CLIMATE OUTLOOK FORUM FOR CENTRAL AFRICA

TECHICAL NOTE

FOR:

MAM & AMJ 2024

Issued:

MARCH 2024

	Name	Position
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https://rcc.acmad.org/

Outline

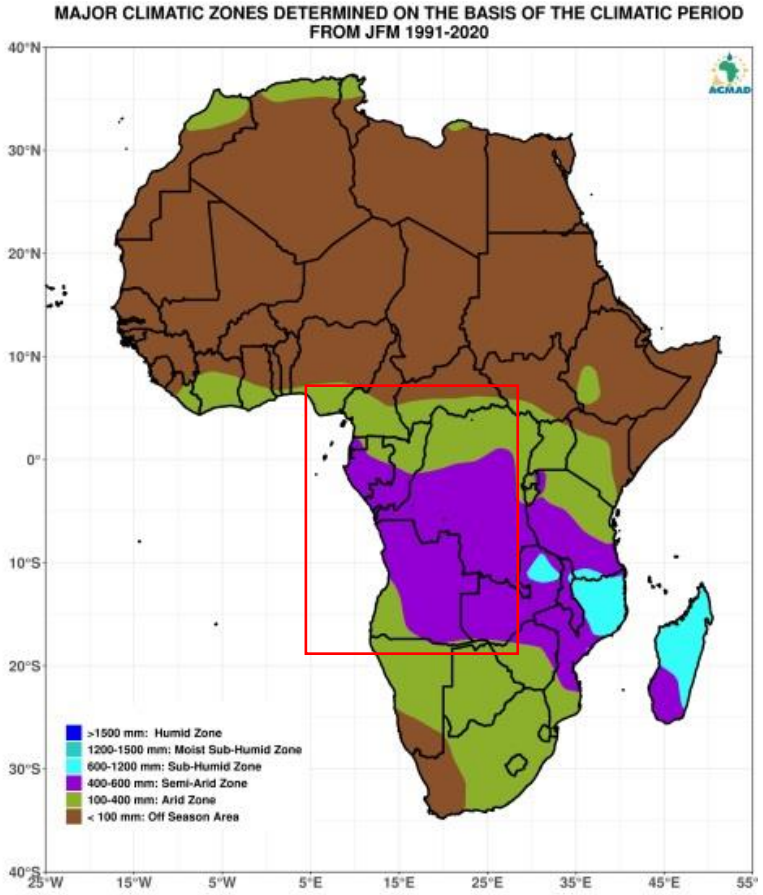
1. *Time series analysis of Climate variability (seasonal and annual cycles, interannual/interdecadal variability) and trends*
2. *Composite analysis*
3. *Analogue Analysis*
4. *Linear regression, principal component, canonical correlation analysis*
5. *Teleconnections analysis (i,e ENSO, AMO, IOD, SIOD, Atlantic Dipole, NAO, AO, SAM, Benguela Nino, Mediterranean SSTAs)*
6. *Interactions analysis between seasons (summer and following winter) and regions for the same target season (i.e summer African monsoon and Atlantic cyclone activity)*
7. *Single Model Ensemble Analysis (i,e ECMWF, NCEP, UKMET)*
8. *Multi-model Ensemble Analysis (ie MME, Copernicus, IRI)*
9. *Consolidation and consensus Analysis*

Step 1:

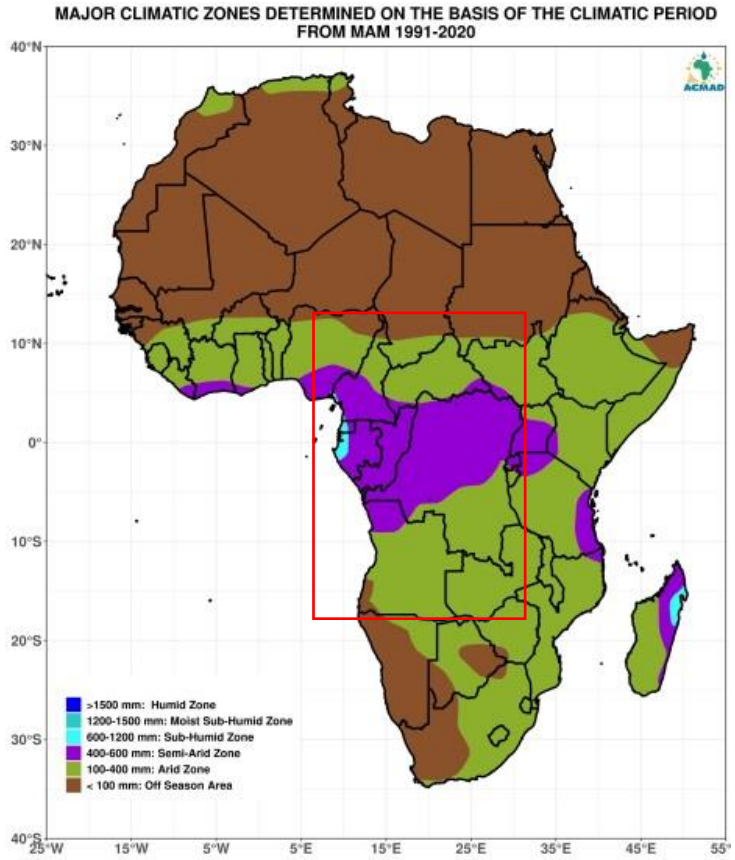
Time series analysis of Climate variability (seasonal and annual cycles, interannual/interdecadal variability) and trends

Time series analysis of Climate variability and trends (Climatic zones)

Season 1 = MARCH-APRIL-MAY

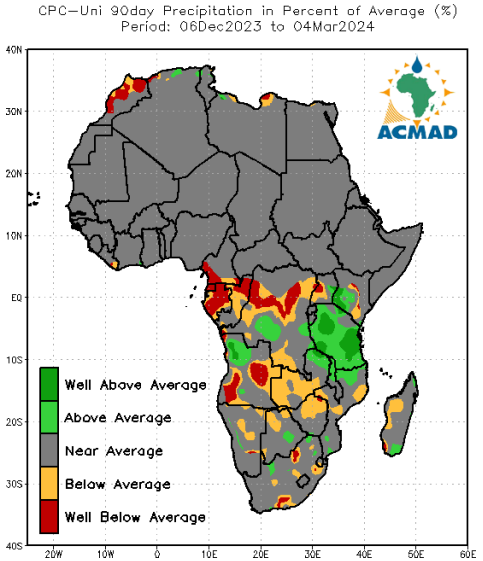


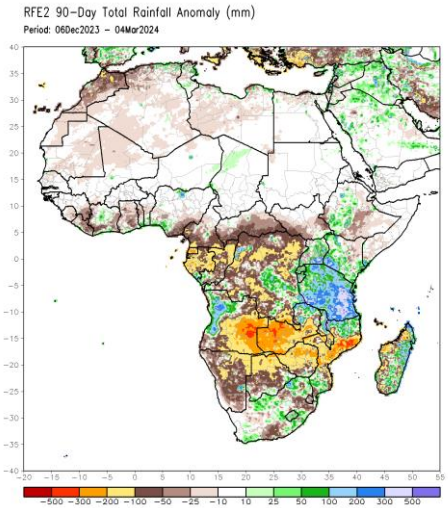
Season 2 = APRIL-MAY-JUNE



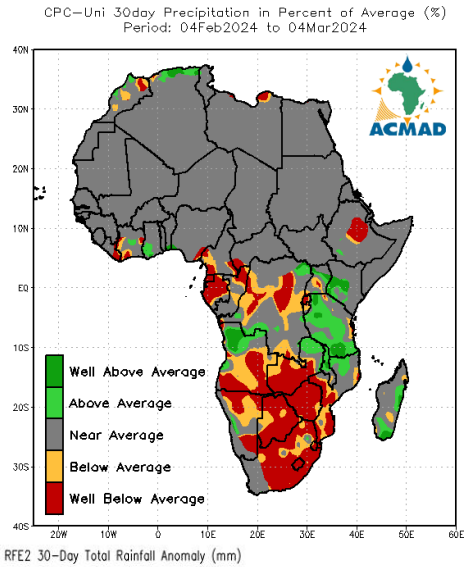
Time series analysis of Climate variability and trends(Persistence forecast)

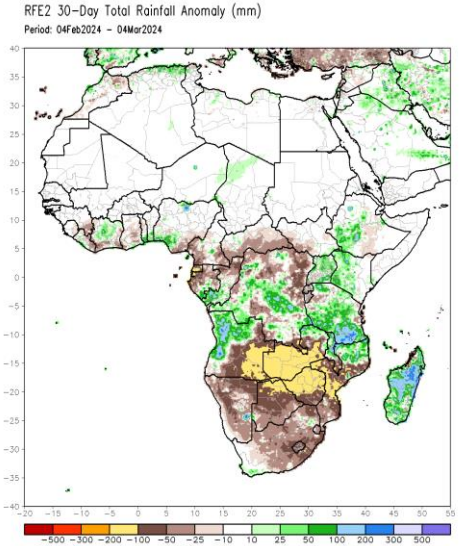
Latest 90-days



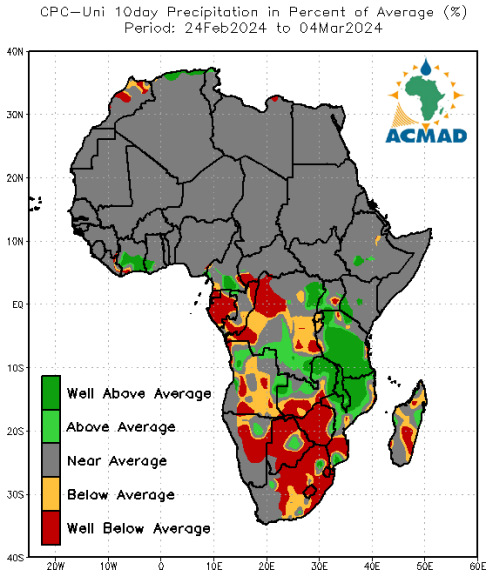


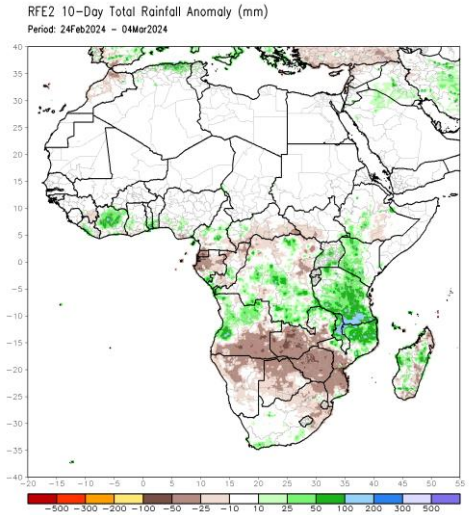
Last 30-days



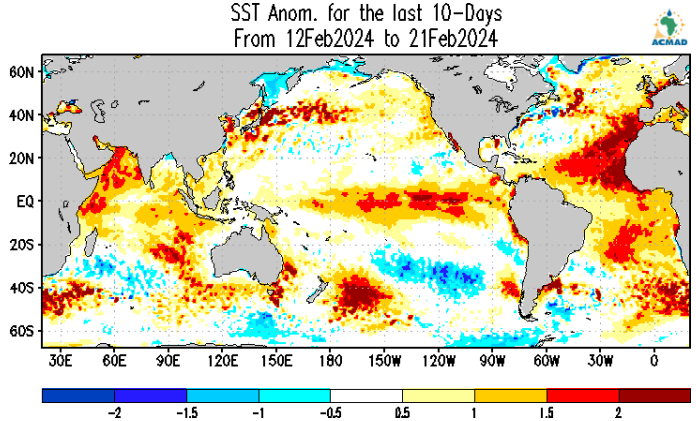


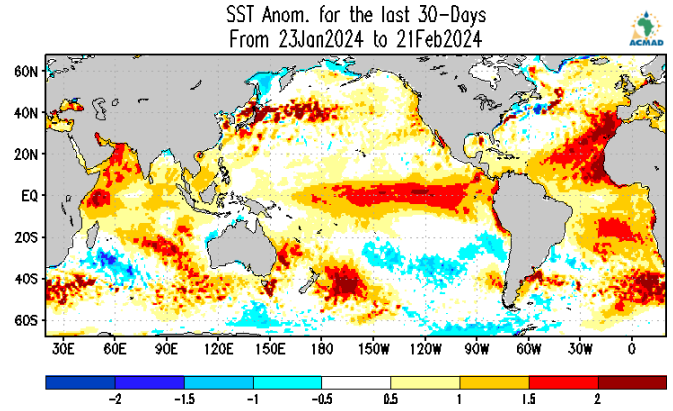
Last 10-days

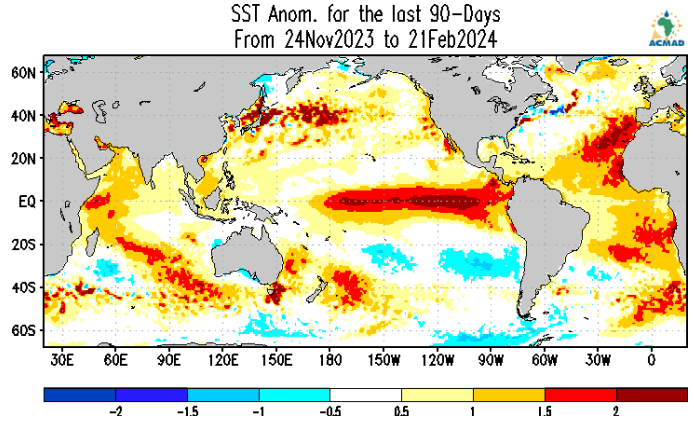


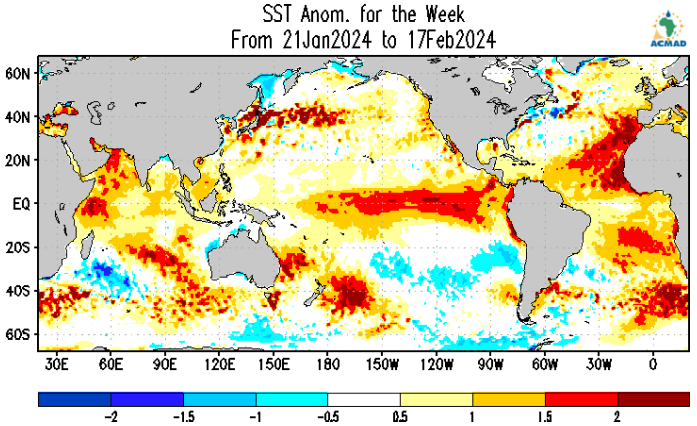


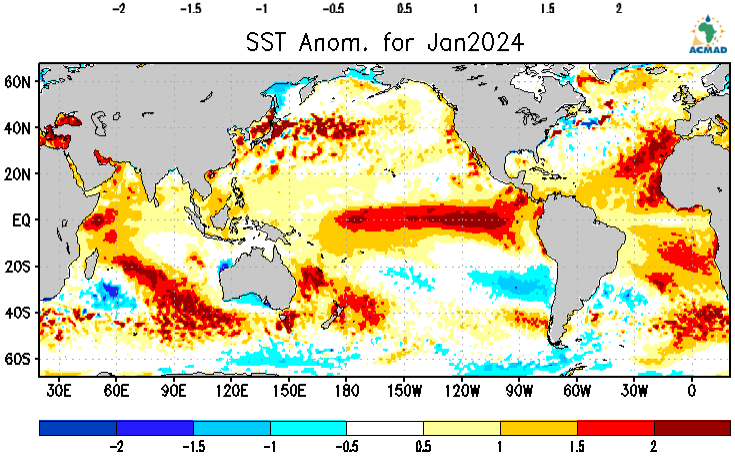
CURRENT OBS SST ANOMALY

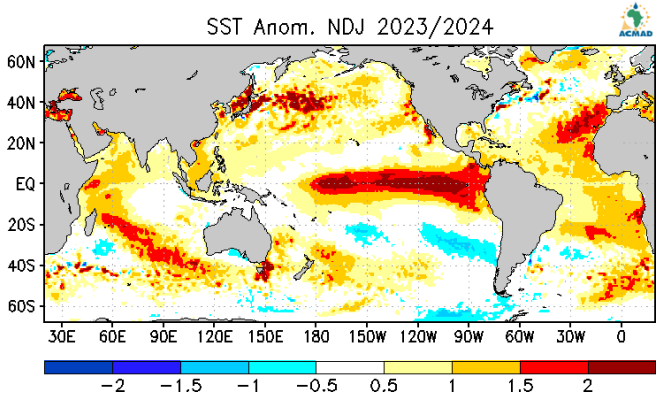








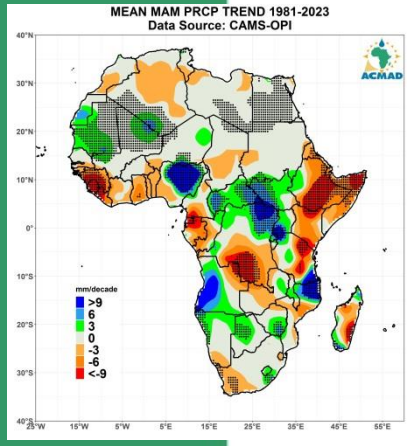




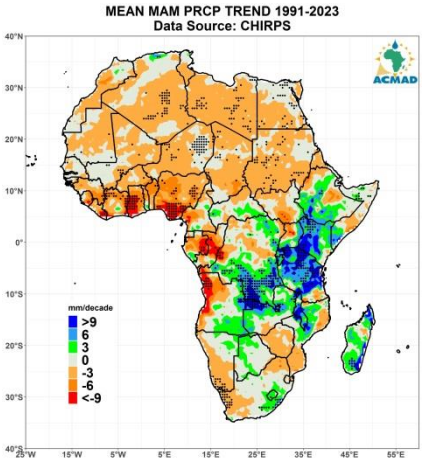
Time series analysis of Climate variability (seasonal and annual cycles, interannual/interdecadal variability) and trends (1/4)

Season 1 MAM

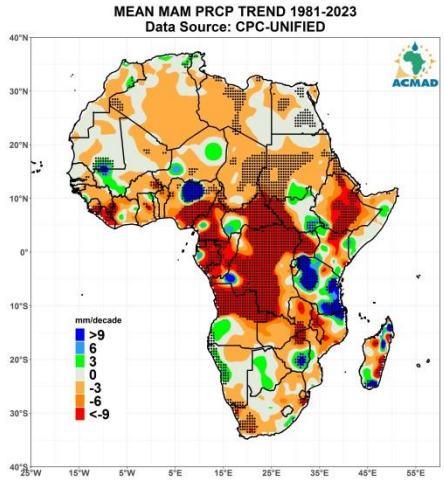
CAMS-OPI



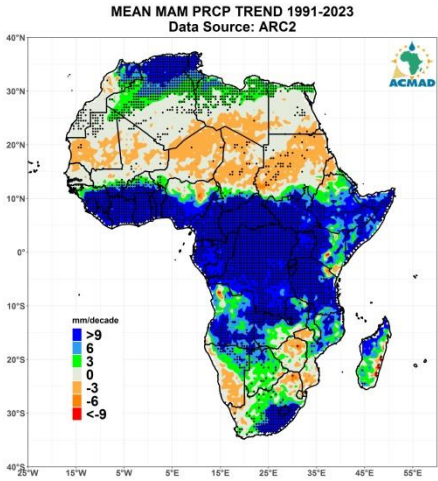
CHIRPS



CPC-UNI

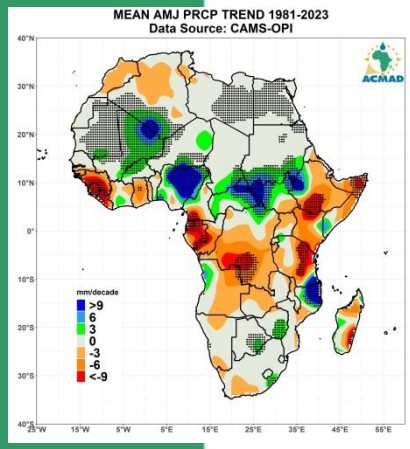


ARC2

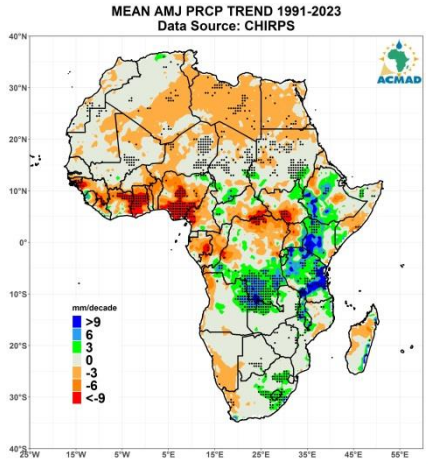


Season 2 AMJ

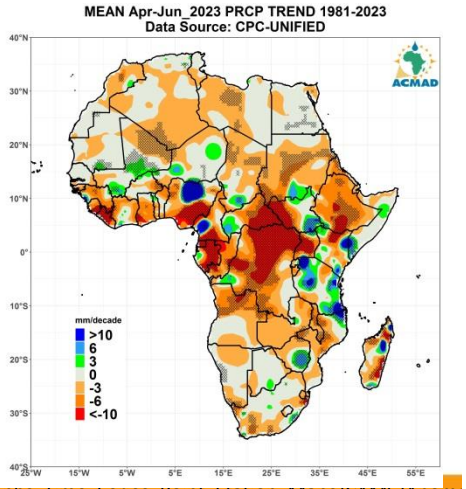
CAMS-OPI



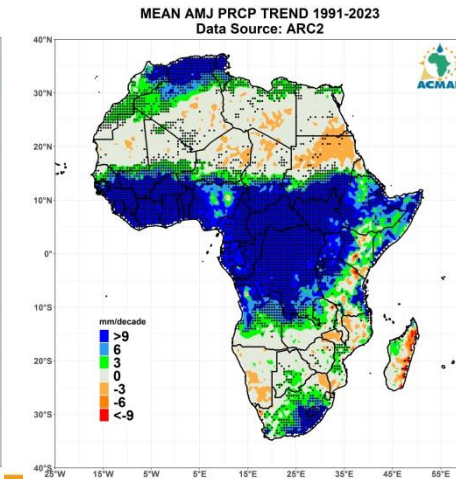
CHIRPS



CPC-UNI

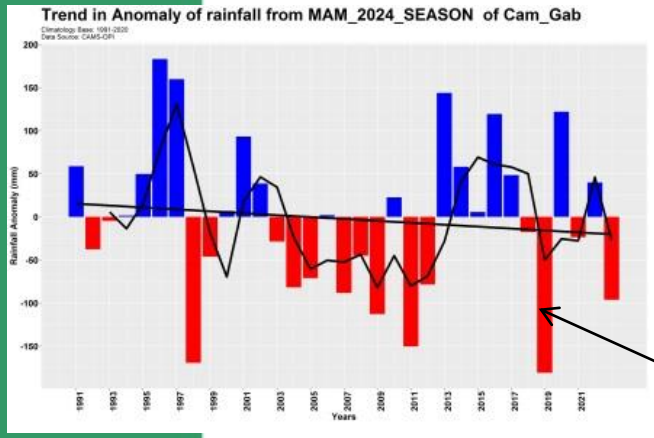


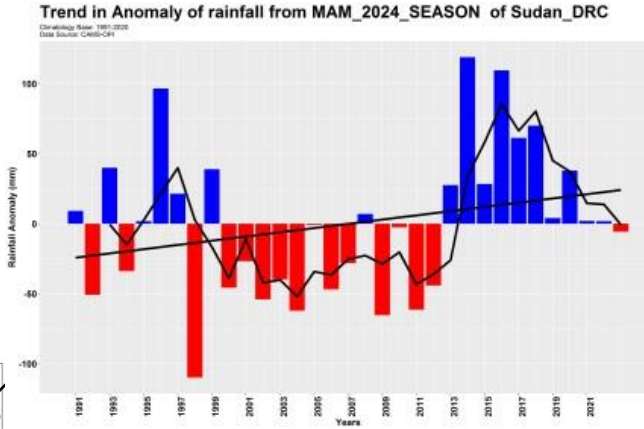
ARC2

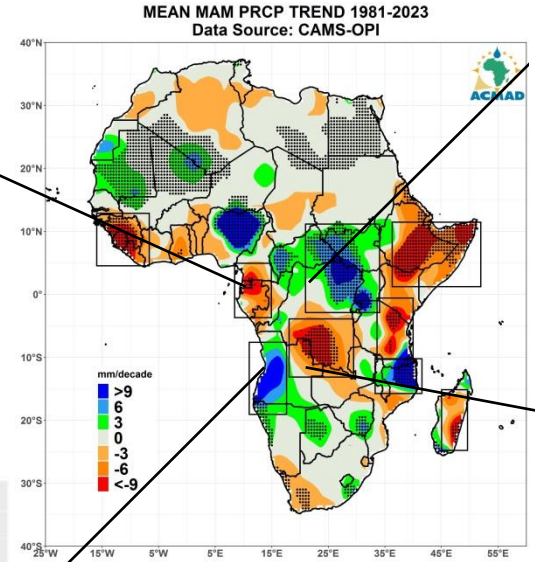


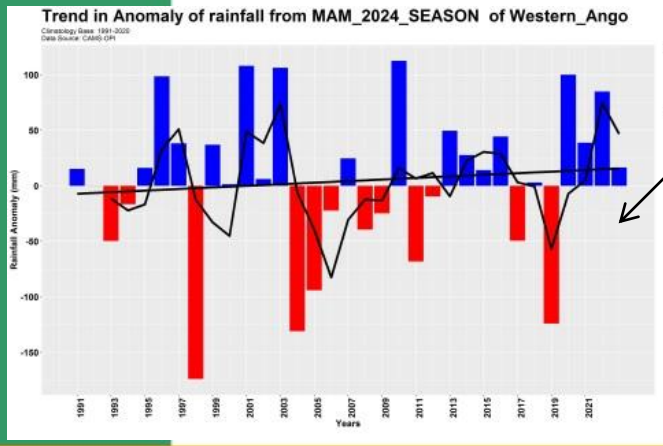
Time series analysis of Climate variability (seasonal and annual cycles, interannual/interdecadal variability) and trends (1/5)

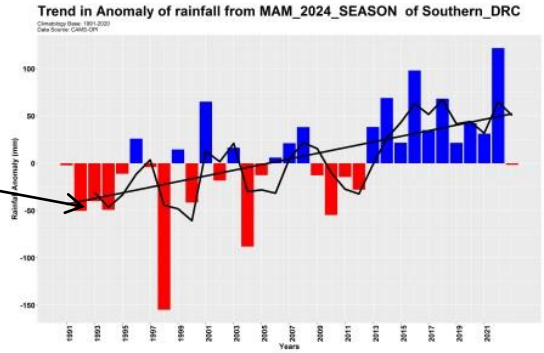
MAM Season 2





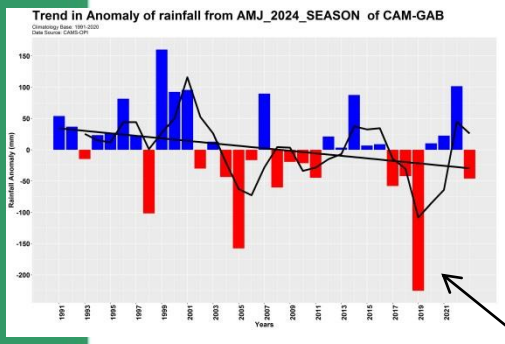


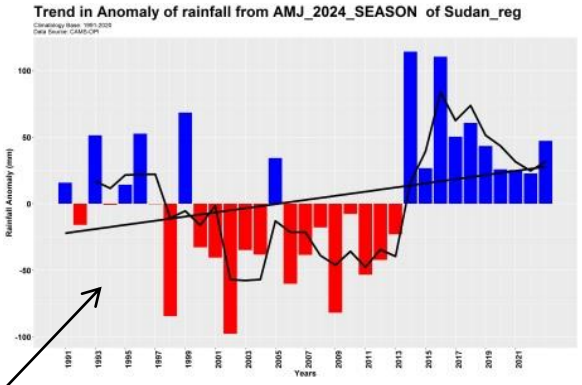


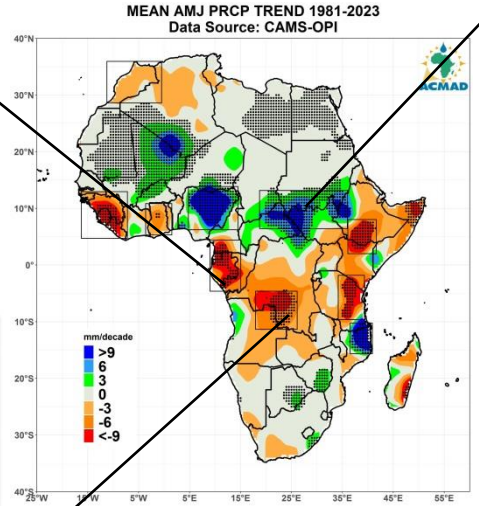


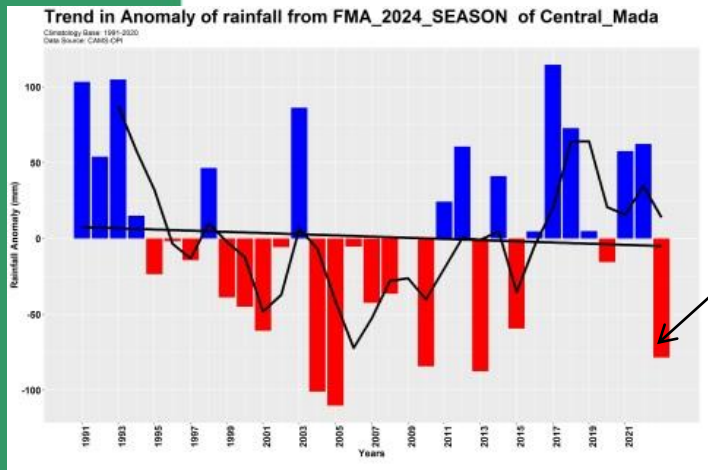
Time series analysis of Climate variability (seasonal and annual cycles, interannual/interdecadal variability) and trends (1/6)

AMJ Season 2









Step 3:

Analogue Years Analysis

Identification of Analogue Years (2)

Blue – La Nina

Red– El Nino

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2000	-1.7	-1.4	-1.1	-0.8	-0.7	-0.6	-0.6	-0.5	-0.5	-0.6	-0.7	-0.7
2001	-0.7	-0.5	-0.4	-0.3	-0.3	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3
2002	-0.1	0.0	0.1	0.2	0.4	0.7	0.8	0.9	1.0	1.2	1.3	1.1
2003	0.9	0.6	0.4	0.0	-0.3	-0.2	0.1	0.2	0.3	0.3	0.4	0.4
2004	0.4	0.3	0.2	0.2	0.2	0.3	0.5	0.6	0.7	0.7	0.7	0.7
2005	0.6	0.6	0.4	0.4	0.3	0.1	-0.1	-0.1	-0.1	-0.3	-0.6	-0.8
2006	-0.9	-0.8	-0.6	-0.4	-0.1	0.0	0.1	0.3	0.5	0.8	0.9	0.9
2007	0.7	0.2	-0.1	-0.3	-0.4	-0.5	-0.6	-0.8	-1.1	-1.3	-1.5	-1.6
2008	-1.6	-1.5	-1.3	-1.0	-0.8	-0.6	-0.4	-0.2	-0.2	-0.4	-0.6	-0.7
2009	-0.8	-0.8	-0.6	-0.3	0.0	0.3	0.5	0.6	0.7	1.0	1.4	1.6
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2010	1.5	1.2	0.8	0.4	-0.2	-0.7	-1.0	-1.3	-1.6	-1.6	-1.6	-1.6
2011	-1.4	-1.2	-0.9	-0.7	-0.6	-0.4	-0.5	-0.6	-0.8	-1.0	-1.1	-1.0
2012	-0.9	-0.7	-0.6	-0.5	-0.3	0.0	0.2	0.4	0.4	0.3	0.1	-0.2
2013	-0.4	-0.4	-0.3	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.3
2014	-0.4	-0.5	-0.3	0.0	0.2	0.2	0.0	0.1	0.2	0.5	0.6	0.7
2015	0.5	0.5	0.5	0.7	0.9	1.2	1.5	1.9	2.2	2.4	2.6	2.6
2016	2.5	2.1	1.6	0.9	0.4	-0.1	-0.4	-0.5	-0.6	-0.7	-0.7	-0.6
2017	-0.3	-0.2	0.1	0.2	0.3	0.3	0.1	-0.1	-0.4	-0.7	-0.8	-1.0
2018	-0.9	-0.9	-0.7	-0.5	-0.2	0.0	0.1	0.2	0.5	0.8	0.9	0.8
2019	0.7	0.7	0.7	0.7	0.5	0.5	0.3	0.1	0.2	0.3	0.5	0.5
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2020	0.5	0.5	0.4	0.2	-0.1	-0.3	-0.4	-0.6	-0.9	-1.2	-1.3	-1.2
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8
2023	-0.7	-0.4	-0.1	0.2	0.5	0.8	1.1	1.3	1.6	1.8	1.9	2.0

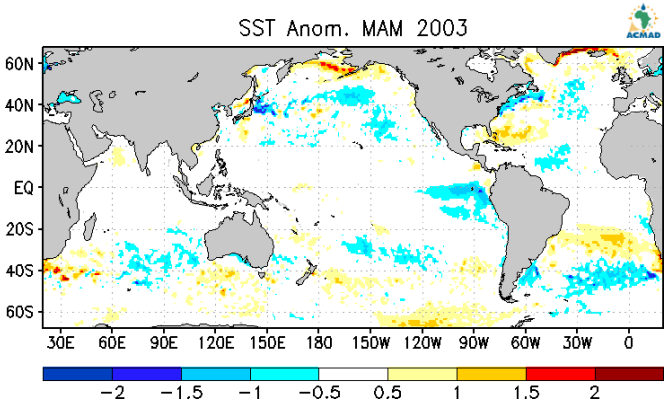
Forecasted SST evolution

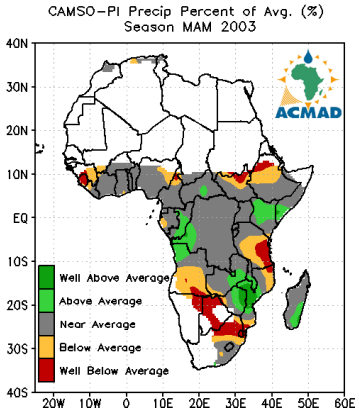
Seasons (2024 – 2024)

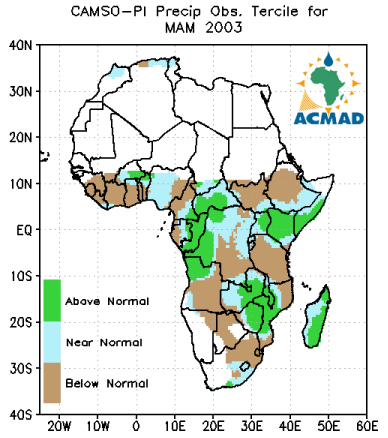
Model	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON
Average, Dynamical models	**1.576**	**1.178**	**0.720**	**0.285**	**-0.194**	**-0.617**	**-0.813**	**-0.762**	**-0.827**
Average, Statistical models	**1.432**	**1.094**	**0.728**	**0.392**	**0.074**	**-0.223**	**-0.465**	**-0.627**	**-0.750**
Average, All models	**1.526**	**1.149**	**0.722**	**0.322**	**-0.085**	**-0.430**	**-0.639**	**-0.686**	**-0.783**

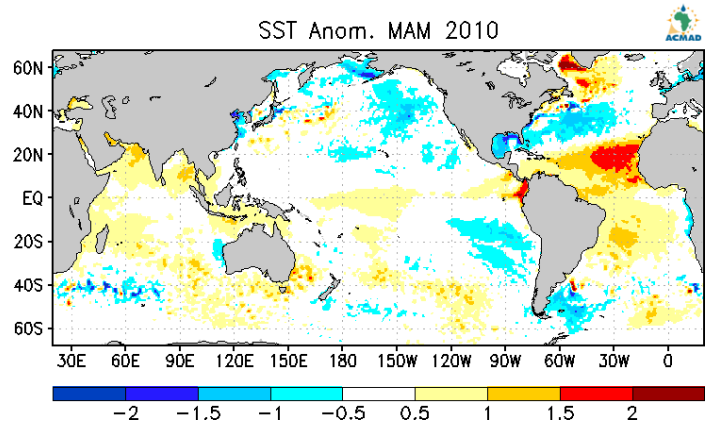
Forecasted evolution of SSTs during the coming target seasons indicate a transition from an ENSO positive (El Nino) phase to an ENSO Neutral phase during the coming target seasons

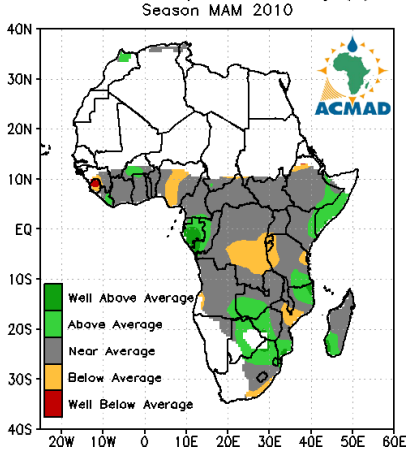
Analogue Analysis (3) – Identical Years– MAM

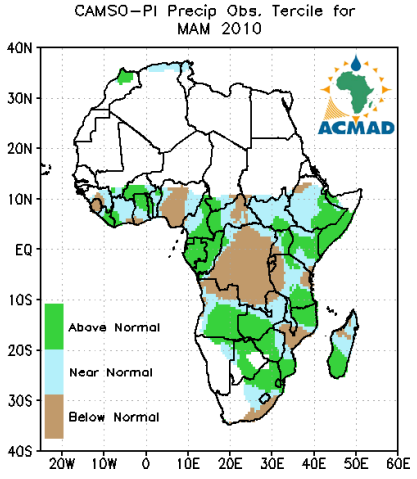


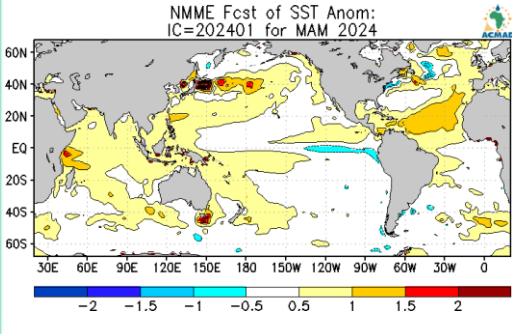


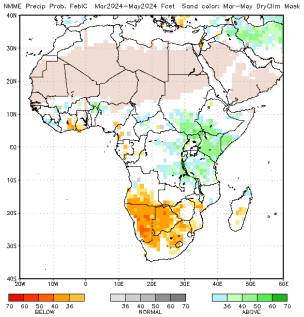


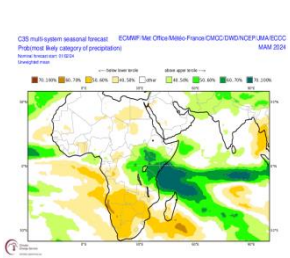


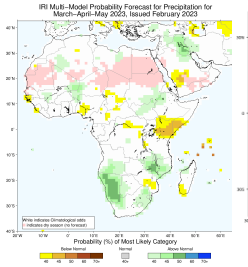


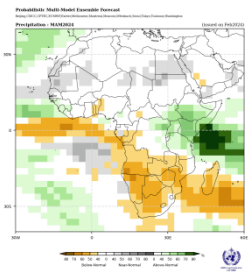




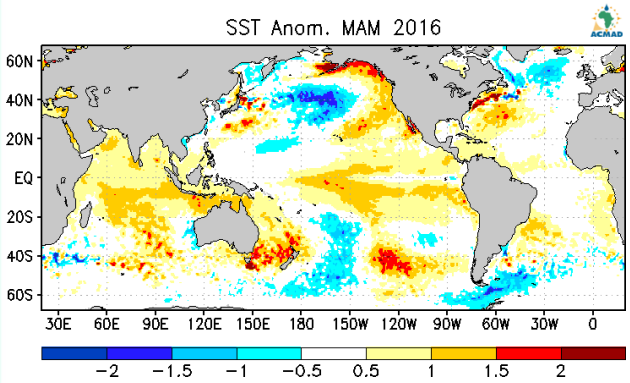


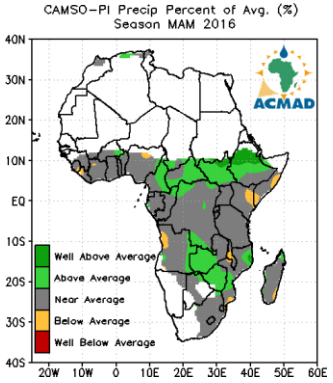


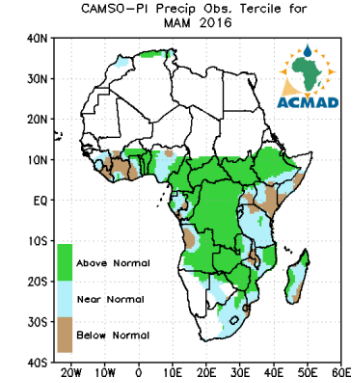


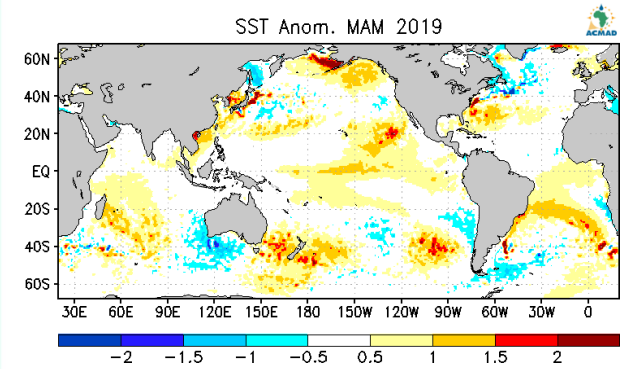


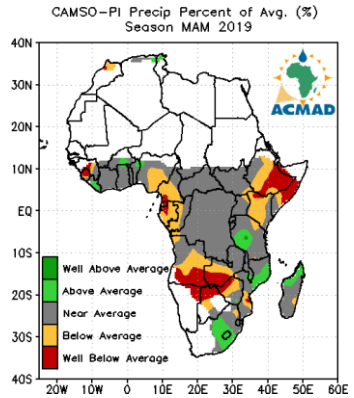
Analogue Analysis (3) – Identical Years– MAM

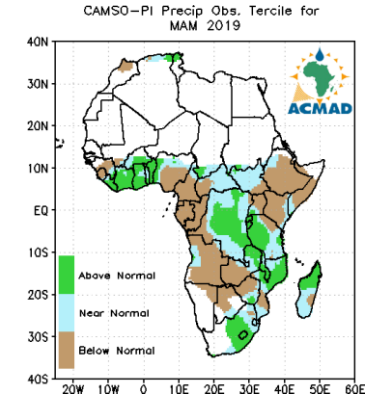


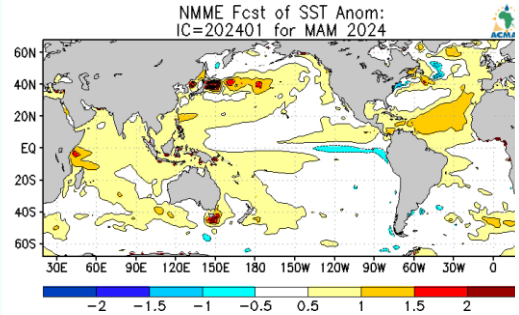


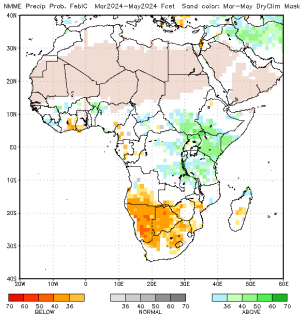


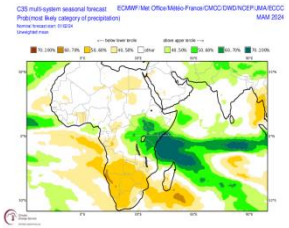


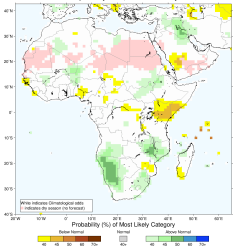


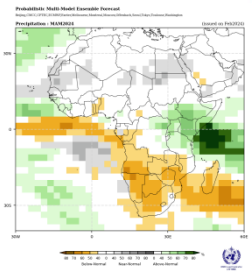




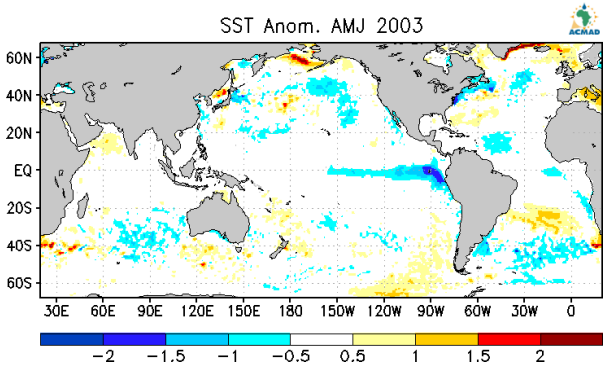


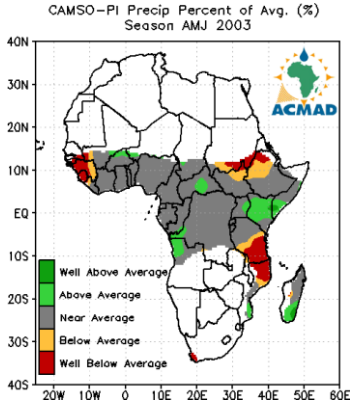


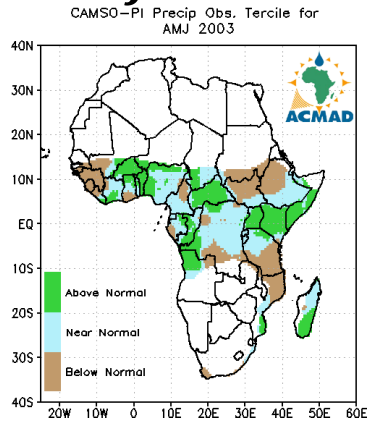


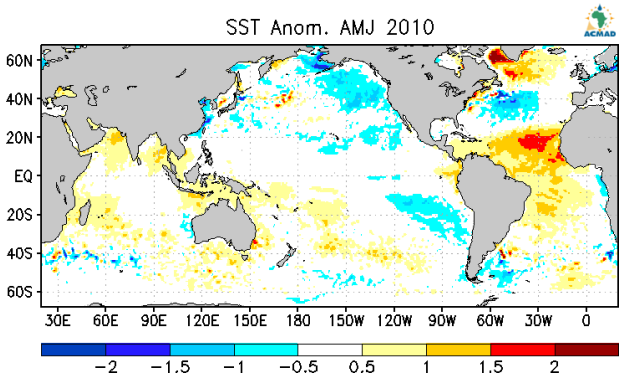


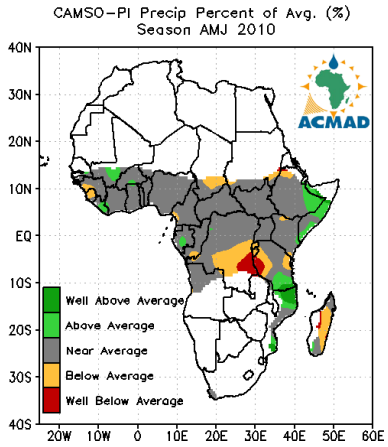
Analogue Analysis (3) – Identical Years– AMJ

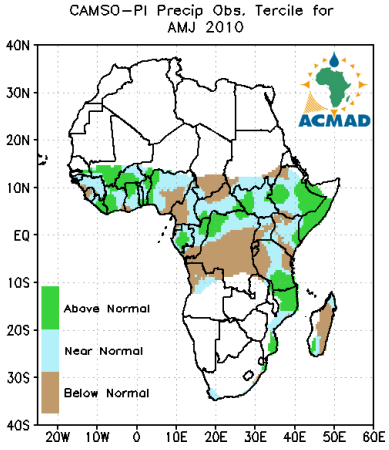


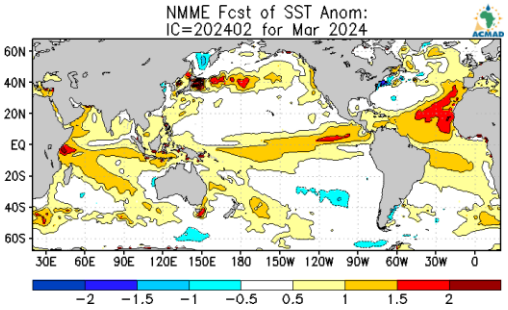


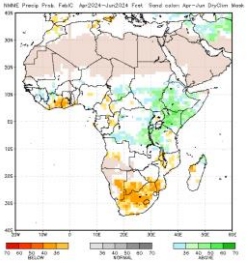


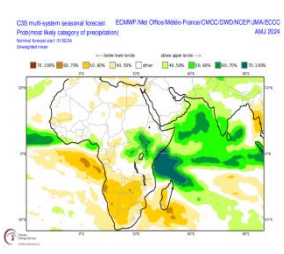


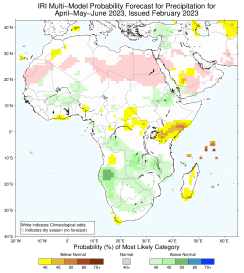


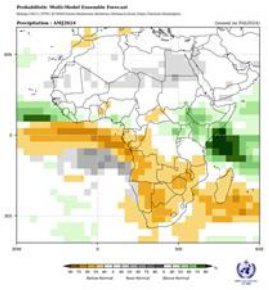




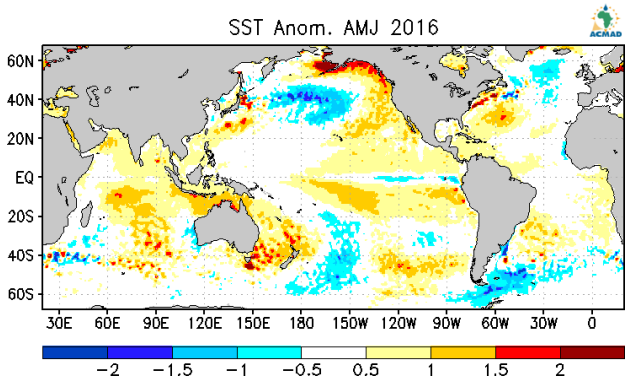


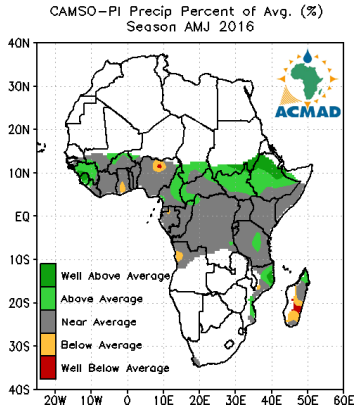


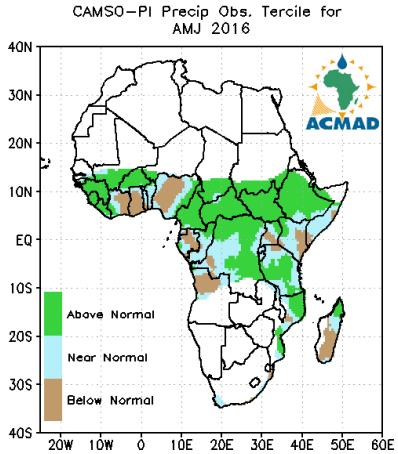


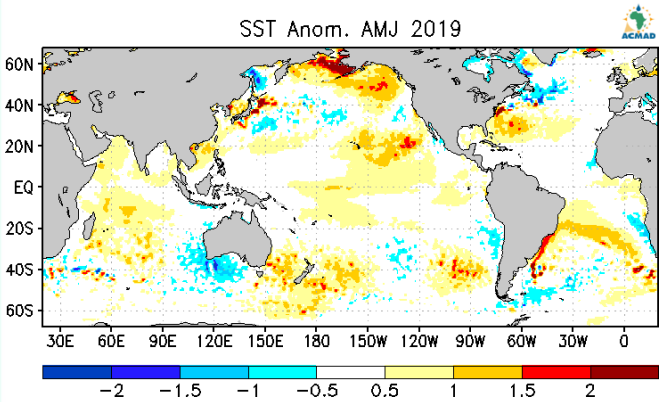


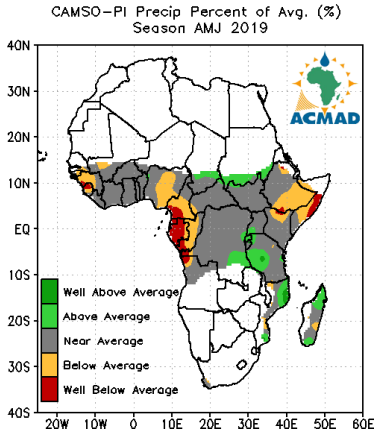
Analogue Analysis (3) – Identical Years– AMJ

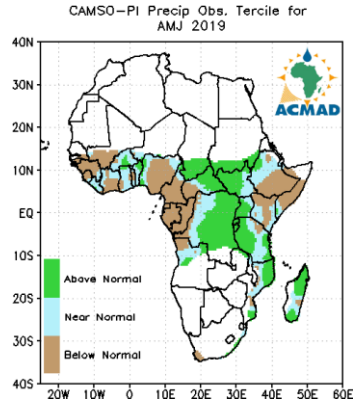


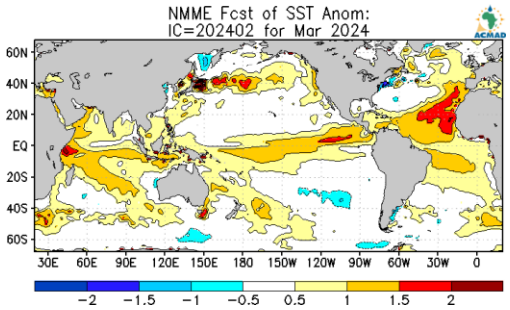


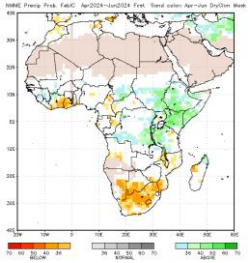


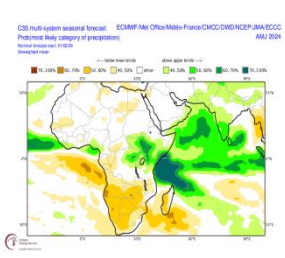


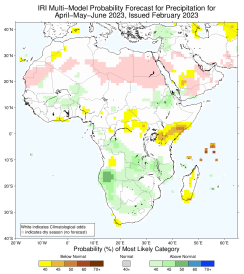


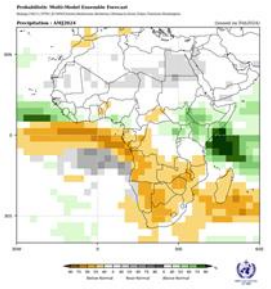












Step 4:

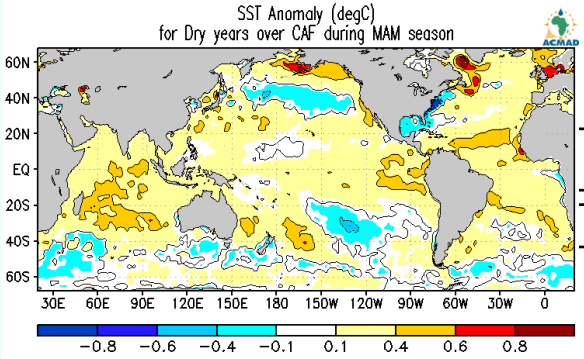
SSTs and Rainfall Composite analysis for Dry and Wet Years

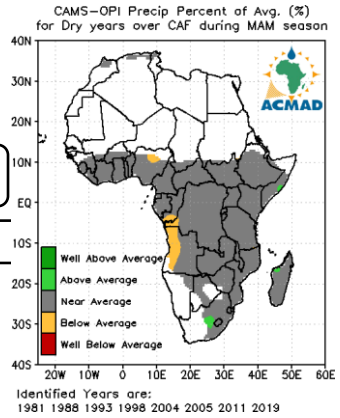
Composite analysis (Dry Years) – SSTs & Rainfall (MAM)

SST Composite

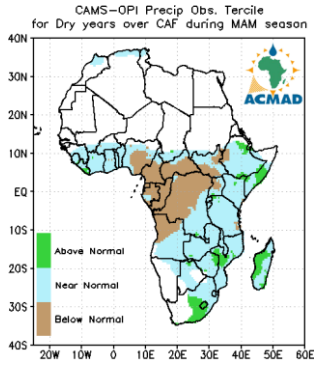
Rainfall Composite

DRY





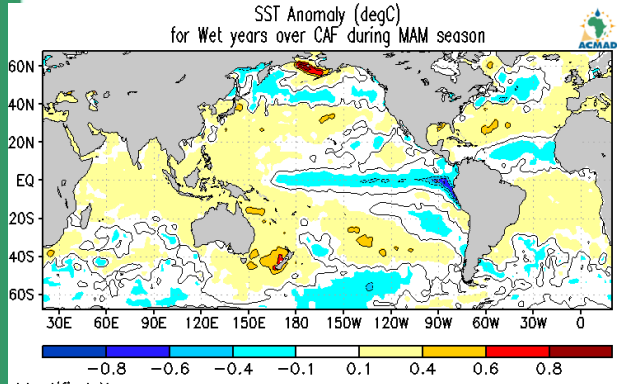
Identified Years are:
1981 1988 1993 1998 2004 2005 2011 2019



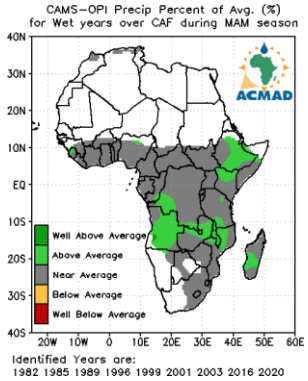
Identified Years are:
1981 1988 1993 1998 2004 2005 2011 2019

CAF
1981
1988
1993
1998
2004
2005
2011
2019

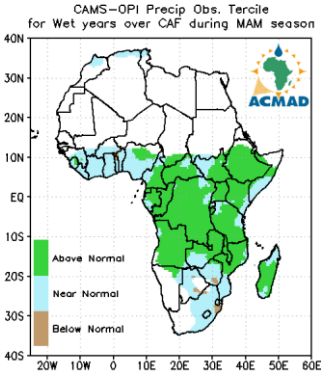
WET



Identified Years are:
1982 1985 1989 1996 1999 2001 2003 2016 2020



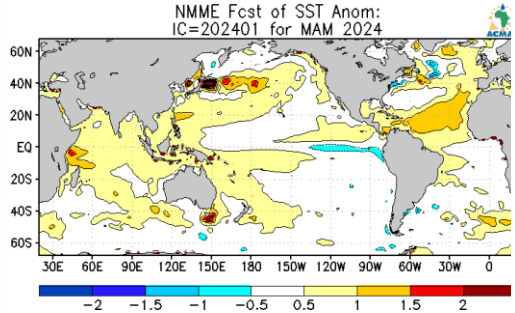
Identified Years are:
1982 1985 1989 1996 1999 2001 2003 2016 2020

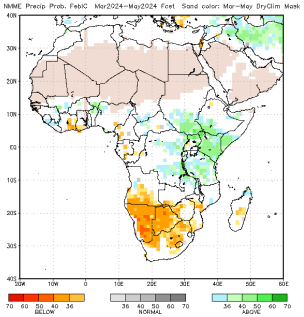


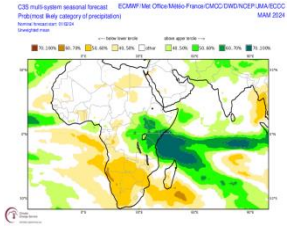
Identified Years are:
1982 1985 1989 1996 1999 2001 2003 2016 2020

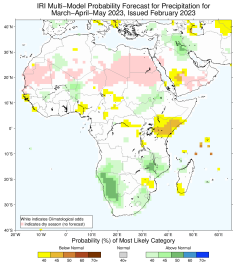
CAF
1982
1985
1989
1996
1999
2001
2003
2016
2020

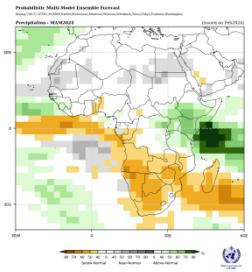
FCST











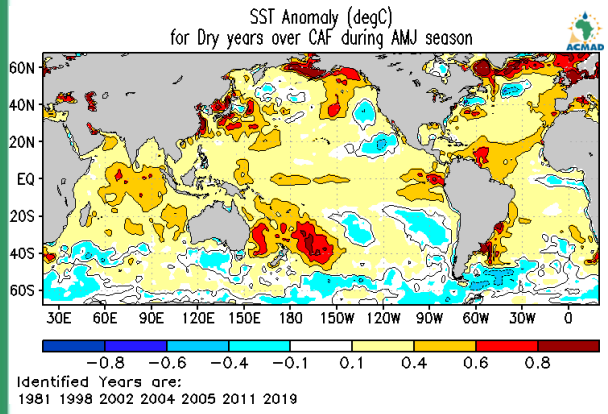
Composite analysis (Dry Years) – SSTs & Rainfall (AMJ)

DRY

WET

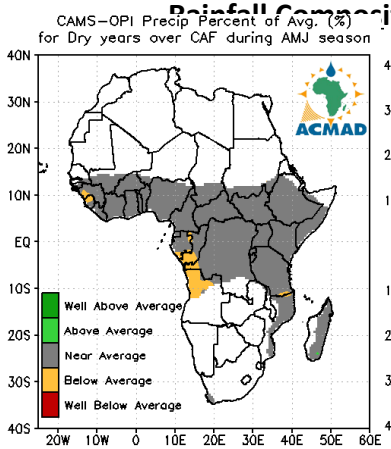
FCST

SST Composite

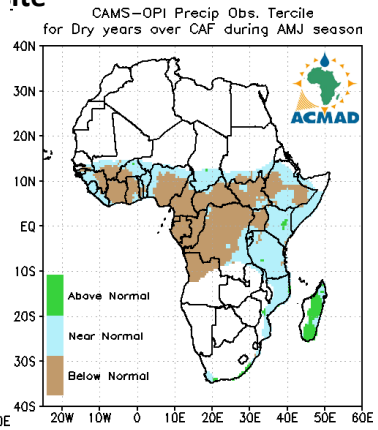


Identified Years are:
1981 1998 2002 2004 2005 2011 2019

Rainfall Composite

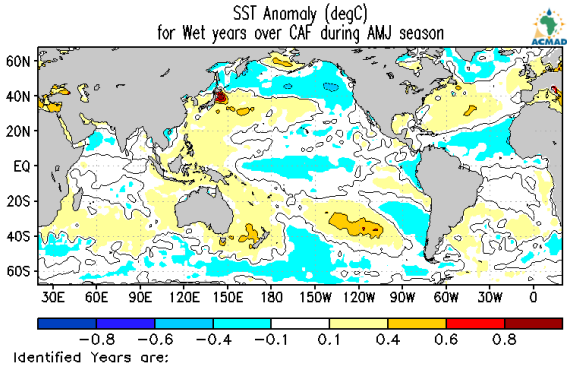


Identified Years are:
1981 1998 2002 2004 2005 2011 2019

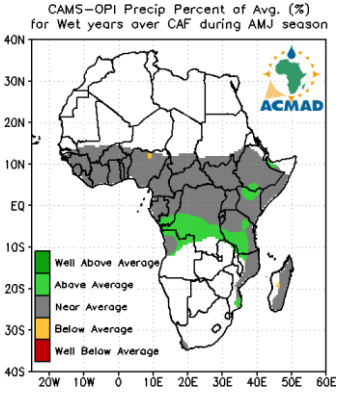


Identified Years are:
1981 1998 2002 2004 2005 2011 2019

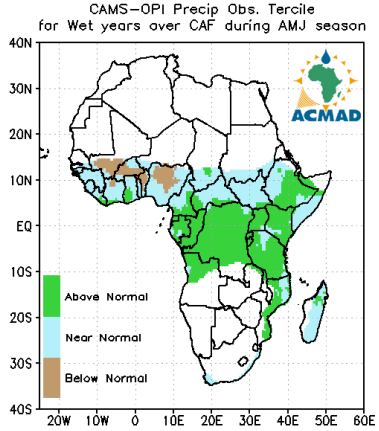
CAF
1981
1998
2002
2004
2005
2011
2019



Identified Years are:
1982 1983 1985 1989 1999 2000 2001 2007 2016
2018

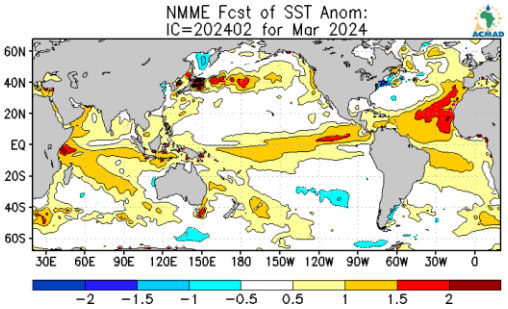


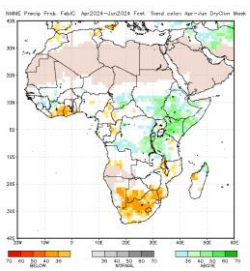
Identified Years are:
1982 1983 1985 1989 1999 2000 2001 2007 2016
2018

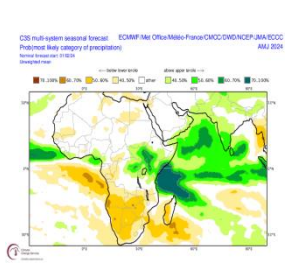


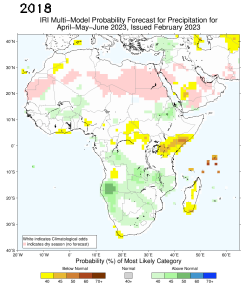
Identified Years are:
1982 1983 1985 1989 1999 2000 2001
2018

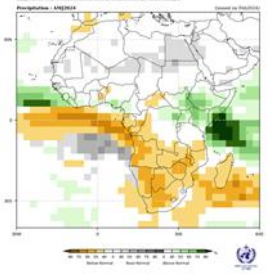
CAF
1982
1983
1985
1989
1999
2000
2001
2007
2016
2018





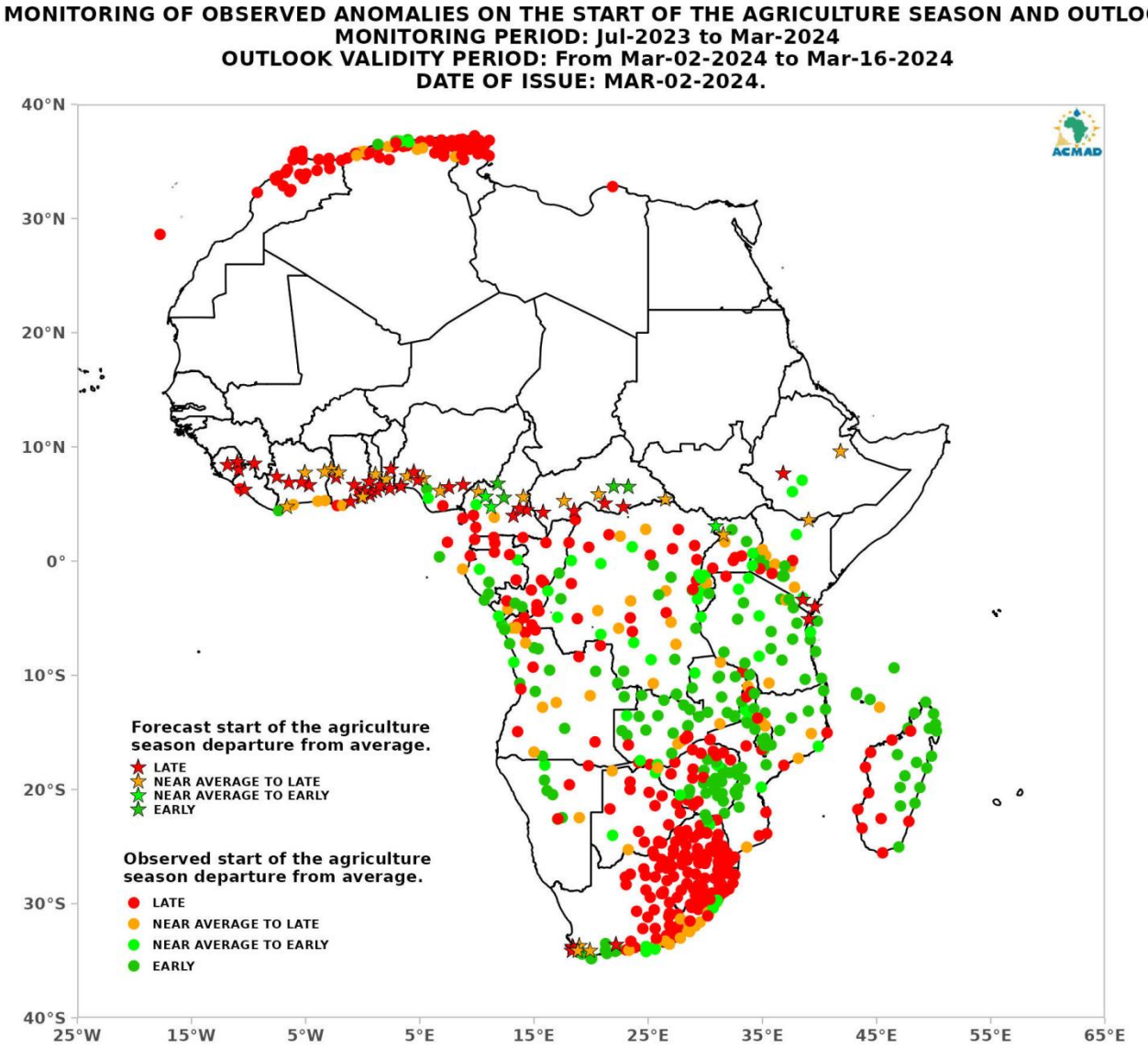




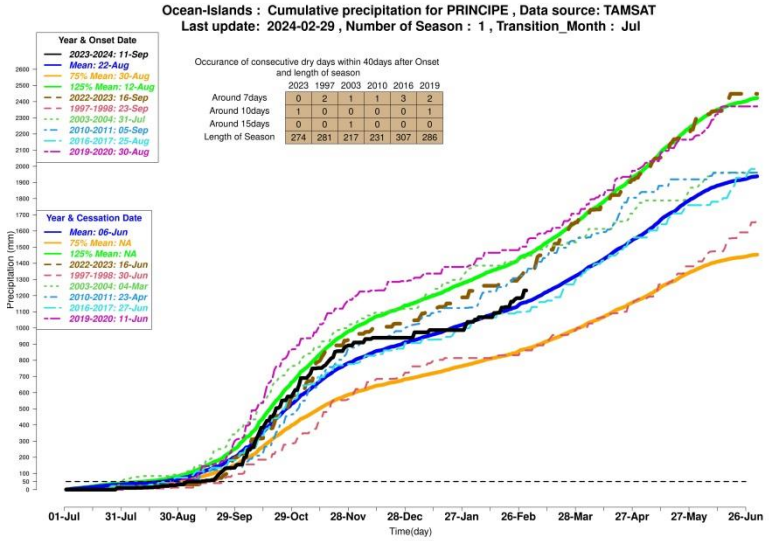


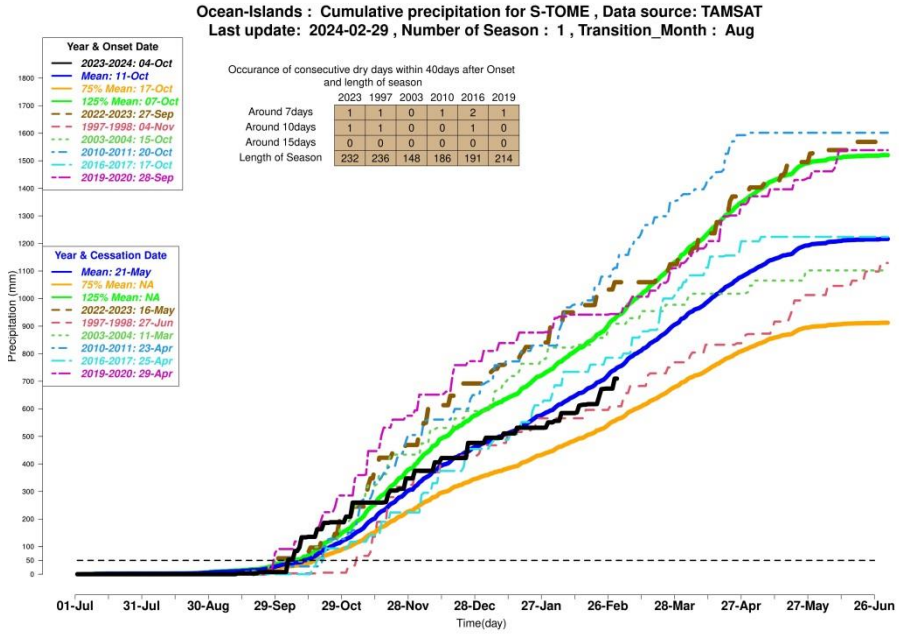
Daily cummulative

ONSET

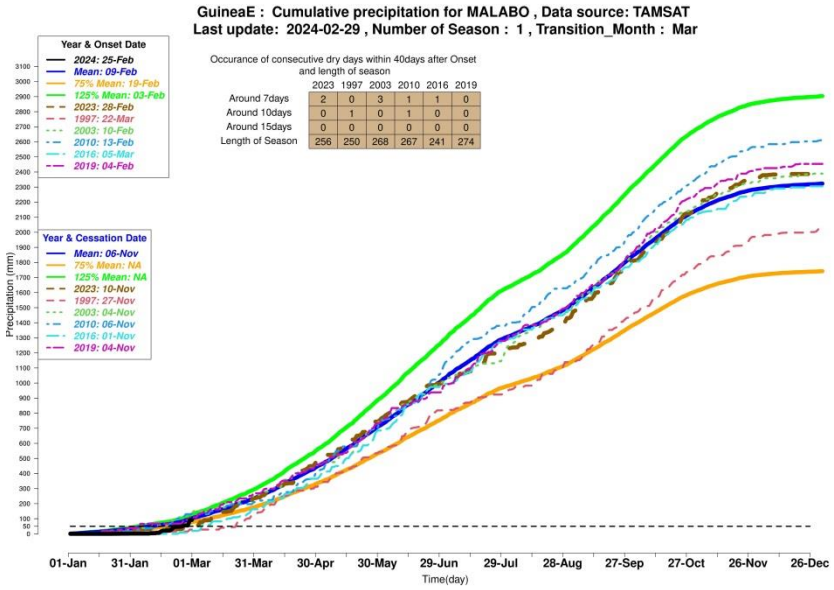

MONITORING OF OBSERVED ANOMALIES ON THE START OF THE AGRICULTURE SEASON AND OUTLOOK
MONITORING PERIOD: Jul-2023 to Mar-2024
OUTLOOK VALIDITY PERIOD: From Mar-02-2024 to Mar-16-2024
DATE OF ISSUE: MAR-02-2024.
ACMAD
40°N
30°N
20°N
10°N
0°
10°S
20°S
30°S
40°S
25°W
15°W
5°W
5°E
15°E
25°E
35°E
45°E
55°E
65°E
Forecast start of the agriculture season departure from average.
LATE
NEAR AVERAGE TO LATE
NEAR AVERAGE TO EARLY
EARLY
Observed start of the agriculture season departure from average.
LATE
NEAR AVERAGE TO LATE
NEAR AVERAGE TO EARLY
EARLY

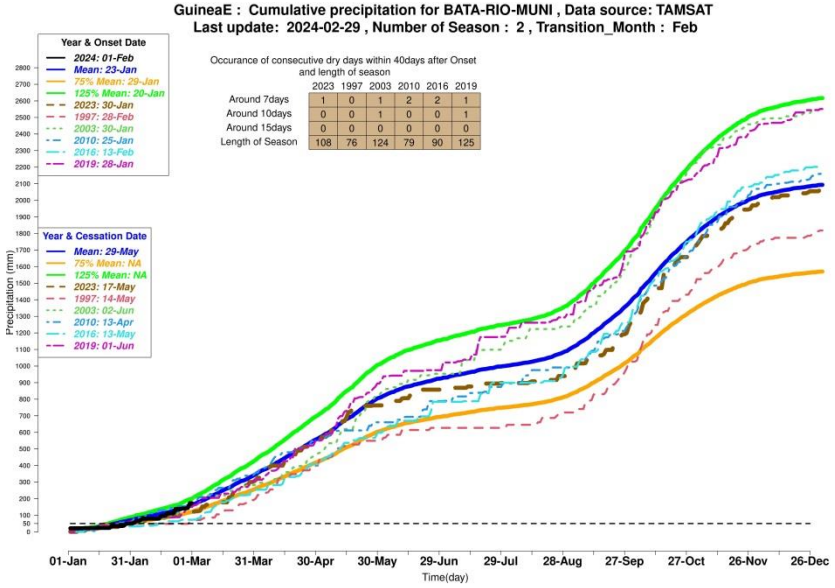
SAO TOME


Ocean-Islands : Cumulative precipitation for PRINCIPE , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Jul
Year & Onset Date
2023-2024: 11-Sep
Mean: 22-Aug
75% Mean: 30-Aug
125% Mean: 12-Aug
2022-2023: 16-Sep
1997-1998: 23-Sep
2003-2004: 31-Jul
2010-2011: 05-Sep
2016-2017: 25-Aug
2019-2020: 30-Aug
Year & Cessation Date
Mean: 06-Jun
75% Mean: NA
125% Mean: NA
2022-2023: 16-Jun
1997-1998: 30-Jun
2003-2004: 04-Mar
2010-2011: 23-Apr
2016-2017: 27-Jun
2019-2020: 11-Jun
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 0 2 1 1 3 2
Around 10days 1 0 0 0 0 1
Around 15days 0 0 1 0 0 0
Length of Season 274 281 217 231 307 286
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)


Ocean-Islands : Cumulative precipitation for S-TOME , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug
Year & Onset Date
2023-2024: 04-Oct
Mean: 11-Oct
75% Mean: 17-Oct
125% Mean: 07-Oct
2022-2023: 27-Sep
1997-1998: 04-Nov
2003-2004: 15-Oct
2010-2011: 20-Oct
2016-2017: 17-Oct
2019-2020: 28-Sep
Year & Cessation Date
Mean: 21-May
75% Mean: NA
125% Mean: NA
2022-2023: 16-May
1997-1998: 27-Jun
2003-2004: 11-Mar
2010-2011: 23-Apr
2016-2017: 25-Apr
2019-2020: 29-Apr
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 1 1 0 1 2 1
Around 10days 1 1 0 0 1 0
Around 15days 0 0 0 0 0 0
Length of Season 232 236 148 186 191 214
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

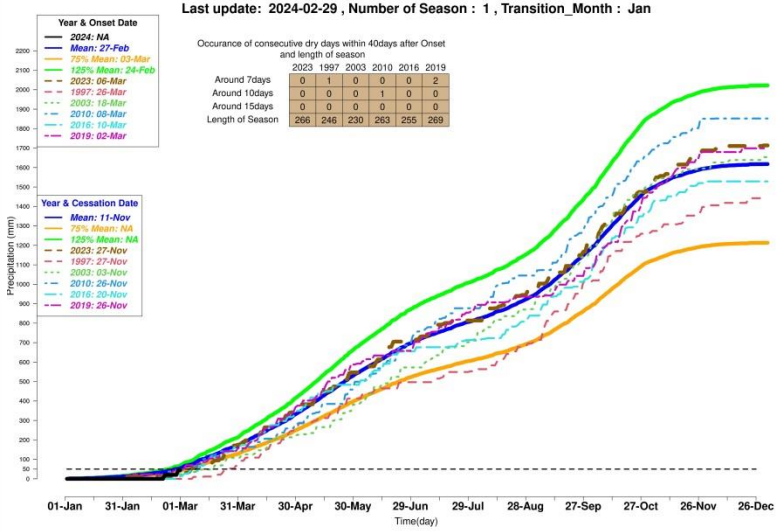
GUINEA


GuineaE : Cumulative precipitation for MALABO , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Mar
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 2 0 3 1 1 0
Around 10days 0 1 0 1 0 0
Around 15days 0 0 0 0 0 0
Length of Season 256 250 268 267 241 274
Year & Onset Date
2024: 25-Feb
Mean: 09-Feb
75% Mean: 19-Feb
125% Mean: 03-Feb
2023: 28-Feb
1997: 22-Mar
2003: 10-Feb
2010: 13-Feb
2016: 05-Mar
2019: 04-Feb
Year & Cessation Date
Mean: 06-Nov
75% Mean: NA
125% Mean: NA
2023: 10-Nov
1997: 27-Nov
2003: 04-Nov
2010: 06-Nov
2016: 01-Nov
2019: 04-Nov
Precipitation (mm)
01-Jan 31-Jan 01-Mar 31-Mar 30-Apr 30-May 29-Jun 29-Jul 28-Aug 27-Sep 27-Oct 26-Nov 26-Dec
Time(day)


GuineaE : Cumulative precipitation for BATA-RIO-MUNI , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 2 , Transition_Month : Feb
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 1 0 1 2 2 1
Around 10days 0 0 1 0 0 1
Around 15days 0 0 0 0 0 0
Length of Season 108 76 124 79 90 125
Year & Onset Date
2024: 01-Feb
Mean: 23-Jan
75% Mean: 29-Jan
125% Mean: 20-Jan
2023: 30-Jan
1997: 28-Feb
2003: 30-Jan
2010: 25-Jan
2016: 13-Feb
2019: 28-Jan
Year & Cessation Date
Mean: 29-May
75% Mean: NA
125% Mean: NA
2023: 17-May
1997: 14-May
2003: 02-Jun
2010: 13-Apr
2016: 13-May
2019: 01-Jun
Precipitation (mm)
01-Jan 31-Jan 01-Mar 31-Mar 30-Apr 30-May 29-Jun 29-Jul 28-Aug 27-Sep 27-Oct 26-Nov 26-Dec
Time(day)

CAMEROON

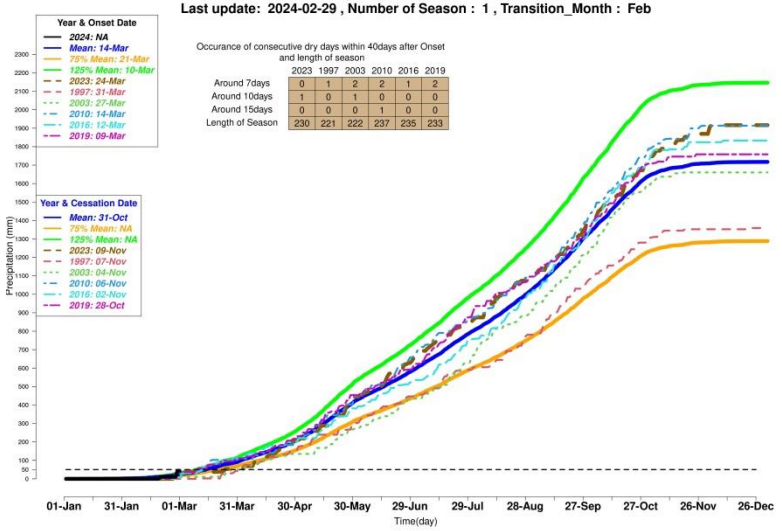
Cameroon : Cumulative precipitation for ABONG-MBANG , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Jan



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	0	1	0	0	0	2
Around 10days	0	0	0	1	0	0
Around 15days	0	0	0	0	0	0
Length of Season	266	246	230	263	255	269

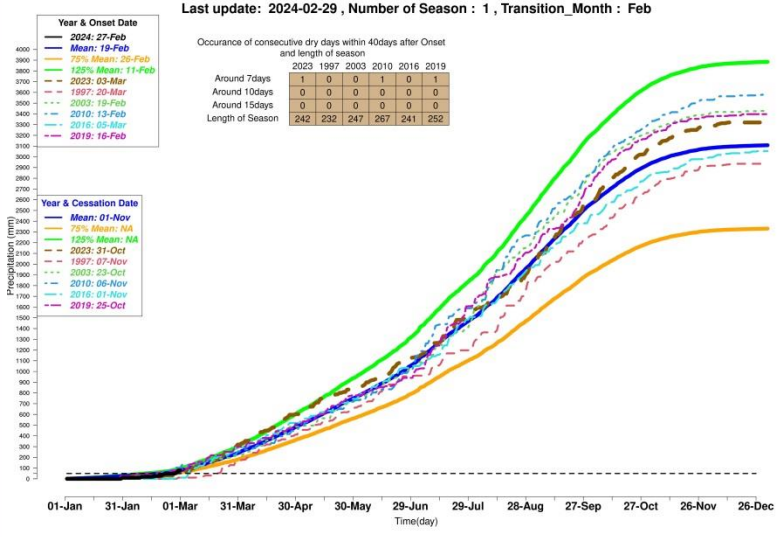
Cameroon : Cumulative precipitation for YOKO , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Feb



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	0	1	2	2	1	2
Around 10days	1	0	1	0	0	0
Around 15days	0	0	0	1	0	0
Length of Season	230	221	222	237	235	233

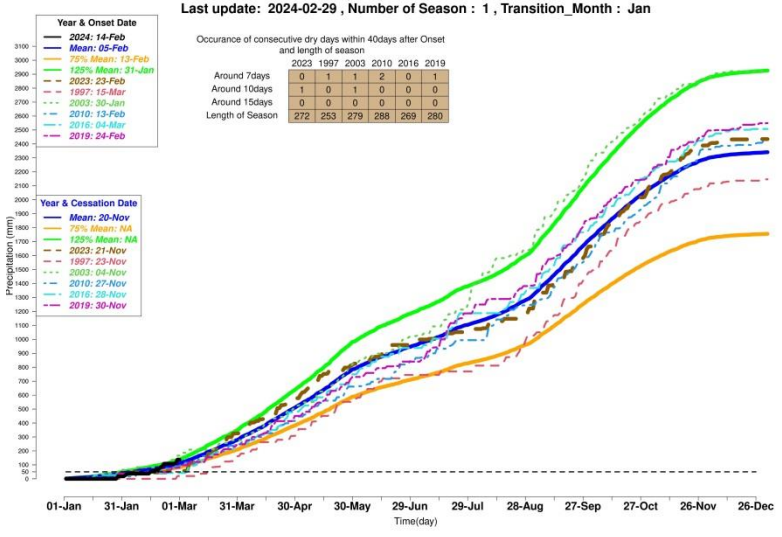
Cameroon : Cumulative precipitation for DOUALA-OBS , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Feb



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	1	0	0	1	0	1
Around 10days	0	0	0	0	0	0
Around 15days	0	0	0	0	0	0
Length of Season	242	232	247	267	241	252

Cameroon : Cumulative precipitation for KRIBI , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Jan

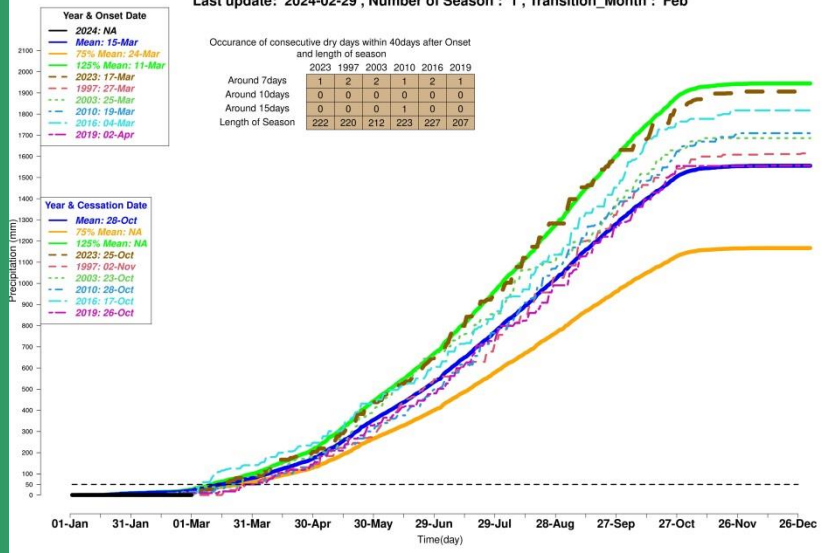


Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	0	1	1	2	0	1
Around 10days	1	0	1	0	0	0
Around 15days	0	0	0	0	0	0
Length of Season	272	253	279	288	269	280

CAR

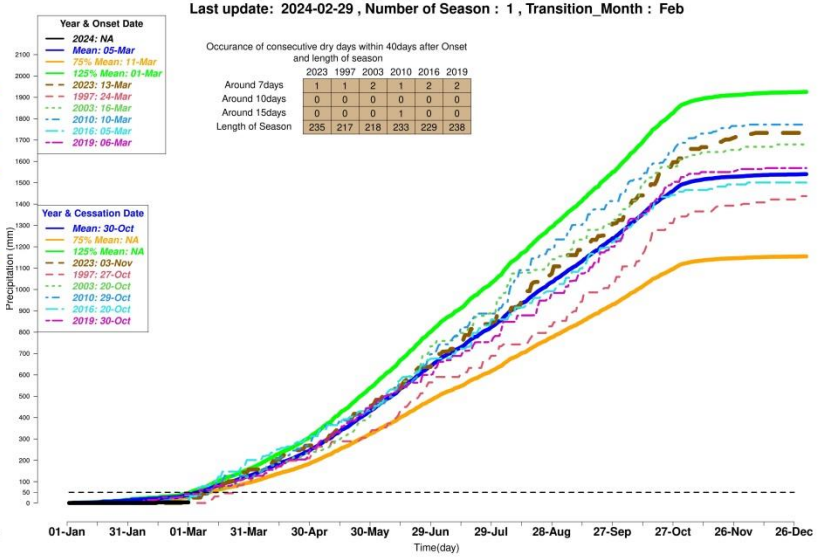
Centrafrique : Cumulative precipitation for BRIA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Feb



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	1	2	2	1	2	1
Around 10days	0	0	0	0	0	0
Around 15days	0	0	0	1	0	0
Length of Season	222	220	212	223	227	207

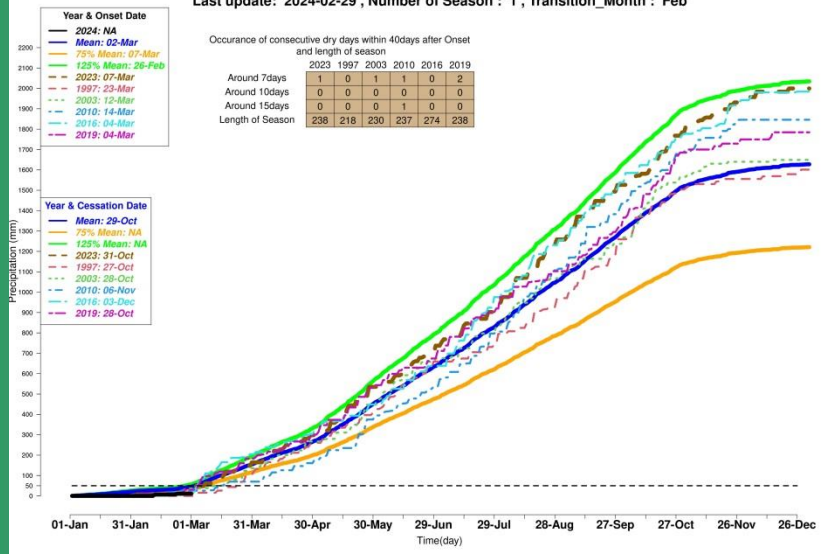
Centrafrique : Cumulative precipitation for OBO , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Feb



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	1	1	2	1	2	2
Around 10days	0	0	0	0	0	0
Around 15days	0	0	0	1	0	0
Length of Season	235	217	218	233	229	238

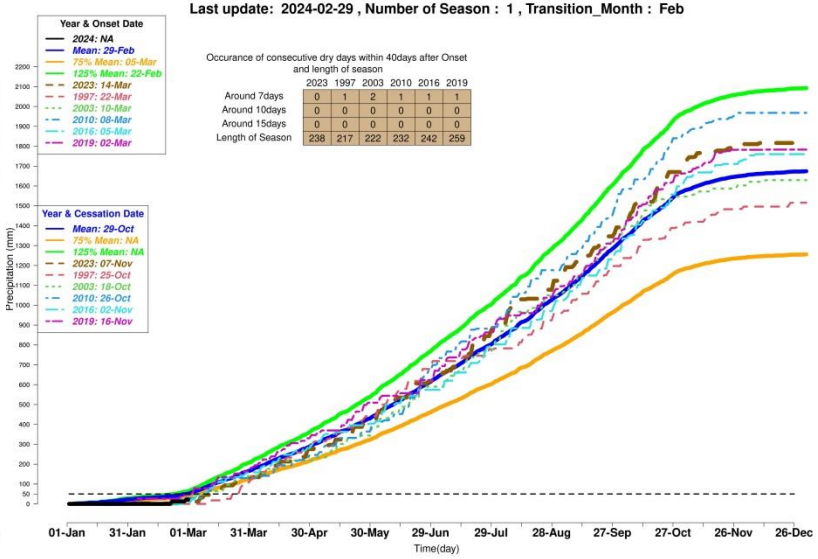
Centrafrique : Cumulative precipitation for ALINDAO , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Feb



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	1	0	1	1	0	2
Around 10days	0	0	0	0	0	0
Around 15days	0	0	0	1	0	0
Length of Season	238	218	230	237	274	238

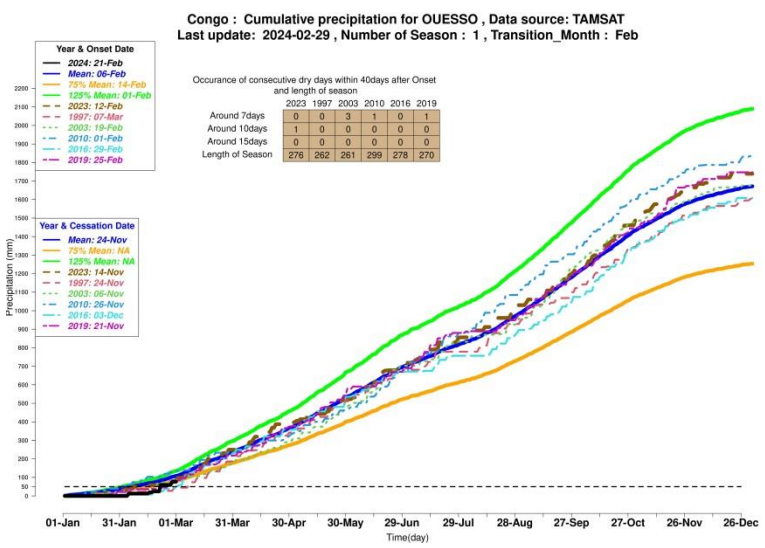
Centrafrique : Cumulative precipitation for BERBERATI , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Feb

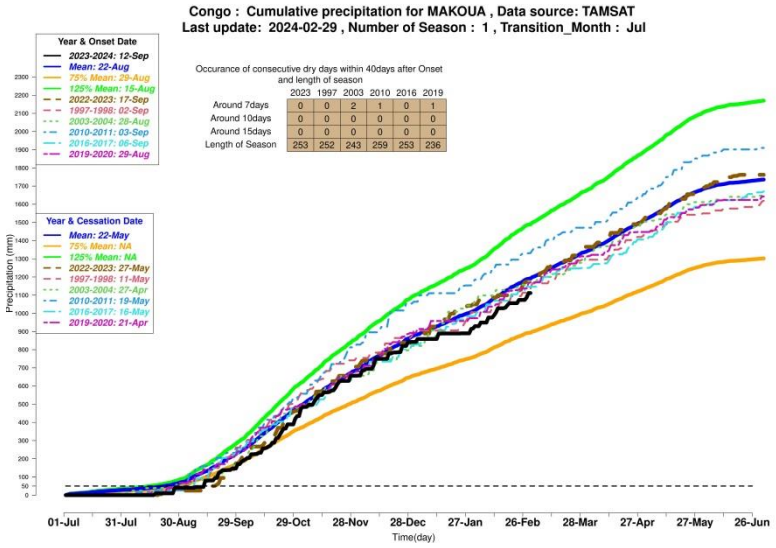


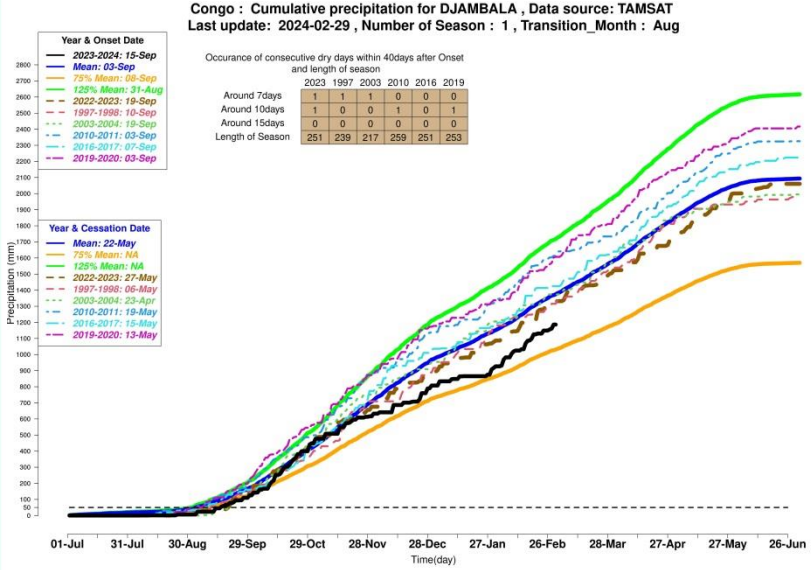
Occurance of consecutive dry days within 40days after Onset and length of season

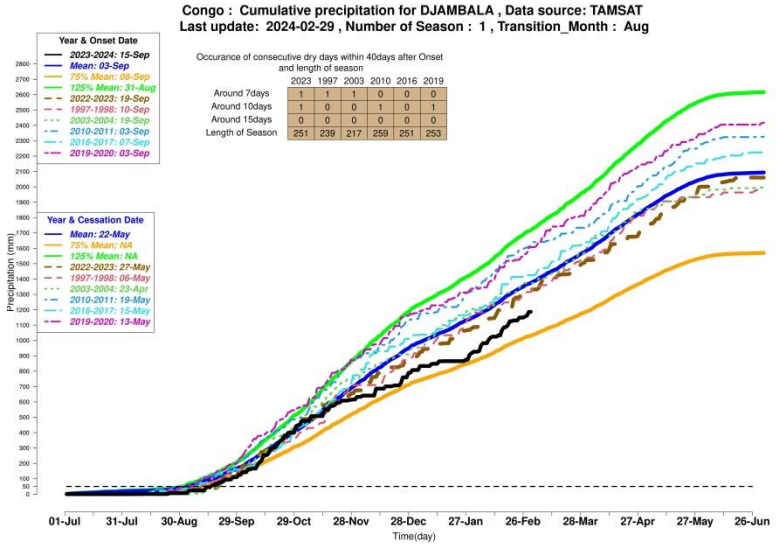
	2023	1997	2003	2010	2016	2019
Around 7days	0	1	2	1	1	1
Around 10days	0	0	0	0	0	0
Around 15days	0	0	0	0	0	0
Length of Season	238	217	222	232	242	259

CONGO


Congo : Cumulative precipitation for OUESSO , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Feb
Year & Onset Date
2024: 21-Feb
Mean: 06-Feb
75% Mean: 14-Feb
125% Mean: 01-Feb
2023: 12-Feb
1997: 07-Mar
2003: 19-Feb
2010: 01-Feb
2016: 29-Feb
2019: 25-Feb
Year & Cessation Date
Mean: 24-Nov
75% Mean: NA
125% Mean: NA
2023: 14-Nov
1997: 24-Nov
2003: 08-Nov
2010: 26-Nov
2016: 03-Dec
2019: 21-Nov
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 0 0 3 1 0 1
Around 10days 1 0 0 0 0 0
Around 15days 0 0 0 0 0 0
Length of Season 276 262 261 299 278 270
Precipitation (mm)
01-Jan 31-Jan 01-Mar 31-Mar 30-Apr 30-May 29-Jun 29-Jul 28-Aug 27-Sep 27-Oct 26-Nov 26-Dec
Time(day)

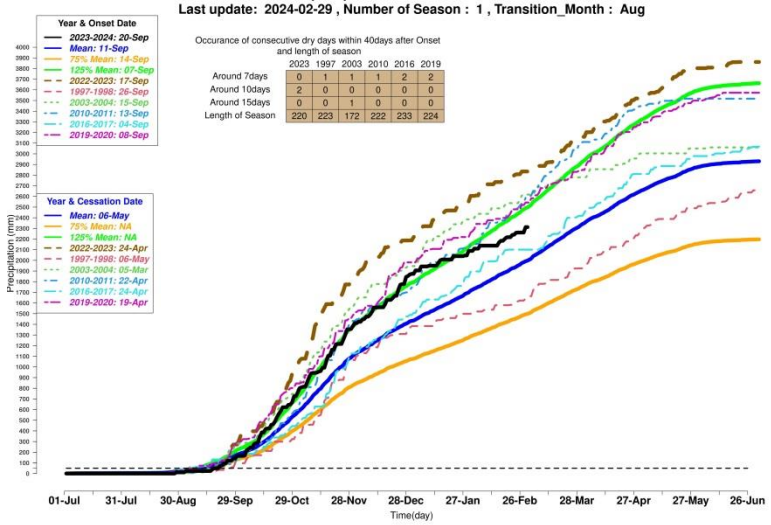

Congo : Cumulative precipitation for MAKOUA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Jul
Year & Onset Date
2023-2024: 12-Sep
Mean: 22-Aug
75% Mean: 29-Aug
125% Mean: 15-Aug
2022-2023: 17-Sep
1997-1998: 02-Sep
2003-2004: 28-Aug
2010-2011: 03-Sep
2016-2017: 06-Sep
2019-2020: 29-Aug
Year & Cessation Date
Mean: 22-May
75% Mean: NA
125% Mean: NA
2022-2023: 27-May
1997-1998: 11-May
2003-2004: 27-Apr
2010-2011: 19-May
2016-2017: 16-May
2019-2020: 21-Apr
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 0 0 2 1 0 1
Around 10days 0 0 0 0 0 0
Around 15days 0 0 0 0 0 0
Length of Season 253 252 243 259 253 236
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)


Congo : Cumulative precipitation for DJAMBALA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug
Year & Onset Date
2023-2024: 15-Sep
Mean: 03-Sep
75% Mean: 08-Sep
125% Mean: 31-Aug
2022-2023: 19-Sep
1997-1998: 10-Sep
2003-2004: 19-Sep
2010-2011: 03-Sep
2016-2017: 07-Sep
2019-2020: 03-Sep
Year & Cessation Date
Mean: 22-May
75% Mean: NA
125% Mean: NA
2022-2023: 27-May
1997-1998: 06-May
2003-2004: 23-Apr
2010-2011: 19-May
2016-2017: 15-May
2019-2020: 13-May
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 1 1 1 0 0 0
Around 10days 1 0 0 1 0 1
Around 15days 0 0 0 0 0 0
Length of Season 251 239 217 259 251 253
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)


Congo : Cumulative precipitation for DJAMBALA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug
Year & Onset Date
2023-2024: 15-Sep
Mean: 03-Sep
75% Mean: 08-Sep
125% Mean: 31-Aug
2022-2023: 19-Sep
1997-1998: 10-Sep
2003-2004: 19-Sep
2010-2011: 03-Sep
2016-2017: 07-Sep
2019-2020: 03-Sep
Year & Cessation Date
Mean: 22-May
75% Mean: NA
125% Mean: NA
2022-2023: 27-May
1997-1998: 06-May
2003-2004: 23-Apr
2010-2011: 19-May
2016-2017: 15-May
2019-2020: 13-May
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 1 1 1 0 0 0
Around 10days 1 0 0 1 0 1
Around 15days 0 0 0 0 0 0
Length of Season 251 239 217 259 251 253
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

GABON

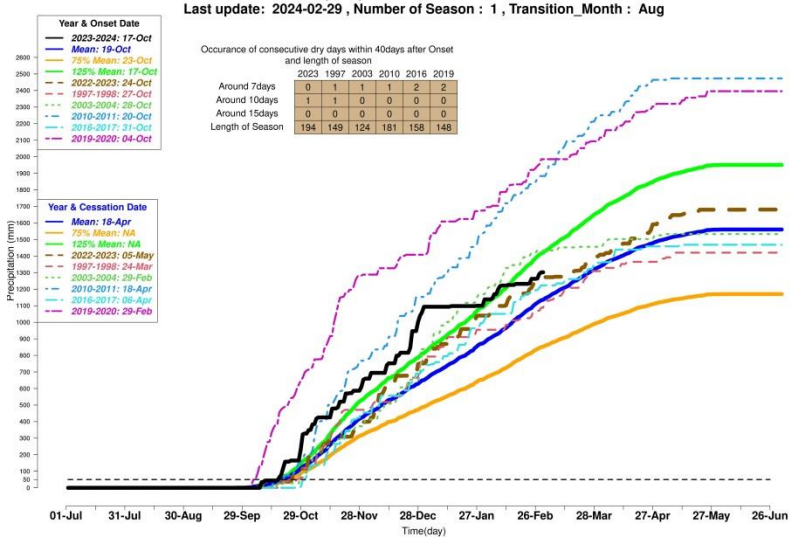
Gabon : Cumulative precipitation for LIBREVILLE , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	0	1	1	1	2	2
Around 10days	2	0	0	0	0	0
Around 15days	0	0	1	0	0	0
Length of Season	220	223	172	222	233	224

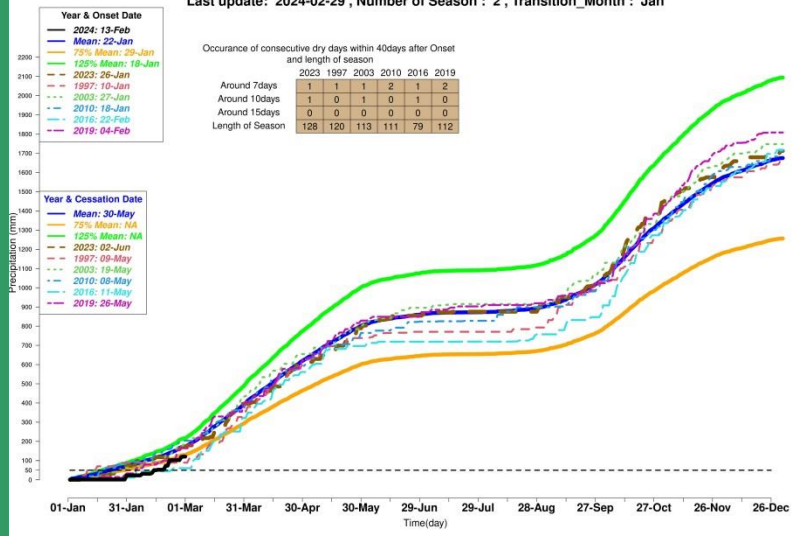
Gabon : Cumulative precipitation for MAYUMBA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	0	1	1	1	2	2
Around 10days	1	1	0	0	0	0
Around 15days	0	0	0	0	0	0
Length of Season	194	149	124	181	158	148

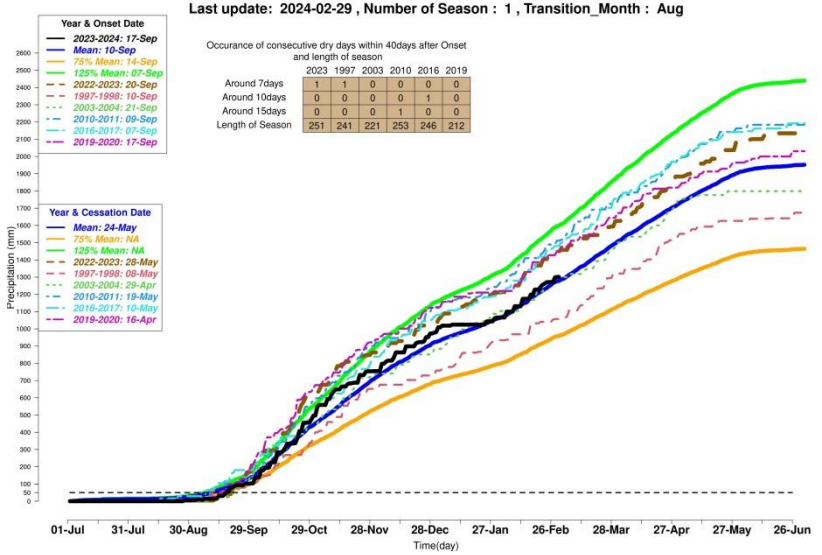
Gabon : Cumulative precipitation for MAKOKOU , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 2 , Transition_Month : Jan



Occurance of consecutive dry days within 40days after Onset and length of season

	2023	1997	2003	2010	2016	2019
Around 7days	1	1	1	2	1	2
Around 10days	1	0	1	0	1	0
Around 15days	0	0	0	0	0	0
Length of Season	128	120	113	111	79	112

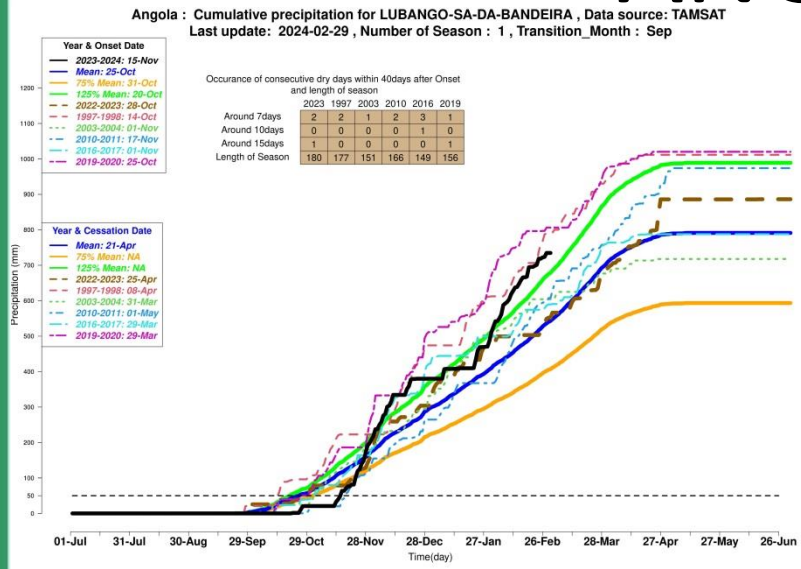
Gabon : Cumulative precipitation for MVENGUE , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug

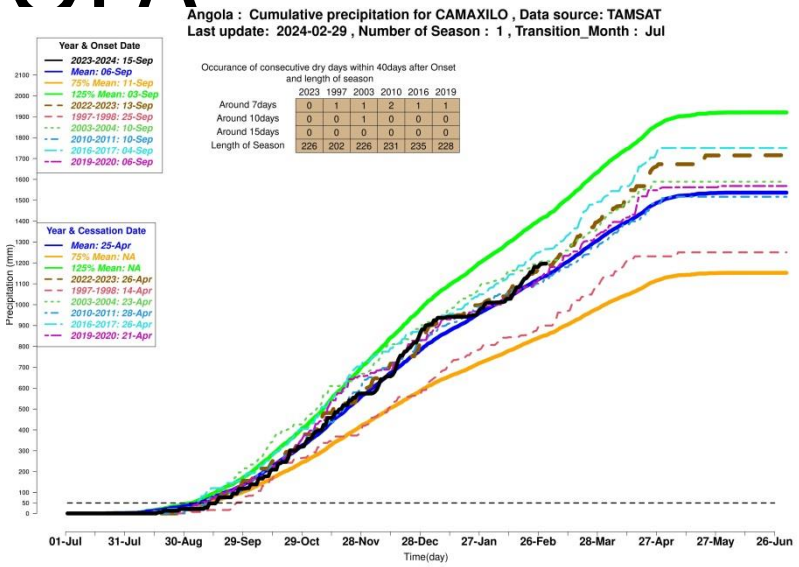


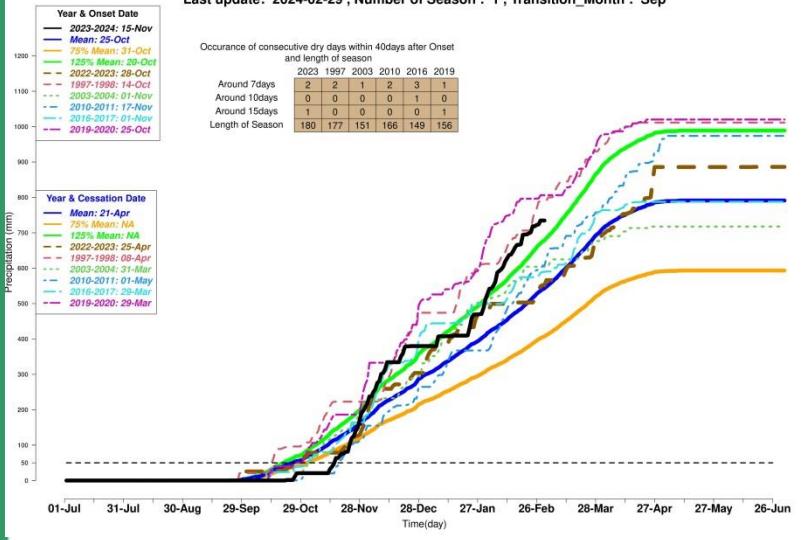
Occurance of consecutive dry days within 40days after Onset and length of season

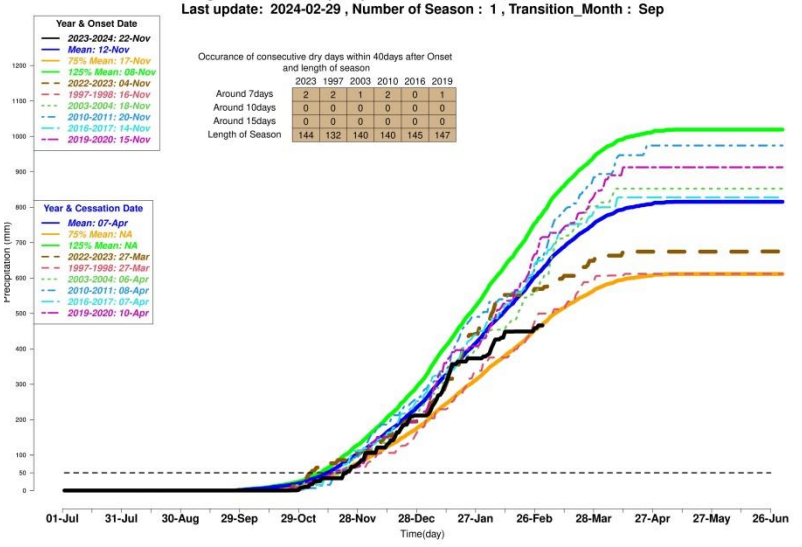
	2023	1997	2003	2010	2016	2019
Around 7days	1	1	0	0	0	0
Around 10days	0	0	0	0	1	0
Around 15days	0	0	0	1	0	0
Length of Season	251	241	221	253	246	212

ANGOLA

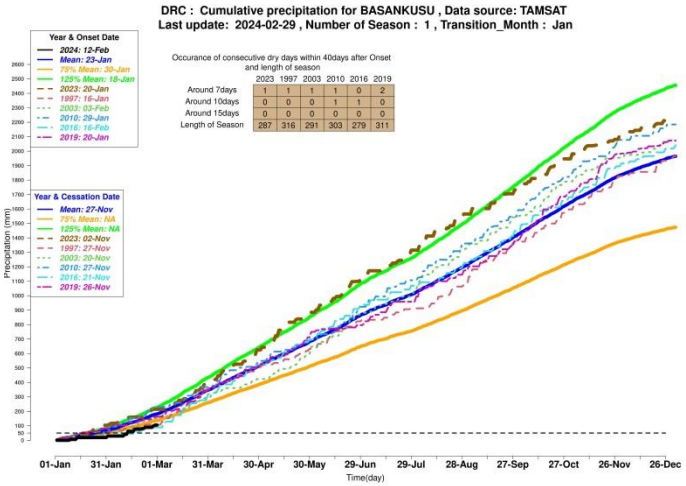

Angola : Cumulative precipitation for LUBANGO-SA-DA-BANDEIRA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Sep
Year & Onset Date
2023-2024: 15-Nov
Mean: 25-Oct
75% Mean: 31-Oct
125% Mean: 20-Oct
2022-2023: 28-Oct
1997-1998: 14-Oct
2003-2004: 01-Nov
2010-2011: 17-Nov
2016-2017: 01-Nov
2019-2020: 25-Oct
Year & Cessation Date
Mean: 21-Apr
75% Mean: NA
125% Mean: NA
2022-2023: 25-Apr
1997-1998: 09-Apr
2003-2004: 31-Mar
2010-2011: 01-May
2016-2017: 29-Mar
2019-2020: 29-Mar
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 2 2 1 2 3 1
Around 10days 0 0 0 0 1 0
Around 15days 1 0 0 0 0 1
Length of Season 180 177 151 166 149 156
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

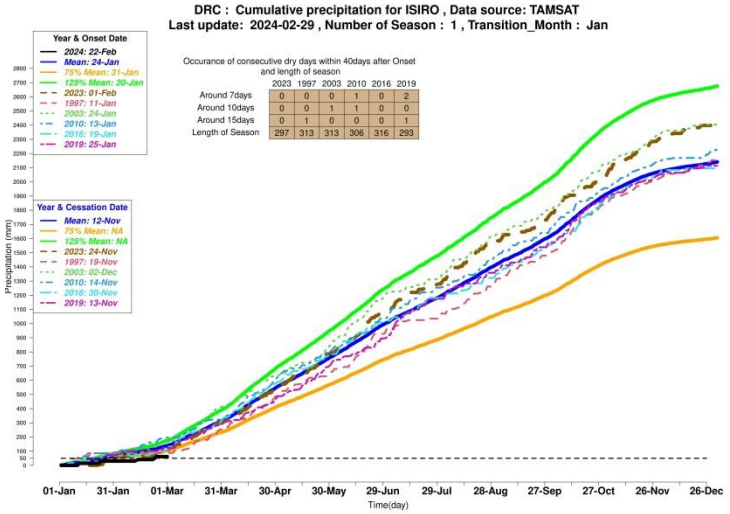

Angola : Cumulative precipitation for CAMAXILO , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Jul
Year & Onset Date
2023-2024: 15-Sep
Mean: 06-Sep
75% Mean: 11-Sep
125% Mean: 03-Sep
2022-2023: 13-Sep
1997-1998: 25-Sep
2003-2004: 10-Sep
2010-2011: 10-Sep
2016-2017: 04-Sep
2019-2020: 06-Sep
Year & Cessation Date
Mean: 25-Apr
75% Mean: NA
125% Mean: NA
2022-2023: 26-Apr
1997-1998: 14-Apr
2003-2004: 23-Apr
2010-2011: 28-Apr
2016-2017: 26-Apr
2019-2020: 21-Apr
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 0 1 1 2 1 1
Around 10days 0 0 1 0 0 0
Around 15days 0 0 0 0 0 0
Length of Season 226 202 226 231 235 228
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

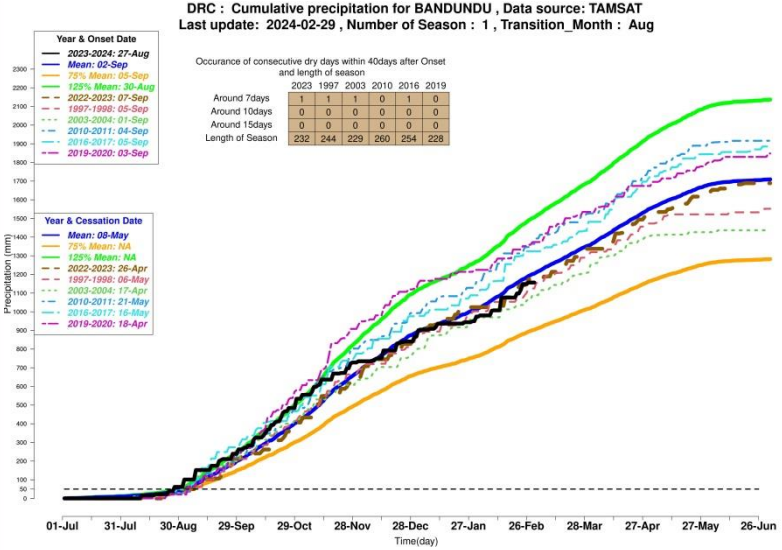

Angola : Cumulative precipitation for LUBANGO-SA-DA-BANDEIRA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Sep
Year & Onset Date
2023-2024: 15-Nov
Mean: 25-Oct
75% Mean: 31-Oct
125% Mean: 20-Oct
2022-2023: 28-Oct
1997-1998: 14-Oct
2003-2004: 01-Nov
2010-2011: 17-Nov
2016-2017: 01-Nov
2019-2020: 25-Oct
Year & Cessation Date
Mean: 21-Apr
75% Mean: NA
125% Mean: NA
2022-2023: 25-Apr
1997-1998: 08-Apr
2003-2004: 31-Mar
2010-2011: 01-May
2016-2017: 29-Mar
2019-2020: 29-Mar
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 2 2 1 2 3 1
Around 10days 0 0 0 0 1 0
Around 15days 1 0 0 0 0 1
Length of Season 180 177 151 166 149 156
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

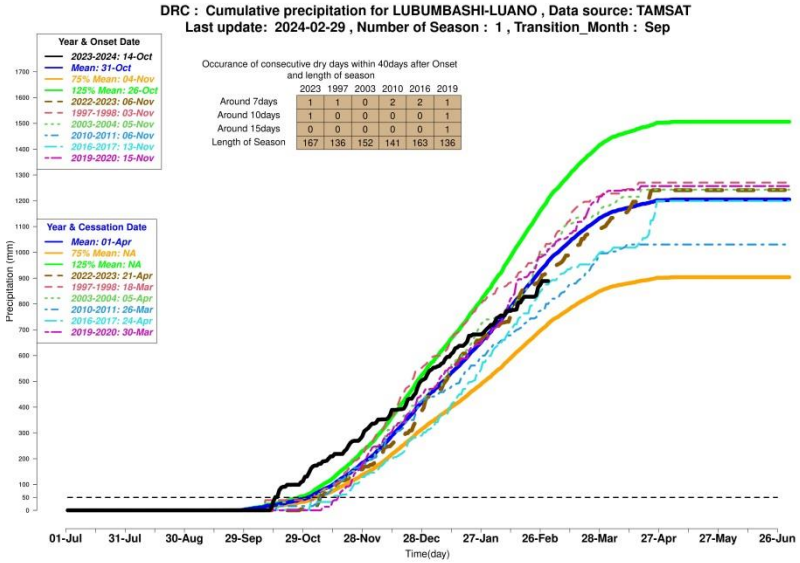

Angola : Cumulative precipitation for MAVINGA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Sep
Year & Onset Date
2023-2024: 22-Nov
Mean: 12-Nov
75% Mean: 17-Nov
125% Mean: 08-Nov
2022-2023: 04-Nov
1997-1998: 16-Nov
2003-2004: 18-Nov
2010-2011: 20-Nov
2016-2017: 14-Nov
2019-2020: 15-Nov
Year & Cessation Date
Mean: 07-Apr
75% Mean: NA
125% Mean: NA
2022-2023: 27-Mar
1997-1998: 27-Mar
2003-2004: 06-Apr
2010-2011: 08-Apr
2016-2017: 07-Apr
2019-2020: 10-Apr
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 2 2 1 2 0 1
Around 10days 0 0 0 0 0 0
Around 15days 0 0 0 0 0 0
Length of Season 144 132 140 140 145 147
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

DRC

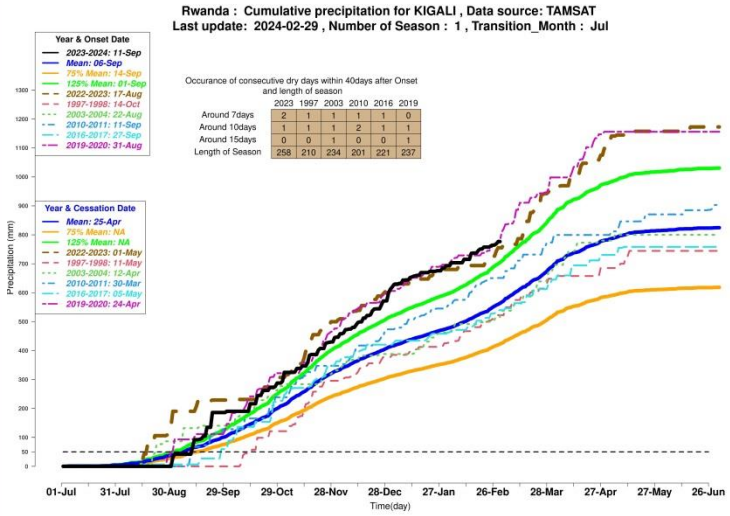

DRC : Cumulative precipitation for BASANKUSU , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Jan
Year & Onset Date
2024: 12-Feb
Mean: 23-Jan
75% Mean: 30-Jan
125% Mean: 18-Jan
2023: 20-Jan
1997: 16-Jan
2003: 03-Feb
2010: 29-Jan
2016: 16-Feb
2019: 20-Jan
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 1 1 1 1 0 2
Around 10days 0 0 0 1 1 0
Around 15days 0 0 0 0 0 0
Length of Season 287 316 291 303 279 311
Year & Cessation Date
Mean: 27-Nov
75% Mean: NA
125% Mean: NA
2023: 02-Nov
1997: 27-Nov
2003: 20-Nov
2010: 27-Nov
2016: 21-Nov
2019: 26-Nov
Precipitation (mm)
01-Jan 31-Jan 01-Mar 31-Mar 30-Apr 30-May 29-Jun 29-Jul 28-Aug 27-Sep 27-Oct 26-Nov 26-Dec
Time(day)

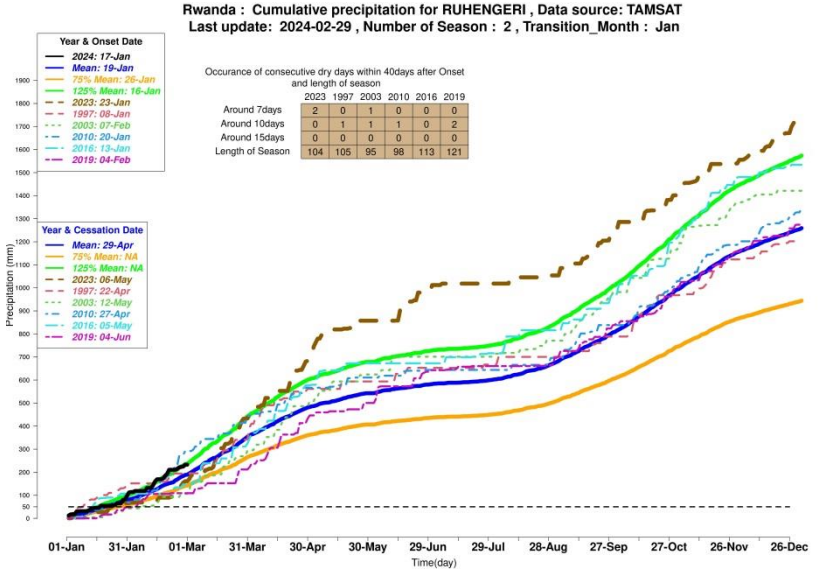

DRC : Cumulative precipitation for ISIRO , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Jan
Year & Onset Date
2024: 22-Feb
Mean: 24-Jan
75% Mean: 31-Jan
125% Mean: 20-Jan
2023: 01-Feb
1997: 11-Jan
2003: 24-Jan
2010: 13-Jan
2016: 19-Jan
2019: 25-Jan
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 0 0 0 1 0 2
Around 10days 0 0 1 1 0 0
Around 15days 0 1 0 0 0 1
Length of Season 297 313 313 306 316 293
Year & Cessation Date
Mean: 12-Nov
75% Mean: NA
125% Mean: NA
2023: 24-Nov
1997: 19-Nov
2003: 02-Dec
2010: 14-Nov
2016: 30-Nov
2019: 13-Nov
Precipitation (mm)
01-Jan 31-Jan 01-Mar 31-Mar 30-Apr 30-May 29-Jun 29-Jul 28-Aug 27-Sep 27-Oct 26-Nov 26-Dec
Time(day)


DRC : Cumulative precipitation for BANDUNDU , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug
Year & Onset Date
2023-2024: 27-Aug
Mean: 02-Sep
75% Mean: 05-Sep
125% Mean: 30-Aug
2022-2023: 07-Sep
1997-1998: 05-Sep
2003-2004: 01-Sep
2010-2011: 04-Sep
2016-2017: 05-Sep
2019-2020: 03-Sep
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 1 1 1 0 1 0
Around 10days 0 0 0 0 0 0
Around 15days 0 0 0 0 0 0
Length of Season 232 244 229 260 254 228
Year & Cessation Date
Mean: 08-May
75% Mean: NA
125% Mean: NA
2022-2023: 26-Apr
1997-1998: 06-May
2003-2004: 17-Apr
2010-2011: 21-May
2016-2017: 16-May
2019-2020: 18-Apr
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

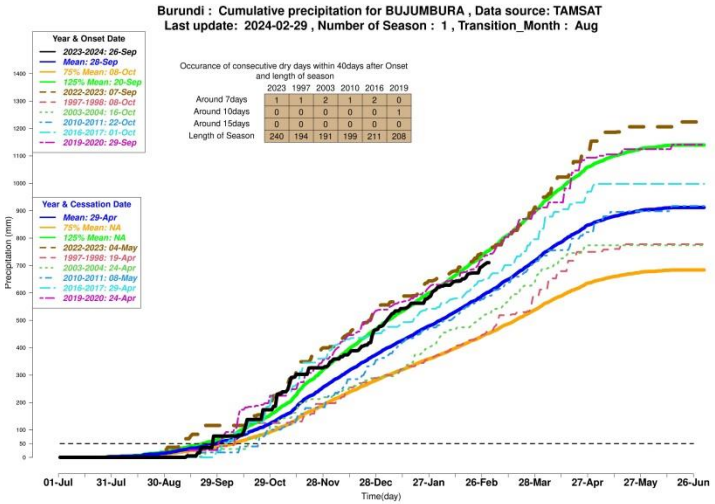

DRC : Cumulative precipitation for LUBUMBASHI-LUANO , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Sep
Year & Onset Date
2023-2024: 14-Oct
Mean: 31-Oct
75% Mean: 04-Nov
125% Mean: 26-Oct
2022-2023: 06-Nov
1997-1998: 03-Nov
2003-2004: 05-Nov
2010-2011: 06-Nov
2016-2017: 13-Nov
2019-2020: 15-Nov
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 1 1 0 2 2 1
Around 10days 1 0 0 0 0 1
Around 15days 0 0 0 0 0 1
Length of Season 167 136 152 141 163 136
Year & Cessation Date
Mean: 01-Apr
75% Mean: NA
125% Mean: NA
2022-2023: 21-Apr
1997-1998: 18-Mar
2003-2004: 05-Apr
2010-2011: 26-Mar
2016-2017: 24-Apr
2019-2020: 30-Mar
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

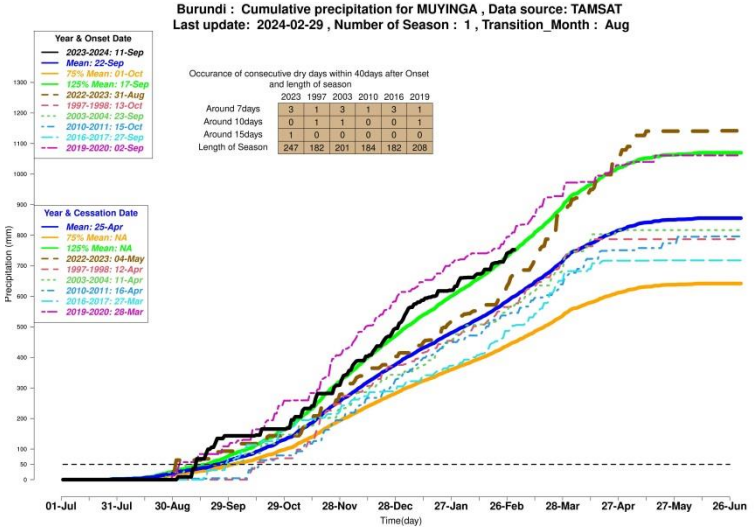
RWANDA


Rwanda : Cumulative precipitation for KIGALI , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Jul
Year & Onset Date
2023-2024: 11-Sep
Mean: 06-Sep
75% Mean: 14-Sep
125% Mean: 01-Sep
2022-2023: 17-Aug
1997-1998: 14-Oct
2003-2004: 22-Aug
2010-2011: 11-Sep
2016-2017: 27-Sep
2019-2020: 31-Aug
Year & Cessation Date
Mean: 25-Apr
75% Mean: NA
125% Mean: NA
2022-2023: 01-May
1997-1998: 11-May
2003-2004: 12-Apr
2010-2011: 30-Mar
2016-2017: 05-May
2019-2020: 24-Apr
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 2 1 1 1 1 0
Around 10days 1 1 1 2 1 1
Around 15days 0 0 1 0 0 1
Length of Season 258 210 234 201 221 237
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)


Rwanda : Cumulative precipitation for RUHENGERI , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 2 , Transition_Month : Jan
Year & Onset Date
2024: 17-Jan
Mean: 19-Jan
75% Mean: 26-Jan
125% Mean: 16-Jan
2023: 23-Jan
1997: 08-Jan
2003: 07-Feb
2010: 20-Jan
2016: 13-Jan
2019: 04-Feb
Year & Cessation Date
Mean: 29-Apr
75% Mean: NA
125% Mean: NA
2023: 06-May
1997: 22-Apr
2003: 12-May
2010: 27-Apr
2016: 05-May
2019: 04-Jun
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 2 0 1 0 0 0
Around 10days 0 1 1 1 0 2
Around 15days 0 0 0 0 0 0
Length of Season 104 105 95 98 113 121
Precipitation (mm)
01-Jan 31-Jan 01-Mar 31-Mar 30-Apr 30-May 29-Jun 29-Jul 28-Aug 27-Sep 27-Oct 26-Nov 26-Dec
Time(day)

BURUNDI

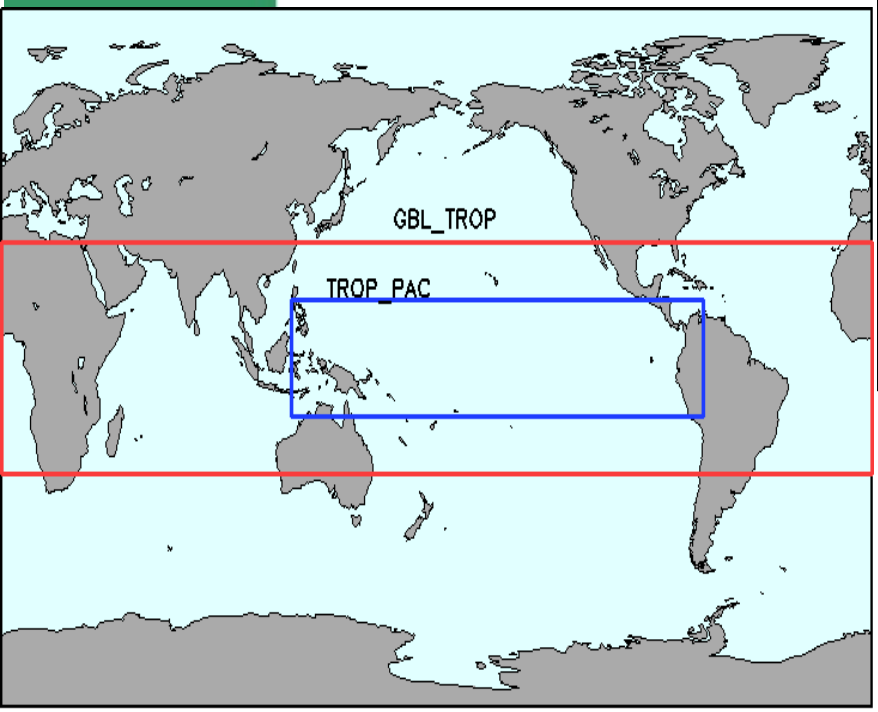

Burundi : Cumulative precipitation for BUJUMBURA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug
Year & Onset Date
2023-2024: 26-Sep
Mean: 28-Sep
75% Mean: 08-Oct
125% Mean: 20-Sep
2022-2023: 07-Sep
1997-1998: 08-Oct
2003-2004: 16-Oct
2010-2011: 22-Oct
2016-2017: 01-Oct
2019-2020: 29-Sep
Year & Cessation Date
Mean: 29-Apr
75% Mean: NA
125% Mean: NA
2022-2023: 04-May
1997-1998: 19-Apr
2003-2004: 24-Apr
2010-2011: 09-May
2016-2017: 29-Apr
2019-2020: 24-Apr
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 1 1 2 1 2 0
Around 10days 0 0 0 0 0 1
Around 15days 0 0 0 0 0 0
Length of Season 240 194 191 199 211 208
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)


Burundi : Cumulative precipitation for MUYINGA , Data source: TAMSAT
Last update: 2024-02-29 , Number of Season : 1 , Transition_Month : Aug
Year & Onset Date
2023-2024: 11-Sep
Mean: 22-Sep
75% Mean: 01-Oct
125% Mean: 17-Sep
2022-2023: 31-Aug
1997-1998: 13-Oct
2003-2004: 23-Sep
2010-2011: 15-Oct
2016-2017: 27-Sep
2019-2020: 02-Sep
Year & Cessation Date
Mean: 25-Apr
75% Mean: NA
125% Mean: NA
2022-2023: 04-May
1997-1998: 12-Apr
2003-2004: 11-Apr
2010-2011: 16-Apr
2016-2017: 27-Mar
2019-2020: 28-Mar
Occurance of consecutive dry days within 40days after Onset and length of season
2023 1997 2003 2010 2016 2019
Around 7days 3 1 3 1 3 1
Around 10days 0 1 1 0 0 1
Around 15days 1 0 0 0 0 0
Length of Season 247 182 201 184 182 208
Precipitation (mm)
01-Jul 31-Jul 30-Aug 29-Sep 29-Oct 28-Nov 28-Dec 27-Jan 26-Feb 28-Mar 27-Apr 27-May 26-Jun
Time(day)

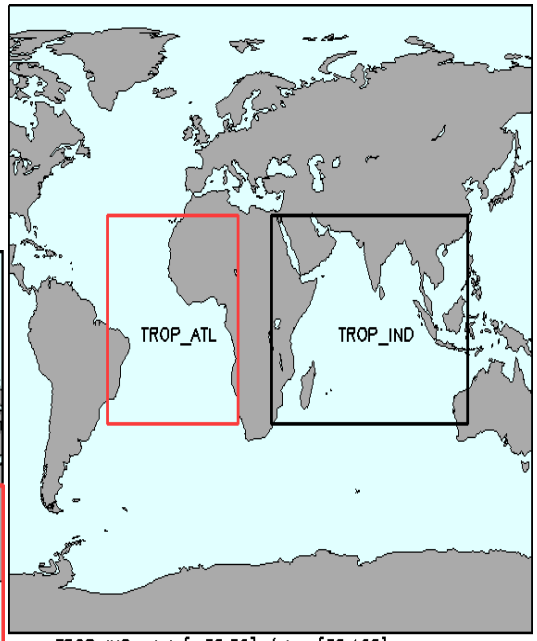
Step 5: Statistical Forecast

Canonical correlation analysis

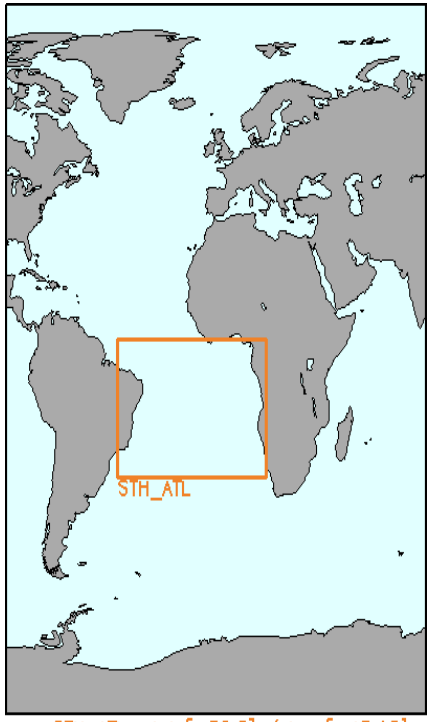
DATA SOURCES FOR EXPERIMENTS	
PREDICTAND	Gridded Observed Precipitations from CAMSOPI, TAMSAT
PREDICTOR	Observed Sea Surface Temperature from ERSSTv5
	Predicted Sea Surface Temperature from NMME (cfsv2, cmc1, cmc2, gfdl, ncar_ccsm4, nmme)
	Predicted Rainfall from NMME (cfsv2, cmc1, cmc2, gfdl, nasa, ncar_ccsm4, nmme)



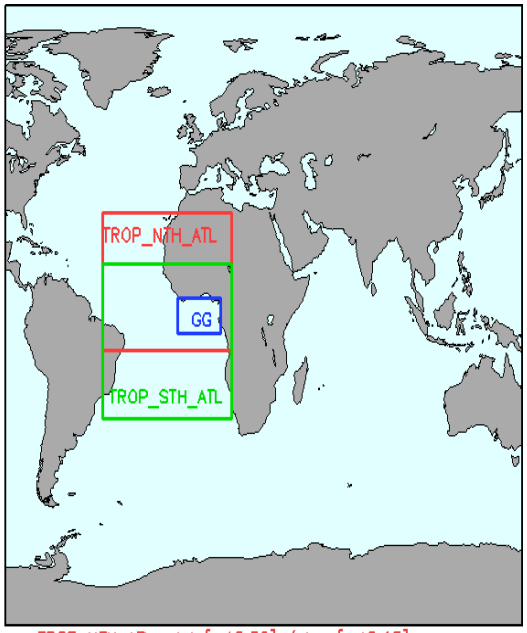
GBL_TROP : lat [-30;30] / lon [0;360]
TROP_PAC : lat [-15;15] / lon [120;-70]



TROP_IND : lat [-30;30] / lon [30;120]
TROP_ATL : lat [-30;30] / lon [-45;15]



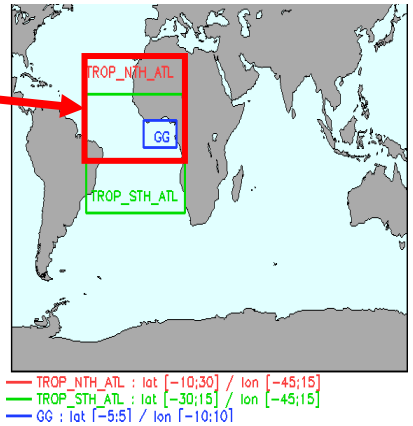
STH_ATL : lat [-30;5] / lon [-45;15]

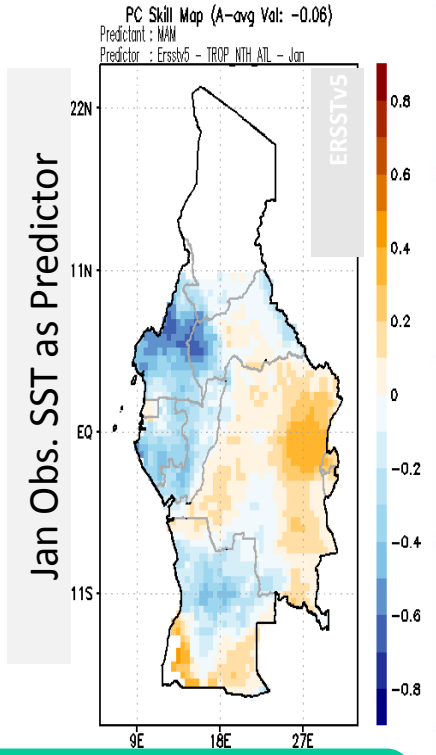


TROP_NTH_ATL : lat [-10;30] / lon [-45;15]
TROP_STH_ATL : lat [-30;15] / lon [-45;15]
GG : lat [-5;5] / lon [-10;10]

Predictor
SST over Tropical North Atlantic Ocean

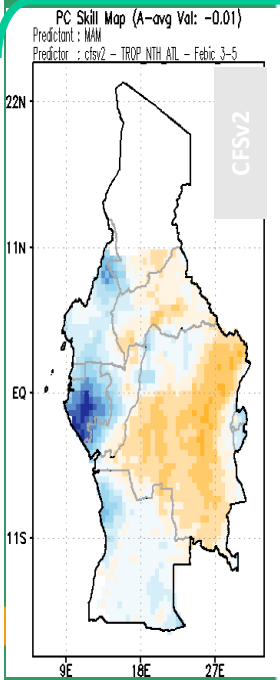
Predictand: MAM Rainfall from CAMSOPI

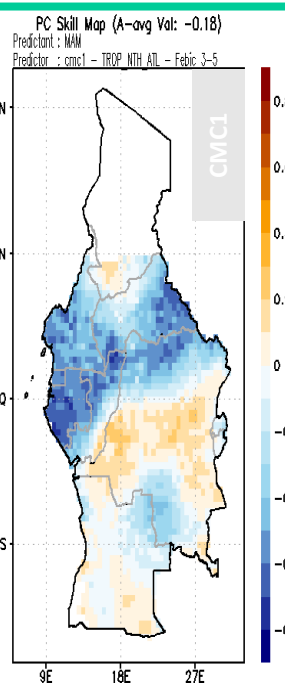


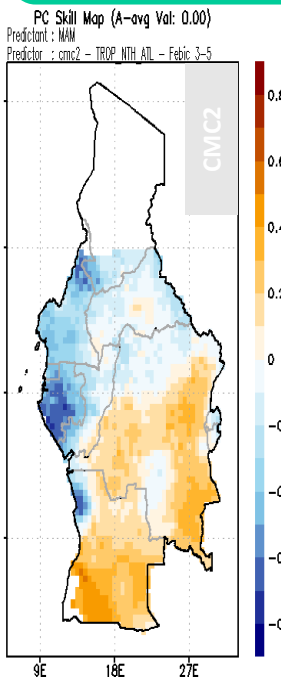


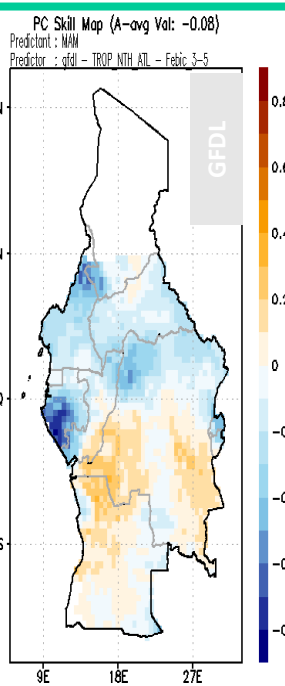
Jan Obs. SST as Predictor

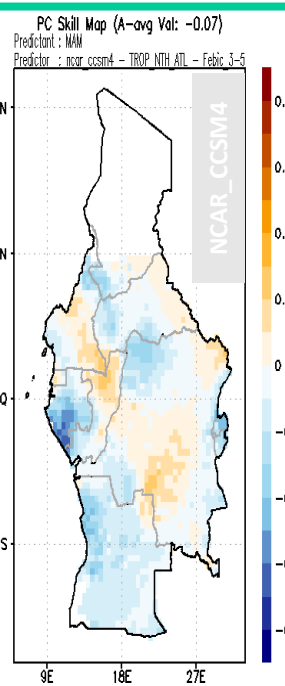
MAM Frcst (FebIC) SST as Predictor

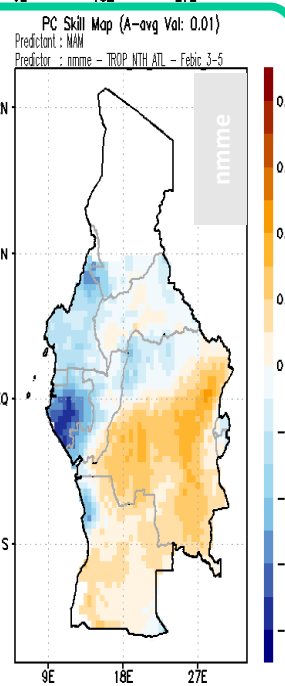






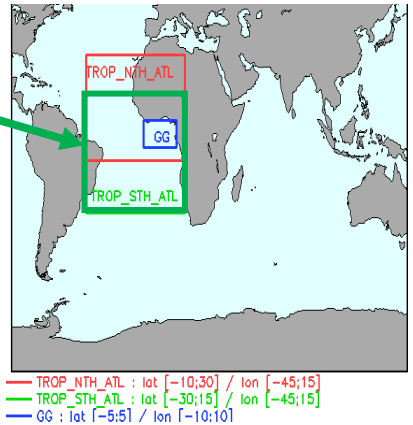




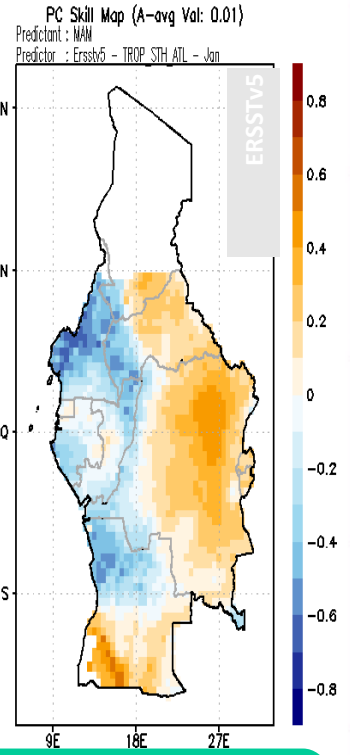


Predictor
SST over Tropical South Atlantic Ocean

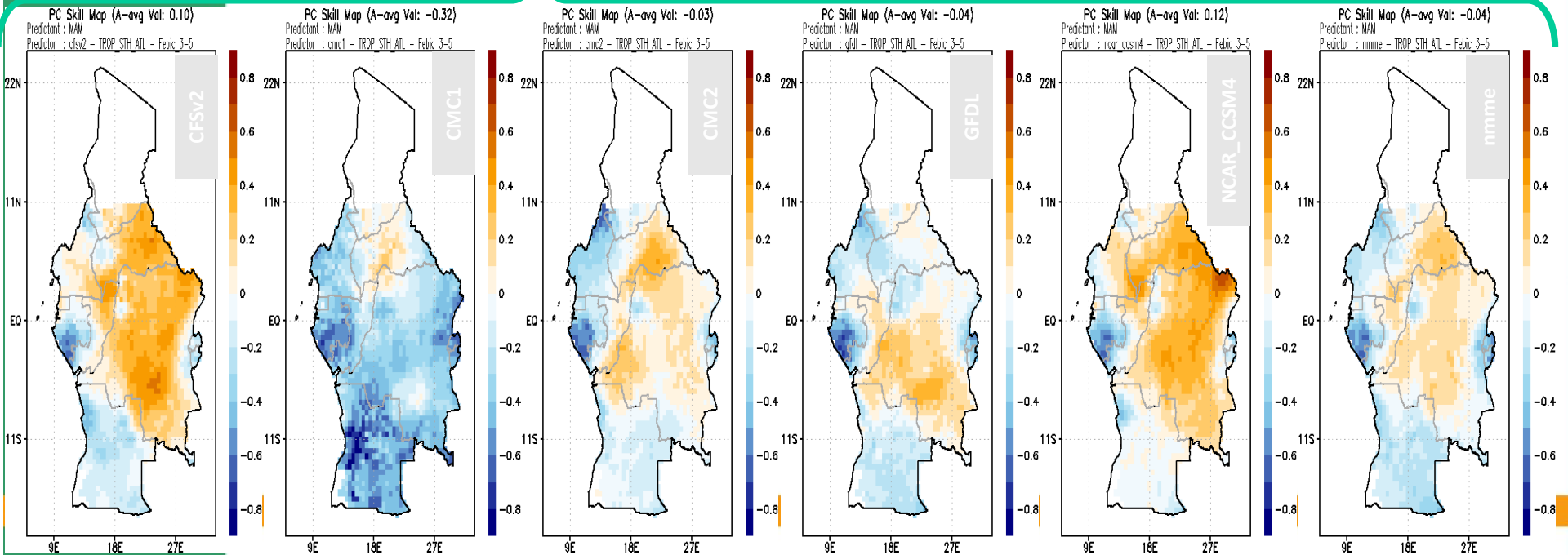
Predictand: MAM Rainfall from CAMSOPI



Jan Obs. SST as Predictor

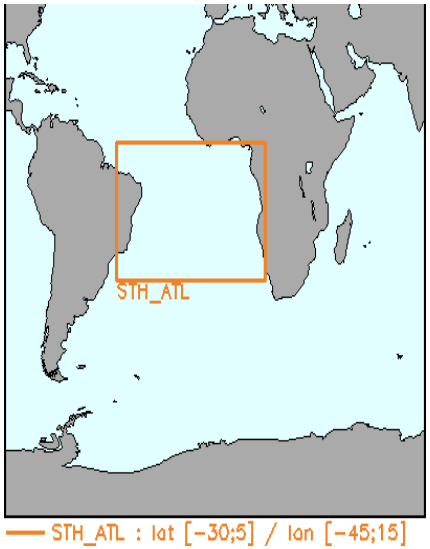


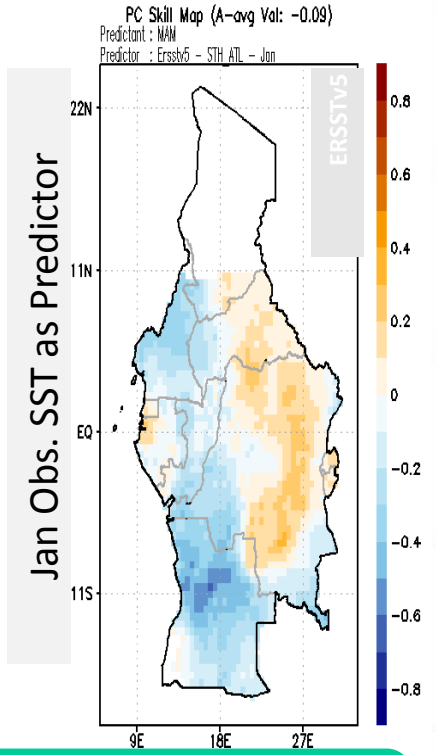
MAM Frcst (FebIC) SST as Predictor



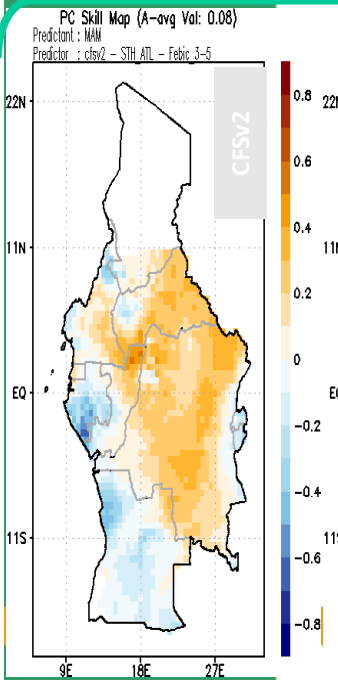
Predictor
SST over South Atlantic Ocean

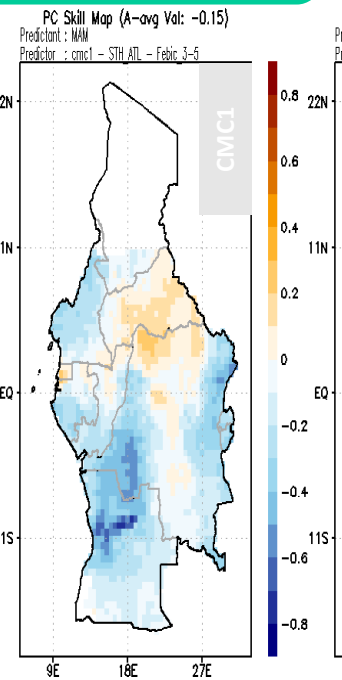
Predictand: MAM Rainfall from CAMSOPI

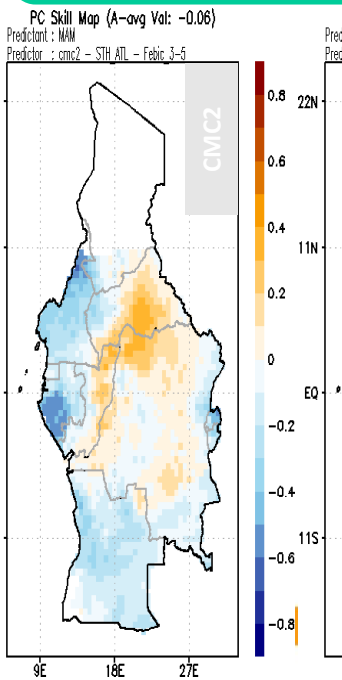


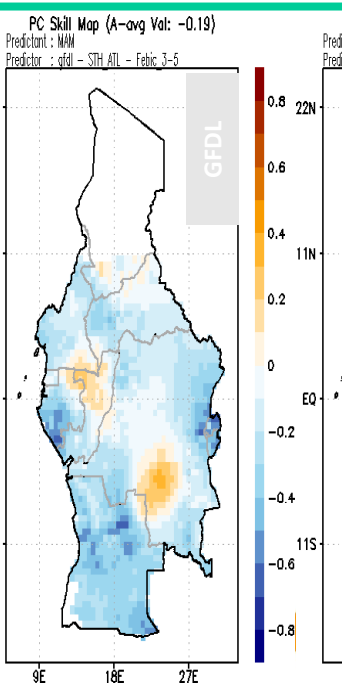


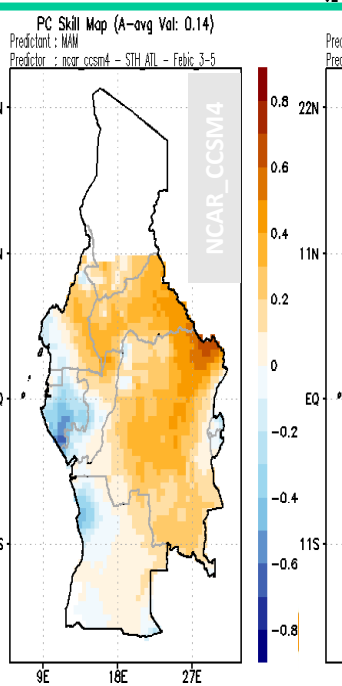
MAM Frcst (FebIC) SST as Predictor

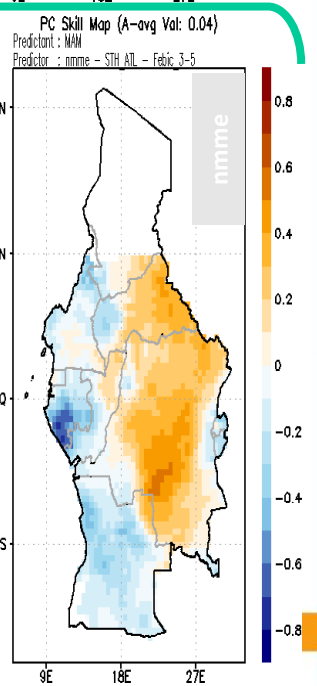






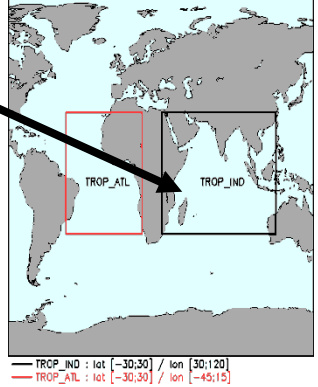






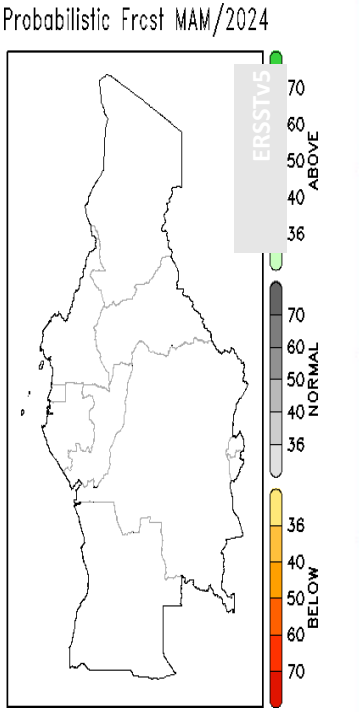
Predictor
SST over Tropical Indian Ocean

Predictand: MAM Rainfall from CAMSOPI

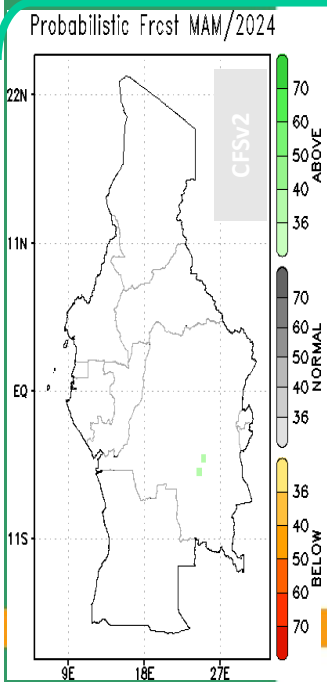


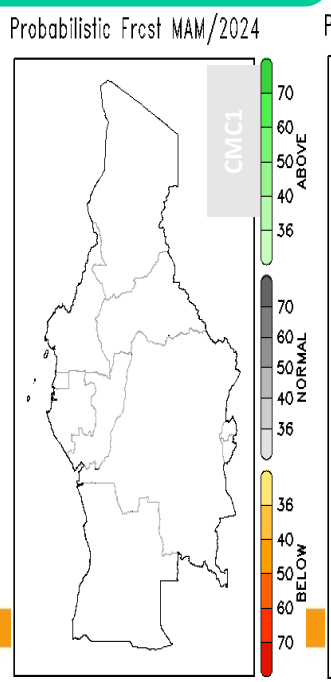
Using a Skill Mask of 0.3

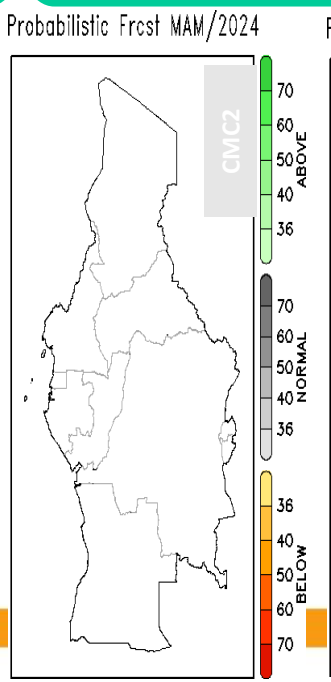
Jan Obs. SST as Predictor

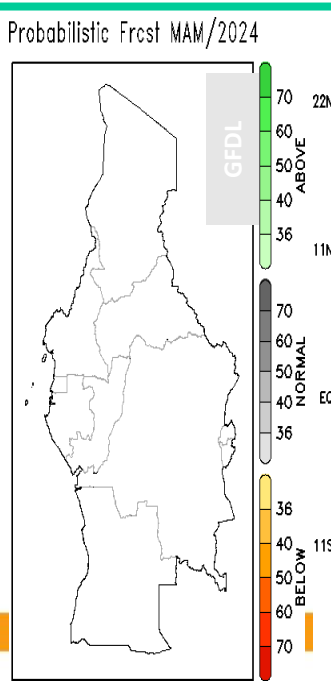


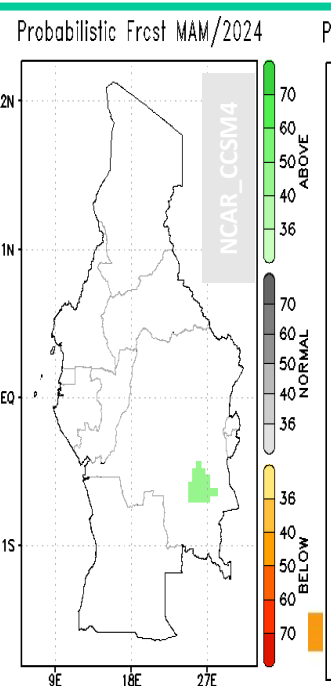
MAM Frcst (FebIC) SST as Predictor

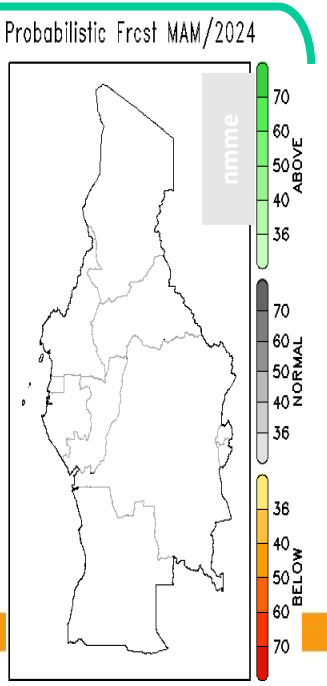






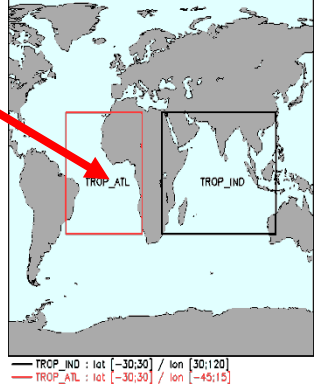






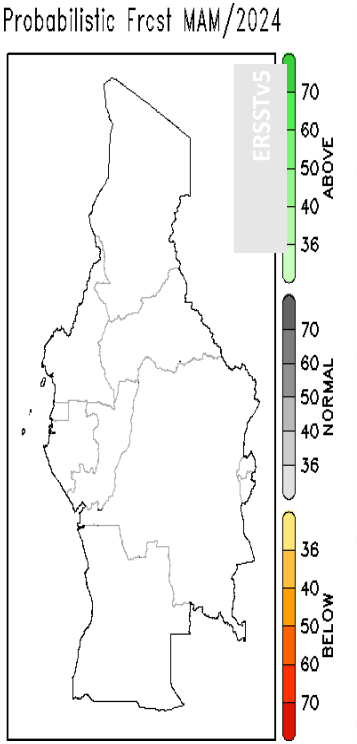
Predictor
SST over Tropical Atlantic Ocean

Predictand: MAM Rainfall from CAMSOPI

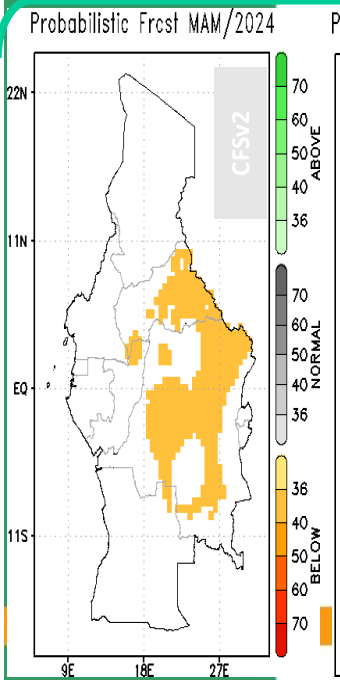


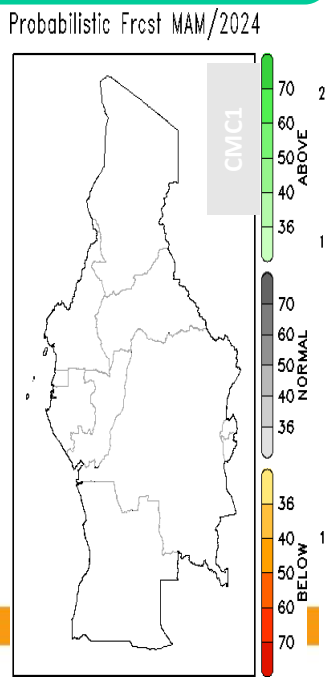
Using a Skill Mask of 0.3

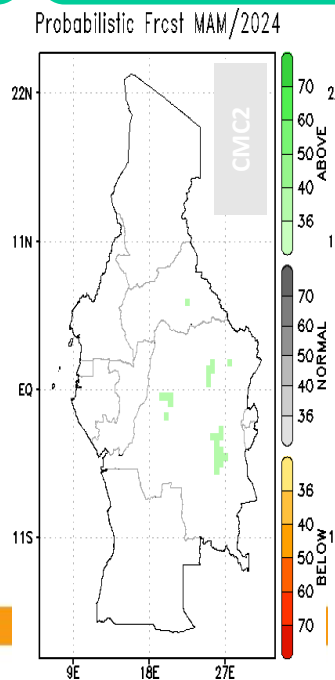
Jan Obs. SST as Predictor

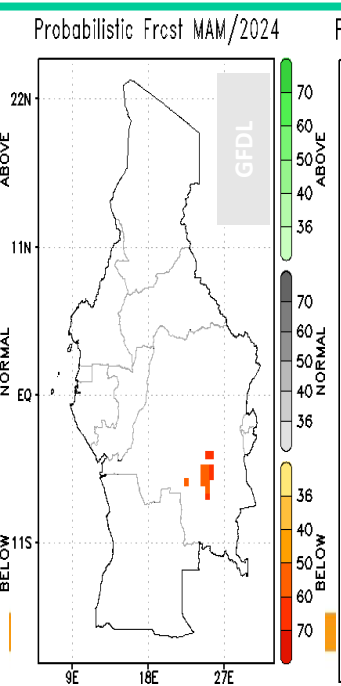


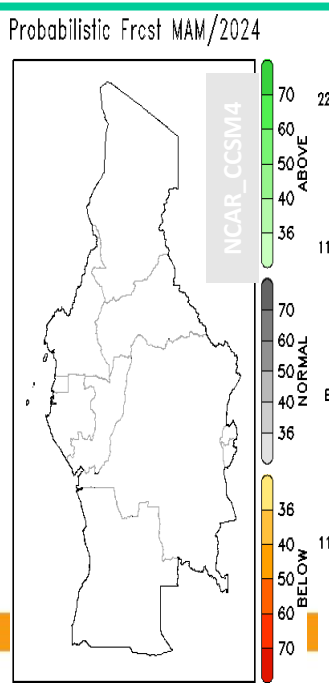
MAM Frcst (FebIC) SST as Predictor

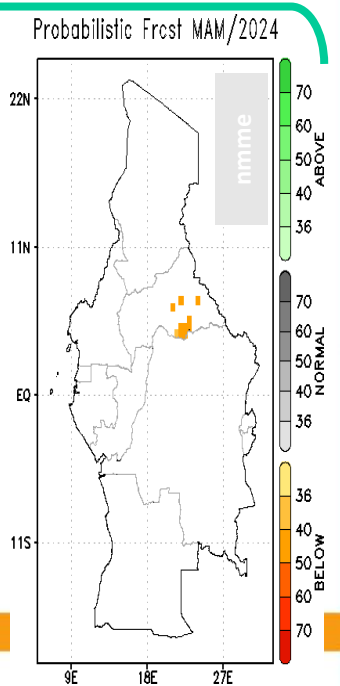








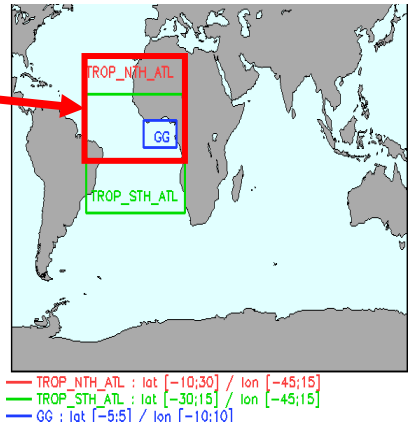




Predictor

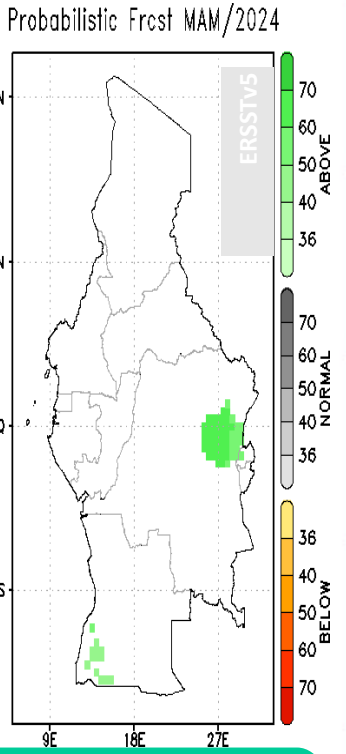
SST over Tropical North Atlantic Ocean

Predictand: MAM Rainfall from CAMSOPI

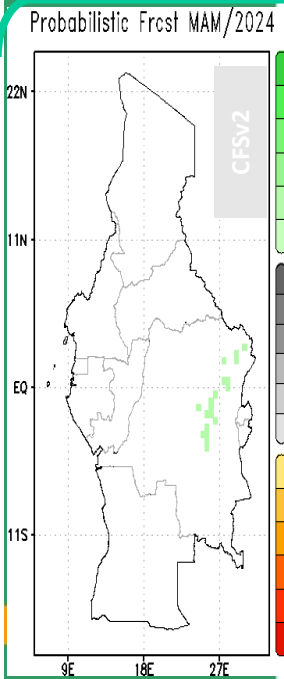


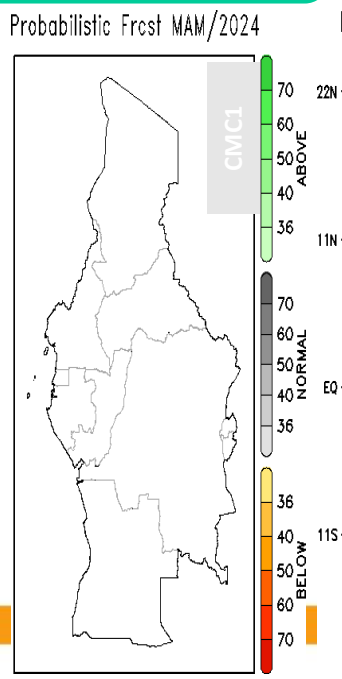
Using a Skill Mask of 0.3

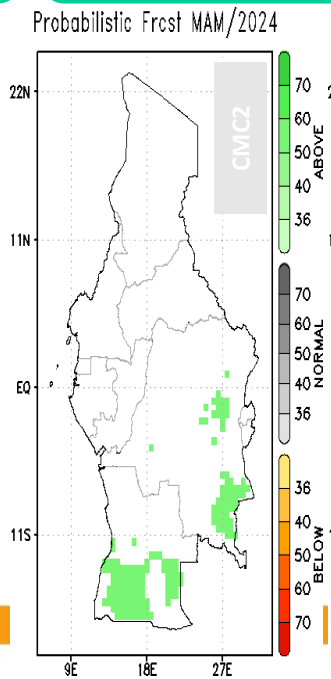
Jan Obs. SST as Predictor

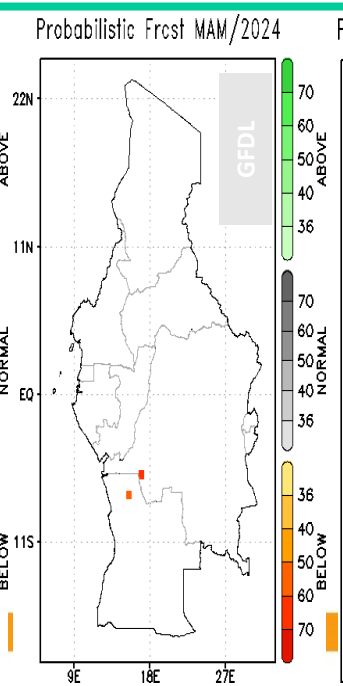


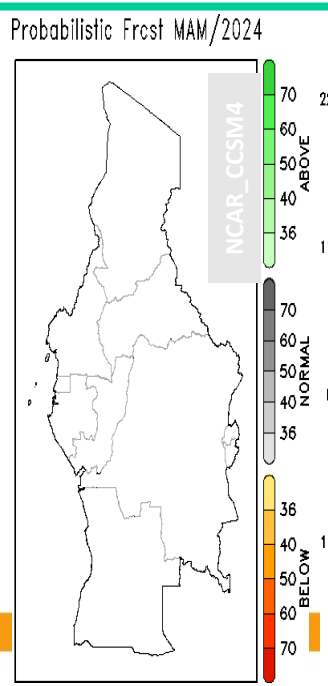
MAM Frcst (FebIC) SST as Predictor

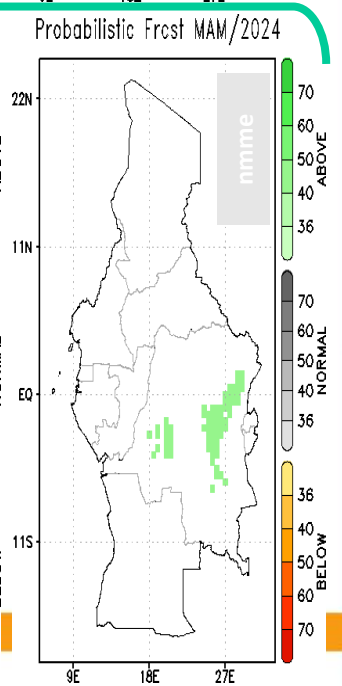








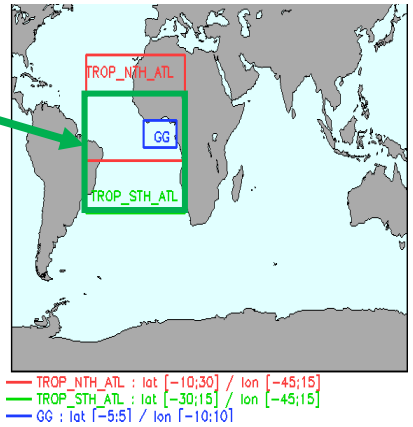




Predictor

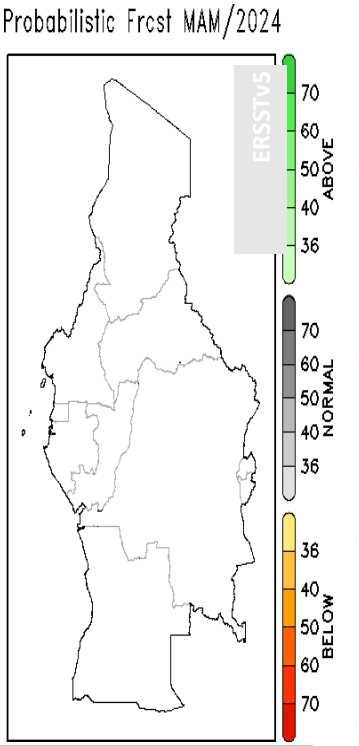
SST over Tropical South Atlantic Ocean

Predictand: MAM Rainfall from CAMSOPI

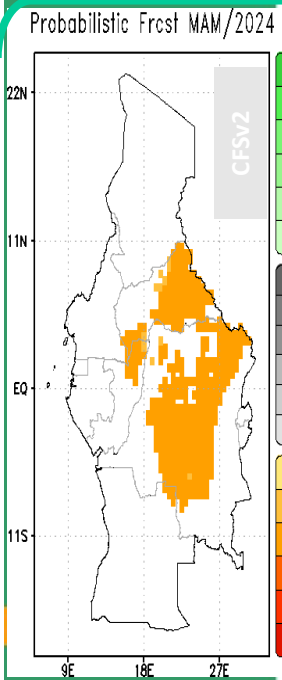


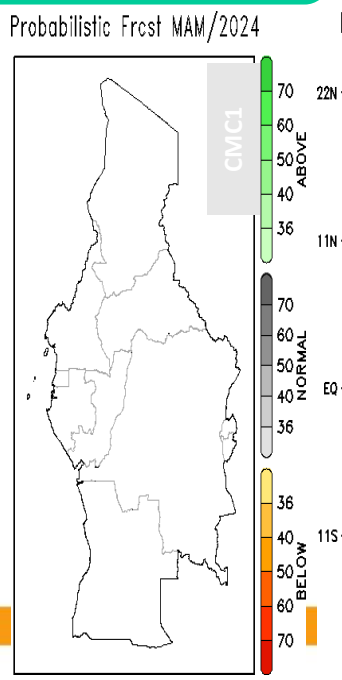
Using a Skill Mask of 0.3

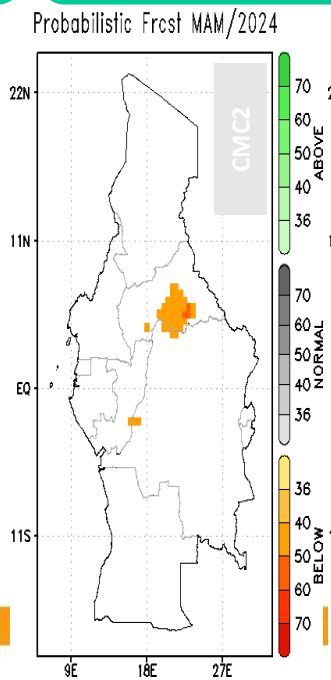
Jan Obs. SST as Predictor

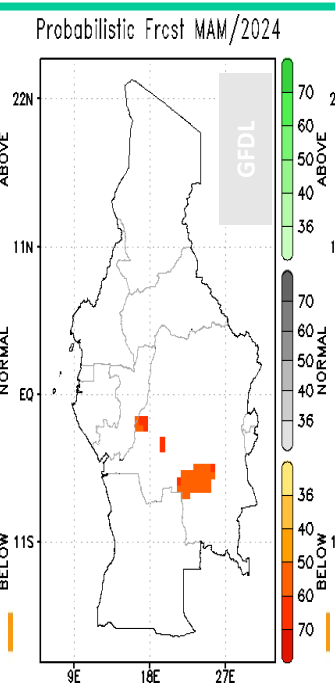


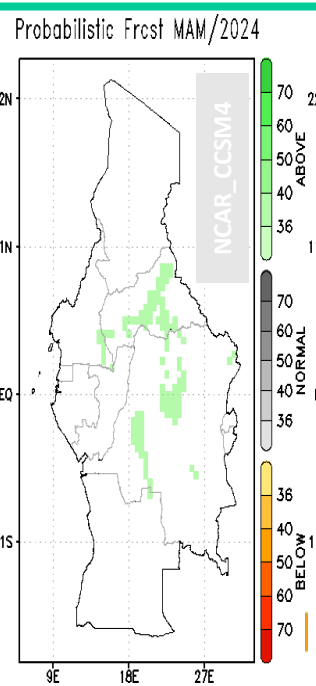
MAM Frcst (FebIC) SST as Predictor

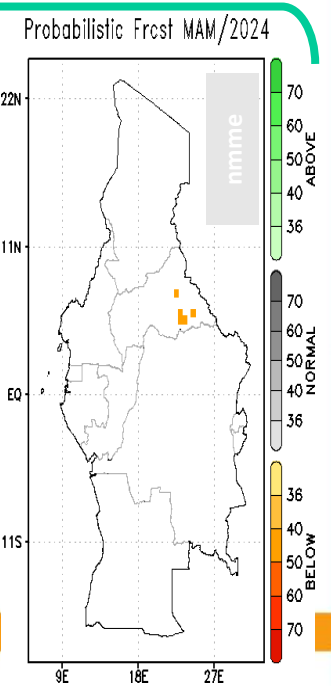






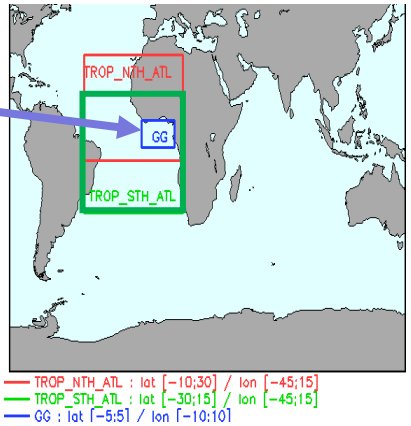






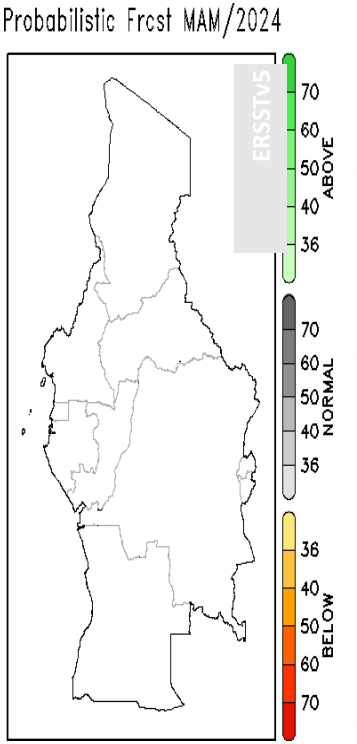
Predictor
SST over Gulf of Guinea Ocean

Predictand: MAM Rainfall from CAMSOPI

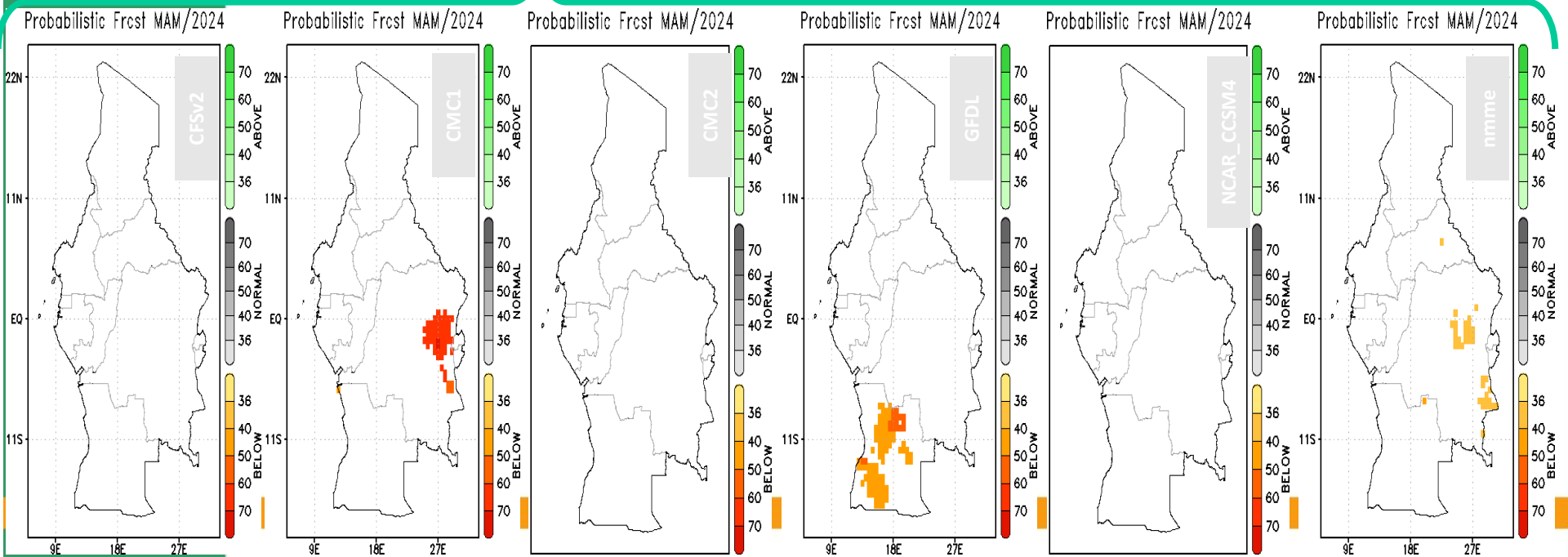


Using a Skill Mask of 0.3

Jan Obs. SST as Predictor

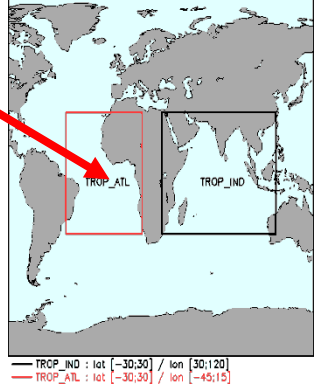


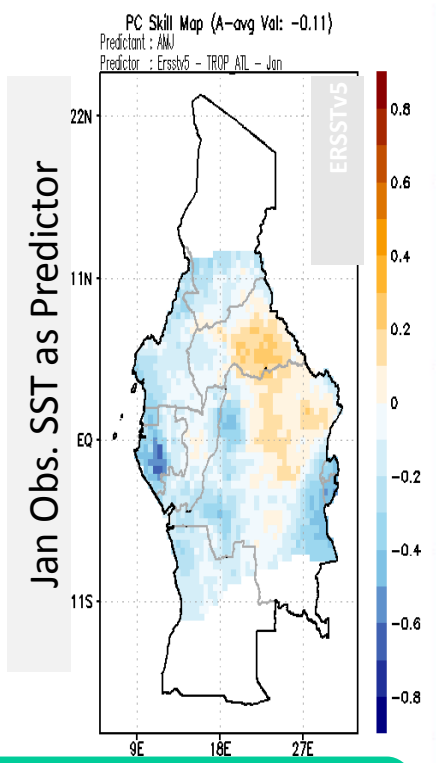
MAM Frcst (FebIC) SST as Predictor



Predictor
SST over Tropical Atlantic Ocean

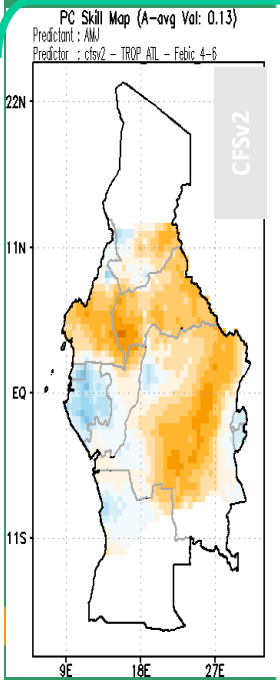
Predictand: AMJ Rainfall from CAMSOPI

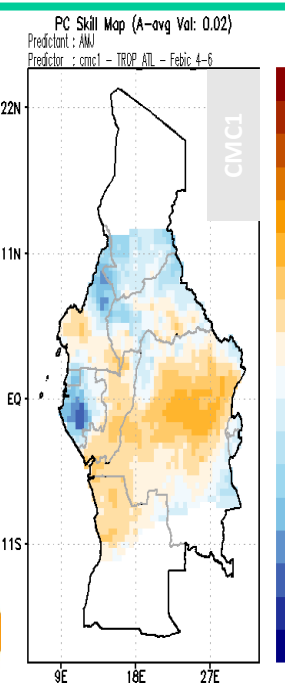


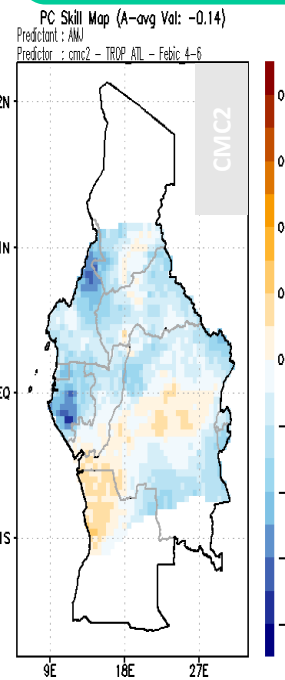


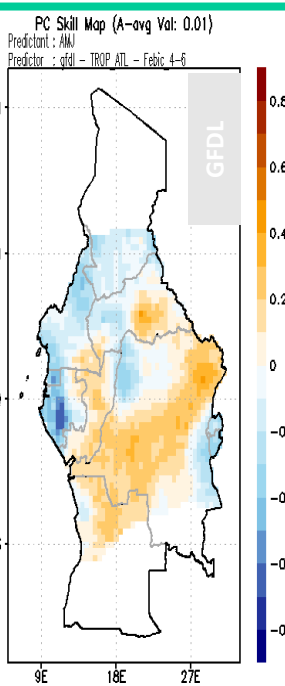
Jan Obs. SST as Predictor

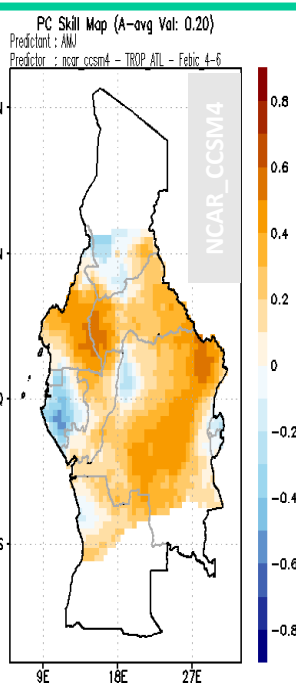
AMJ Frcst (FebIC) SST as Predictor

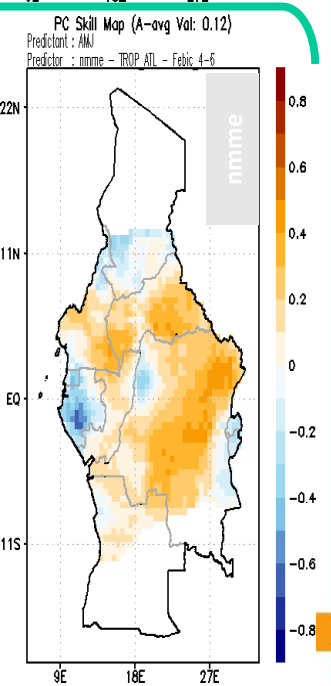






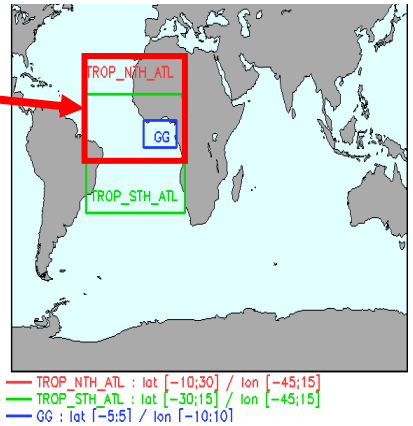




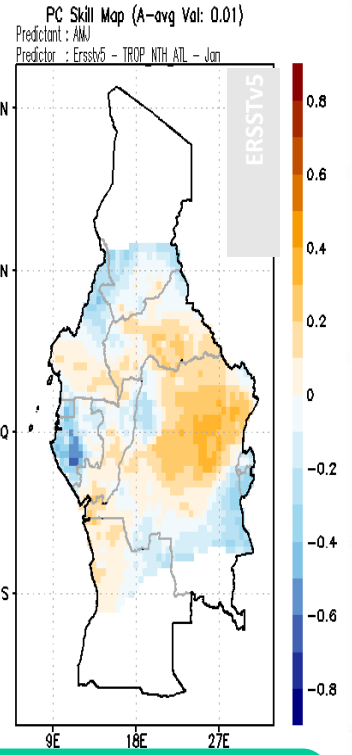


Predictor
SST over Tropical North Atlantic Ocean

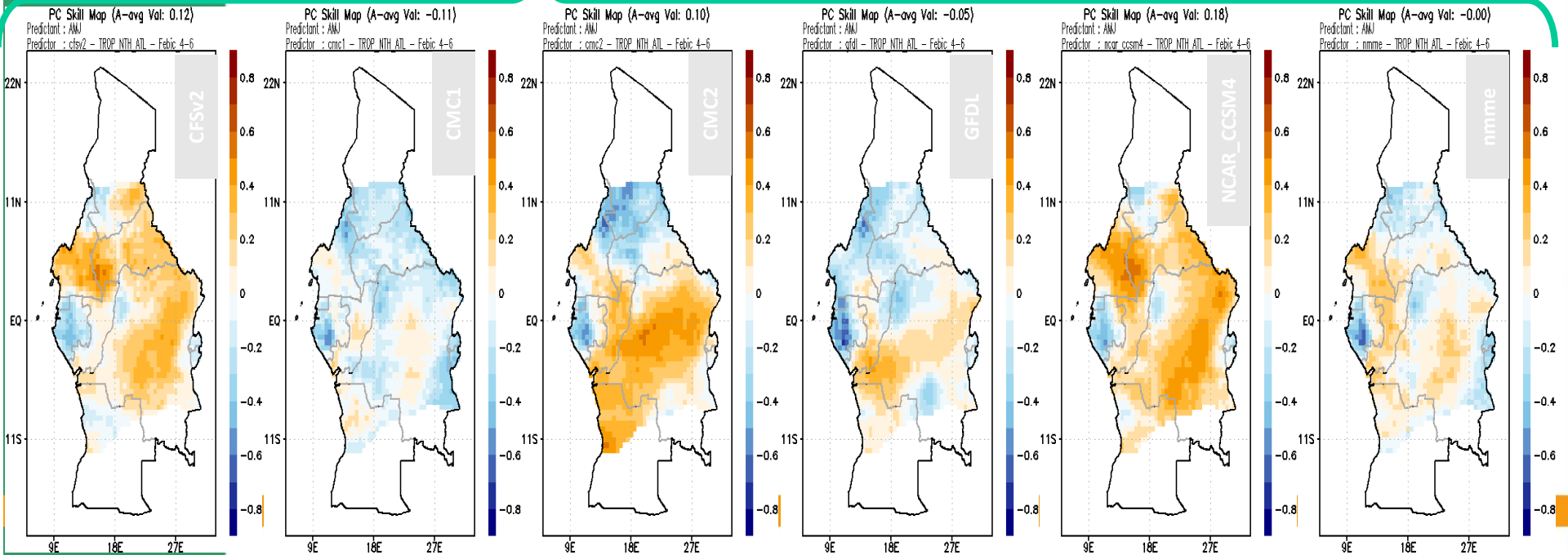
Predictand: AMJ Rainfall from CAMSOPI



Jan Obs. SST as Predictor

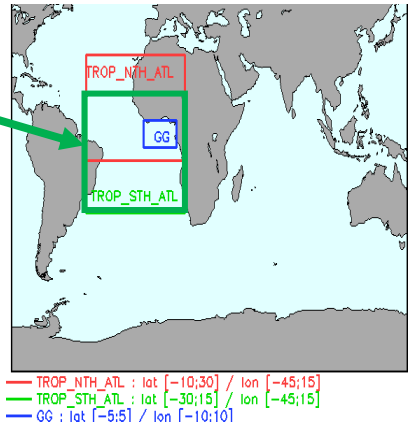


AMJ Frcst (FebIC) SST as Predictor

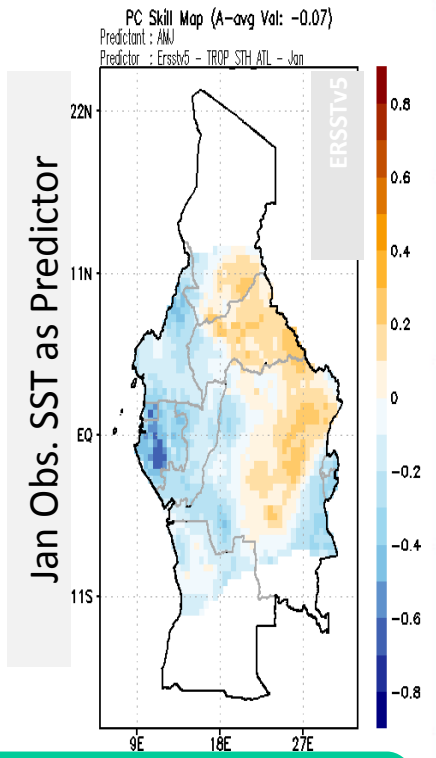


Predictor
SST over Tropical South Atlantic Ocean

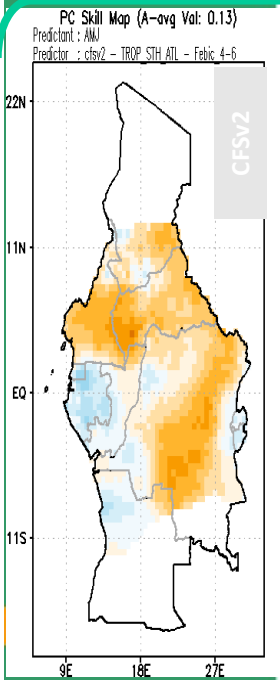
Predictand: AMJ Rainfall from CAMSOPI

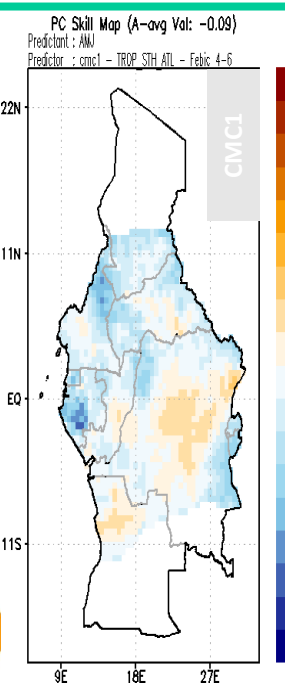


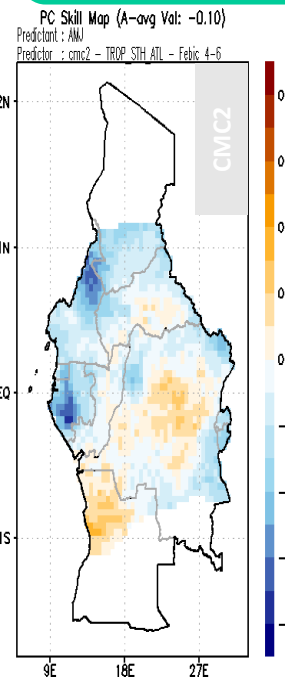
Jan Obs. SST as Predictor

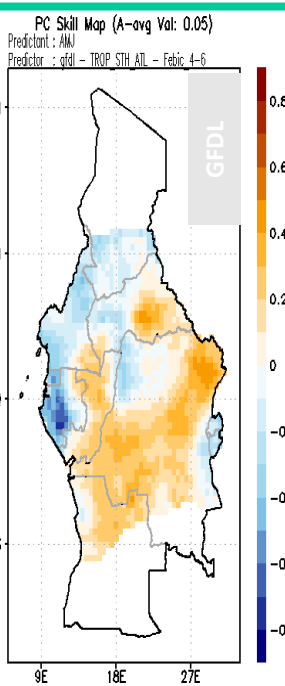


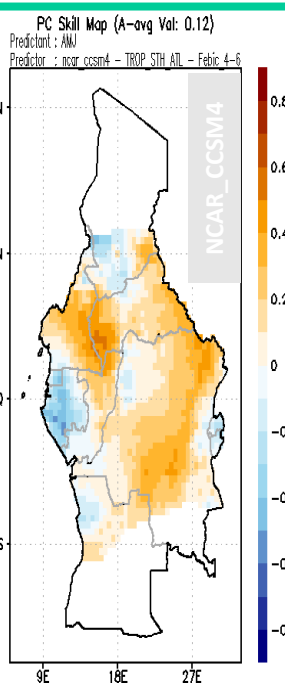
AMJ Frcst (FebIC) SST as Predictor

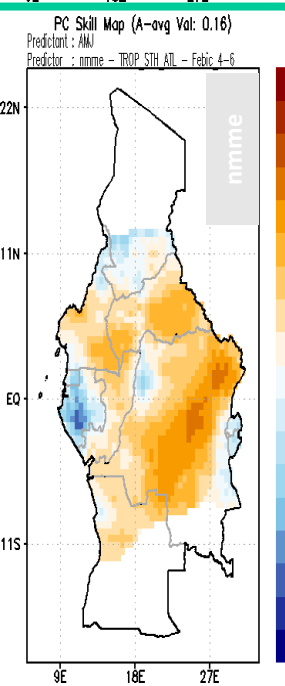






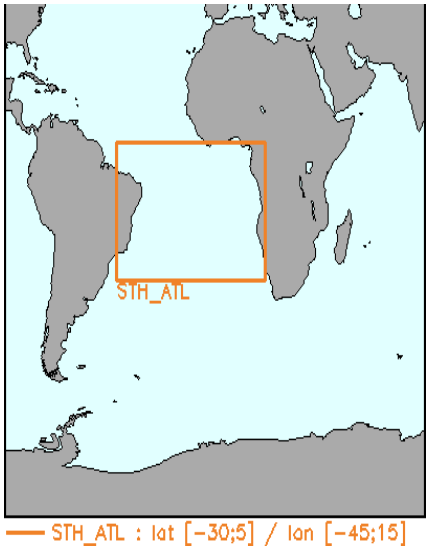


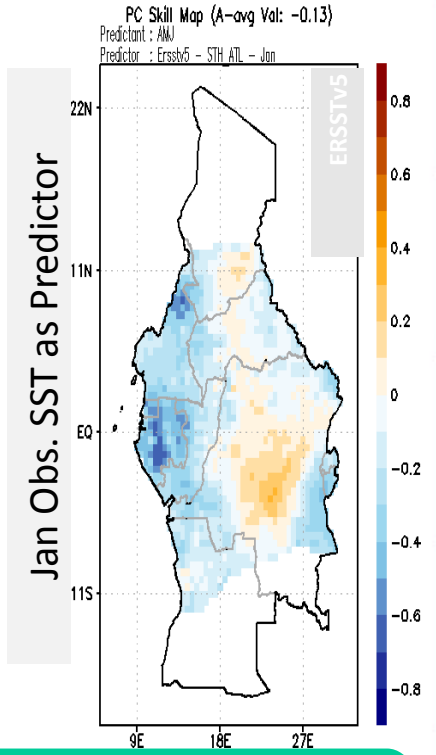




Predictor
SST over South Atlantic Ocean

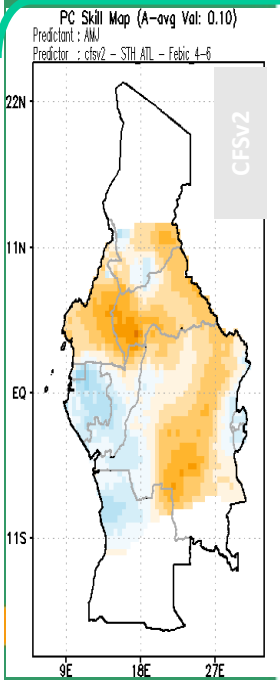
Predictand: AMJ Rainfall from CAMSOPI

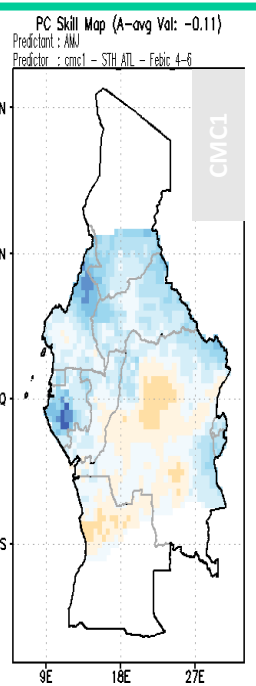


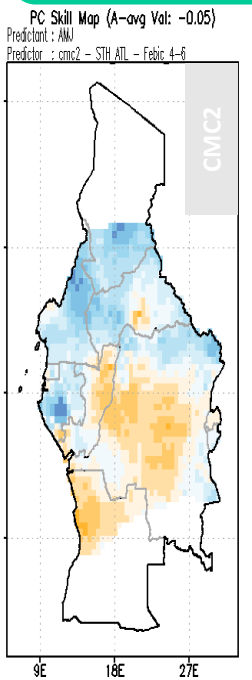


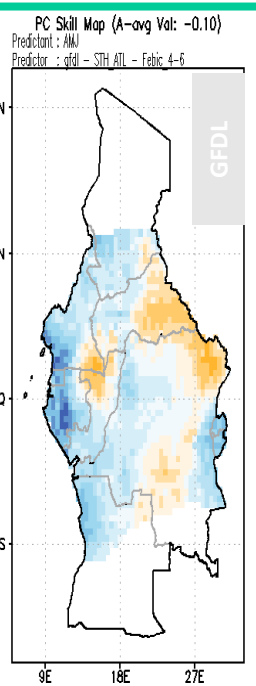
Jan Obs. SST as Predictor

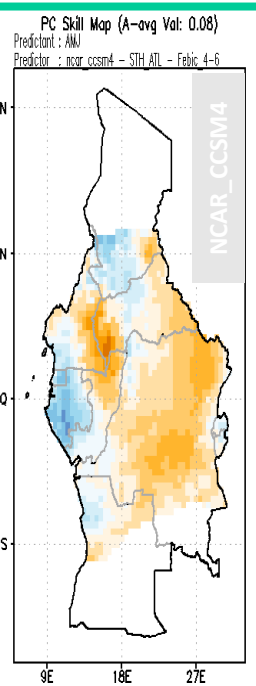
AMJ Frcst (FebIC) SST as Predictor

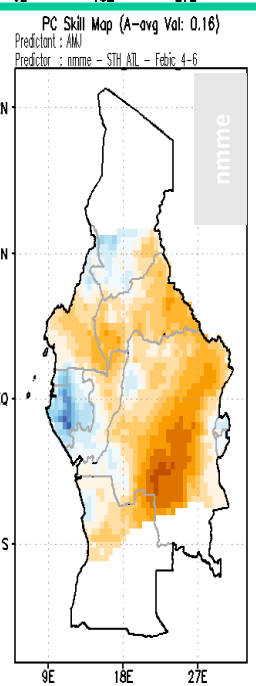






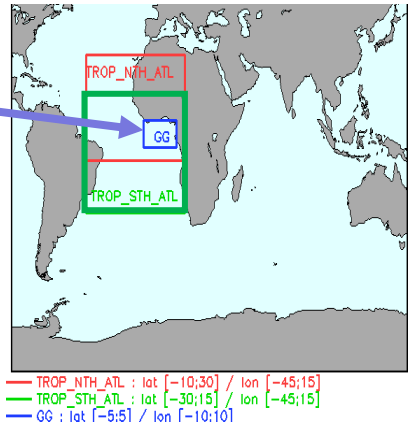




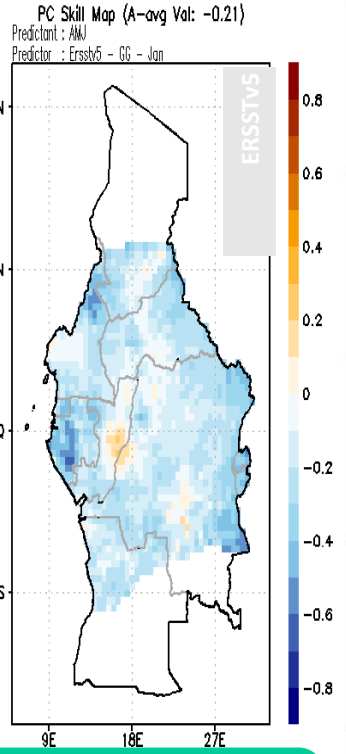


Predictor
SST over Gulf of Guinea Ocean

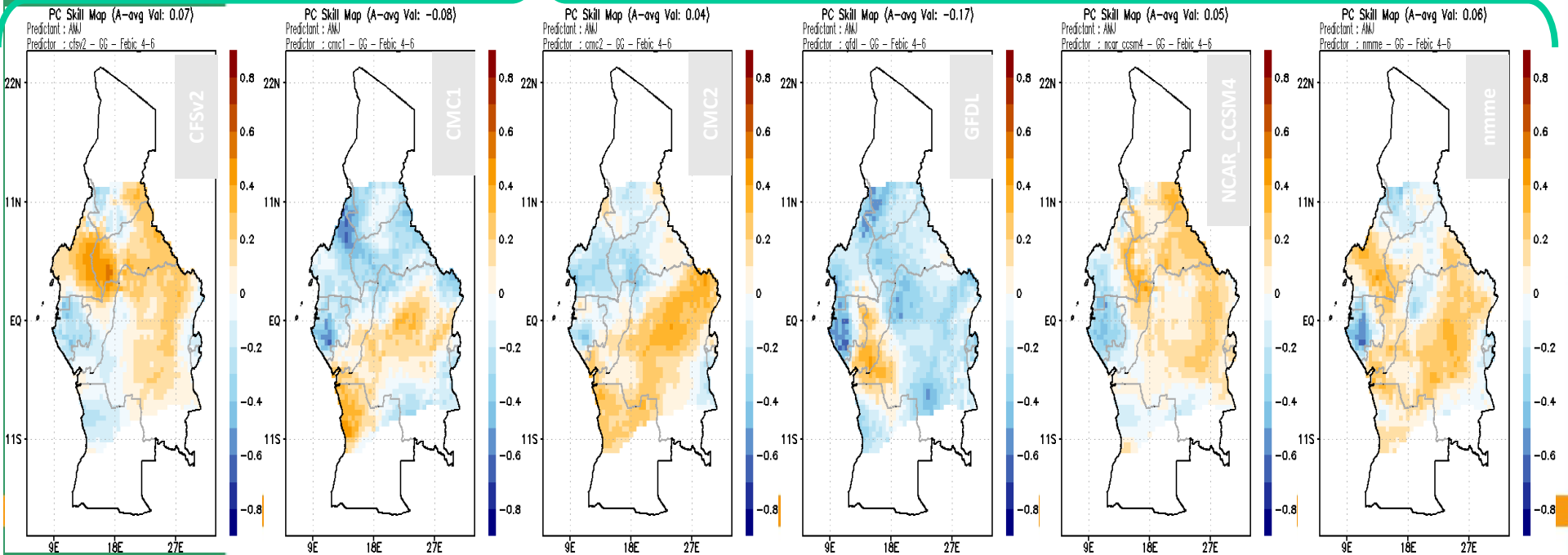
Predictand: AMJ Rainfall from CAMSOPI



Jan Obs. SST as Predictor



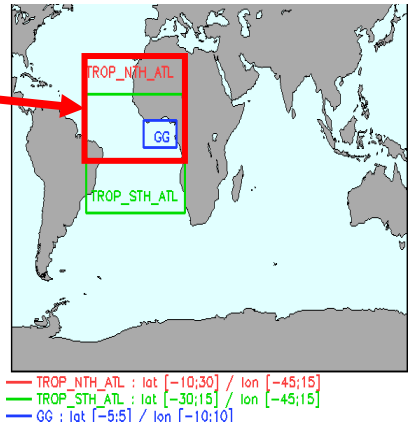
AMJ Frcst (FebIC) SST as Predictor



Predictor

SST over Tropical North Atlantic Ocean

Predictand: AMJ Rainfall from TAMSAT



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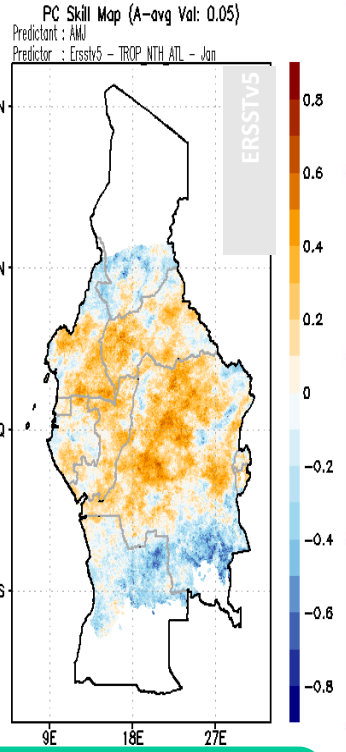
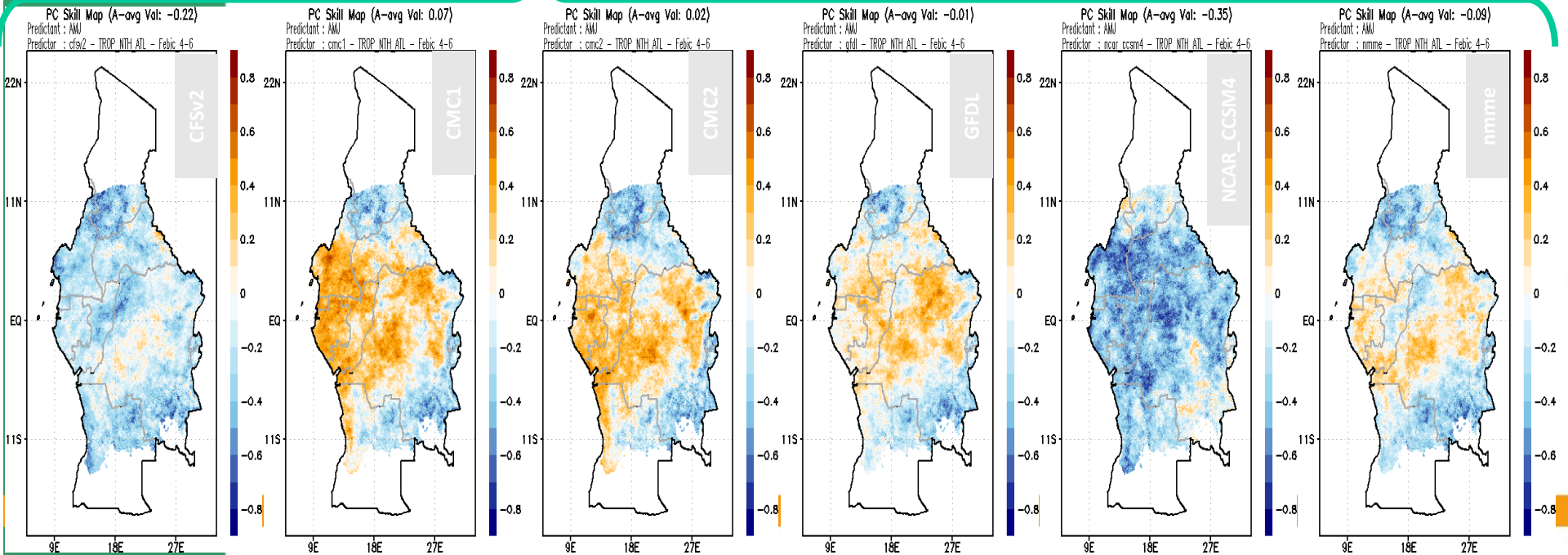
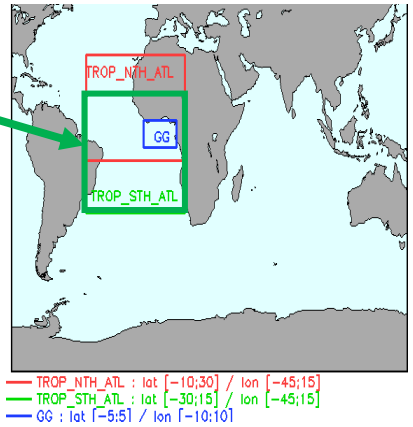


AMJ Frcst (FebIC) SST as Predictor



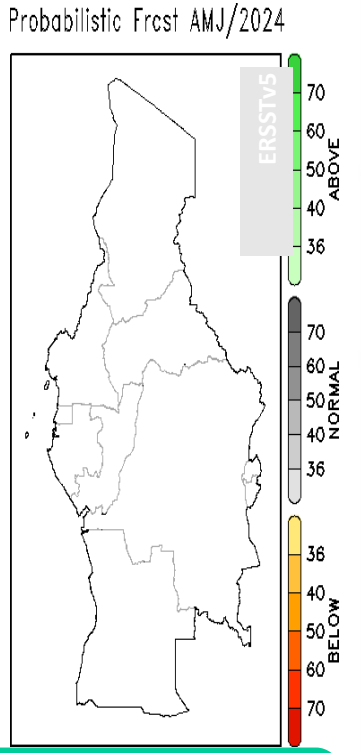
Predictor
SST over Tropical South Atlantic Ocean

Predictand: AMJ Rainfall from CAMSOPI

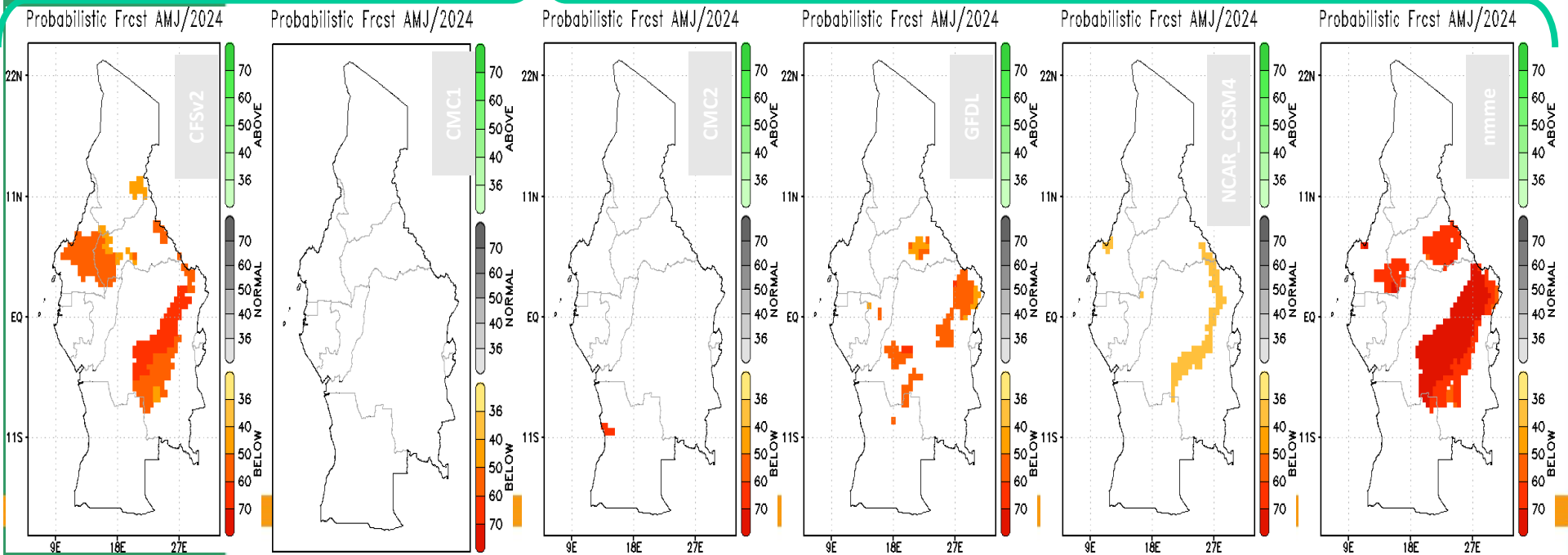


Using a Skill Mask of 0.3

Jan Obs. SST as Predictor

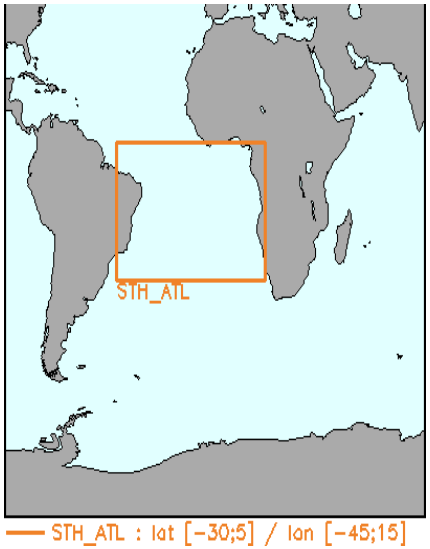


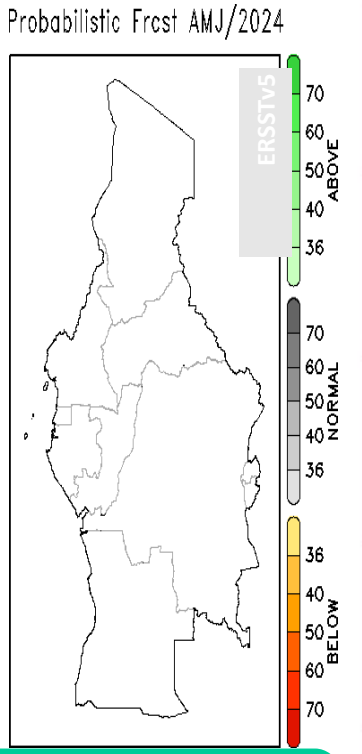
AMJ Frcst (FebIC) SST as Predictor



Predictor
SST over South Atlantic Ocean

Predictand: AMJ Rainfall from CAMSOPI

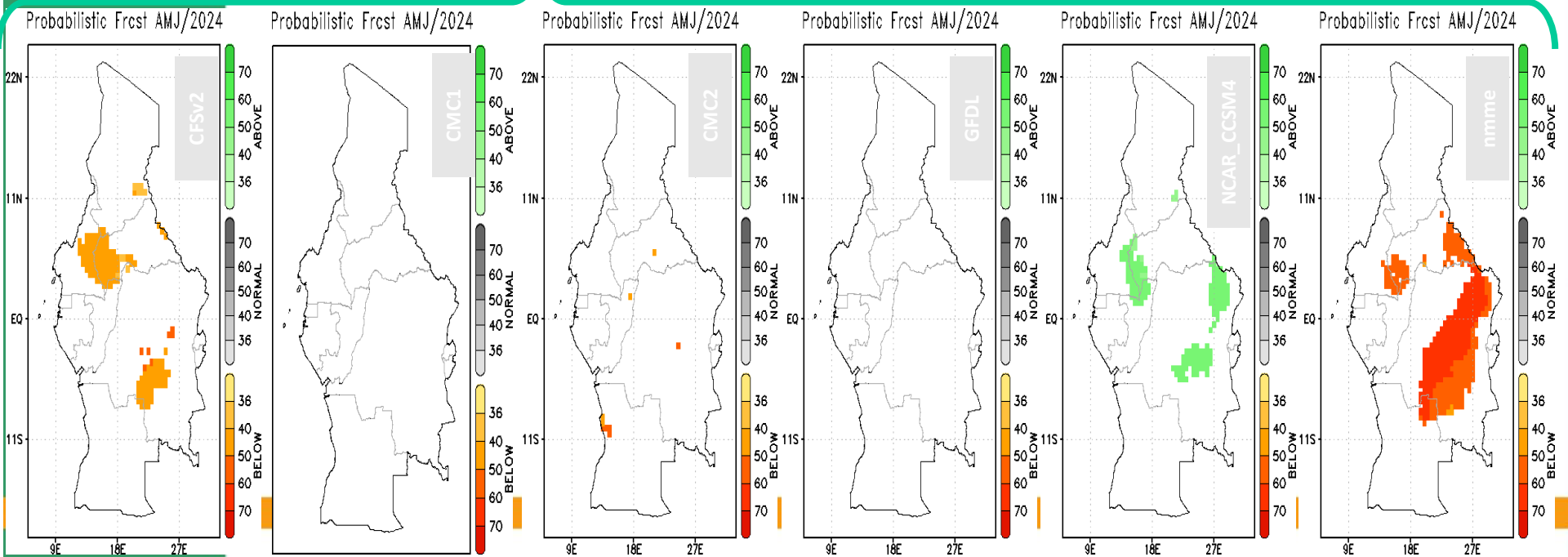




Jan Obs. SST as Predictor

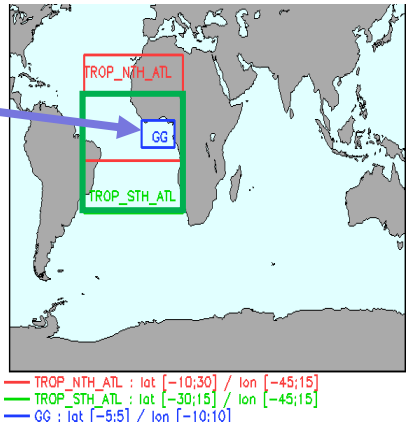
AMJ Frcst (FebIC) SST as Predictor

Using a Skill Mask of 0.3



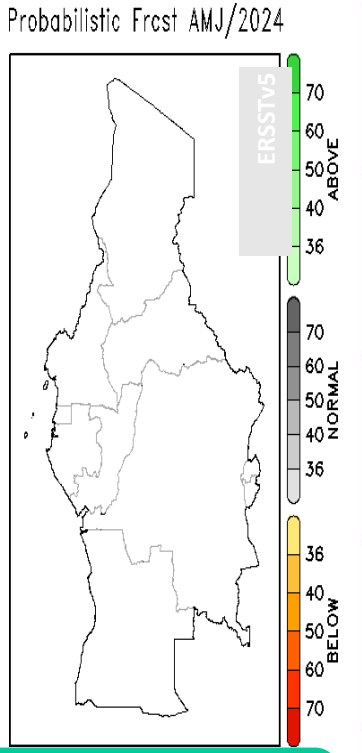
Predictor
SST over Gulf of Guinea Ocean

Predictand: AMJ Rainfall from CAMSOPI

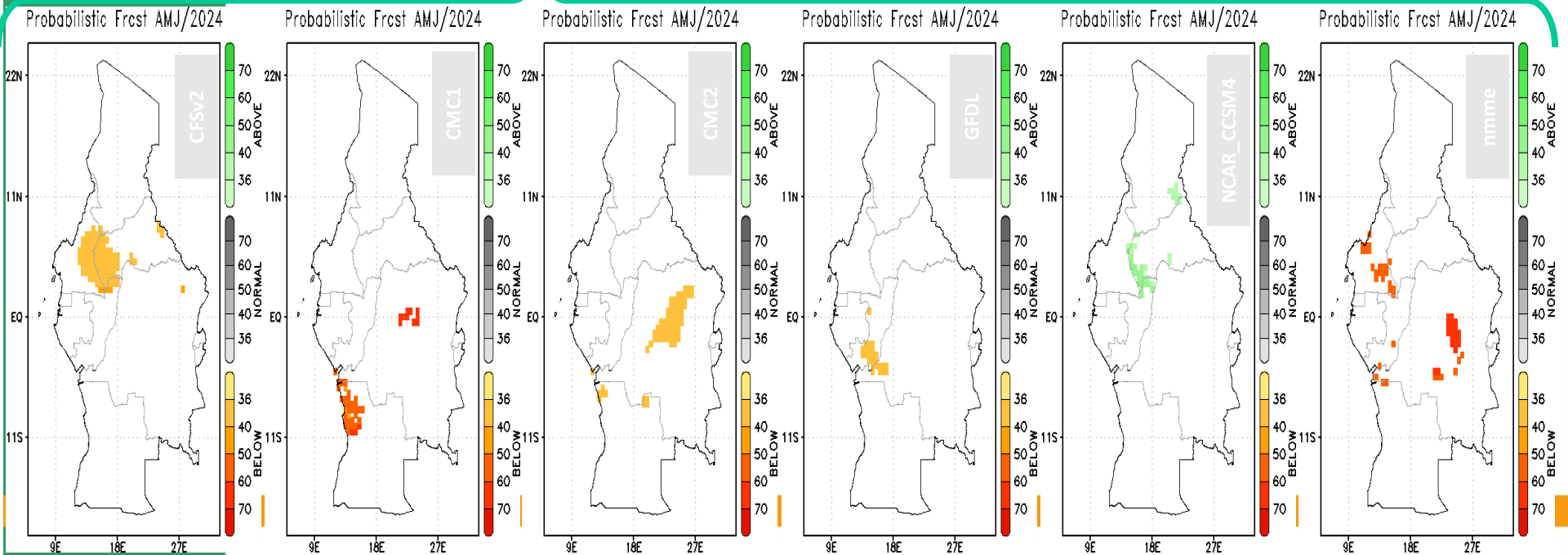


Using a Skill Mask of 0.3

Jan Obs. SST as Predictor



AMJ Frcst (FebIC) SST as Predictor



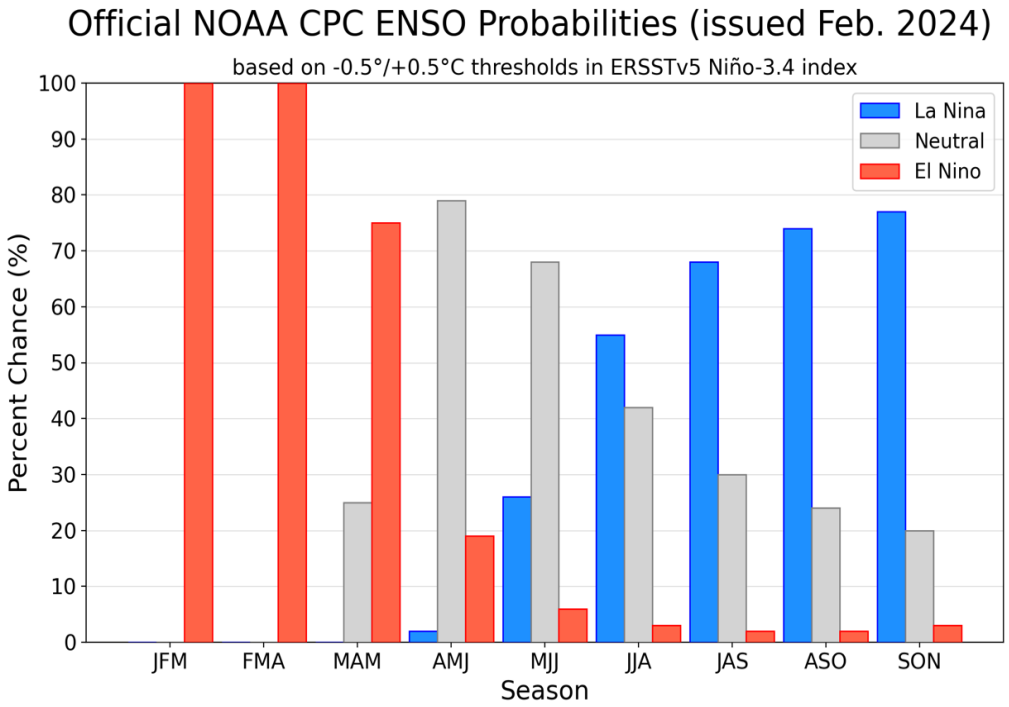
Step 6:

Teleconnections analysis (i,e ENSO, AMO, IOD, SIOD, Atlantic Dipole, NAO, AO, SAM, Benguela Nino, Mediterranean SSTAs)

CPC Probabilistic ENSO Outlook

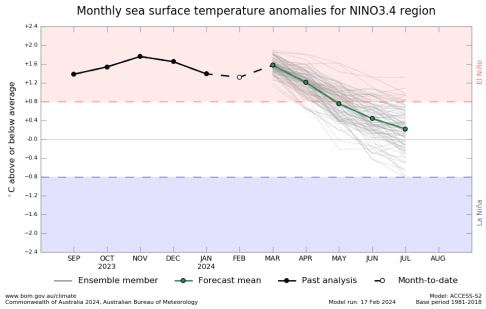
Updated: 8 February 2024

A transition from El Niño to ENSO-neutral is expected by April-June season 2024, with ENSO-neutral persisting through May-July 2024. Thereafter, La Niña is favored in June-August, and chances increase through the September-November season.

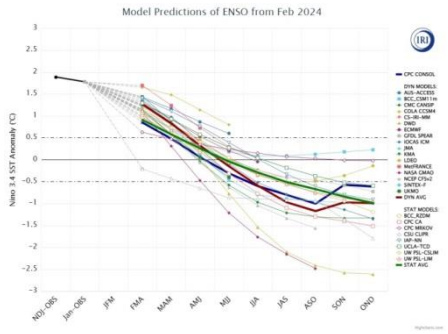


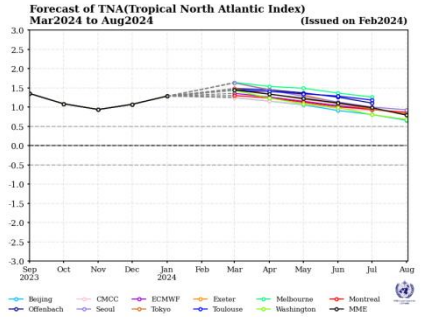
Teleconnections analysis (i,e ENSO and TAN TSA) - Index plumes

BoM

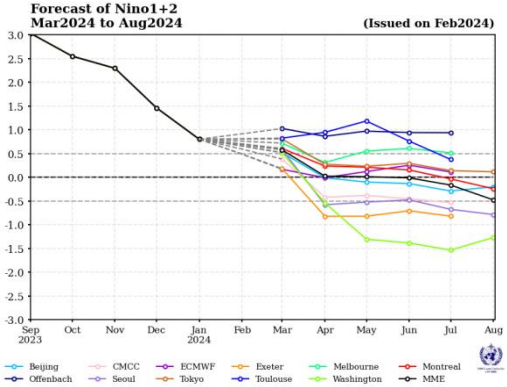


IRI

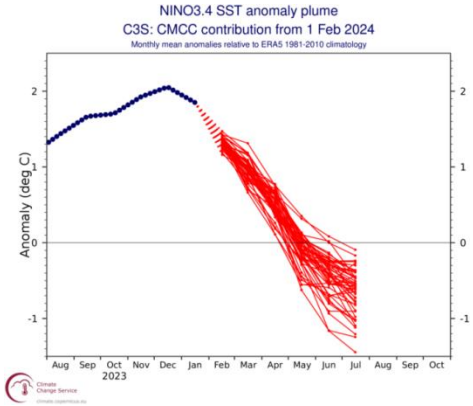


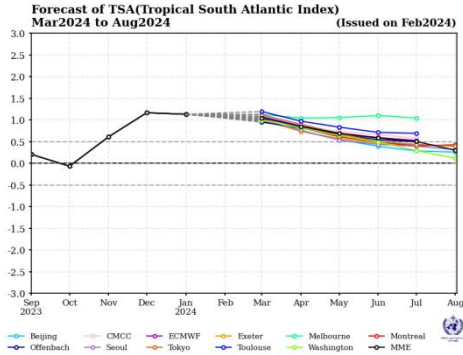


WMO-LC



C3S





Moderate to neutral El Nino

Positive TNA-TSA

https://www.wmolc.org/seasonIndicesUI/plot_Indices#

https://climate.copernicus.eu/charts/c3s_seasonal/c3s_seasonal_plume_mm?facets=undefined&time=2022070100,0,2022070100&type=plume&area=nino34

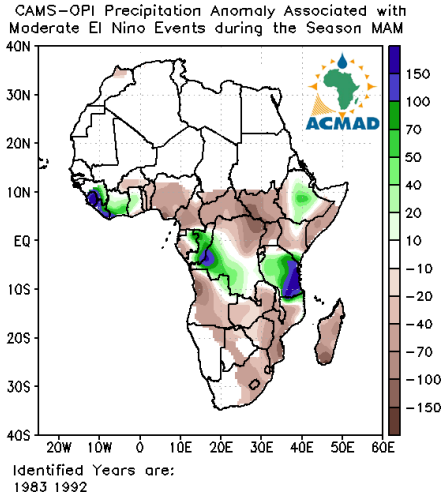
https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-quicklook

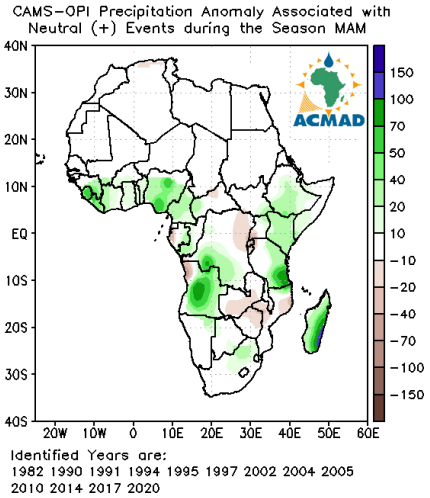
Teleconnections analysis – Rainfall Composites

Mod El Nino

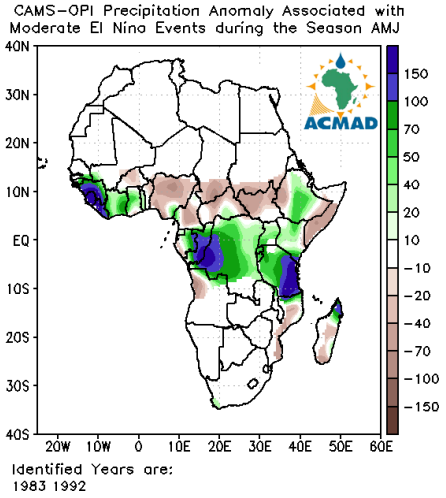
Weak El Nino to Neutral pos

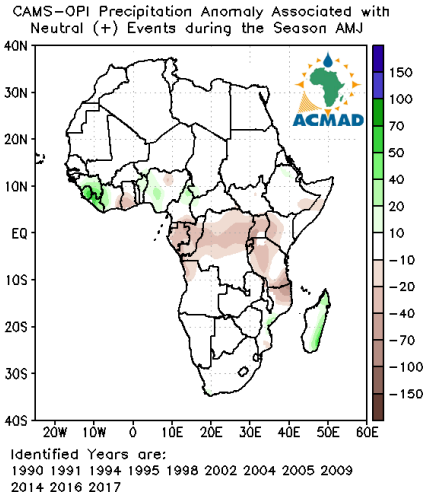
MAM





AMJ

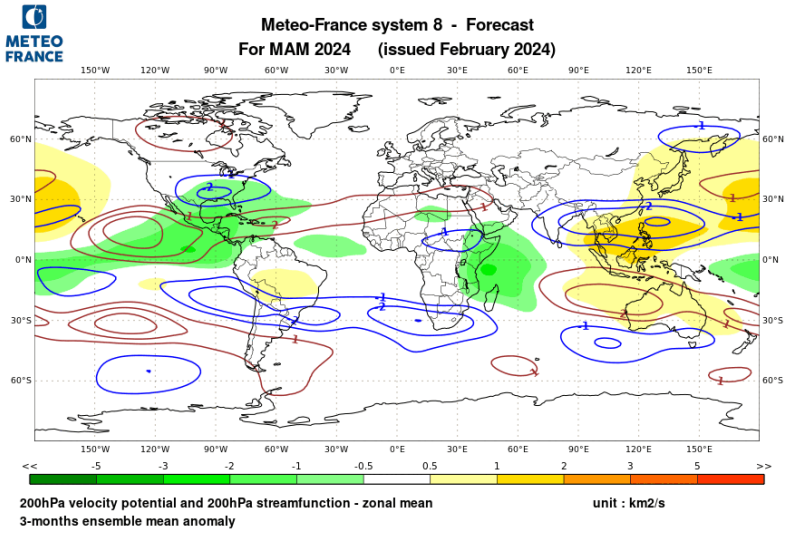


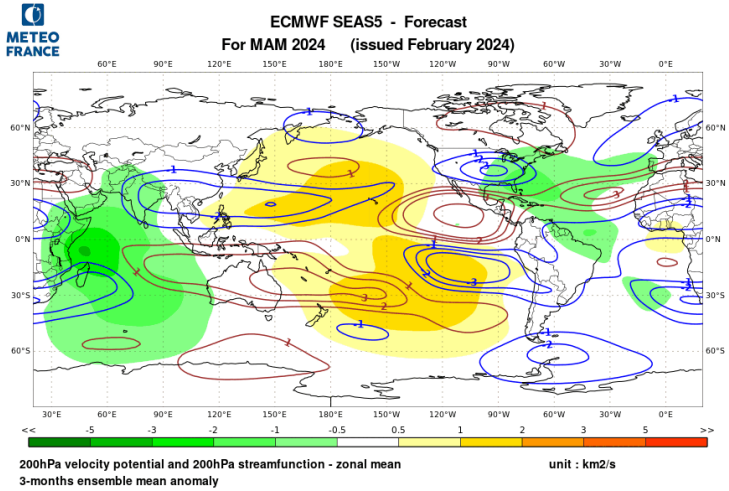


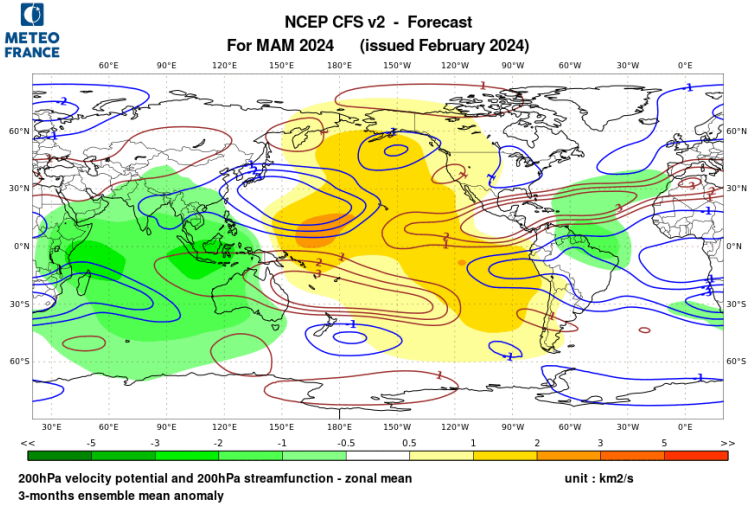
Step 7:

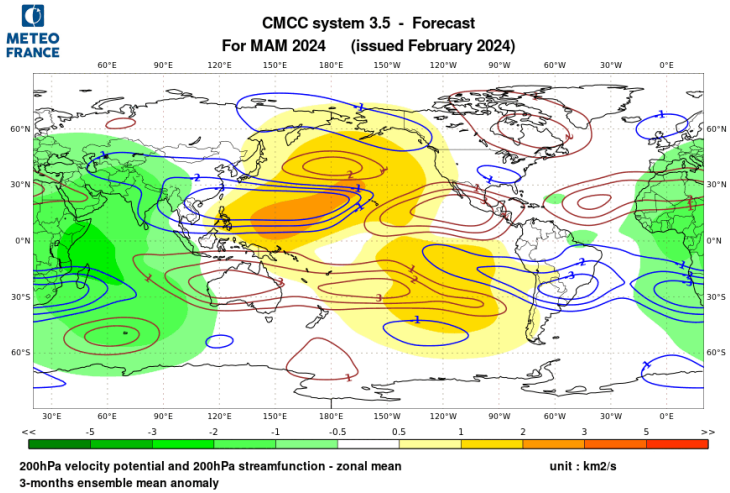
DRIVERS

Interaction with Tropical Activity – Season 1

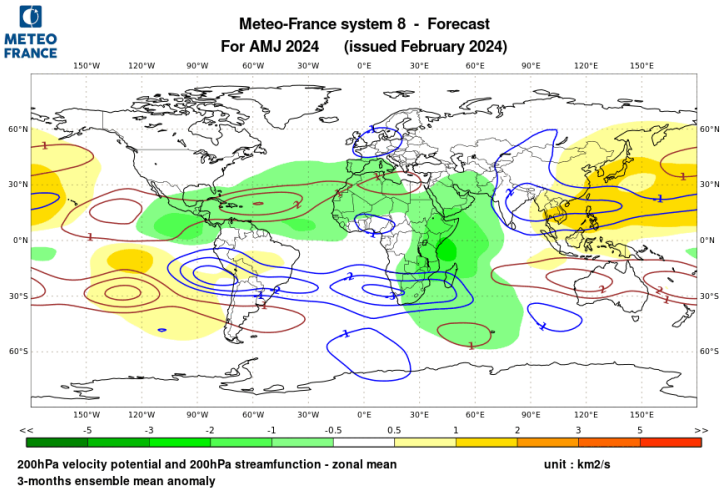


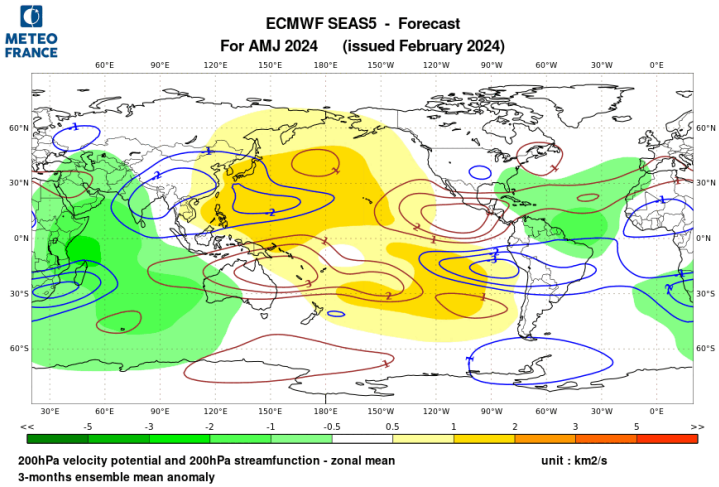


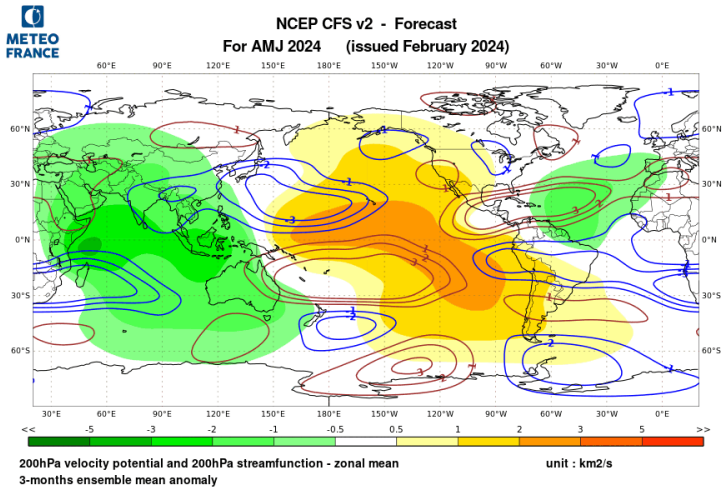


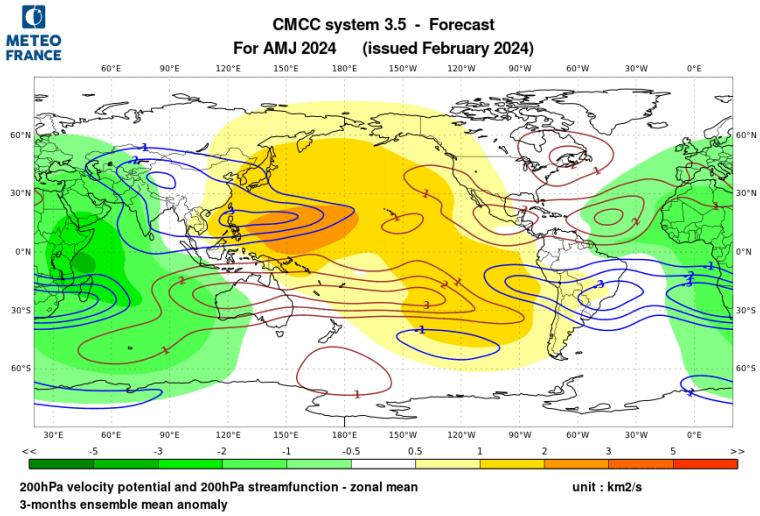


Interaction with Tropical Activity – Season 2









Step 7b:

Single Model Ensemble Analysis (i,e ECMWF, MF, NCEP, UKMET)

SSTs Forecasts

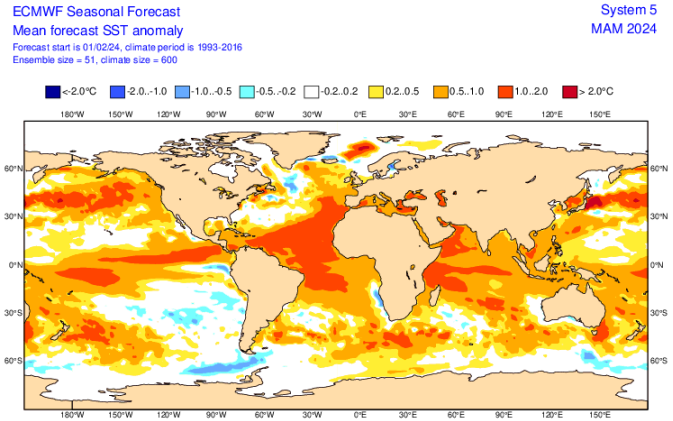
Single Model Ensemble Analysis (SSTs)

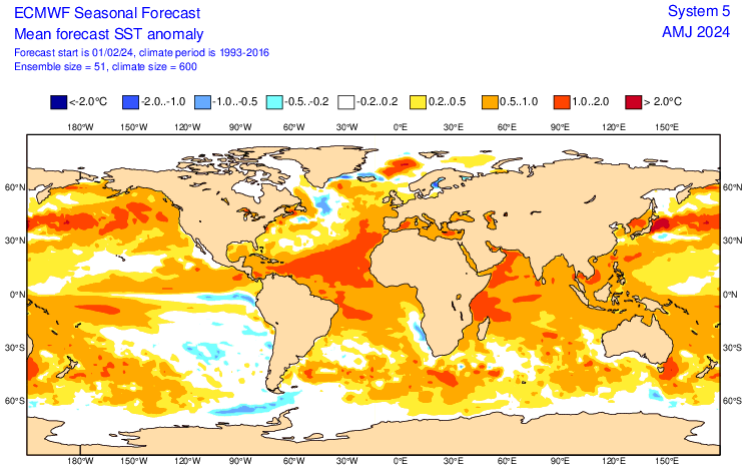
Season 1

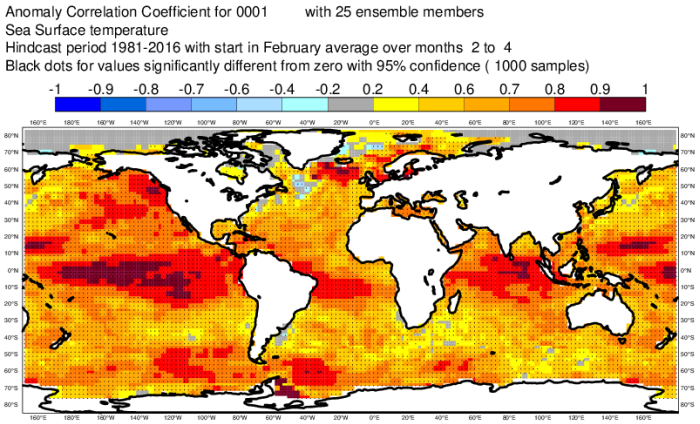
Season 2

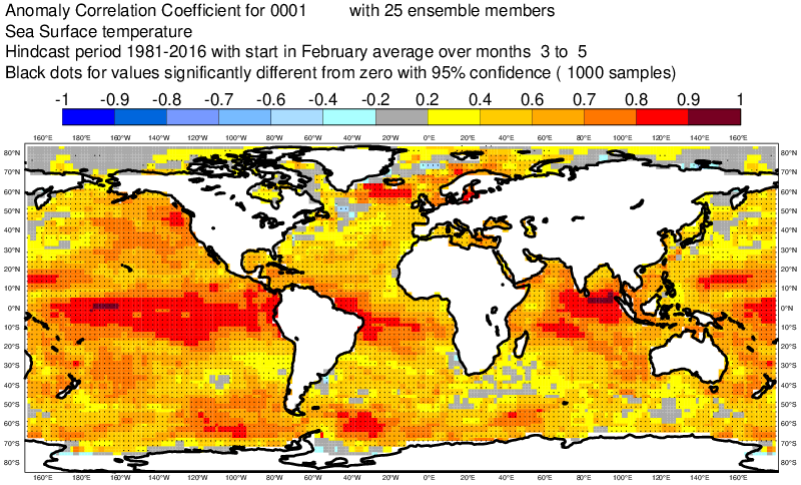
FCST

SKILL









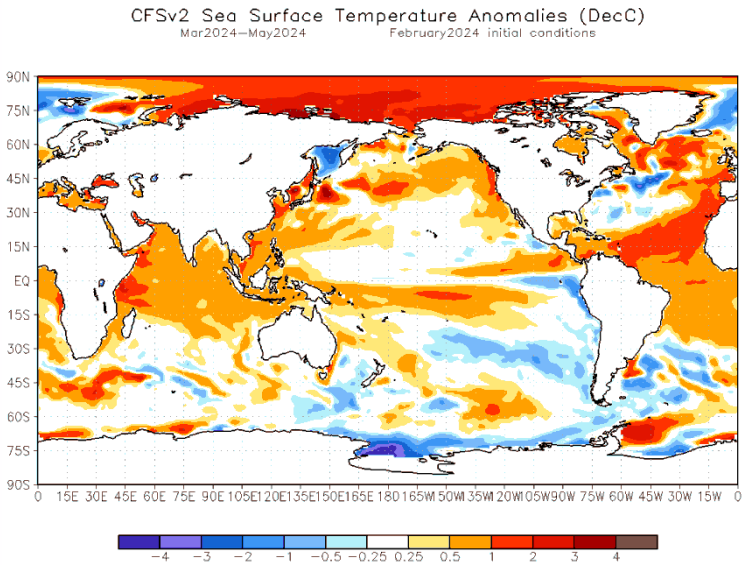
Single Model Ensemble Analysis (SSTs)

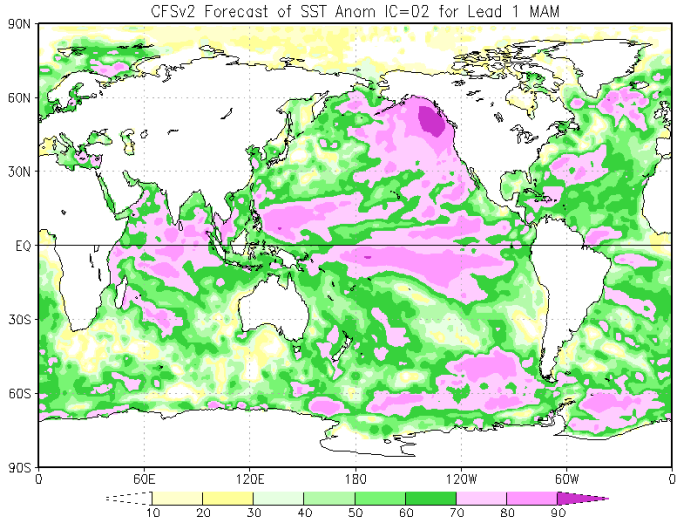
Season 1

FCST

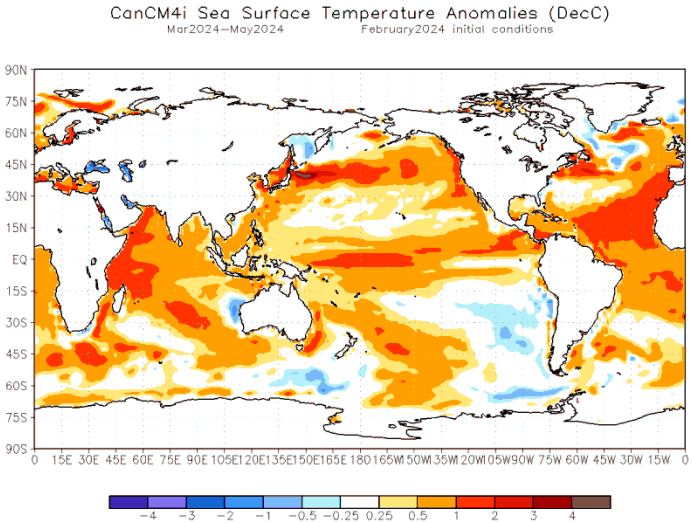
SKILL

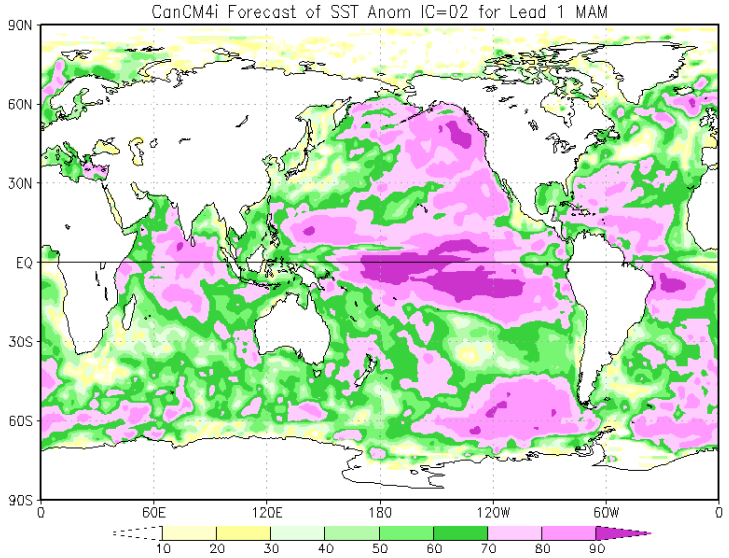
CFSv2





CanCM4i





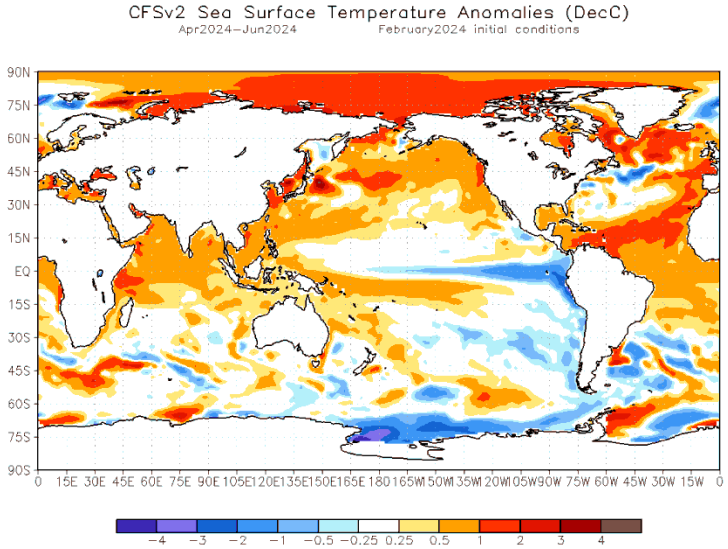
Single Model Ensemble Analysis (SSTs)

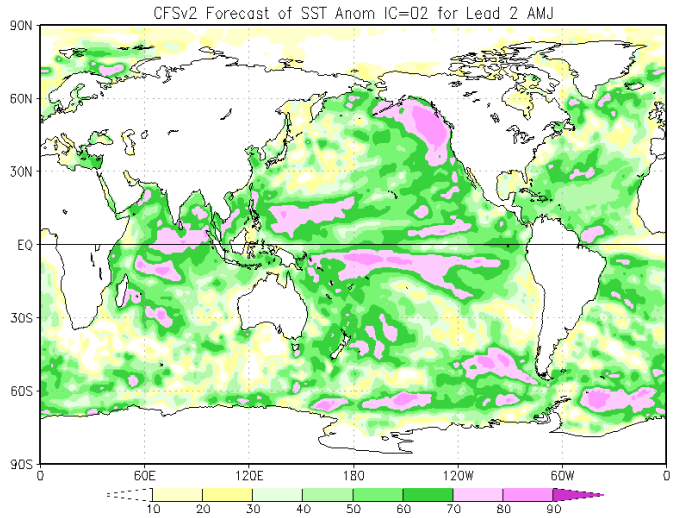
Season 2

FCST

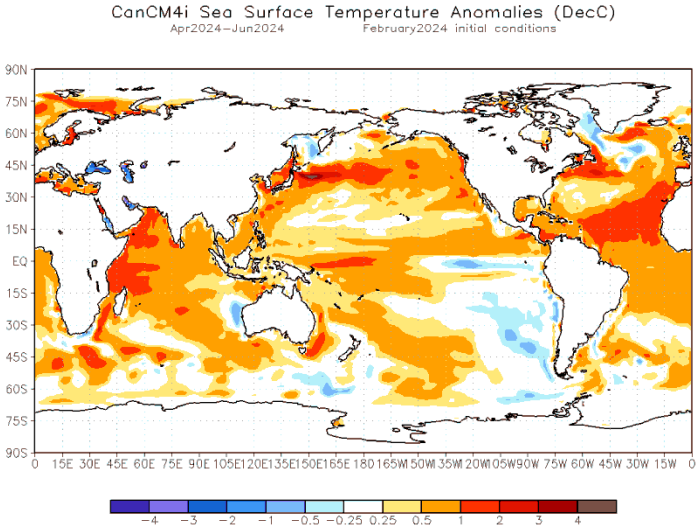
SKILL

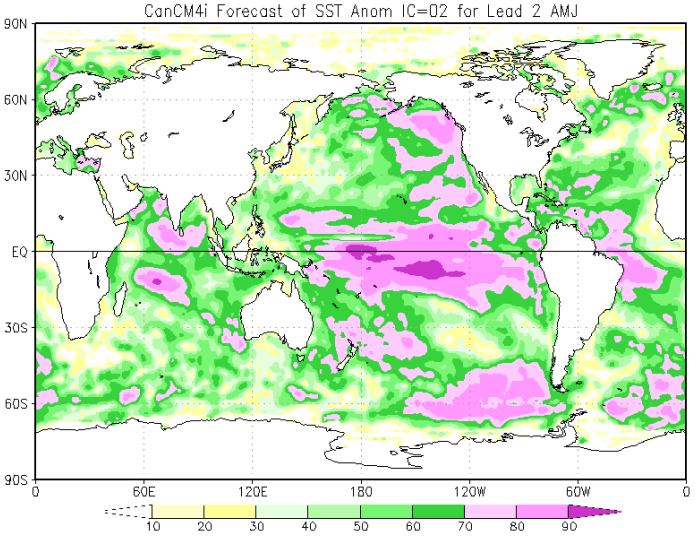
CFSv2





CanCM4i





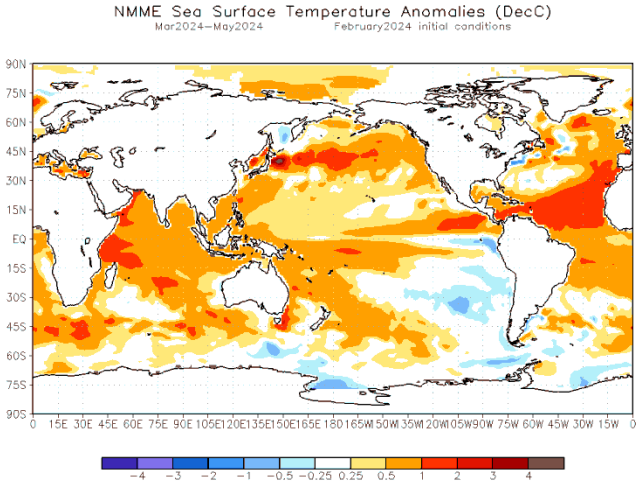
Multimodel Ensemble Analysis (SSTs)

Season 1

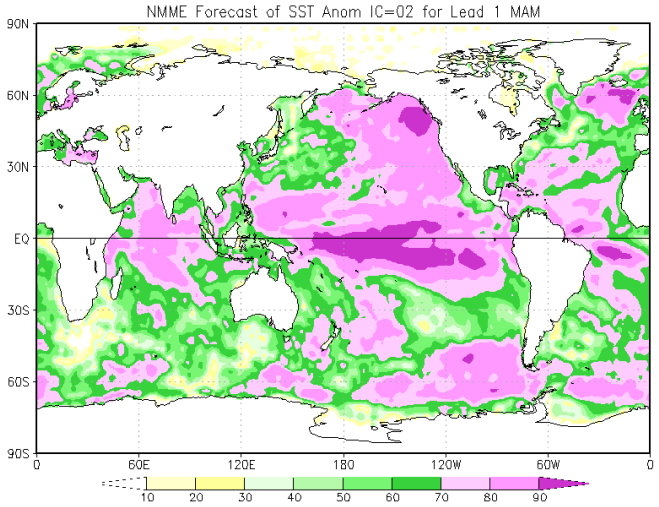
NMME

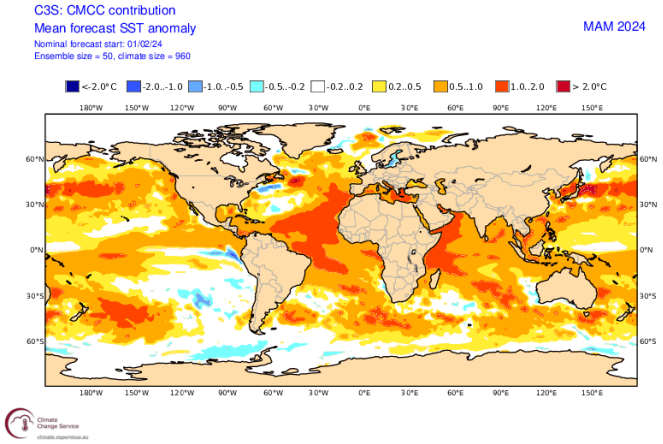
C3S

FCST



SKILL





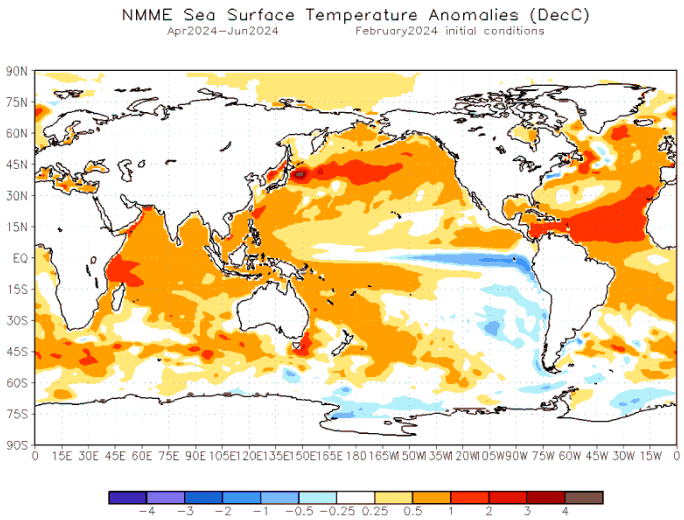
Multimodel Ensemble Analysis (SSTs)

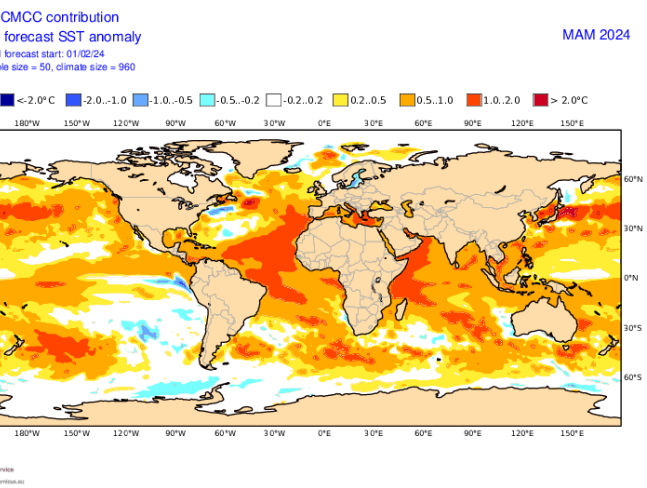
Season 2

NMME

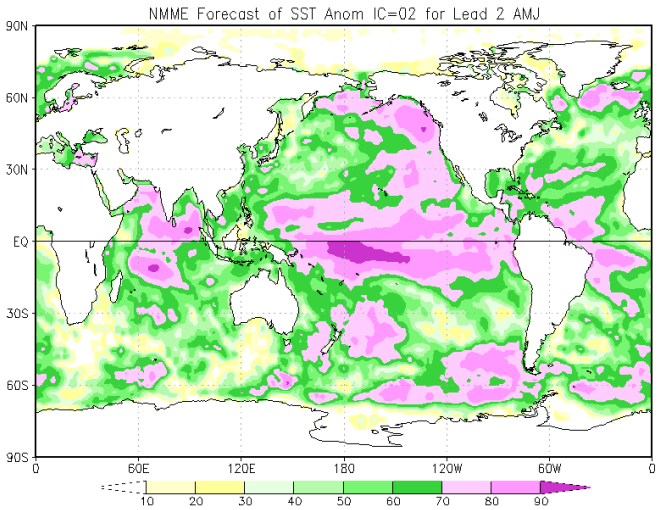
C3S

FCST





SKILL



Step 7c:

Single Model Ensemble Analysis (i,e ECMWF, MF, NCEP, UKMET)

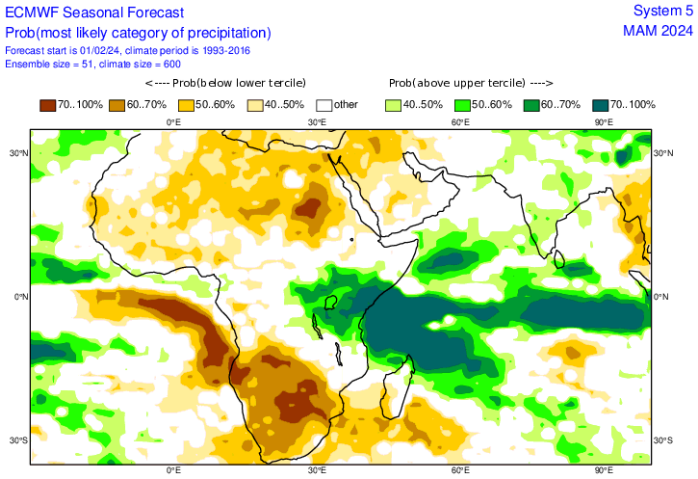
Rainfall Forecasts

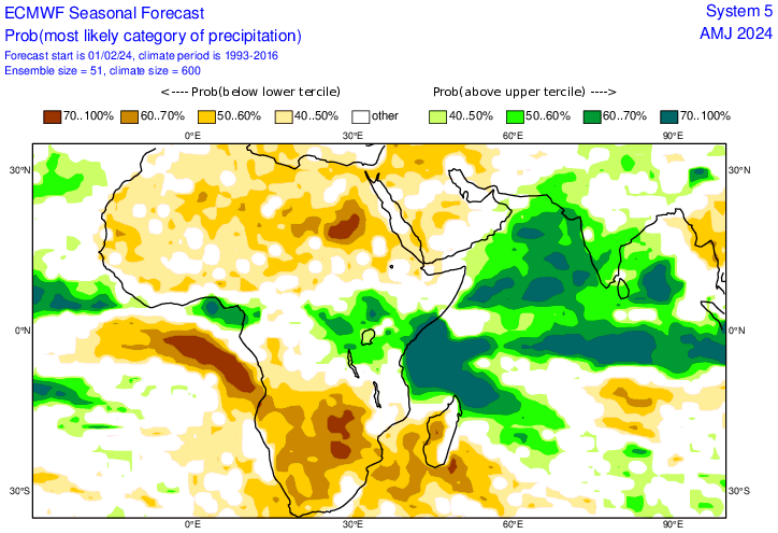
Single model Ensemble Analysis (Rainfall)

Season 1

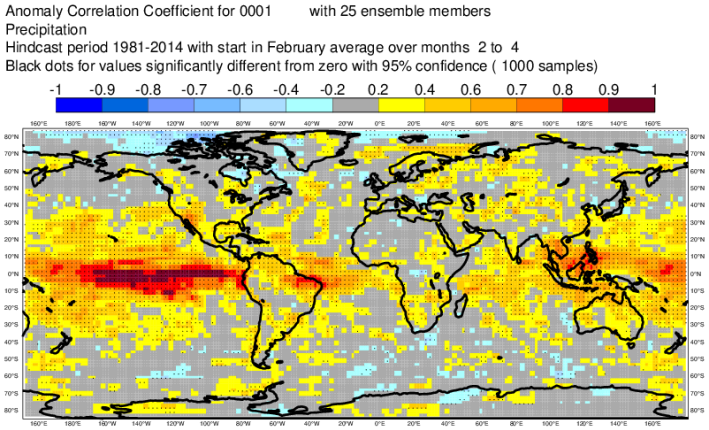
Season 2

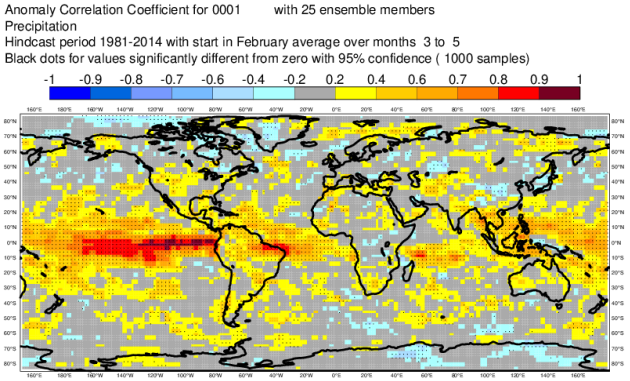
ECMWF





MF





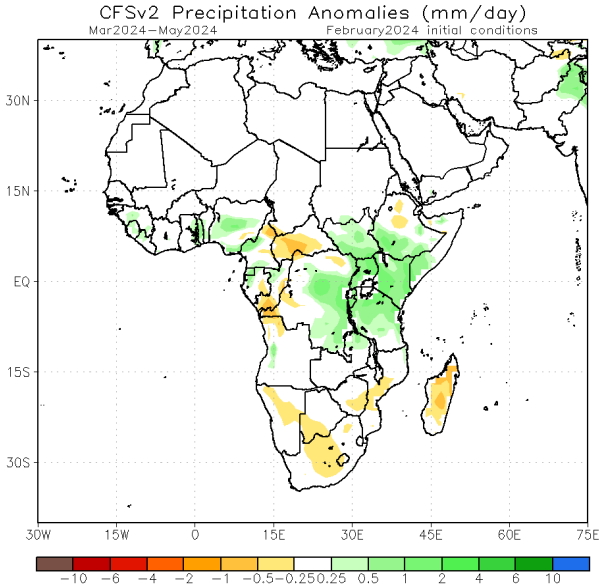
Single model Ensemble Analysis (Rainfall)

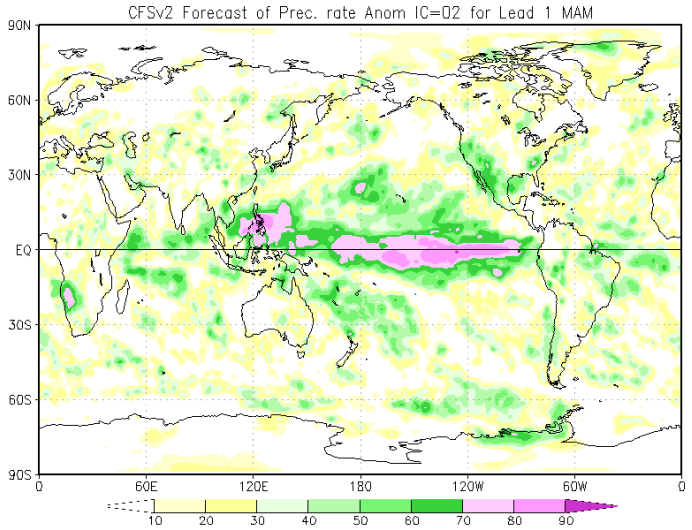
Season 1

FCST

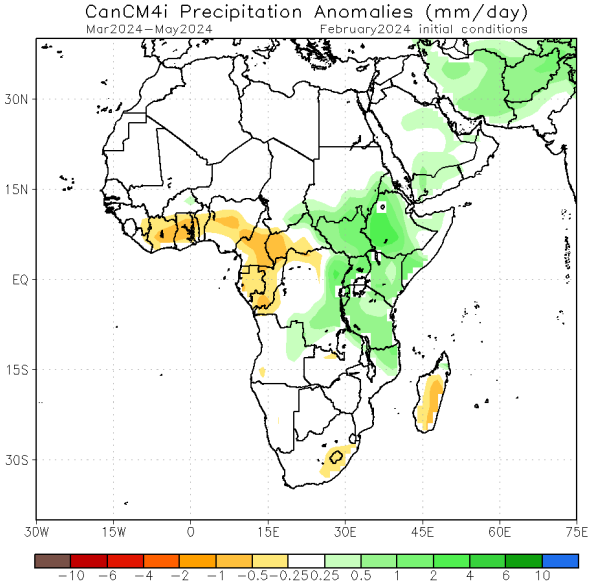
SKILL

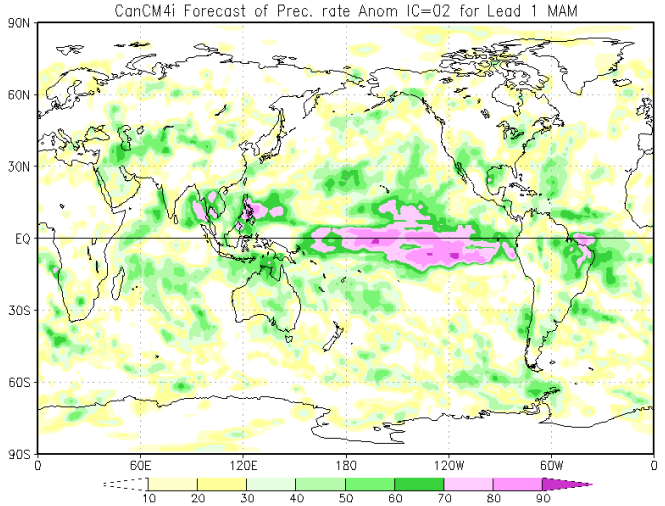
CFSv2





CanCM4i





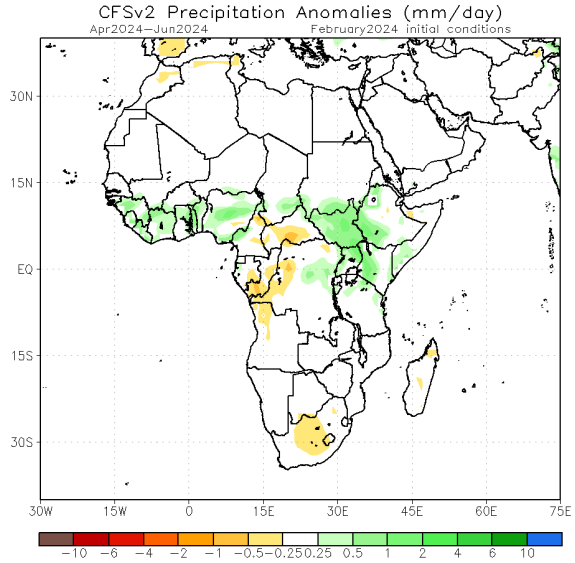
Single model Ensemble Analysis (Rainfall)

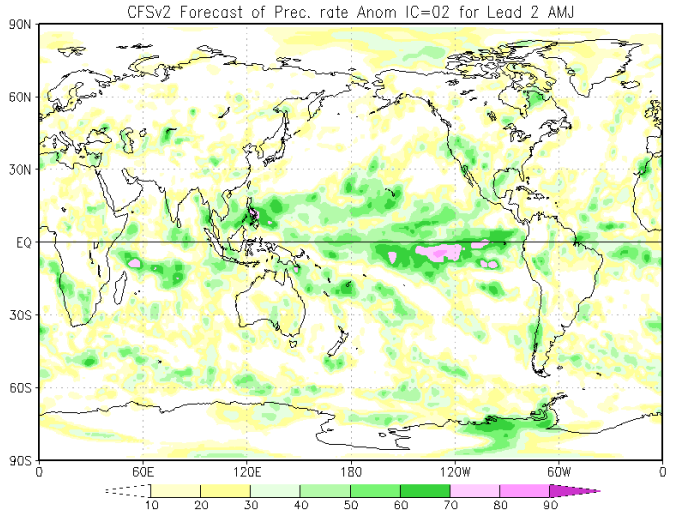
Season 1

FCST

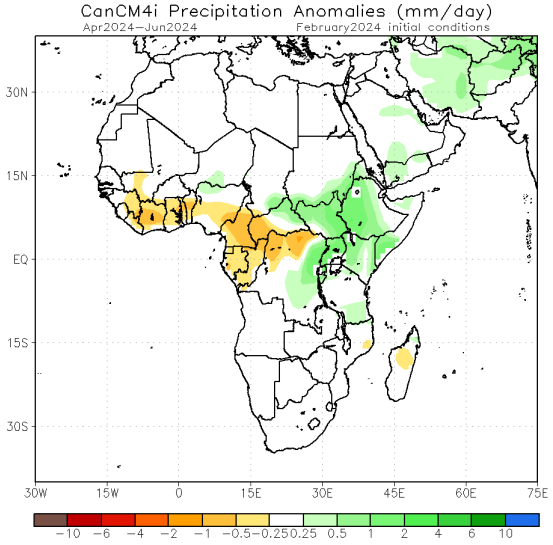
SKILL

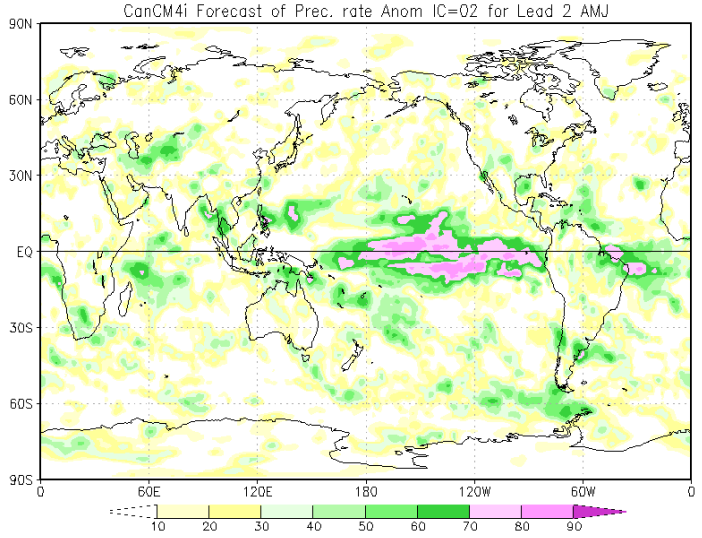
CFSv2





CanCM4i





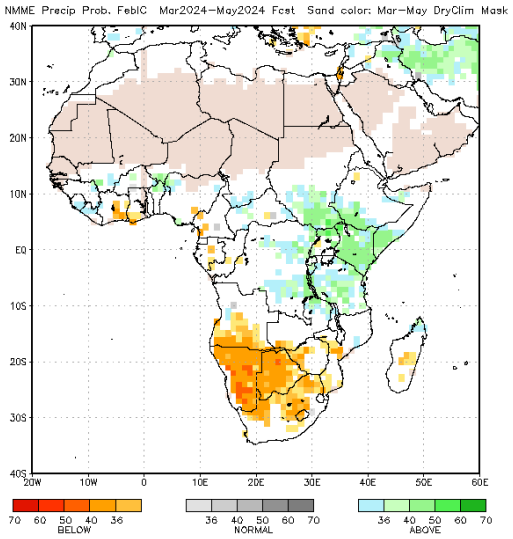
Multimodel Ensemble Analysis (Rainfall)

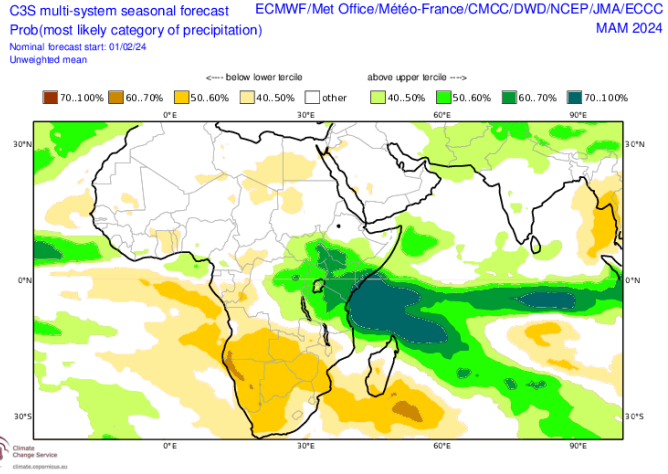
Season 1

NMME

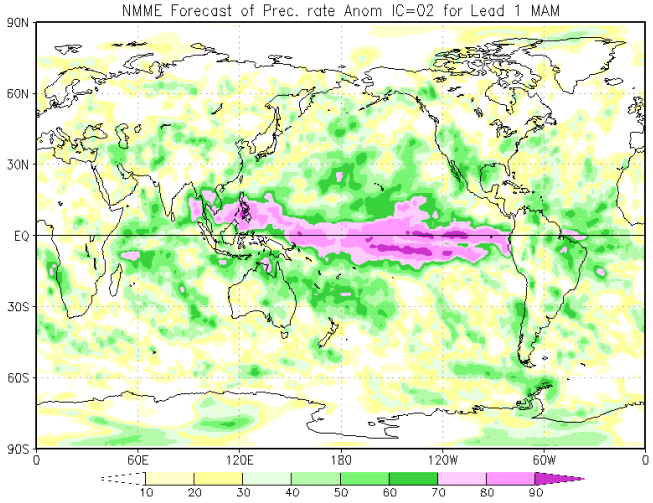
C3S

FCST





SKILL



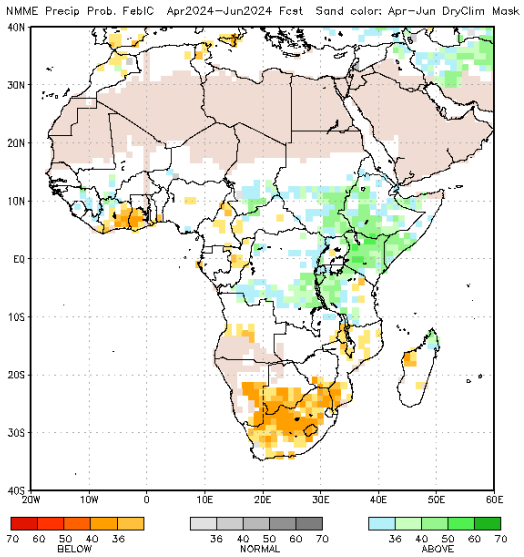
Multimodel Ensemble Analysis (Rainfall)

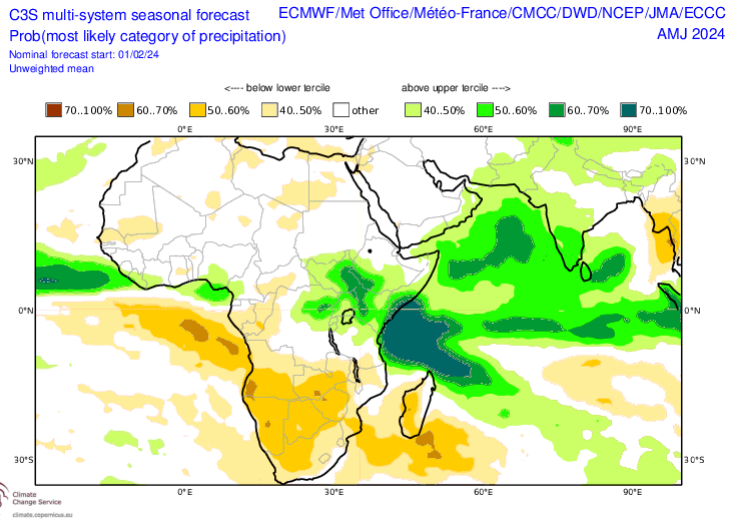
Season 2

NMME

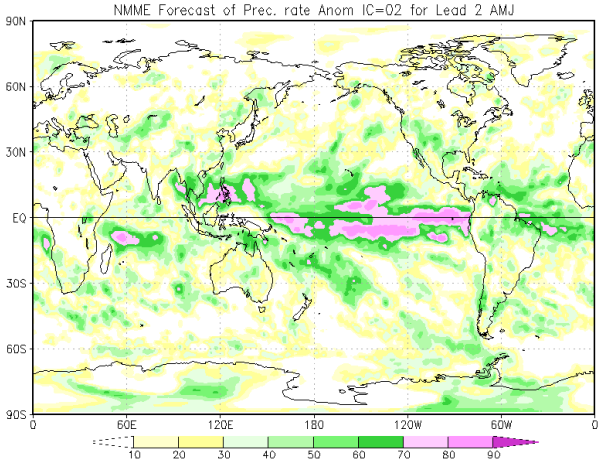
C3S

FCST





SKILL

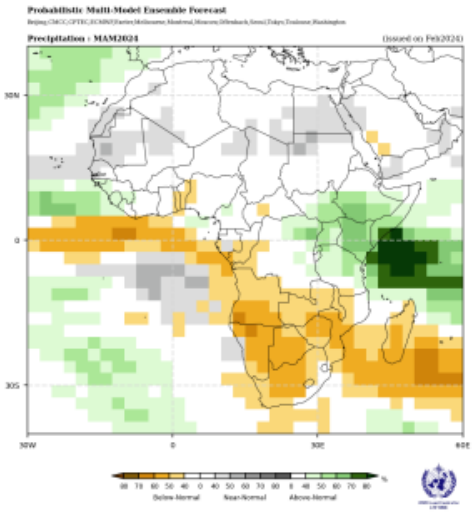


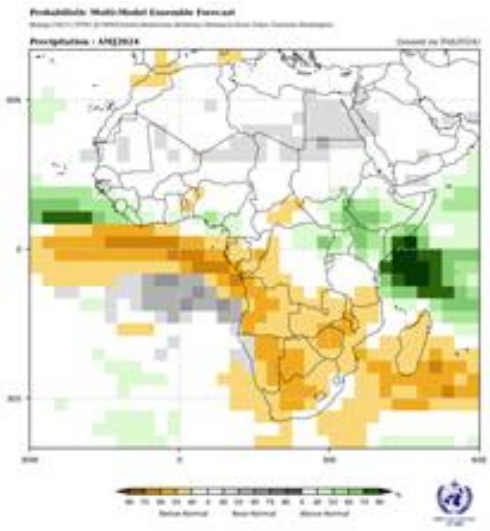
Multimodel Ensemble Analysis

Season 1

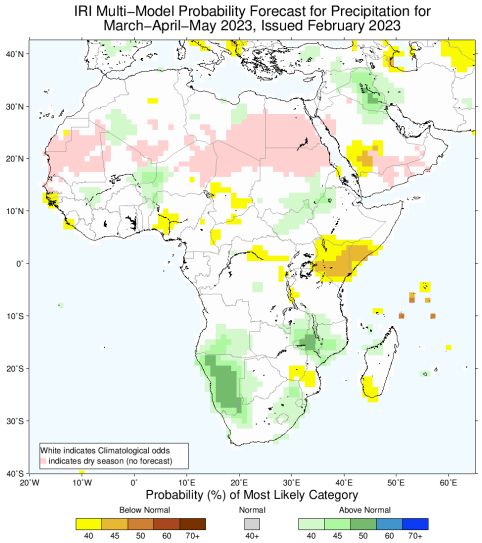
Season 2

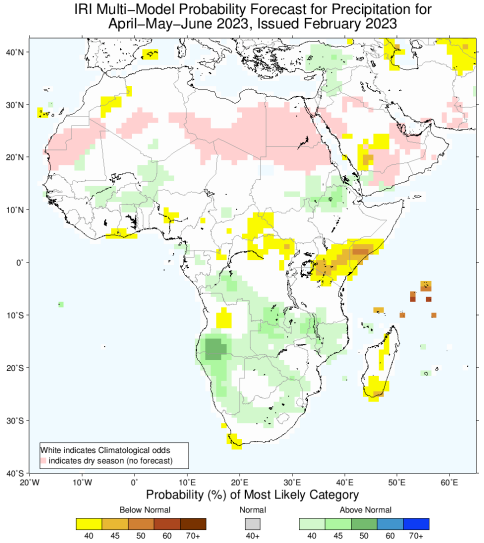
WMO





IRI

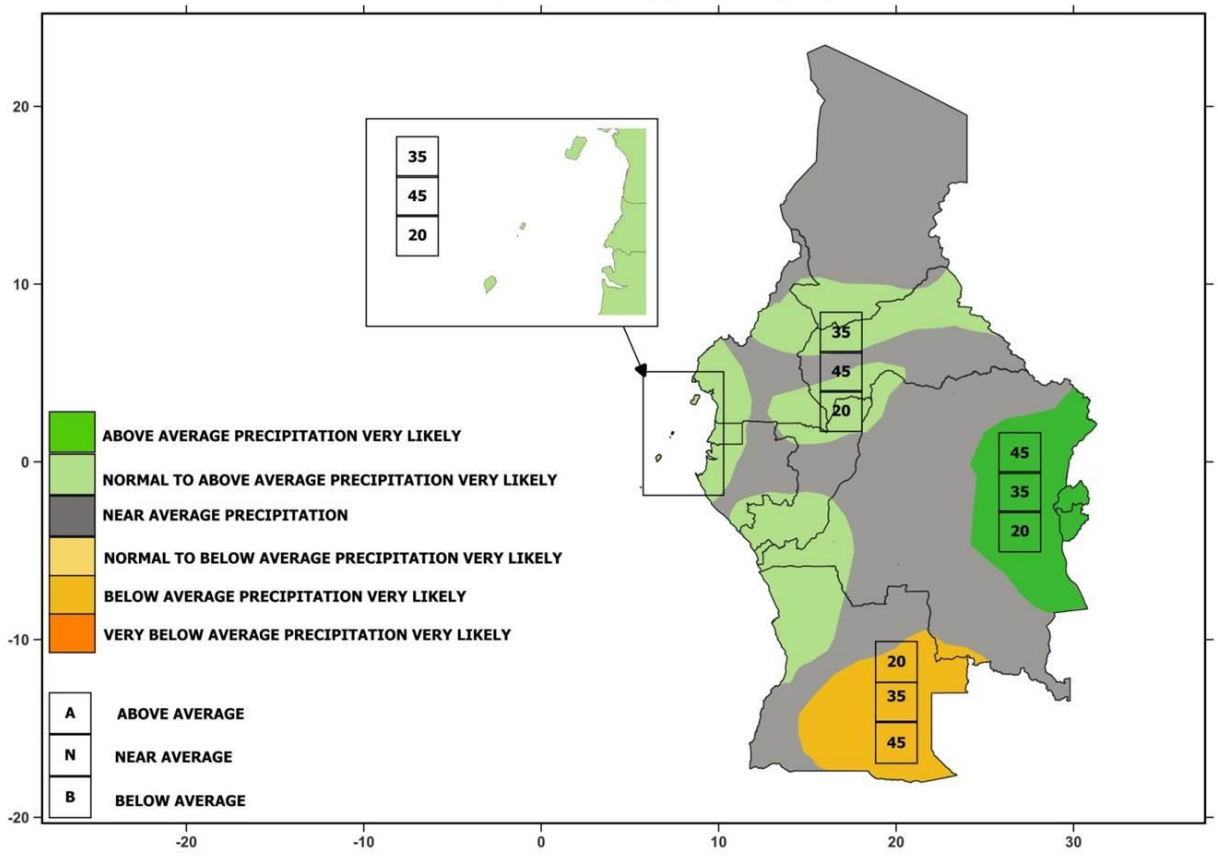




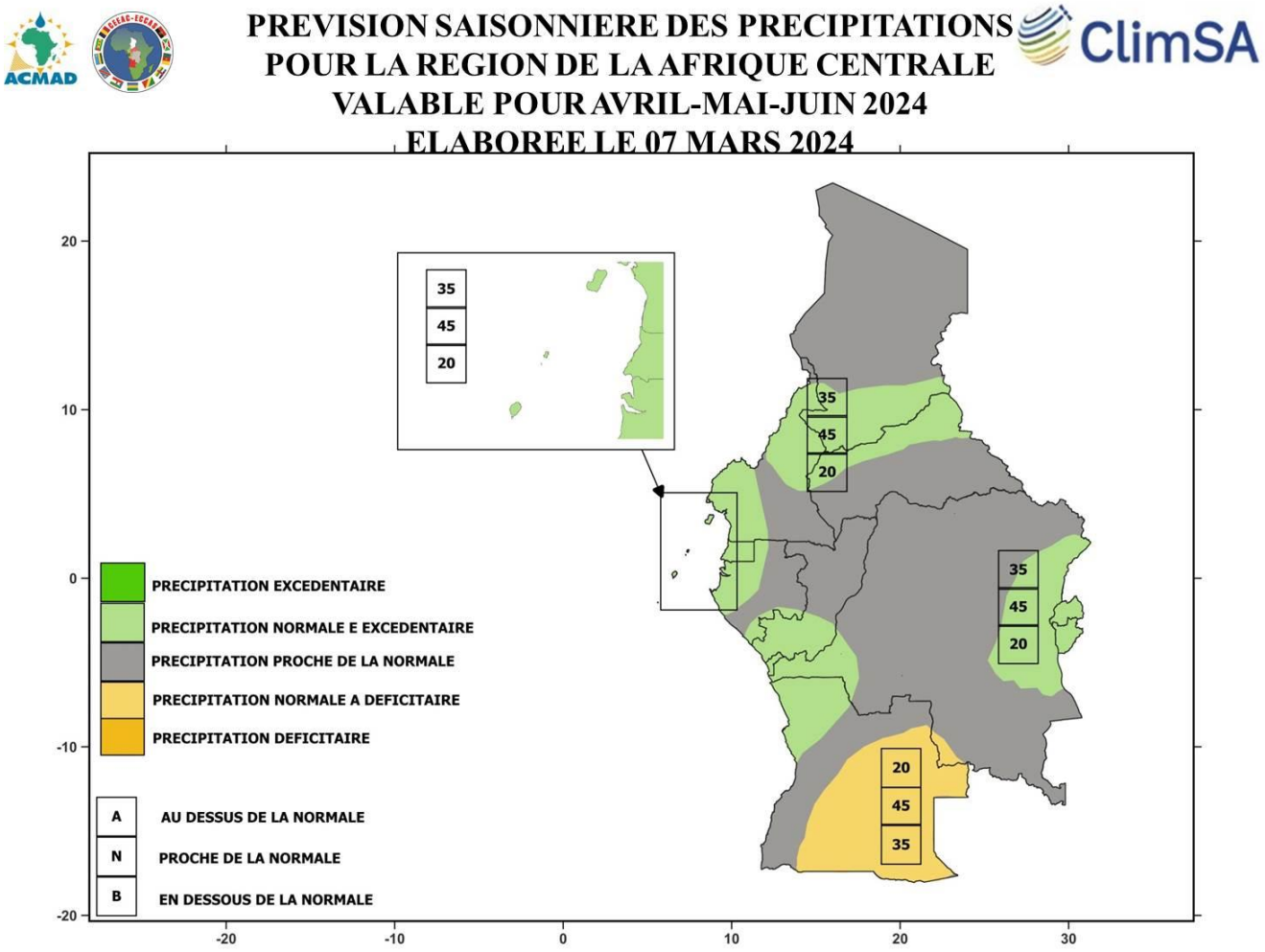
Step 9:

Consolidation Analysis of institutional outlook

SEASONAL PRECIPITATION OUTLOOK FOR MAM 2024



SEASONAL PRECIPITATION OUTLOOK FOR AMJ 2024



THANK YOU

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