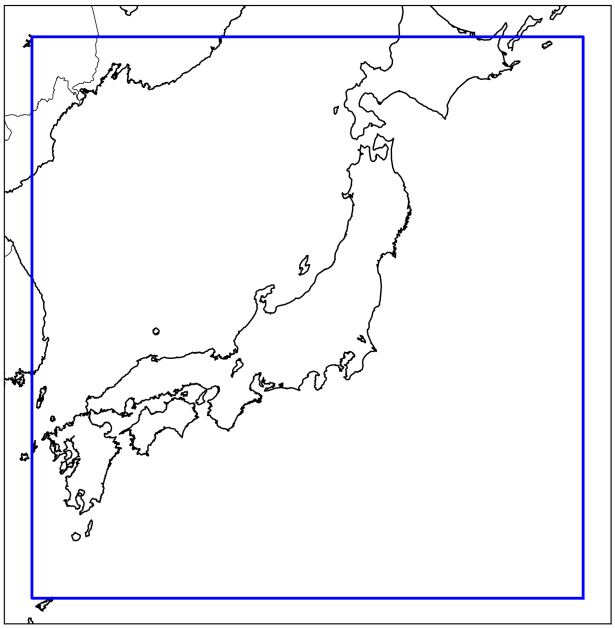

# Seismic Forecast for Japan

## 2025 August 17-18-19 - High Seismic Risk in Japan

Version: 2

First Revision: 2025-08-11 19:28:24

Last Revision: Rev. 2 - 2025-08-17 00:00

# Index

# 1. Revision History

| Version | Date | Author | Description |
|---|---|---|---|
| **0** | 2025-08-11 19:28:24 | MF | Whole Japan Forecast , resolution 24 hrs (UTC+09:00) |
| | **deep learning and forecast only (no report yet) using Tropospheric and GPS seismic sensors collected by JPL NASA laboratory from partner abroad** | | |
| **1** | 2025-08-16 00:00:00 | MF | Updated Report utilities |
| **2** | 2025-08-17 00:00:00 | MF | Uploaded 24hrs time resolution report |

# 2. Explanation of Terms and Concepts

## About Features used to produce this forecast

We produced this forecast using the following specific source:

1. astronomical solar system data (same day - 0 shift)
2. seismic sensor GPS data (60 days shift)
3. tropospheric data (60 days shift)

The Purpose it to demonstrate the validity of using GPS + TROPO data several week before a seismic event.

Time series sharpness achievable by astronomical data only can be up to 7 days.

This study demonstrate that using augmented data in past geophysical observations can rise the time line sharpness up to 24 hrs and more.

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## About Graph system

*Note: **trend** graph*

Forecast graph and tables refer to a base value, against it.

For instance if a value of 37 per latitude is the base line and graph value is 0% it means that the location estimated for that period of time is UNDER 37.

Another example is for magnitude graph, with baseline Mw 7.0, 0% means no risk detected, and 100% means high risk detected

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## About Time Slot

*Note*: each date point represent **the beginning of the time slot**

For instance if a forecast time point is on 2025-01-01 and the graph resolution is 7 days, it's a forecast for 2025-01-01 until 2025-01-06 (UTC)

# 3. Features Used For Magnitude

## Features Analysis Report

**Generated:** 2025-08-17T09:05:28.734396 **Keyword Used:** `target` **Files Processed:** 1 **Total Features in Files:** 81 **Features Matching Keyword:** 2

### Complete Dataset Overview

*Analysis of ALL features present in the source files*

| Category | Count | Percentage |
|---|---|---|
| Astro | 17 | 21.0% |
| Tropo | 30 | 37.0% |
| Pos | 31 | 38.3% |
| Target | 2 | 2.5% |
| Other | 1 | 1.2% |

### Filtered Dataset (Used for Analysis)

*Features matching keyword 'target' that were actually processed*

| Category | Count | Percentage |
|---|---|---|
| Astro | 0 | 0.0% |
| Tropo | 0 | 0.0% |
| Pos | 0 | 0.0% |
| Target | 2 | 100.0% |
| Other | 0 | 0.0% |

# Detailed Features Breakdown (Filtered)

## Target Features

*Primary target variables for prediction*

**Count:** 2

**Features:** - `Add_pred_target` - `Add_target`

# File-by-File Analysis

## Complete Dataset (All Features)

| File | Total | Astro | Tropo | Pos | Target | Other |
|---|---|---|---|---|---|---|
| forecast.csv | 81 | 17 | 30 | 31 | 2 | 1 |

## Filtered Dataset (Used for Analysis)

| File | Filtered | Astro | Tropo | Pos | Target | Other |
|---|---|---|---|---|---|---|
| forecast.csv | 2 | 0 | 0 | 0 | 2 | 0 |

# Summary Insights

## Complete Dataset:

- **Astronomical data** represents 21.0% of all features (17 features)
- **Tropospheric data** represents 37.0% of all features (30 features)
- **Position/GPS data** represents 38.3% of all features (31 features)
- **Target variables** represent 2.5% of all features (2 features)
- **Dominant category in complete dataset:** Pos features

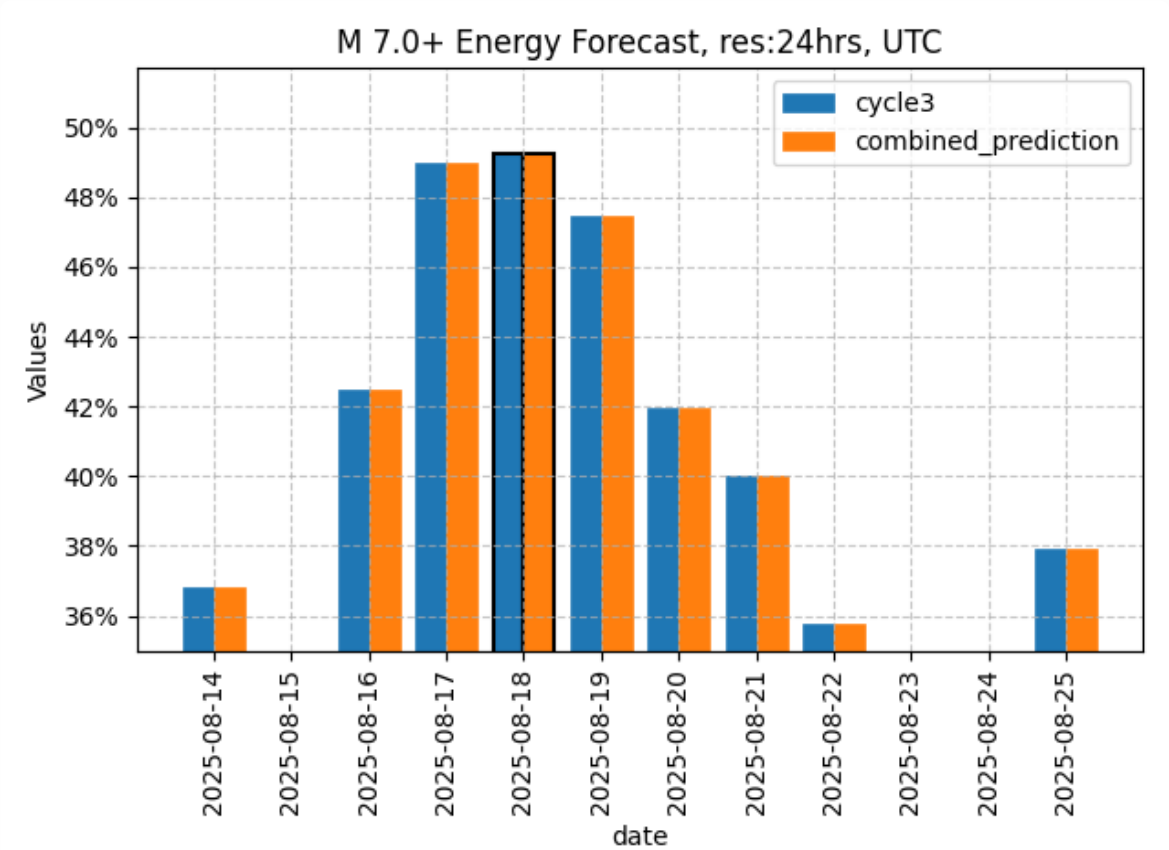
## Filtered Dataset (Actually Used):

- **Target variables** represent 100.0% of filtered features (2 features)
- **Dominant category in filtered dataset:** Target features

*This report was automatically generated by the median_calculator_target_only.py script.*

# 4. Forecasts

## 4.1 M 7.0+ Energy Forecast, res:24hrs, UTC




**⚠ Higher Risk Detected for Following Dates:**

- 1. from 2025-08-18 to 2025-08-19 (UTC) - Risk Value: 0.492

*Each date represent the BEGINNING of time slot*

# 5. Summary and Conclusion

## Summary of Findings

**Risk detected of a significant seismic event in following time/space of Japan:** ***time: 2025-08-17-18-19 (UTC)***

## Conclusions

1. **Increased Risk:* detected for 2025-08-17,18,19 in Japan
2. **Recommendations:** It is advised to review preparedness protocols for the identified high-risk areas. Continuous monitoring is essential.

# 6. Attribution and Disclaimers

## Data Sources

- Seismic data utilized in this report is sourced from the **USGS Earthquake Catalog** and the **Japan Meteorological Agency (JMA)**.
- Planetary ephemeris data provided by **NASA/JPL Horizons System**.
- All tropo + gps positional data provided by **NASA/JPL**

## Disclaimer of Liability

This report is generated for research and informational purposes only. The forecasts presented are based on statistical models and historical data; they are not deterministic predictions. The authors and distributors of this report assume no liability for any actions taken or decisions made based on the information contained herein.

## Responsibility Statement

The analysis and conclusions represent the best judgment of our research team based on the available data. This is not an official warning or alert. For official information, please consult your local government and geological survey authorities.