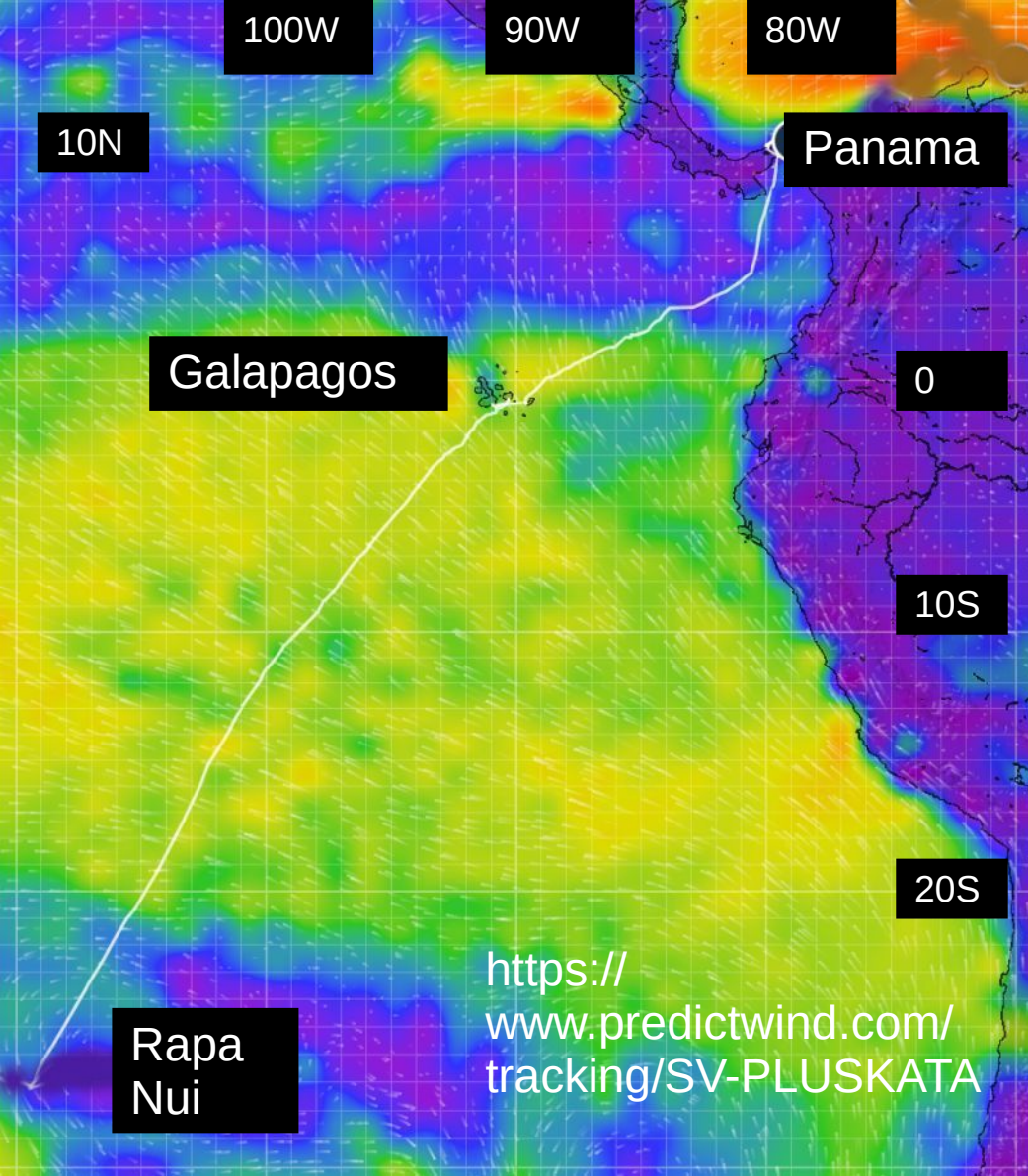


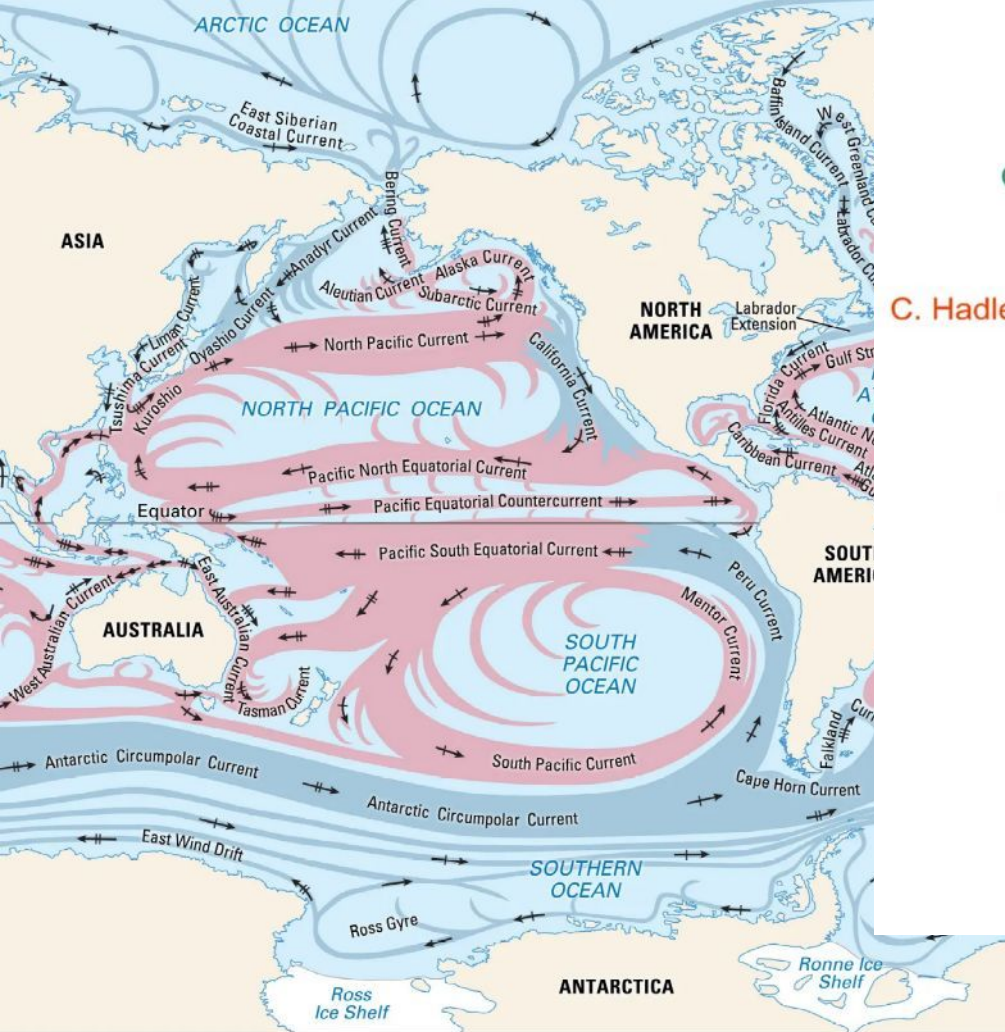
**La Niña, El Niño
and clouds of the Tropical Eastern Pacific
from a sailing yacht**

Szymon Malinowski





Batygraphy of the Equatorial Eastern Pacific and topography of the coast.

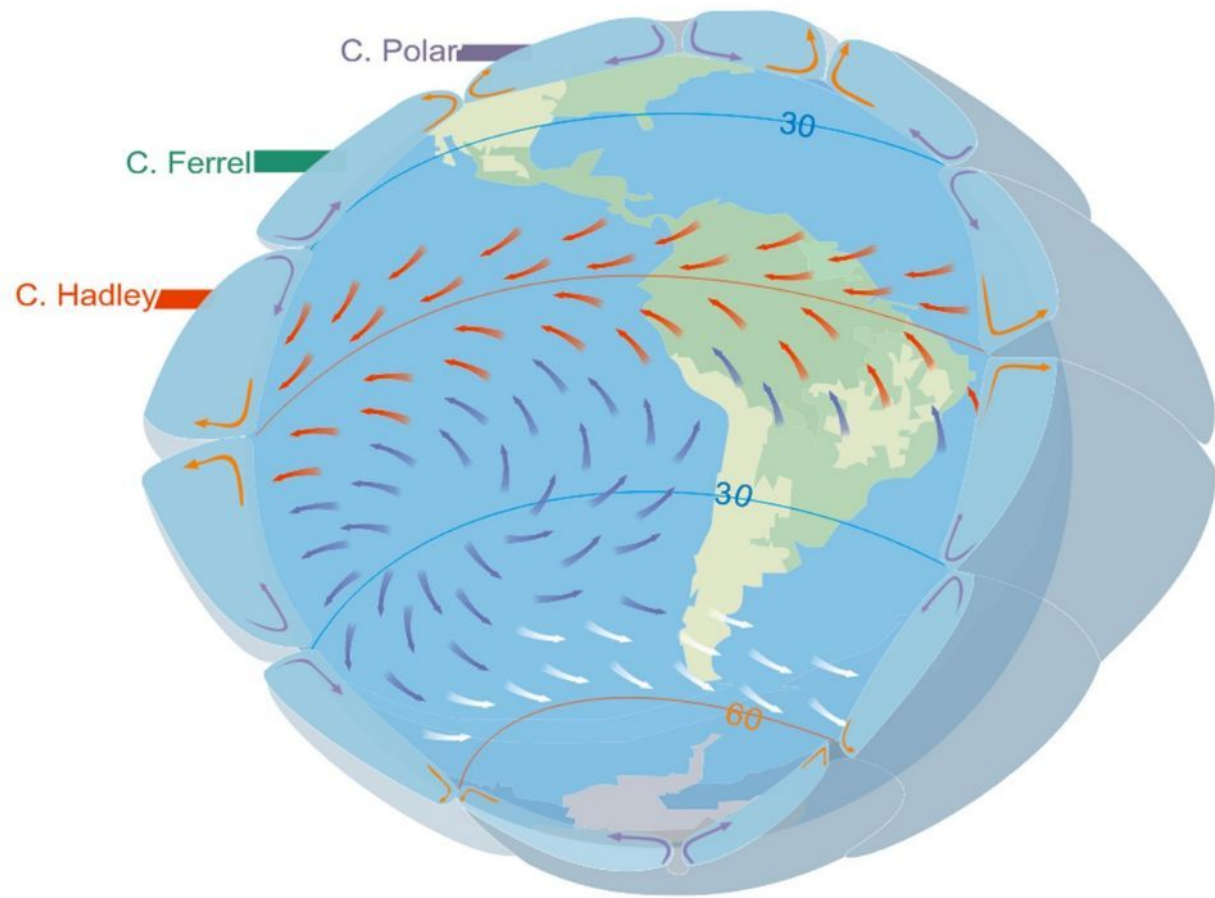


CURRENTS DURING NORTHERN HEMISPHERE WINTER

- Cold currents
- Warm currents
- Indicates a current that reverses direction during Northern Hemisphere summer

SPEED OF CURRENTS (1 knot = 1 nautical mile [6.076 feet] per hour)

- Less than 0.5 knots
- 0.5–0.8 knots
- Greater than 0.8 knots



Scheme of surface currents and winds on the Equatorial Eastern Pacific

Scale is true only on the Equator

0 1500 3000 mi

0 2000 4000 km

© Encyclopædia Britannica, Inc.

m

0

1000

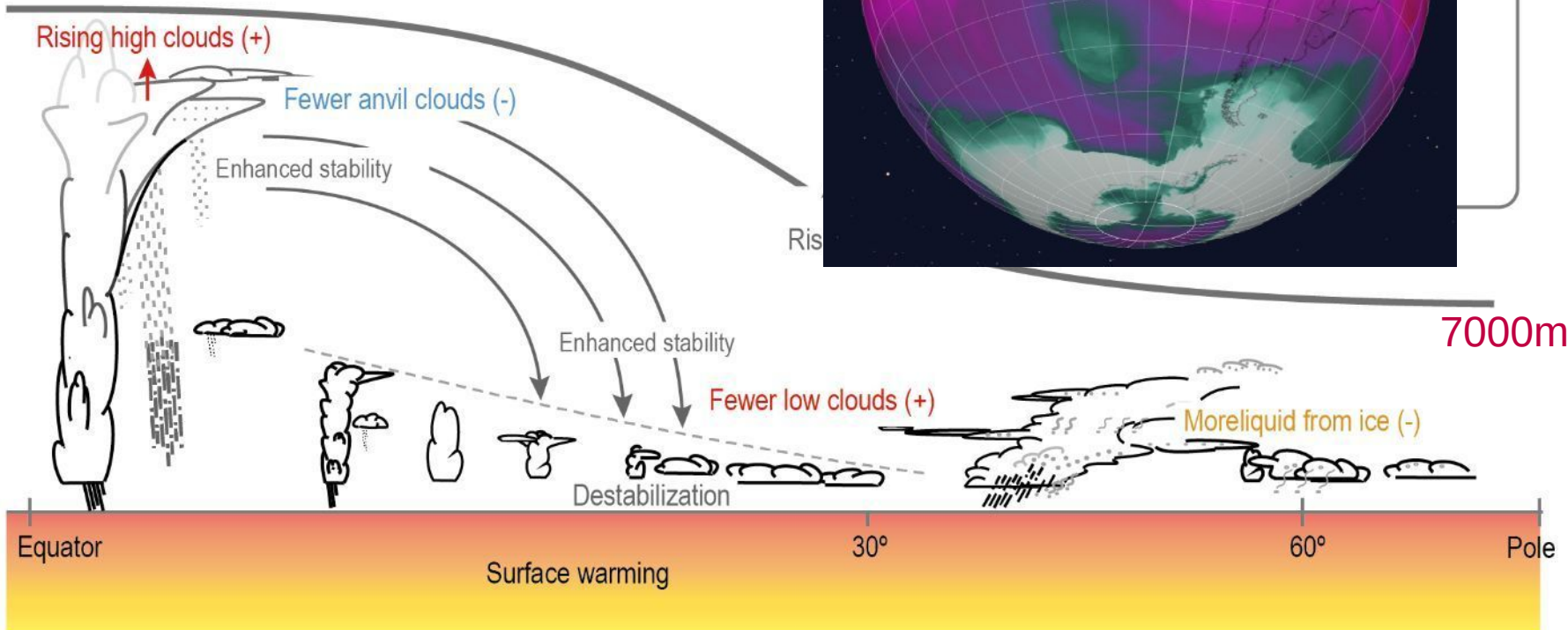
1500

5k

9k

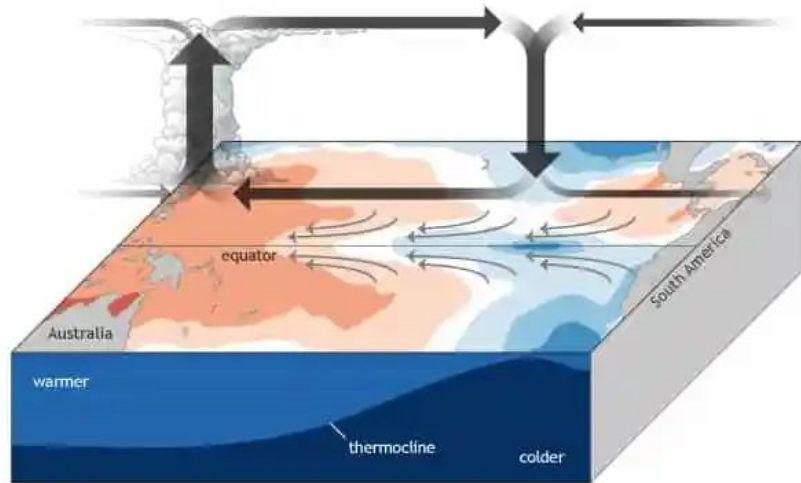
Scheme of cloud patterns along meridian and map of isotherm 0°C in the region of interest.

16000m ↑ Rising of Tropopause



Atmosphere-ocean feedbacks during El Niño-Southern Oscillation

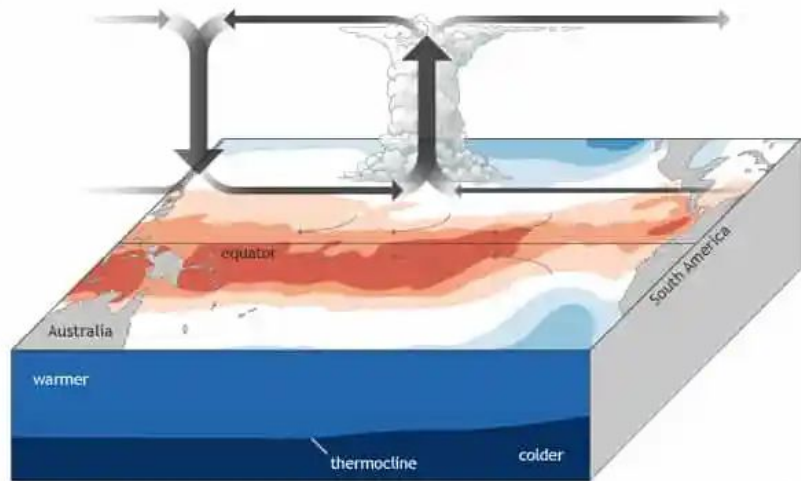
La Niña



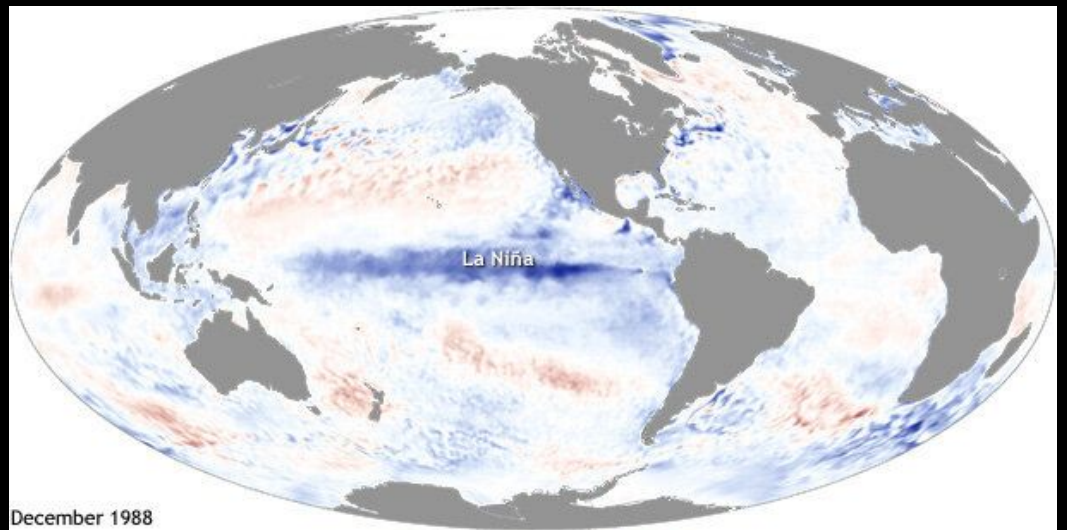
NOAA Climate.gov

Atmosphere-ocean feedbacks during El Niño-Southern Oscillation

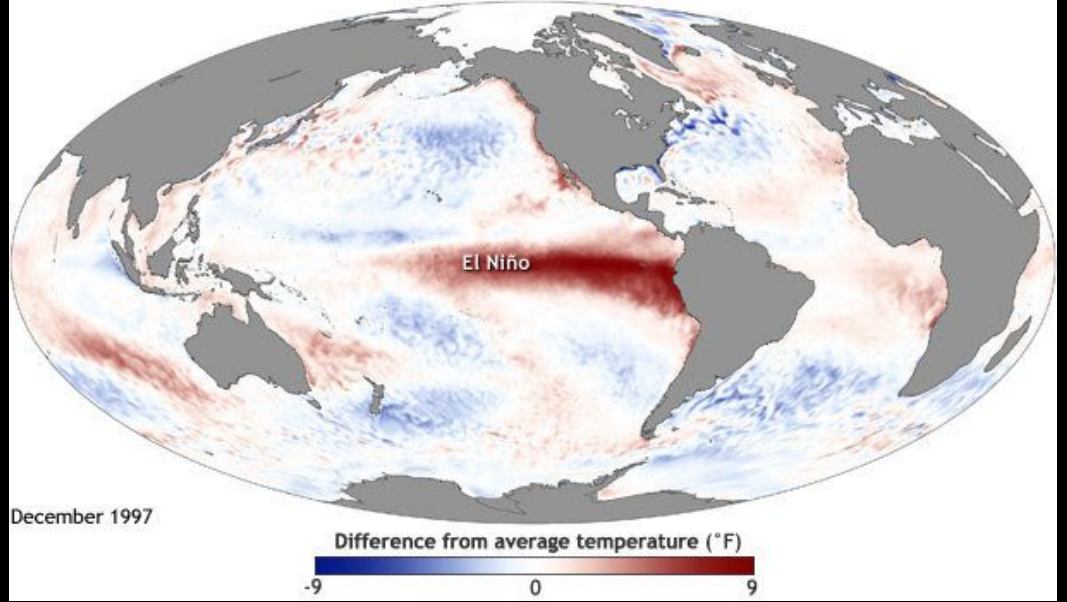
El Niño



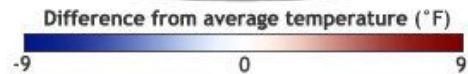
NOAA Climate.gov

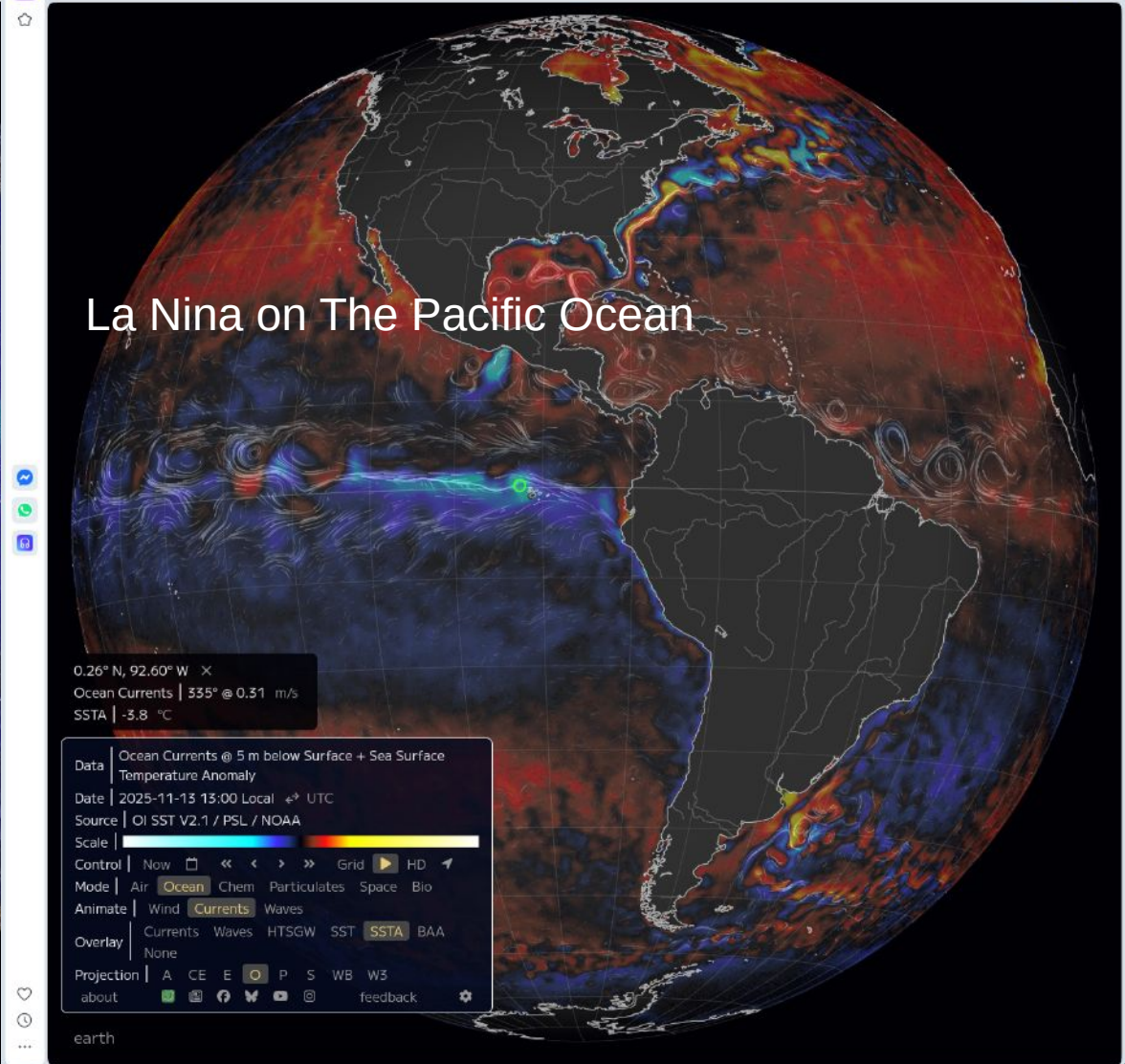
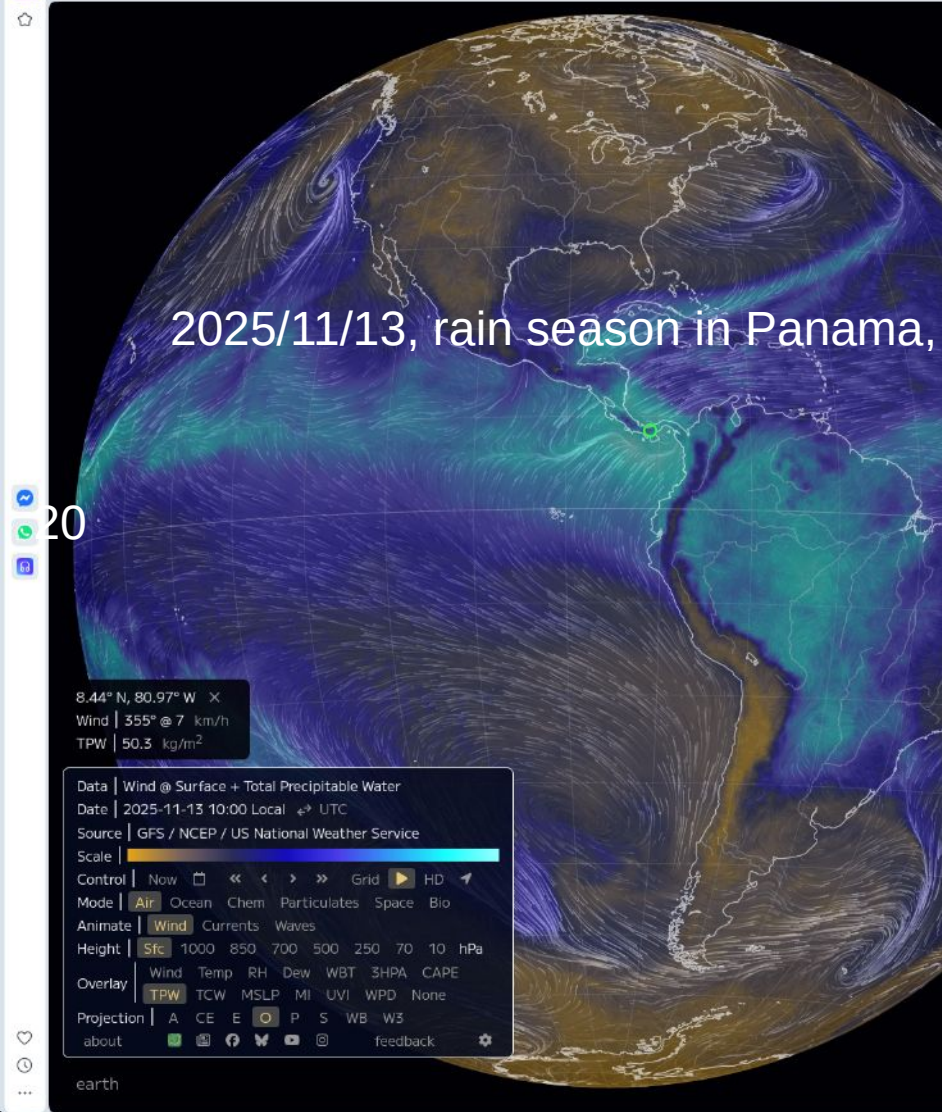


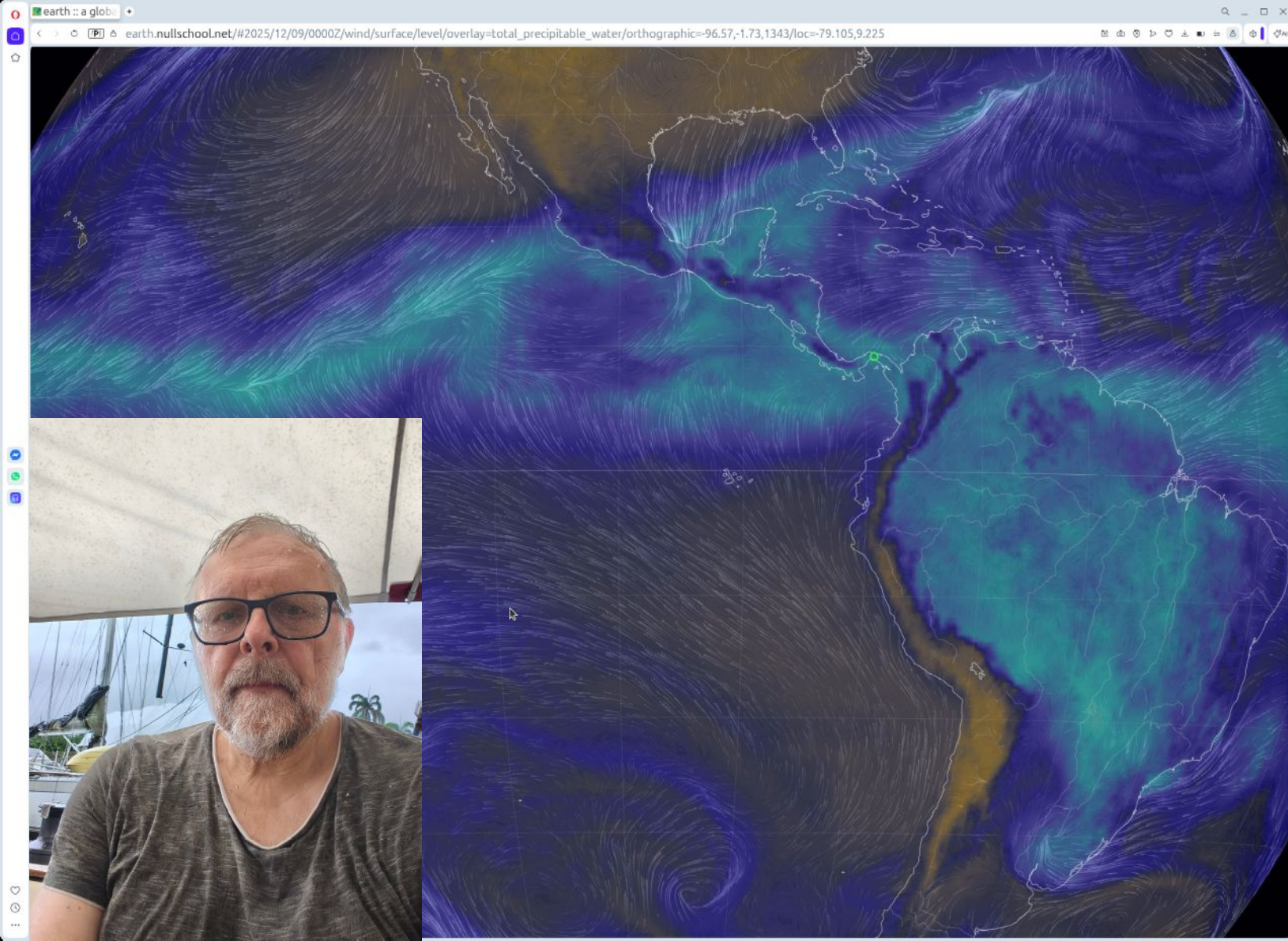
December 1988



December 1997





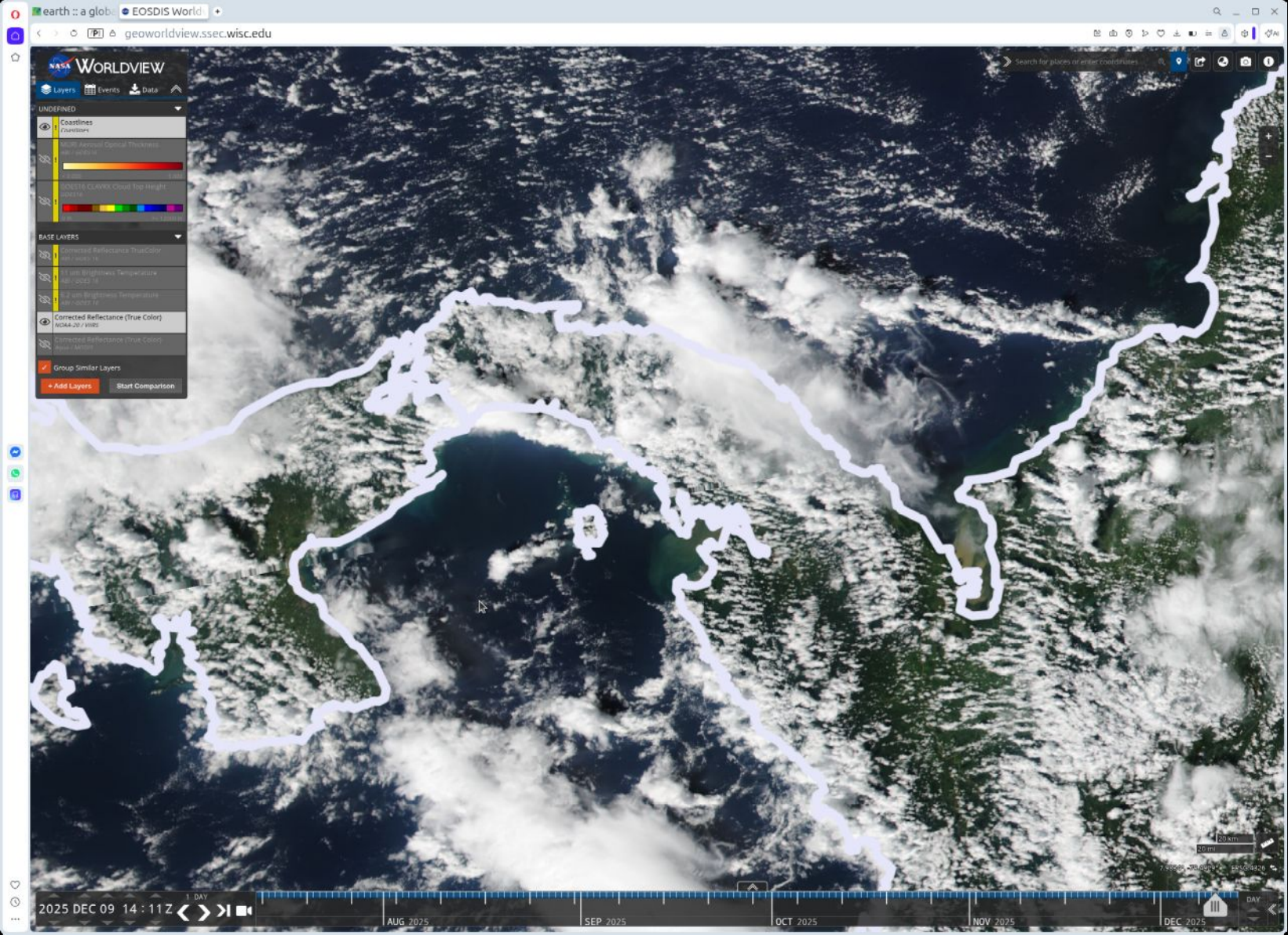


Colon,
Shelter Bay
Marina

2025/12/09

Prolonged rain
season in
Panama.

NE and S
tradewinds
converge over
the
Panama Isthmus.

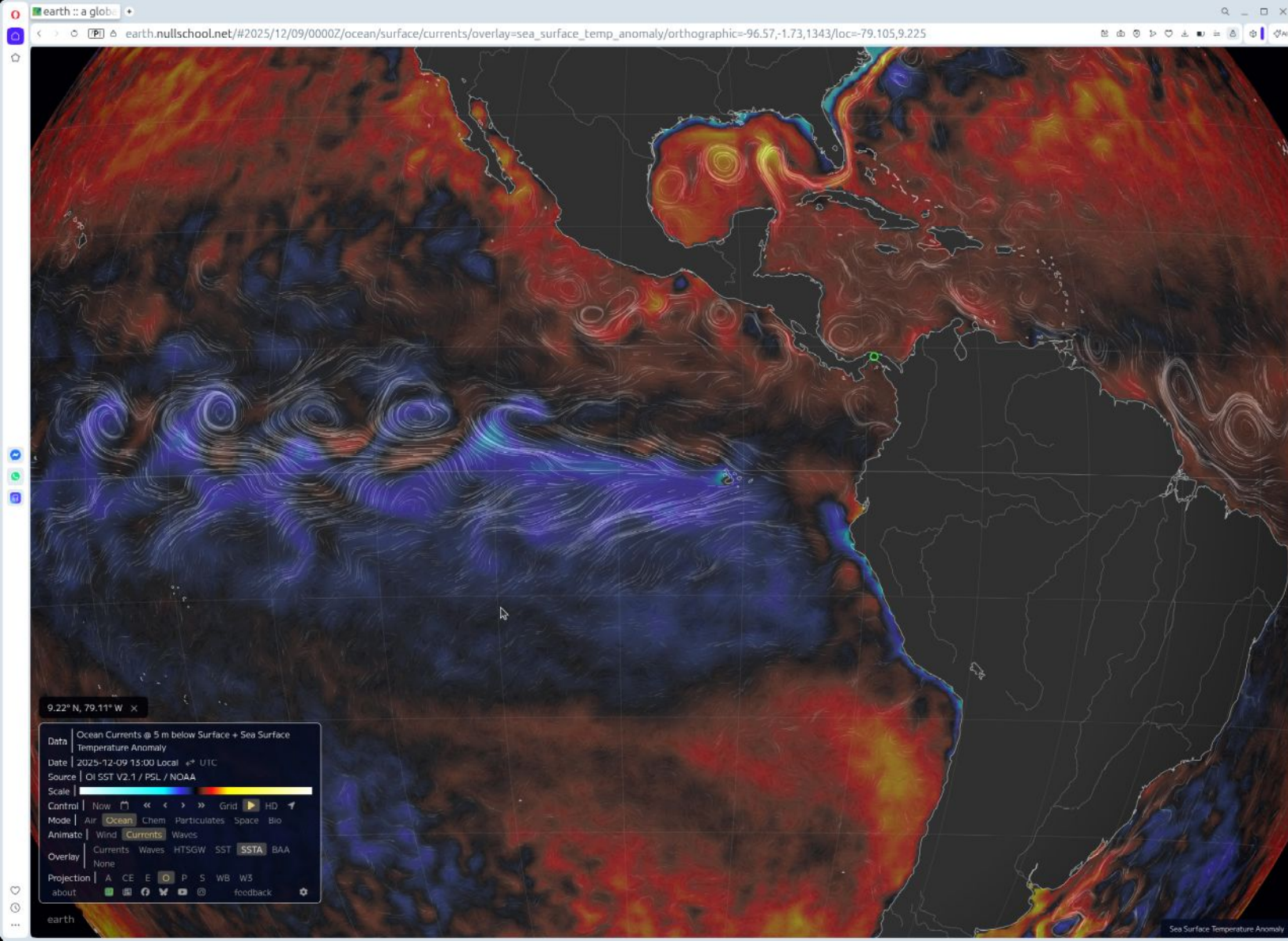


Colon,
Shelter Bay
Marina

2025/12/09

Prolonged rain
season in
Panama.

Deep convective
clouds develop,
bringing
thunderstorms in
the afternoon.



2025/12/09

La Nina

Negative anomalies of SST along Peruvian coast, around Galapagos and along the equator.







CARLA

745

4230 18

166

1800 | 1800



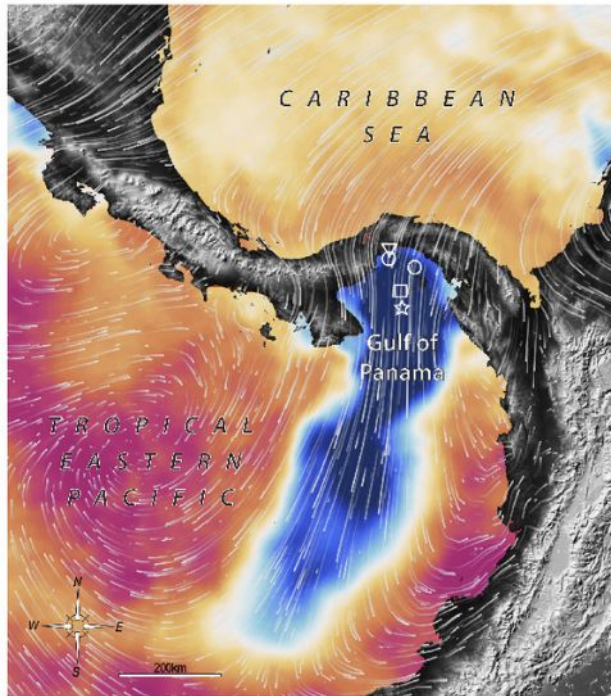
Unprecedented suppression of Panama's Pacific upwelling in 2025

Aaron O'Dea, Andrew J. Sellers, Carmen Pérez-Medina, and Gerald H. Haug [Authors Info & Affiliations](#)

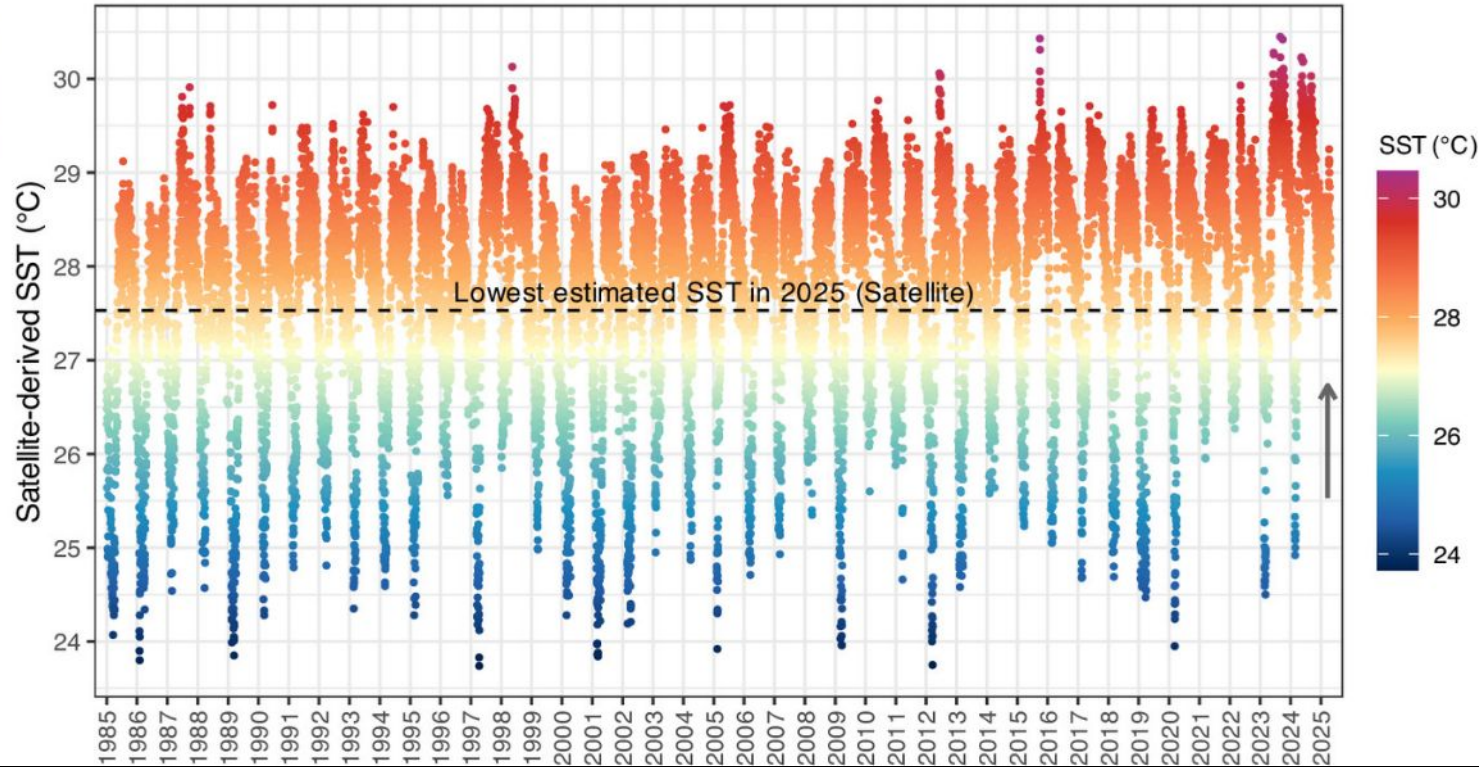
Edited by Eric Rignot, University of California Irvine, Irvine, CA; received May 20, 2025; accepted July 23, 2025

September 2, 2025 | 122 (36) e2512056122 | <https://doi.org/10.1073/pnas.2512056122>

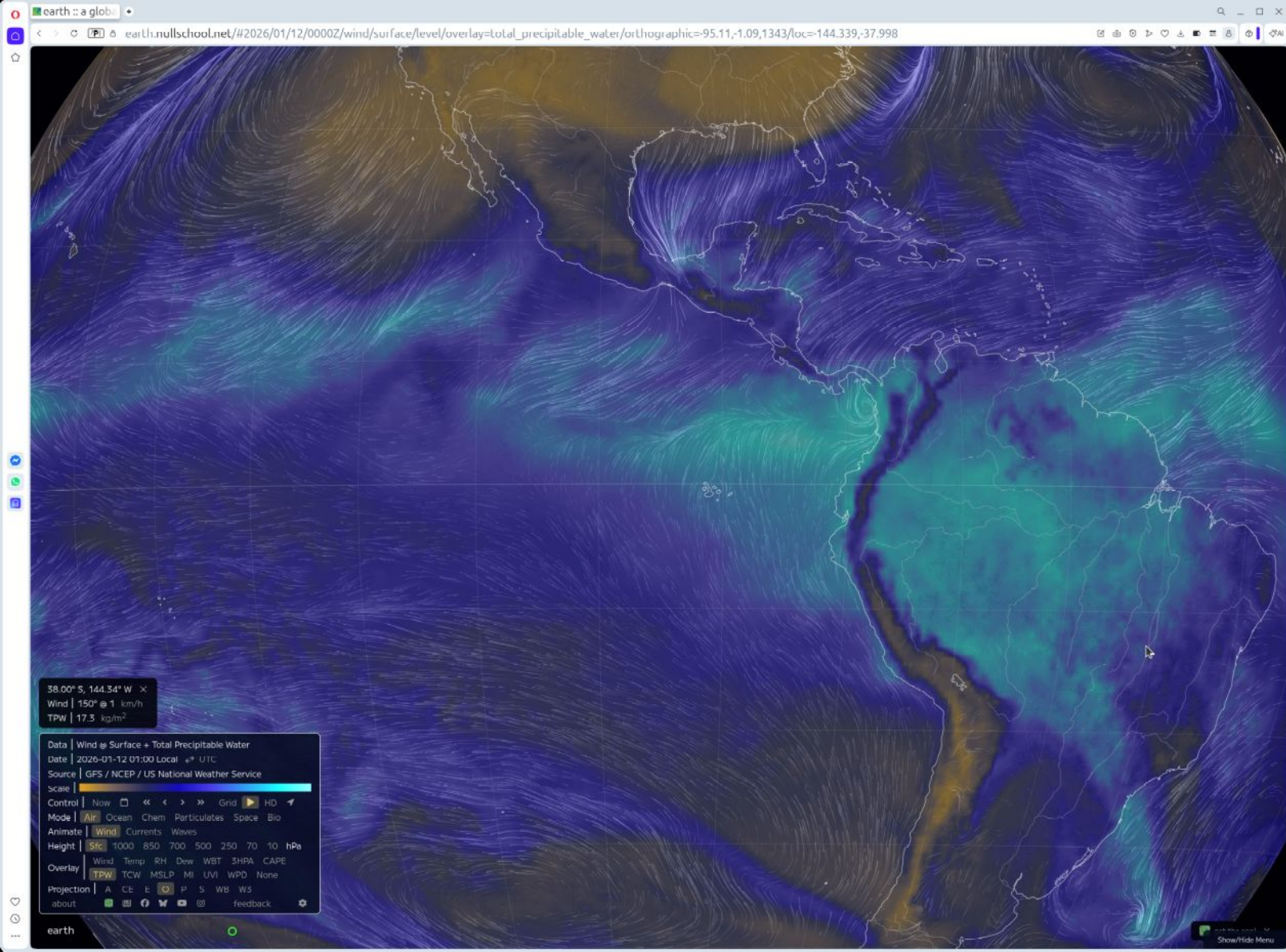
A Typical upwelling and study sites



B Satellite-derived sea surface temperatures (1985-2025)



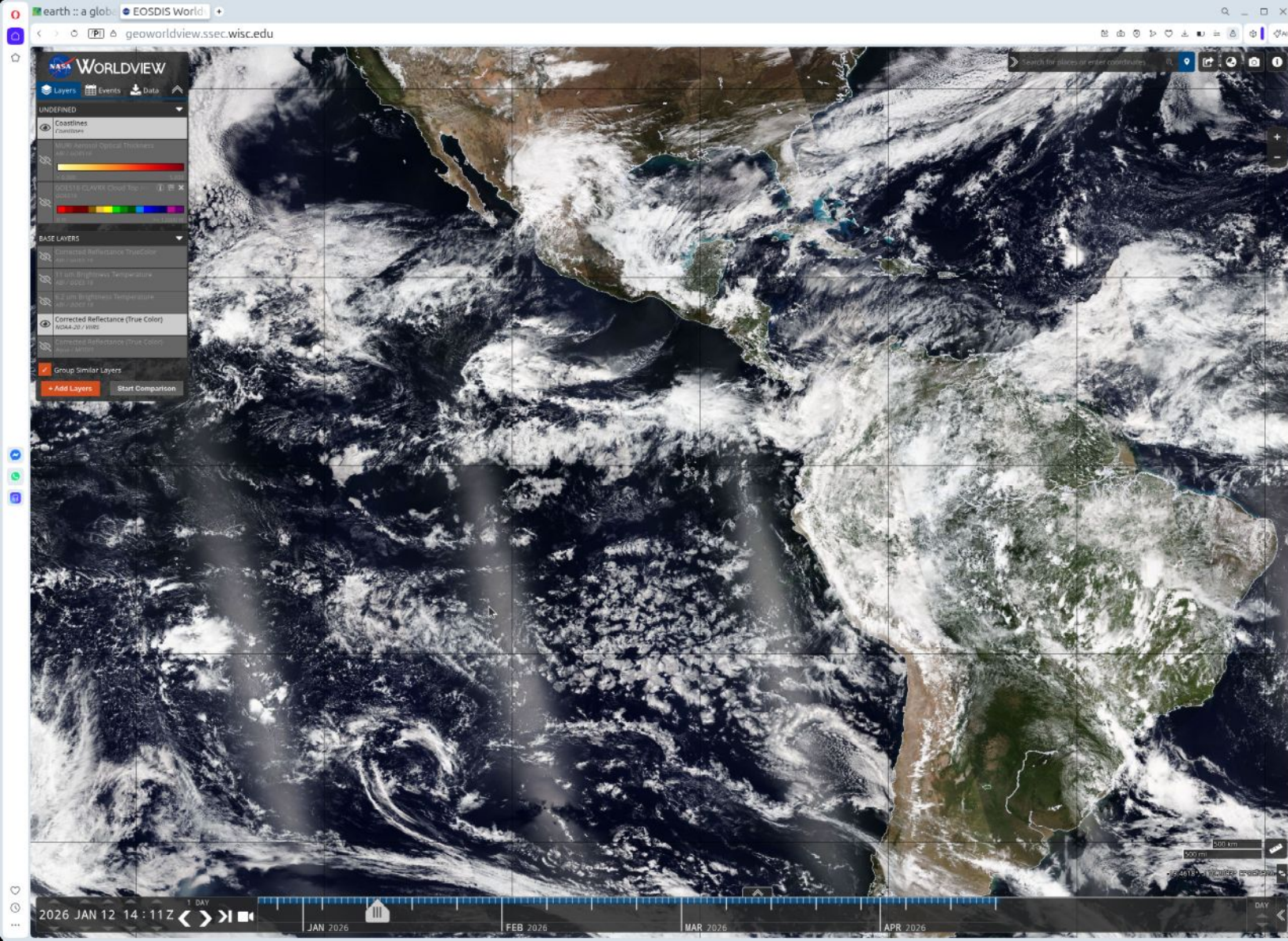




2026/01/12

On the way from
Panama to
Galapagos.

NE trade wind
breaks over the
isthmus. ITCZ
with the
increased TPW
moves towards
the equator.



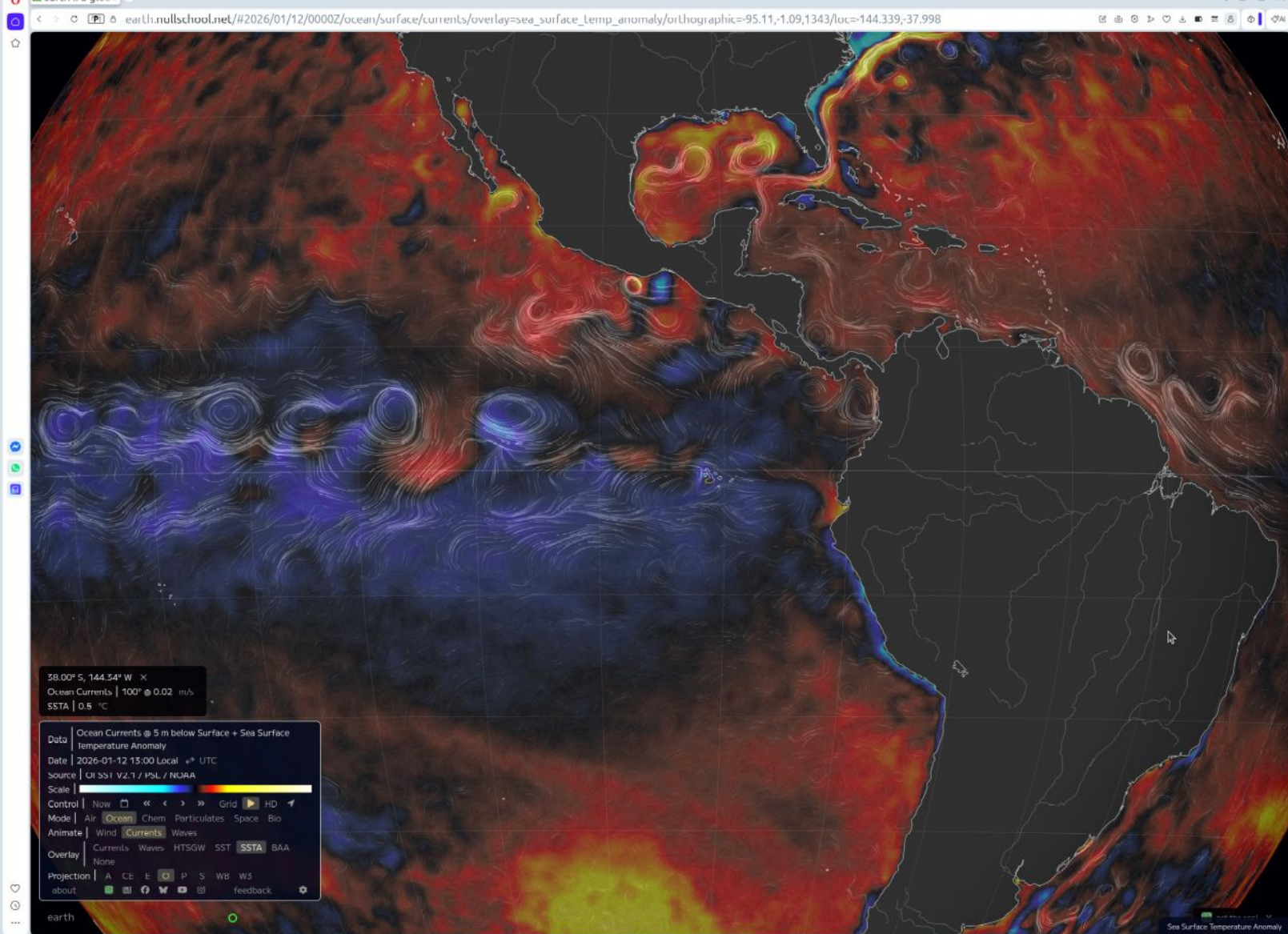
2026/01/12

On the way from Panama to Galapagos.

NE trade wind breaks over the isthmus. ITCZ moves towards the equator.

Deep convection brings rainshafts and variable winds.



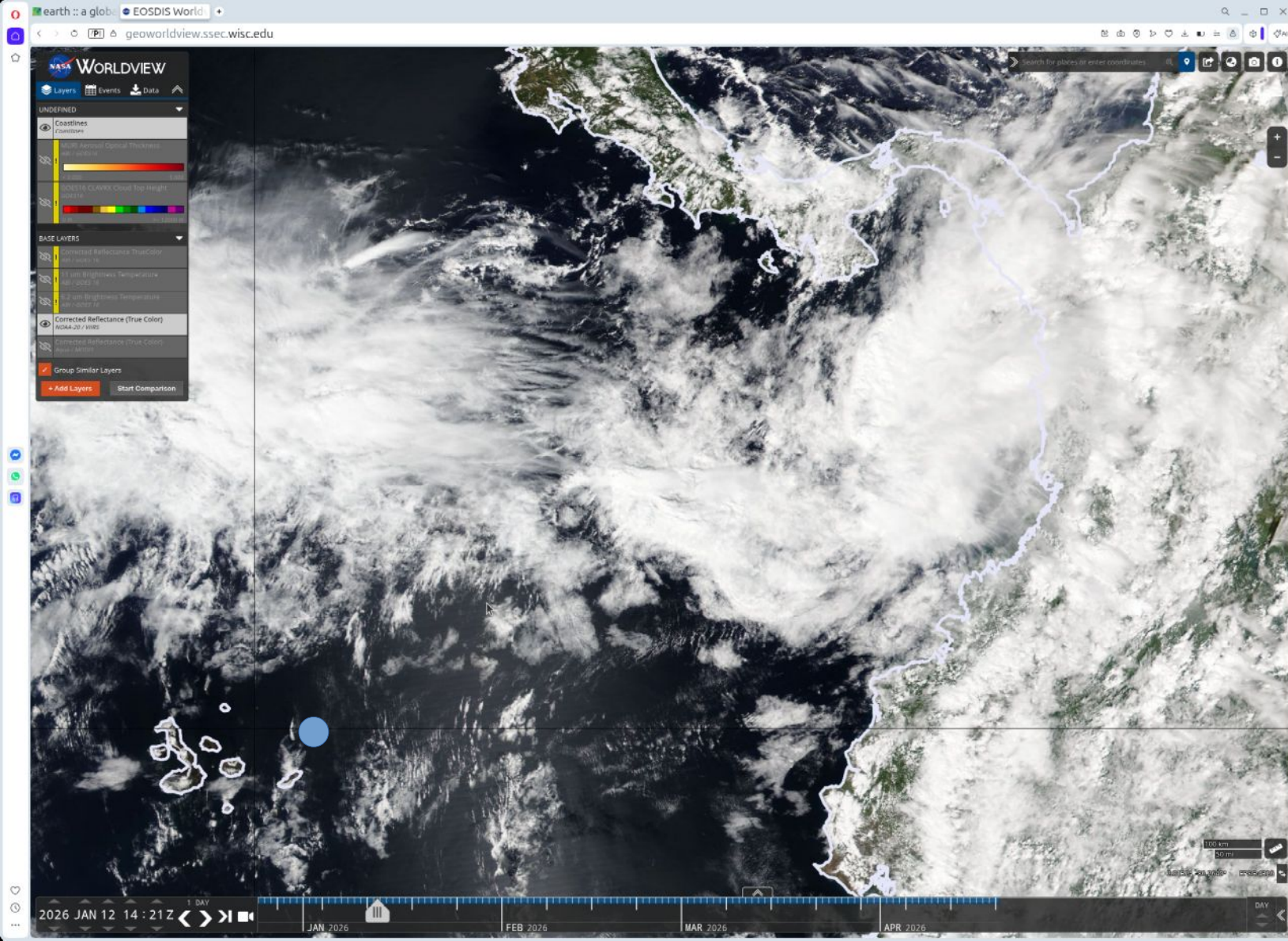


2026/01/12

On the way from Panama to Galapagos.

NE trade wind breaks over the isthmus and initiates upwelling in Panama Bay,

La Nina weakens.



2026/01/14

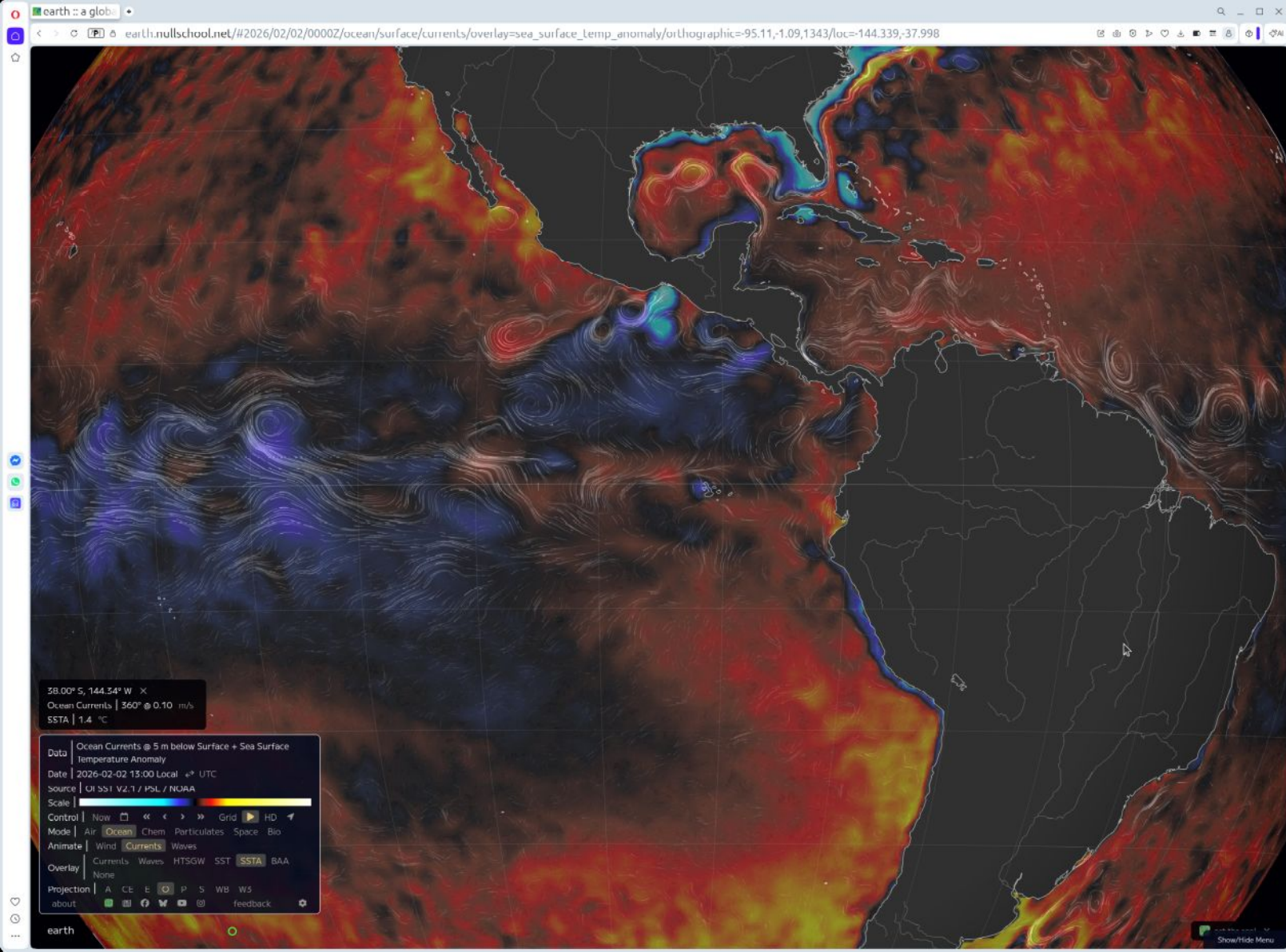
On the way from Panama to Galapagos.

Drier region along the equator

Yacht position at the moment of equator crossing marked with the blue dot.

Stratocumulus clouds (next screen) suggest presence of the inversion layer,

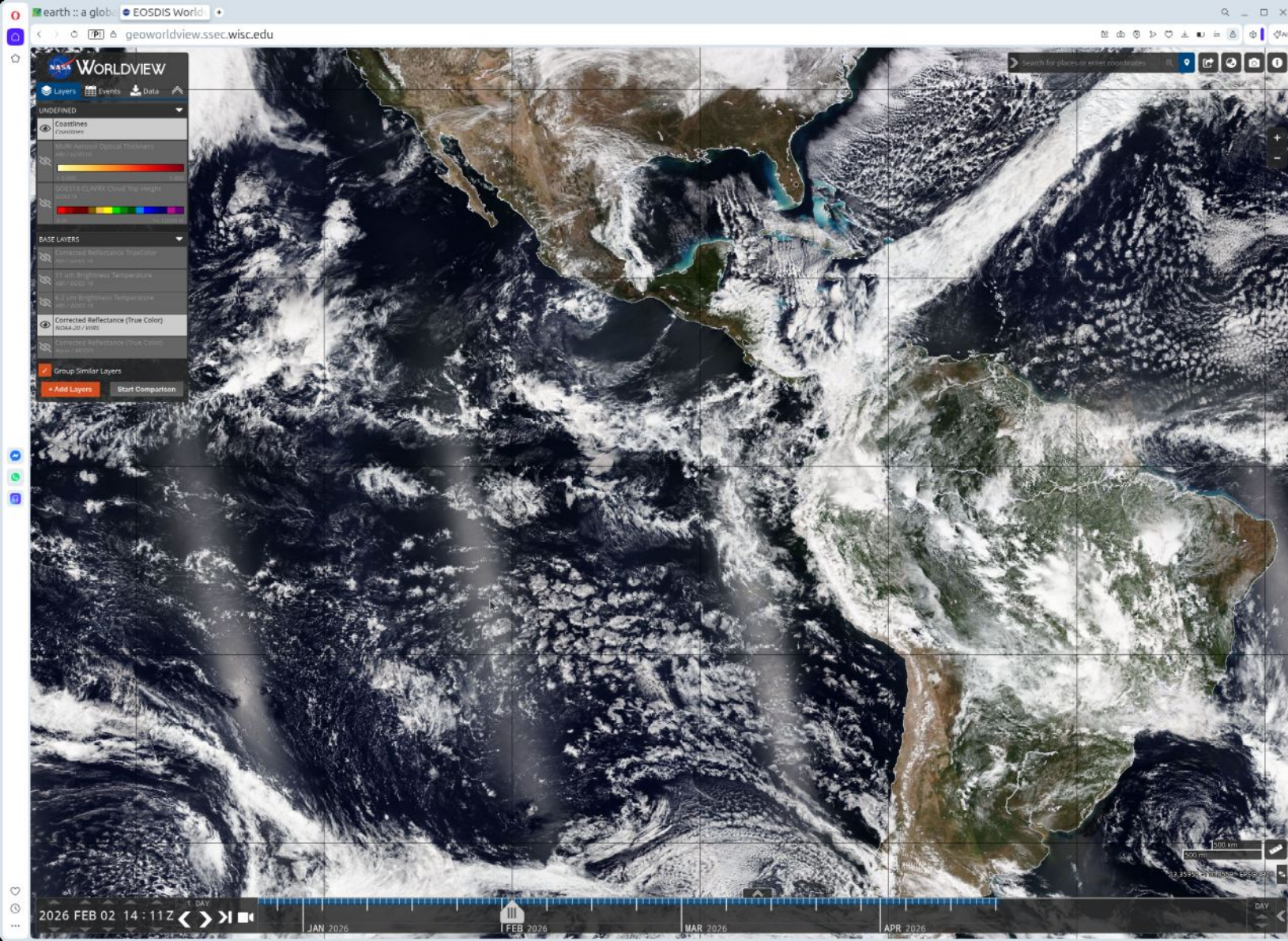




2026/02/02

Last days on
Galapagos.

La Nina
weakens.
Increased TPW
north of the
islands mark
ITCZ,
while positive
SST anomaly
south of the
islands is
responsible for
the southern
TPW band.



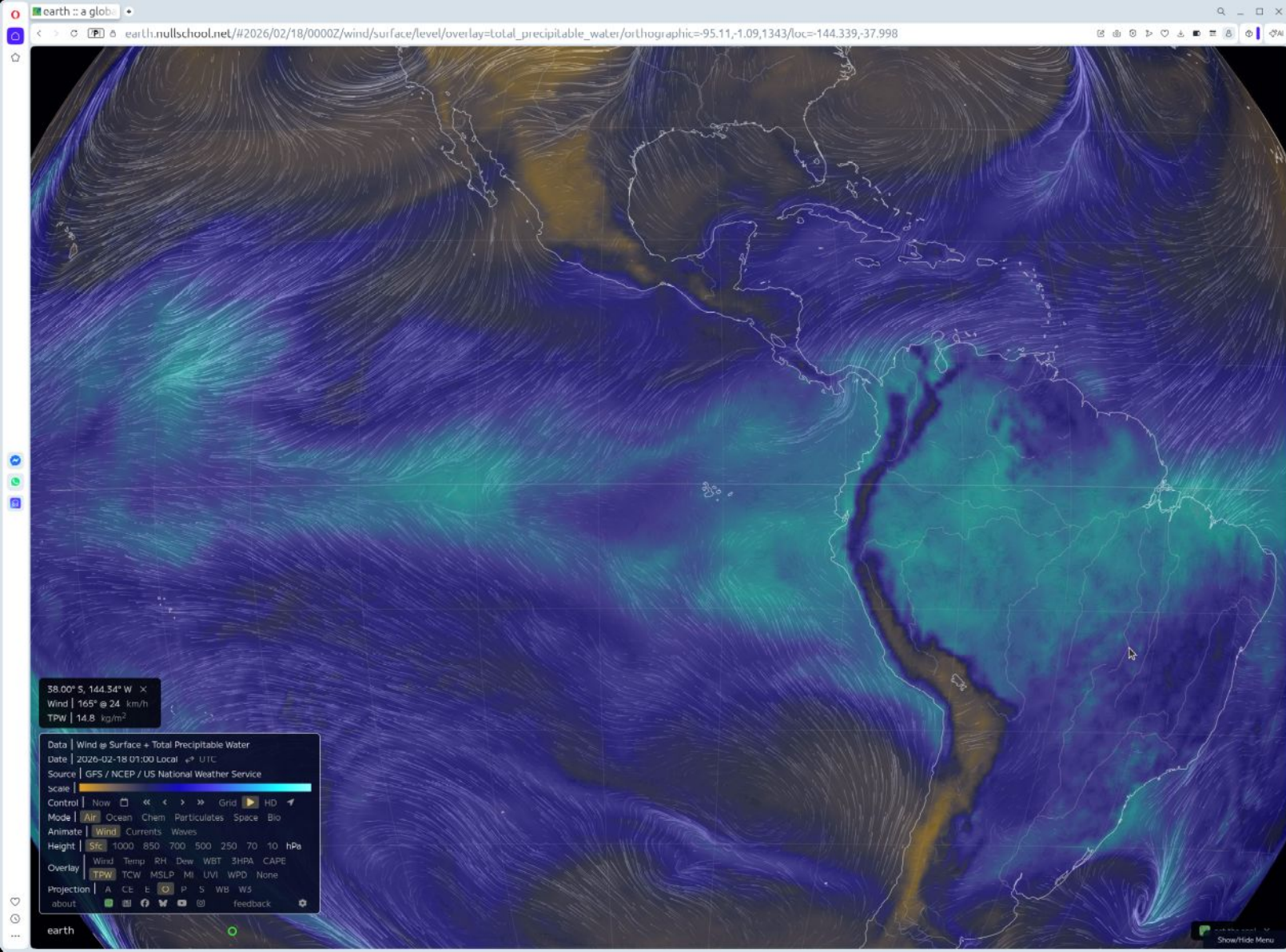
2026/02/02

Last days on Galapagos.

La Nina weakens. Increased deep convection north of the islands mark ITCZ, while positive SST anomaly south of the islands is responsible for the southern convection band.





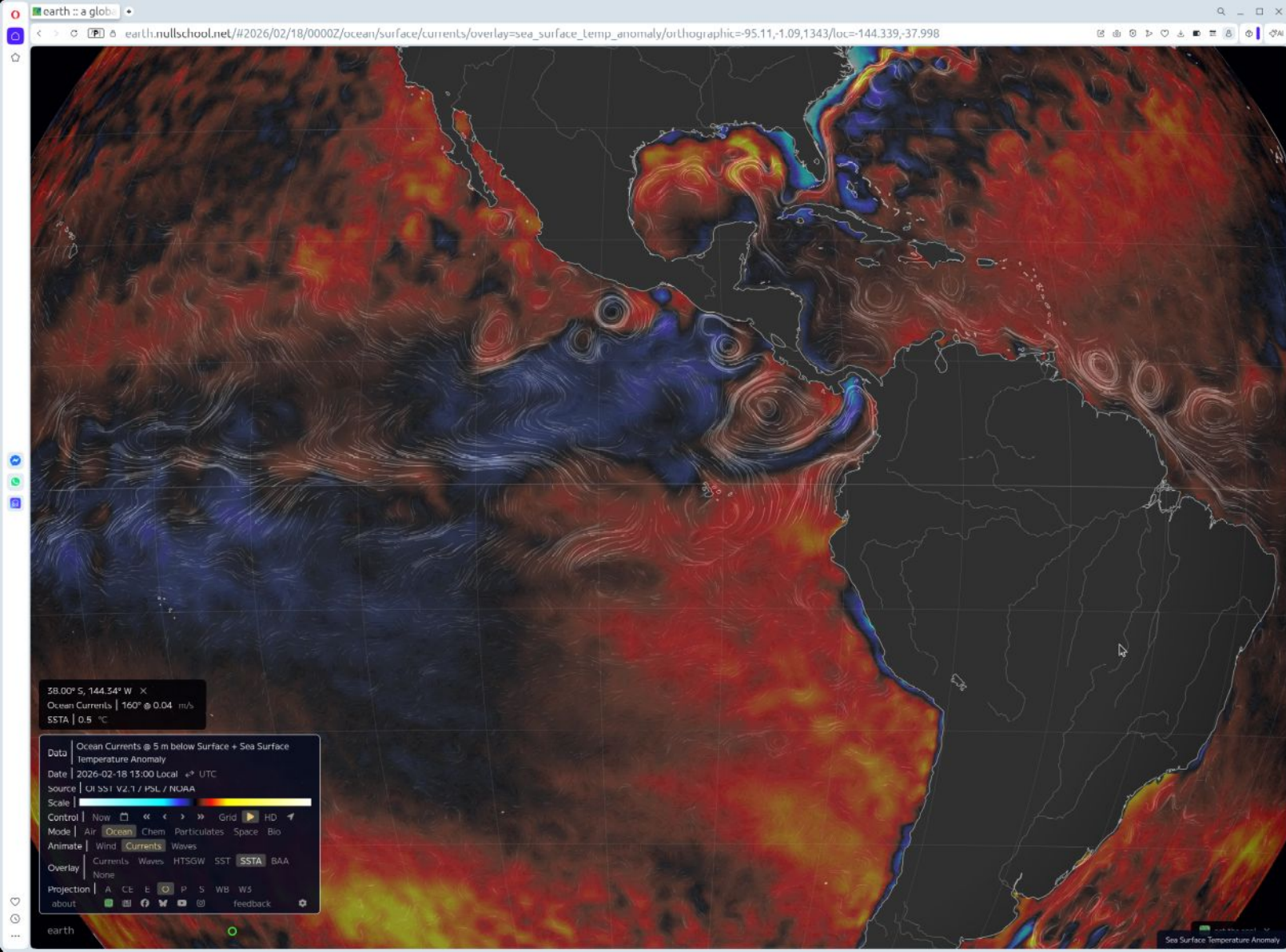


2026/02/18

Towards Easter Island

Conditions do not change significantly.

Two bands of increased TWC.

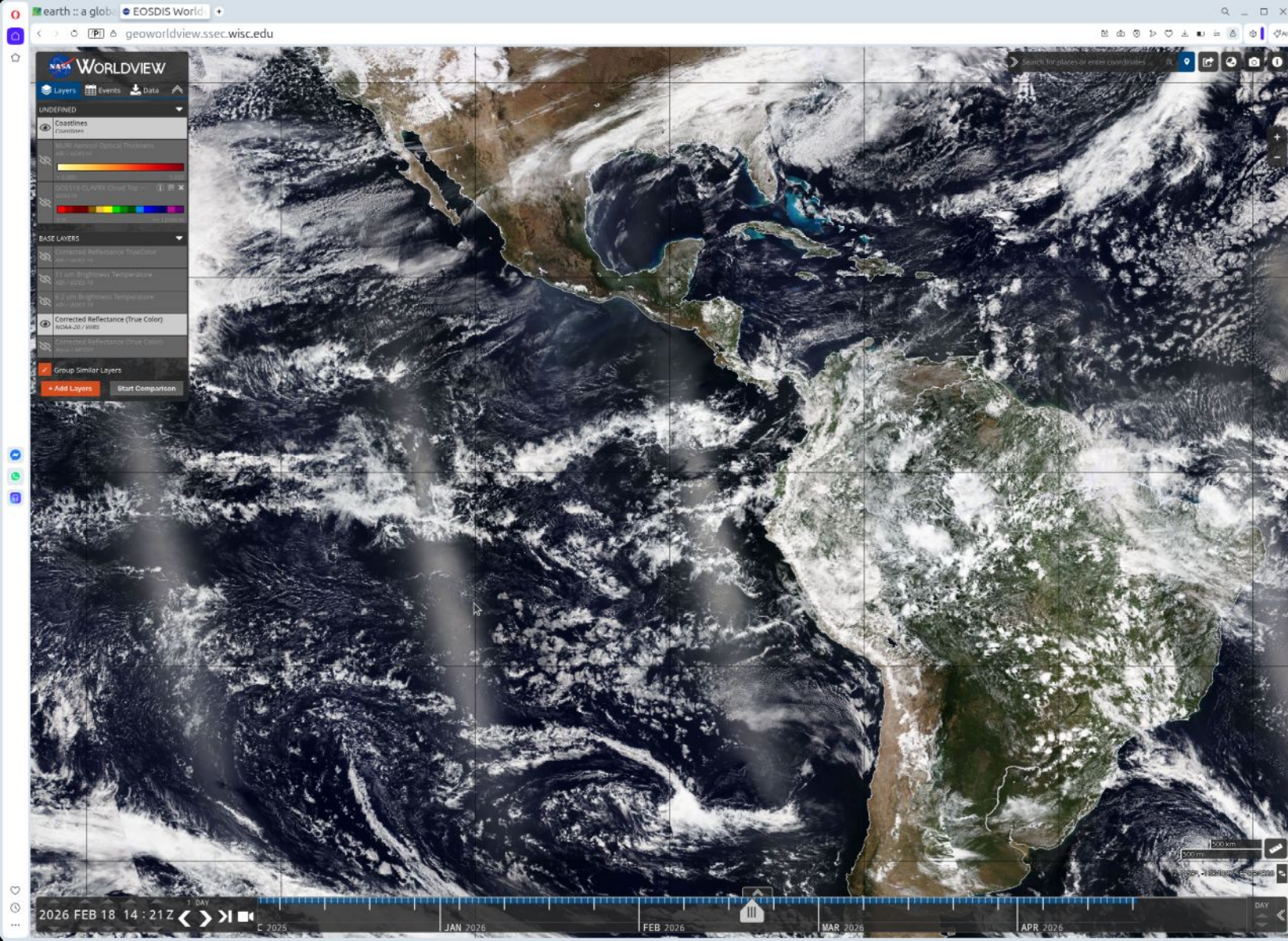


2026/02/18
Towards the Easter
Island.

Conditions do not
change
significantly. Two
bands of increased
TWC.

Upwelling in the
Panama Bay,
almost no
upwelling along the
Peruvian coast.

End of La Nina.



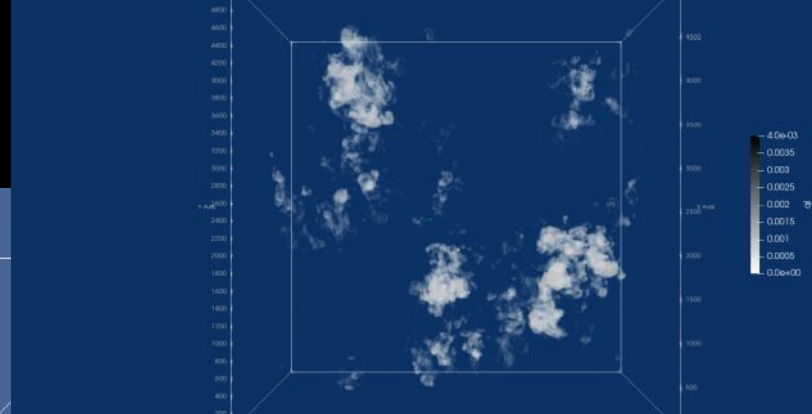
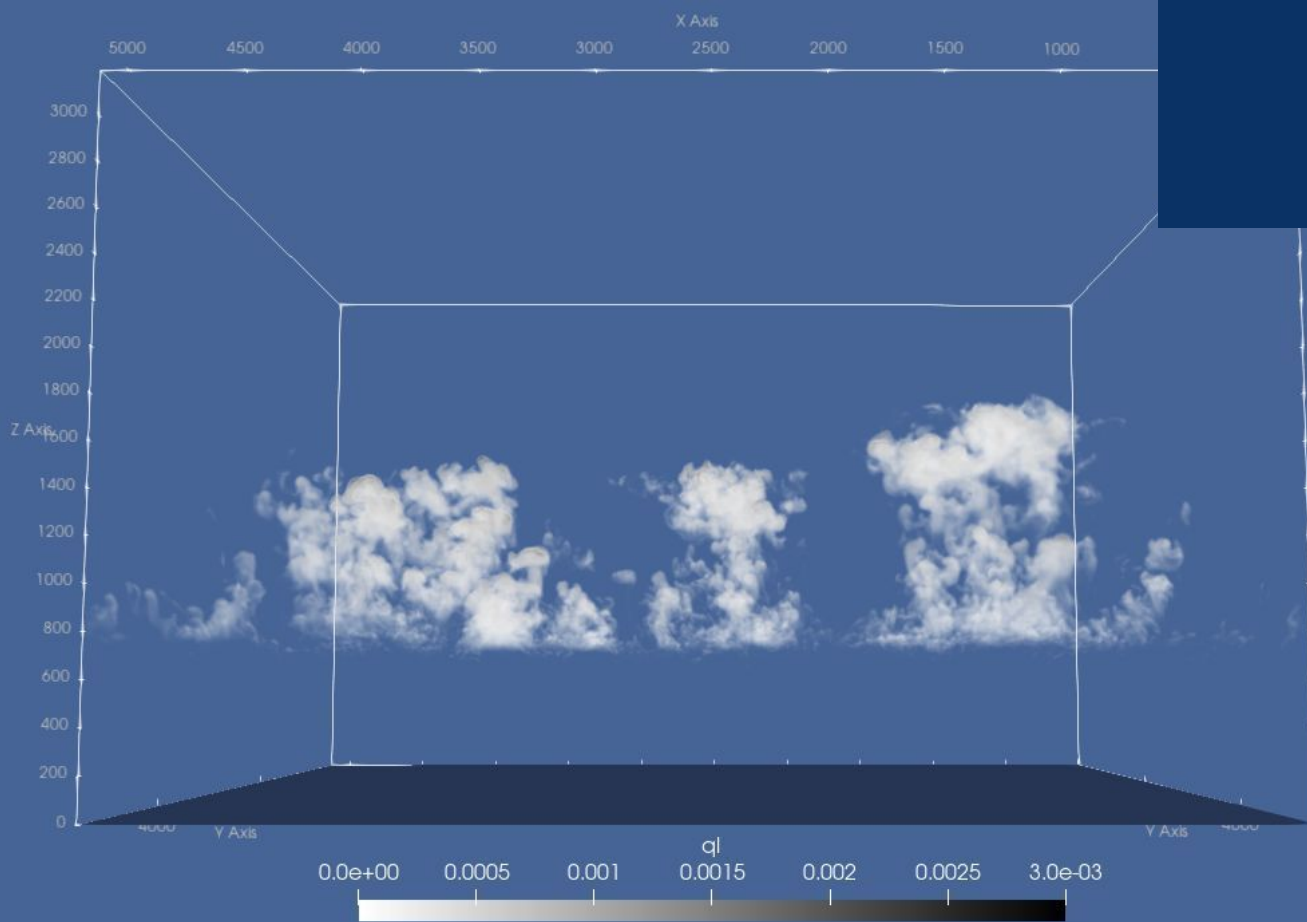
2026/02/18

Towards Easter Island.

Increased cloud convection over the warm spot SE from Galapagos.

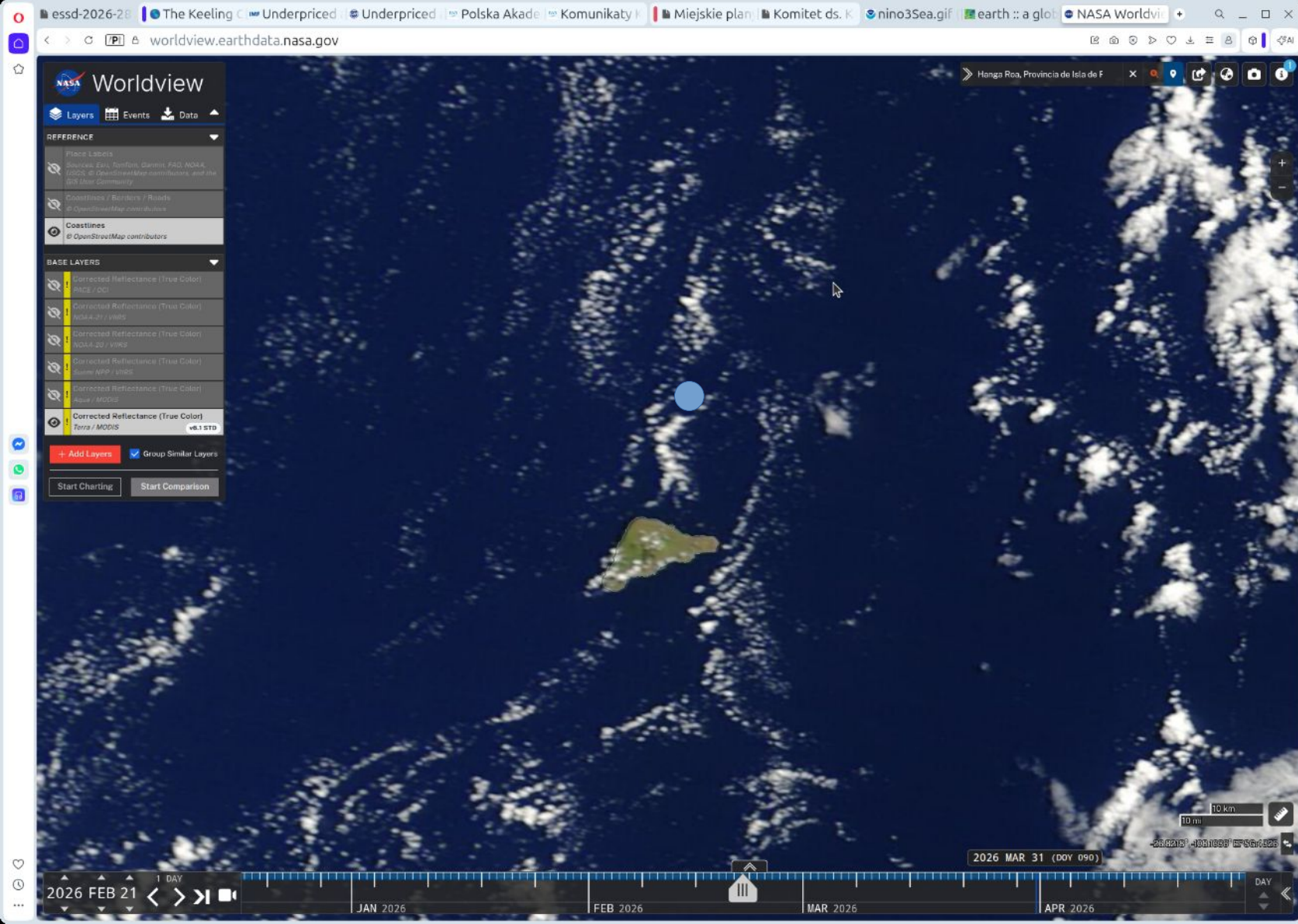
Typical trade wind warm convection, patterns on the way shown from the yacht perspective on the following slides.







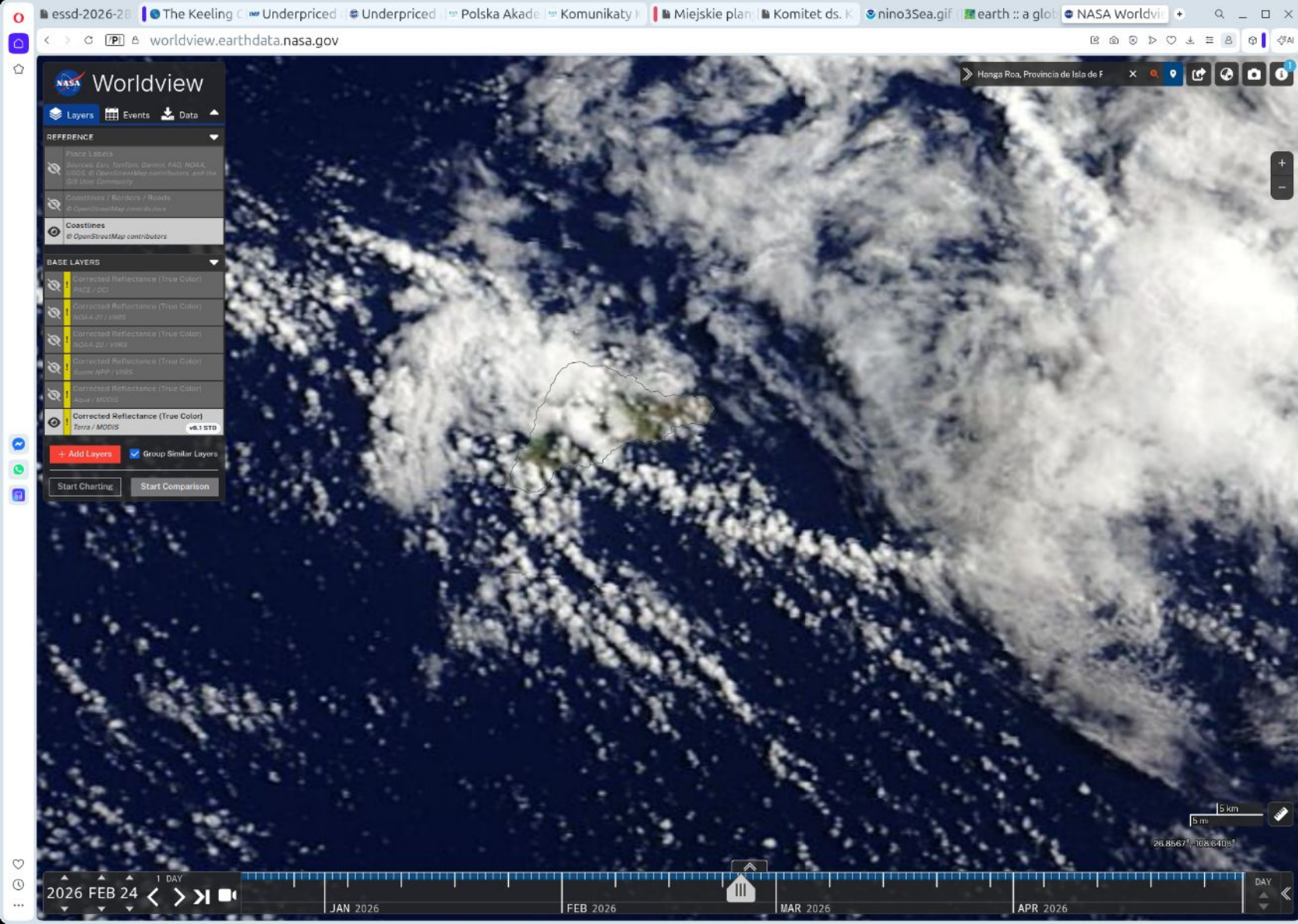




2026/02/21

Approaching the
Easter Island.



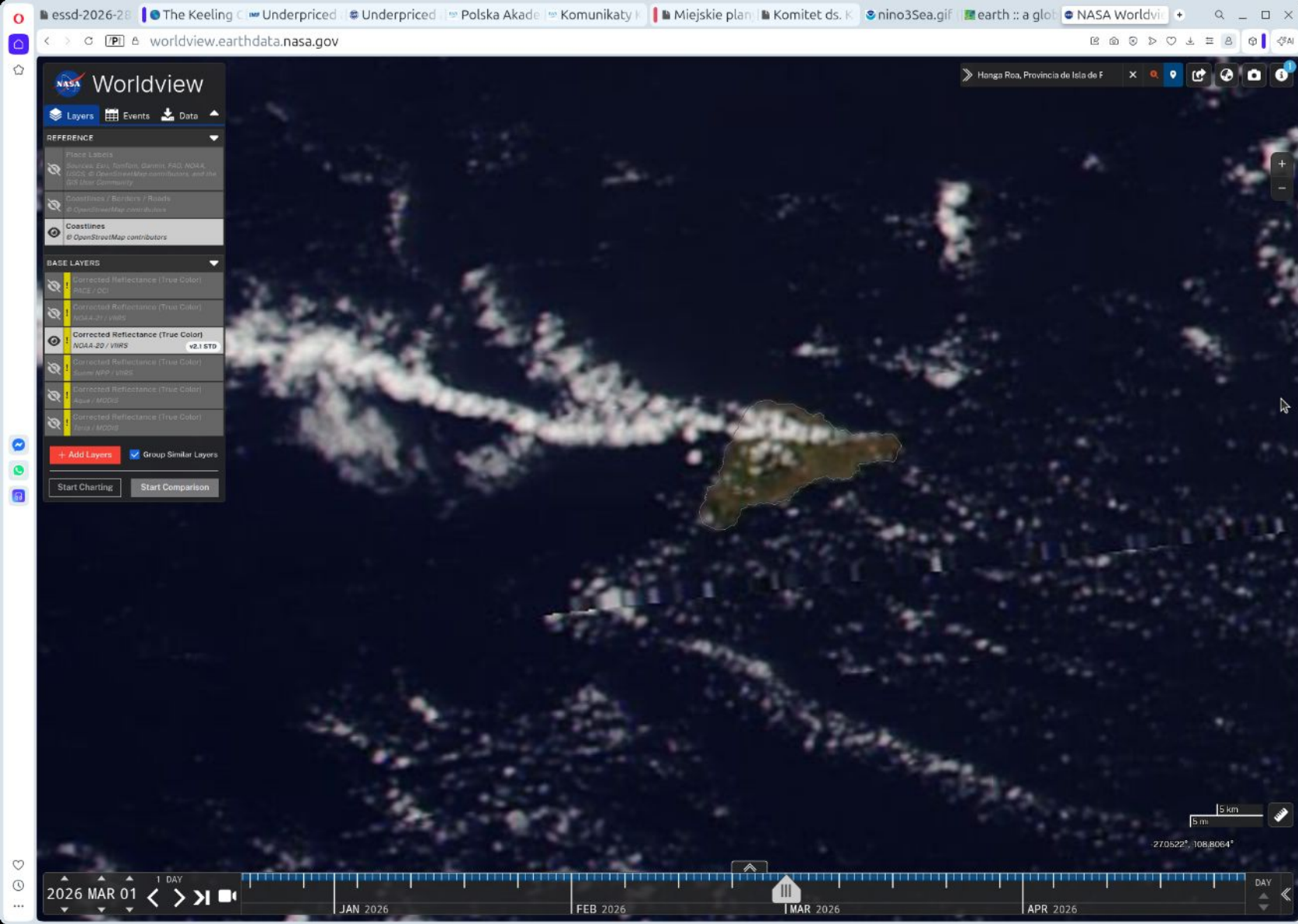


2026/02/24

At the northern edge of low pressure system.

Cloud band and orographic convection over the island.

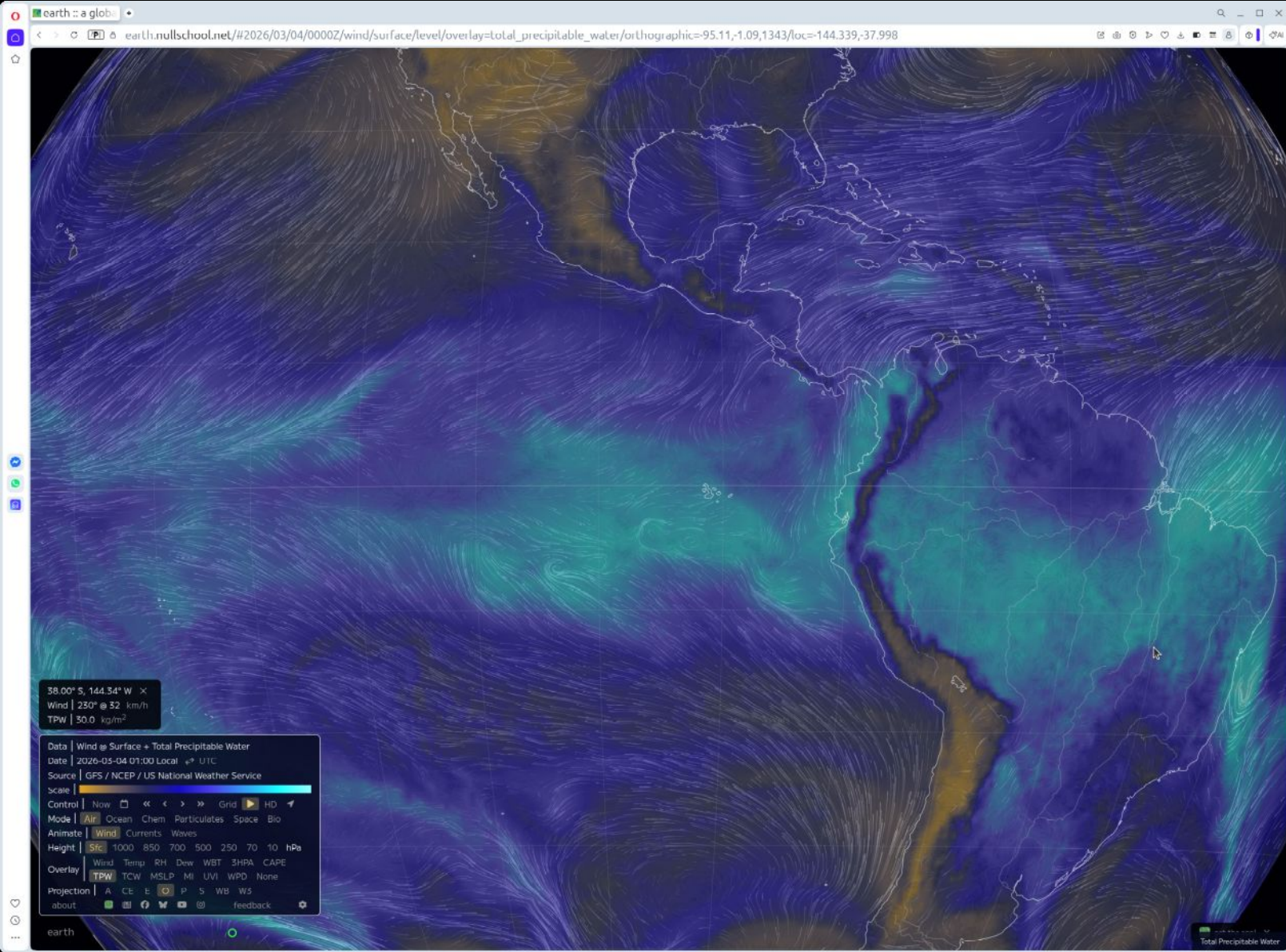




2026/03/01

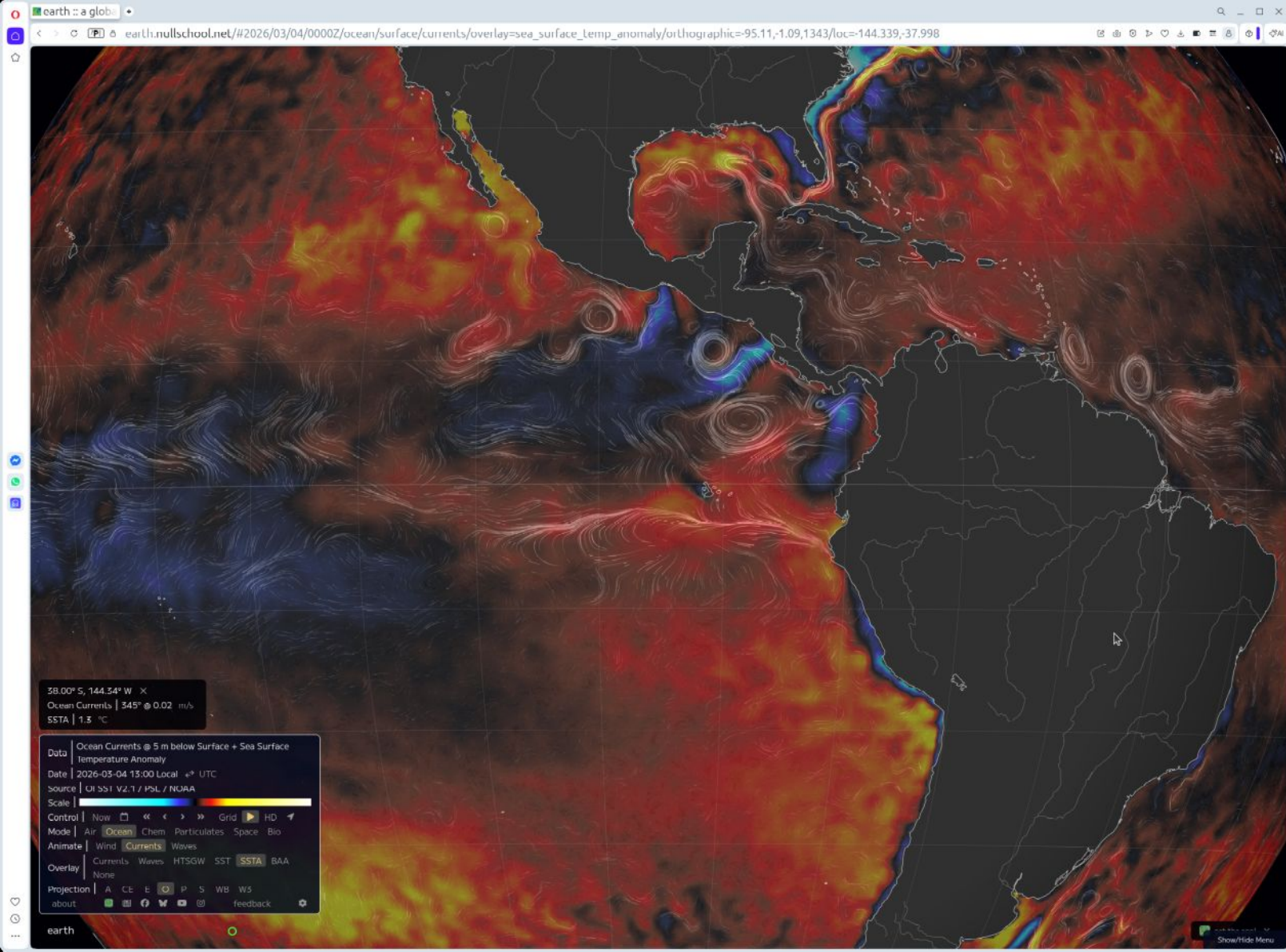
Cloud band
initiates over the
highest mountains
on the north tip of
the island extends
towards West.





2026/03/04

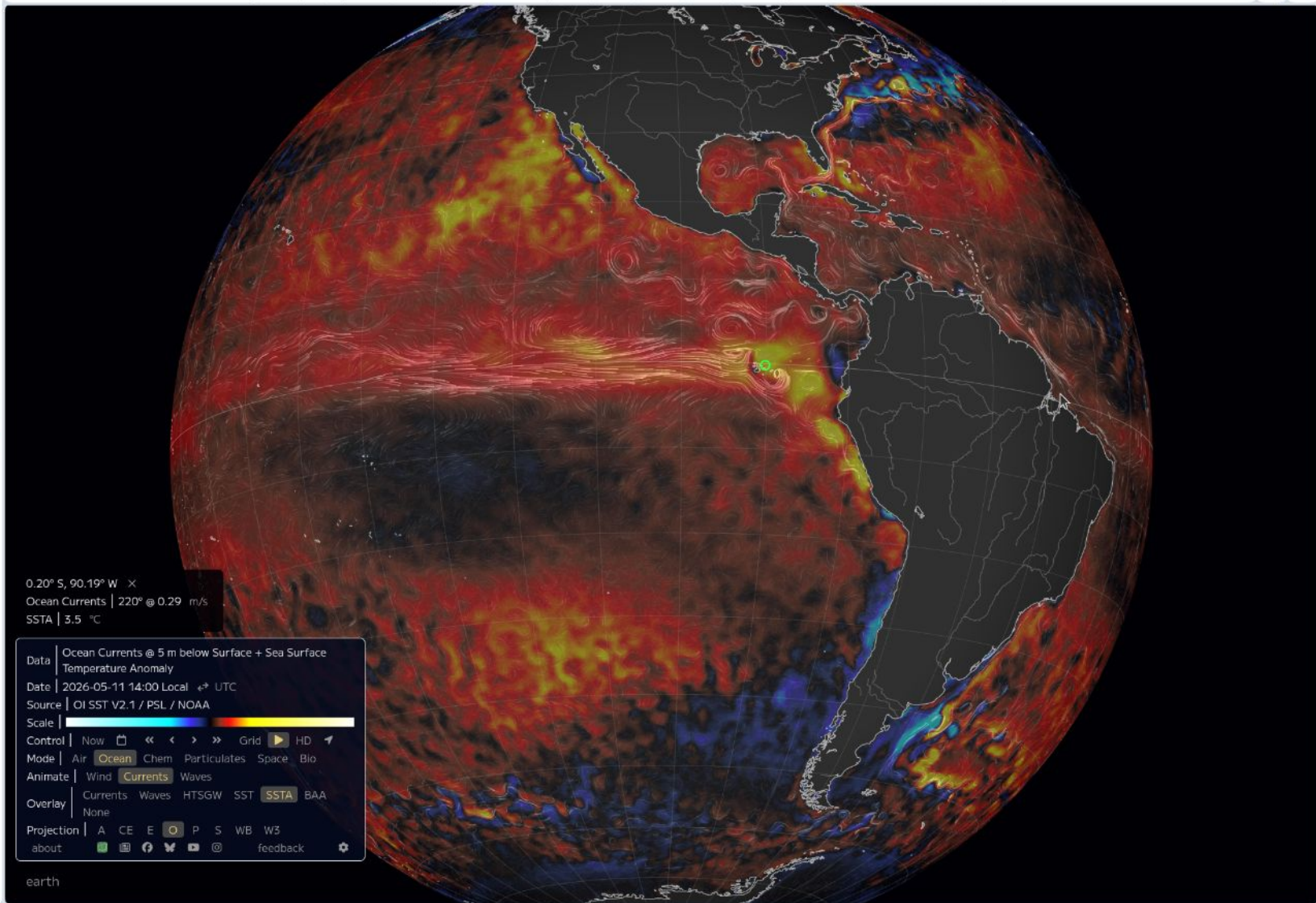
ITCZ and southern spot of the increased TPW merge,



2026/03/04

ITCZ and southern spot of the increased TPW merge, positive SST anomaly south and at the equator increases.

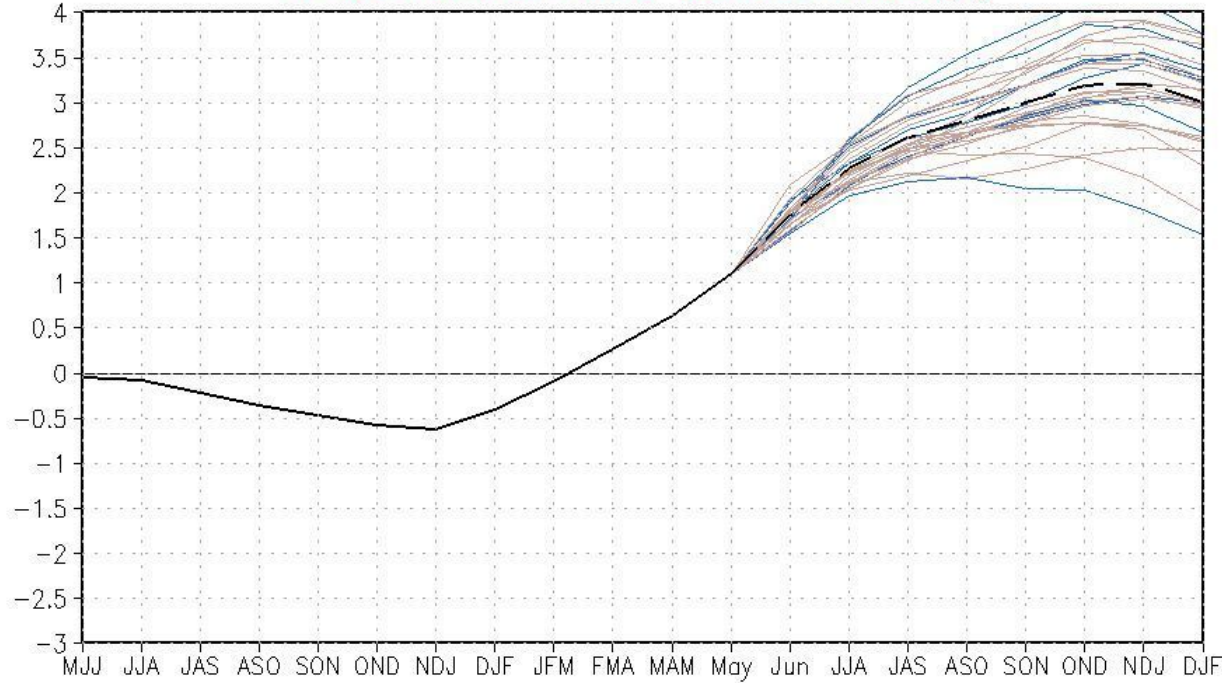
This is the El Nino onset.



Warm spots along the Peruvian coast. Positive SST anomaly along the equator increases in temperature and size, travelling west. El Nino develops.



CFSv2 forecast Nino3 SST anomalies (K)



- Latest 8 forecast members
- Earliest 8 forecast members
- Other forecast members
- Forecast ensemble mean
- NCEP OIv2.1 daily analysis

(Climatology base period: 1991-2020)

Recent prediction of SST anomaly in Central Equatorial Pacific.

