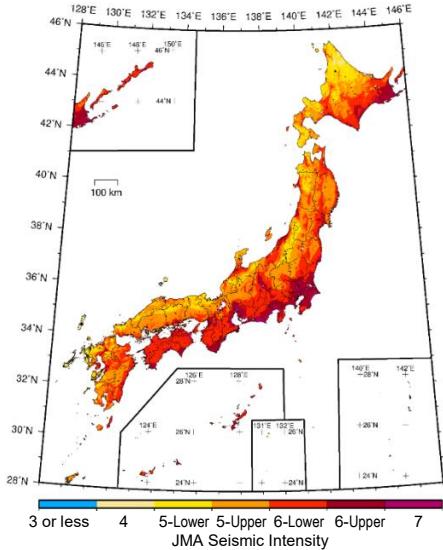


# Key points for the National Seismic Hazard Maps for Japan (2020)

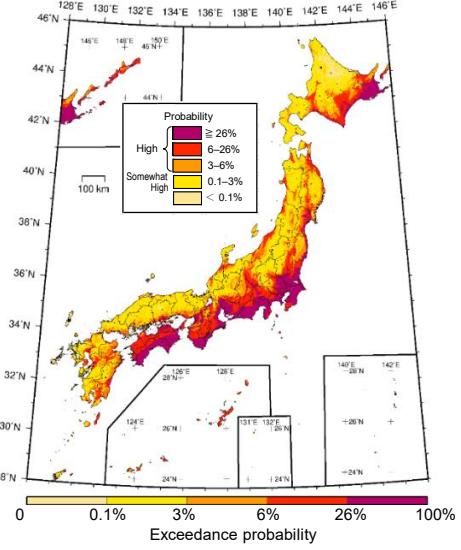
Secretariat of the Headquarters for Earthquake Research Promotion

## 1. Probabilistic Seismic Hazard Maps

Probabilistic Seismic Hazard Maps show the distribution of the possible ground shaking intensity or the probability of a specific ground shaking intensity, both of which are estimated from the locations, magnitudes, and probabilities of all conceivable earthquakes at this moment. The distribution of either of the two parameters (ground shaking intensity or exceedance probability) for fixed period (ex. 30 or 50 years) is calculated by fixing the other parameter. In the 2020 edition, January 1, 2020, is adopted as the evaluation reference date of probabilities of earthquake occurrence.



Japan Meteorological Agency (JMA) seismic intensity for which the probability of ground motions equal to or more than the values within the next 30 years is 3% (an example of a map showing the JMA seismic intensity with fixed period and probability).



Probability of ground shaking of JMA seismic intensity of 6-Lower or higher within the next 30 years (an example of a map showing the probability with fixed period and intensity).

## 3. Features of the National Seismic Hazard Maps for Japan (2020)

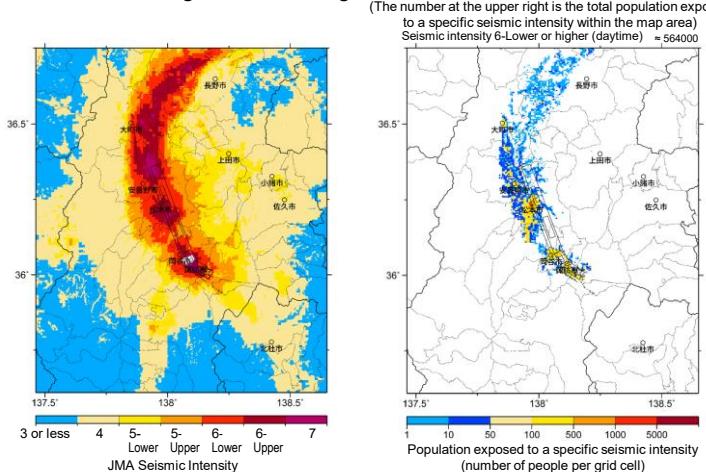
Main features in the 2020 edition are as follows:

- Consideration of further variability in the source regions for large interplate earthquakes along the Japan Trench and the Nankai Trough
- Improvement in modeling earthquakes for unspecified source faults (Consideration of seismic activity after the 2011 off the Pacific Coast of Tohoku Earthquake, etc.)
- Improvement of the seismic velocity structure models of soil layers
- Change of the evaluation reference date to January 1, 2020
- Revision of the color scheme showing seismic intensity
- Providing Seismic Hazard Maps at regional and prefectural levels

## 2. Seismic Hazard Maps for Specified Seismic Source Faults

### (Seismic Hazard Maps for Scenario Earthquakes)

A map showing the distribution of seismic intensity at each grid cell on the ground surface calculated for an earthquake expected along a specified source fault. This map can be used to identify, for example, the distribution of the population exposed to ground shaking with seismic intensities greater than a given value.



Example of distribution of seismic intensities on the ground surface owing to an earthquake in the north-central segment of the Itoigawa-Shizuoka Tectonic Line fault zone.

Example of distribution of the population exposed to ground shaking with a seismic intensity of 6-Lower or higher owing to an earthquake occurring in the north-central segment of the Itoigawa-Shizuoka Tectonic Line fault zone.

On the map showing the probability of ground shaking of JMA seismic intensity 6-Lower or higher within the next 30 years, the probabilities are high in the south-eastern Hokkaido, Sendai Plain, Tokyo Metropolitan Area, the Pacific side of the Tokai-Shikoku region, and the area surrounding the Itoigawa-Shizuoka Tectonic Line fault zone.

Compared to the 2018 edition, the following major changes exist:

- ① An increase in probability on the Pacific side of the Tohoku region and the northern Kanto region due to consideration of seismicity after the 2011 off the Pacific Coast of Tohoku Earthquake
- ② A change in probability in the Kanto region due to the improvement of the Shallow Soil Layers model used to calculate the site amplification factors
- ③ A decrease in probability in Yamanashi, Shizuoka, and eastern Nagano prefectures due to the consideration of increased diversity in the seismic source areas for large interplate earthquakes occurring along the Nankai Trough