

Seismic Energy Forecast for Indonesia Philippine

**2025 October 5/6 - potential earthquake or eruption in
Philippine/Indonesia**

Version: 0

First Revision: 2025-10-03 10:57:48

Last Revision: Rev. 1 - 2025-10-05 01:11

Method used for location pinpoint

Step N	Description	Training Data range	GPS data	Tropo data	Astronomical
1	Seismic report for World (7days res)	1900-01-01 2025-09-30	NO	NO	YES
2	Seismic report for World (1 day res)	1960-01-01 2025-09-30	NO	NO	YES
3	Location report for Latitude >30 (1 day res)	2012-01-01 2025-09-30	YES	YES	YES
4	Location report for Longitude >0 (1 day res)	2012-01-01 2025-09-30	YES	YES	YES
5	Location report for Longitude >130 (1 day res)	2012-01-01 2025-09-30	YES	YES	YES
6	Compared all above forecast and Actual seismic situation				

1. Revision History

Ver.	Date	Auth.	Descr.
0	2025-10-05 01:11 (UTC)	MF	Merged following forecast (24hrs): 1) Worldwide energy forecast 2) Location Latitude forecast (vs 30) 3) Location Longitude forecast (vs 0) 4) Location Longitude forecast (vs 130)

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 (30 days shift)
3. tropospheric data (30 days shift)

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

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

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

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

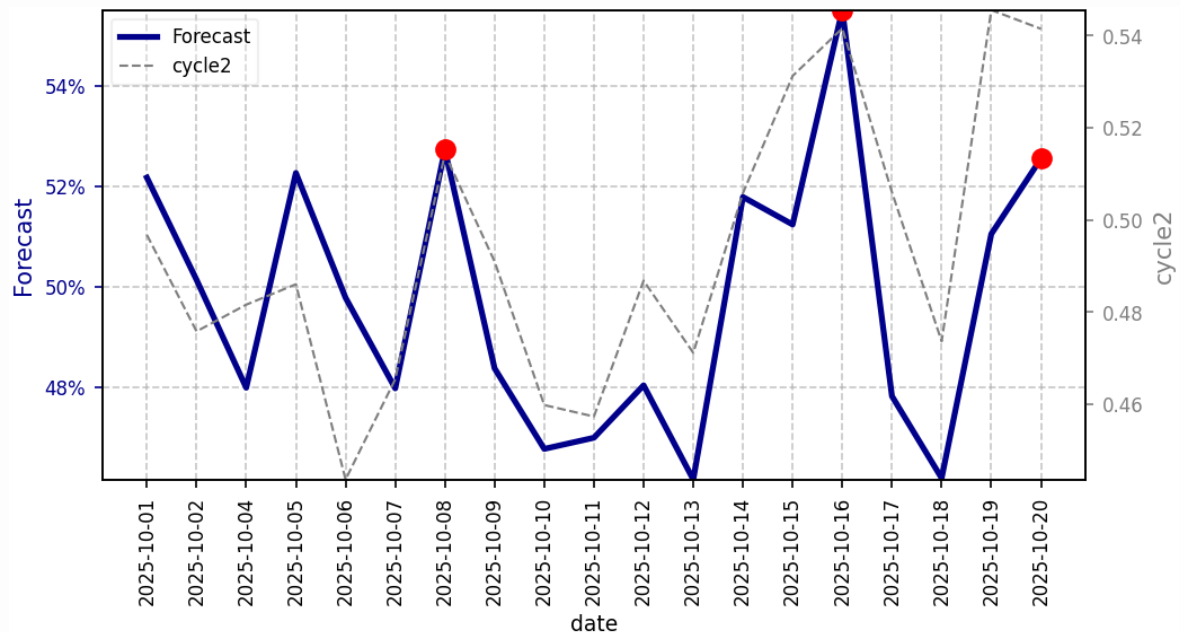
About Time Slot

Note: each date point represents **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. Forecasts

3.1 M 7.5+ Seismic Energy Forecast (possible earthquake @ruption), res:1 day, UTC (focus: cycle2)



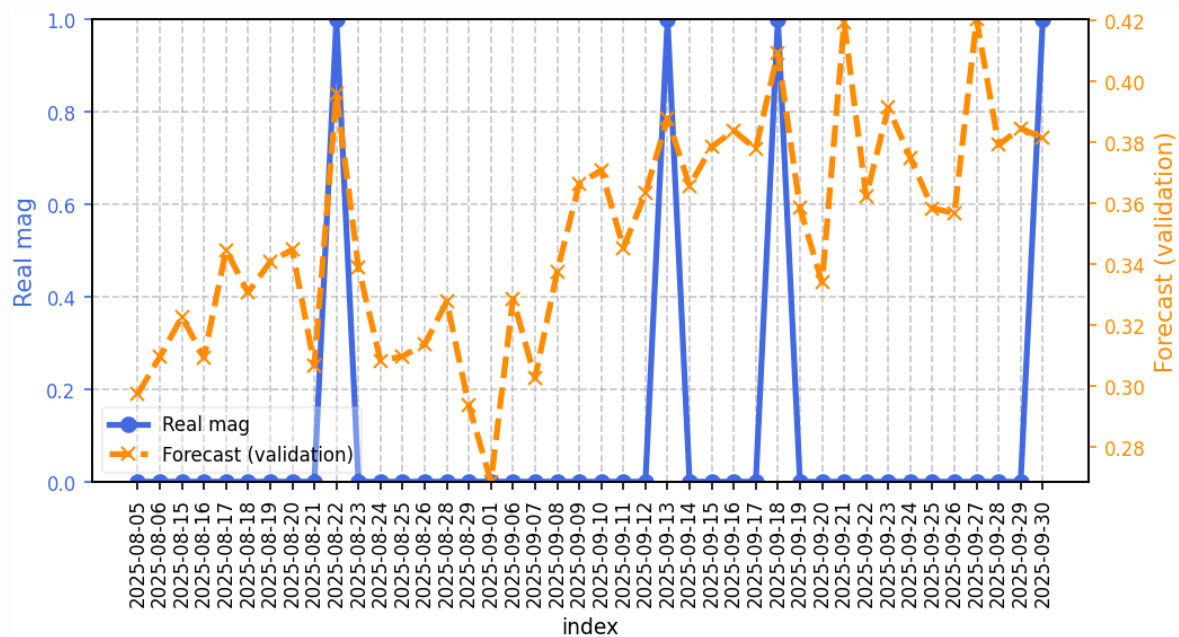
⚠ Higher Risk Detected for Following Dates:

- 1. from 2025-10-16 to 2025-10-17 (UTC) - Risk Value: 0.555
- 2. from 2025-10-08 to 2025-10-09 (UTC) - Risk Value: 0.527
- 3. from 2025-10-20 to 2025-10-21 (UTC) - Risk Value: 0.526

Each date represent the BEGINNING of time slot

This seismic energy forecast highlights potential earthquakes or eruptions in World.

3.2 Validation Quality Check



Real values versus aggregated top-5 forecast on the validation dataset.

4. Features Used For Magnitude

Combined Features Analysis Report - trialsetGPS_20251003-102950

Generated: 2025-10-03T20:33:25.405240 **Cycles Analyzed:** explore, cycle1, cycle2, cycle3, cycle4

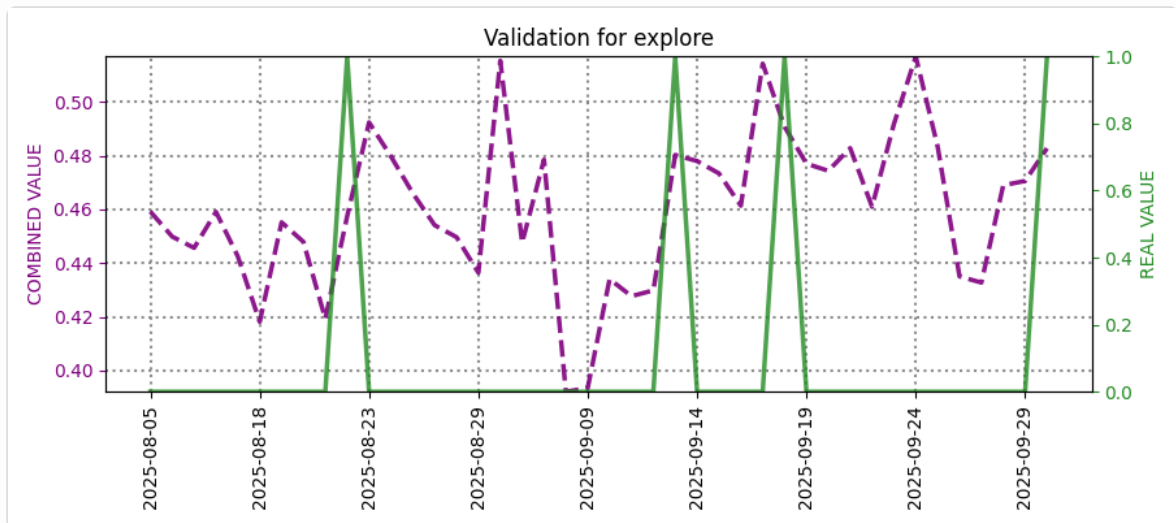
EXPLORE Analysis

Trial Statistics

Metric	Min	Max	Average
Hyperopt Loss (lower is better)	0.57	0.85	0.71
Metric Score (f1) (lower is better)	0.68	0.72	0.70

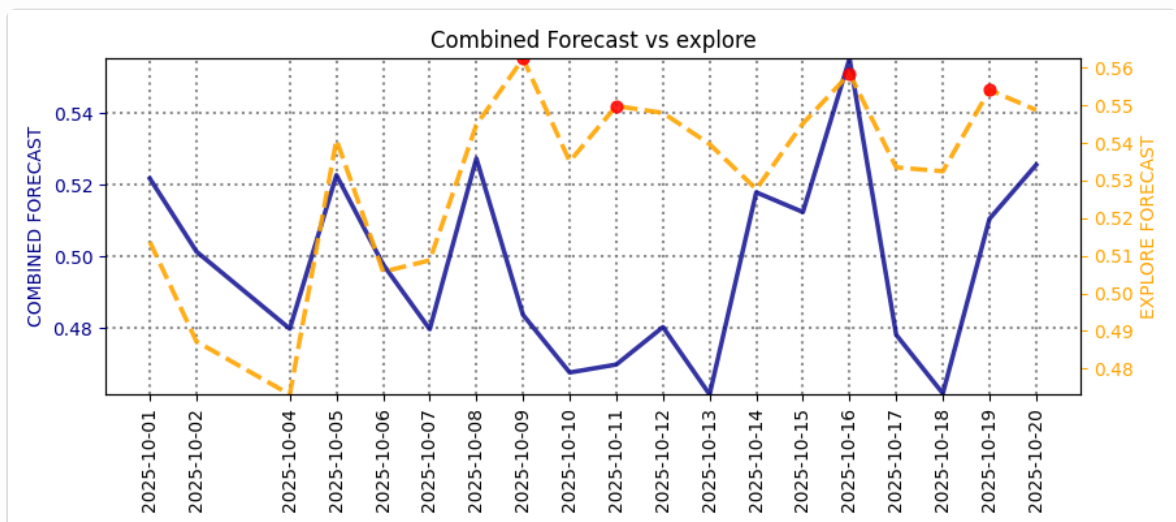
Validation Analysis

Best trial validation for this cycle contrasted with real values.



Forecast Analysis

Best trial forecast for this cycle versus the combined forecast.



Complete Dataset Overview

Analysis of ALL features present in the source files

	Astro	Tropo	Pos
Count	15	55	51
Percentage	12.1%	44.4%	41.1%

Summary Insights

Complete Dataset:

- **Astronomical data** represents 12.1% of all features (15 features)
 - **Tropospheric data** represents 44.4% of all features (55 features)
 - **Position/GPS data** represents 41.1% of all features (51 features)
 - **Target variables** represent 1.6% of all features (2 features)
 - **Dominant category in complete dataset:** Tropo features
-

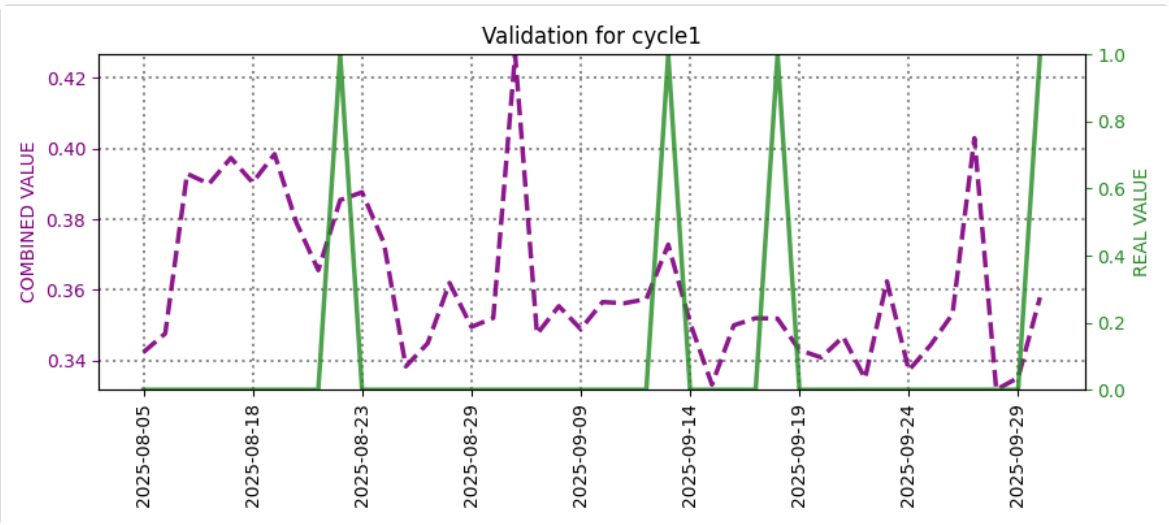
CYCLE1 Analysis

Trial Statistics

Metric	Min	Max	Average
Hyperopt Loss (lower is better)	0.59	0.76	0.68
Metric Score (f1) (lower is better)	0.71	0.76	0.74

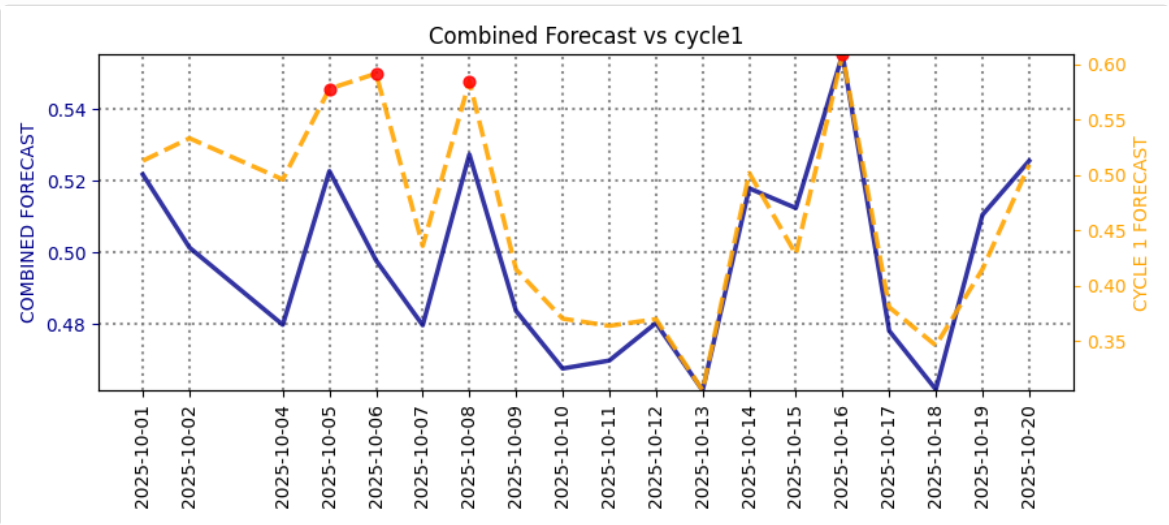
Validation Analysis

Best trial validation for this cycle contrasted with real values.



Forecast Analysis

Best trial forecast for this cycle versus the combined forecast.



Complete Dataset Overview

Analysis of ALL features present in the source files

	Astro	Tropo	Pos
Count	13	46	59
Percentage	10.7%	38.0%	48.8%

Summary Insights

Complete Dataset:

- **Astronomical data** represents 10.7% of all features (13 features)
 - **Tropospheric data** represents 38.0% of all features (46 features)
 - **Position/GPS data** represents 48.8% of all features (59 features)
 - **Target variables** represent 1.7% of all features (2 features)
 - **Dominant category in complete dataset:** Pos features
-

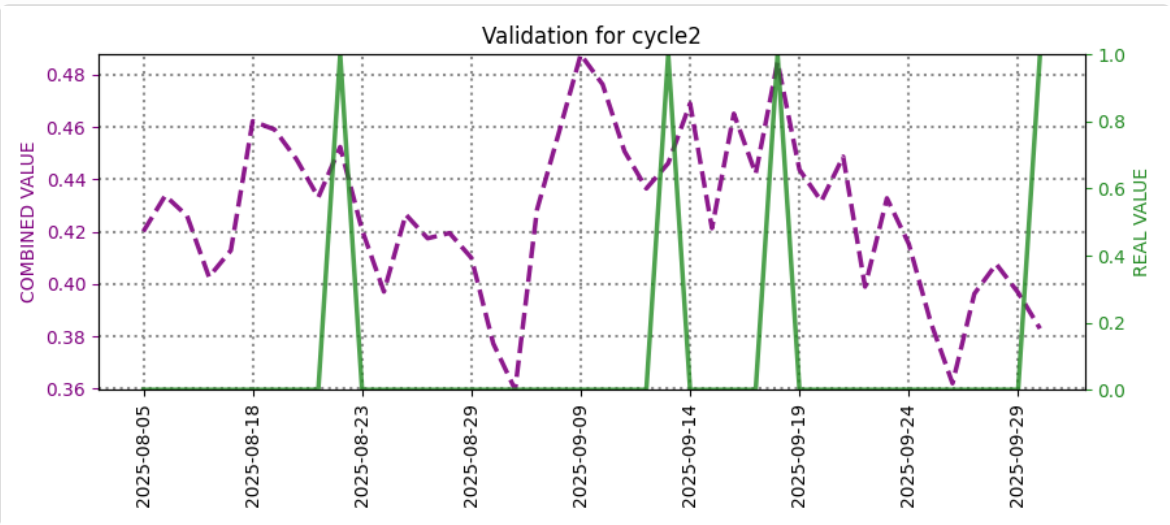
CYCLE2 Analysis

Trial Statistics

Metric	Min	Max	Average
Hyperopt Loss (lower is better)	0.56	0.80	0.68
Metric Score (f1) (lower is better)	0.68	0.76	0.73

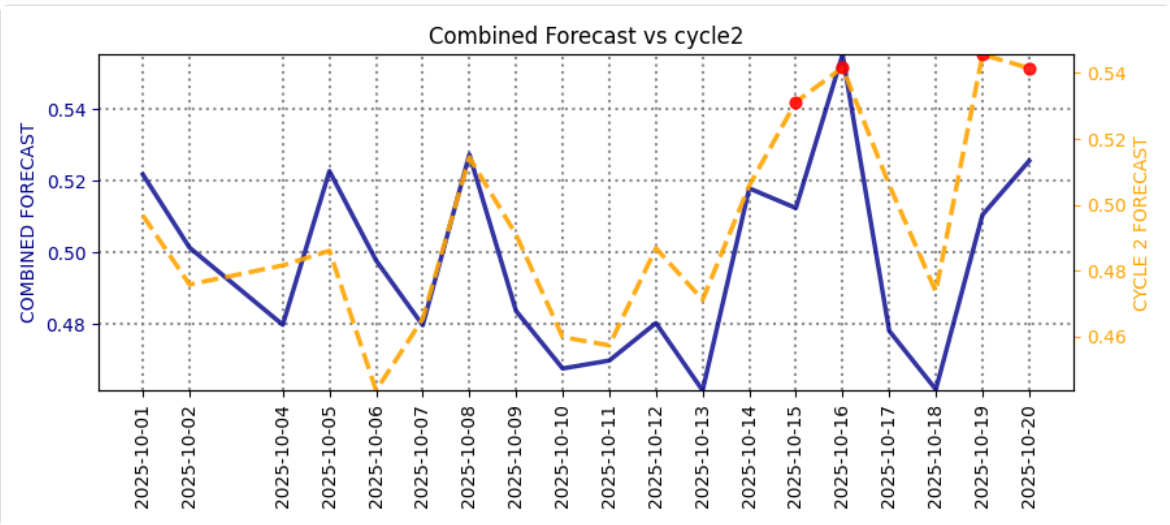
Validation Analysis

Best trial validation for this cycle contrasted with real values.



Forecast Analysis

Best trial forecast for this cycle versus the combined forecast.



Complete Dataset Overview

Analysis of ALL features present in the source files

	Astro	Tropo	Pos
Count	27	45	44
Percentage	22.7%	37.8%	37.0%

Summary Insights

Complete Dataset:

- **Astronomical data** represents 22.7% of all features (27 features)
 - **Tropospheric data** represents 37.8% of all features (45 features)
 - **Position/GPS data** represents 37.0% of all features (44 features)
 - **Target variables** represent 1.7% of all features (2 features)
 - **Dominant category in complete dataset:** Tropo features
-

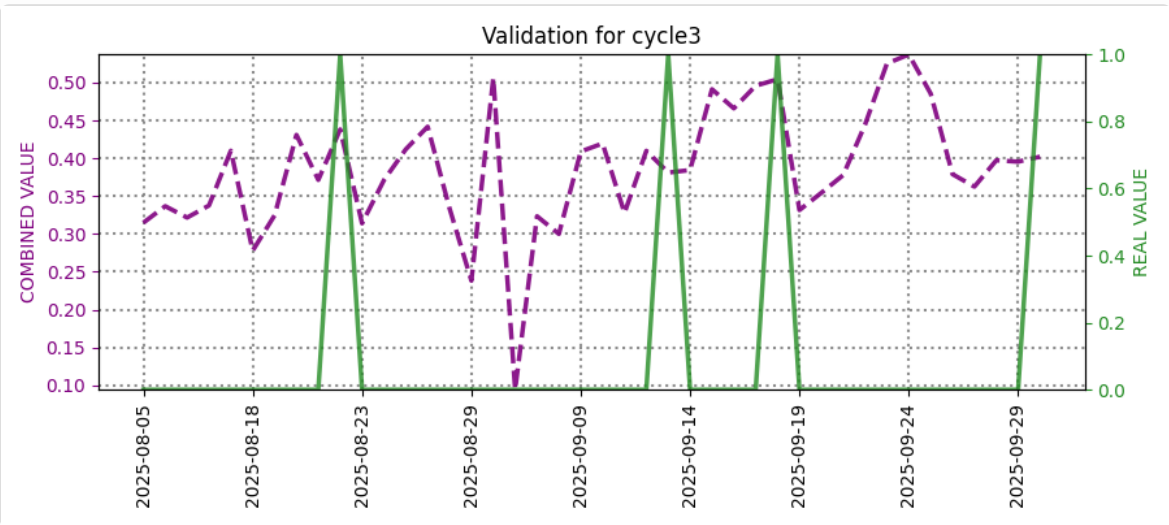
CYCLE3 Analysis

Trial Statistics

Metric	Min	Max	Average
Hyperopt Loss (lower is better)	0.54	0.82	0.67
Metric Score (f1) (lower is better)	0.68	0.76	0.73

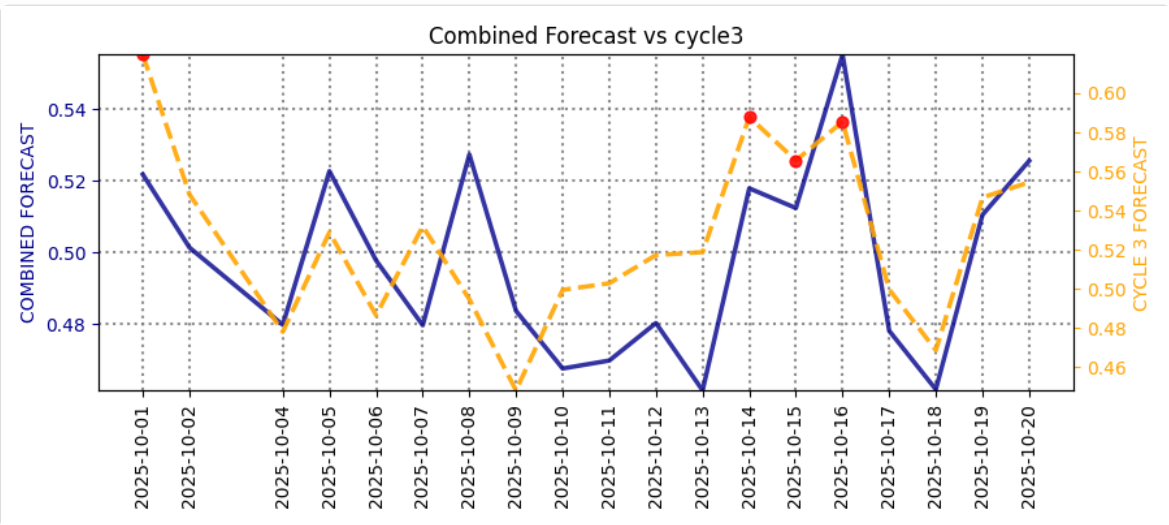
Validation Analysis

Best trial validation for this cycle contrasted with real values.



Forecast Analysis

Best trial forecast for this cycle versus the combined forecast.



Complete Dataset Overview

Analysis of ALL features present in the source files

	Astro	Tropo	Pos
Count	22	48	42
Percentage	19.1%	41.7%	36.5%

Summary Insights

Complete Dataset:

- **Astronomical data** represents 19.1% of all features (22 features)
 - **Tropospheric data** represents 41.7% of all features (48 features)
 - **Position/GPS data** represents 36.5% of all features (42 features)
 - **Target variables** represent 1.7% of all features (2 features)
 - **Dominant category in complete dataset:** Tropo features
-

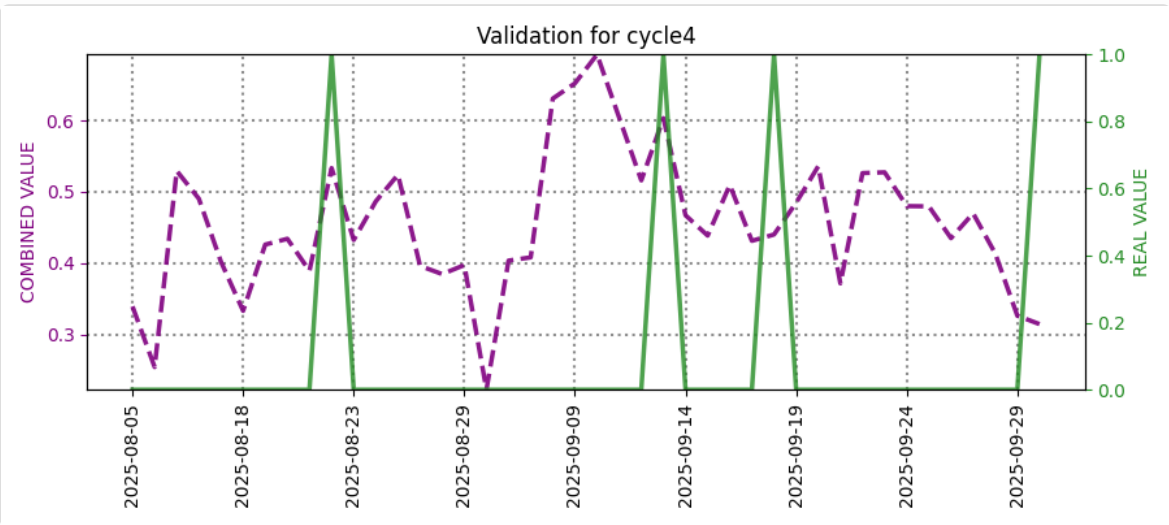
CYCLE4 Analysis

Trial Statistics

Metric	Min	Max	Average
Hyperopt Loss (lower is better)	0.66	0.82	0.75
Metric Score (f1) (lower is better)	0.70	0.76	0.74

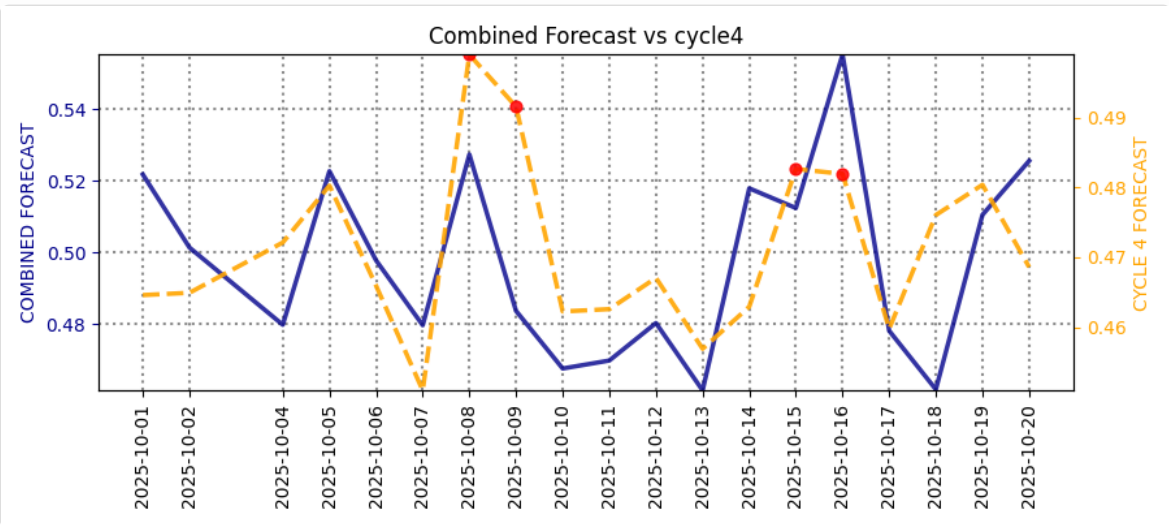
Validation Analysis

Best trial validation for this cycle contrasted with real values.



Forecast Analysis

Best trial forecast for this cycle versus the combined forecast.



Complete Dataset Overview

Analysis of ALL features present in the source files

	Astro	Tropo	Pos
Count	36	38	45
Percentage	29.5%	31.1%	36.9%

Summary Insights

Complete Dataset:

- **Astronomical data** represents 29.5% of all features (36 features)
- **Tropospheric data** represents 31.1% of all features (38 features)
- **Position/GPS data** represents 36.9% of all features (45 features)
- **Target variables** represent 1.6% of all features (2 features)
- **Dominant category in complete dataset:** Pos features

Cross-Cycle Summary

Cycle	Best Trial	GPS Features	Tropo Features	Astro Features	Hyperopt Loss	Metric Score (f1)	Hybrid Score
explore	64	51	55	15	0.57	0.68	0.62
cycle1	4	59	46	13	0.59	0.71	0.65
cycle2	32	44	45	27	0.56	0.68	0.62
cycle3	53	42	48	22	0.60	0.69	0.65
cycle4	16	45	38	36	0.66	0.75	0.71

5. Astronomical Features Used

Astronomical Features Used per Cycle - trialsetGPS_20251003-102950

Focus cycle: cycle2

Cycle	Loss	Hybrid	Bodies	Observers	Ephemerides	Operations
explore	0.57	0.62	101955, 2015tg387, 502, 699	geo_19.4326;-99.1332;0	az, dec_rate, el, lunar_presence, solar_presence	max, min
cycle1	0.59	0.65	101955, 136199, 2015tg387, 699	geo_19.4326;-99.1332;0	el, ra_rate, suntargetpa	max
cycle2	0.56	0.62	101955, 199, 502	geo_19.4326;-99.1332;0, geo_27.9881;86.925;0	az, dec_rate, lunar_presence, suntargetpa, velocitypa	max, min
cycle3	0.60	0.65	101955, 299, 301, 502, 599	geo_19.4326;-99.1332;0	az, delta_rate, ra_rate, solar_presence, suntargetpa	max, min
cycle4	0.66	0.71	101955, 2012vp113, 299, 699	geo_19.4326;-99.1332;0, geo_35.6895;139.6917;0	az, dec_rate, delta_rate, el, lunar_presence, solar_presence	max, min

Bodies are represented by their NAIF ID (unique identifiers for celestial bodies from NASA/JPL); observers use geo_lat;lon;height schema. Ephemerides are Horizons fields; operations are aggregations like min/max.

6. Summary and Conclusion

Summary of Findings

Elevated seismic energy suggests potential earthquakes or eruptions in World.
Peak dates: 2025-10-05, 2025-10-08, 2025-10-16, 2025-10-20 (UTC).

Conclusions

Increased seismic energy indicates potential earthquakes or eruptions for
2025-10-08, 2025-10-08, 2025-10-16, 2025-10-20 in World.

Even if the risk appears slight or moderate, preparation is necessary because the epicenter could be near your location. A separate report is required to estimate its position. AI-generated reports may create false alarms or underestimate the risks. Do not use this report to make important decisions. This work is for research purposes only.

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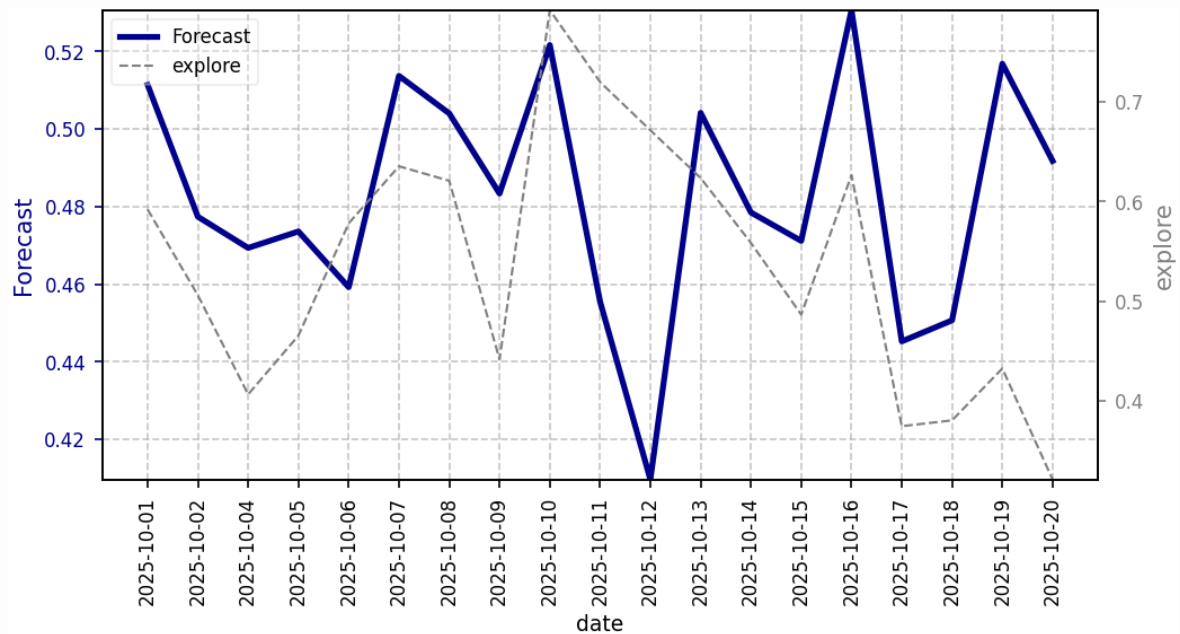
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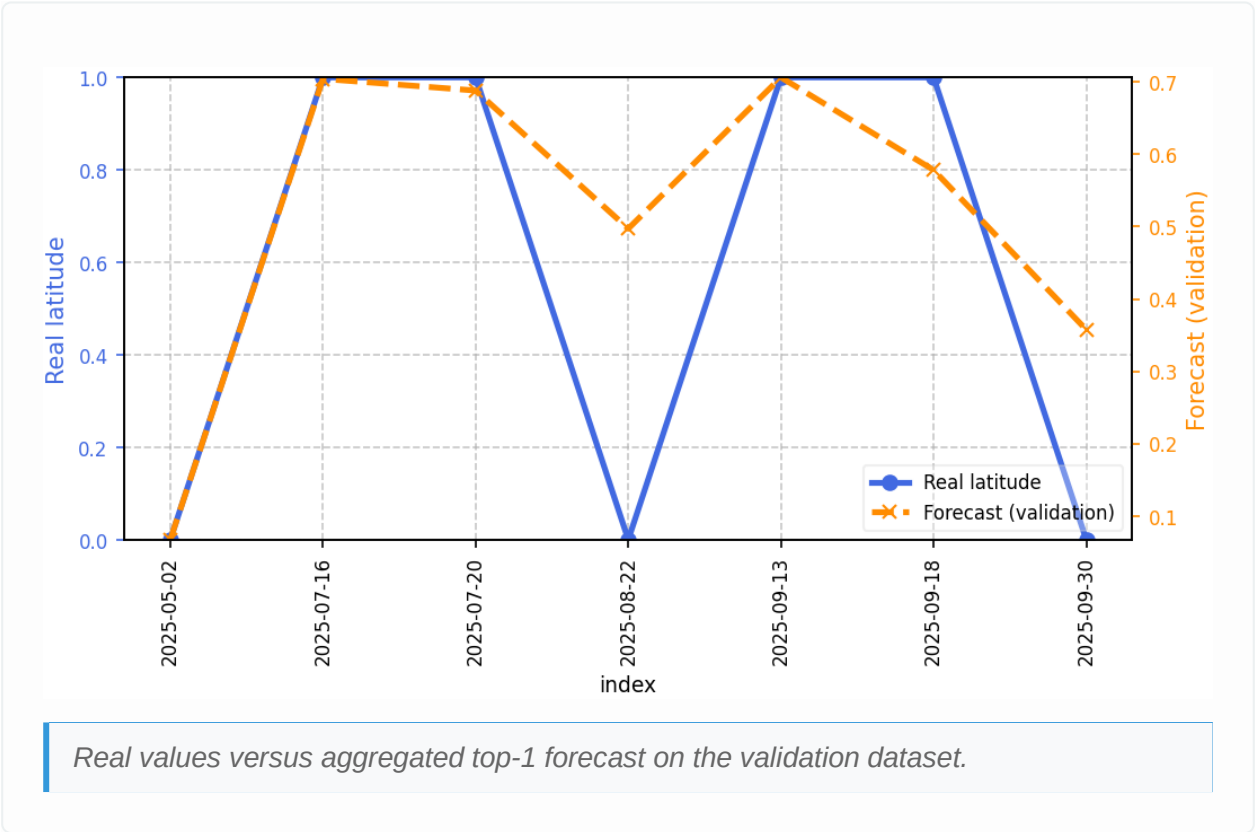
3. Forecasts

3.1 Latitude (vs 30) Seismic Forecast, res:1 day, UTC (focus: explore)



Each date represent the BEGINNING of time slot

3.2 Validation Quality Check



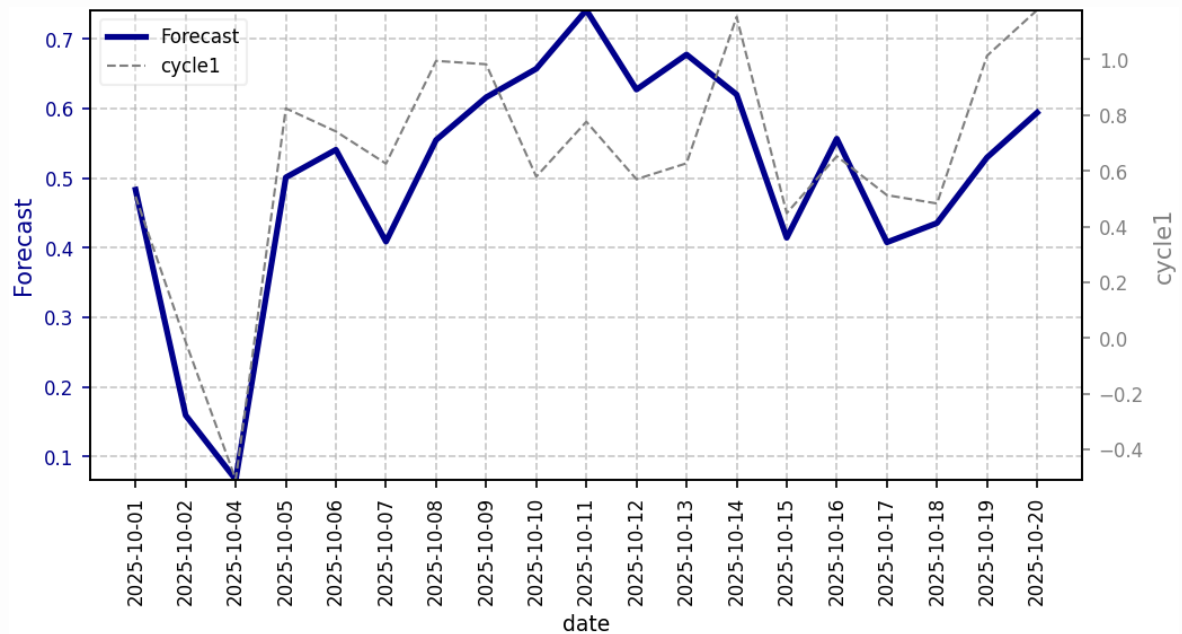
4. Features Used For Magnitude

Combined Features Analysis Report - trialsetWORLD*LATITUDE*20251004-022050

Generated: 2025-10-04T21:31:18.877300 **Cycles Analyzed:** explore, cycle1, cycle2, cycle3, cycle4

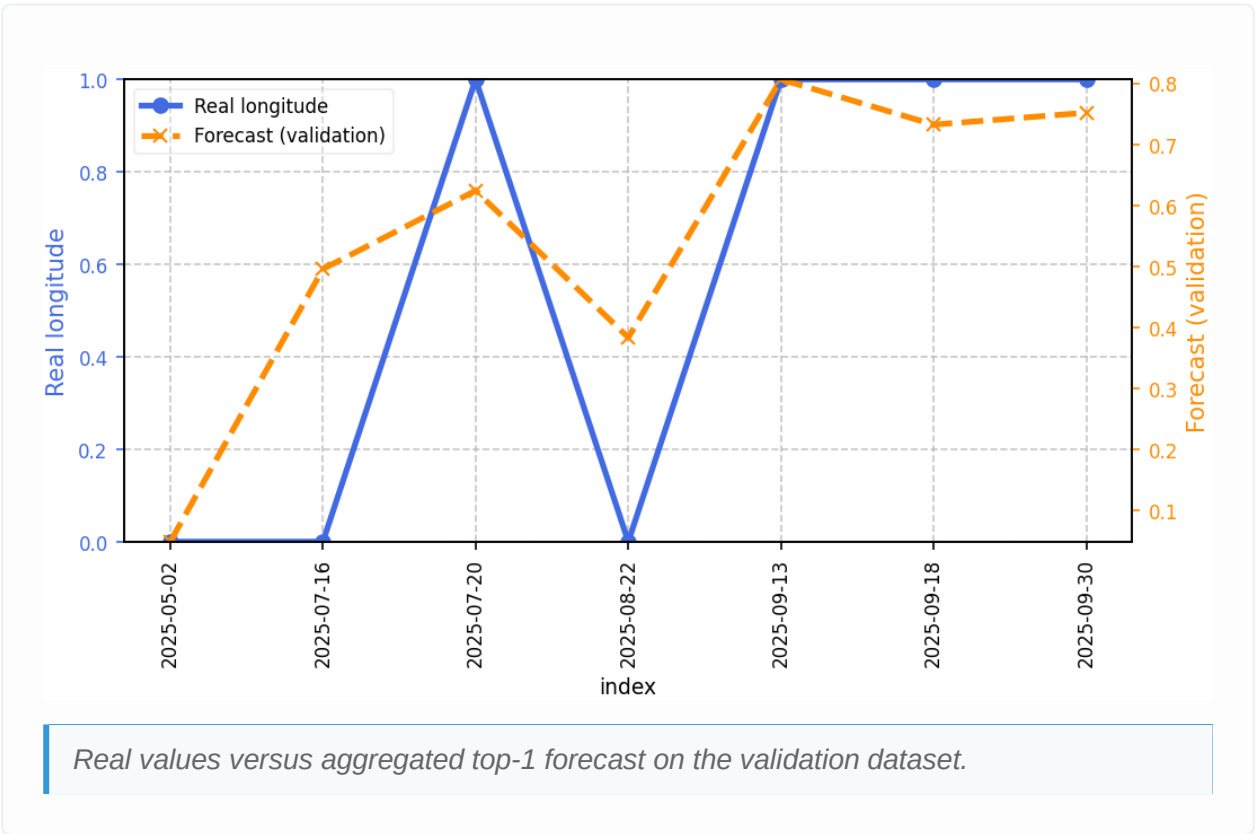
3. Forecasts

3.1 Longitude (vs. 0) Forecast, res:1 day, UTC (focus: cycle1)



Each date represent the BEGINNING of time slot

3.2 Validation Quality Check



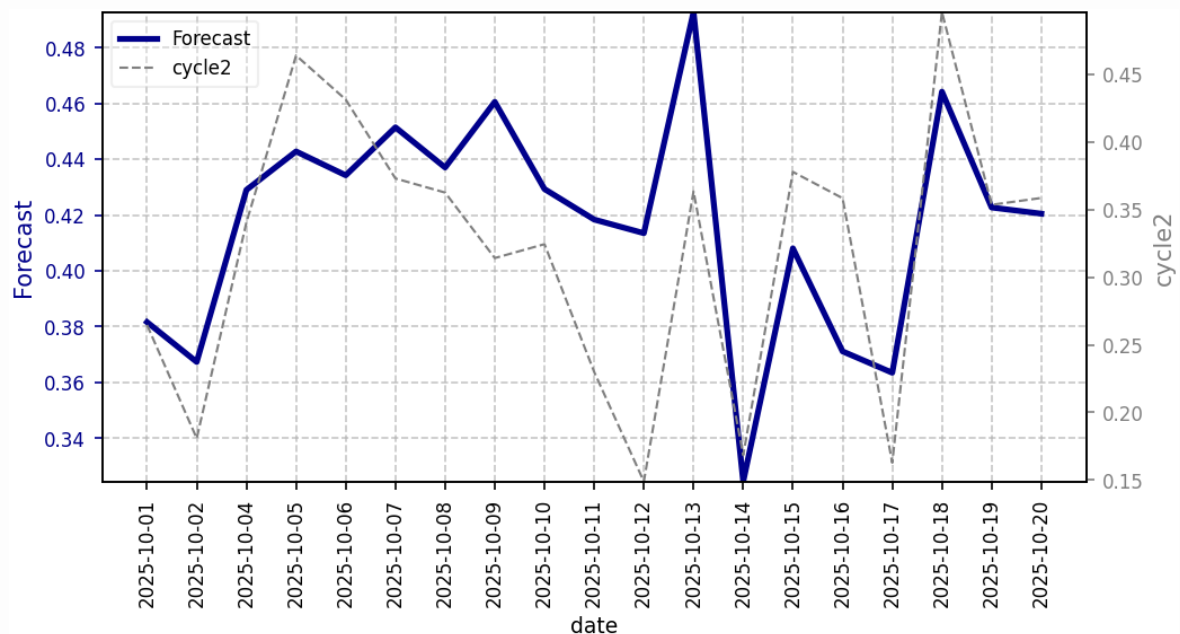
4. Features Used For Magnitude

Combined Features Analysis Report - trialsetWORLDLONGITUDE20251004-072346

Generated: 2025-10-04T21:52:51.260745 **Cycles Analyzed:** explore, cycle1, cycle2, cycle3, cycle4

3. Forecasts

3.1 Longitude (vs. 130) Forecast, res:1 day, UTC (focus: cycle2)

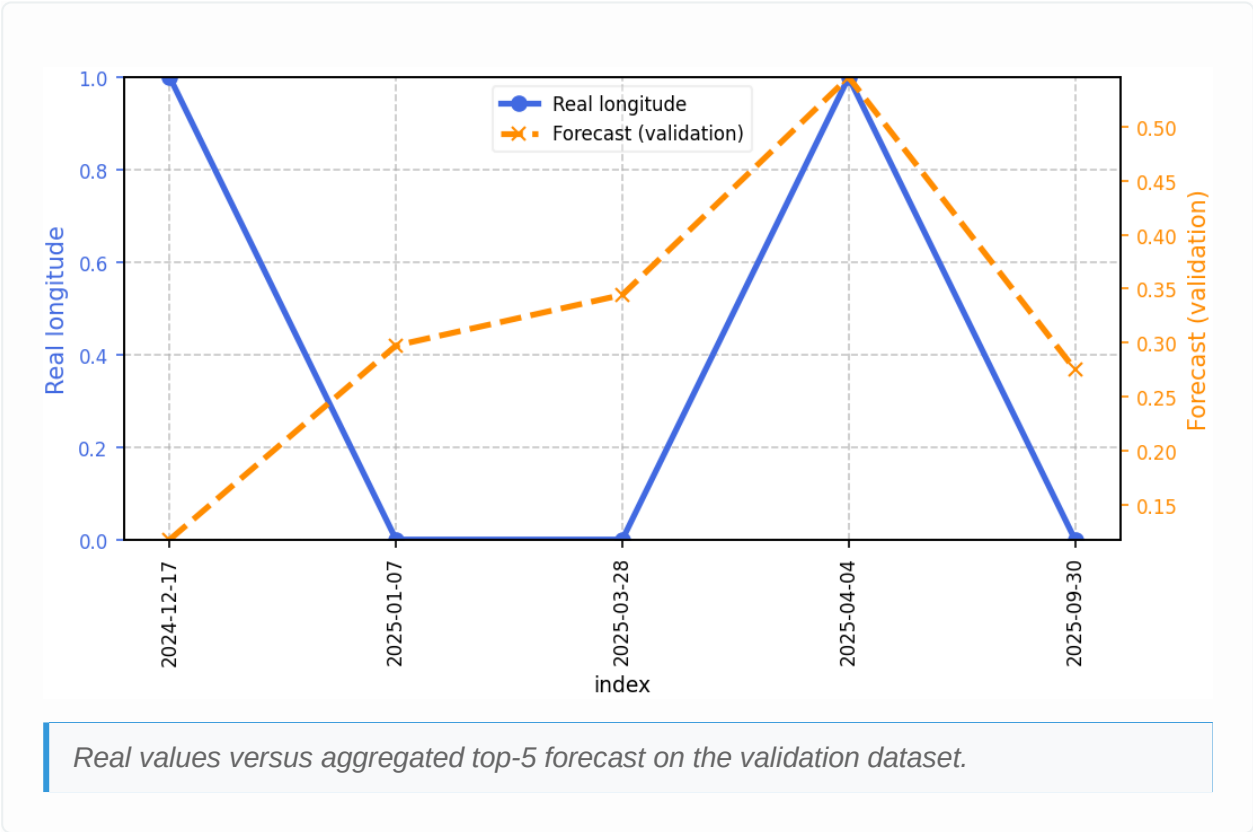


Each date represent the BEGINNING of time slot

This seismic energy forecast highlights potential earthquakes or eruptions in World.

Note: Peaks are based on focus cycle cycle2 due to its significantly lower loss and distinct trend compared to the weighted average. This choice was automatically made by the AI and may be reviewed manually.

3.2 Validation Quality Check



4. Features Used For Magnitude

Combined Features Analysis Report - trialsetworldLONGITUDEVS13020251004-231157

Generated: 2025-10-05T07:51:07.946906 **Cycles Analyzed:** explore, cycle1, cycle2, cycle3, cycle4

7. 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**

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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.