



TCC ENSO outlook for the next 6 months

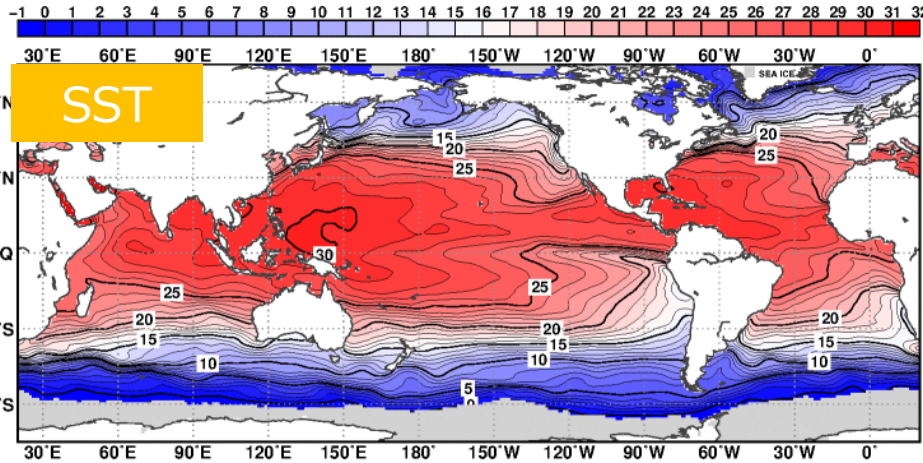
Yoshinori OIKAWA

Manager for mid- to long range forecast

Climate Prediction Division, JMA



SSTs in the global tropics for September

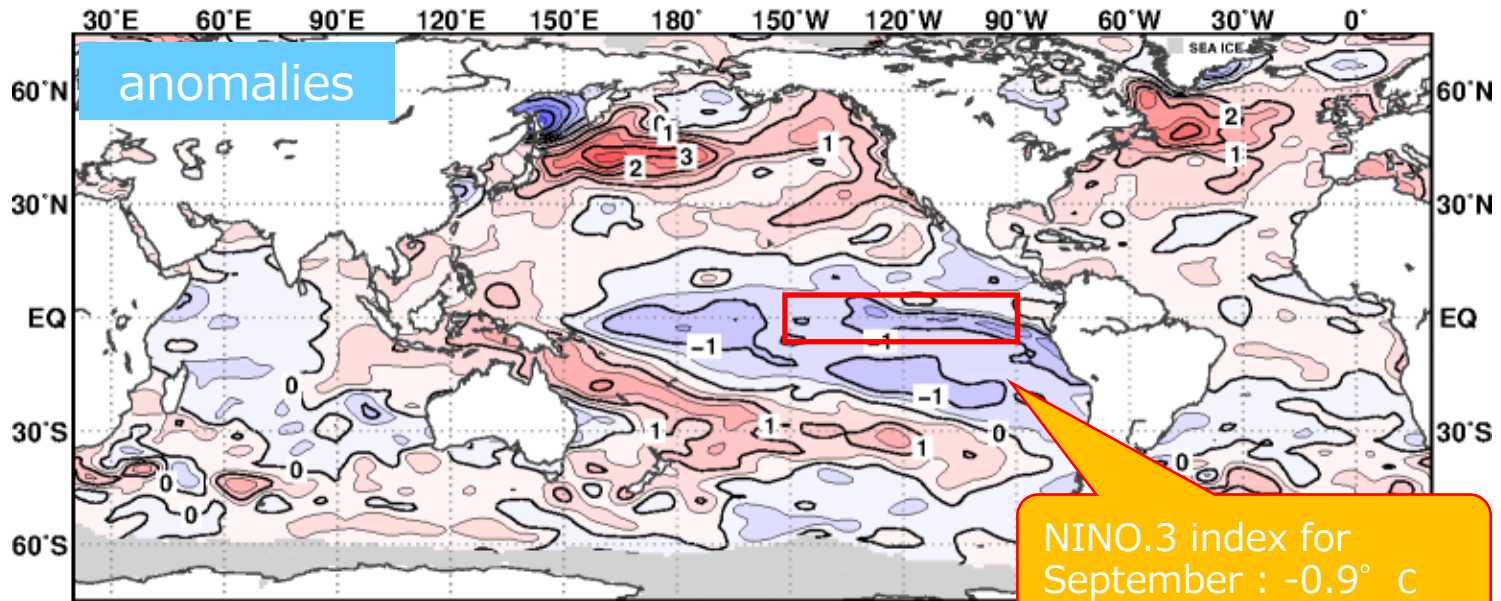


Monthly mean sea surface temperature based on COBE-SST dataset (Sep. 2022)

The contours and shading show sea surface temperature at intervals of 0.5°C. The gray shading indicates maximum coverage of sea ice.



- In Sep. 2022, SSTs were
 - below normal in central to eastern Pacific
 - above normal around the Maritime Continent
 - below normal over the western Indian Ocean



Monthly mean sea surface temperature anomalies based on COBE-SST dataset (Sep. 2022)

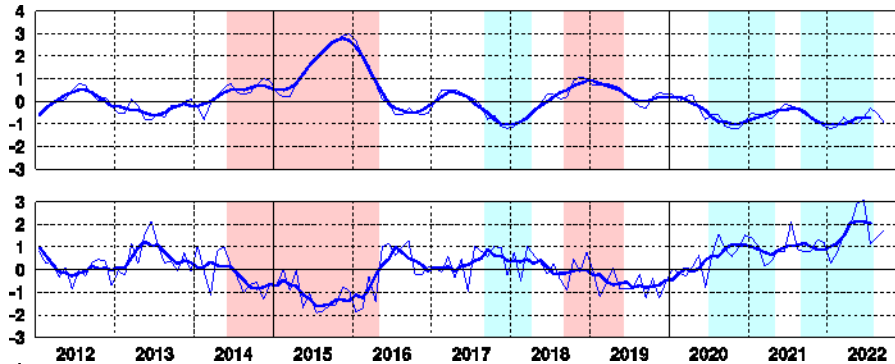
The contours and shading show sea surface temperature anomalies at intervals of 0.5°C.

The gray shading indicates maximum coverage of sea ice.

The baseline period for climatological normal is from 1991 to 2020.

Changes in ENSO-related indices

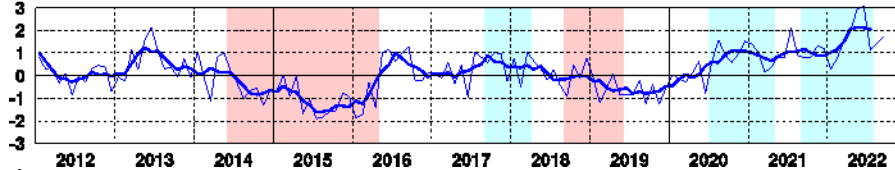
NINO.3



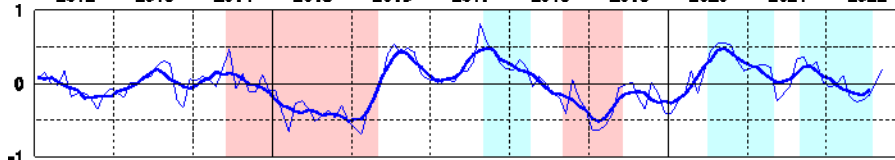
— Monthly index
— 5-month running mean

NINO.3 index has been within the range of La Niña definition since autumn 2021. Southern Oscillation Index remained on the side of La Niña.

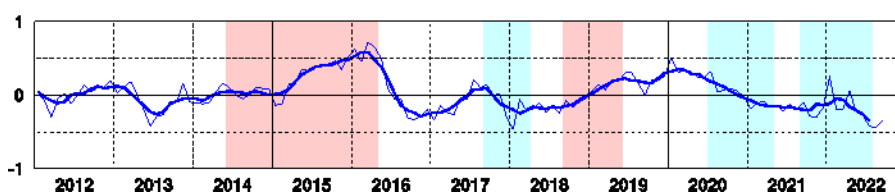
SOI



NINO.WEST

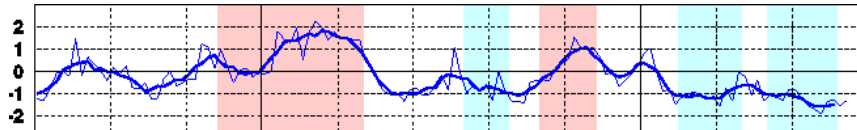


IOBW

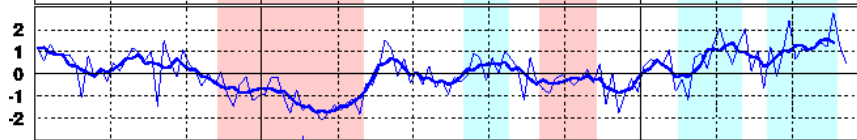


IOBW index largely remained below normal since the start of 2021

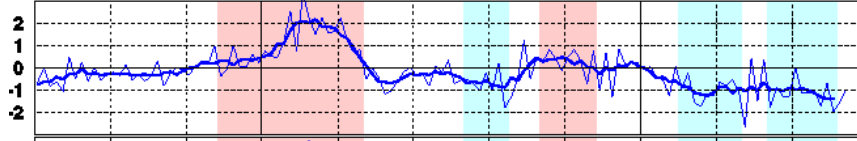
OLR over the date line



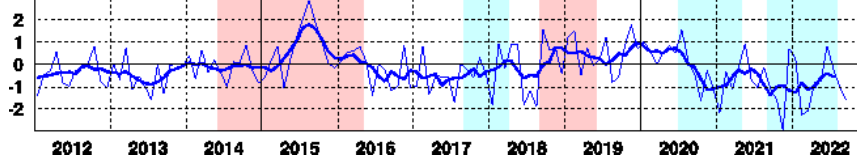
U200 over the central Pacific



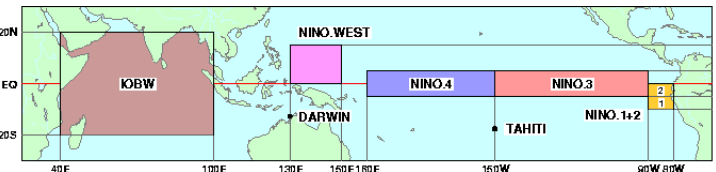
U850 over the central Pacific



U200 over the Indian Ocean



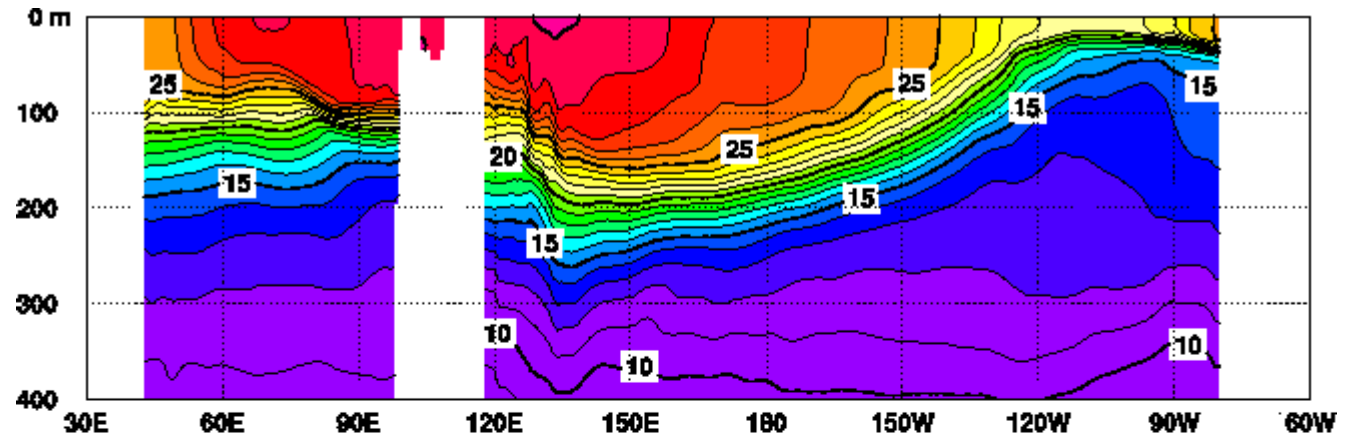
Indices in the atmosphere have been consistently on the side of La Niña, including stronger than normal easterlies over the Pacific



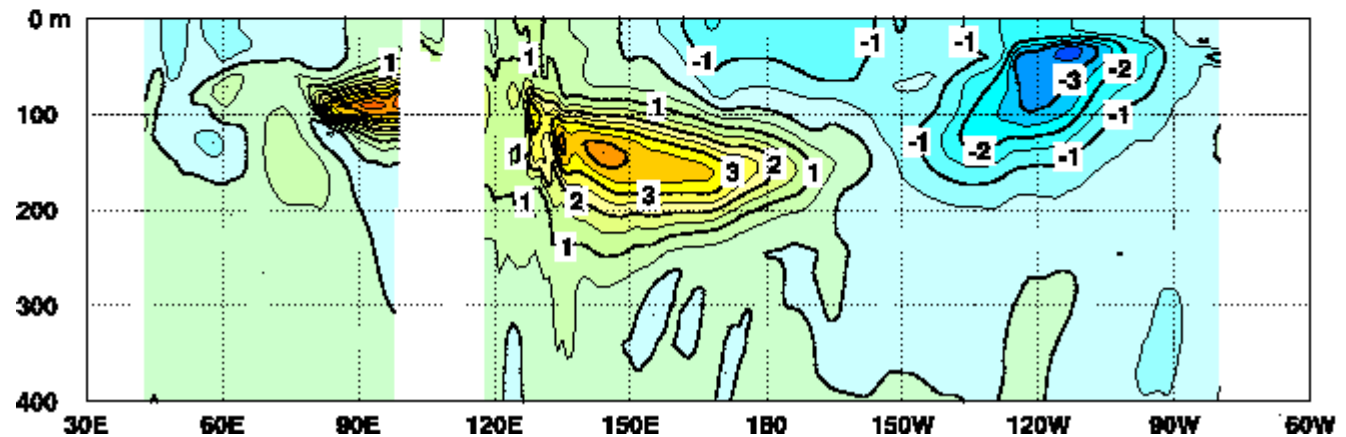
Subsurface water temperatures for Sep.

In September, subsurface temperatures were above normal in the western part of the equatorial Pacific, and below normal in central to eastern parts.

Subsurface water temperatures along the eq.



anomalies



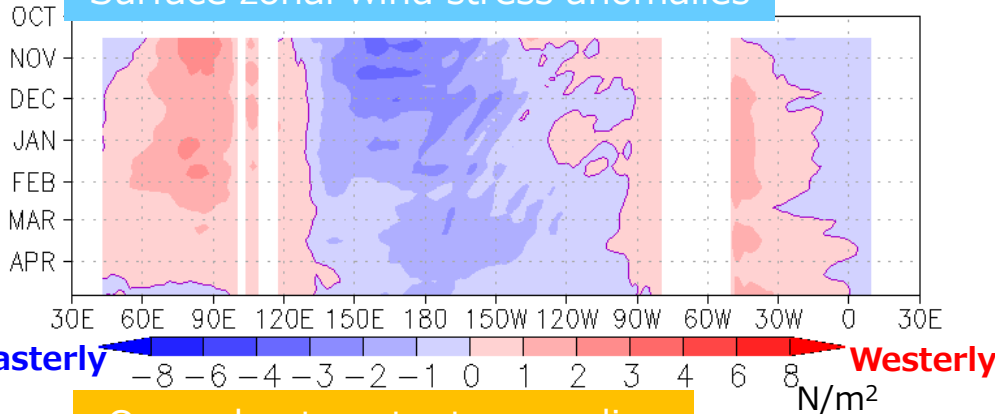
Indian Ocean

Western Pacific

Eastern Pacific

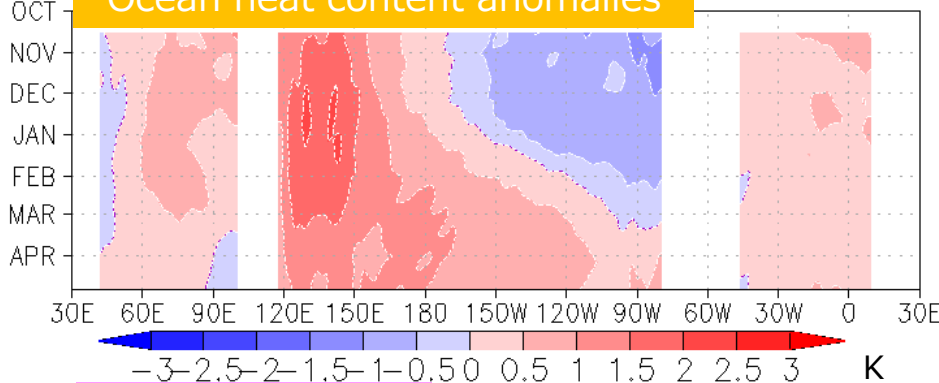
Predicted conditions in the tropics

Surface zonal wind stress anomalies



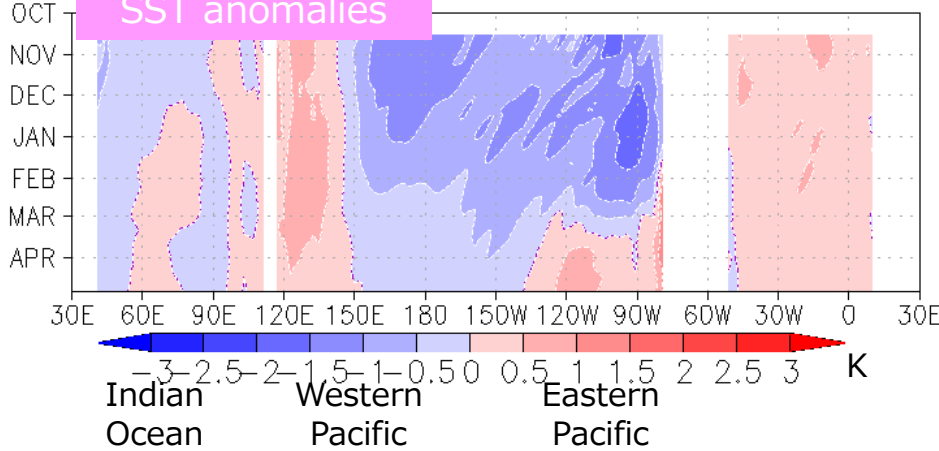
Surface easterly anomalies will remain in place over the tropical Pacific through the coming winter

Ocean heat content anomalies



- OHC anomalies will continue to be positive in the western part of the Pacific, and negative in the eastern part during early winter.
- Subsequently warm water in the west will start to propagate eastward, and OHC is predicted to rise in the eastern part.

SST anomalies



SST will remain below normal in the central to eastern part of the Pacific and the Indian Ocean, above normal around the Maritime Continent through the winter.

Subsurface temperature anomalies

Warm subsurface water in the western Pacific is predicted to propagate eastward and contribute to increasing SSTs over the NINO.3 region later in the winter.

init: 2022/10/16/00[1.1]

from: 2022/11- (m1)

init: 2022/10/16/00[1.1]

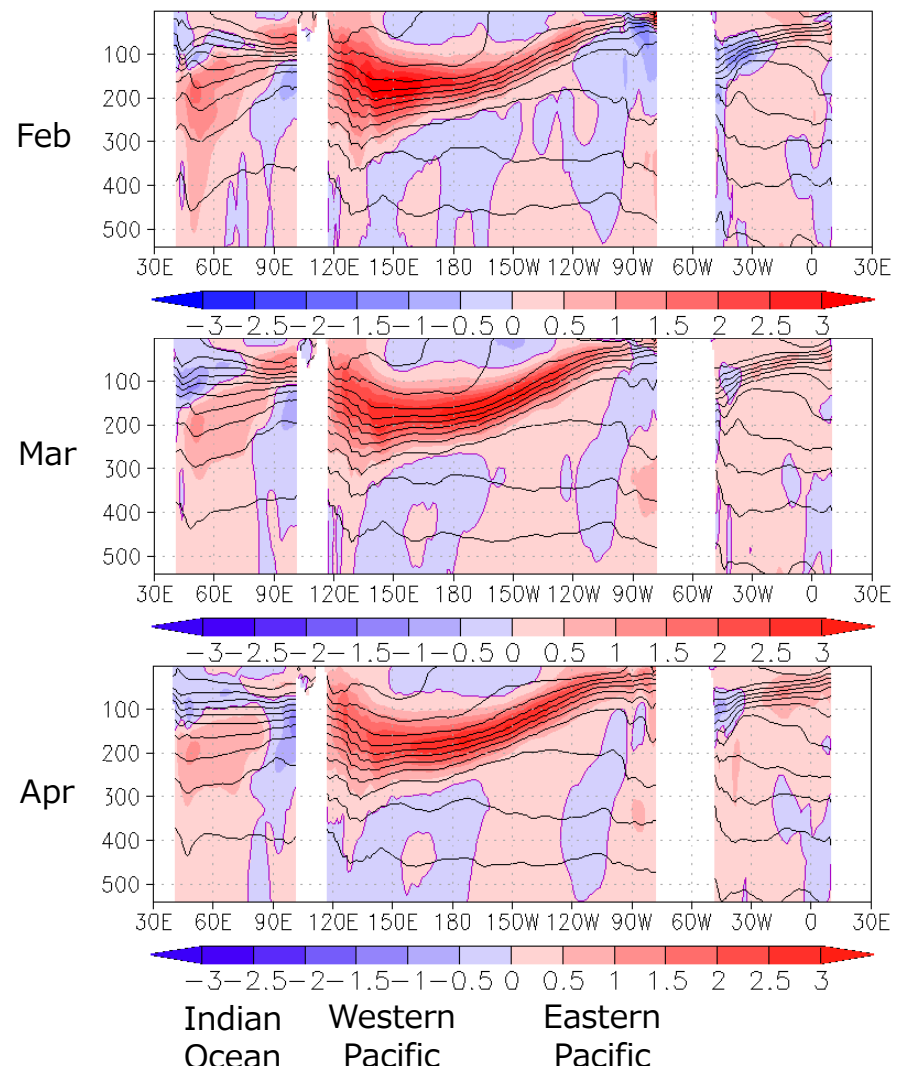
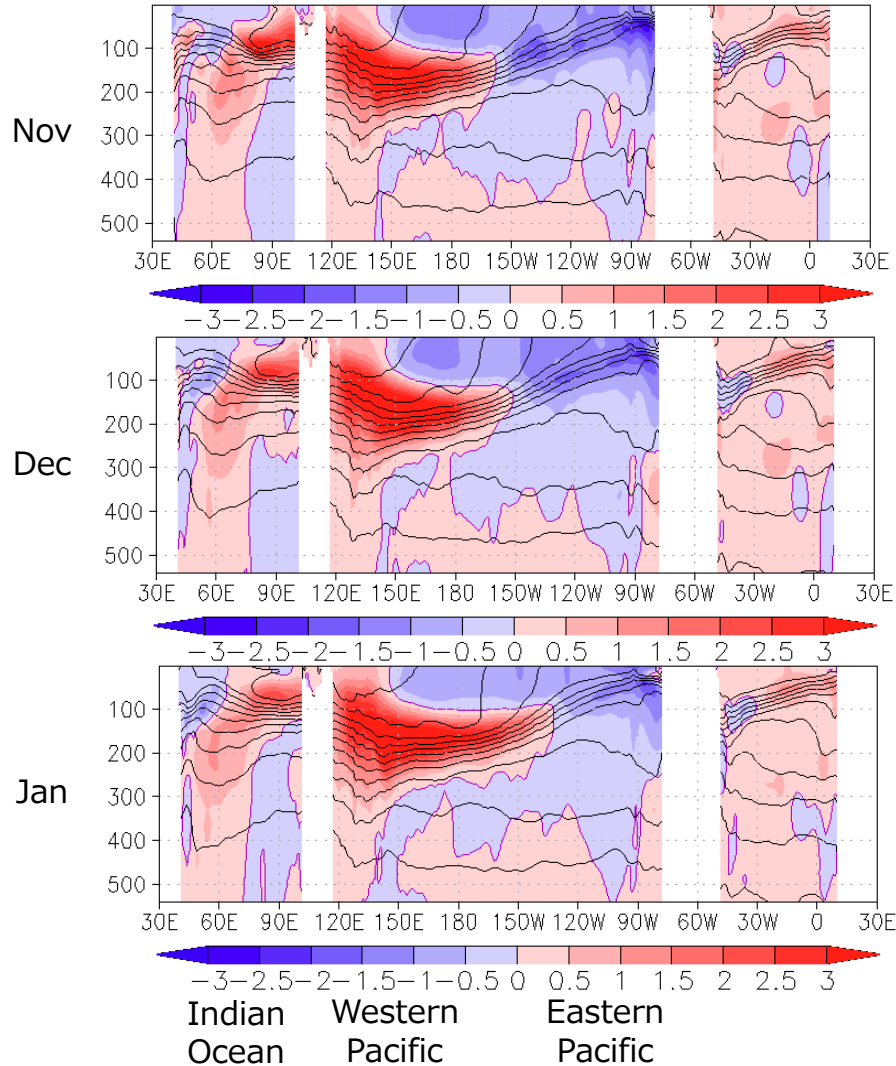
from: 2023/2- (m4)

(b)

esbl

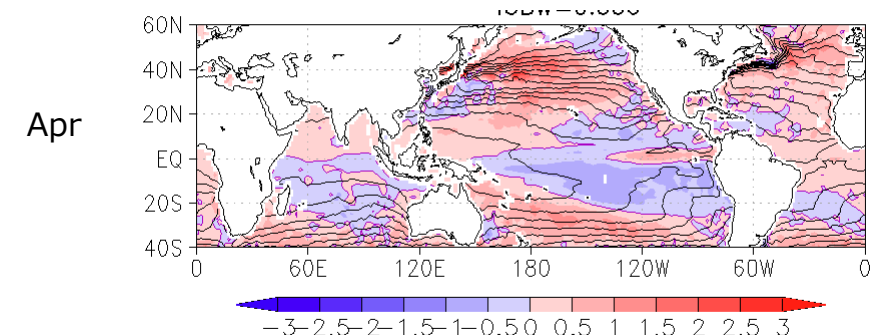
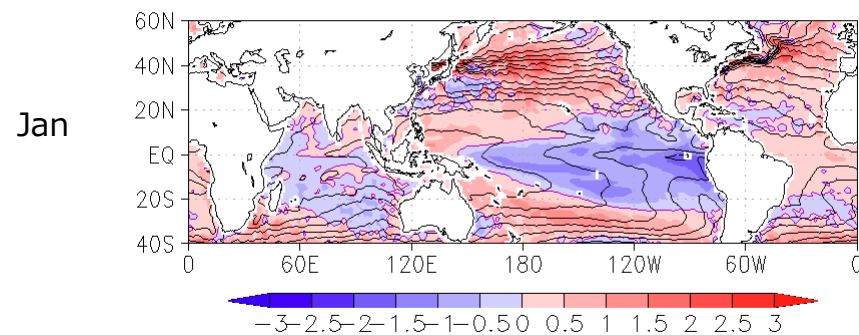
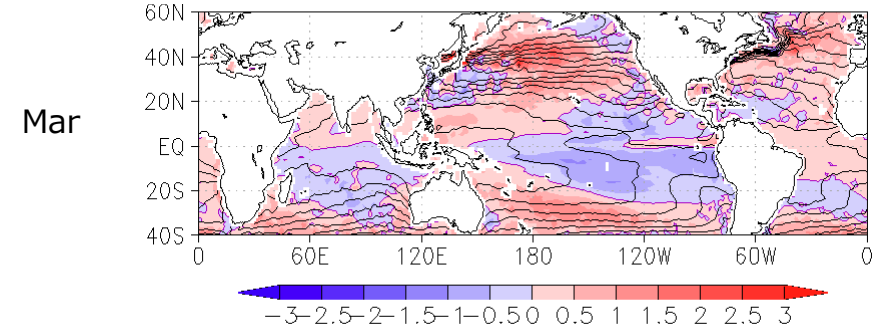
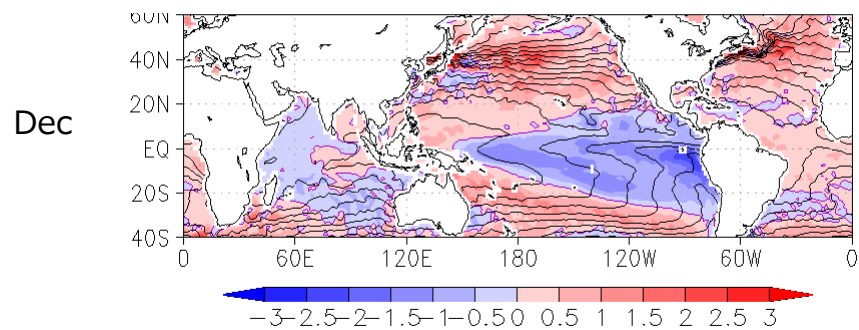
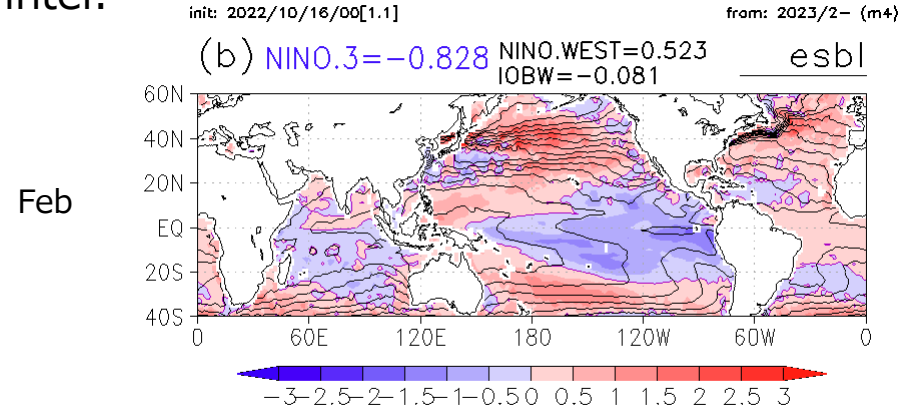
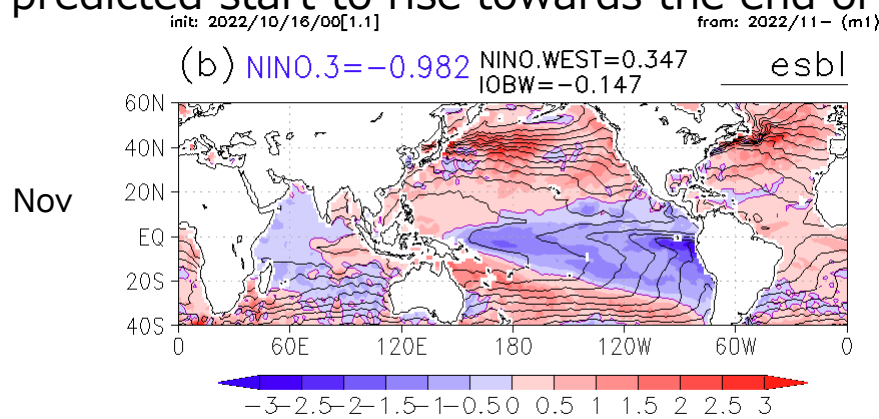
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esbl



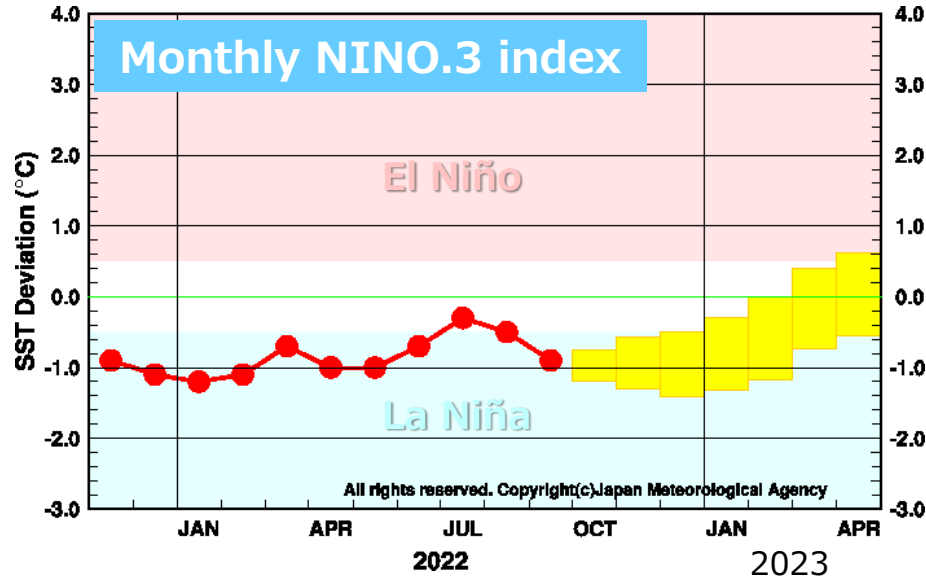
SST anomalies

SSTs will remain below normal in the central to eastern Pacific and over the western Indian Ocean through the coming winter. Subsequently, SSTs in the NINO.3 region are predicted start to rise towards the end of winter.



ENSO outlook

The ongoing La Niña conditions are very likely (90%) to continue until early boreal winter, and likely (60%) to continue towards the end of winter.



Probabilistic forecast

YEAR	MONTH	mean period	El Niño	ENSO neutral	La Niña
2022	AUG	JUN2022-OCT2022	0	0	100
	SEP	JUL2022-NOV2022	0	0	100
	OCT	AUG2022-DEC2022	0	0	100
	NOV	SEP2022-JAN2023	0	0	100
	DEC	OCT2022-FEB2023	10	0	90
2023	JAN	NOV2022-MAR2023	20	0	80
	FEB	DEC2022-APR2023	40	0	60

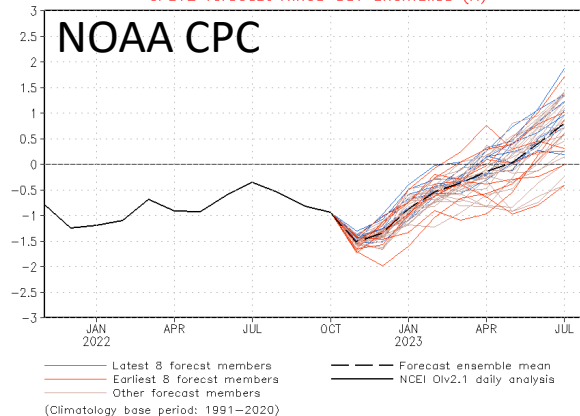
■ El Niño ■ ENSO neutral ■ La Niña

Predicted probabilities of 5-month running mean of NINO.3 index satisfying La Niña criteria

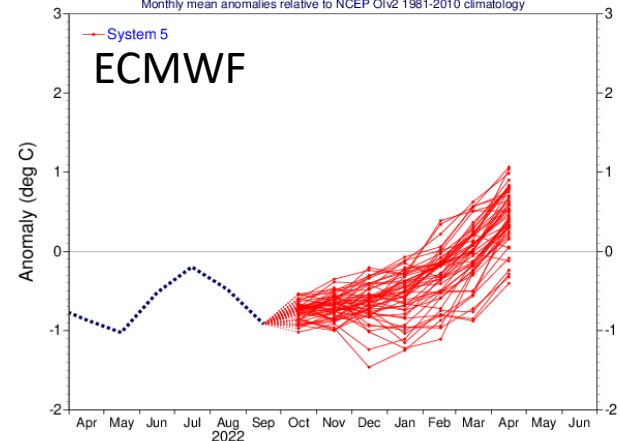


Last update: Mon Oct 31 2022
Initial conditions: 21Oct2022-30Oct2022

CFSv2 forecast Nino3 SST anomalies (K)



NINO3 SST anomaly plume
ECMWF forecast from 1 Oct 2022
Monthly mean anomalies relative to NCEP OIv2 1981-2010 climatology

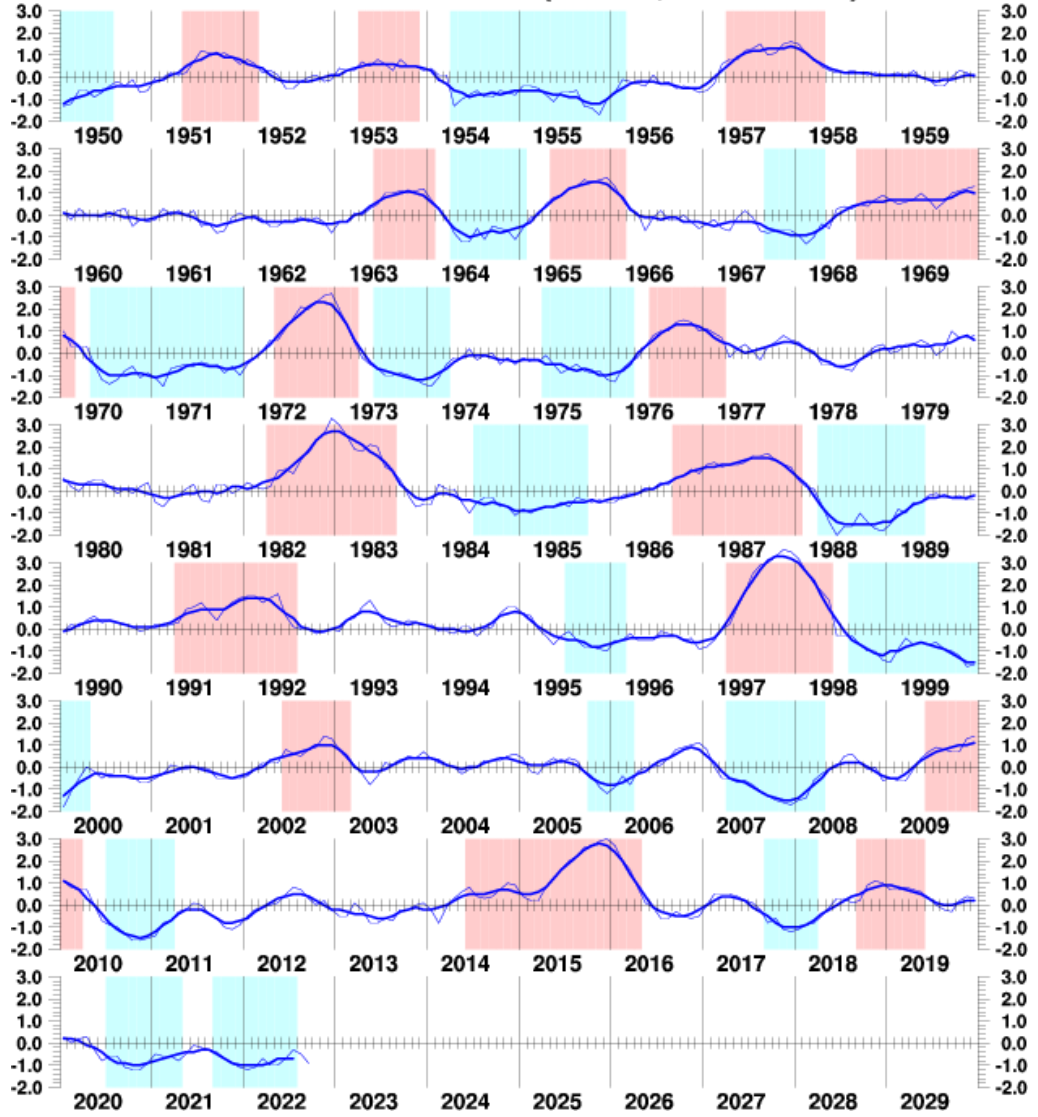


Triple-dip La Niña?

Historical NINO.3 index

La Niña
El Niño

SST Deviation at NINO.3 (5S-5N,150W-90W)



It is increasingly likely that we are going to see **three straight winters in a row** with La Niña conditions.

This has never been experienced since JMA ENSO statistics began in 1950.

Summary

- In September 2022, SSTs were below normal in the central to eastern part of the Pacific, above normal in the western part.
- Easterlies in the lower atmosphere over the equatorial Pacific was stronger than normal.
- These atmosphere and ocean features indicate La Niña conditions ongoing.
- Easterly anomalies will continue over the tropical Pacific through the coming winter.
- In association, SST will remain below normal in the central to eastern part of the Pacific through the winter.
- Warm subsurface water in the western Pacific is predicted to propagate eastward and contribute to increasing SSTs over the NINO.3 region later in the coming winter.

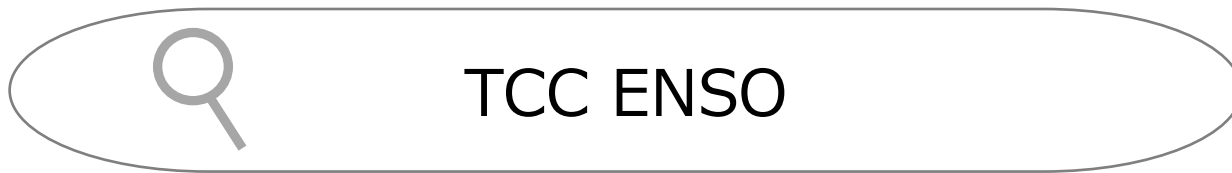
The ongoing La Niña conditions are very likely (90%) to continue until early boreal winter, and likely (60%) to continue towards the end of the winter.

Announcement

The Tokyo Climate Center (TCC) disseminates El Niño Outlook up to 6 months ahead on a monthly basis.

Today (10th Nov.) happens to be the day TCC issues the latest update of its ENSO Outlook.

Visit the TCC website to find the latest outlook. The website is scheduled to be updated later in the afternoon.



Search



Thank you!

