OFF EAST COAST OF HONSHU, JAPAN, M_W=6.5, 19 JANUARY 2005, 06:12 UTC

An earthquake that struck on 19 January 2005, off the East Coast of Honshu, Japan at 15:12, local time was felt throughout a large portion of central and northern Honshu. (*Figure 1*). A tsunami was recorded at various tide stations in the Izu Shichito Islands as well at various stations in south central Honshu.The largest wave height recorded was 39 cm. recorded on Miyake-jima.

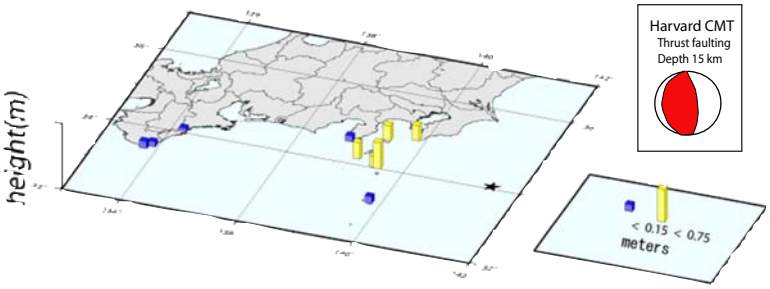
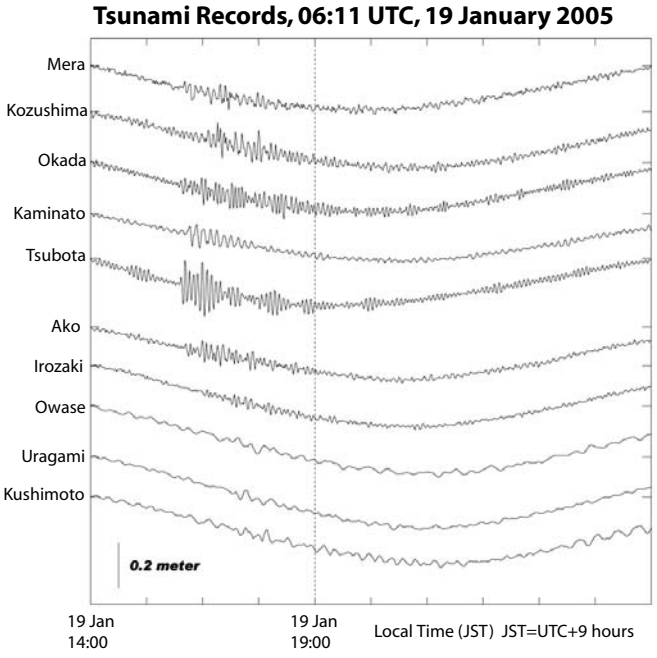


Figure 1. Observed tsunami heights from the 19 January earthquake as reported by JMA. The blue star indicates the earthquake's epicenter.



Tide station name	Latitude	Longitude	Arrival time (JST)	Initial wave height (cm)	Max wave-height (cm)
MERA	34°55'	139°49'	15:39	11	23
KOZUSHIMA	34°13'	139°08'	16:05	9	24
OKADA	34°47'	139°23'	15:35	6	23
KAMINATO	33°08'	139°48'	15:44	5	10
TSUBOTA	34°03'	139°33'	15:36	7	39
AKO	34°04'	139°29'	15:41	5	16
IROZAKI	34°37'	138°51'	16:04	5	9
OWASE	34°05'	136°12'	16:34	4	5
URAGAMI	33°33'	135°54'	16:34	3	8
KUSHIMOTO	33°29'	135°46'	16:34	2	11

Left, Sea level records showing the tsunami wave with list of station details above. Both courtesy of JMA.

NORTHERN SUMATRA, INDONESIA, M_W=8.7, 28 MARCH 2005, 18:32 UTC

An earthquake occuring off the coast of Sumatra, Indonesia with an epicenter at 2.1°N and 97° E, was the largest earthquake recorded in 2005. It occured on 28 March, 2005, 3 months after the massive 26 December 2004 earthquake, and was measured with a Moment Magnitude (M_W) of 8.7 (HRV) (Figure 1). The earthquake occured 187 km distance from the 26 December 2004 Earthquake in an area to the south, which had previously ruptured in 1861. (Figure 2). Because the rupture area was much smaller, 300 km as compared to 1200 km for the 26 December earthquake, and the epicenter was situated between the main island of Sumatra and smaller outlying islands, this earthquake did not generate a destructive basin wide tsunami.

The impact of the earthquake was greatest on the island of Nias, where at least 1,000 people were killed, 300 injured and 300 buildings destroyed. The National Earthquake Information Center (NEIC) also reported two hundred killed in Kepulauan Banyak, with another hundred people killed and many injured in Simeulue; with 3 people killed, 40 injured and some damage in the Meulaboh area of Sumatra. A three-meter tsunami

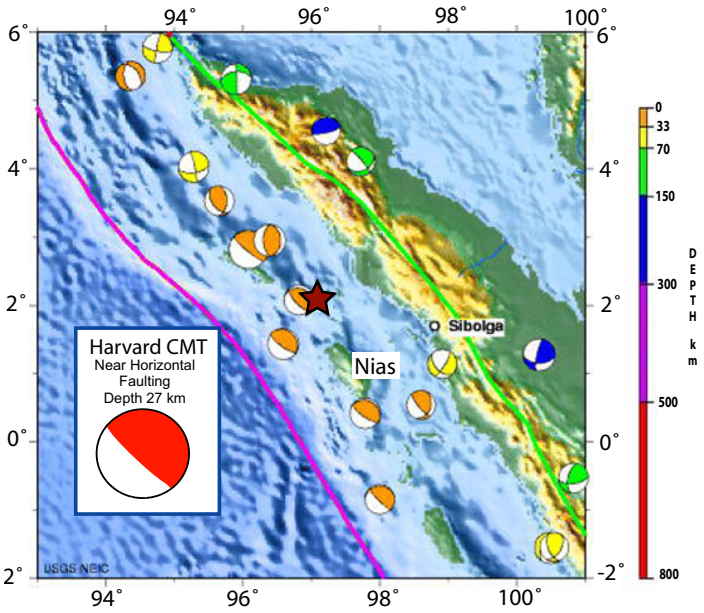


Figure 1. Historical Moment Tensor solutions map with red star showing the earthquake's epicentre. (Map courtesy of NEIC)

Sumatra, *continued*

damaged the port and airport on Simeulue. Tsunami runup heights as high as 2 meters were observed on the west coast of Nias and 1 meter at Singkil and Meulaboh, Sumatra. An account, from USGS National Earthquake Information Center (NEIC), reports at least 10 people killed during evacuation of the coast of Sri Lanka. The quake was felt throughtout the area devastated by the 2004 Indian Ocean tsunami. Tsunami wave heights (peak-to-trough) recorded from selected tide stations: about 40 cm on Panjang, Indonesia; about 25 cm at Colombo, Sri Lanka; 40 cm on Hanimadu, 18 cm at Male and 10 cm at Gan, Maldives. (Figure 3 and Table 1 below).

Initial observations indicate about 1 meter of subsidence on the coast of Kepulauan Banyak as well as 1 meter of uplift on the coast of Simeulue. Seiches were observed on ponds in West Bengal, India.

Figure 3. Map showing the station locations for the tide records below. A yellow star indicates the 28 March 2005 earthquake's epicentre.

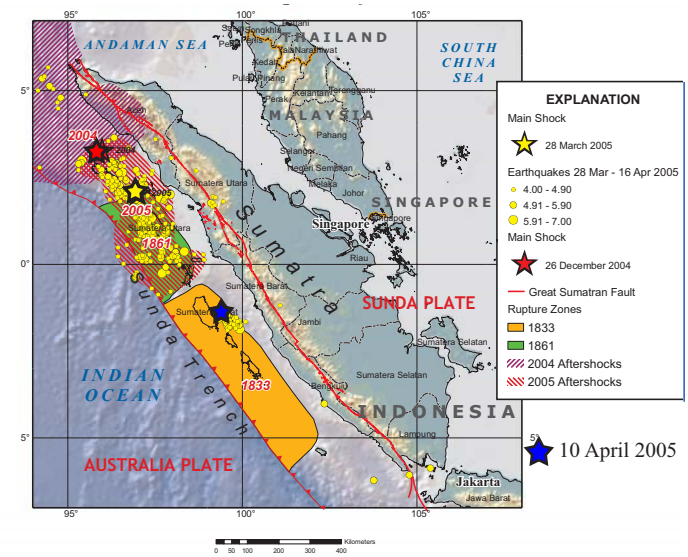
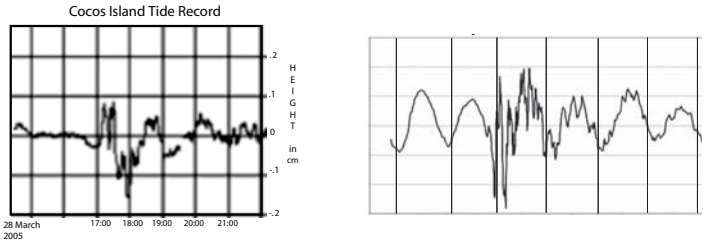
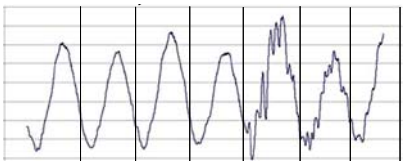


Figure 2. Map showing the historical earthquake acitivity along various sections of the Sunda Trench. The rupture zone of the 28 March earthquake had last erupted in 1861. The map also shows the location of the 26 December 2004 earthquake (red star) and 10 April 2005 earthquake (blue star). (Courtesy of NEIC).



Sea level records courtesy of Australia Tide Centre (NTC), (above), and BAKOSURTANAL, Indonesia (right).



Location	Maximum Height	Source
Gan, Maldives (00.7°N, 73.2°E)	approx 22 cm (p-p)	University of Hawaii Sea Level Center (UHSLC)
Male, Maldives (04.2°N, 73.5°E)	approx 20 cm (p-p)	UHSLC
Hanimaadhoo, Maldives (06.8°N, 73.2°E)	approx 20 cm (p-p)	UHSLC
Cocos(Keeling) Island, Australia (12.0°S, 96.7°E)	23 cm	Australian NTC
Panjang, Sumatra (05.45°S, 105.28°E)	approx 50 cm (p-p)	BAKOSURTANAL
Sibolga, Sumatra (01.75°N, 98.77°E)	approx 235 cm (p-p)	BAKOSURTANAL
Salalah, Oman (16.94°N, 54.0°E)	52 cm (p-p)	UHSLC
Colombo, Sri Lanka (06.92°N, 79.83°E)	42 cm (p-p)	UHSLC
Rodrigue, Mauritius (19.67°S, 63.42°E)	55 cm (p-p)	UHSLC
Port Louis, Mauritius (20.15°S, 57.50°E)	35 cm (p-p)	UHSLC
Ponte La Rue, Seychelles (04.67°S, 55.53°E)	35 cm (p-p)	UHSLC