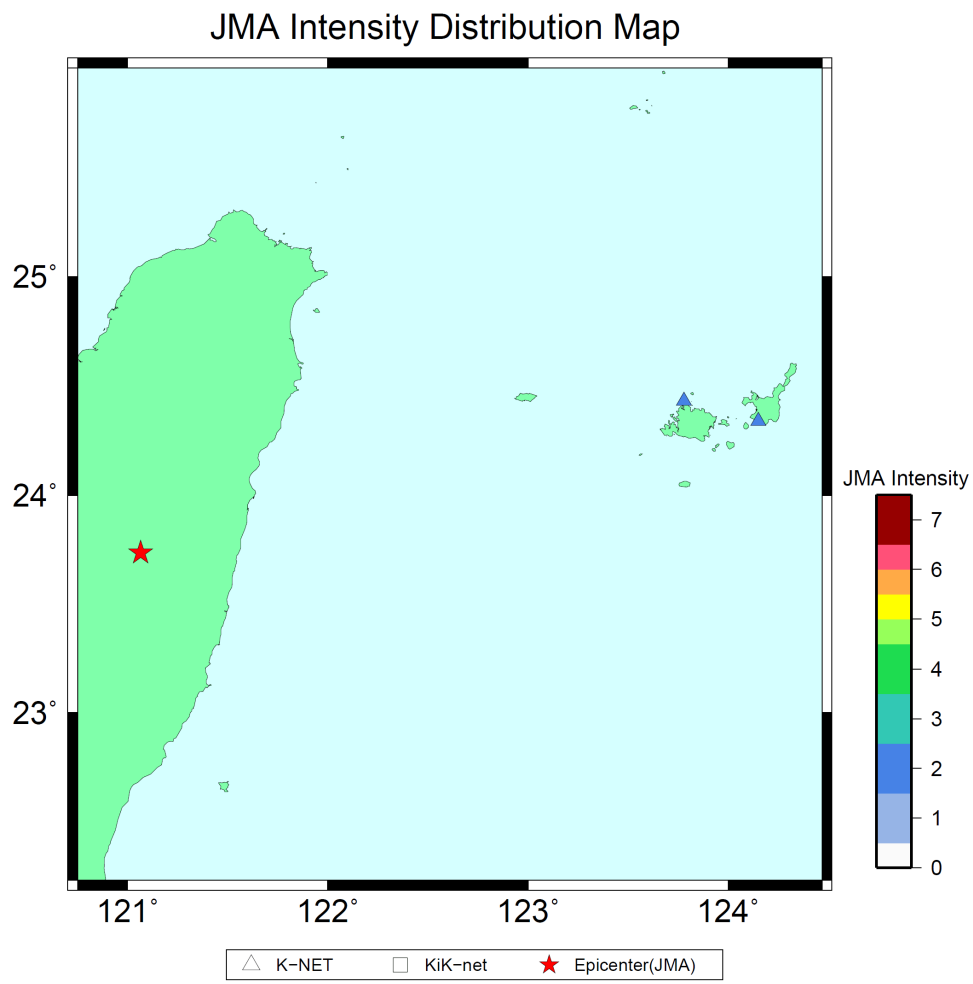
- Seismic intensity data from three observation networks are collected by JMA to issue information immediately after an earthquake
  - JMA
  - Local Government
  - NIED (K-NET, selected)

- Waveform data of Local Government networks are collected by JMA after major earthquakes and are released annually (paid service)

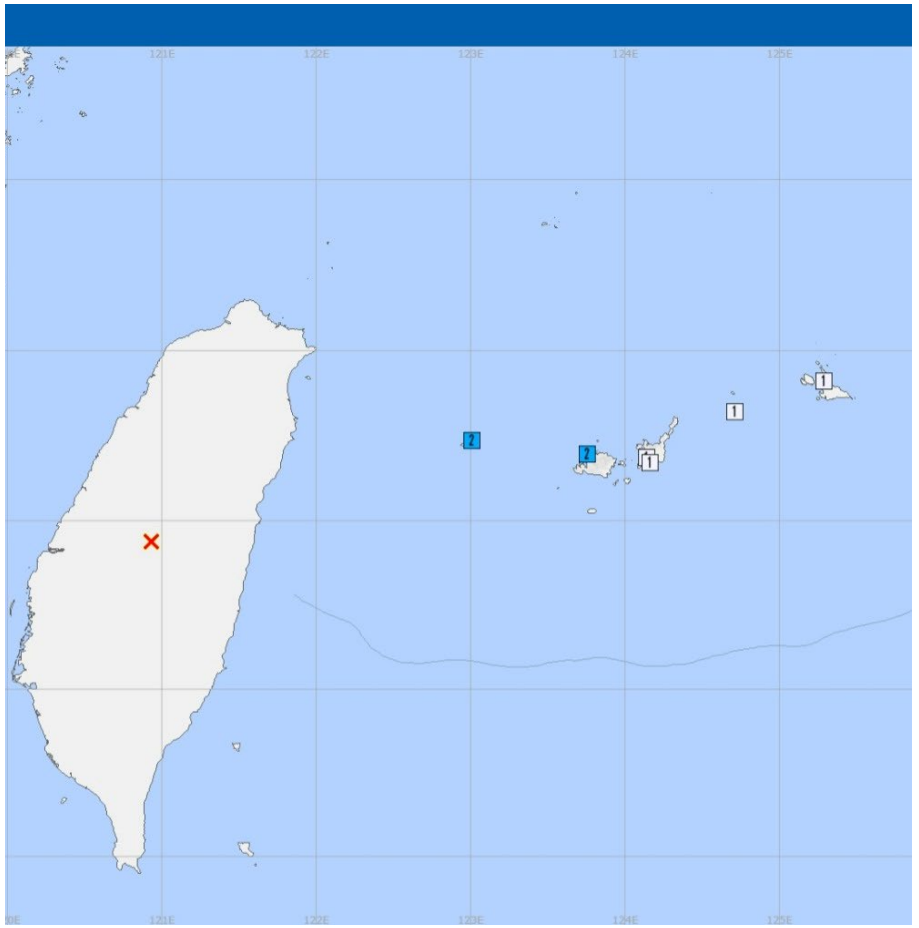


1999-09-21 M7.7 (台湾集集地震)

NIED K-NET & K-Kinet

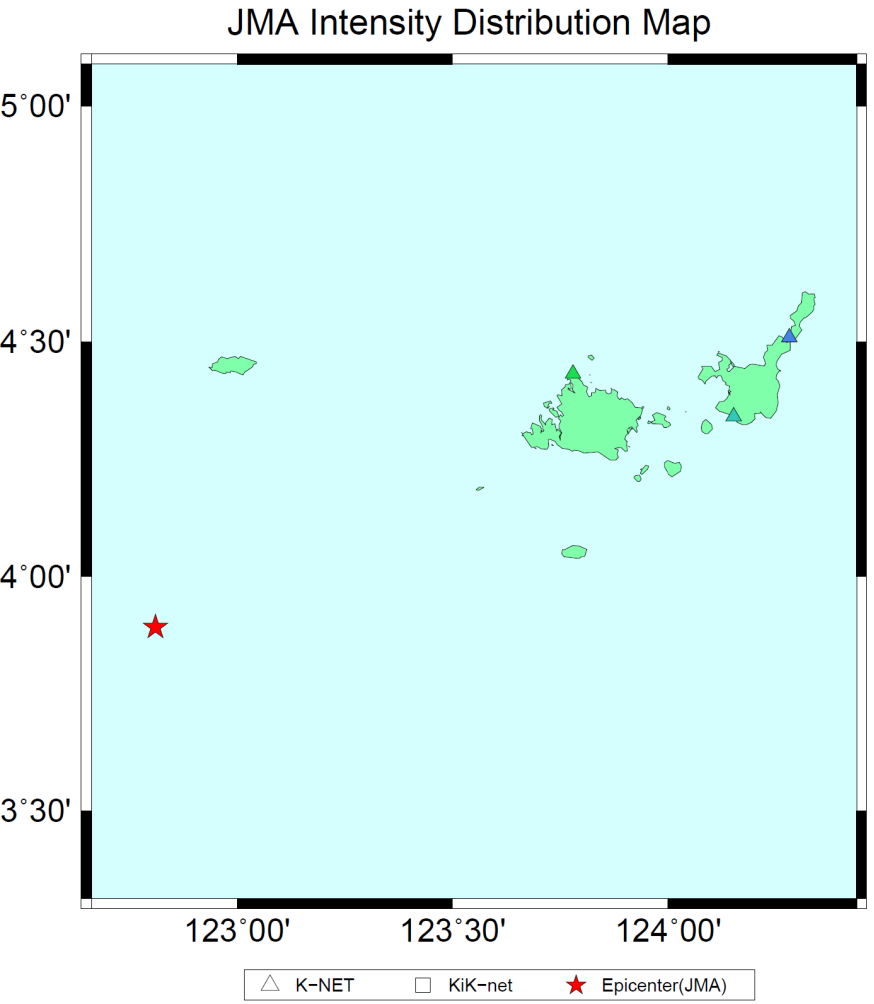


Seismic Intensity by JMA

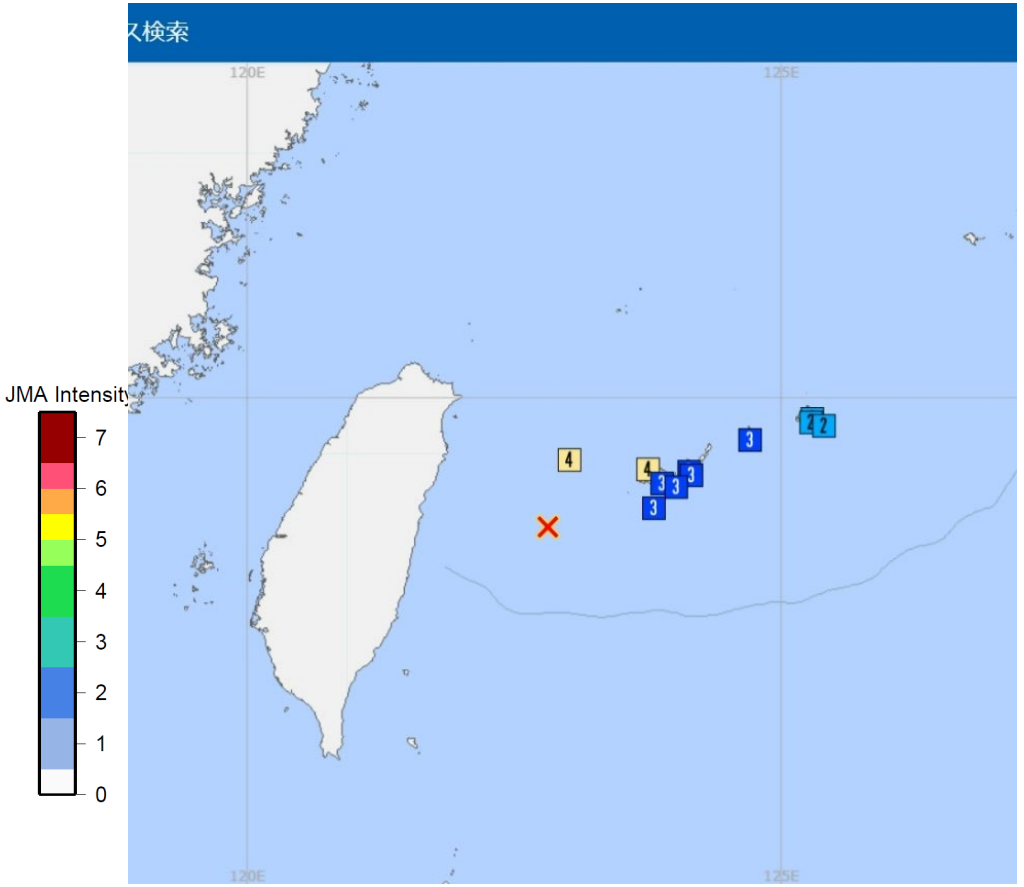


2001-12-18 M7.3

NIED K-NET & K-Kinet



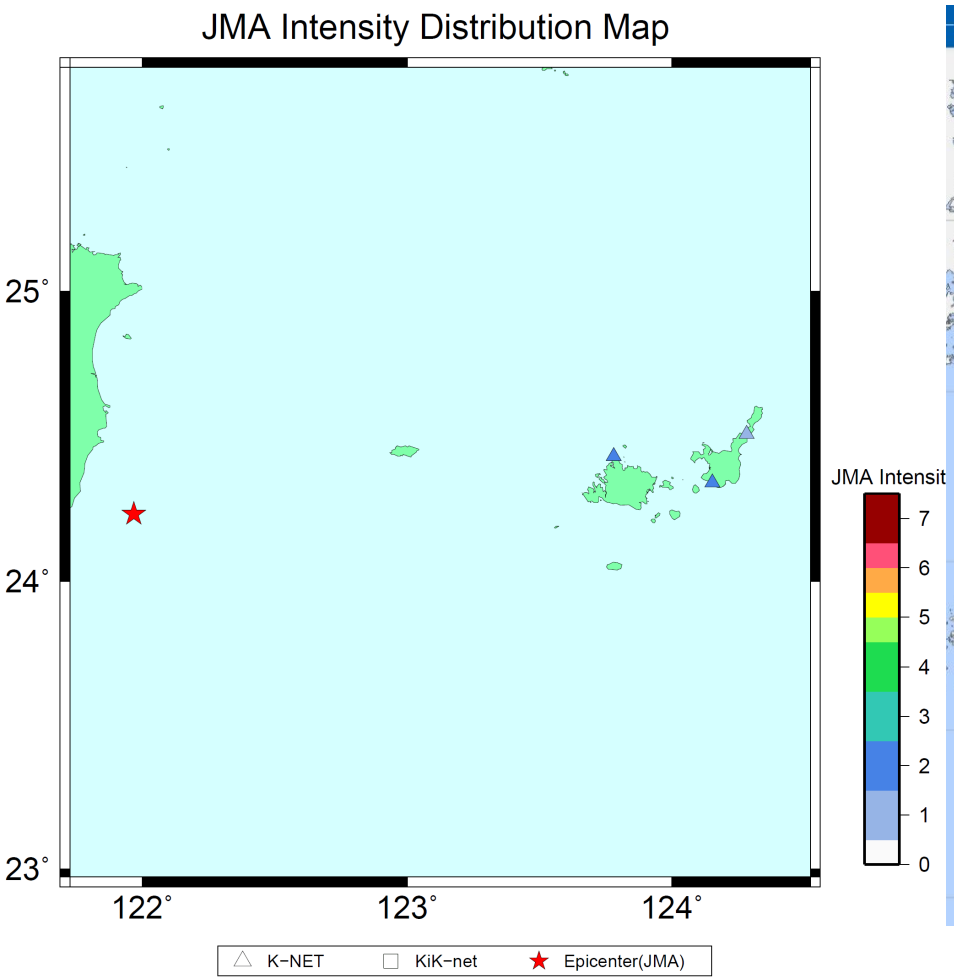
Seismic Intensity by JMA



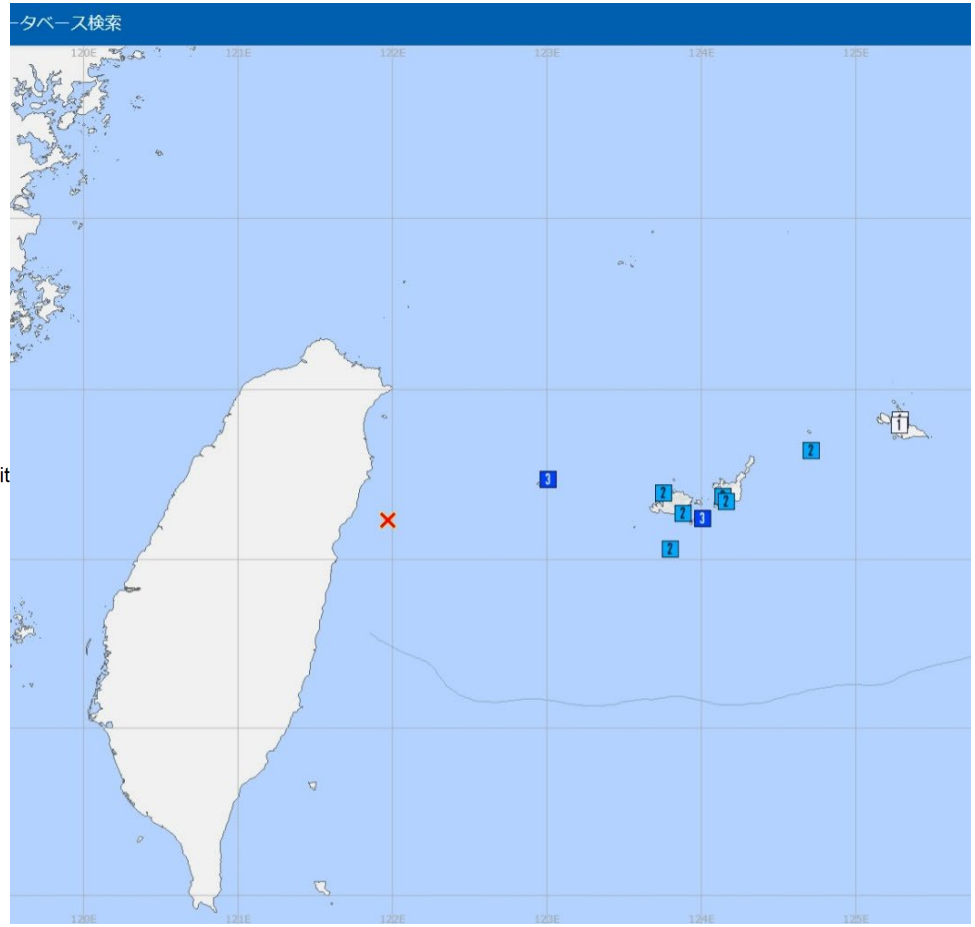
2001/12/18−13:02 23.892N 122.811E 12km M7.3

2002-03-31 M7.0

NIED K-NET & K-Kinet



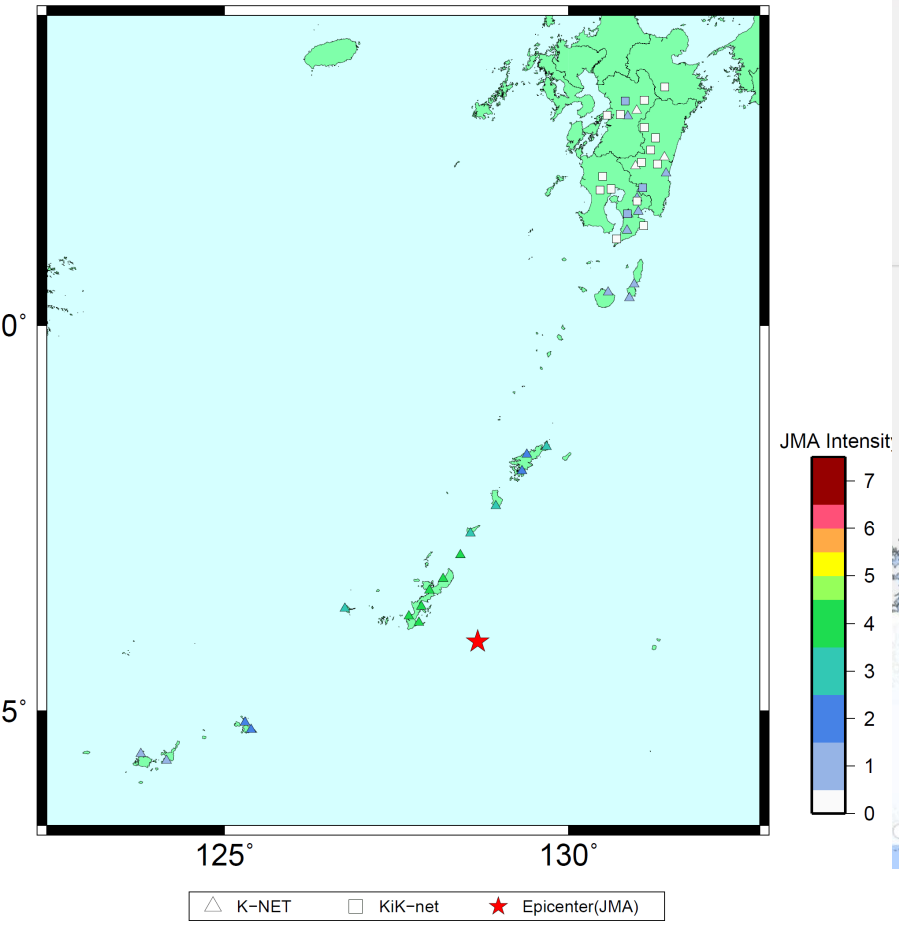
Seismic Intensity by JMA



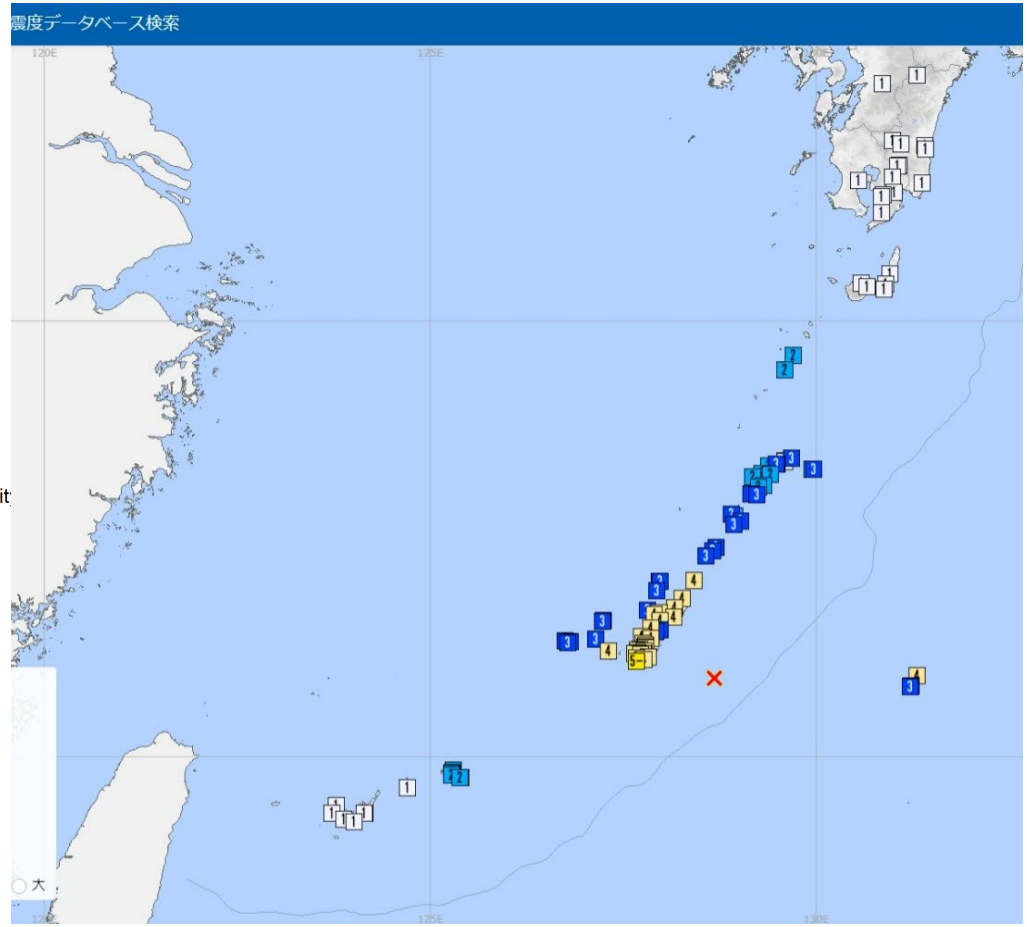
2010-02-27 M7.2

NIED K-NET & K-Kinet

JMA Intensity Distribution Map

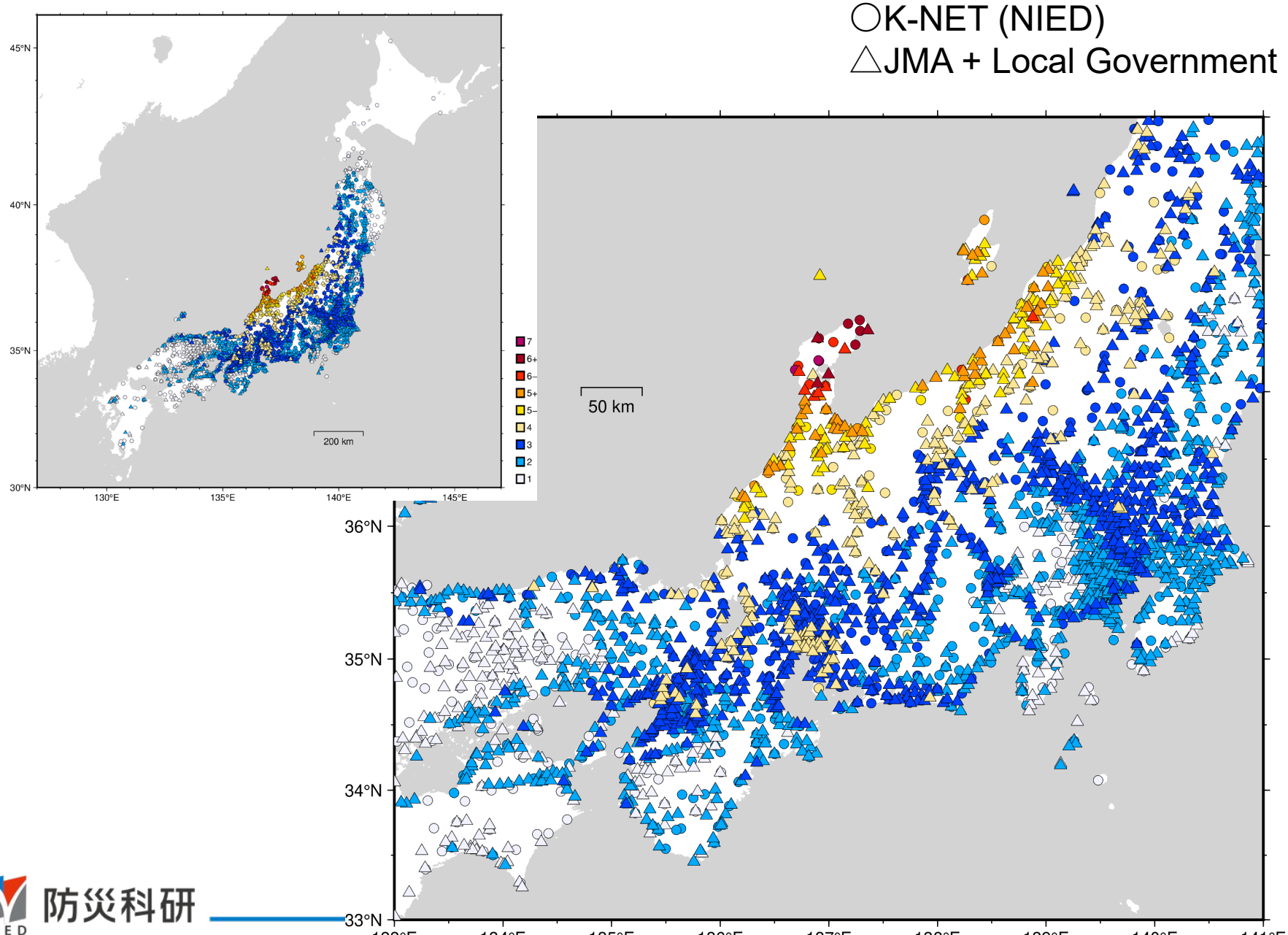


Seismic Intensity by JMA

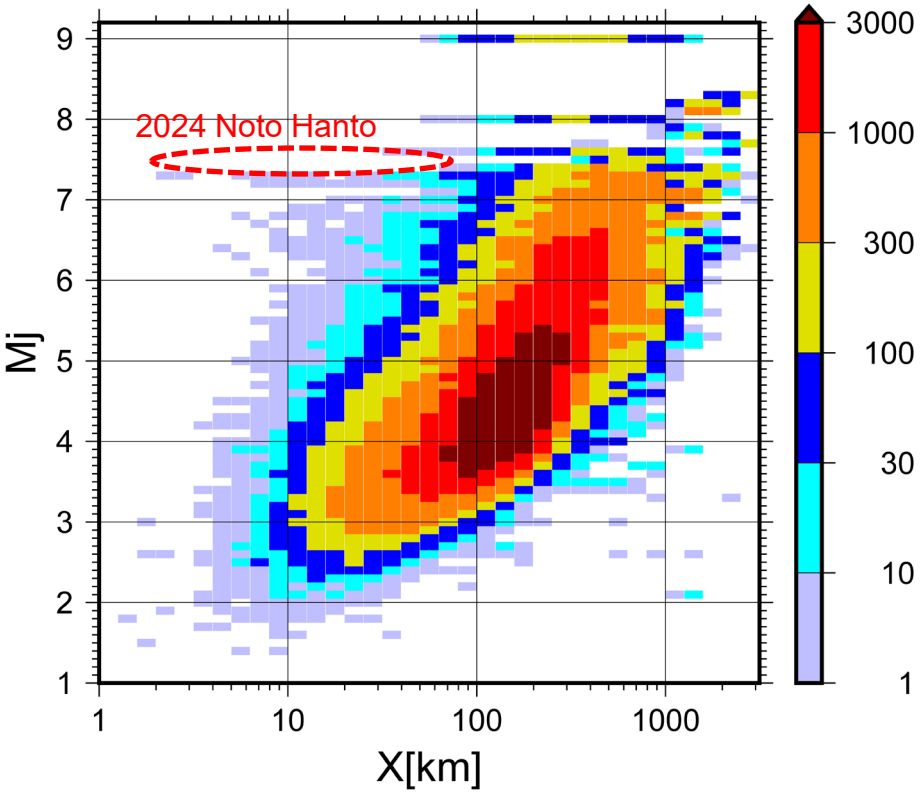


Seismic Intensity of the 2024 Noto Hanto Earthquake

○K-NET (NIED)
△JMA + Local Government



Expansion of Strong Motion Database



- Near-fault strong motion data (M>~7, X<~30), which is required for SHA, is extremely scarce.
- By utilizing the seismic intensity network data in addition to K-NET & KiK-net, significant expansion of the strong motion database is expected.
- Near-field data are obtained during the recent large earthquakes (2016 Kumamoto, 2024 Noto Hanto, …) that can compensate the scarce region of DB.
- **Current work: expansion of strong motion DB**
- JMA seismic observation network
  - 1996-10 ～ 2021-12
  - 5280 events, 94415 records
- Local Government network
  - 2004-09 ～ 2021-12
  - 99 events, 2330 records

	Fault dist.	Local Gov.	JMA	NIED
2016 Kumamoto Mj7.3 / Mw7.1	X <10km	7	2	6
	10<= X <30km	27	3	13
2024 Noto Hanto Mj7.6 / Mw7.5	X <10km	1	1	4
	10<= X <30km	8	4	7