



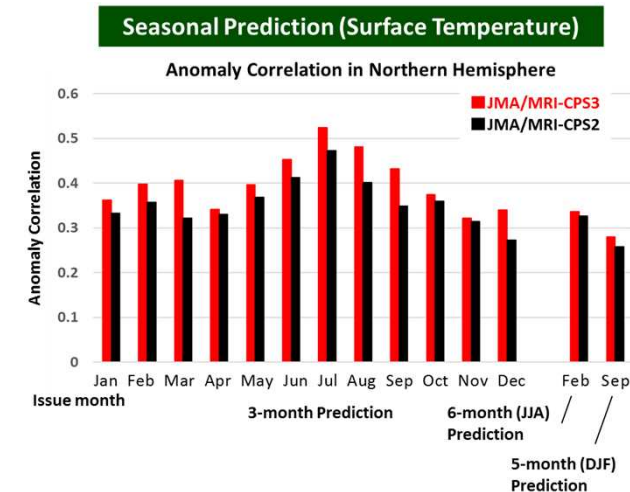
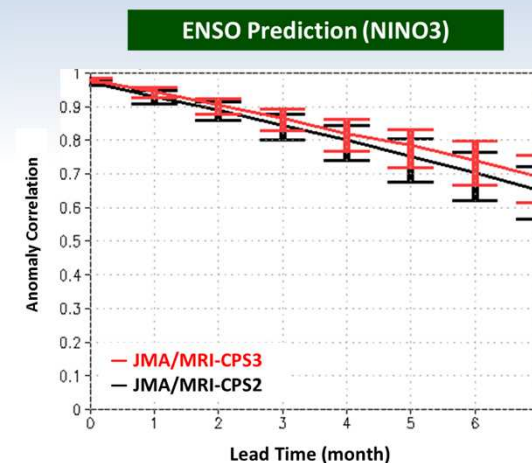
# JMA's Seasonal Prediction of South Asian Climate for October to December 2022

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World Meteorological Center of Tokyo

# JMA's **New** Seasonal Ensemble Prediction System

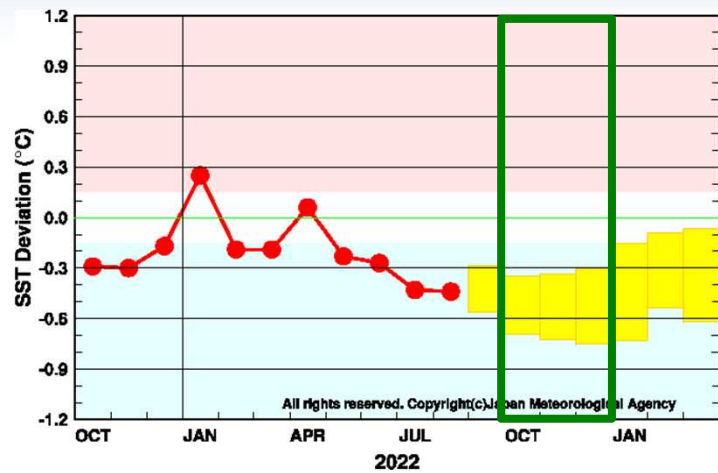
Model	JMA/MRI-CPS3 (since February 2022)
Horizontal Resolution	Atmosphere: <b>TL319 (approx. 55km)</b> Ocean: <b>0.25 ° (lon) × 0.25 ° (lat)</b>
Vertical Layers	Atmosphere: <b>100 levels (up to 0.01hPa)</b> Ocean: <b>60 levels</b>
Initial Condition for Forecast	Atmosphere: <b>Global Analysis</b> Land: <b>Offline Land Analysis (*)</b> Ocean: <b>4DVAR(coarse res) + IAU(eddy permitting res), daily (*)</b> Sea Ice: <b>3DVAR, daily (*)</b> <b>* Same forcing as atmosphere</b>
Forecast Range	<b>7 months (240 days)</b>
Number of Ensemble	<b>5 members per an initial (51 members with LAF)</b>
Frequency of Forecast	<b>Every day</b>
Re-forecast (Hindcast)	<b>24 initials x 5 members x 30 years (1991-2020)</b>
Initial Condition for Re-forecasts	Atmosphere: <b>JRA-3Q</b> Ocean: <b>4DVAR (JRA-3Q Forcing)</b>
Horizontal Resolution for Products	<b>1.25 x 1.25 degree</b>



# TCC Official Forecast of Oceanic Indices for **OND** 2022

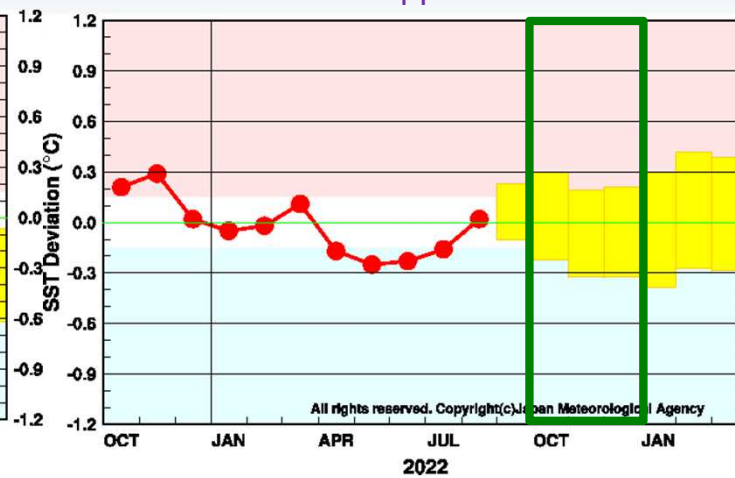
## IOBW

Whole Indian Ocean

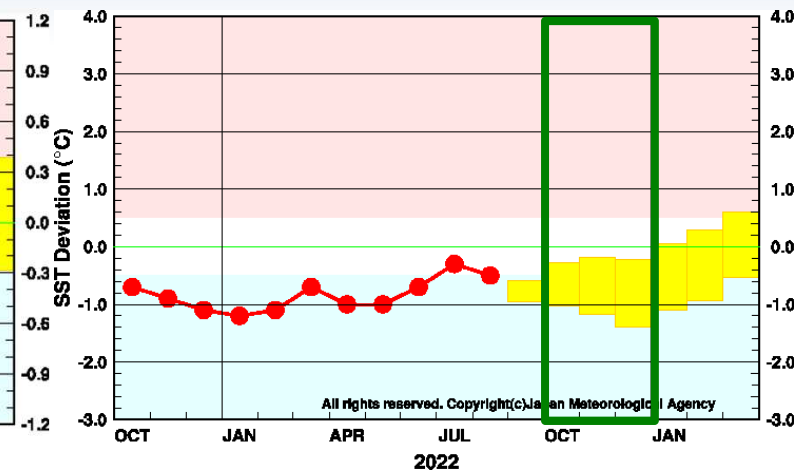


## NINO.WEST

Philippine Sea



## NINO.3



Red dots indicate observed values, and yellow boxes indicate predictions.  
Each box denotes the range where the value will be included with the probability of 70%.

**IOBW** is predicted to be **remarkably below normal**.

**NINO.WEST** is predicted to be **near normal**.

**NINO.3** is predicted to be **below normal**. La Niña condition is expected at 80%.

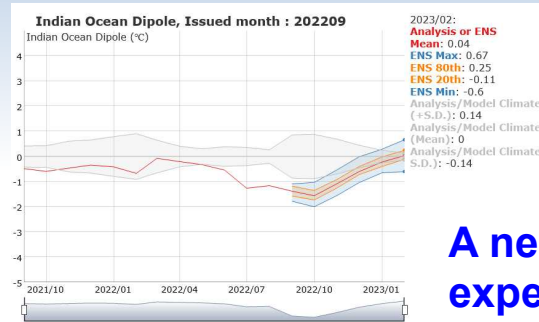
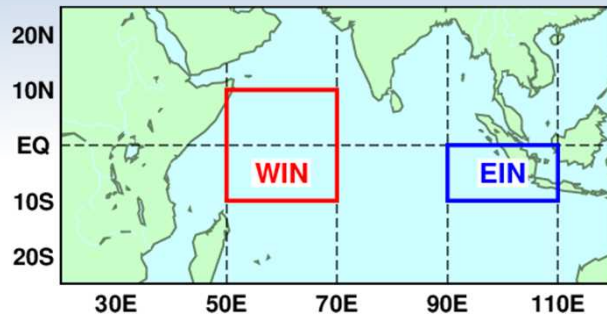
Prediction Skill for from September (Anomaly Correlation, 1991-2020 Re-forecast)

**ACC=0.92**

**ACC=0.82**

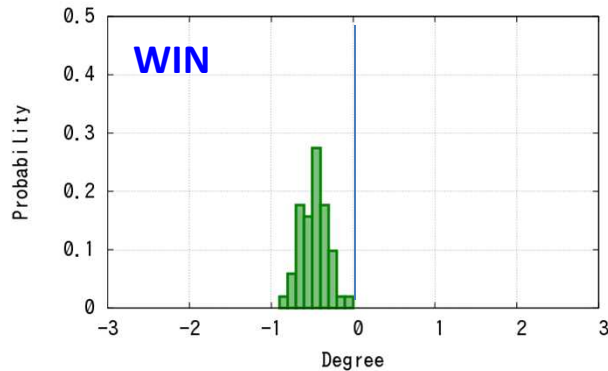
**ACC=0.97**

# Predicted IOD Indices for **OND** 2022



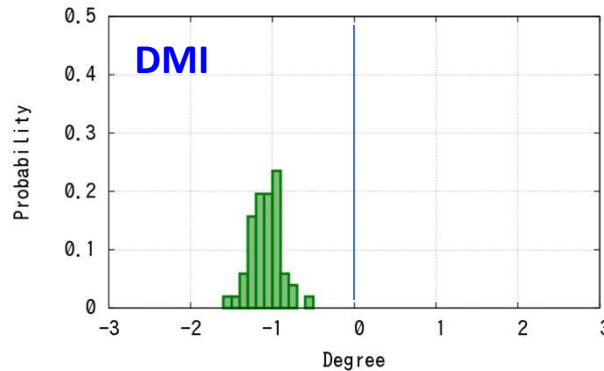
**A negative IOD is continuously expected.**

SST (WTIO) 2022/10-2022/12



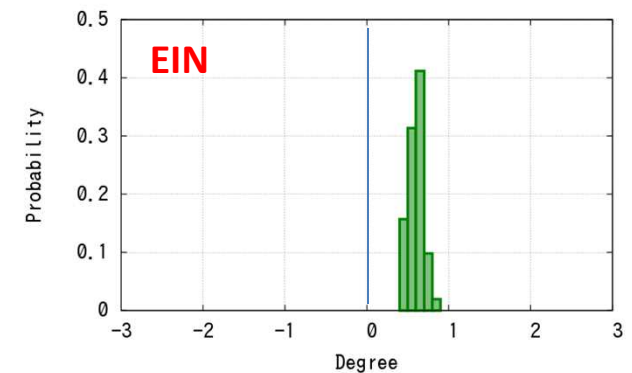
**Below Normal**

SST (DMI) 2022/10-2022/12



**Below Normal**

SST (SETIO) 2022/10-2022/12



**Above Normal**

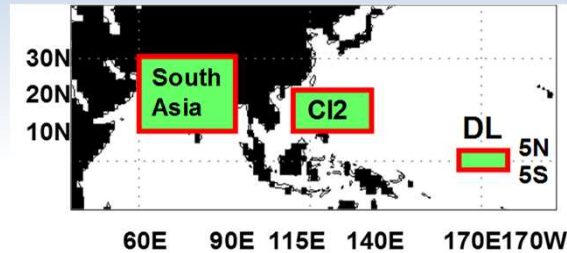
**Prediction Skill for OND from September (Anomaly Correlation, 1991-2020 re-forecast)**

**ACC=0.86**

**ACC=0.90**

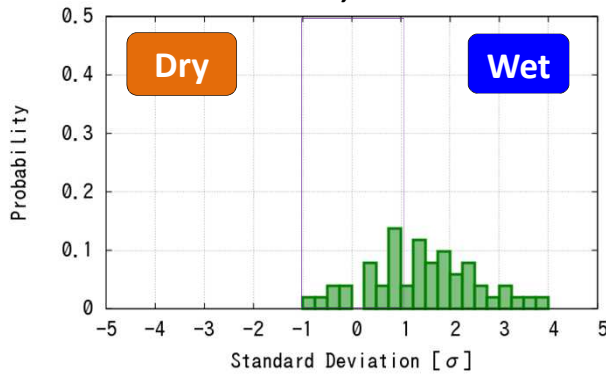
**ACC=0.86**

# Predicted Indices of Rainfall for **OND** 2022



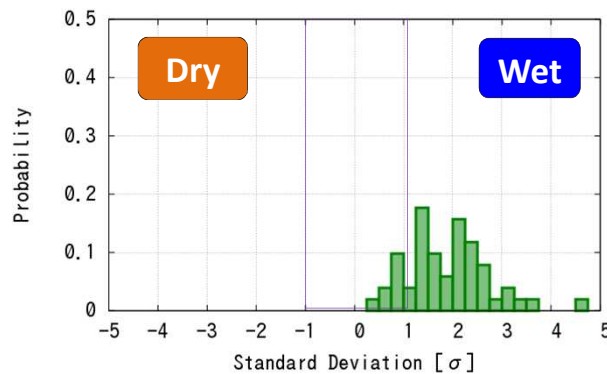
51 ensemble members

**RAIN (South Asia)**  
60E-90E, 10N-30N



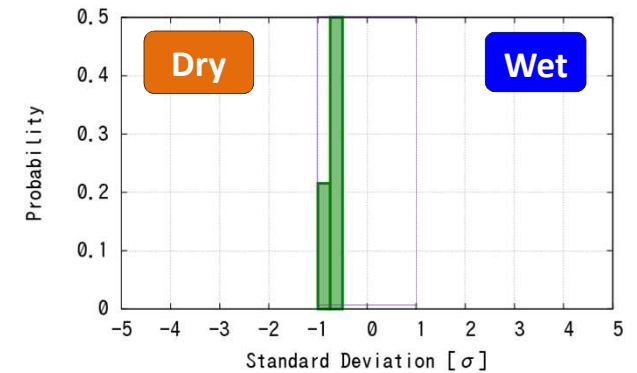
**Above Normal**

**RAIN (CI2 Region)**  
115E-140E, 10N-20N



**Above Normal**

**RAIN (DL)**  
170E-170W, 5S-5N



**Slightly Below Normal**

Prediction Skill for OND from September (Anomaly Correlation, 1991-2020 Re-forecast)

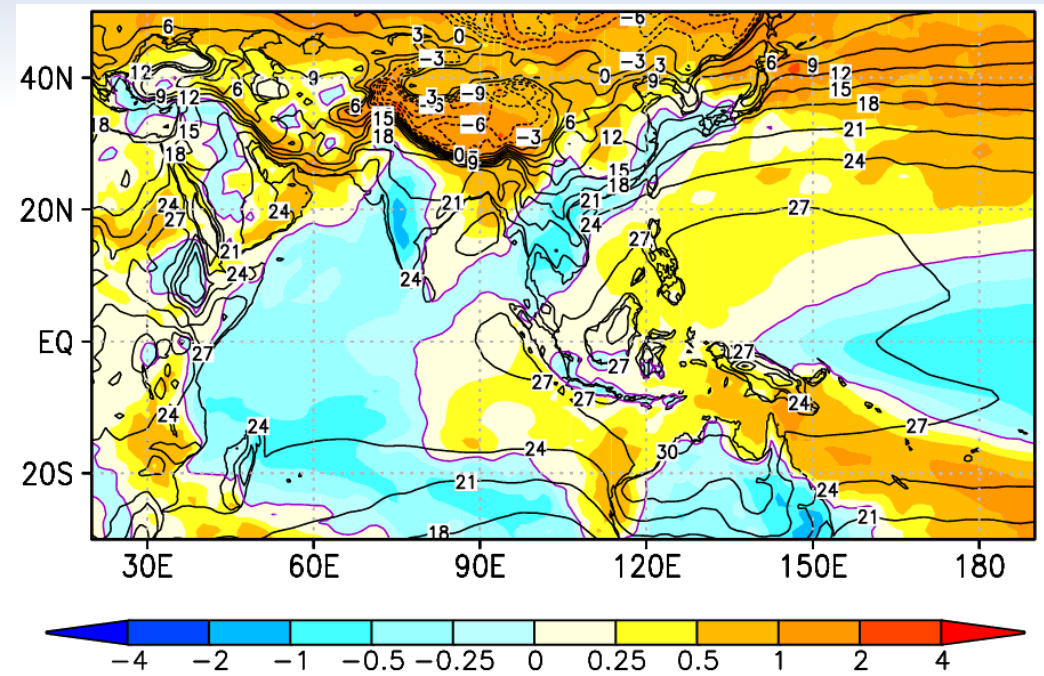
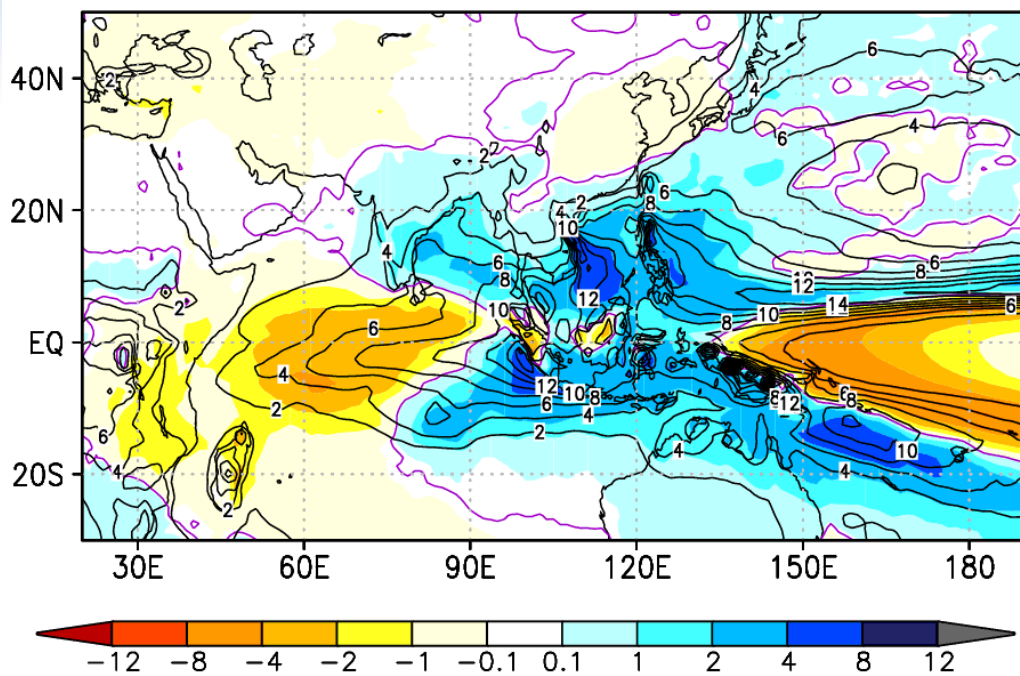
**ACC=0.48**

**ACC=0.74**

**ACC=0.74**

# Predicted South Asian Climate for **OND** 2022

Initial : 14<sup>th</sup> Sep 2022



## ➤ Precipitation

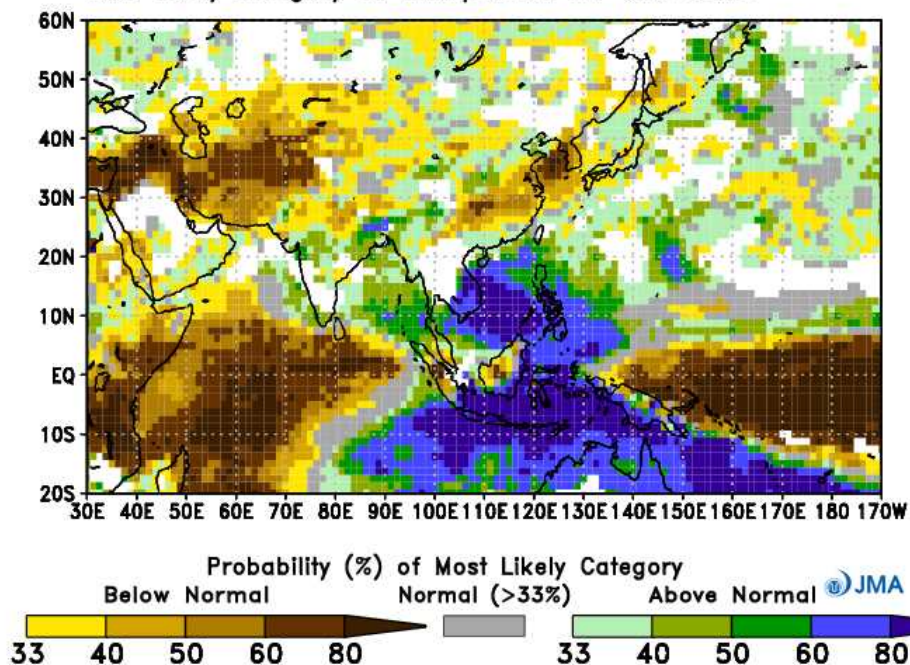
**Active Monsoon Rainfall** is predicted **over India and the Bay of Bengal** in association with **La Niña conditions**.

## ➤ Surface Temperature

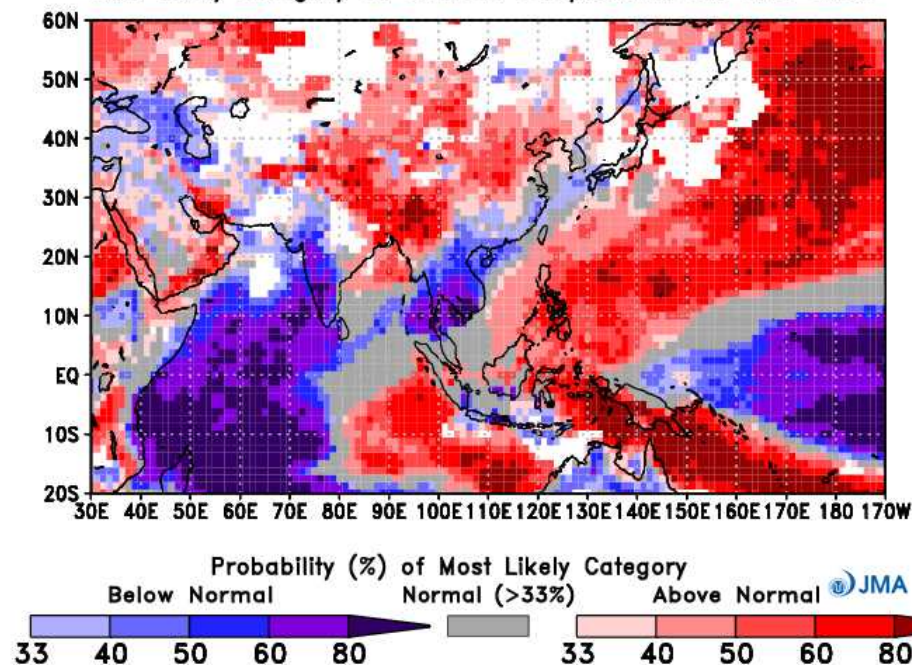
**Colder Condition** is predicted **over India and Maldives** in association with **La Niña conditions**.

# Probabilistic Forecast for **OND** 2022

JMA Seasonal Forecast (Forecast initial month is 09 2022)  
Most likely category of Precipitation for OND 2022



JMA Seasonal Forecast (Forecast initial month is 09 2022)  
Most likely category of Surface Temperature for OND 2022



## ➤ Precipitation

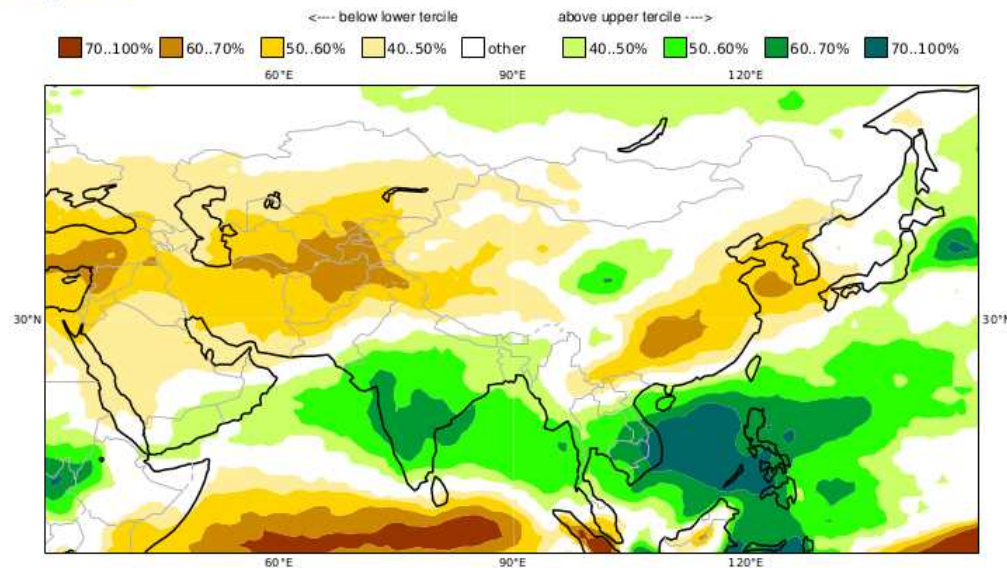
High probabilities of **above normal rainfall** are predicted **over India and the Bay of Bengal**.

## ➤ Surface Temperature

High probabilities of **below normal temperature** are predicted **over India and Maldives**.

# C3S Multi-model Ensemble Forecast for **OND** 2022

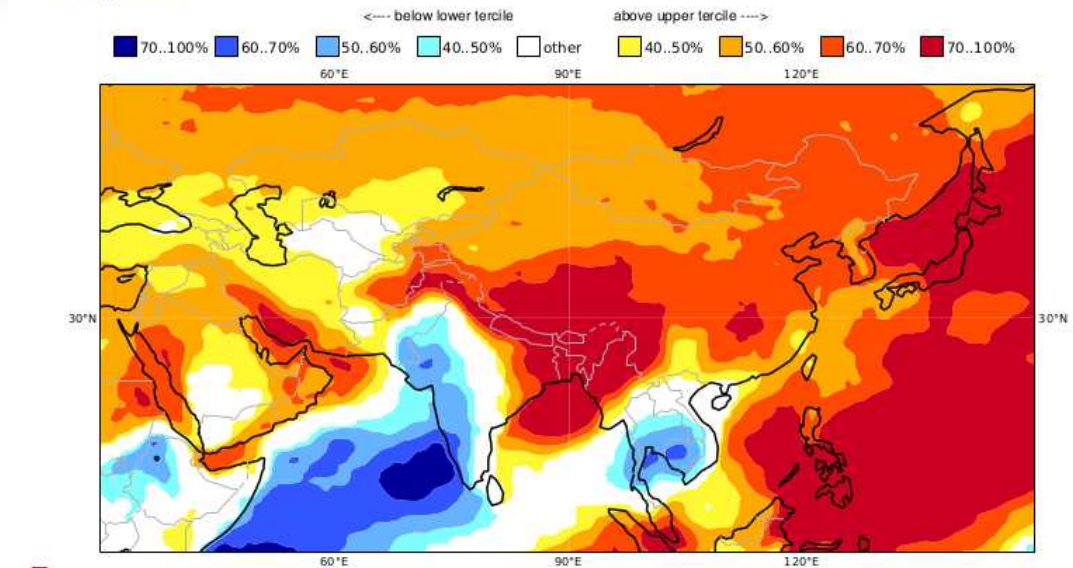
C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC  
 Prob.(most likely category of precipitation) OND 2022  
 Nominal forecast start: 01/09/22  
 Unweighted mean



## ➤ Precipitation

High probabilities of **above normal rainfall over India and the Bay of Bengal** are mostly consistent C3S with JMA.

C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC  
 Prob.(most likely category of 2m temperature) OND 2022  
 Nominal forecast start: 01/09/22  
 Unweighted mean



## ➤ Surface Temperature

High probabilities of **Colder Condition over India and Maldives** are consistent C3S with JMA.



# Summary for **OND** 2022

Based on JMA's Seasonal Ensemble Prediction System,

## (Outlook for Oceanic conditions)

- **Below normal SSTs (continuous La Niña conditions)** are predicted in the equatorial Pacific.
- **Negative IOD** is continuously predicted.

## (Outlook for Precipitation in South Asia)

- **Active Monsoon Rainfall** is predicted **over India and the Bay of Bengal** in association with **La Niña conditions**.

## (Outlook for Surface Temperature in South Asia)

- **Colder Condition** is predicted **over India and Maldives** in association with **La Niña conditions**.