USGS science for a changing world

Earthquake Shaking **Green** Alert

GSN ANSS USAID FROM THE AMERICAN PEOPLE

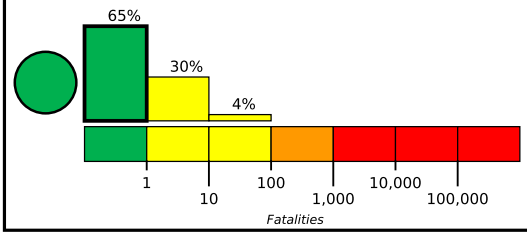
# M 5.5, 19 km NE of Onagawa Ch, Japan

Origin Time: 2023-09-18 19:33:04 UTC (Tue 04:33:04 local)
Location: 38.5589° N 141.6239° E Depth: 64.4 km

**PAGER Version 5**

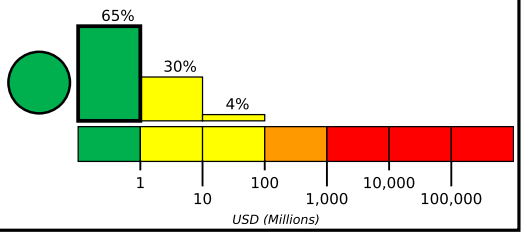
Created: 1 day, 0 hours after earthquake

## Estimated Fatalities




Green alert for shaking-related fatalities and economic losses. There is a low likelihood of casualties and damage.

## Estimated Economic Losses

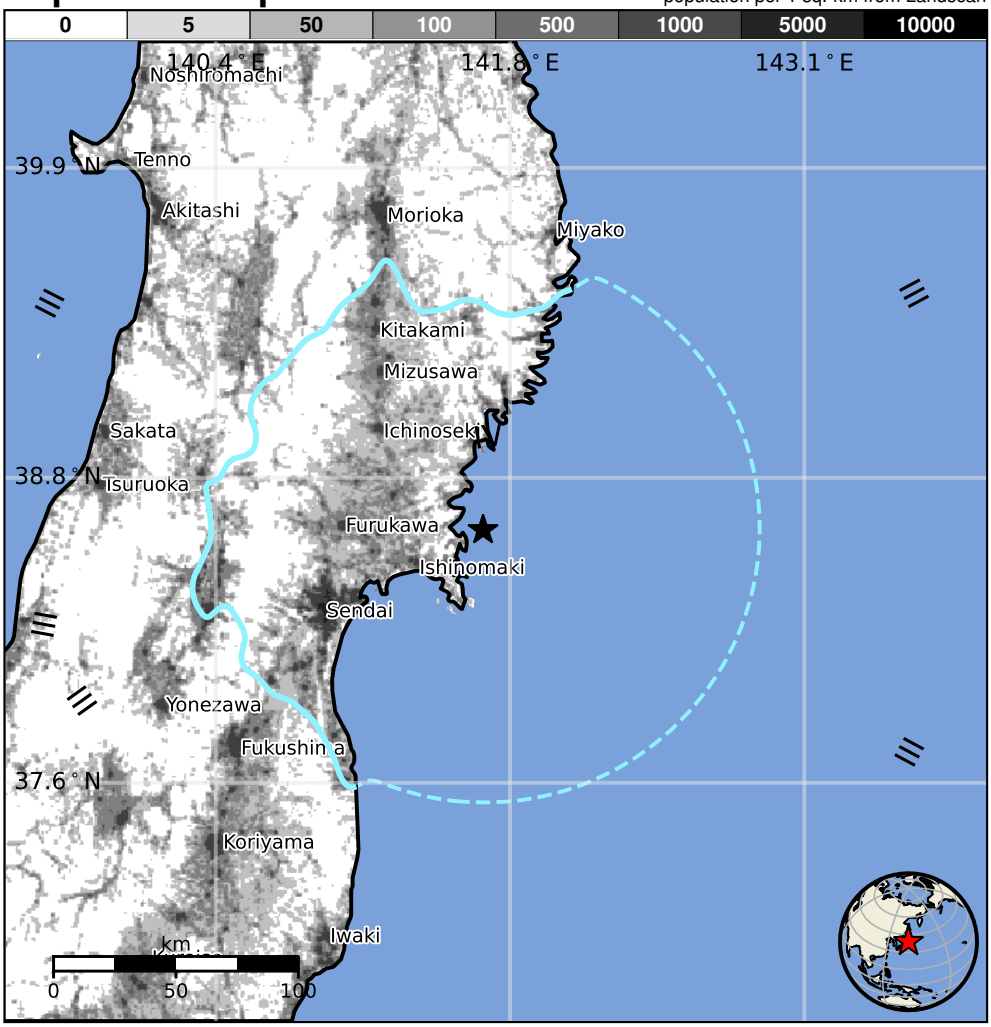



## Estimated Population Exposed to Earthquake Shaking

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ESTIMATED POPULATION EXPOSURE (k=x1000) | | –* | 4,541k* | 3,663k | 0 | 0 | 0 | 0 | 0 | 0 |
| ESTIMATED MODIFIED MERCALLI INTENSITY | | I | II-III | IV | V | VI | VII | VIII | IX | X+ |
| PERCEIVED SHAKING | | Not felt | Weak | Light | Moderate | Strong | Very Strong | Severe | Violent | Extreme |
| POTENTIAL DAMAGE | Resistant Structures | None | None | None | V. Light | Light | Moderate | Mod./Heavy | Heavy | V. Heavy |
| | Vulnerable Structures | None | None | None | Light | Moderate | Mod./Heavy | Heavy | V. Heavy | V. Heavy |

*Estimated exposure only includes population within the map area.

## Population Exposure




### Structures

Overall, the population in this region resides in structures that are resistant to earthquake shaking, though vulnerable structures exist. The predominant vulnerable building types are heavy wood frame and reinforced/confined masonry construction.

### Historical Earthquakes

| Date (UTC) | Dist. (km) | Mag. | Max MMI(#) | Shaking Deaths |
|---|---|---|---|---|
| 1987-12-17 | 368 | 6.5 | VII(8,018k) | 2 |
| 1994-12-28 | 269 | 7.7 | VII(130k) | 3 |
| 1983-05-26 | 304 | 7.7 | VII(174k) | 104 |

Recent earthquakes in this area have caused secondary hazards such as landslides and fires that might have contributed to losses.

### Selected City Exposure

from GeoNames.org

| MMI | City | Population |
|---|---|---|
| **IV** | **Ishinomaki** | **117k** |
| IV | Yamoto | 32k |
| IV | Kogota | 20k |
| IV | Wakuya | 18k |
| **IV** | **Furukawa** | **76k** |
| IV | Matsushima | 16k |
| **IV** | **Sendai** | **1,063k** |
| III | Yamagata | 255k |
| **III** | **Morioka** | **295k** |
| **III** | **Fukushima** | **294k** |
| III | Akita | 326k |

bold cities appear on map. (k=x1000)

PAGER content is automatically generated, and only considers losses due to structural damage. Limitations of input data, shaking estimates, and loss models may add uncertainty.

**https://earthquake.usgs.gov/earthquakes/eventpage/us7000kwis#pager**

**Event ID: us7000kwis**