

Briefing mensuel

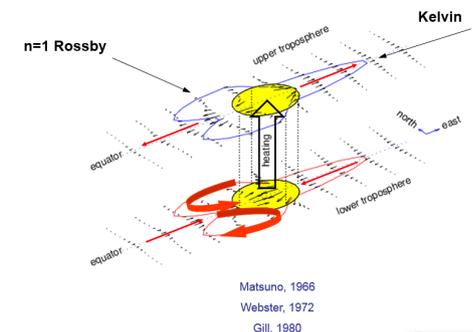
Suivi MJO et ondes équatoriales pour le bassin SOOI

DATE : 28/10/2022

S. Langlade, H. Vérèmes, F. Bonnardot, P. Peyrillé, T. Lefort, L. Carré & E. Kapikian.

support produit le 25/10/2022
sur bulletin ECMWF du 24/10
et figures du 24/10

S1 : 24 oct.-30 oct.
S2 : 31 oct.-06 nov.
S3 : 07 nov.-13 nov.
S4 : 14 nov.-20 nov.
S5 : 21 nov.-27 nov.



INTRODUCTION

Fin d'hiver austral agitée sur l'Indien Sud

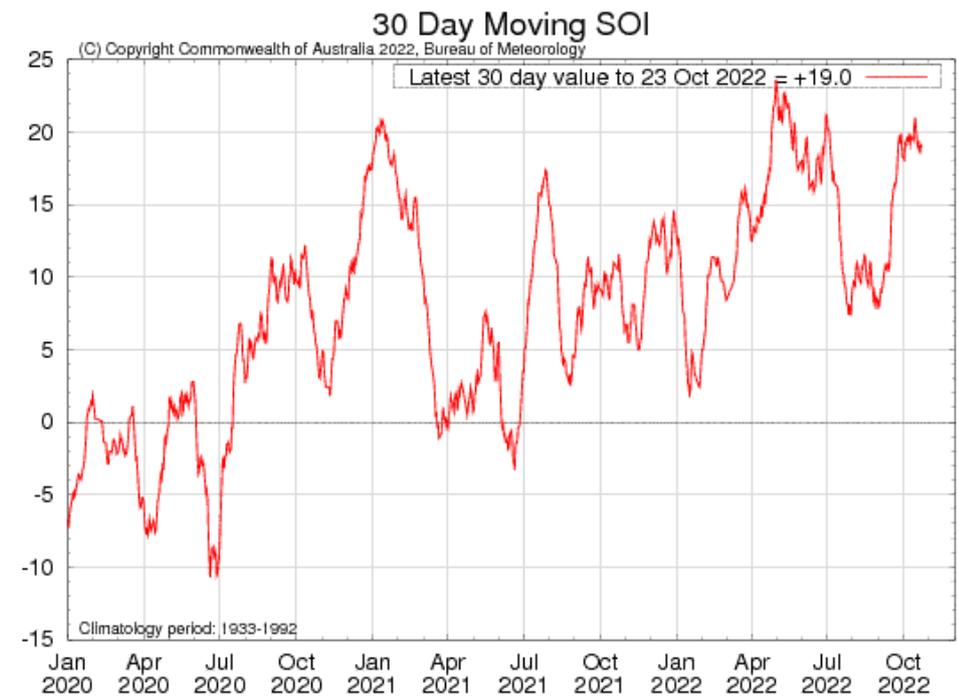
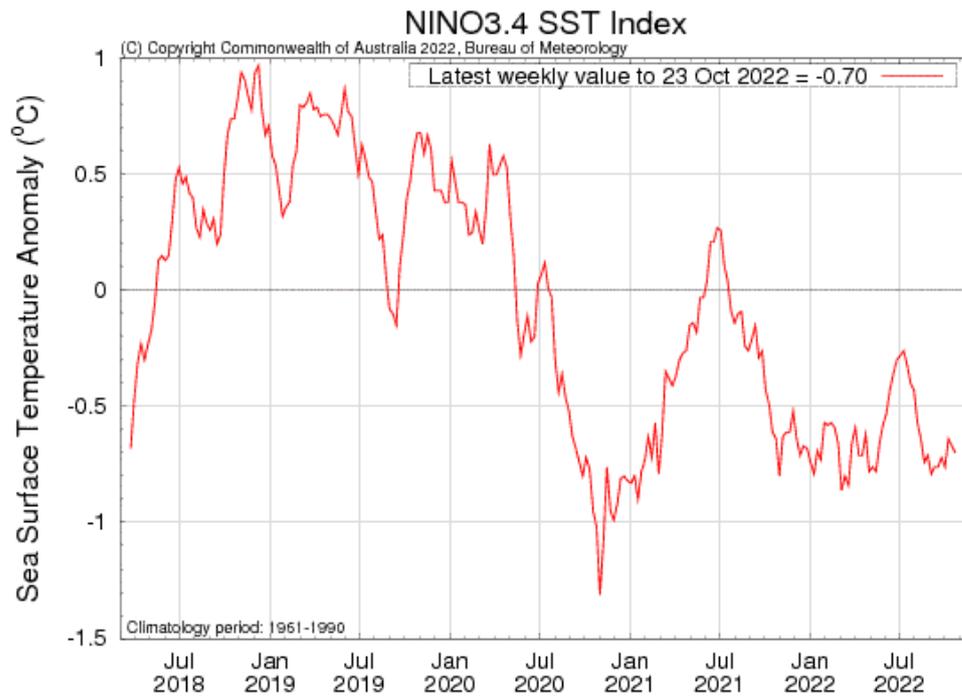
Date_init	lat_ini (°S)	lon_ini(°E)	Pos initiale	Date_cyclogenese	lat_cyc(°S)	lon_cyc(°E)	Pos cyclogenèse	Commentaires
25/08/22	7	87	7S/87E					PT les 31/08 et 01/09 puis dépression résiduelle
09/09/22	6	83	6S/83E					dissipé le 12/09
17/09/22	8	84	8S/84E					dissipé le 21/09
22/09/22	6	88	6S/88E	26/09/22	13.2	82.6	13.2S/82.6E	ASHLEY
02/10/22	5	90	5S/90E	08/10/22	13.4	86	13.4S/86E	BALITA

- Dès fin juillet, un précurseur se forme sur l'extrême NE du SWIO puis évolue en TT non baptisée chez les Australiens (non montré dans le tableau)
- 1 mois plus tard, 5 précurseurs se forment dans la zone 5S-10S / 80E/90E
- Après 3 tentatives non abouties, 2 cyclogenèses finissent par se succéder à moins de 15 jours d'intervalle fin septembre – début octobre (évènement rare mais non inédit)

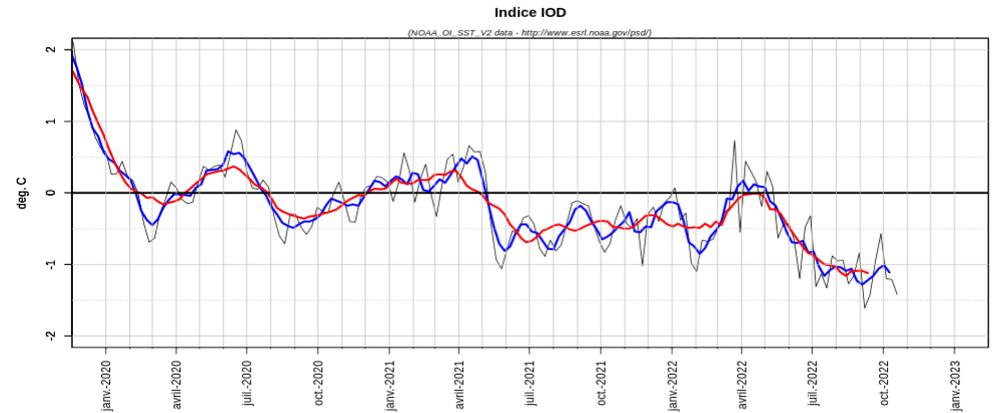
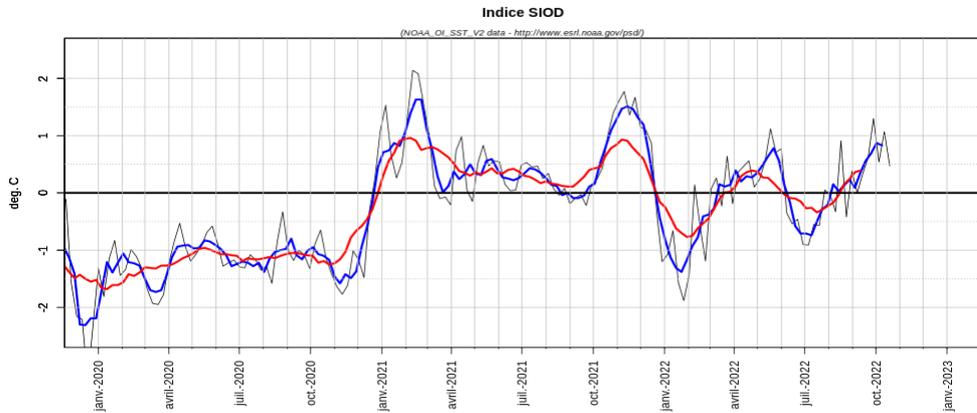
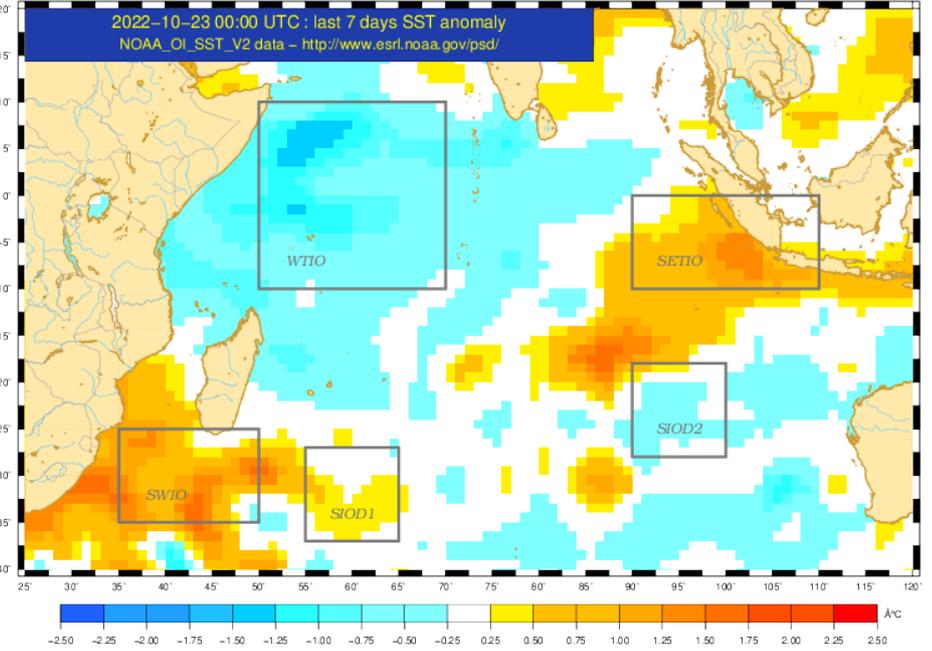
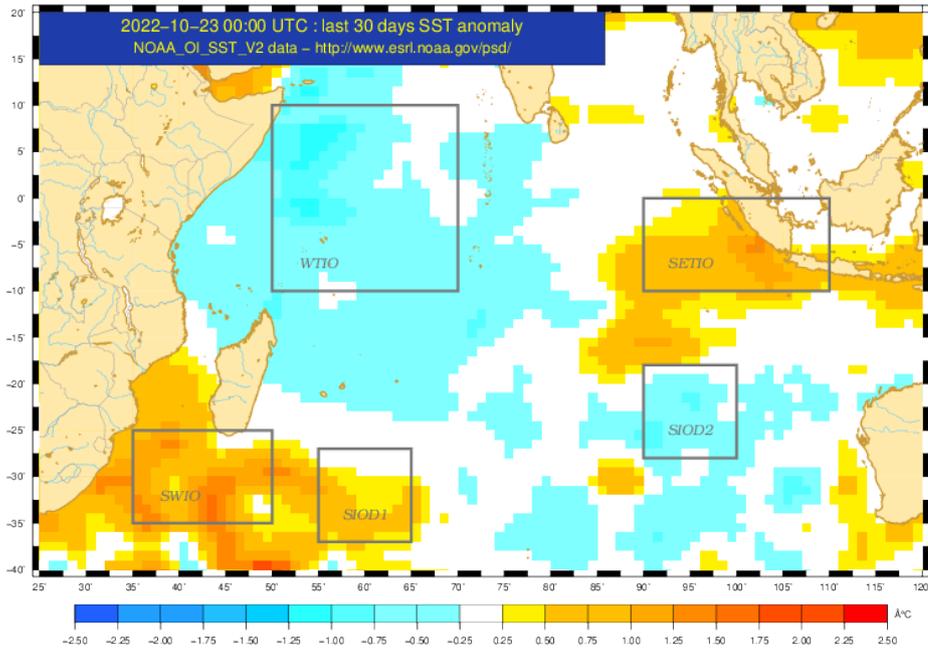
1. Prévision - Basse fréquence

Signal Basse Fréquence

Contexte ENSO

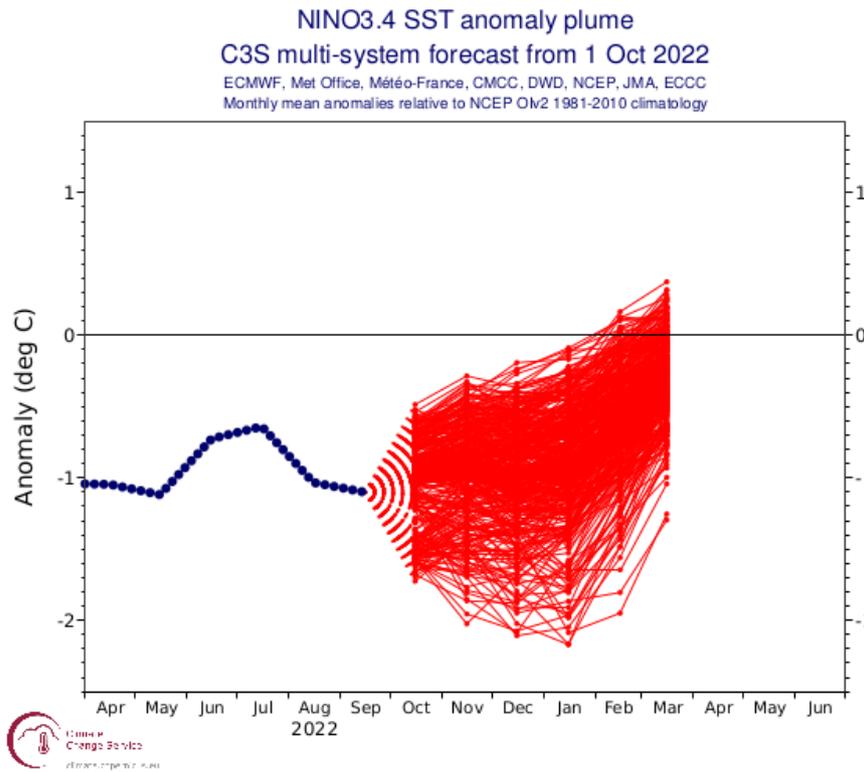


Signal Basse Fréquence - Zoom sur l'OI

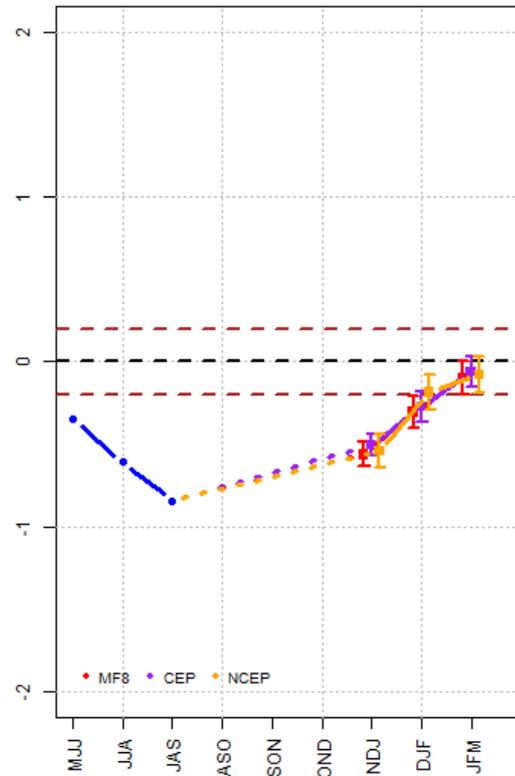


Signal Basse Fréquence

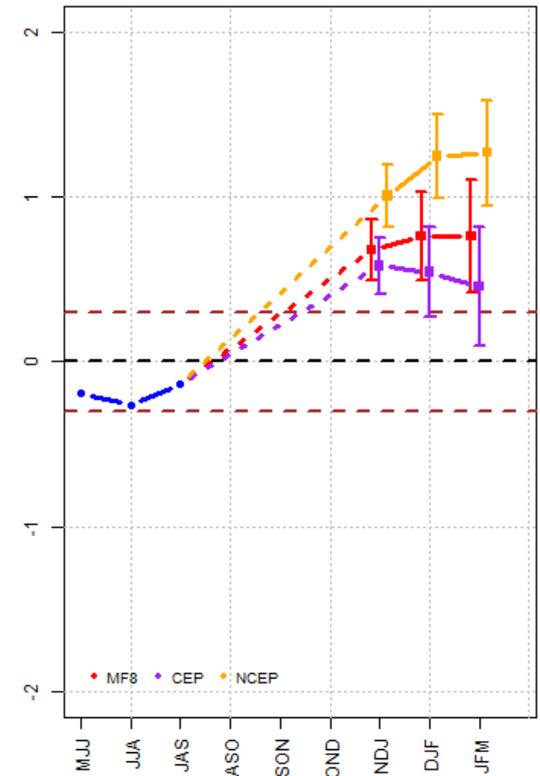
Prévisions ENSO – IOD - SIOD



Forecast: IOD - 2022-10



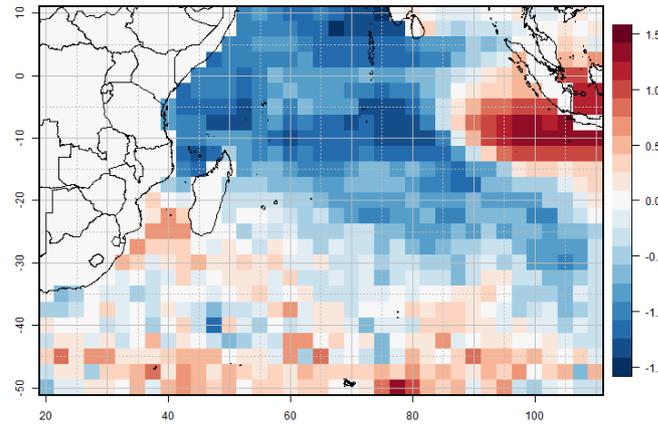
Forecast: SIOD - 2022-10



Signal Basse Fréquence - Zoom sur l'OI

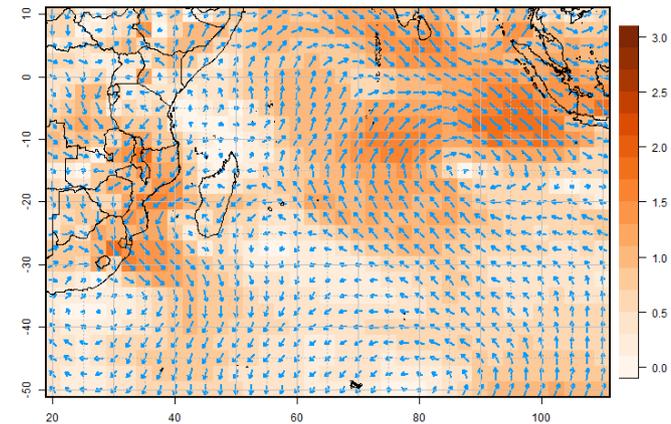
Composite SIOD⁺ et IOD⁻

ERA5 STAND. ANO. : SST SON IOD⁻



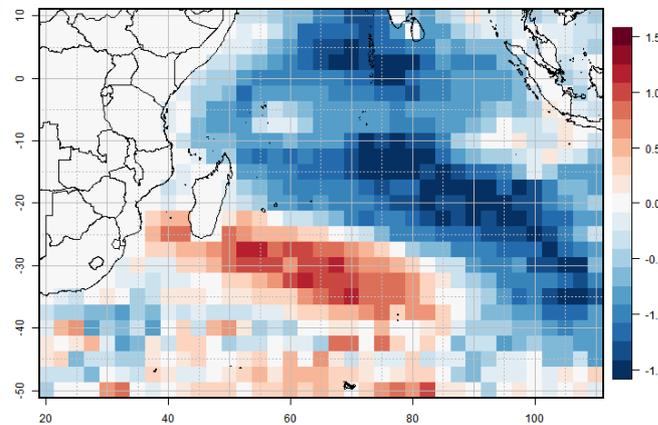
1992 - 1996 - 1998 - 2005 - 2010 - 2016

ERA5 850hPa WIND ANO. : SON IOD⁻



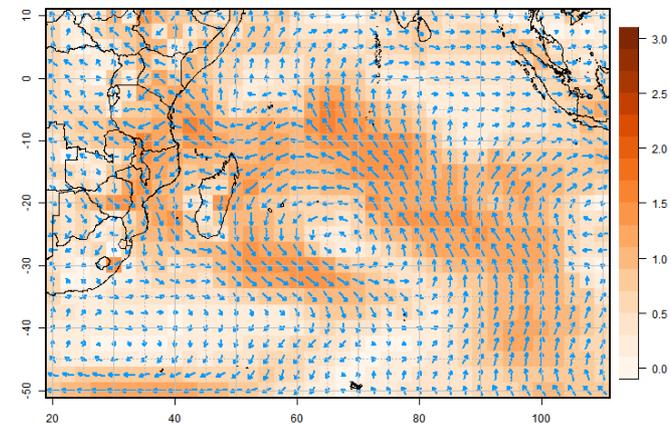
1992 - 1996 - 1998 - 2005 - 2010 - 2016

ERA5 STAND. ANO. : SST DJF SIOD⁺



1981 - 1992 - 1998 - 2005 - 2010 - 2016

ERA5 850hPa WIND ANO. : DJF SIOD⁺

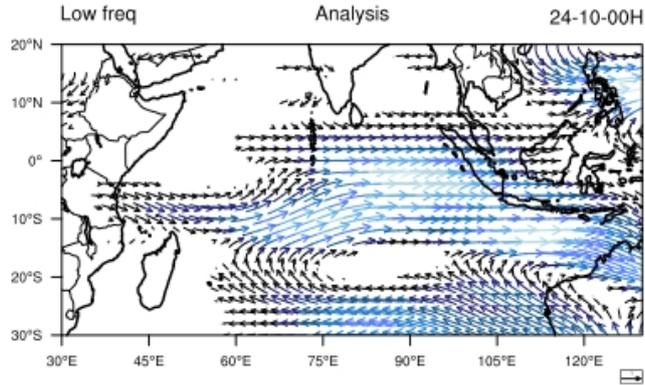


1981 - 1992 - 1998 - 2005 - 2010 - 2016

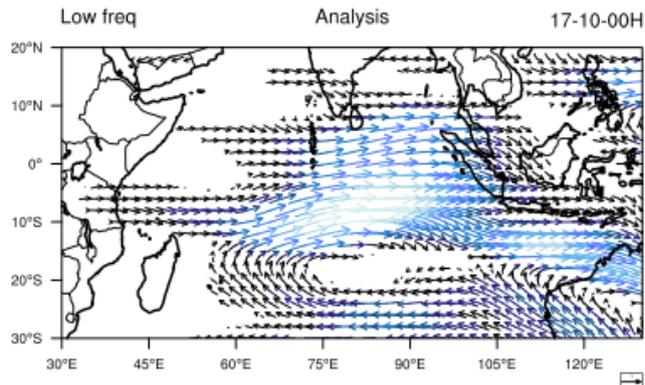
Signal Basse Fréquence - Zoom sur l'OI

U 850

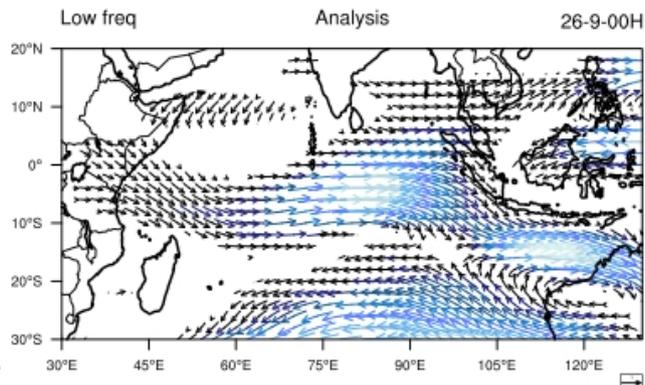
J0



J-8



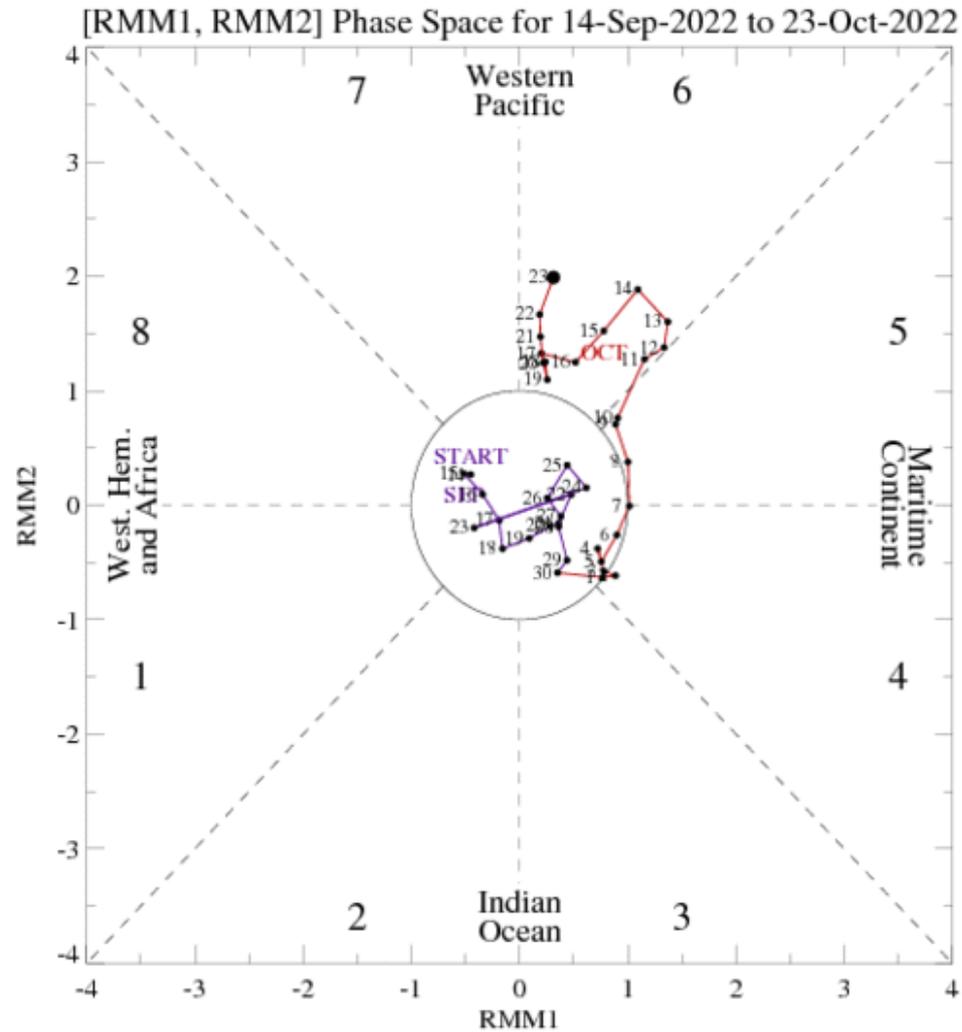
J-29



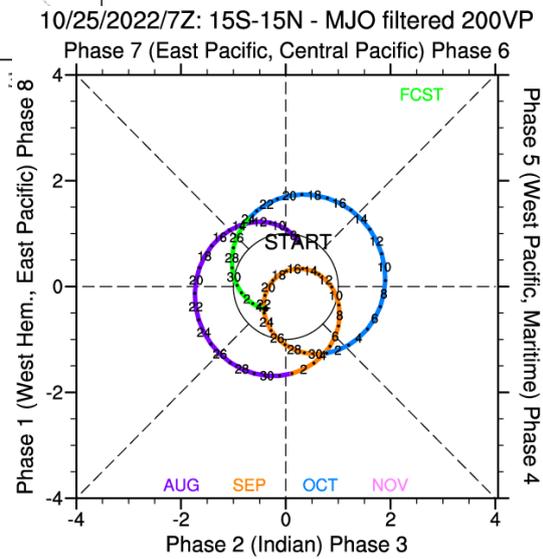
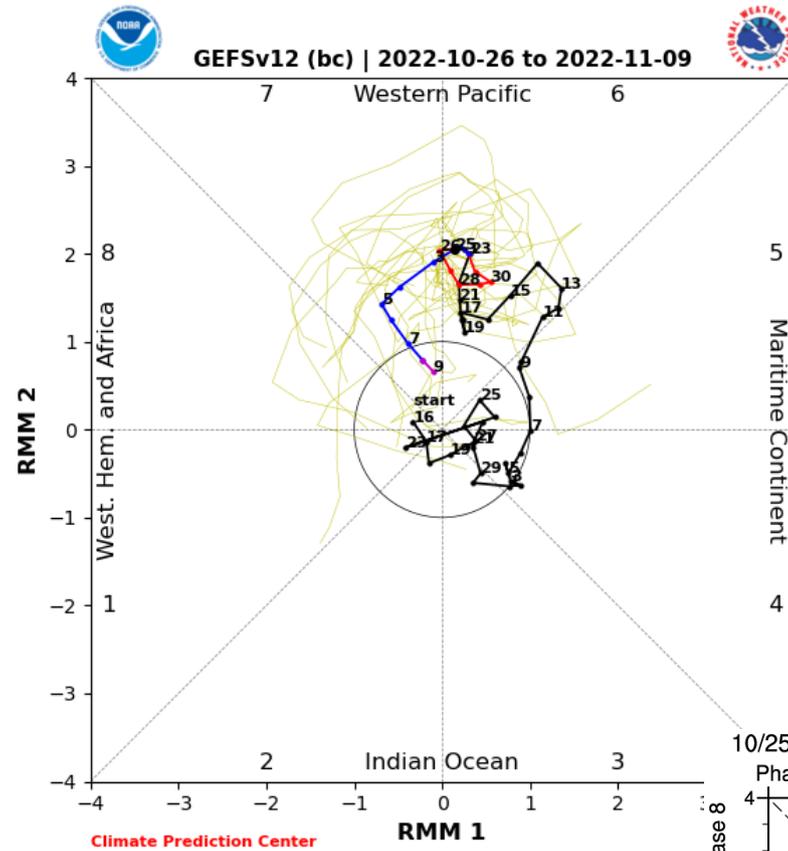
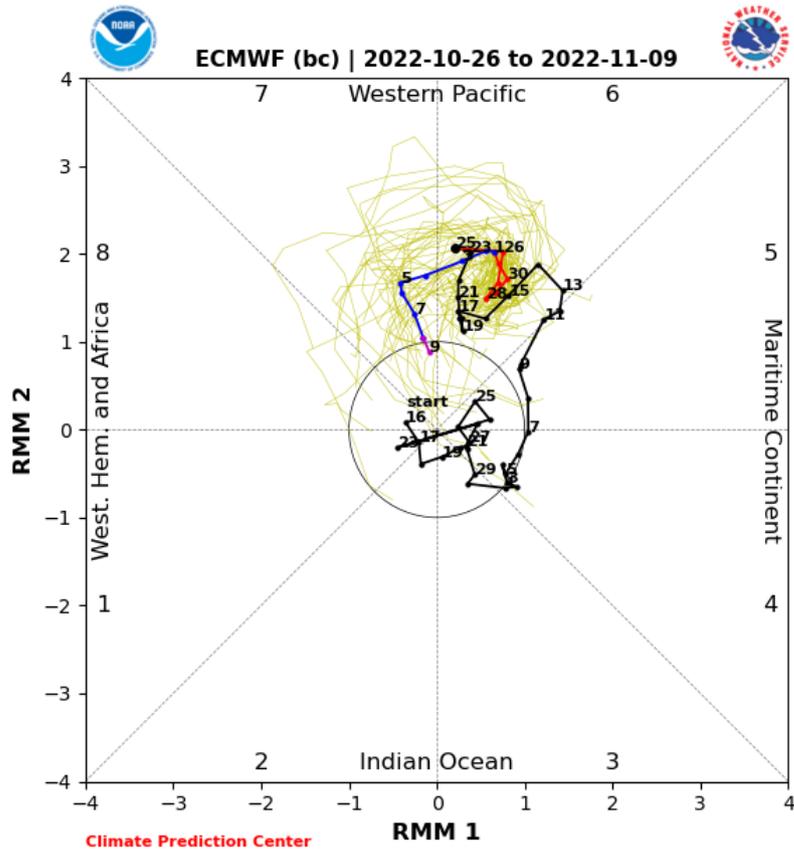
Page

2. Prévision - MJO

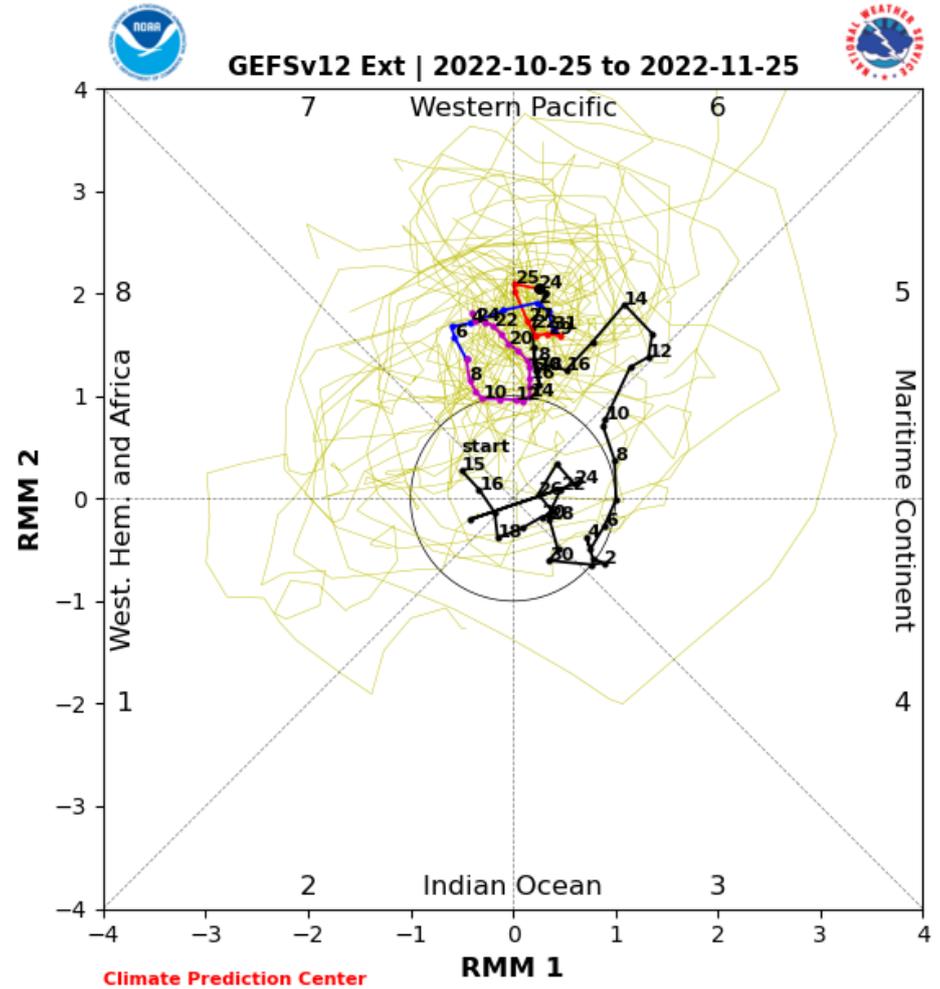
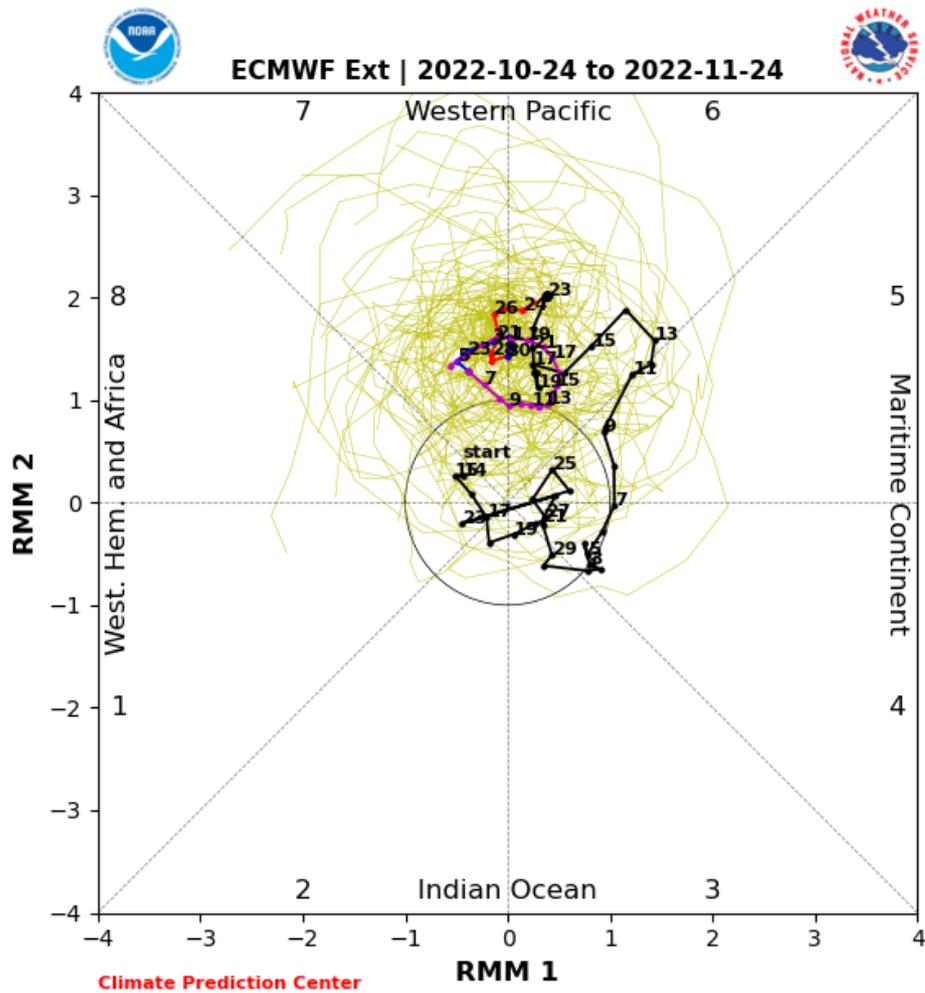
2. MJO observée, indice RMM



MJO prévue indice RMM multi modèles



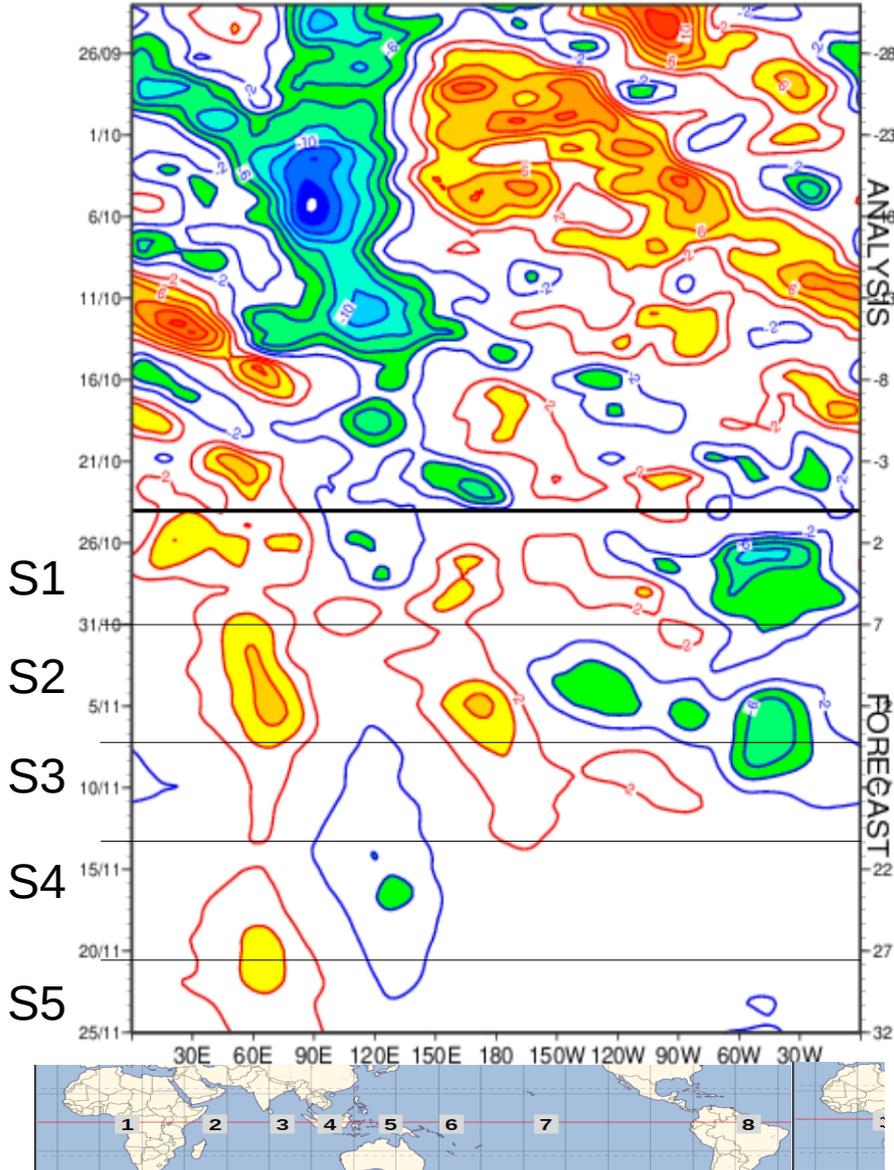
MJO prévue indice RMM multi modèles



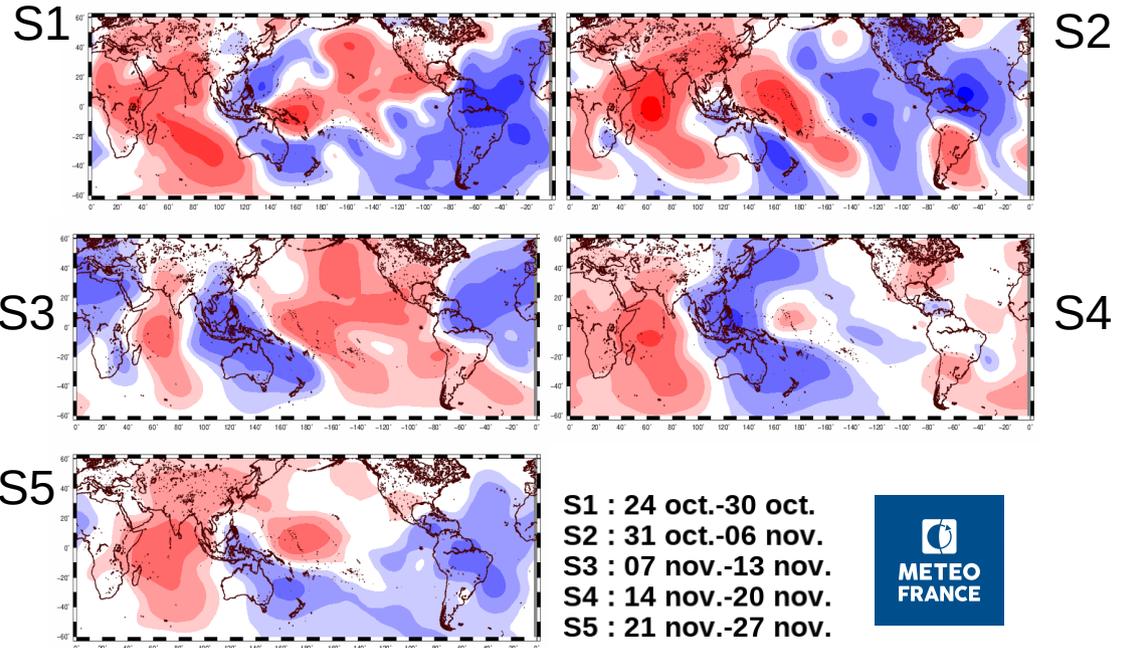
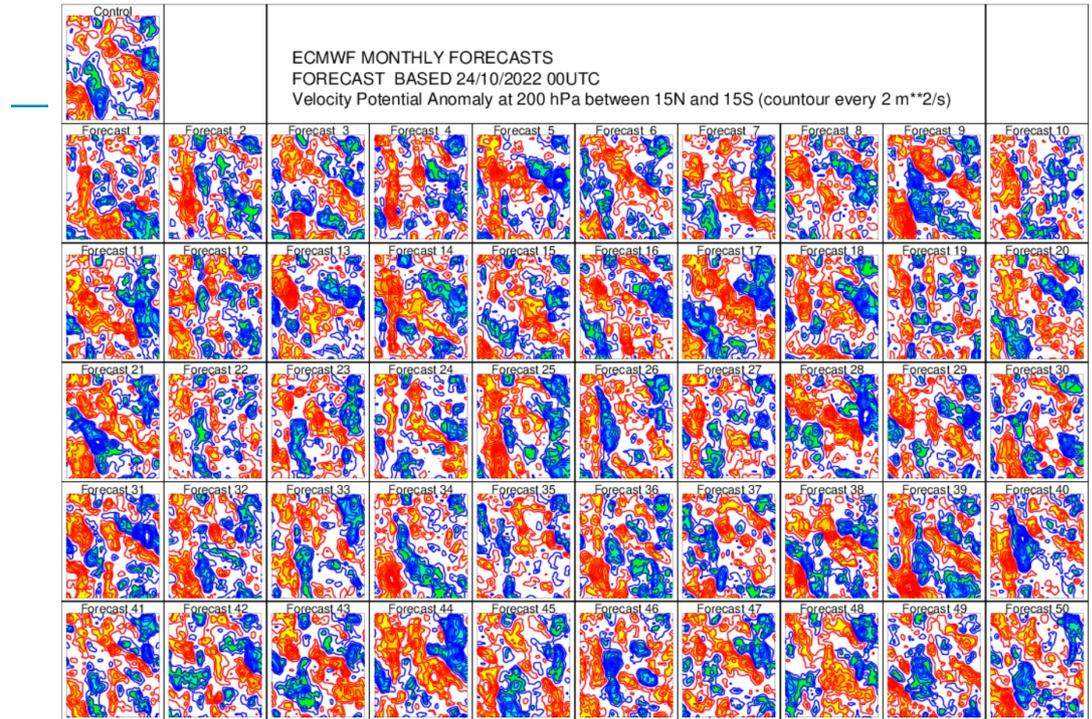
VP200 – EPS mensuel

Moyenne EPS

VELOCITY POTENTIAL AT 200 HPA
Ensemble mean between Lat 15S and 15N
FORECAST BASED 24/10/2022 00UTC



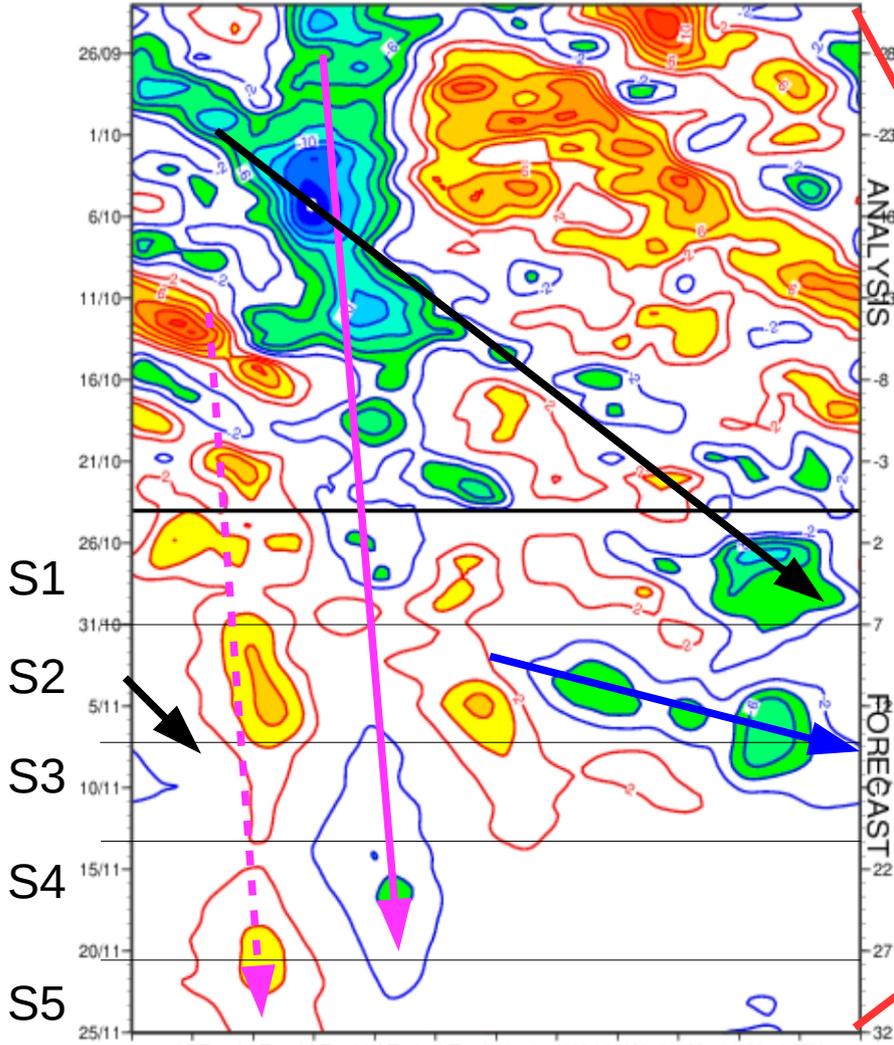
Prévisions 51 membres



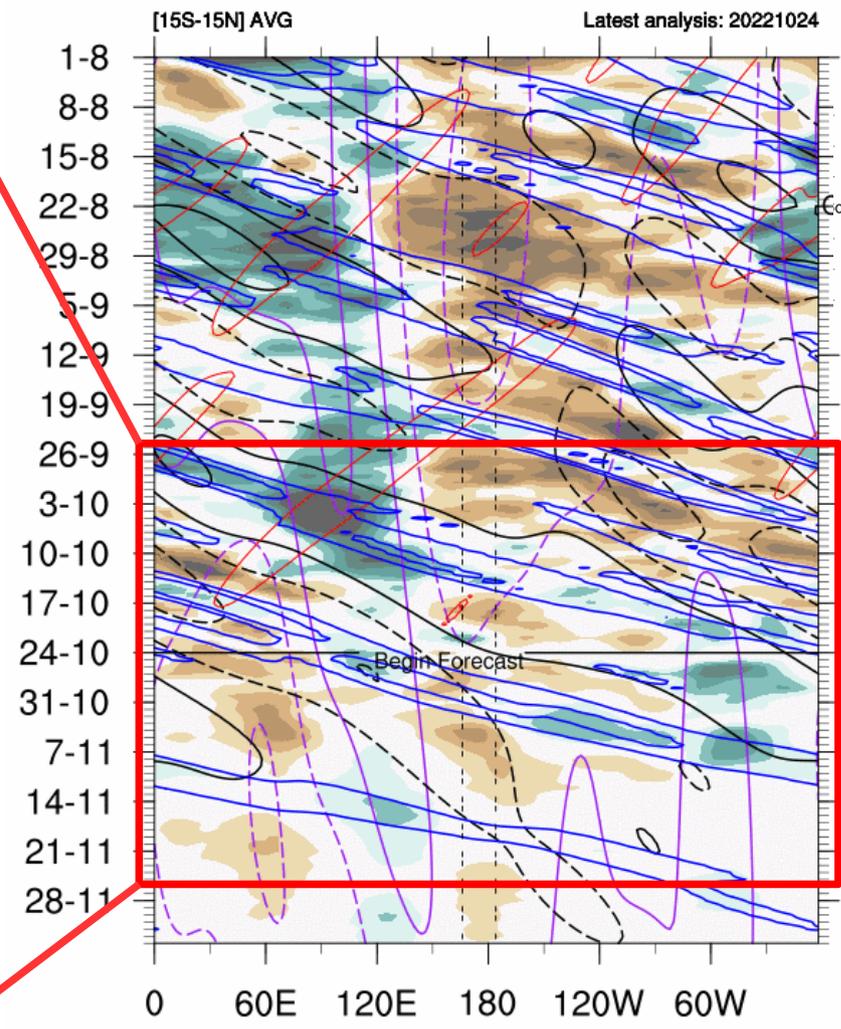
VP200 – EPS mensuel

Moyenne EPS

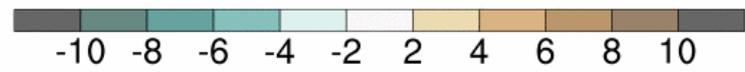
VELOCITY POTENTIAL AT 200 HPA
Ensemble mean between Lat 15S and 15N
FORECAST BASED 24/10/2022 00UTC



vp200 anomaly + Eq. Waves filtering



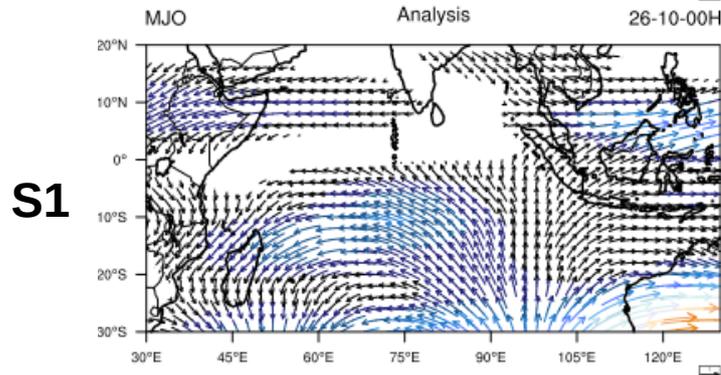
- - - Low freq.
 - - - MJO
 - - - Kelvin
 - - - Rossby
 Contours : -12 -9 -6 -3 -1 10⁶ m²
 Solid contours
 favour convection



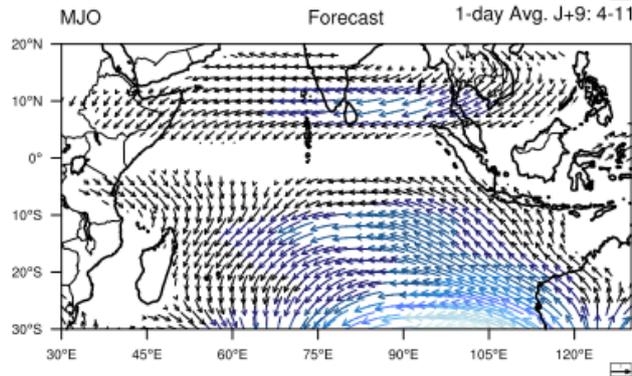
Contact: philippe.peyrille@meteo.fr



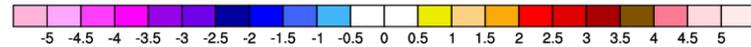
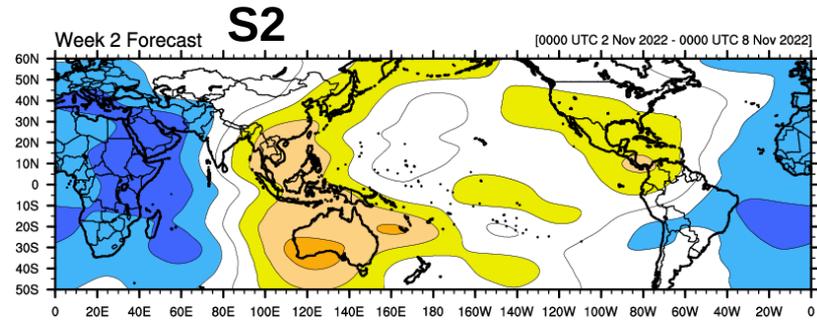
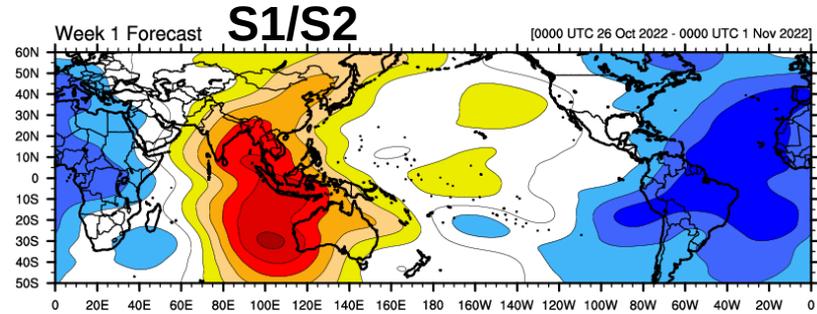
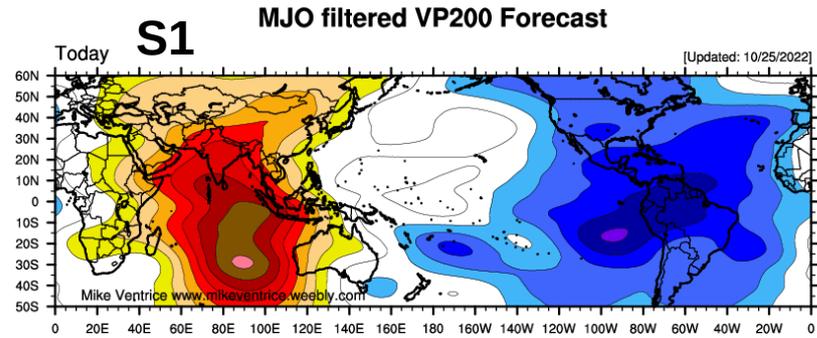
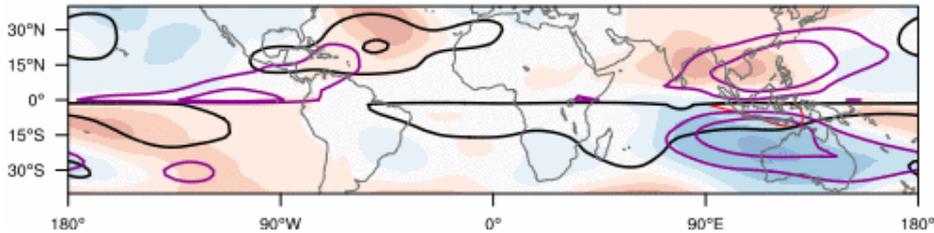
Synthèse MJO



S2



S3 Stream-Fct 850 hPa Anomaly Forecast 7-day Avg. : 14-11 to 20-11



Contours every -6, -3, -1.5, -0.5, m²s⁻¹
 --- MRGTD
 --- Kelvin
 --- Rossby
 --- MJO
 --- Low

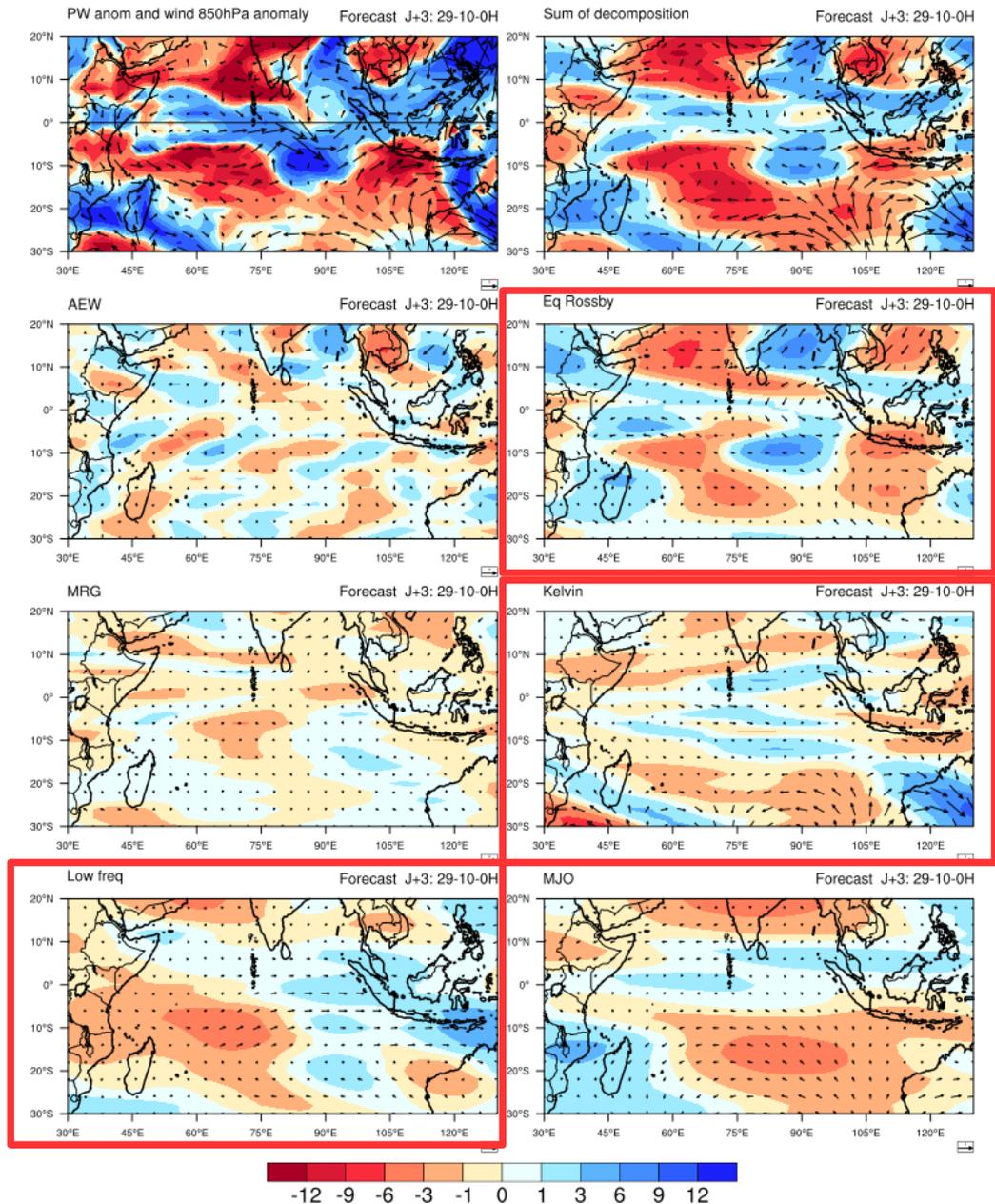
contact: philippe.peyrille@meteo.fr



3. Prévision – Ondes équatoriales

3. Ondes équatoriales

PW and 850hPa wind anomalies



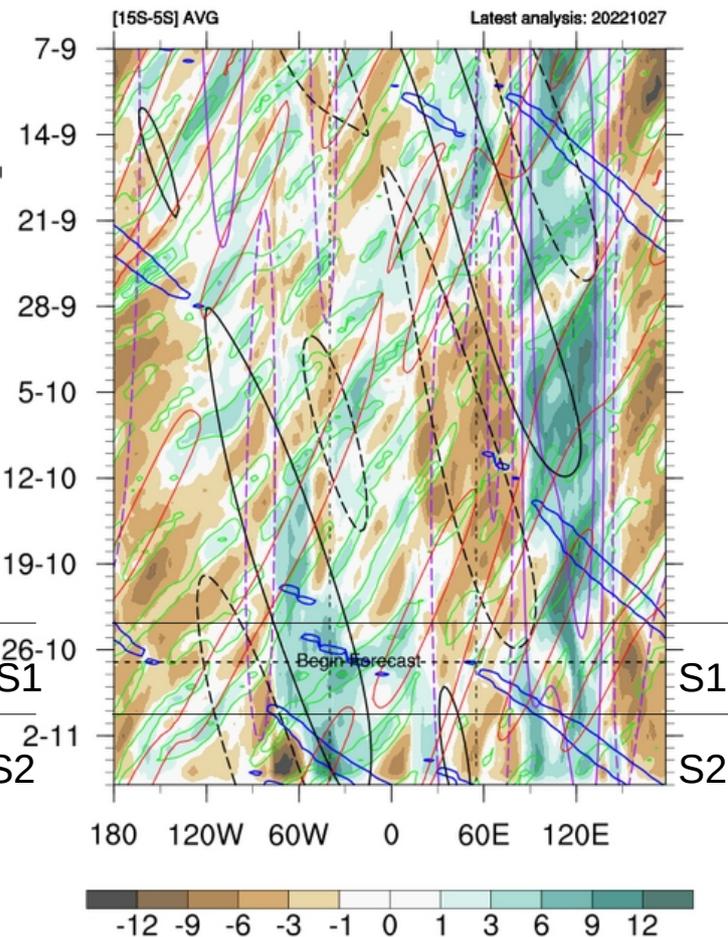
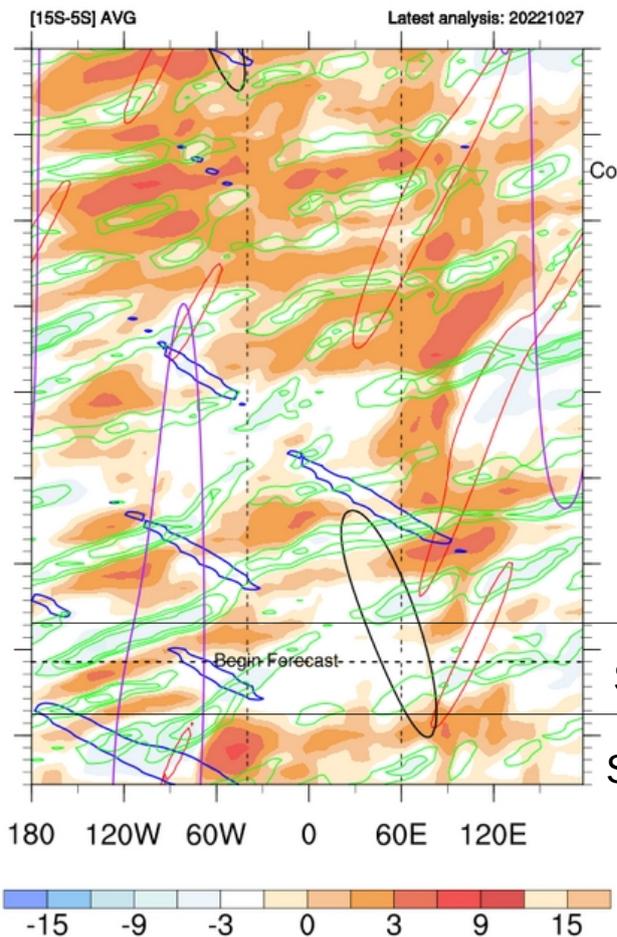
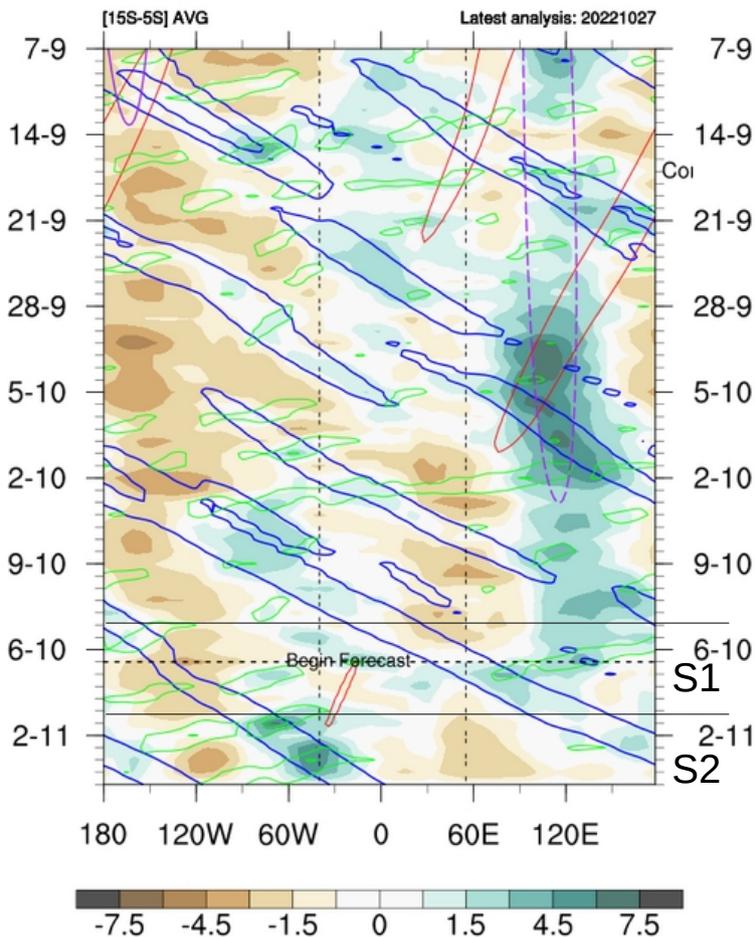
3. Ondes équatoriales

— MRG
— MJO
— Kelvin
— Rossby
 Contours : 1,3,6,9 mm

VP850 anomaly + Eq. Waves filtering

SF850 anomaly + Eq. Waves filtering

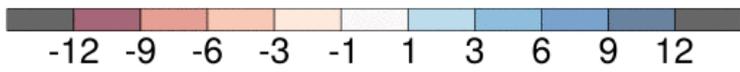
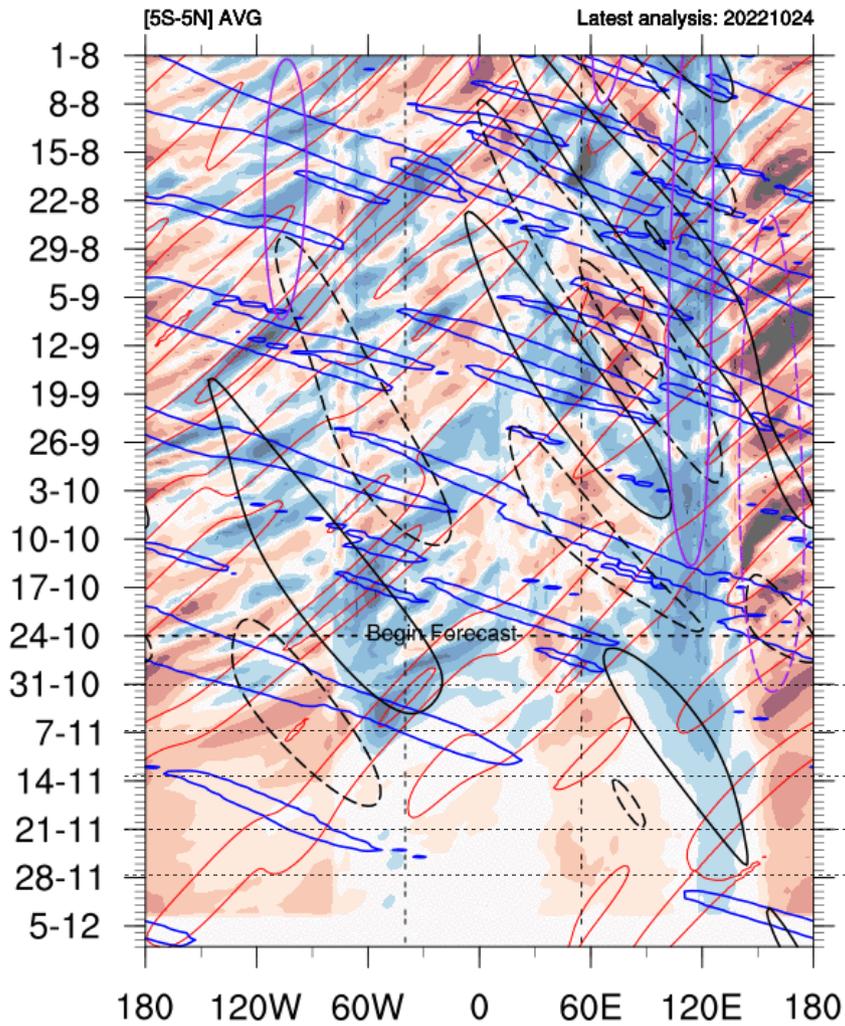
TCWV anomaly (mm) + Eq. Waves filtering



Contact: philippe.peyrille@meteo.fr

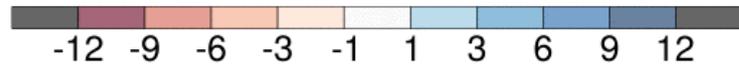
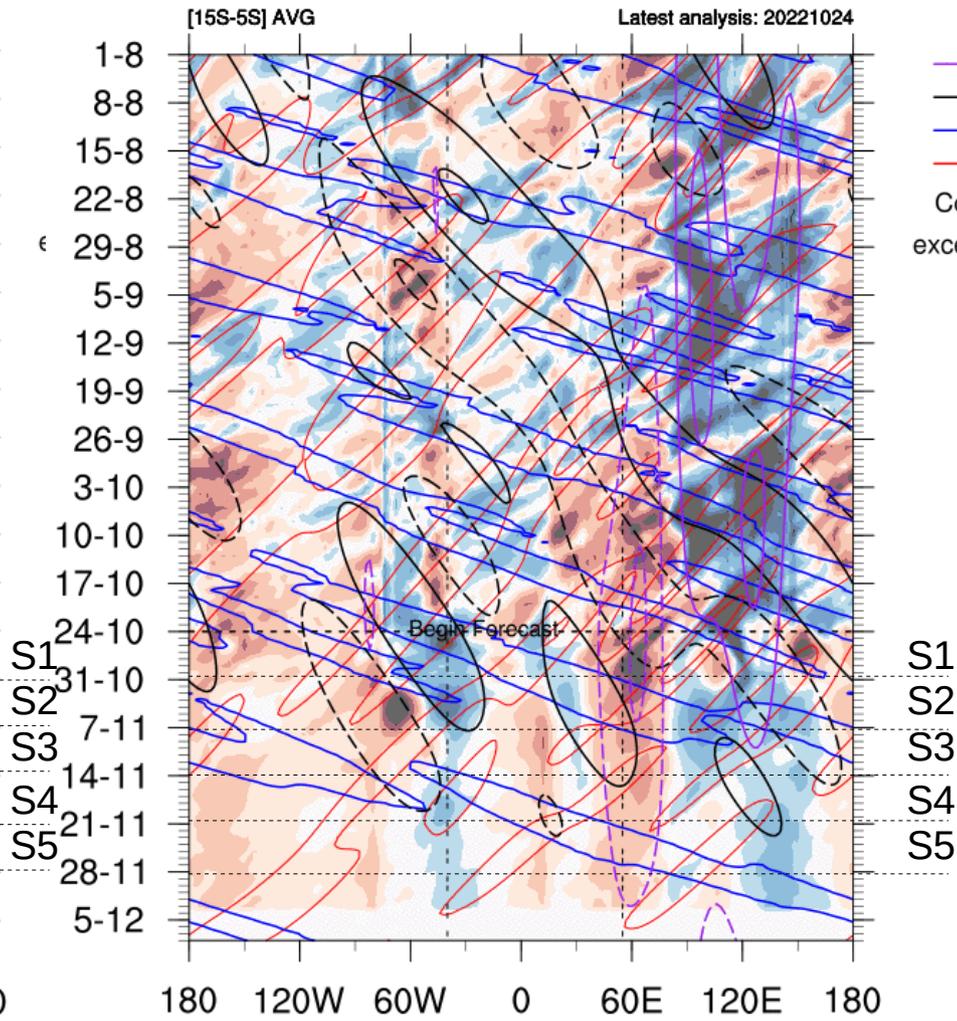
3. Ondes équatoriales

TCWV anomaly (mm) + Eq. Waves filtering



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TCWV anomaly (mm) + Eq. Waves filtering

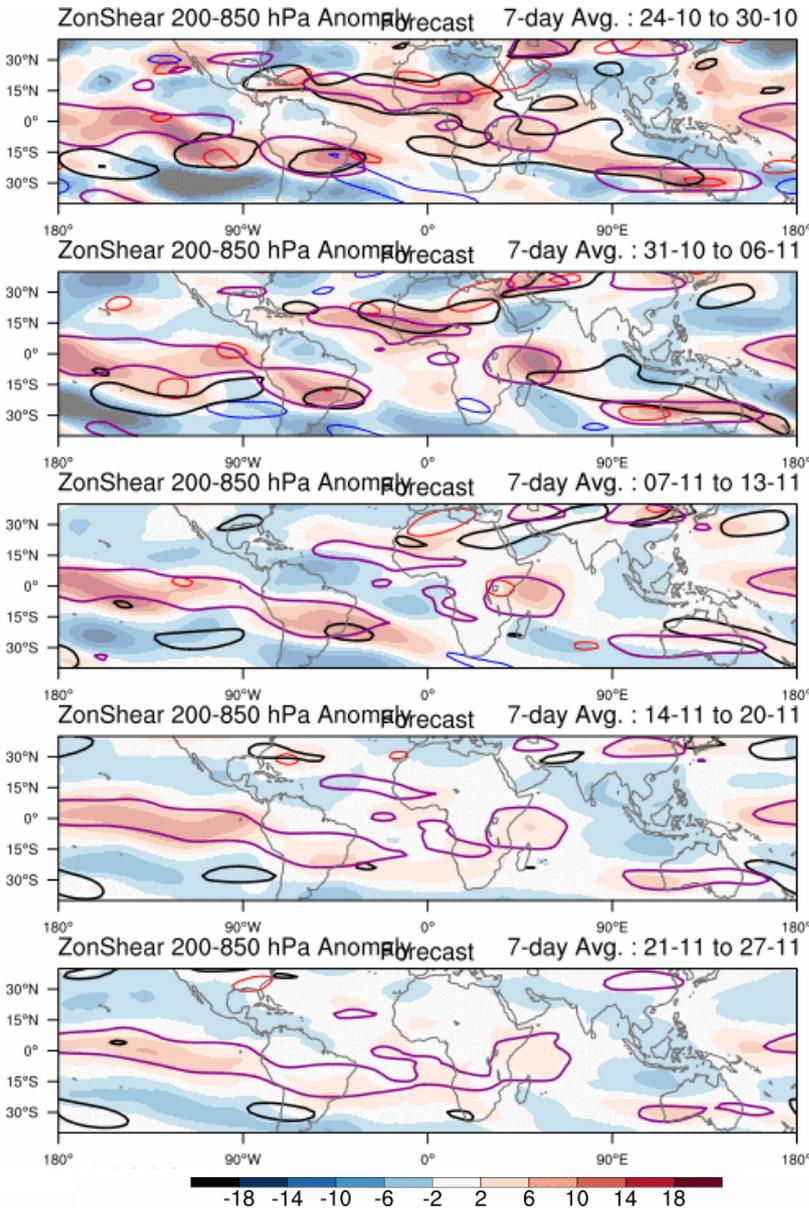


Contact: philippe.peyrille@meteo.fr

- Low freq.
 - MJO
 - Kelvin
 - Rossby
- Contours : 0.5 3 6 mm
except Low freq, 3,6, 9 mm

S1
S2
S3
S4
S5

S1 à S4 – U_{shear} – MJO, ER dans l'Indien



Contours every 3, 10, m/s
 MRG/TD
 Kelvin
 Rossby
 MJO
 Low

Pa

contact:

contact: philippe.peyrylle@meteo.fr

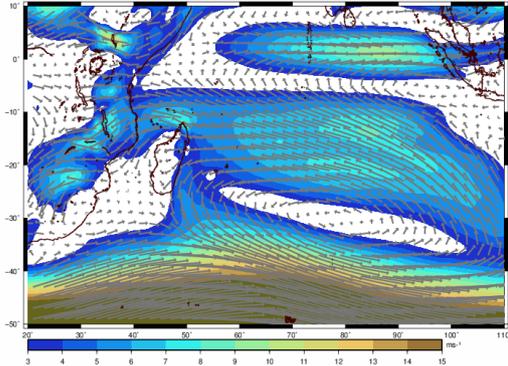


4. Impacts en temps sensible, temps sévère

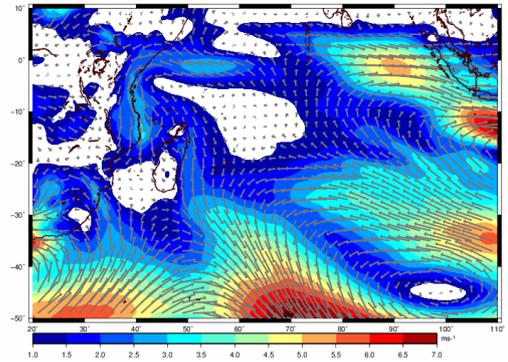
Configuration du bassin

S2

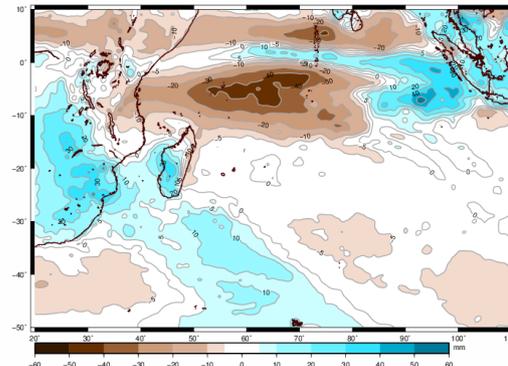
Vent 850hPa
période du 2022-10-31 au 2022-11-07
Précision mensuelle CEPMMT base 2022-10-24



Anomalie force du vent 850hPa
période du 2022-10-31 au 2022-11-07
Précision mensuelle CEPMMT base 2022-10-24

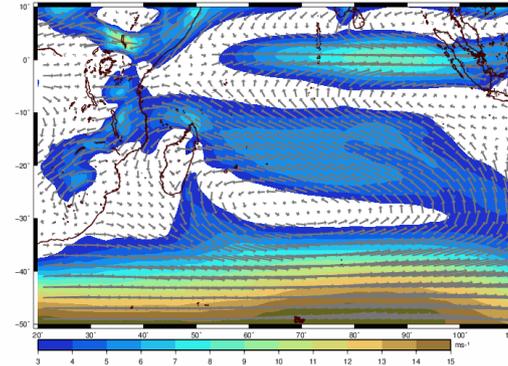


Anomalie de précipitations
période du 2022-10-31 au 2022-11-07
Précision mensuelle CEPMMT base 2022-10-24

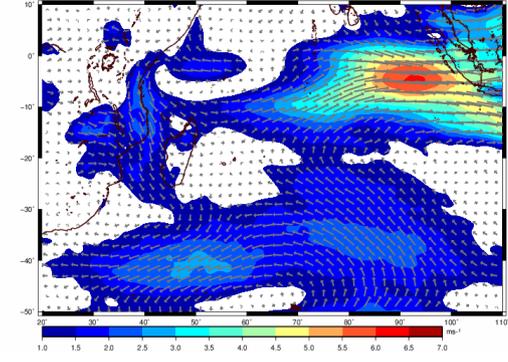


S3

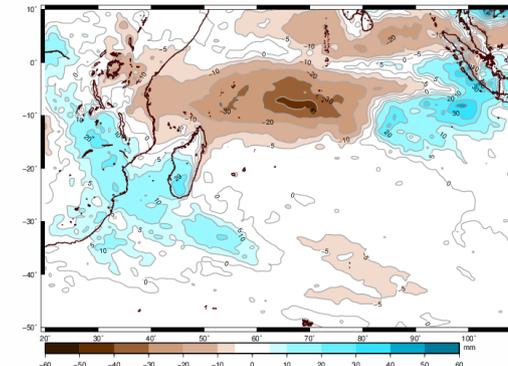
Vent 850hPa
période du 2022-11-07 au 2022-11-14
Précision mensuelle CEPMMT base 2022-10-24



Anomalie force du vent 850hPa
période du 2022-11-07 au 2022-11-14
Précision mensuelle CEPMMT base 2022-10-24

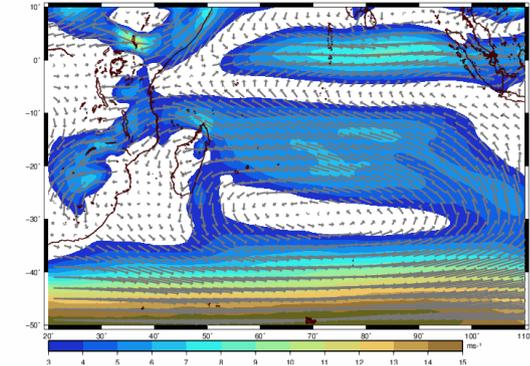


Anomalie de précipitations
période du 2022-11-07 au 2022-11-14
Précision mensuelle CEPMMT base 2022-10-24

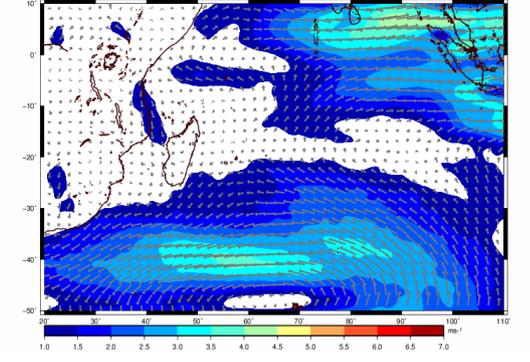


S4

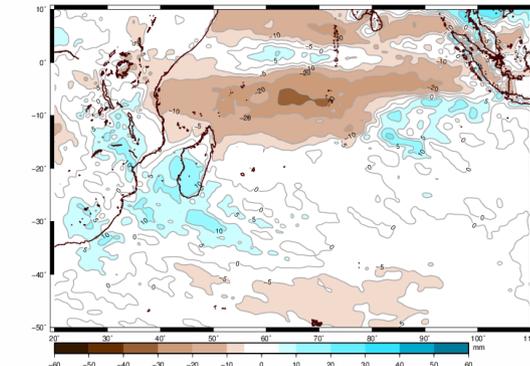
Vent 850hPa
période du 2022-11-14 au 2022-11-21
Précision mensuelle CEPMMT base 2022-10-24



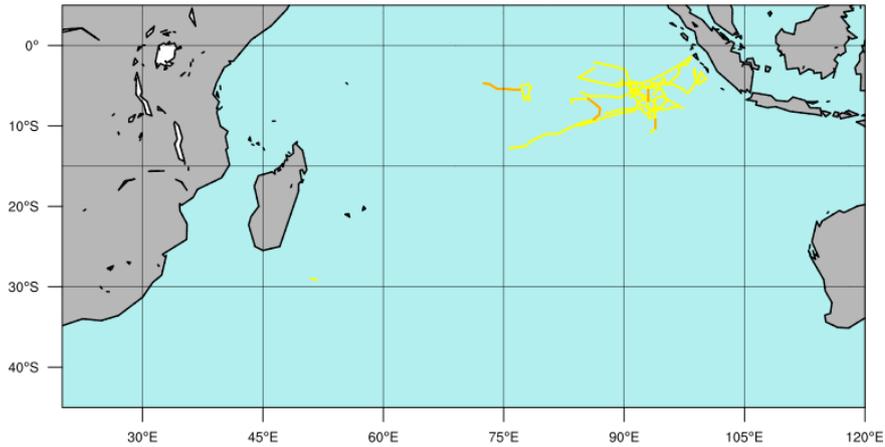
Anomalie force du vent 850hPa
période du 2022-11-14 au 2022-11-21
Précision mensuelle CEPMMT base 2022-10-24



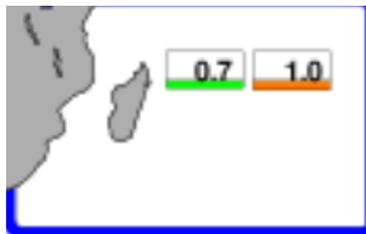
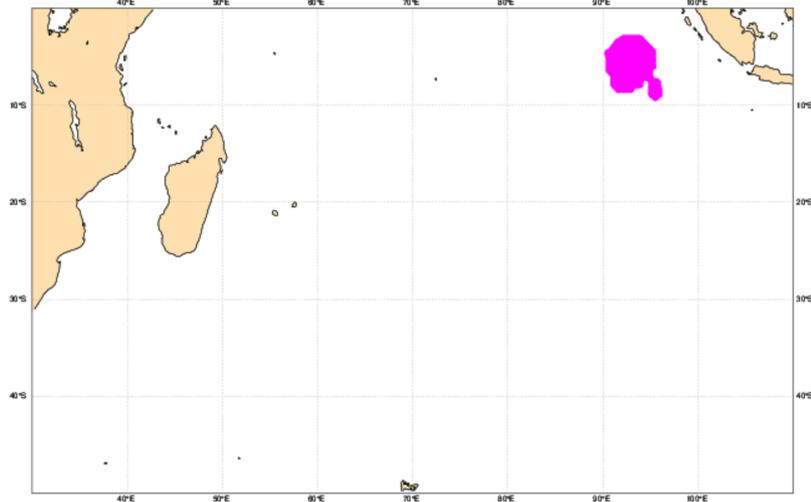
Anomalie de précipitations
période du 2022-11-14 au 2022-11-21
Précision mensuelle CEPMMT base 2022-10-24



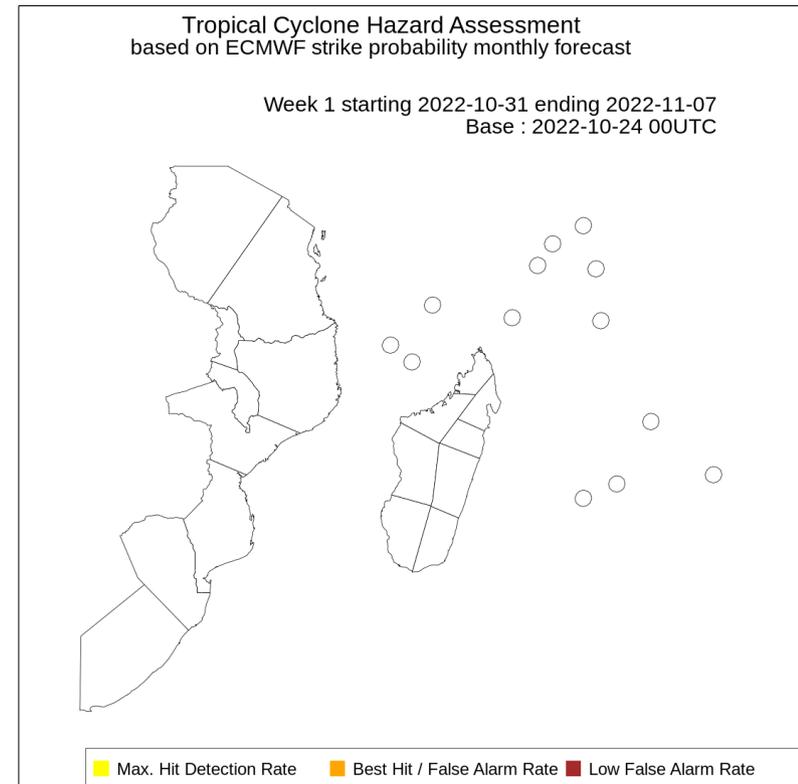
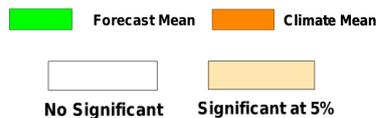
S2 : à compléter



Weekly mean Tropical Storm Strike Probability. Date: 20221024 0 UTC $\pm(168-336)$
Probability of a TS passing within 300km radius

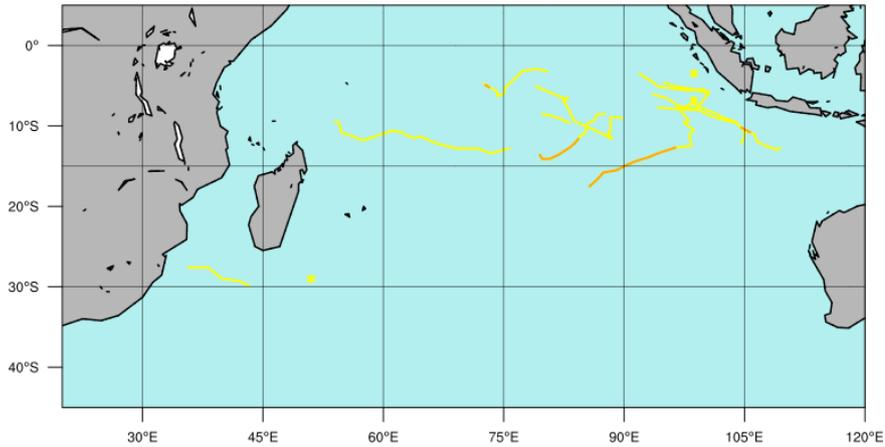


ECMWF Monthly Forecast
Accumulated Cyclone Energy



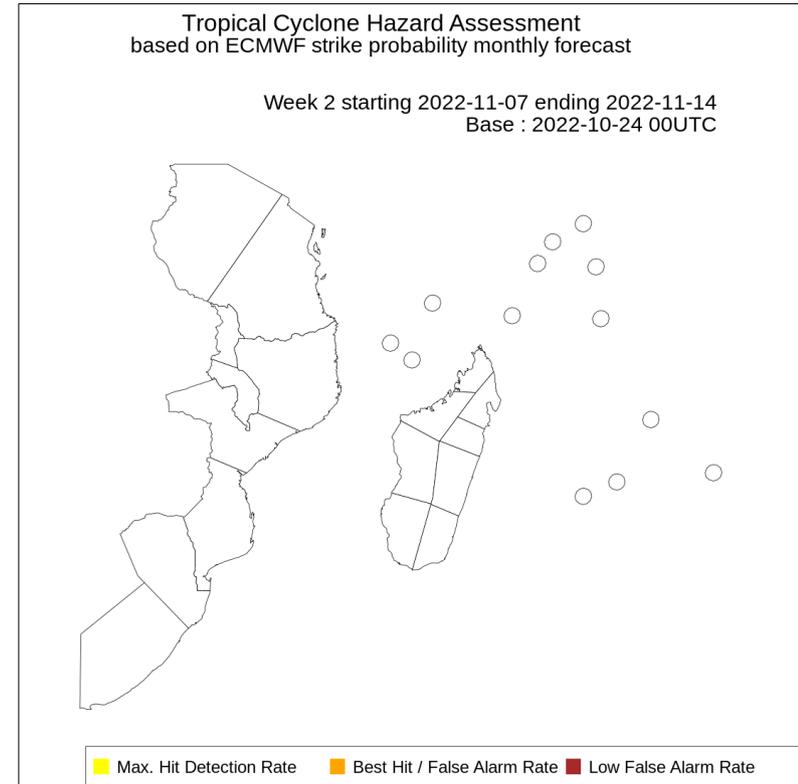
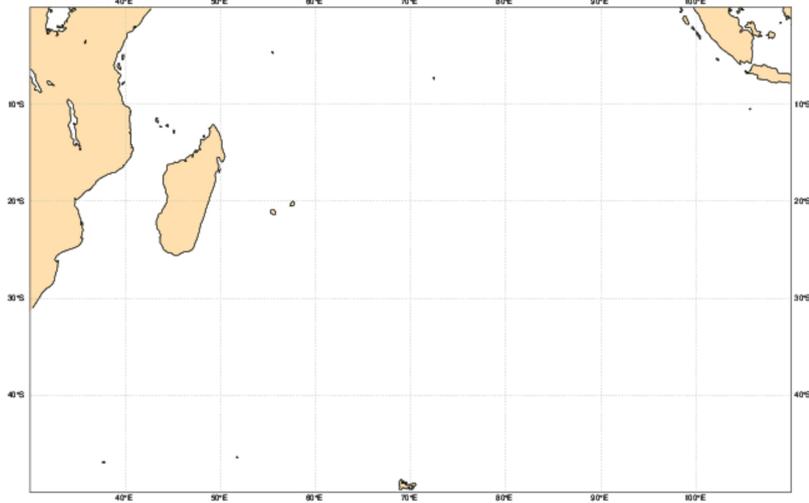
Activité cyclonique :

S3 : à compléter

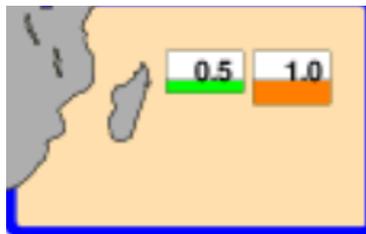


Weekly mean Tropical Storm Strike Probability. Date: 20221024 0 UTC +/- (336-504)
Probability of a TS passing within 300km radius

5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-110



Activité cyclonique :

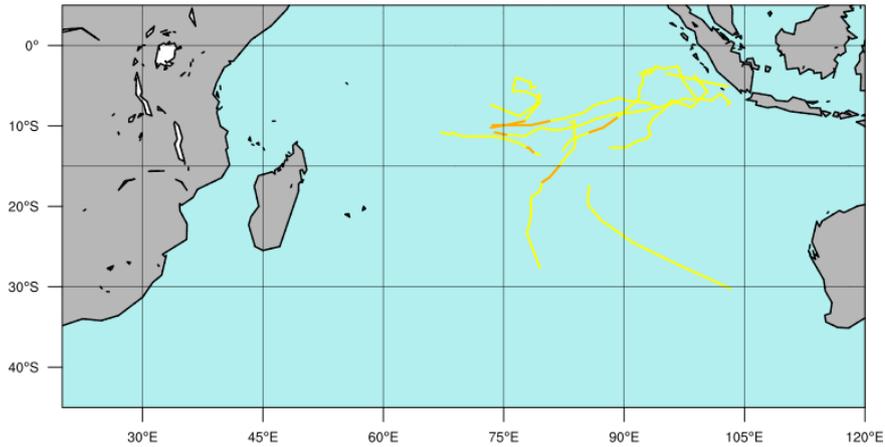


ECMWF Monthly Forecast
Accumulated Cyclone Energy

Forecast Mean Climate Mean

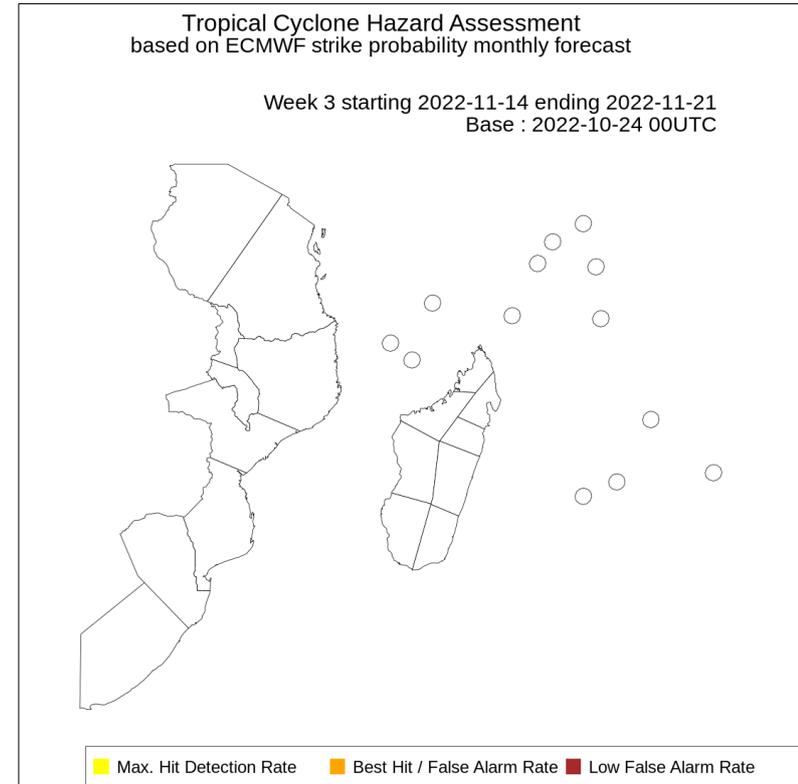
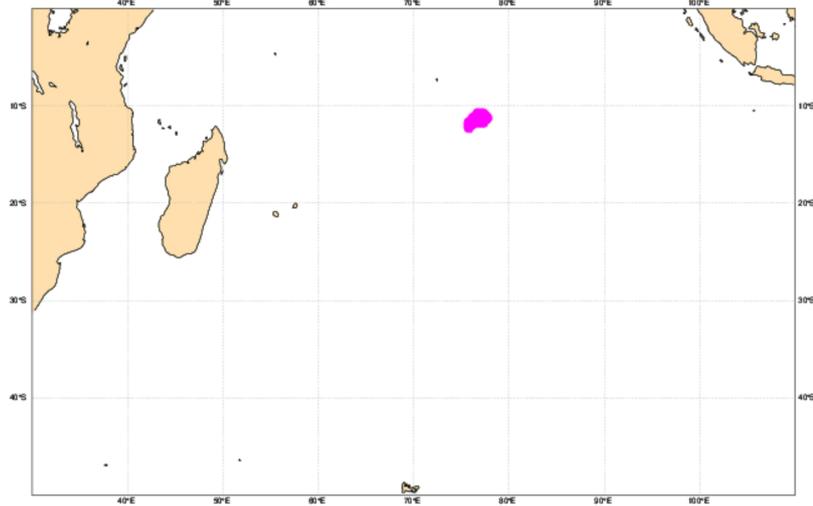
No Significant Significant at 5%

S4 : à compléter

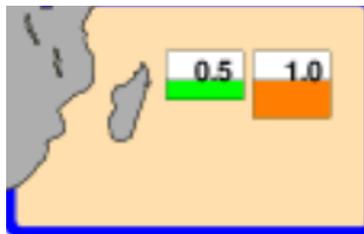


Weekly mean Tropical Storm Strike Probability. Date: 20221024 0 UTC I+(504-672)
Probability of a TS passing within 300km radius

5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-110



Activité cyclonique :

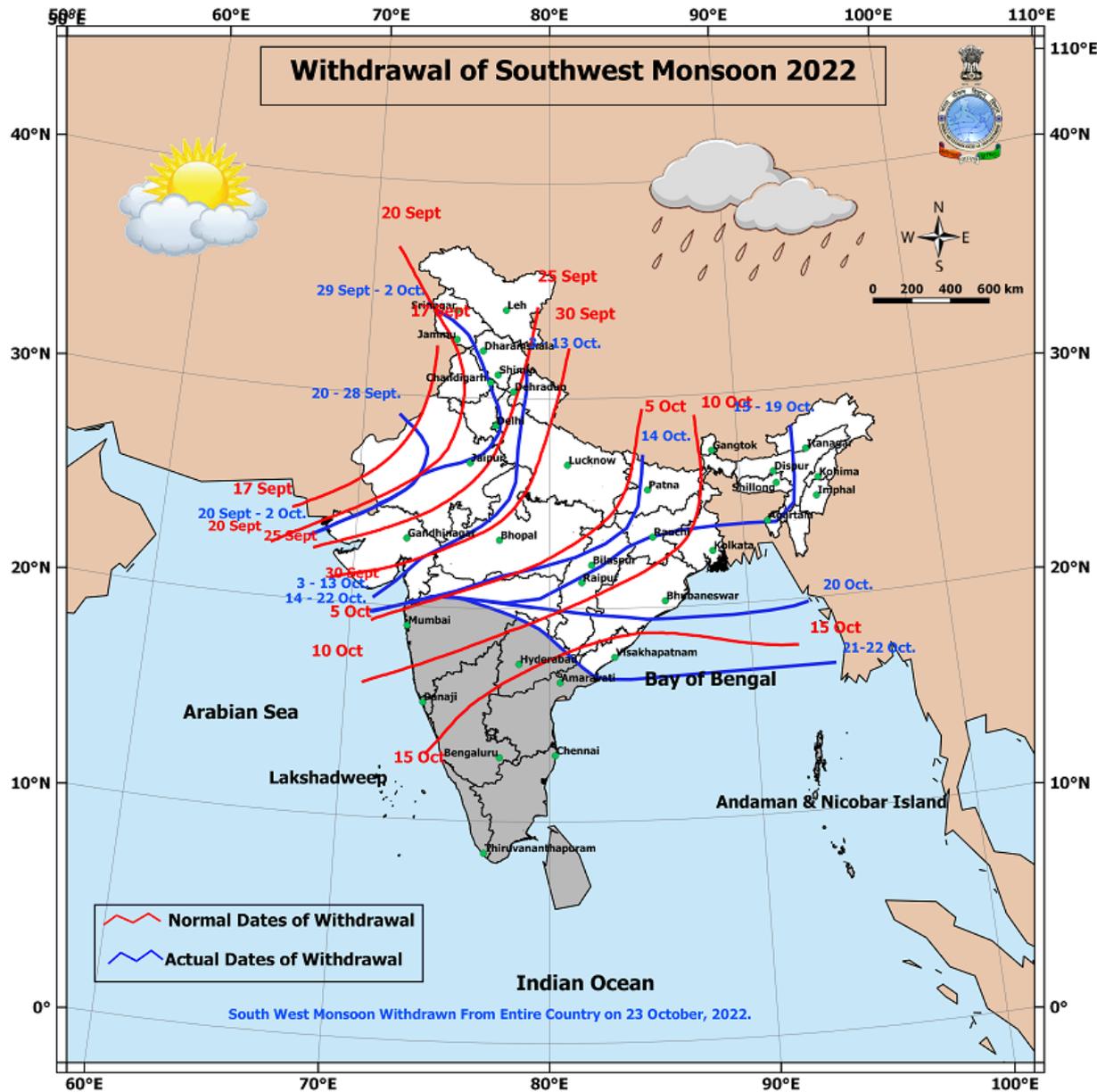


ECMWF Monthly Forecast
Accumulated Cyclone Energy

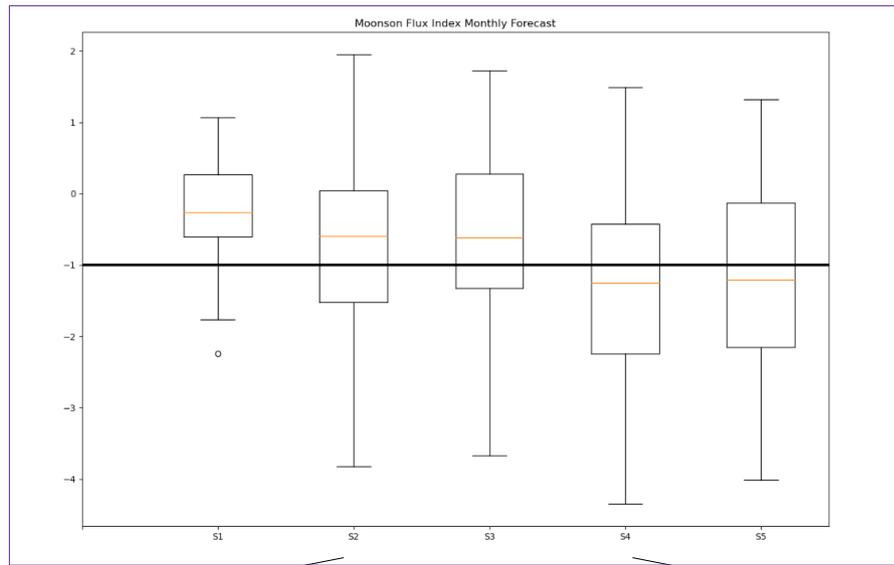
Forecast Mean Climate Mean

No Significant Significant at 5%

Synthèse temps sensible S2 – S4 [SEYCHELLES]



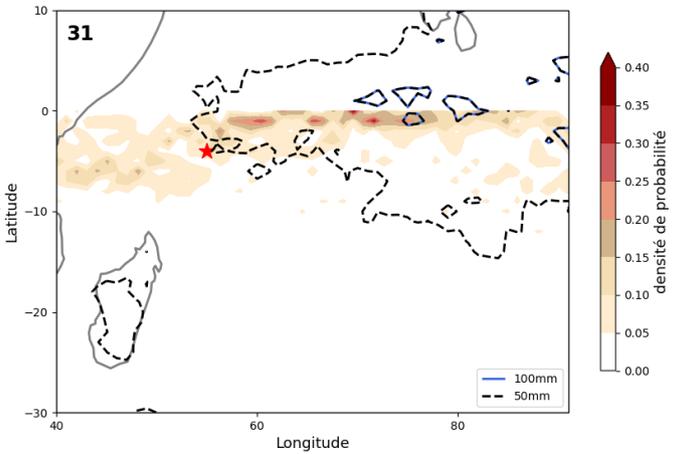
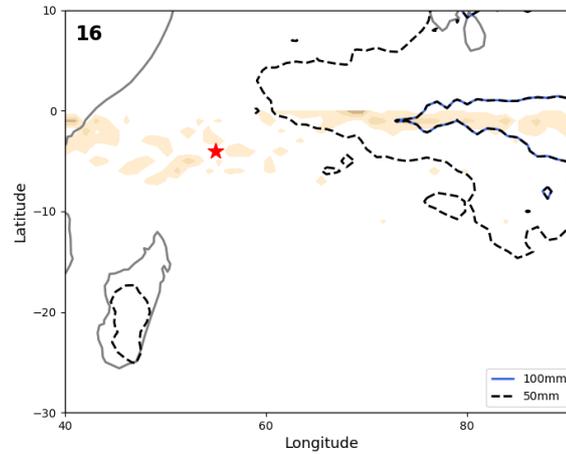
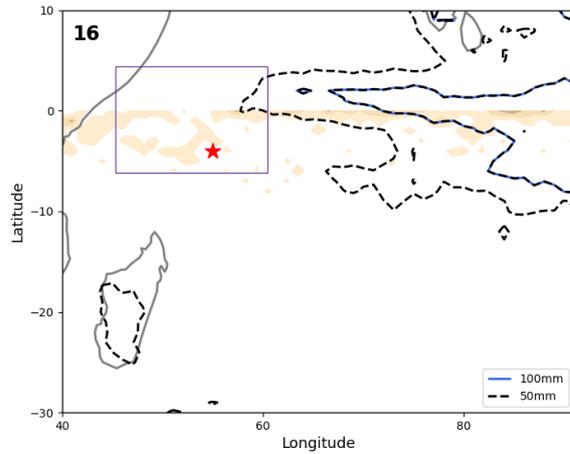
Configuration du bassin et prévision ZCIT



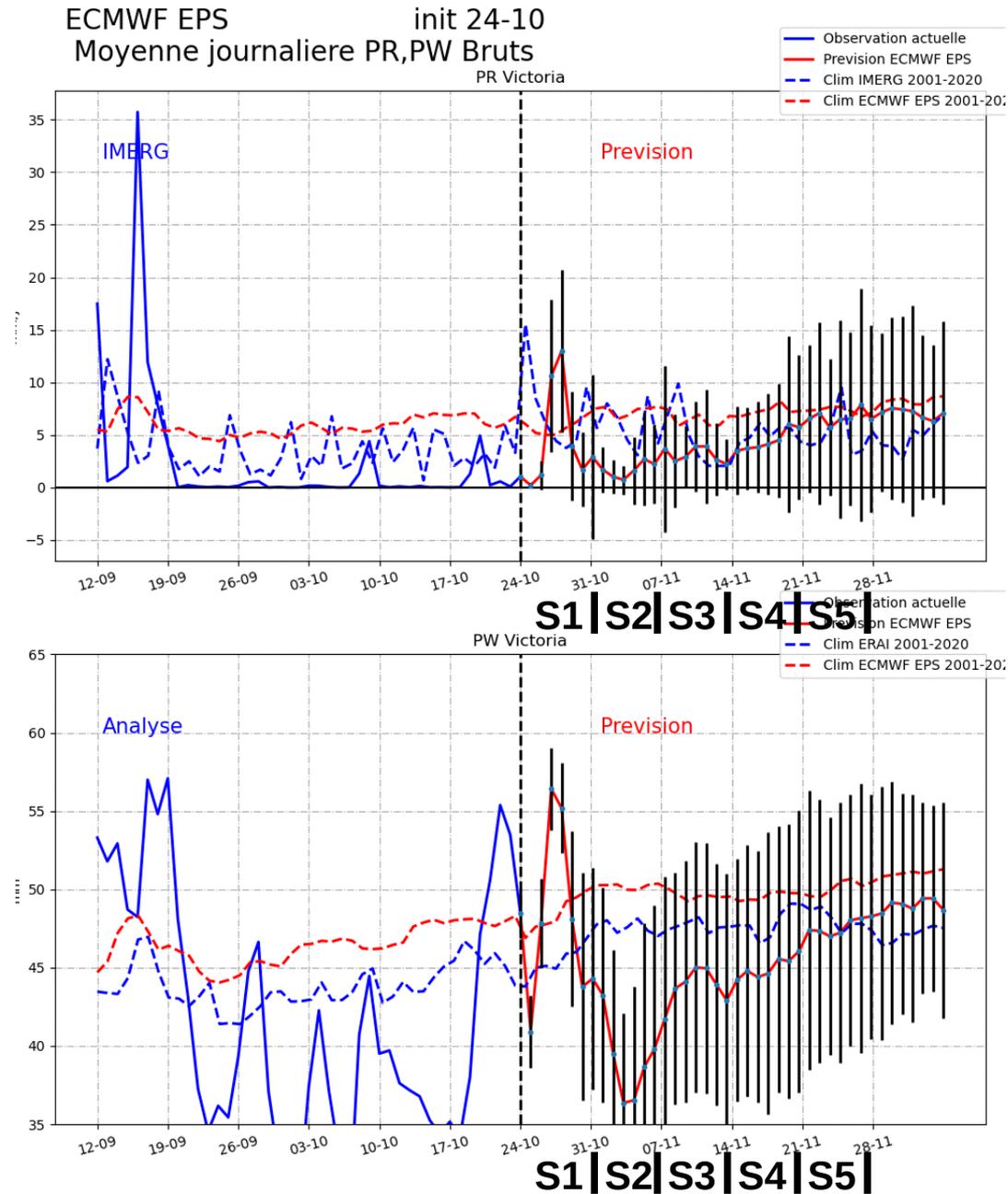
S2

S3

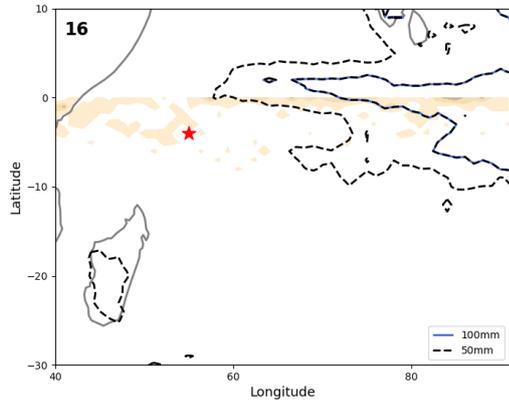
S4



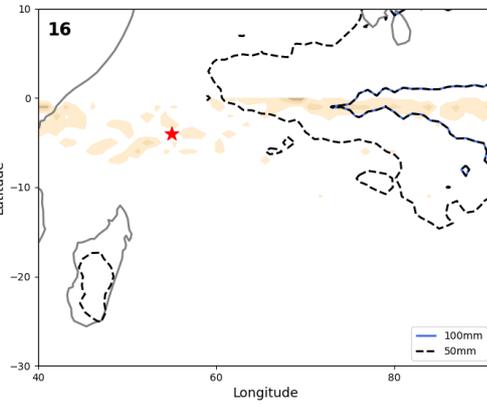
Synthèse temps sensible S2 – S4 [SEYCHELLES]



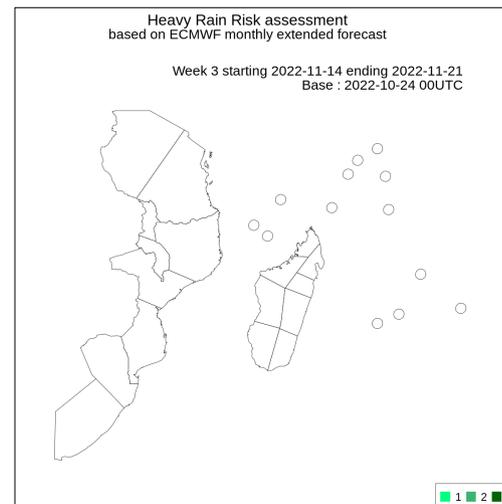
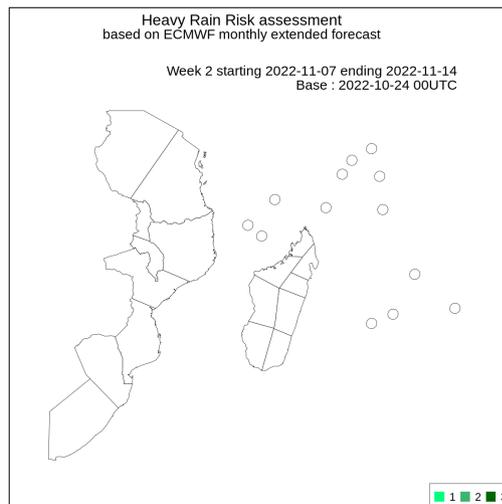
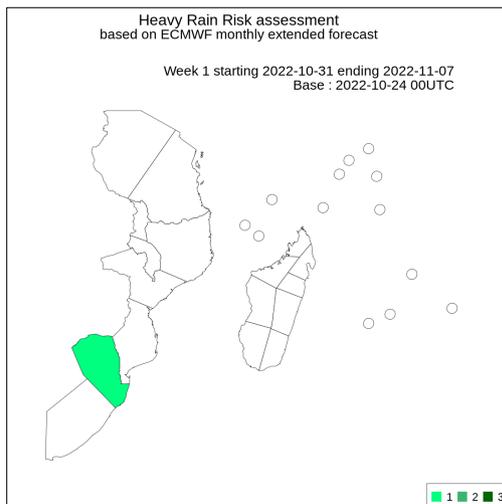
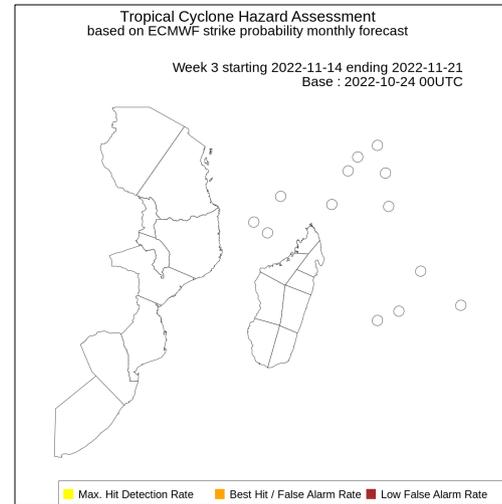
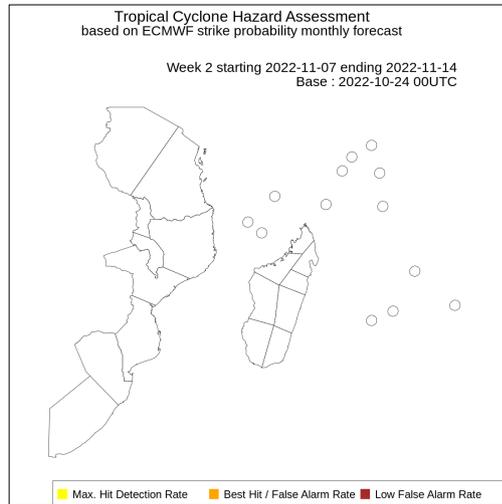
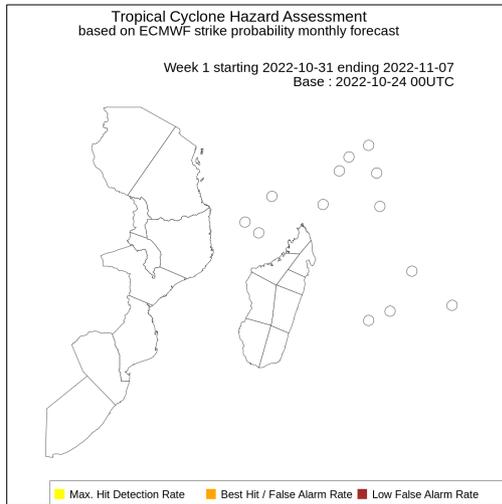
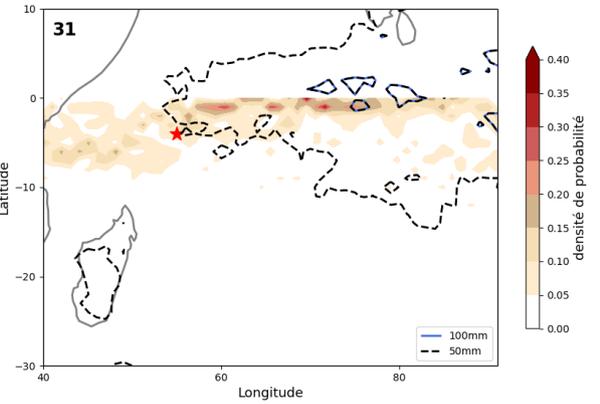
S2



S3



S4





Briefing mensuel

Suivi MJO et ondes équatoriales pour le bassin SOOI

Sources :

<http://www.bom.gov.au/climate/enso/>

<http://seasonal.meteo.fr/sites/data/Modeles/>

<https://cds.climate.copernicus.eu/#!/home>

<http://regionalclimate-change.sc/swiocof/SST/>

<http://intra.cnrm.meteo.fr/moana/tropiques/images/>

<https://www.cpc.ncep.noaa.gov/products/>

<https://ncics.org/pub/mjo/v2/map/>

<http://rewebvirt.dirre.meteo.fr/clim/PreviMens/>

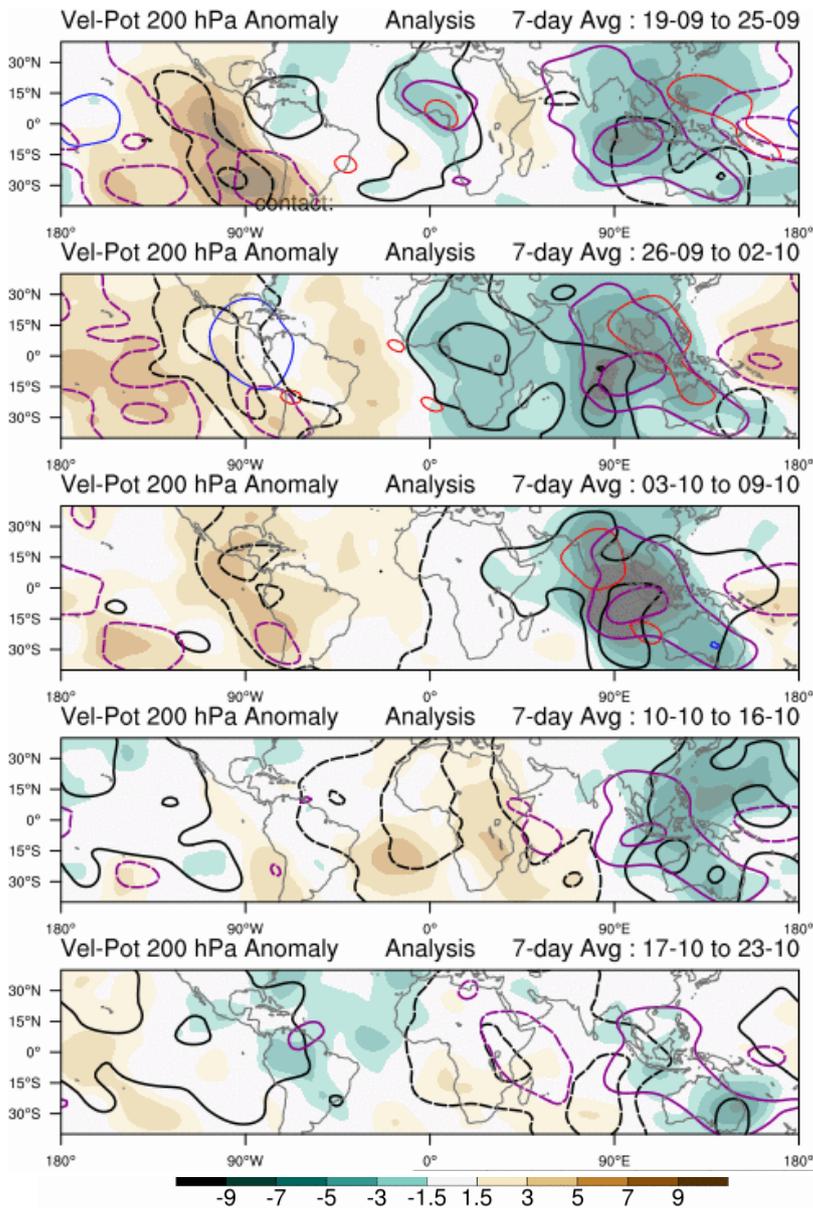
https://apps.ecmwf.int/plots/product-download/mofc_multi/mofc_multi_tcyc_family_forecast/

<http://mikeventrice.weebly.com/mjo.html>

http://www.atmos.albany.edu/student/ventrice/real_time/

<https://misva.aeris-data.fr/products/>

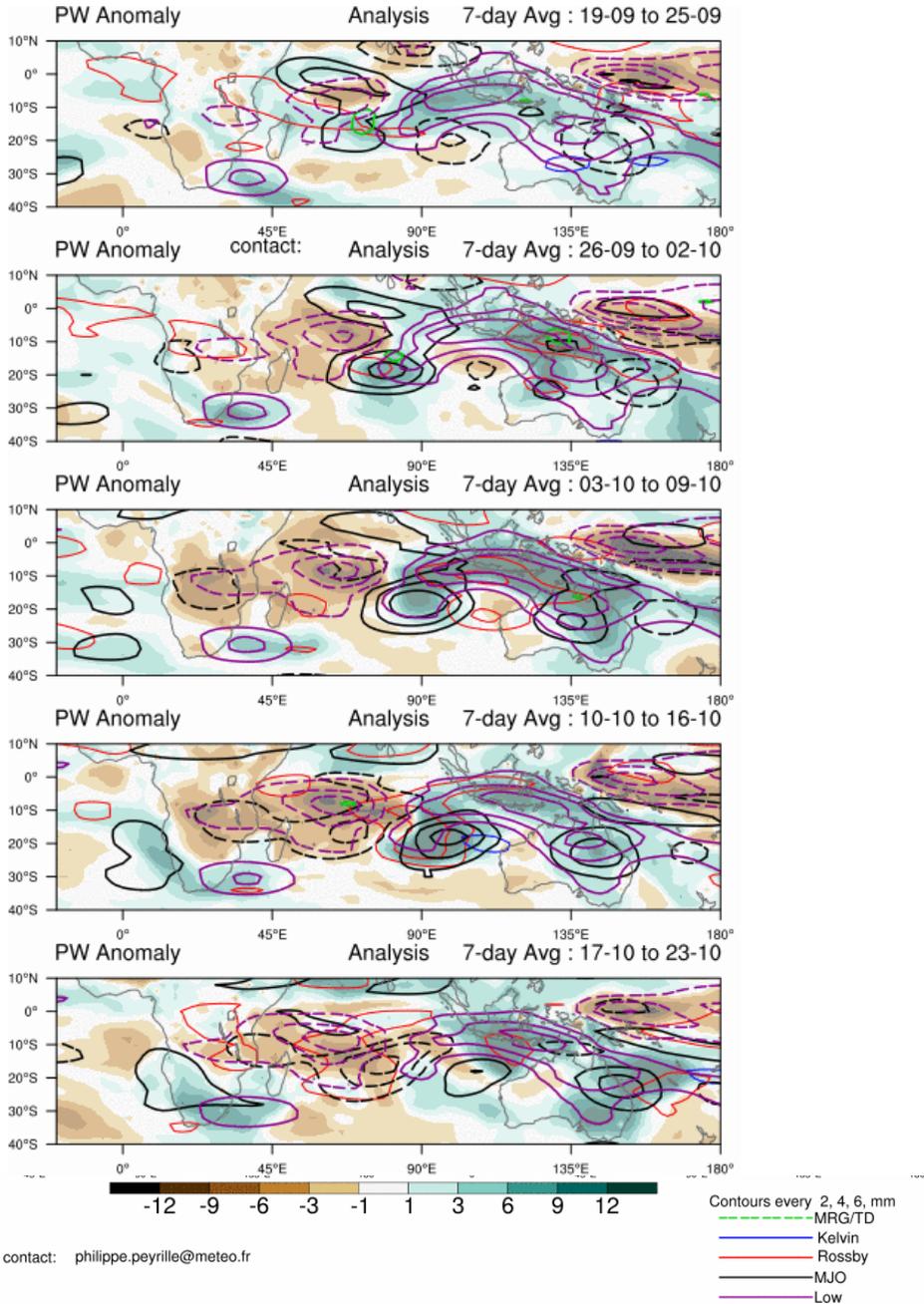
Analyse – VP200 – MJO, ER dans l’Indien



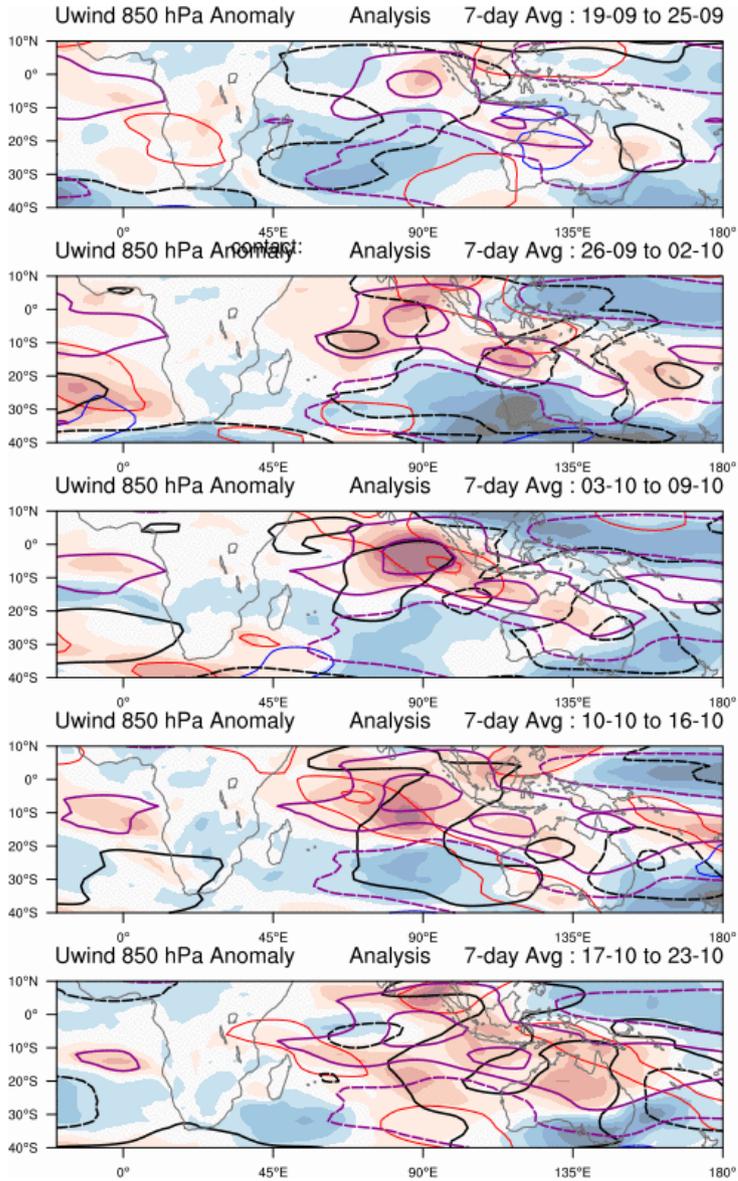
Contours every -7, -5, -3, -1.5, m2s-1
 — MRG/TD
 — Kelvin
 — Rossby
 — MJO
 — Low



Analyse – PW – MJO, ER dans l'Indien



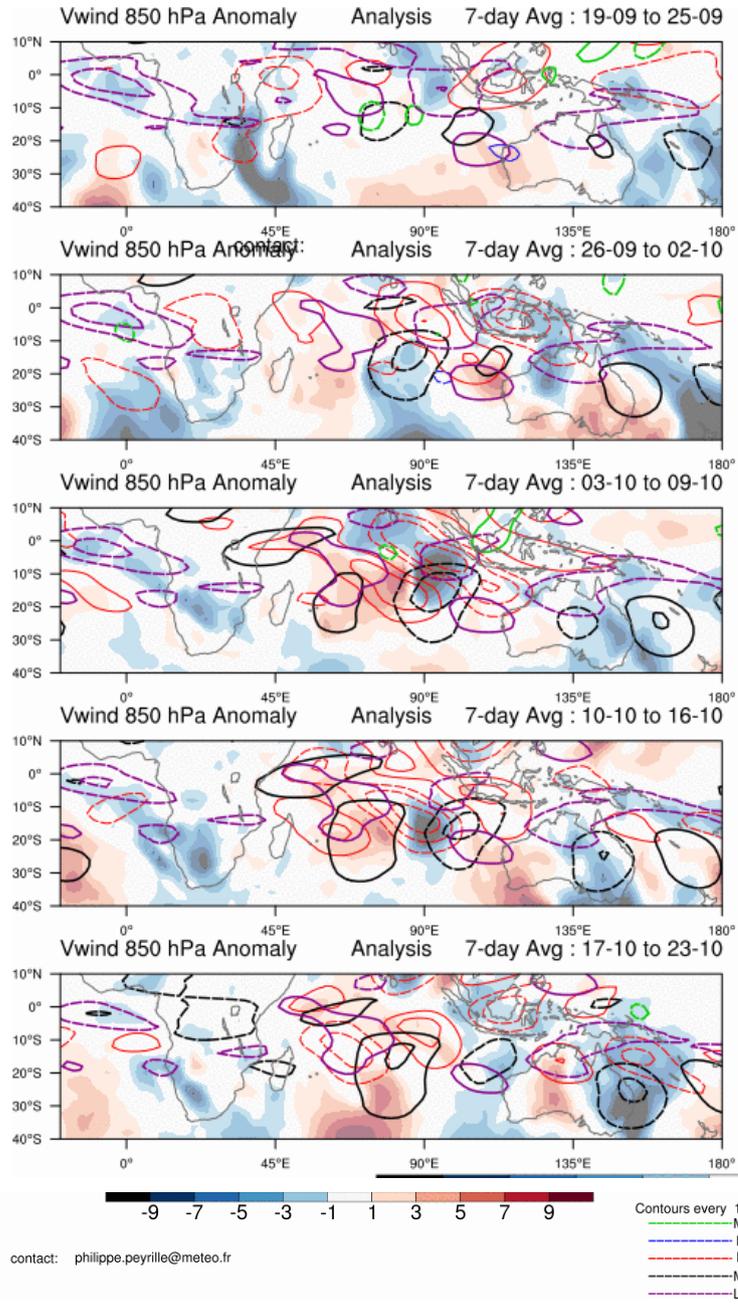
Analyse – U850 – MJO, ER dans l'Indien



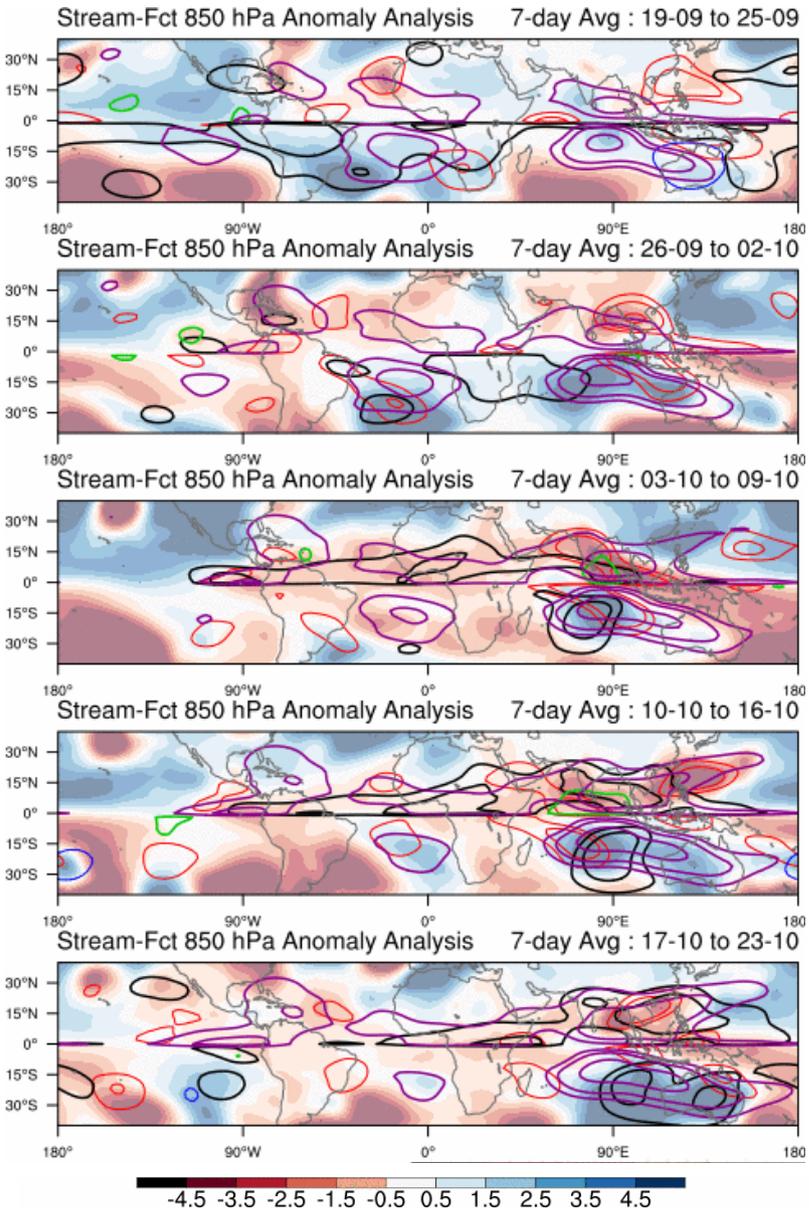
contact: philippe.peyrille@meteo.fr



Analyse – V850 – MJO, ER dans l'Indien



Analyse – SF850 – MJO, ER dans l'Indien

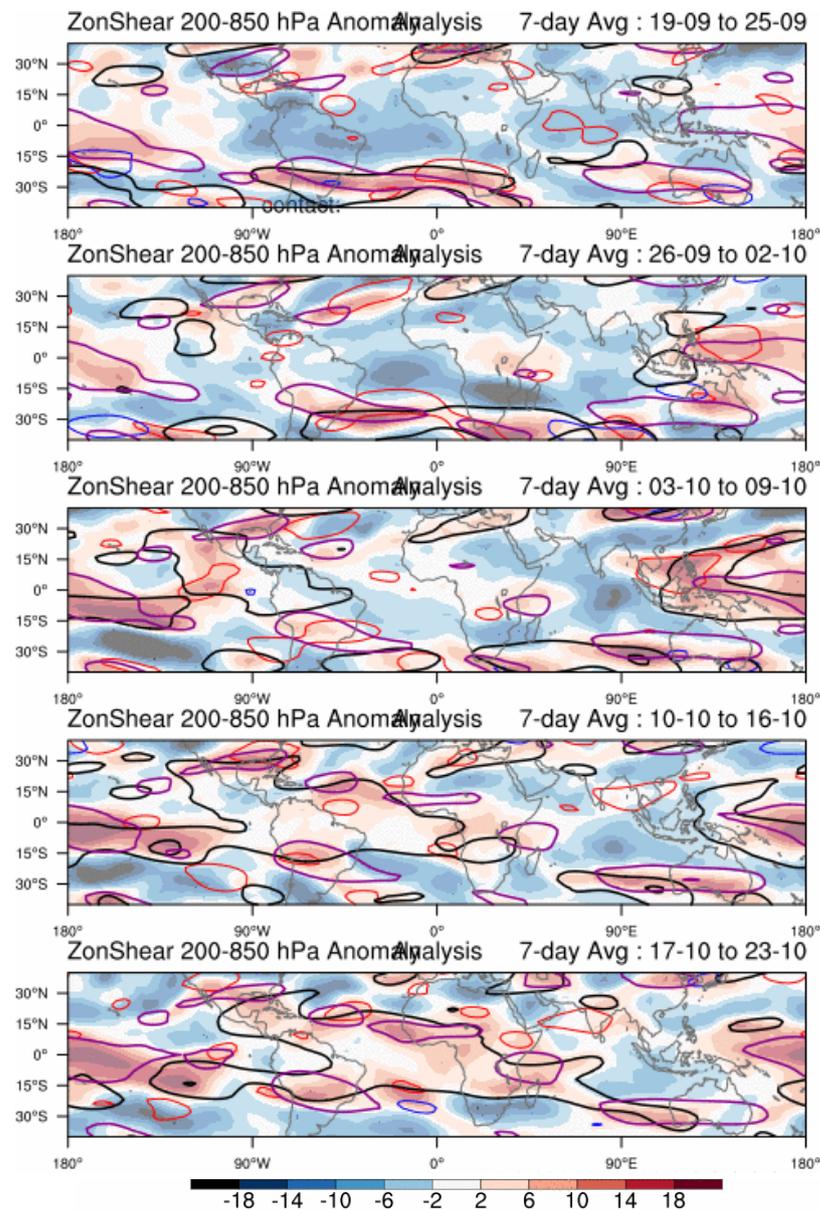


Contours every -6, -3, -1.5, -0.5, m^2s^{-2}

- MRG/TD
- Kelvin
- Rossby
- MJO
- Low

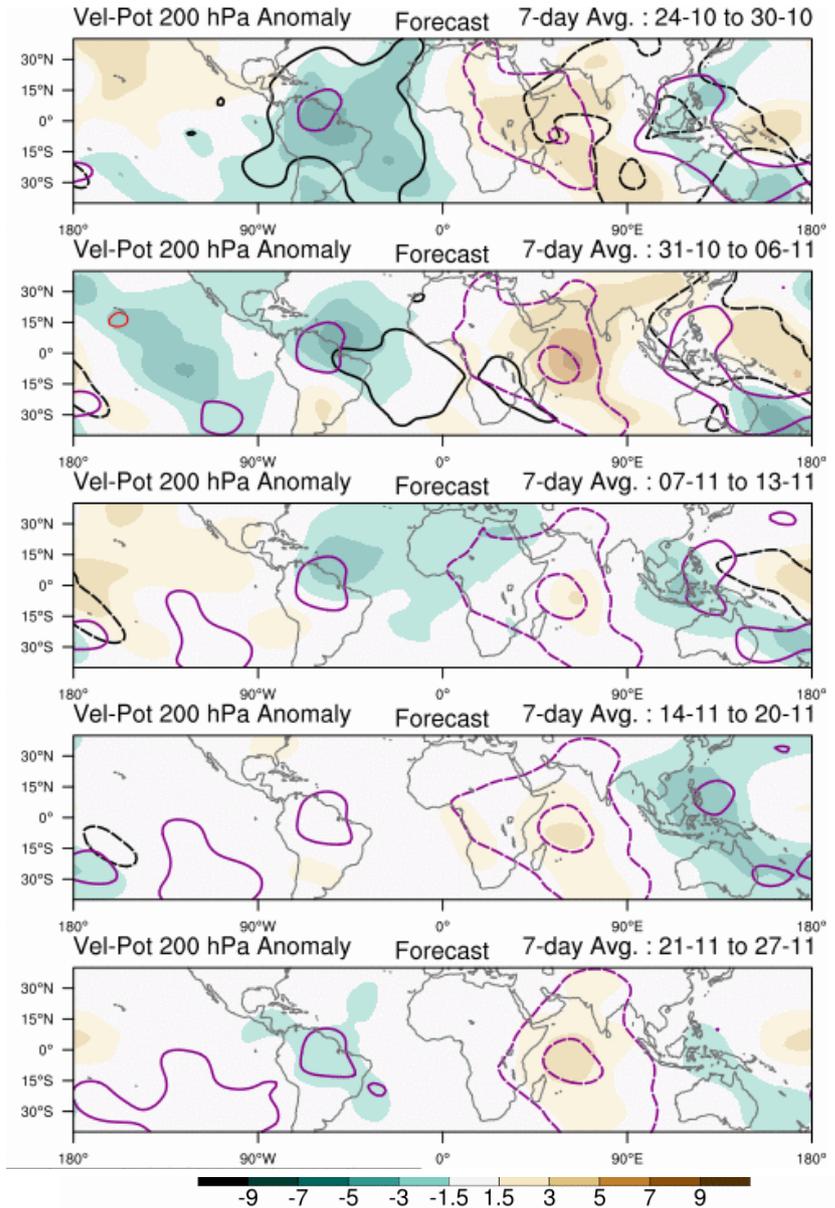


Analyse – U_{shear} – MJO, ER dans l'Indien



Contours every 3, 10, m/s
 MRG/TD
 Kelvin
 Rossby
 MJO
 Low

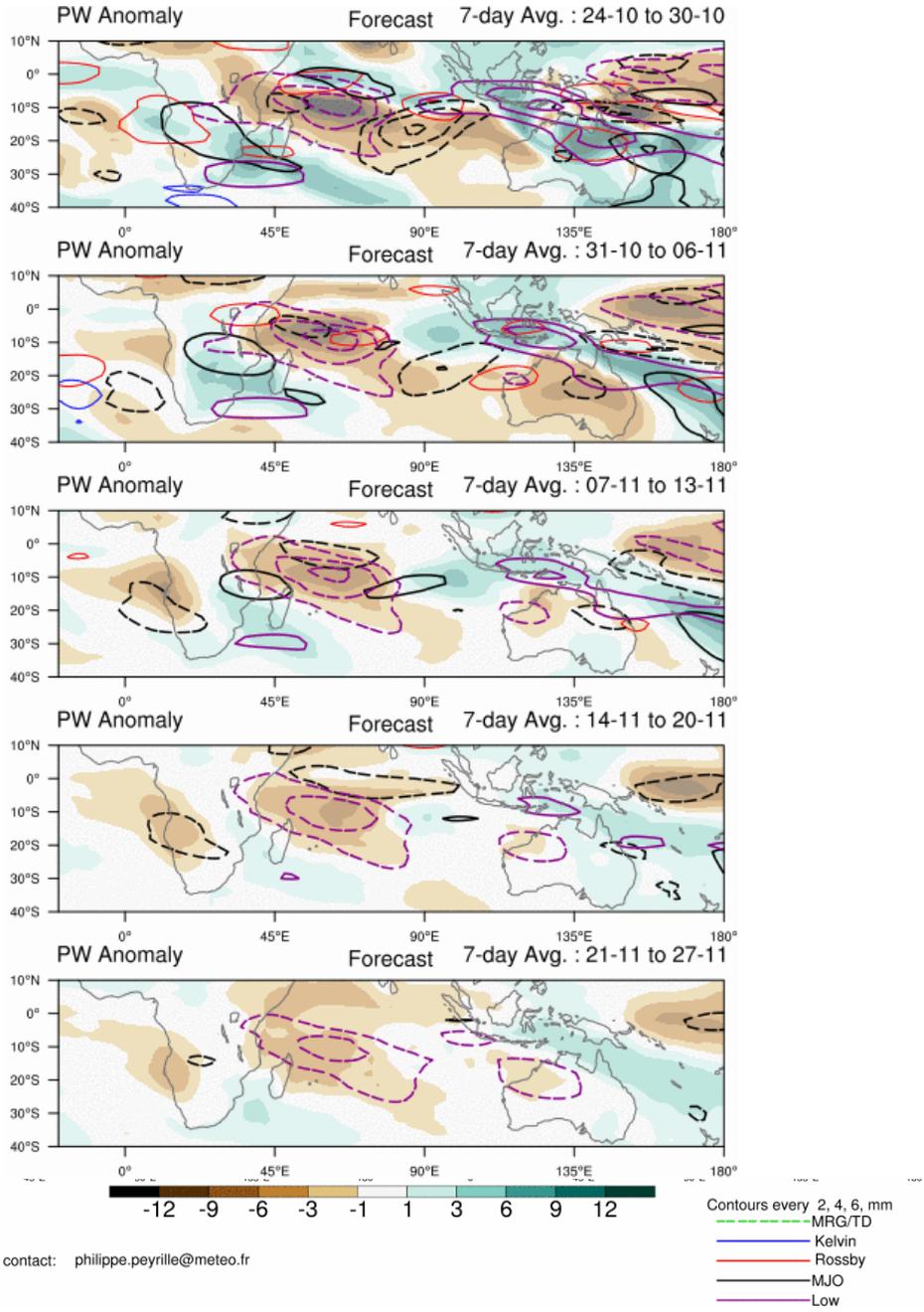
S1 à S4 – VP200 – MJO, ER dans l’Indien



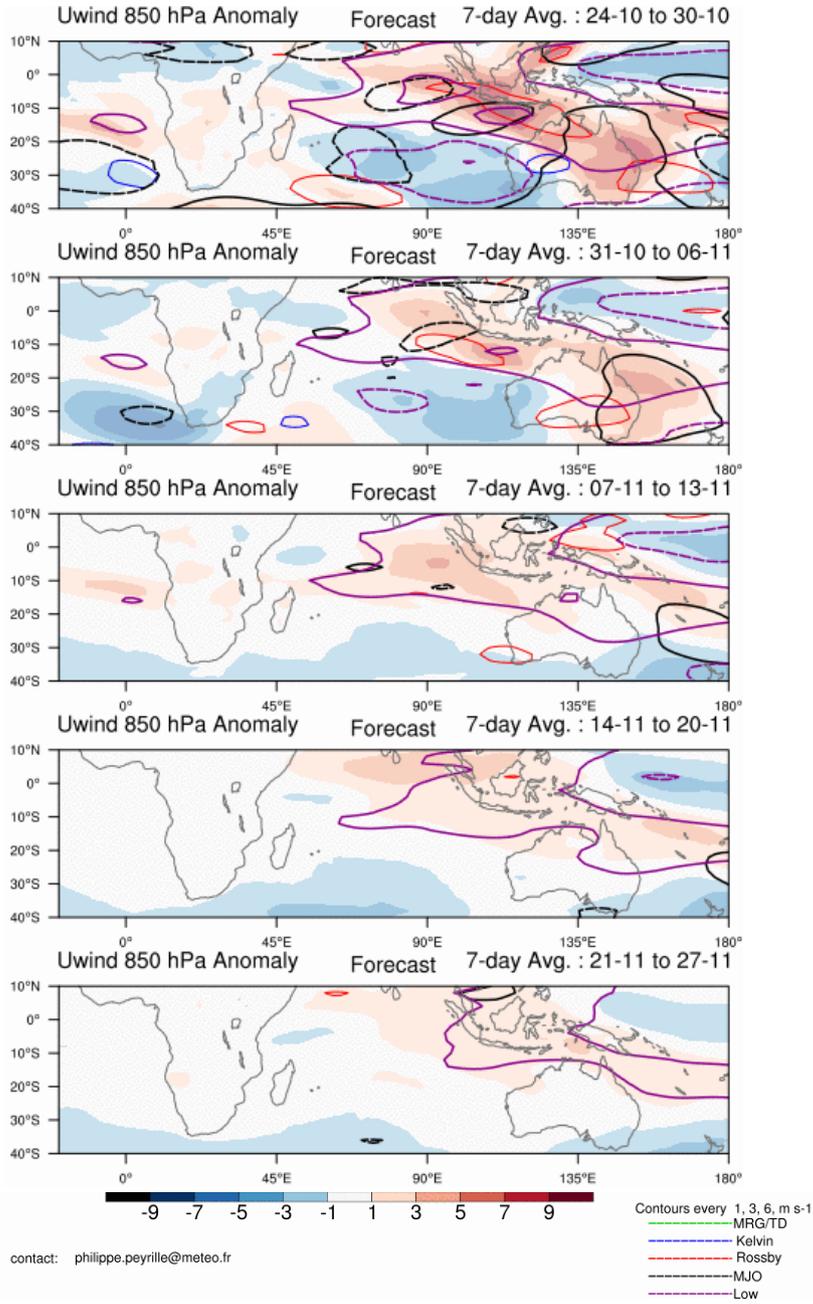
Contours every -7, -5, -3, -1.5, m2s-1
 — MRG/TD
 — Kelvin
 — Rossby
 — MJO
 — Low



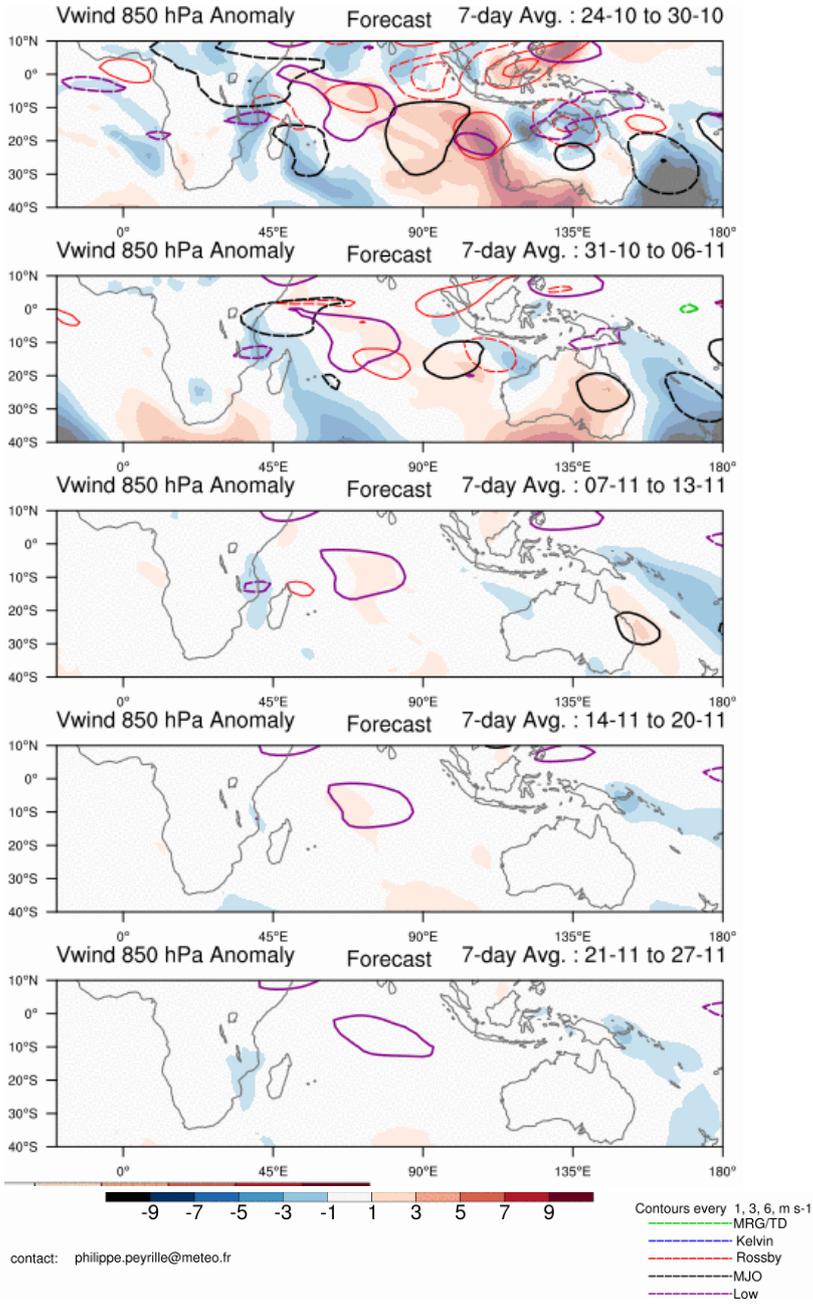
S1 à S4 – PW – MJO, ER dans l'Indien



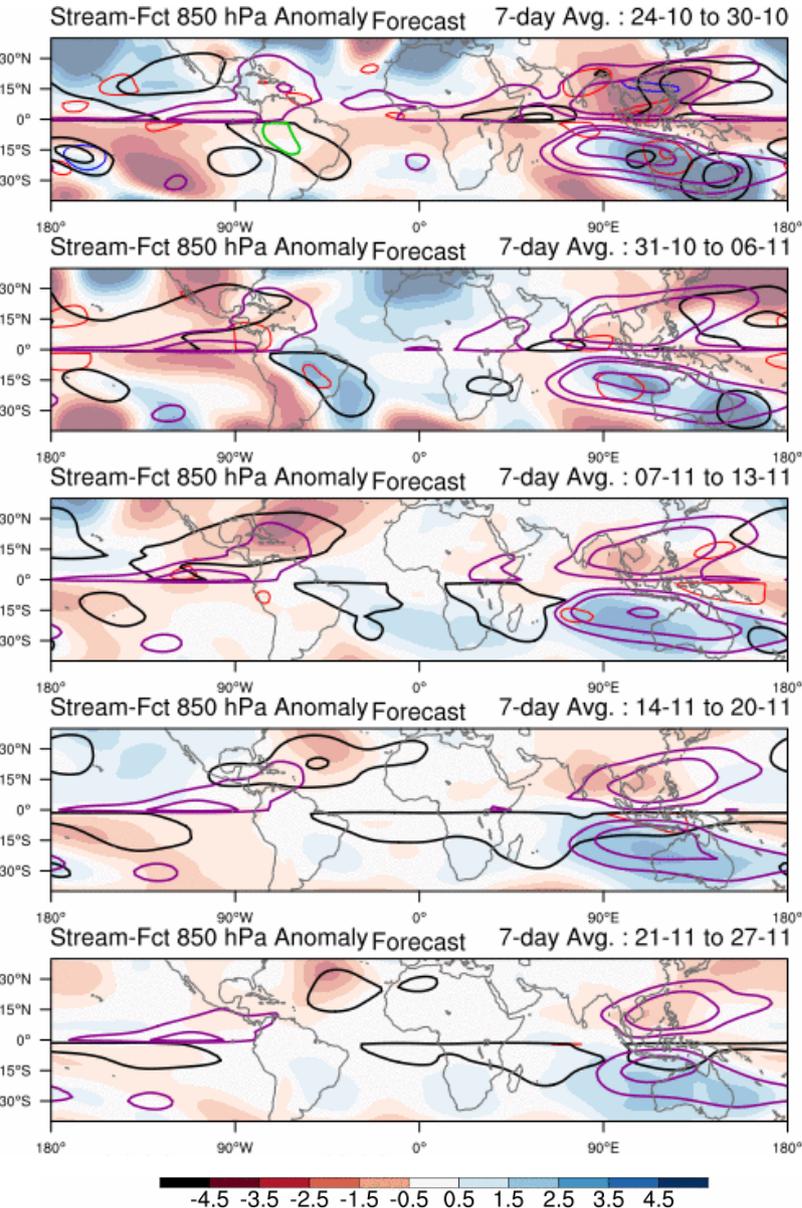
S1 à S4 – U850 – MJO, ER dans l'Indien



S1 à S4 – V850 – MJO, ER dans l'Indien



S1 à S4 – SF850 – MJO, ER dans l’Indien

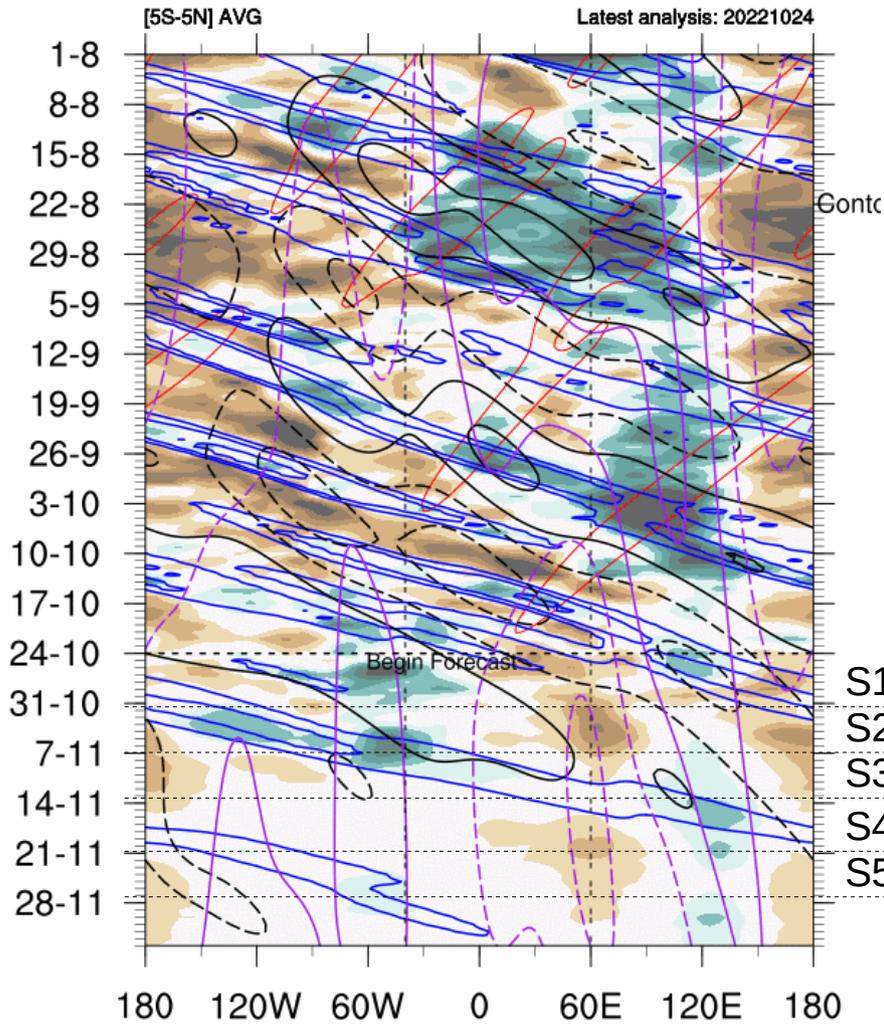


Contours every -6, -3, -1.5, -0.5, m²s⁻²
 - - - - MRG/TD
 - - - - Kelvin
 - - - - Rossby
 - - - - MJO
 - - - - Low

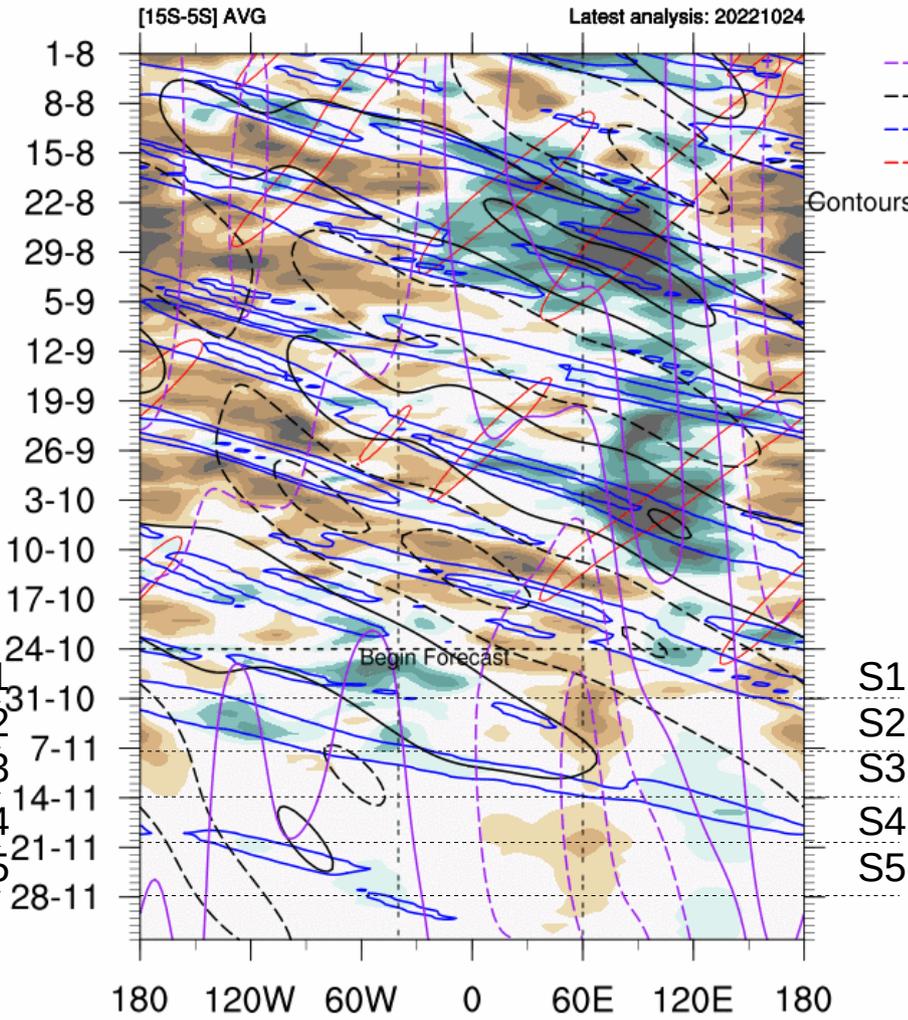


3. Ondes équatoriales

vp200 anomaly + Eq. Waves filtering



vp200 anomaly + Eq. Waves filtering



- Low freq.
- MJO
- Kelvin
- Rossby

Contours : -12 -9 -6 -3 -1 10^6 m^2

Solid contours

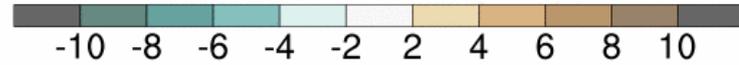
favour convection

S1
S2
S3
S4
S5

S1
S2
S3
S4
S5



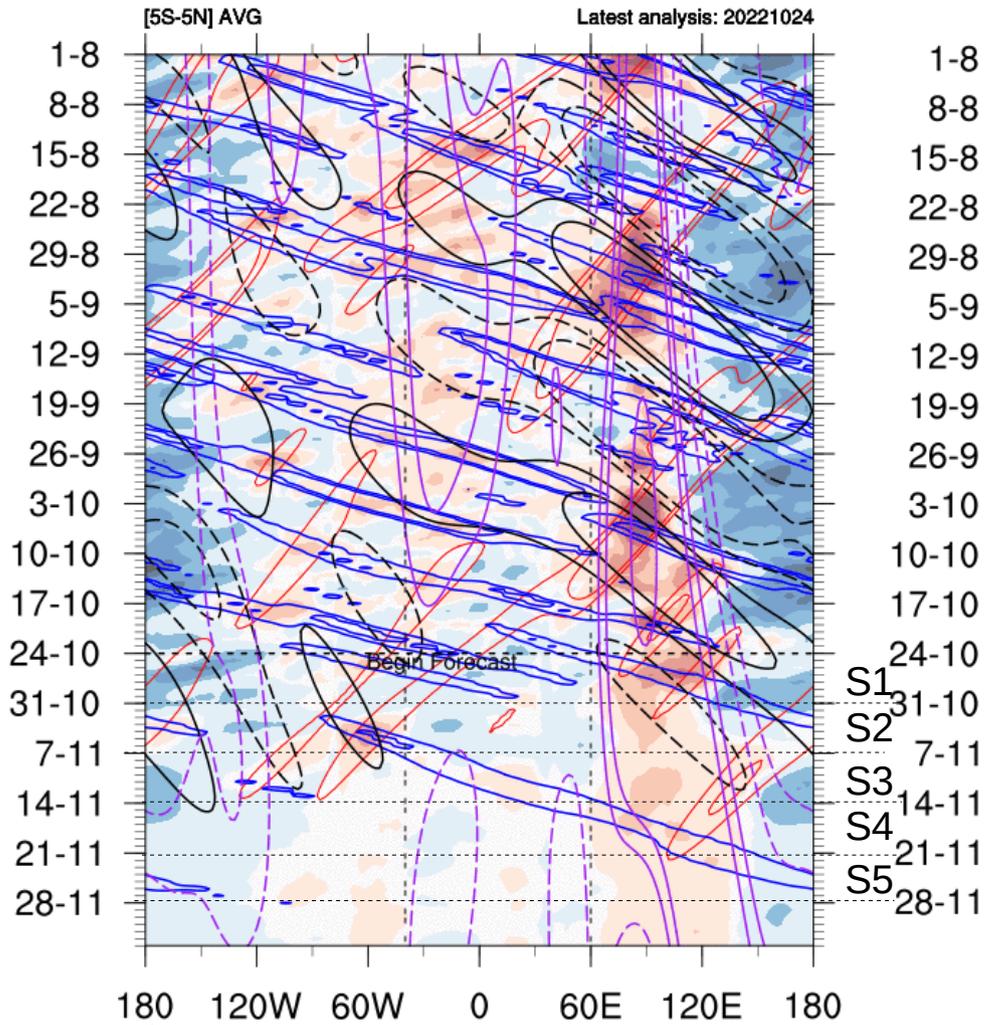
Contact: philippe.peyrille@meteo.fr



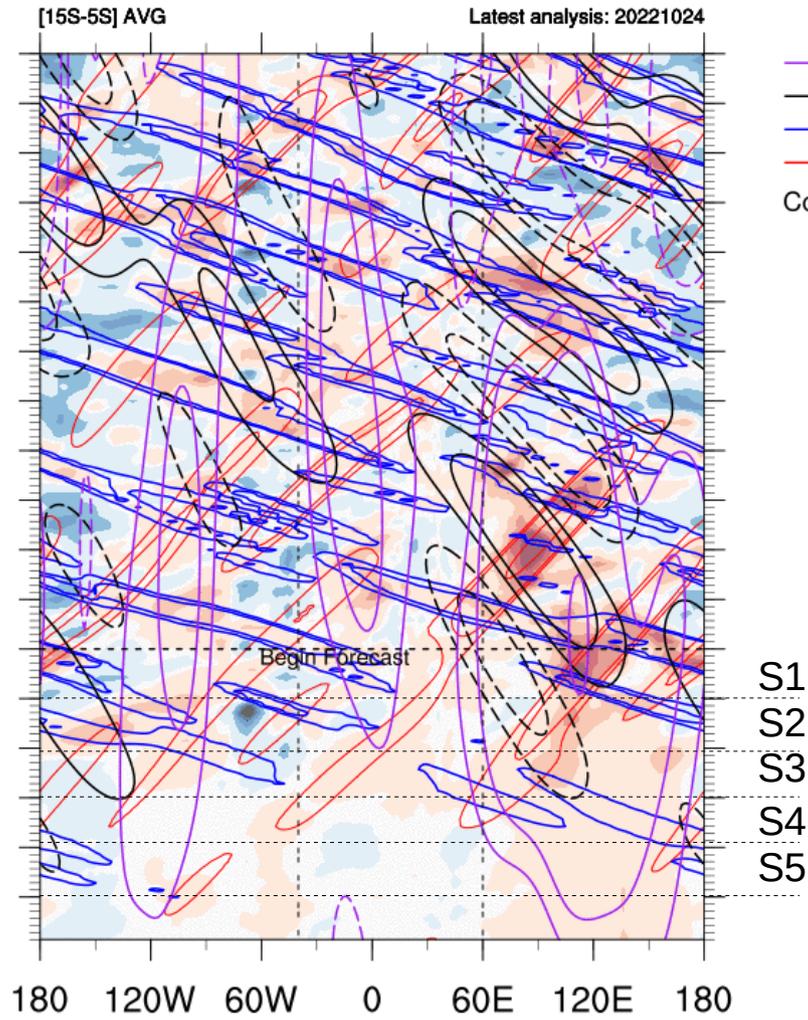
Contact: philippe.peyrille@meteo.fr

3. Ondes équatoriales

u850 anomaly + Eq. Waves filtering



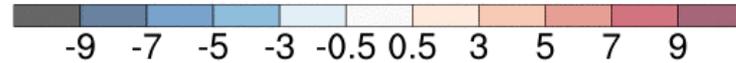
u850 anomaly + Eq. Waves filtering



- Low freq.
 - MJO
 - Kelvin
 - Rossby
- Contours : 0.5 1 3 m s⁻¹



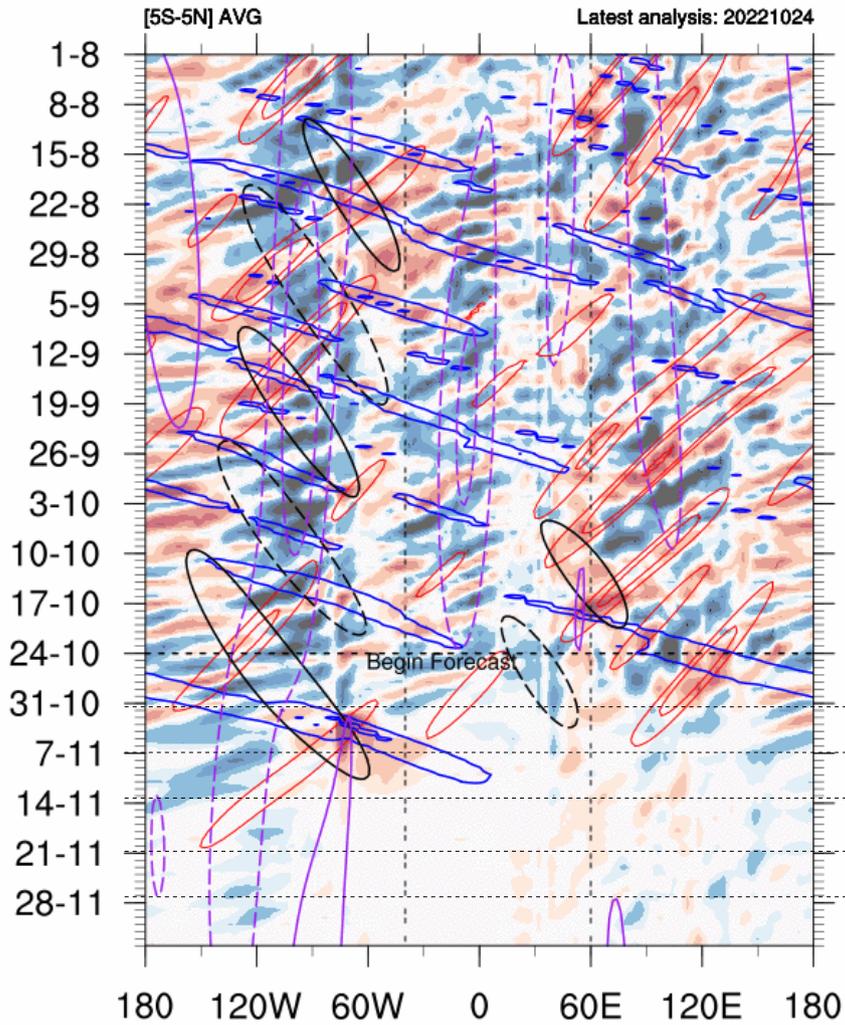
Contact: philippe.peyrille@meteo.fr



Contact: philippe.peyrille@meteo.fr

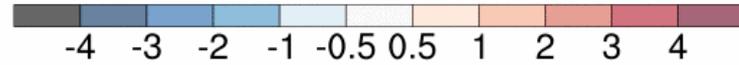
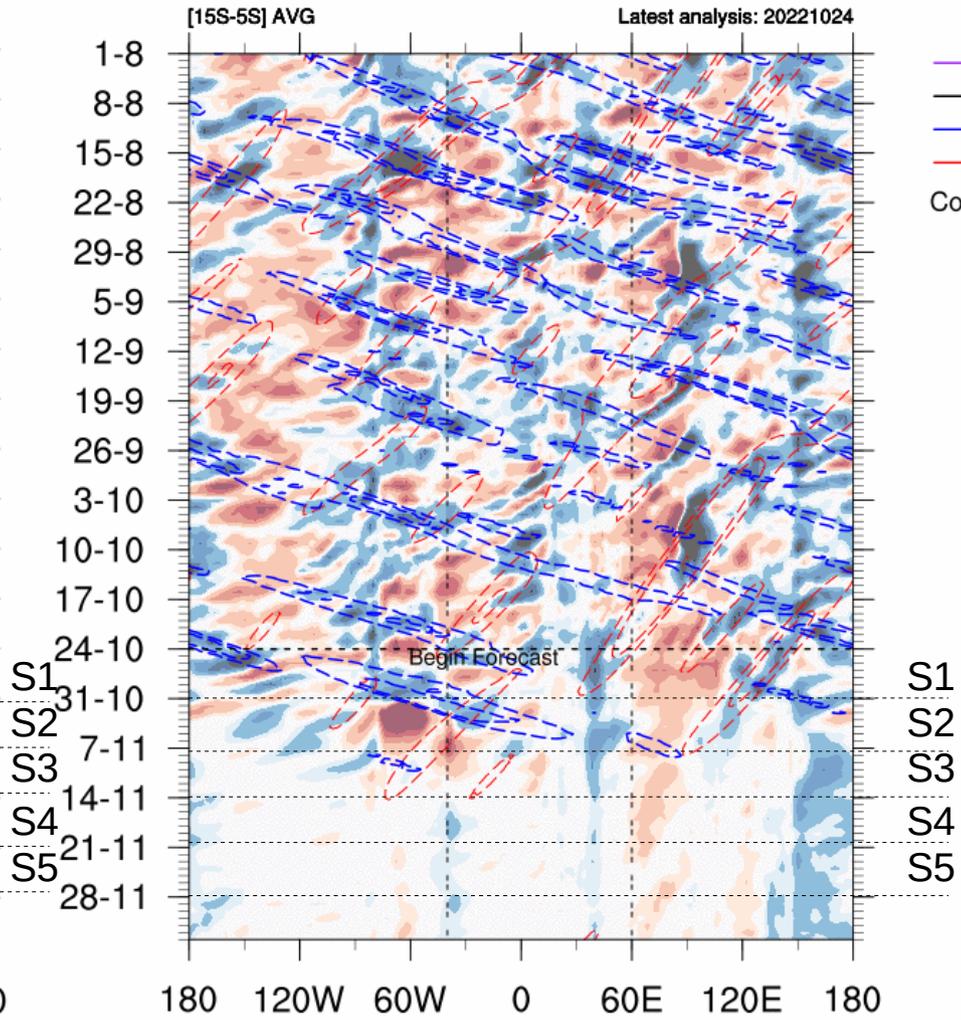
3. Ondes équatoriales

v850 anomaly + Eq. Waves filtering



Contact: philippe.peyrille@meteo.fr

v850 anomaly + Eq. Waves filtering

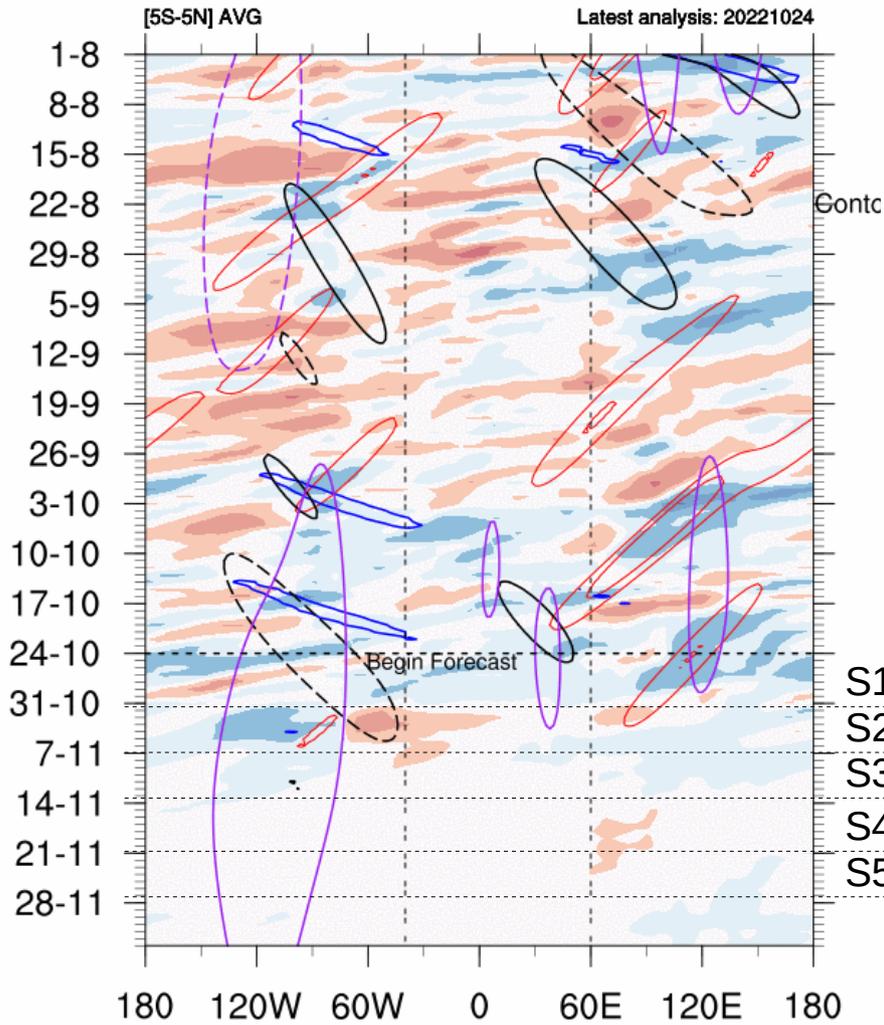


Contact: philippe.peyrille@meteo.fr

- Low freq.
 - MJO
 - Kelvin
 - Rossby
- Contours : -5 -4 -3 m s⁻¹

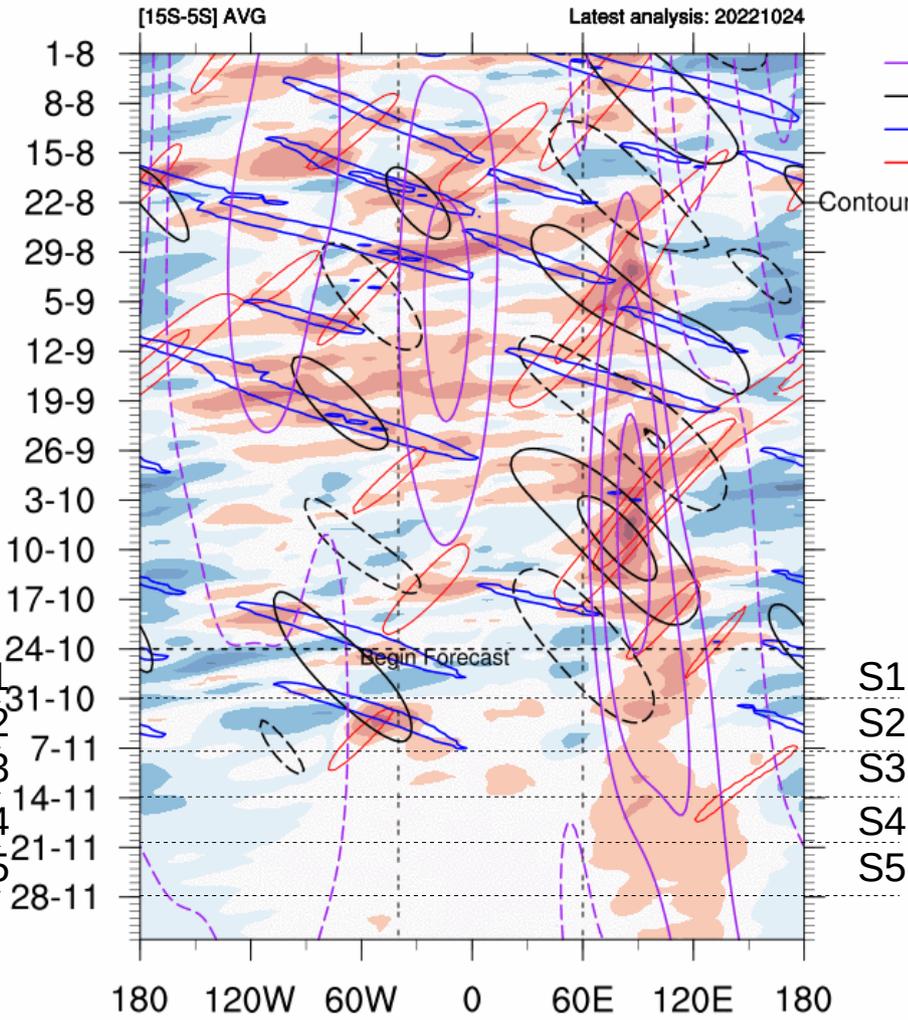
3. Ondes équatoriales

sf850 anomaly + Eq. Waves filtering



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sf850 anomaly + Eq. Waves filtering



- Low freq.
- MJO
- Kelvin
- Rossby

Contours : 0.75 1.5 2.5 10^6 m²

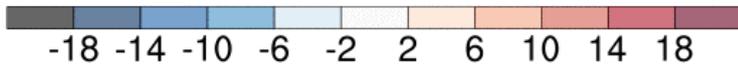
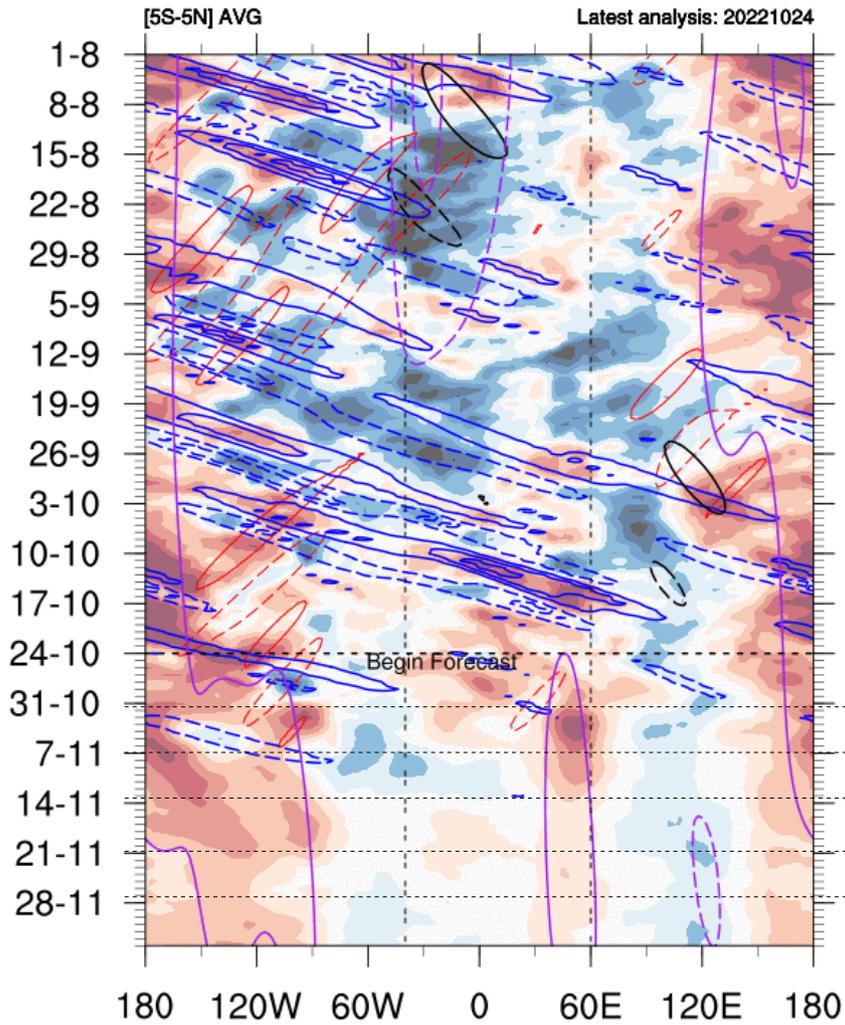
Solid contours

favour convection

Contact: philippe.peyrille@meteo.fr

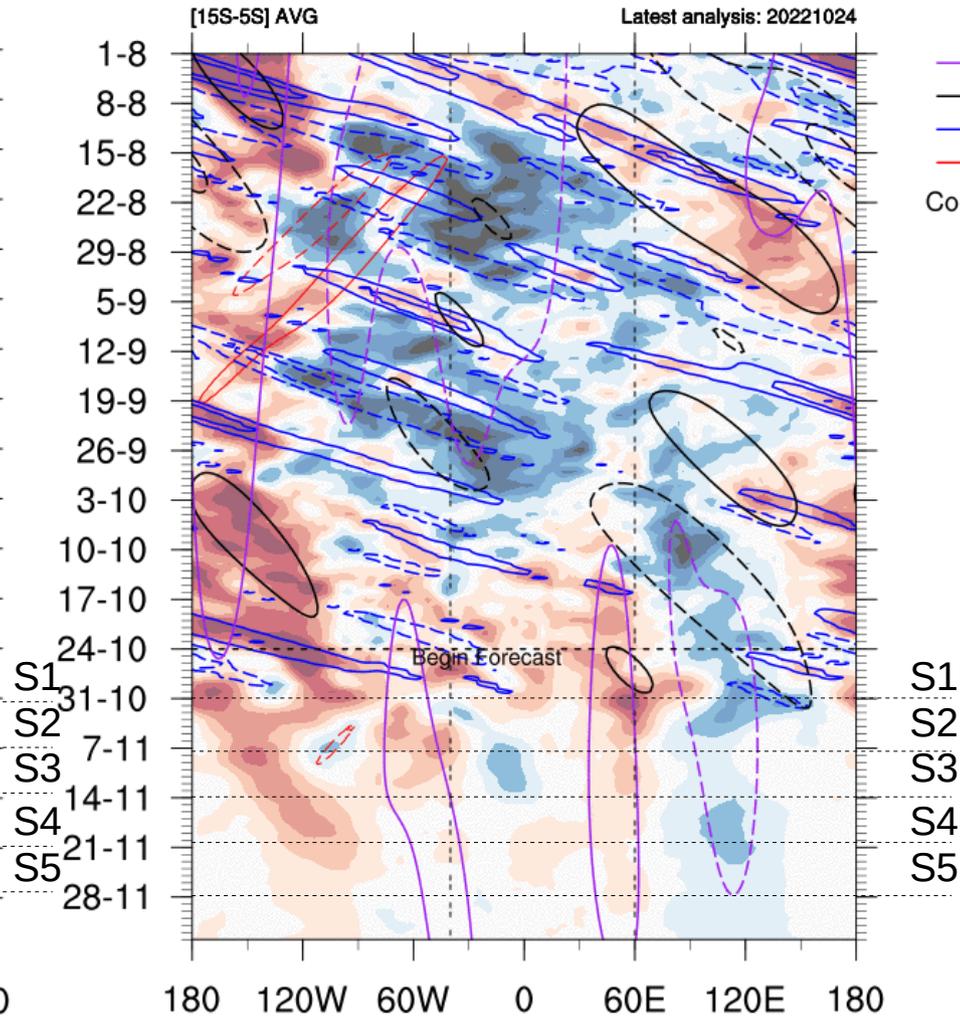
3. Ondes équatoriales

ushear200-850 anomaly + Eq. Waves filtering

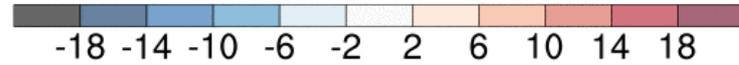


Contact: philippe.peyrille@meteo.fr

ushear200-850 anomaly + Eq. Waves filtering

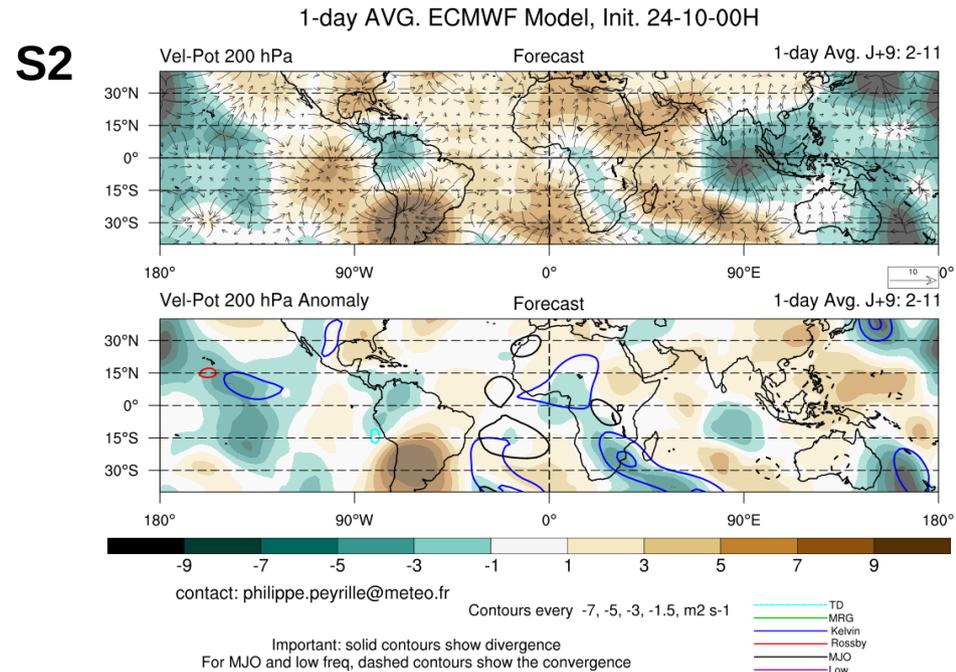
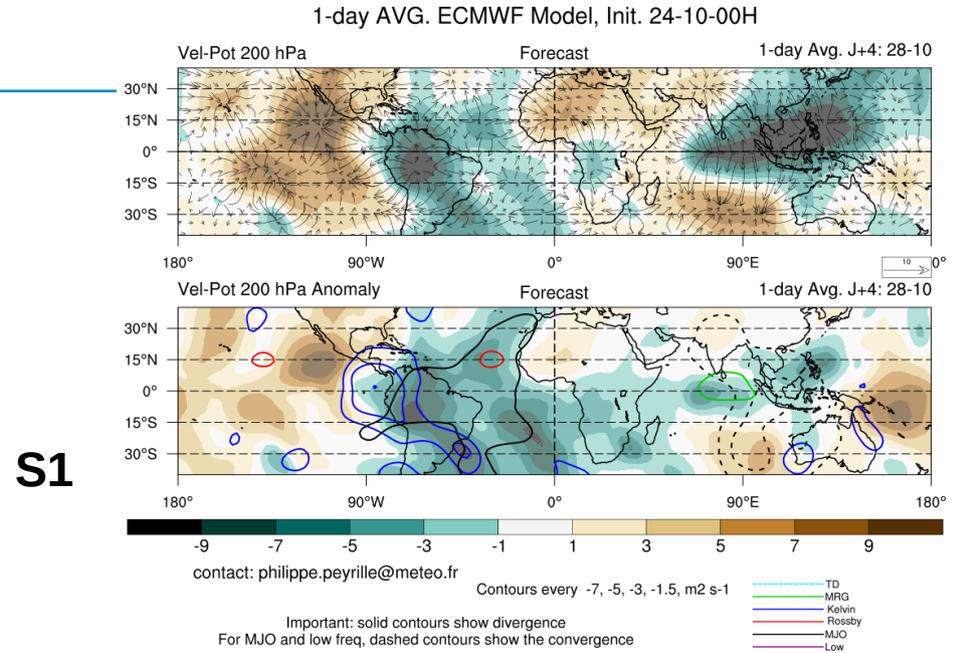
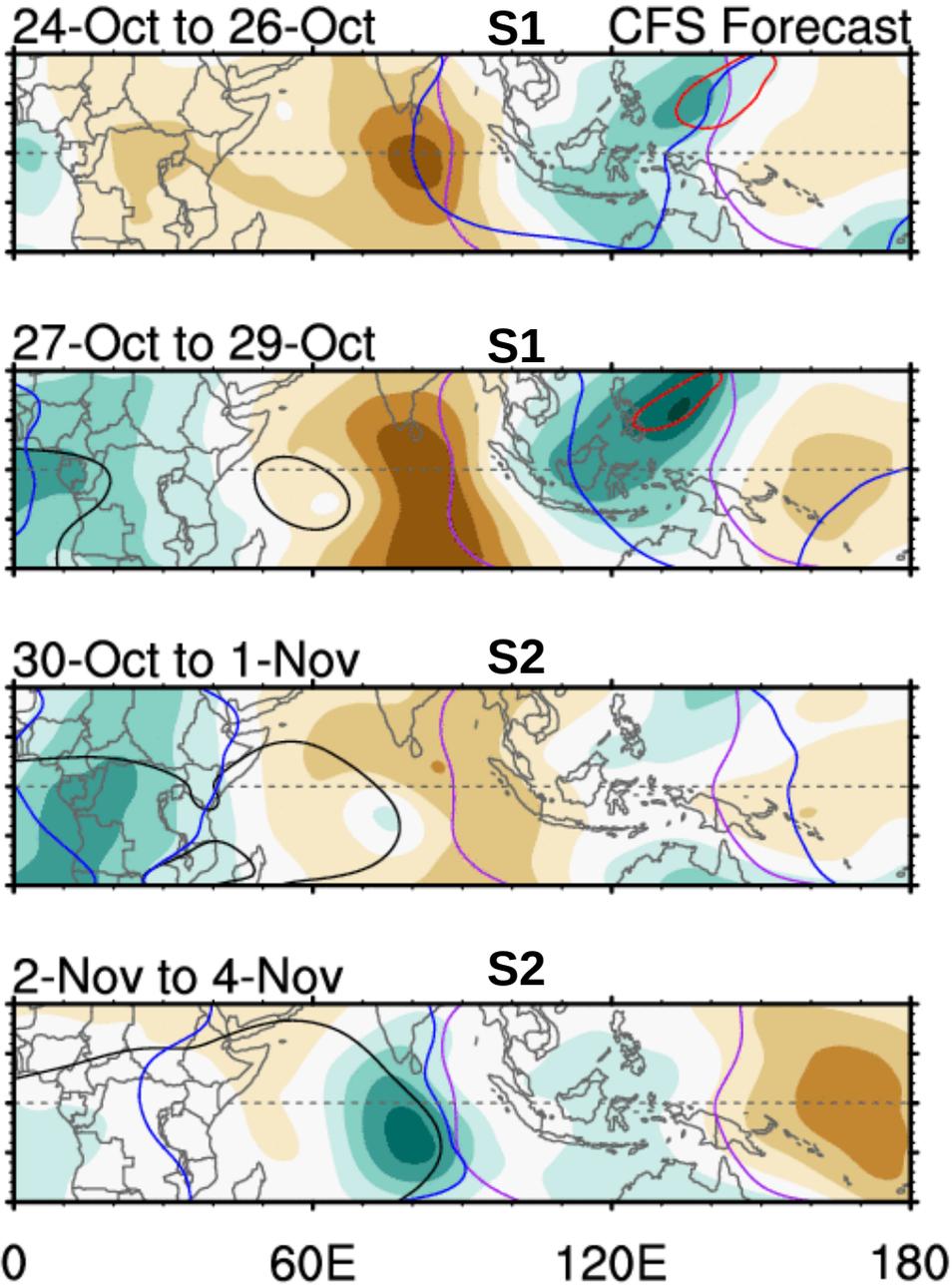


— Low freq.
— MJO
— Kelvin
— Rossby
Contours : -12 -8 -4 m s⁻¹

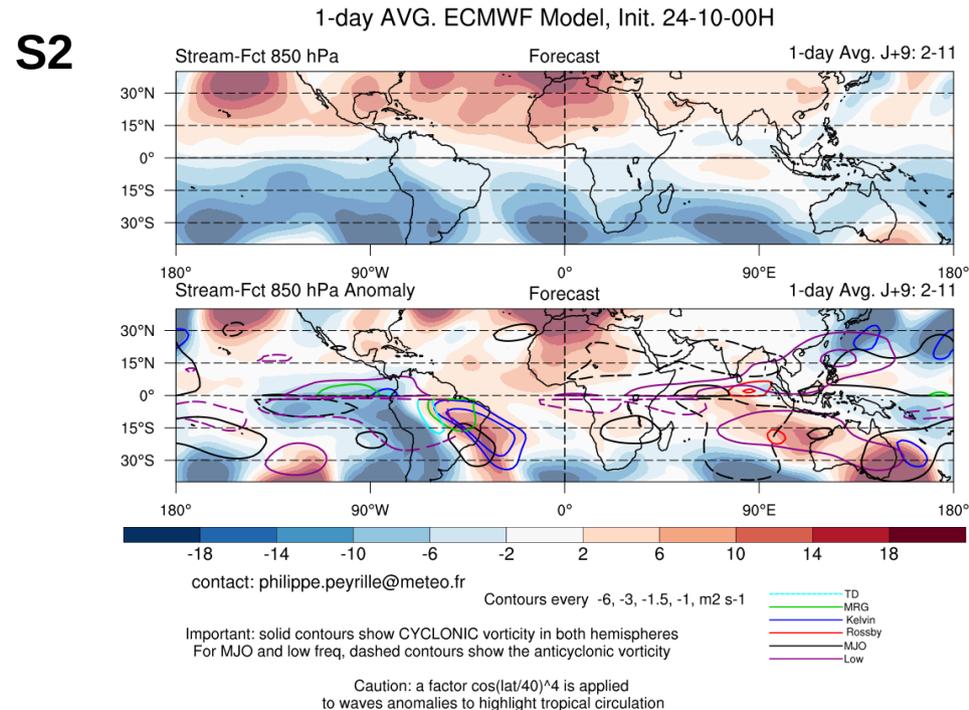
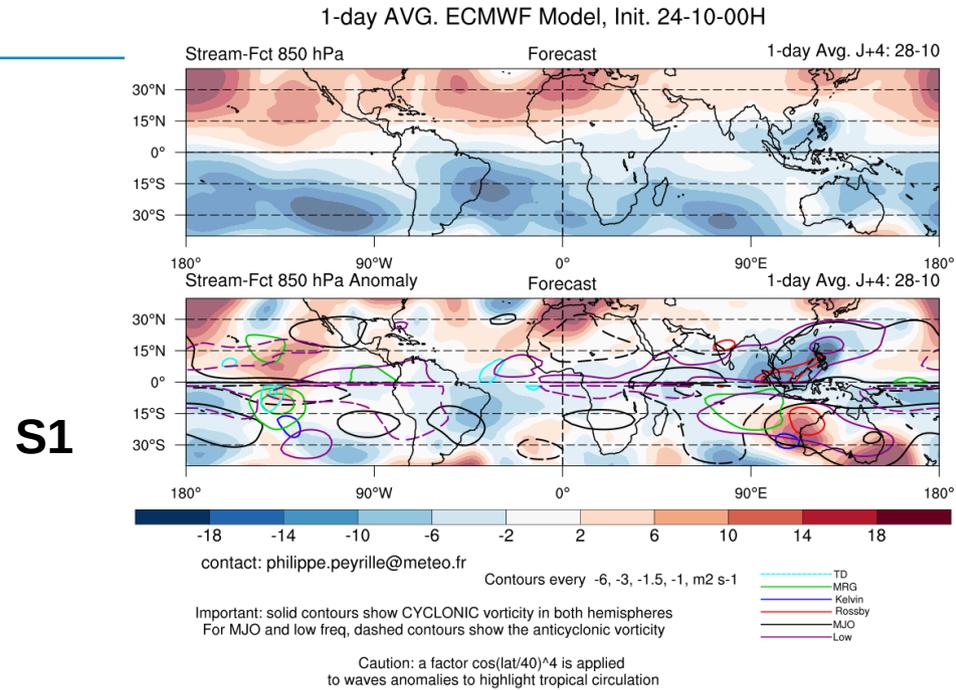
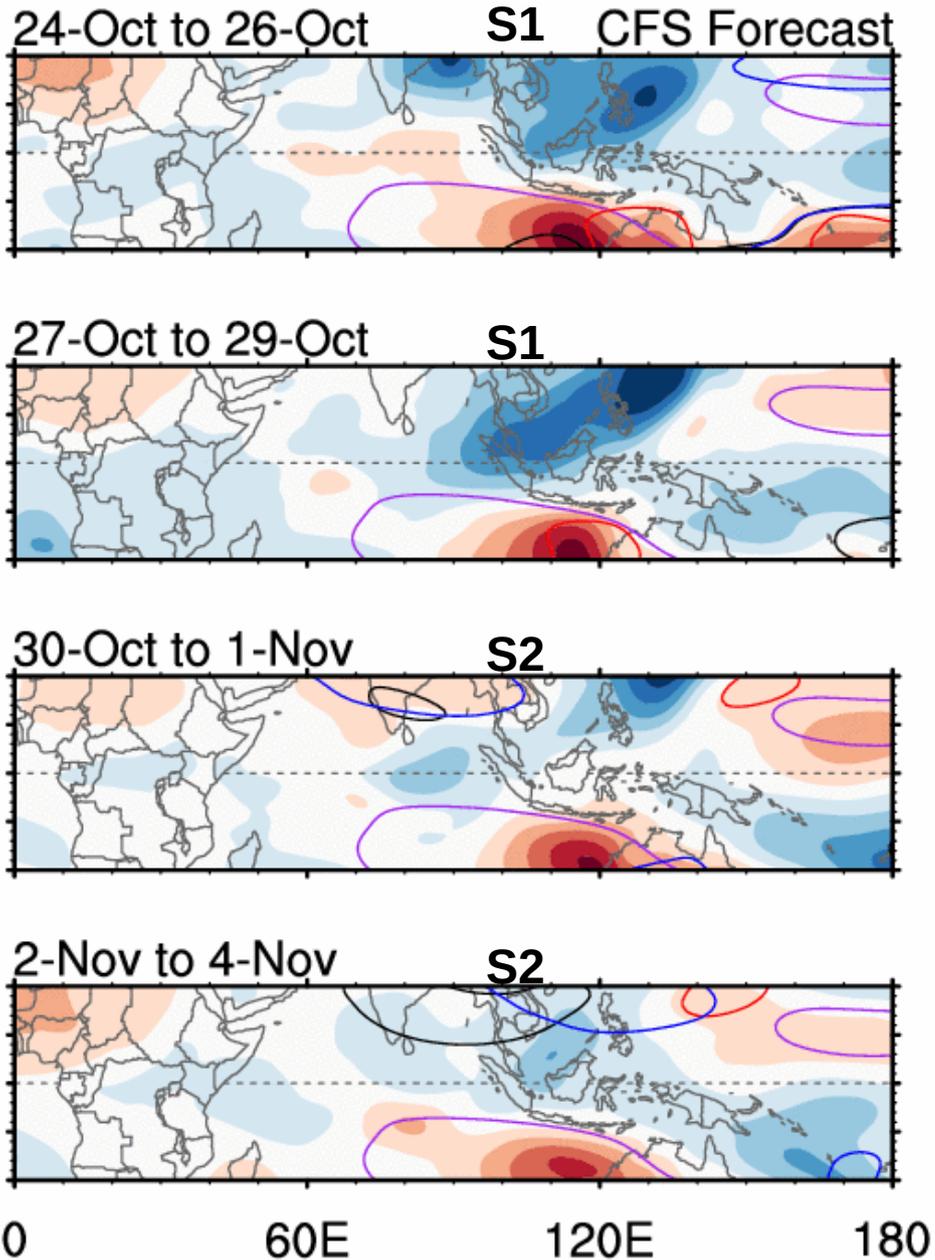


Contact: philippe.peyrille@meteo.fr

S1 / S2 – VP 200 – MJO, ER et Kelvin dans l'Indien

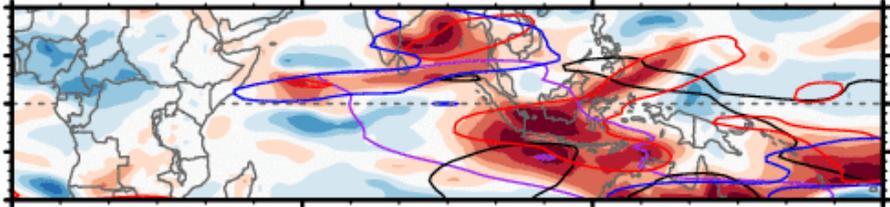


S1 / S2 – SF 850 – MJO, ER et Kelvin dans l'Indien

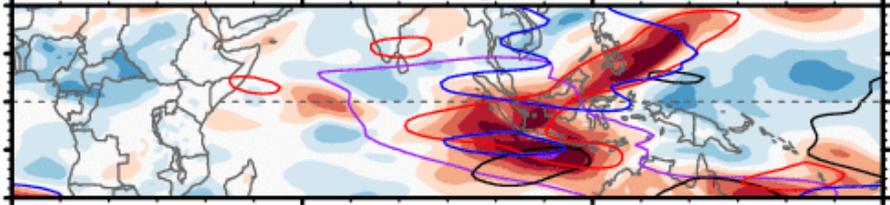


S1 / S2 – U850 - MJO, ER, Kelvin dans l'Indien

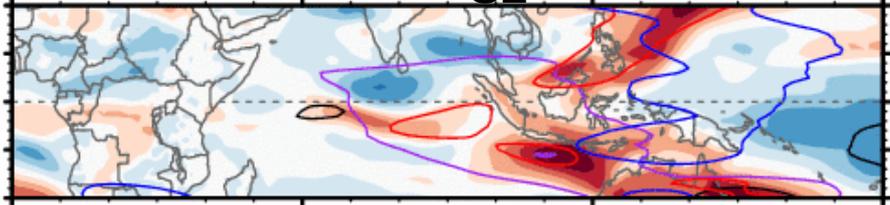
24-Oct to 26-Oct S1 CFS Forecast



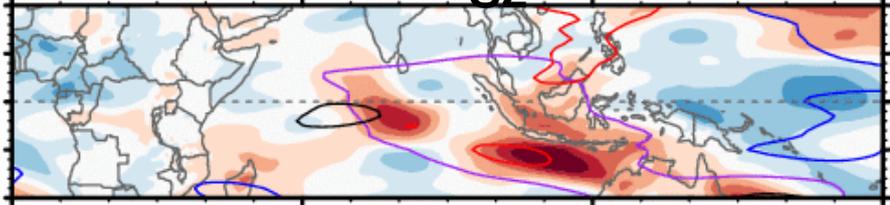
27-Oct to 29-Oct S1



30-Oct to 1-Nov S2

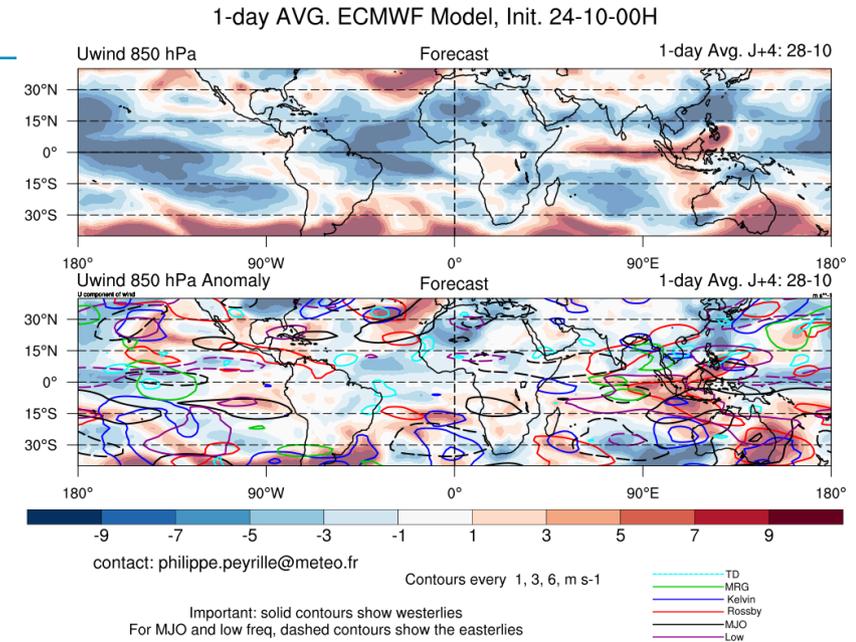


2-Nov to 4-Nov S2

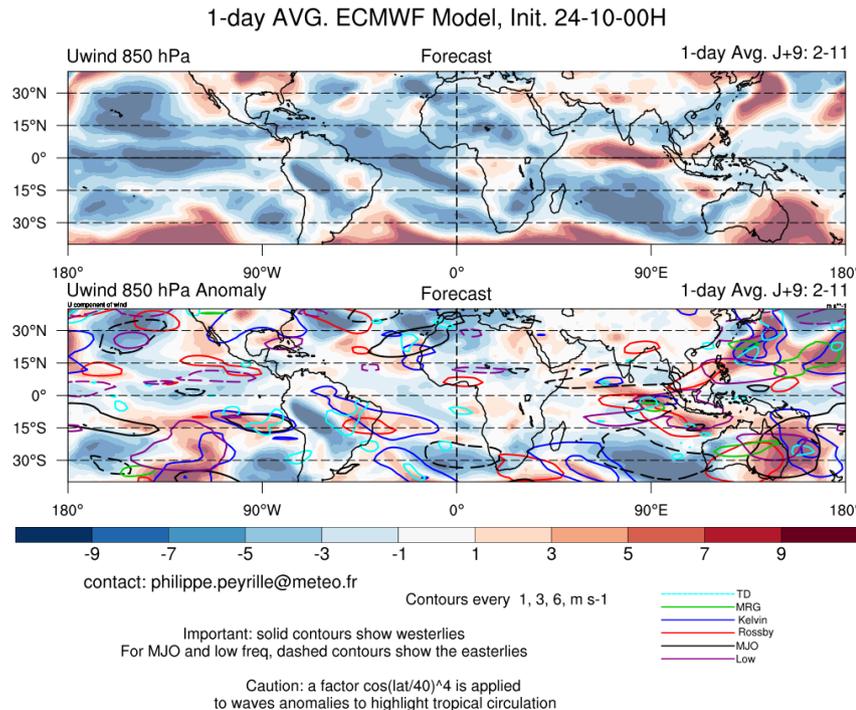


0 60E 120E 180

S1

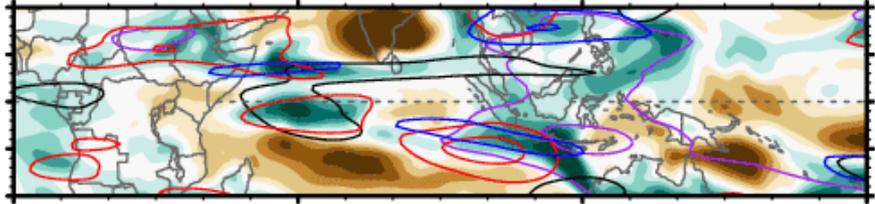


S2

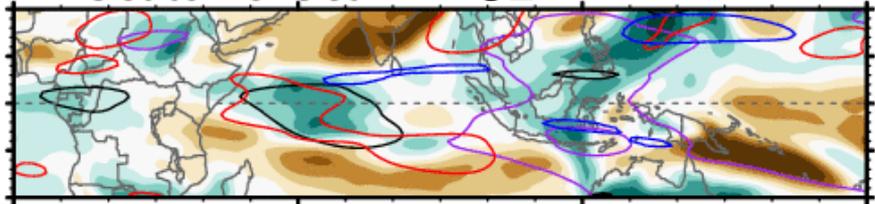


S1 / S2 – PW - MJO, ER, Kelvin dans l'Indien

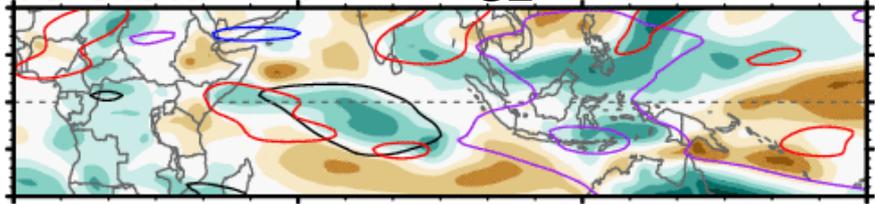
24-Oct to 26-Oct S1 CFS Forecast



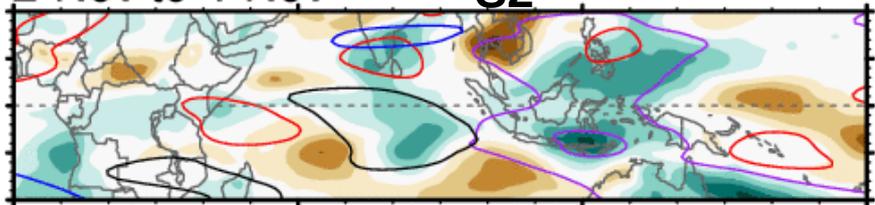
27-Oct to 29-Oct S1



30-Oct to 1-Nov S2

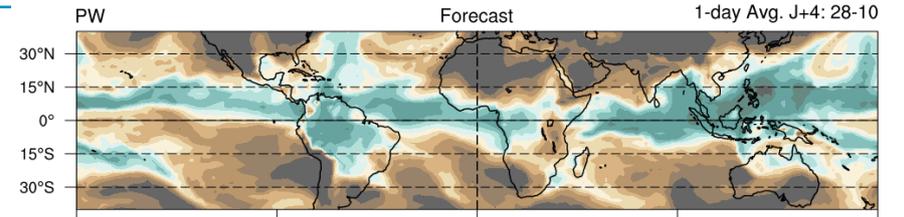


2-Nov to 4-Nov S2

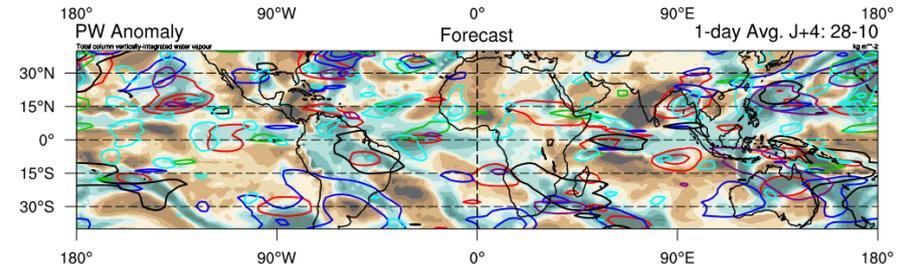


0 60E 120E 180

1-day AVG. ECMWF Model, Init. 24-10-00H



S1



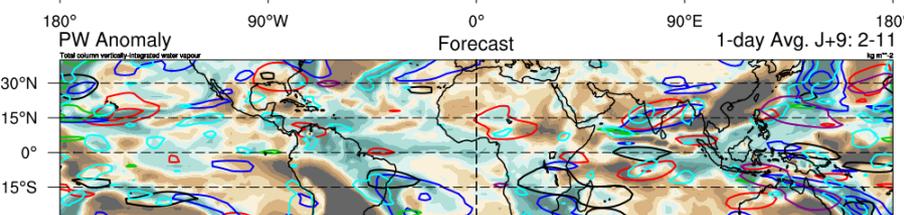
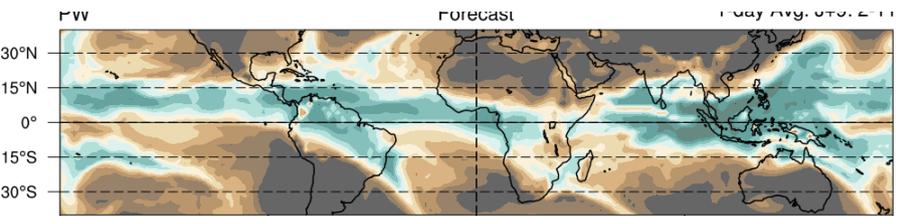
contact: philippe.peyrille@meteo.fr

Contours every 2, 6, 9, mm

Important: solid contours show moist phases
For MJO and low freq, dashed contours show the dry phases

- TD
- MRG
- Kelvin
- Rossby
- MJO
- Low

S2



contact: philippe.peyrille@meteo.fr

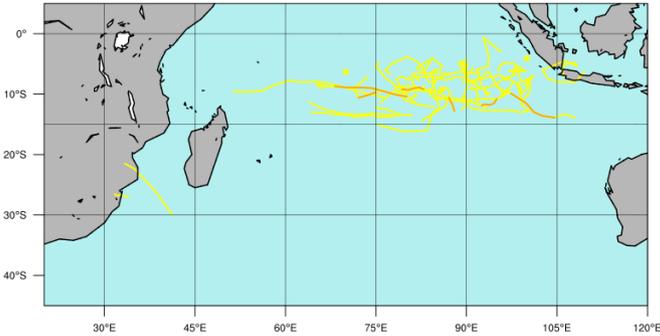
Contours every 2, 6, 9, mm

Important: solid contours show moist phases
For MJO and low freq, dashed contours show the dry phases

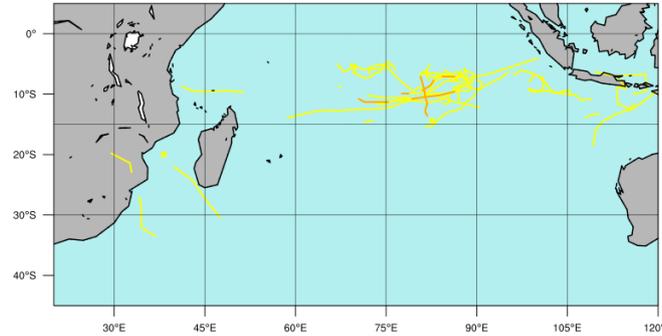
- TD
- MRG
- Kelvin
- Rossby
- MJO
- Low

Proba strike sur prévision du 27 oct. 2022

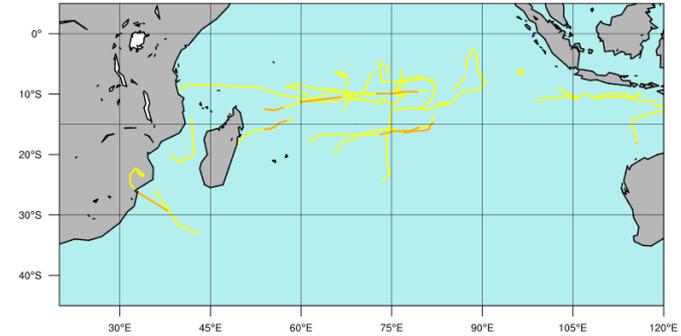
S2



S3

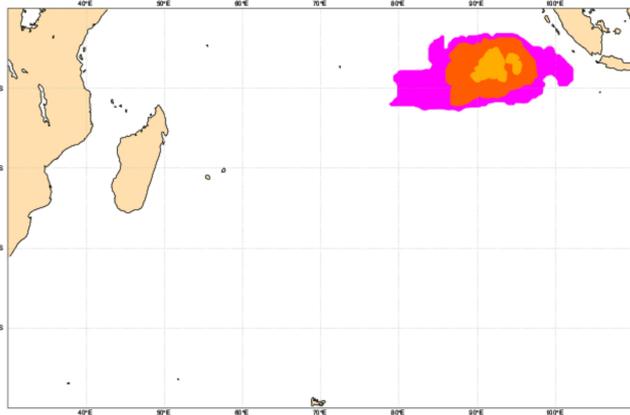


S4



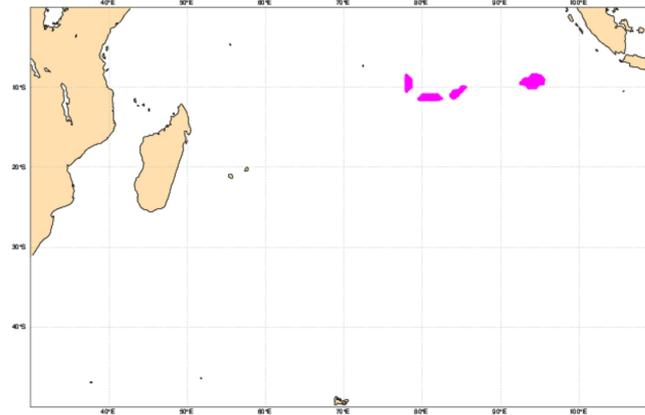
Weekly mean Tropical Storm Strike Probability. Date: 20221027 0 UTC t+(96-264)
Probability of a TS passing within 300km radius

5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-110



Weekly mean Tropical Storm Strike Probability. Date: 20221027 0 UTC t+(264-432)
Probability of a TS passing within 300km radius

5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-110



Weekly mean Tropical Storm Strike Probability. Date: 20221027 0 UTC t+(432-600)
Probability of a TS passing within 300km radius

5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-110

