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## Article :

## New Report Identifies Risks of an M8 Class Quake in Seas Around Western Japan

Directions: Read the following article aloud.

For the first time, Japan's earthquake also took a long-term look at risks from active faults below the seabed in the southwestern part of the Sea of Japan.

A new report by the government's Earthquake Research Committee lays out the risks of an M8 earthquake on the Richter scale in Japan's Hyuganada Sea and Nansei Islands.

Nankai Trough, the presumed epicenter of the earthquake, runs about 200 km or 130 miles off the east coast of Shikoku Island and stretches along the eastern side of southwest Japan. The March 25 report indicates a broad portion of this area, area including the Hyuganada Sea and Nansei Islands chain in southwestern Japan, are at risk of damage from both earthquake and tsunamis.

### Learning from the Great East Japan Quake

The report does not analyze the risks in other regions of Japan, including the Fukushima area, which experienced a jarring M7.4 quake off its coast on March 17, 2022.

When the committee first issued a long-term earthquake evaluation for Japan's southwestern region in 2004, the expert panel had not identified a probability of a quake as large as an M8 magnitude on the Richter scale. Although the 2011 Great East Japan Earthquake falls outside the study's regional scope, the committee has revised its review based on the latest findings of that event.

### Areas of Focus

The report identifies three new risk areas for megathrust earthquakes of at least M8.

A long-term evaluation of active faults below the seabed in the southwestern part of the Sea of Japan for the first time for the 2022 report. The analysis indicates an 8-13% chance of a powerful earthquake with a probability of M7 or more occurring over the next 30 years on some of these active undersea faults. This is a very high probability for an active fault-triggered temblor.

The area off the Hyuganada Sea east of Kyushu is also at risk, as is the region extending from the Nansei Island chain to around Yonaguni Island in the far western part of Japan. It is assumed there have been earthquakes in the area in the past, the lack of data makes it difficult to estimate the likelihood in these areas.

A megathrust quake in the M8.5 range is thought to be possible in the Yaeyama Islands (near Ishigaki Island, Okinawa Prefecture), which suffered a similar earthquake and tsunami that hit the region in 1771. The destruction from that event extended to Yonaguni Island. While the possibility of this type of event is in the report, it is excluded from the probabilities assessment because there are too many unknowns.

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<https://japan-forward.com/new-report-identifies-risks-of-an-m8-class-quake-in-seas-around-western-japan/>

本教材は、一般社団法人ジャパンフォワード推進機構、株式会社産経デジタルより許諾を得て、産経ヒューマンラーニング株式会社が編集しています。  
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**Analyzing the Risks**

The committee's long-term projections are intended to forecast the likelihood and scale of earthquakes occurring either at boundary zones of tectonic plates that cover the Earth or an active fault. A megathrust quake occurs when one tectonic plate is pushing under another, and a sudden slippage occurs. These points are called subduction zones.

Dr. Naoshi Hirata, chairman of the committee and Professor Emeritus at the University of Tokyo's Institute for Earthquake Research said, "It is highly probable that an M8 or stronger quake has occurred in the past, and we believe it necessary to assume a similar one will happen in the future."

According to the committee, chances are greater than 90% within the next 30 years that a major quake of a M7 to 7.5 will strike in waters off Yonaguni Island. Moreover, the report predicts an 80% chance of one of that magnitude happening in the Hyuganada Sea. A major earthquake is also thought possible in the waters off the Nansei Islands, although there is insufficient data to calculate the likelihood.

The report considers deep-focus, megathrust earthquakes likely to happen in undersea subduction zones, where one tectonic plate moves under another. It predicts an M6.7-7.4 quake of this type hitting between Honshu and Shikoku in the oceanic region within the Akinada Sea and Iyonada Sea in the larger Seto Inland Sea, and stretching northeast to the Bungo Channel between Shikoku and Kyushu.

The chance drops slightly to around 60% in the northwestern waters off the Nansei Islands.

**Overview along the Sea of Japan**

Looking at the active undersea faults in the southwestern part of the Sea of Japan off Tottori Prefecture and Nagasaki Prefecture, the committee divided the quake-prone region into three areas. There is a 3-7% risk in the east, 3-6% risk in the central area, and 1-3% risk in the west of an M7 earthquake occurring within the next 30 years.

The committee has put the quake likelihood for the three areas as a whole at 8-13%, but identifies the largest fault belt beneath the seabed off the Hoki region of Tottori Prefecture is at risk of a M7.7-8.1 earthquake in that time frame. Fault line in the area extend for an estimated 94 kilometers.

"Given that quakes triggered by active faults are considered striking at an interval of several thousand years, the occurrence probabilities of those are all significantly high," Professor Hirata noted,

Major earthquakes with undersea epicenters often cause massive tsunamis. The committee plans to expand its analysis to include tsunami-related predictions such as maximum wave height based on the magnitudes of earthquakes assessed in this latest long-term evaluation report.

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## 2 Key phrases and vocabulary

Directions: First repeat after your tutor and then read aloud by yourself.

1. **lay out** 提示する、明確に述べる、明らかにする、～の計画・設定をする

・The documents **lay out** the principles clearly.

2. **indicate** ～ということを示す・意味する・指摘する

・This survey **indicates** that more than 80 % of our shoppers bring their own bags to stores.

3. **over the next** ～ この先～の間、次の～以内に

・Before we make the decision, we have to see how the pandemic is likely to look **over the next** few months.

4. **assume** ～と推測・仮定する、～と見なす・思い込む、～であることを前提とする、当然～であると思う

・I'm surprised you turned down the offer. I **assumed** you would be very happy.

5. **given that** S+V (前提として・事実として)S+Vであるとする

・It's strange that the restaurant didn't become successful, **given that it's** the only decent place in this area.

## 3 Questions

Directions: Read the questions aloud and answer them.

1. Where is the Nankai Trough located?
2. According to the new report, how high is the possibility of major quake of an M7 to 7.5 in Yonaguni Island area within the next 30 years?
3. What do you do to be prepared for an earthquake?
4. What other natural disasters could occur in your city?

## 4

## 日本語関連記事：

## M8級巨大地震の可能性 日向灘、南西諸島の長期評価 日本海南西部も高確率

南海トラフ巨大地震の想定震源域に隣接する日向灘や南西諸島などで、マグニチュード(M)8級の巨大地震が起き得るとする新たな長期評価を、政府の地震調査委員会が25日、公表した。平成16年に初公表した同地域の長期評価はM8級を想定しなかったが、23年の東日本大震災を受け最新の知見で見直した。また日本海南西部の海底活断層の長期評価も初めて行い、30年以内にM7以上の地震が起きる確率を、活断層としては高い8～13%とした。

長期評価は、地球を覆うプレート(岩板)の境界や活断層で起きる地震の規模や発生確率を予測する。新たに想定された巨大地震は三つで、このうち二つは日向灘と、南西諸島周辺から与那国島周辺にかけてで起きるM8程度。過去にも起きた可能性が高いことなどから想定されたが、データ不足で確率は不明とした。

もう一つは、1771年に与那国島を含む八重山列島を大津波が襲った八重山地震津波のようなM8・5程度のタイプ。こちらも発生の可能性は認めたが、不明点が多いことから確率評価の対象外となった。

地震調査委の平田直委員長(東京大名誉教授)は「M8級は過去に発生した可能性が高く、将来も起き得るという考え方で想定した」と語り、警戒を呼び掛けた。

このほか、M7～7・5程度の大地震の発生確率は与那国島周辺で30年以内に90%程度以上、日向灘で80%程度、南西諸島周辺でも確率は不明だが発生し得るとした。また、陸側プレートの下に沈み込む海側プレートの内部で起きるやや深い地震は、M6・7～7・4程度が安芸灘から伊予灘、豊後水道にかけてで40%程度、M7～7・5程度が九州中央部(確率不明)と南西諸島北西沖(60%程度)でそれぞれ起き得ると評価した。

一方、鳥取県～長崎県沖の日本海南西部の海底活断層については三つの領域に分け、30年以内のM7以上の地震の発生確率は、東部3～7%、中部3～6%、西部1～3%。全体は8～13%とした。領域最大の活断層で、東部にある全長94キロ程度の伯耆(ほうき)沖断層帯ではM7・7～8・1程度が起きると評価。「活動間隔が数千年以上となる活断層の地震としては、いずれも高い発生確率と受け止めてほしい」(平田氏)という。

海域が震源の大きな地震は津波を伴うことが多い。今後は今回の長期評価で想定された地震の規模などに基づき、津波の高さなどについても予測していく。