

# CEMADEN

Centro Nacional de Monitoramento e  
Alertas de Desastres Naturais



## Monitoramento e Previsões da situação hidrometeorológica na Região Sul

DEZEMBRO 2024

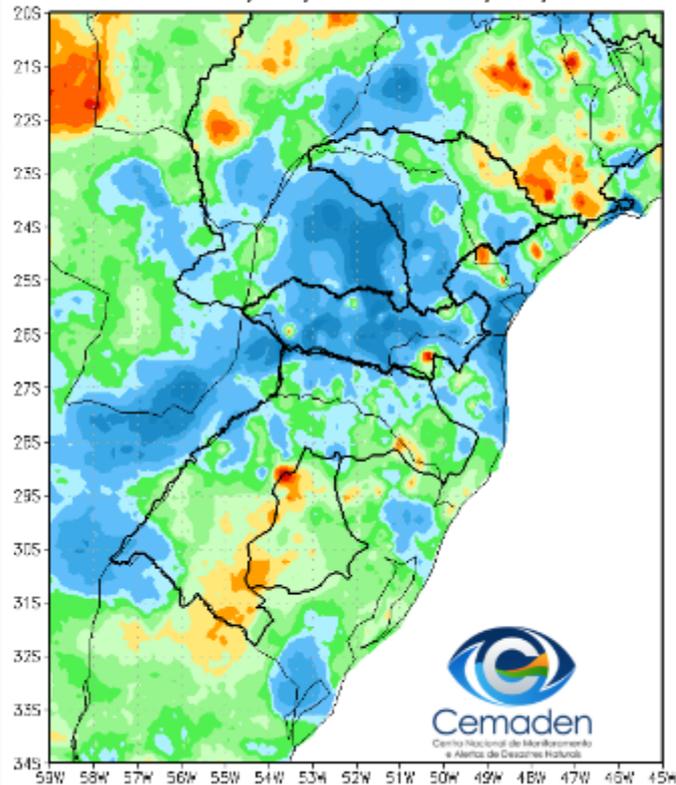


MINISTÉRIO DA  
CIÊNCIA, TECNOLOGIA  
E INOVAÇÃO

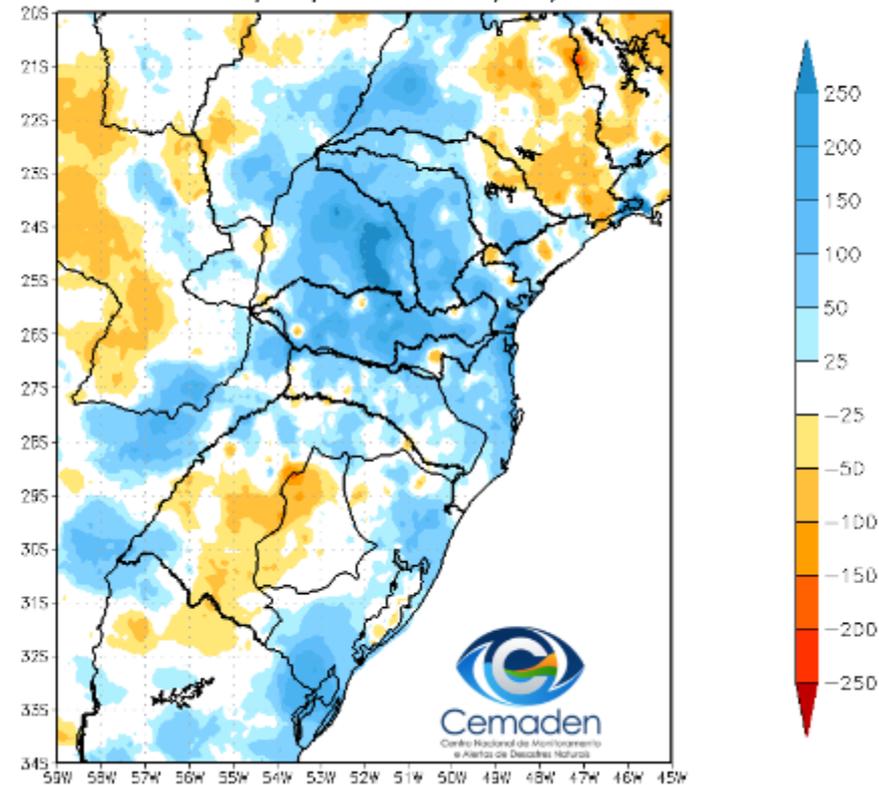


## Precipitação nos últimos 30 dias

Precipitação Acumulada (mm) A.S.  
Período: 17/11/2024 a 17/12/2024

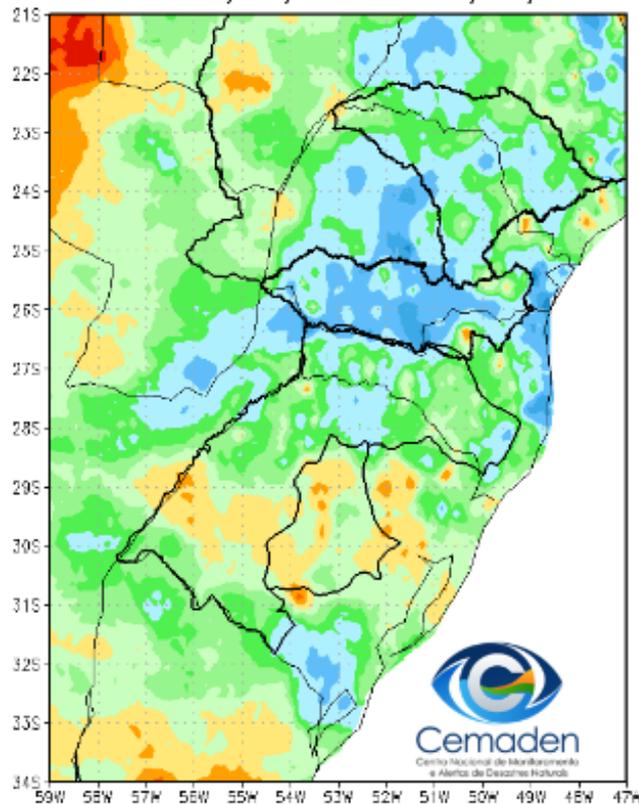


Anomalia de Precipitação (mm) A.S.  
Período: 17/11/2024 a 17/12/2024

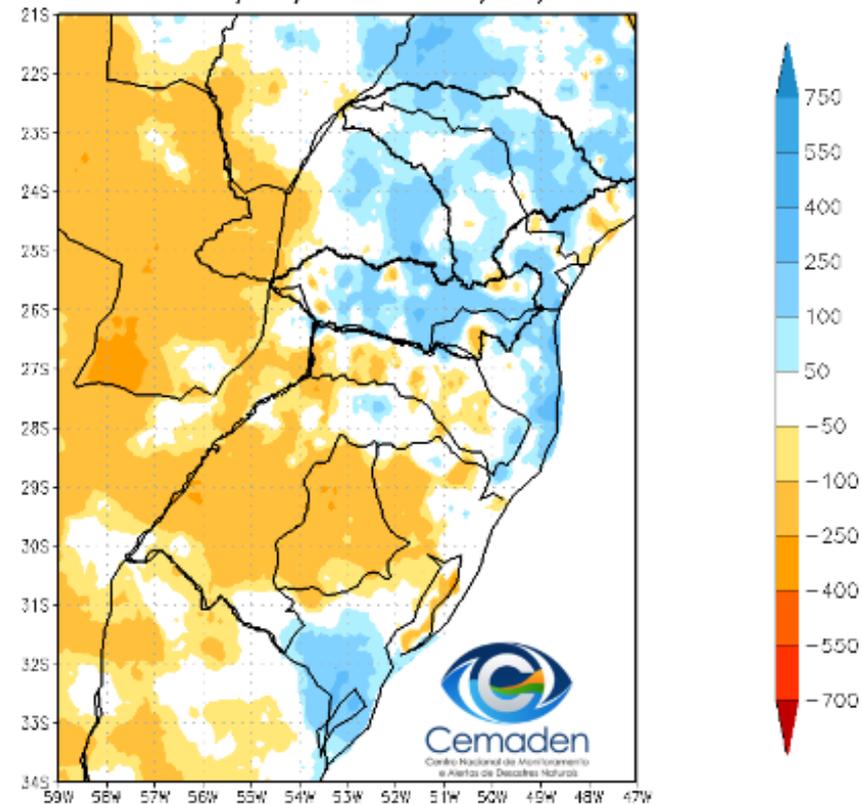


## Precipitação no Ano Hidrológico

Precipitação Acumulada (mm) A.S.  
Período: 01/10/2024 a 17/12/2024

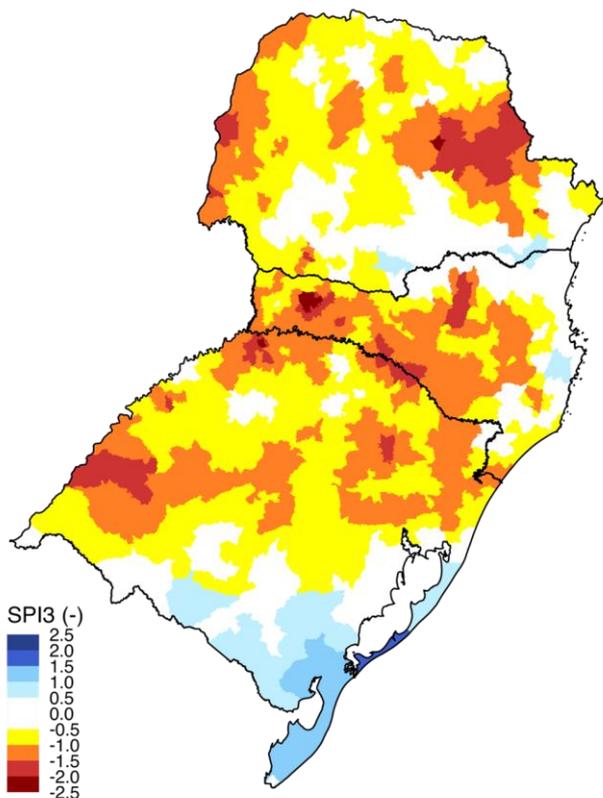


Anomalia de Precipitação (mm) A.S.  
Período: 01/10/2024 a 17/12/2024



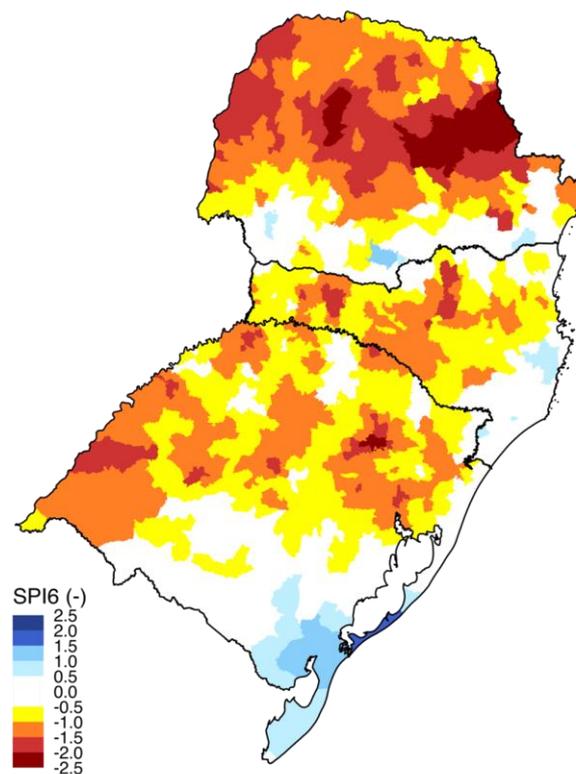
# SPI: NOVEMBRO 2024

## SPI-03



Novembro 2024  
Índice Padronizado de Precipitação (SPI, 3 meses)  
Fonte: Cemaden/MCTI.

## SPI-06



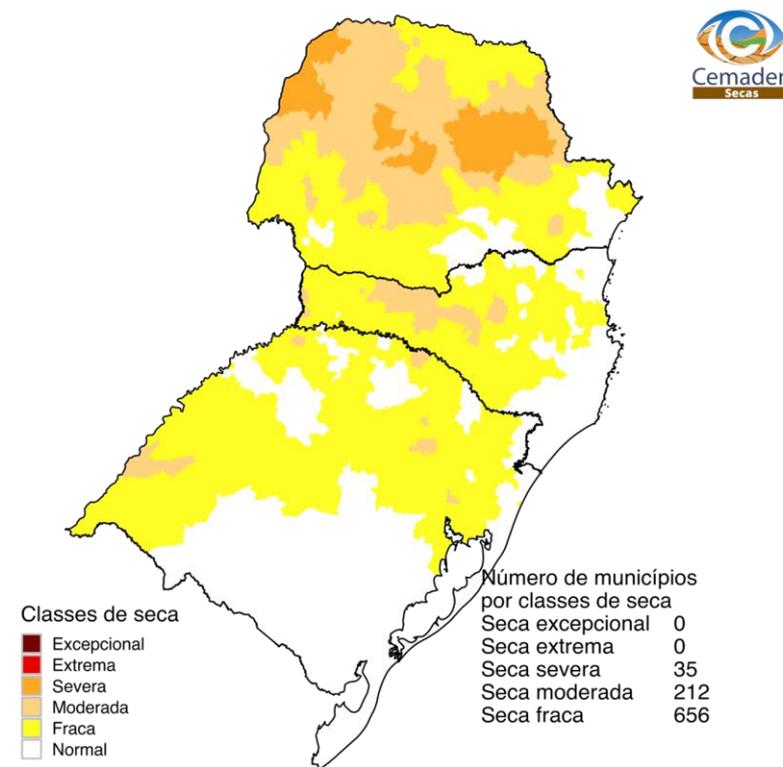
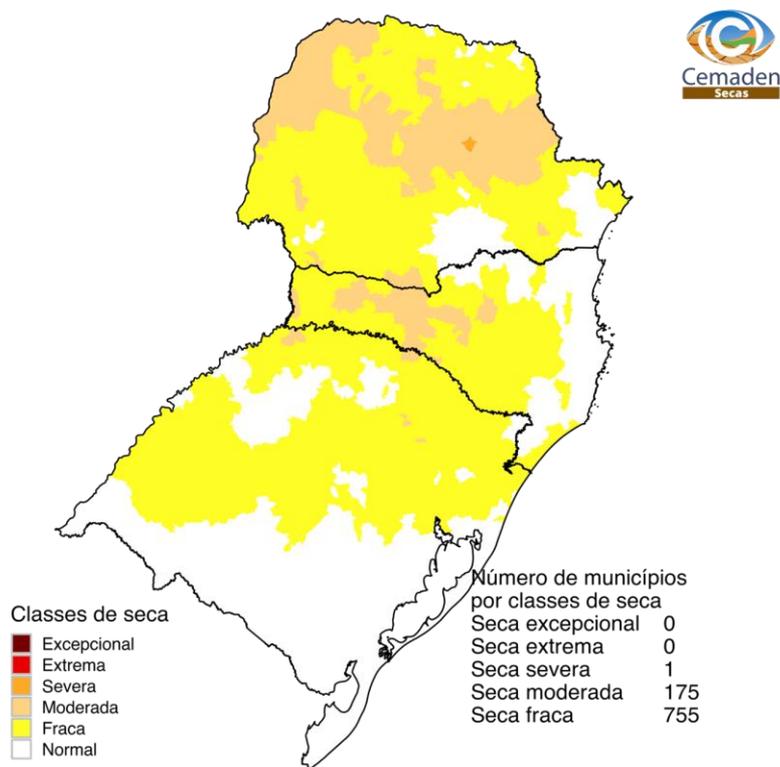
Novembro 2024  
Índice Padronizado de Precipitação (SPI, 6 meses)  
Fonte: Cemaden/MCTI.

# ÍNDICE INTEGRADO DE SECA: ANÁLISE POR

IIS-03  
OBSERVADO

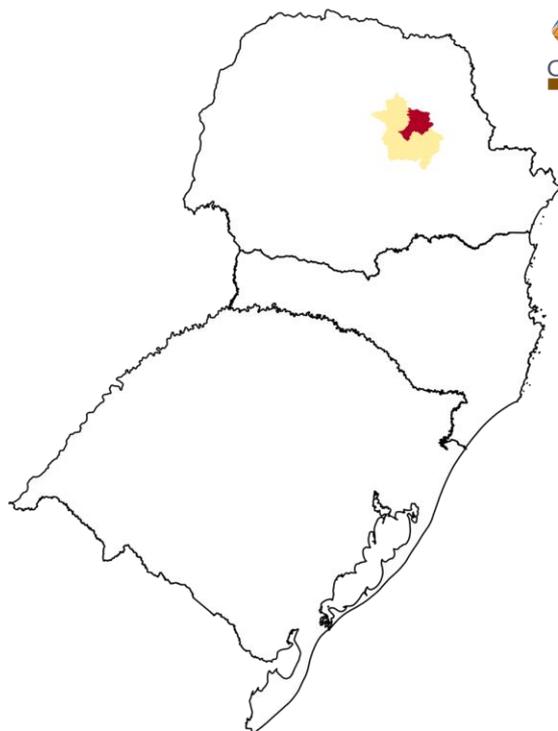
**MUNICÍPIOS**

IIS-06  
OBSERVADO



# ÁREAS DE PASTAGENS E AGRÍCOLAS AFETADAS PELA SECA: NOVEMBRO/2024

IIS

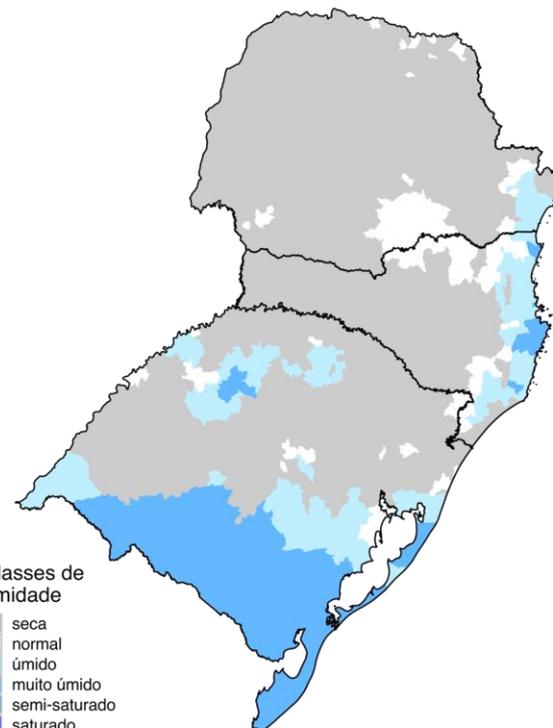


Fração da área afetada

- > 80%
- 60-80%
- 40-60%
- < 40%

Novembro 2024  
Fração da área agroprodutiva afetada pela seca  
Fonte: Cemaden/MCTI.

IARA



Classes de umidade

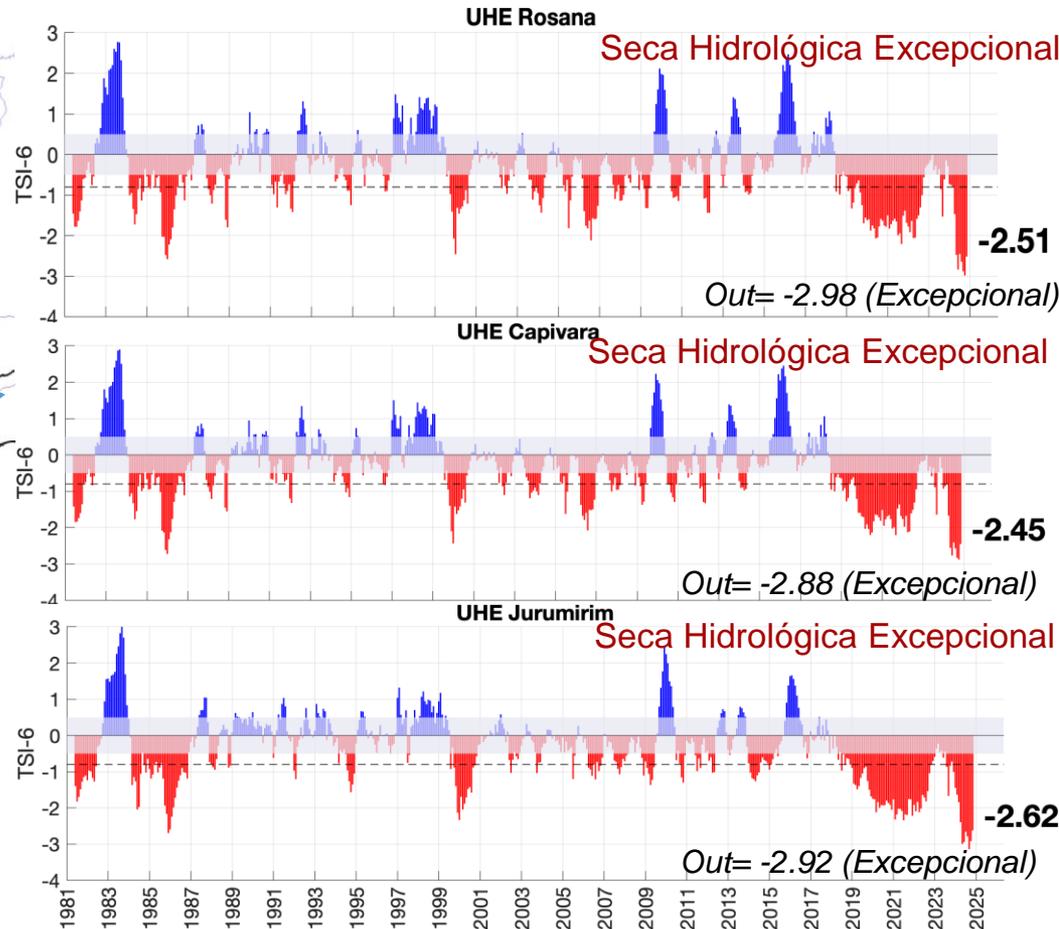
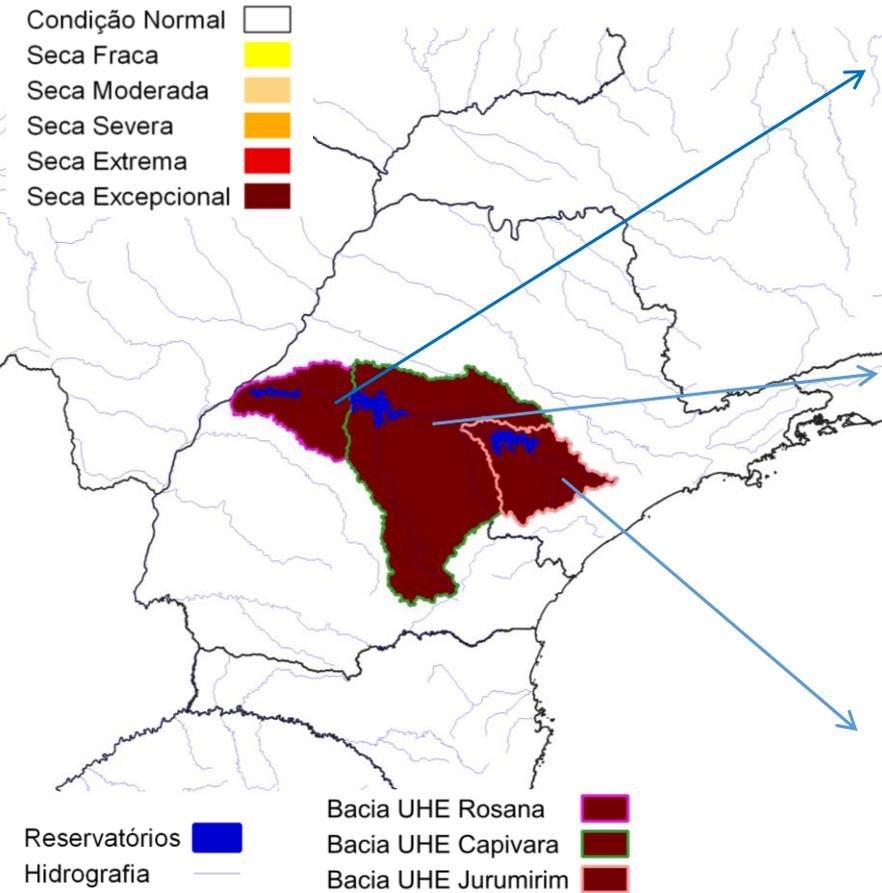
- seca
- normal
- úmido
- muito úmido
- semi-saturado
- saturado

Novembro 2024  
Índice Agregado de Recursos de Água (IARA, 3 meses)  
Fonte: Cemaden/MCTI.

# BACIA DO RIO PARANAPANEMA

## Novembro/2024

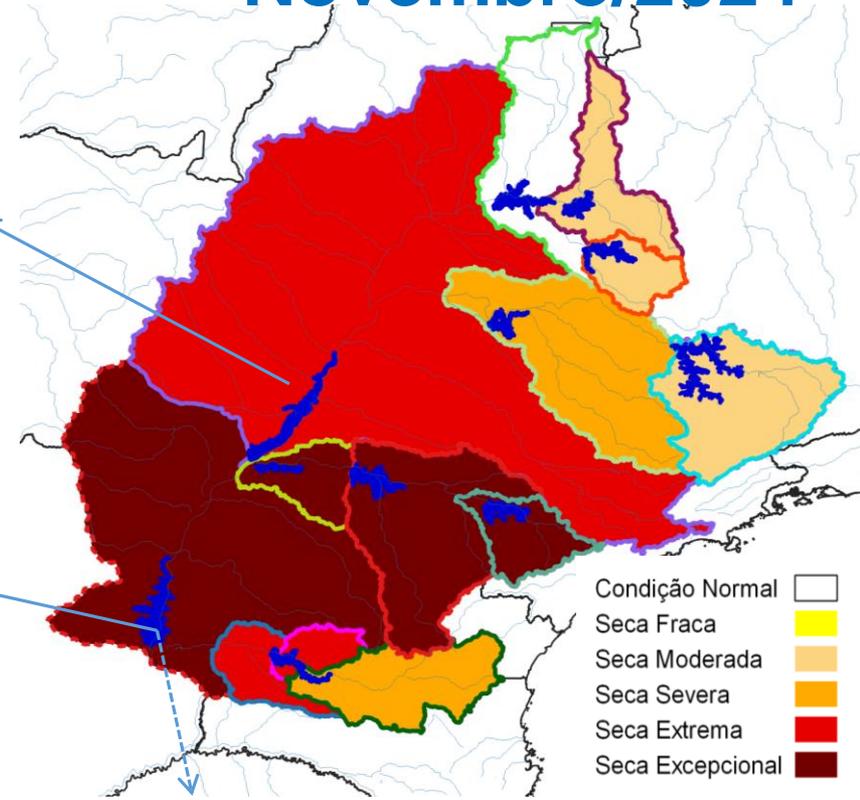
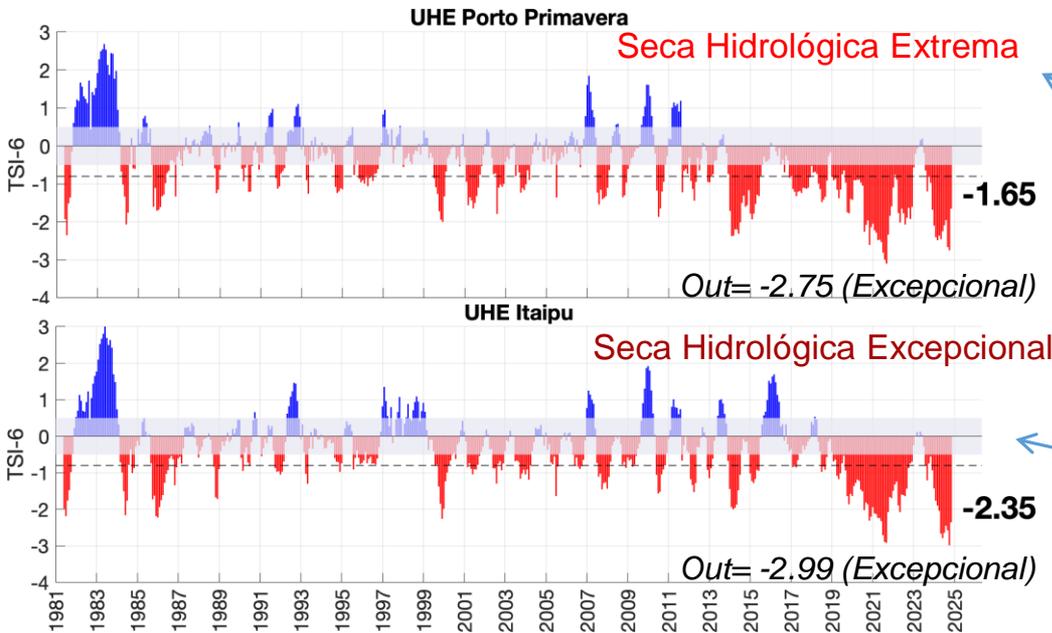
### Índice de Seca Bivariado (Chuva-Vazão) – TSI 6



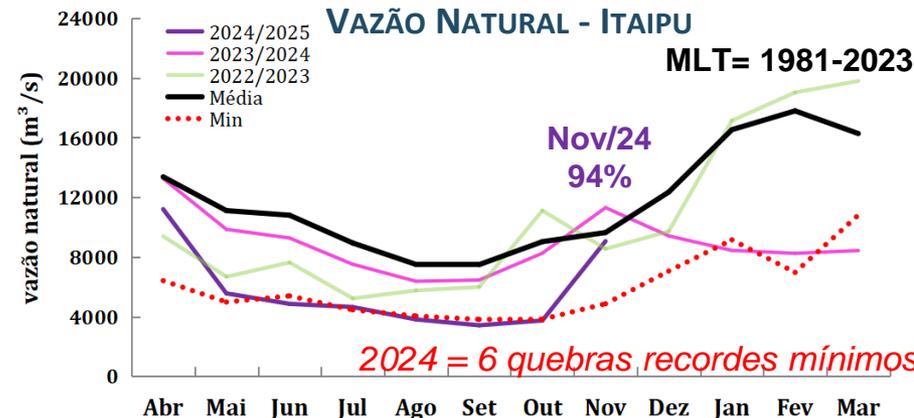
# BACIA DO RIO PARANÁ

## Novembro/2024

### Índice de Seca Bivariado (Chuva-Vazão) – TSI 6



Série de dados = Jan/1981- Nov/2024

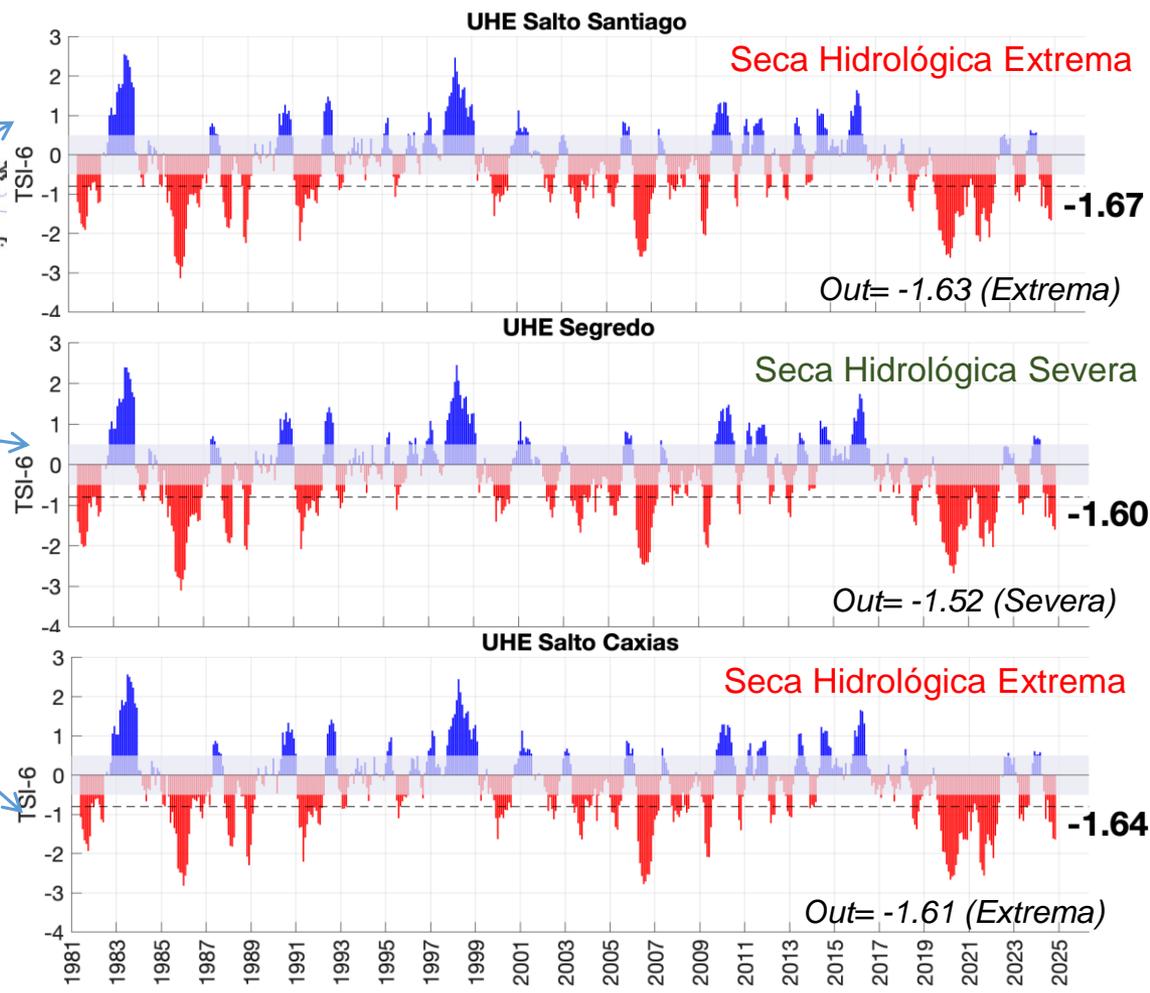
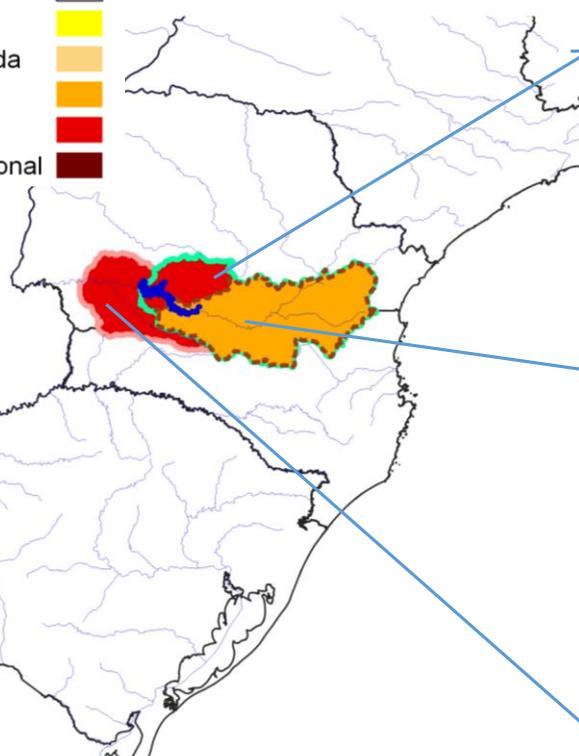


# BACIA DO RIO IGUAÇU

## Novembro/2024

### Índice de Seca Bivariado (Chuva-Vazão) – TSI 6

- Condição Normal
- Seca Fraca
- Seca Moderada
- Seca Severa
- Seca Extrema
- Seca Excepcional



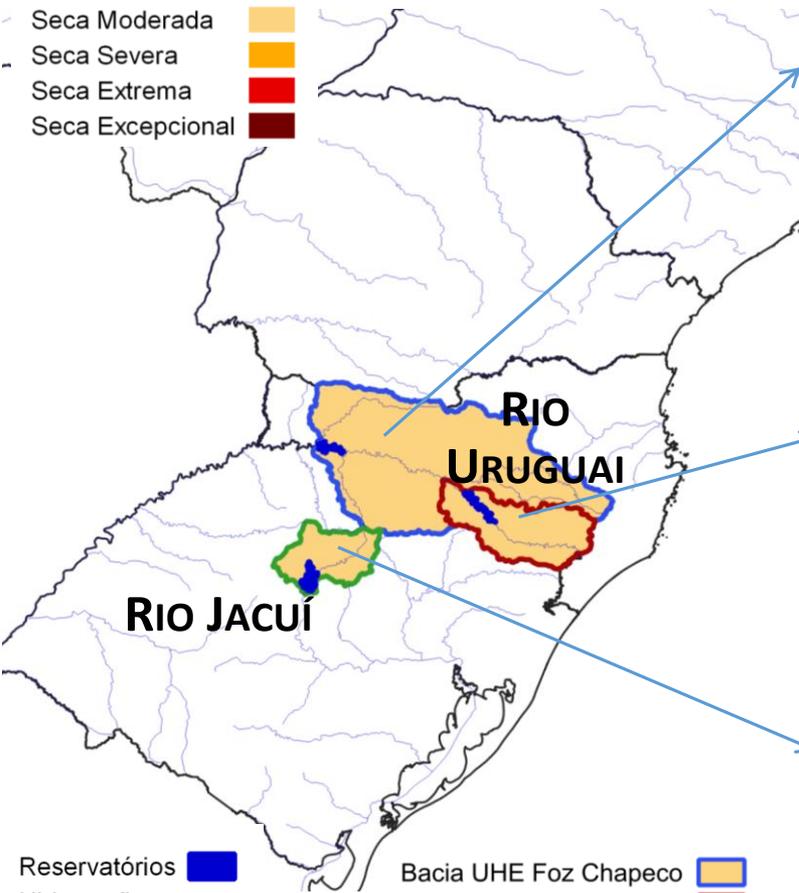
- Reservatórios
- Hidrografia
- Bacia UHE Segredo
- Bacia UHE Salto Santiago
- Bacia UHE Salto Caxias

Fonte: CEMADEN/MCTI  
Dados: Precipitação (CHIRPS) e Vazão (ONS e ANA)

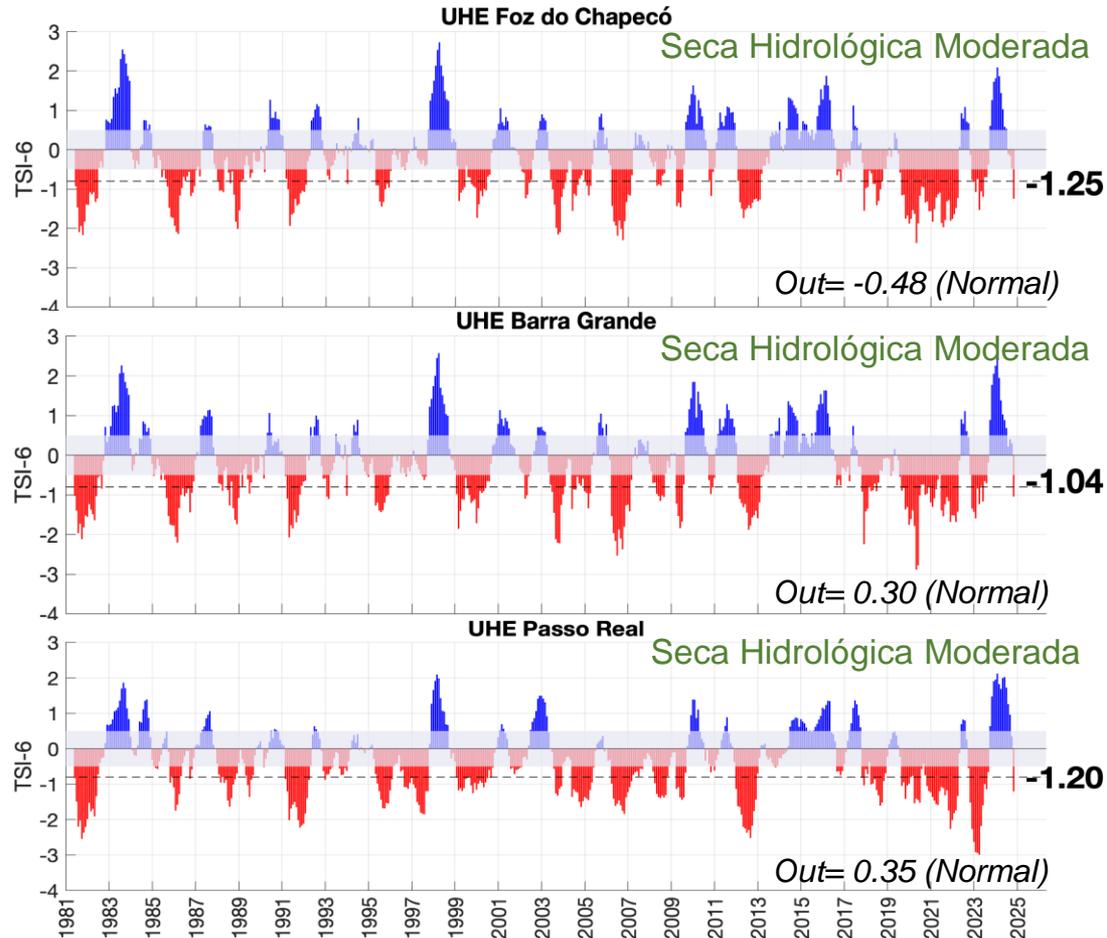
# BACIAS HIDROGRÁFICAS: ESTADOS SC-RS

## Novembro/2024

- Condição Normal 
- Seca Fraca 
- Seca Moderada 
- Seca Severa 
- Seca Extrema 
- Seca Excepcional 



## Índice de Seca Bivariado (Chuva-Vazão) – TSI-6



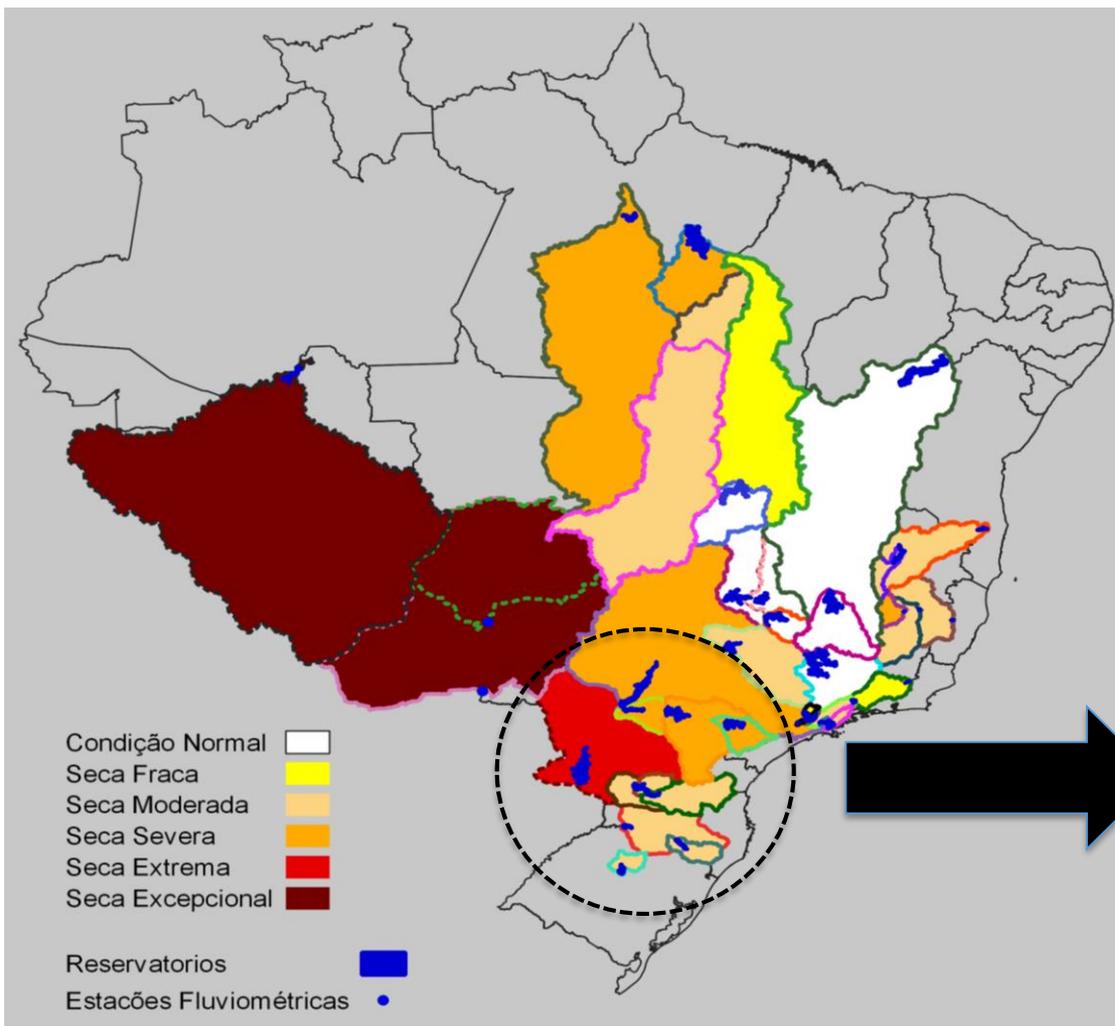
Fonte: CEMADEN/MCTI

Dados: Precipitação (CHIRPS) e Vazão (ONS e ANA)

Série de dados = Jan/1981- Nov/2024

# BACIAS HIDROGRÁFICAS: SUL DO PAÍS

## Previsão Próximos 30 dias



### Desintensificação da seca:

- Jurumirim (rio *Paranapanema*)
- Capivara (rio *Paranapanema*)
- Rosana (rio *Paranapanema*)
- Salto Santiago (rio *Iguaçu*)
- Segredo (rio *Iguaçu*)
- Salto Caxias (rio *Iguaçu*)
- Porto Primavera (rio *Paraná*)
- Itaipu (rio *Paraná*)

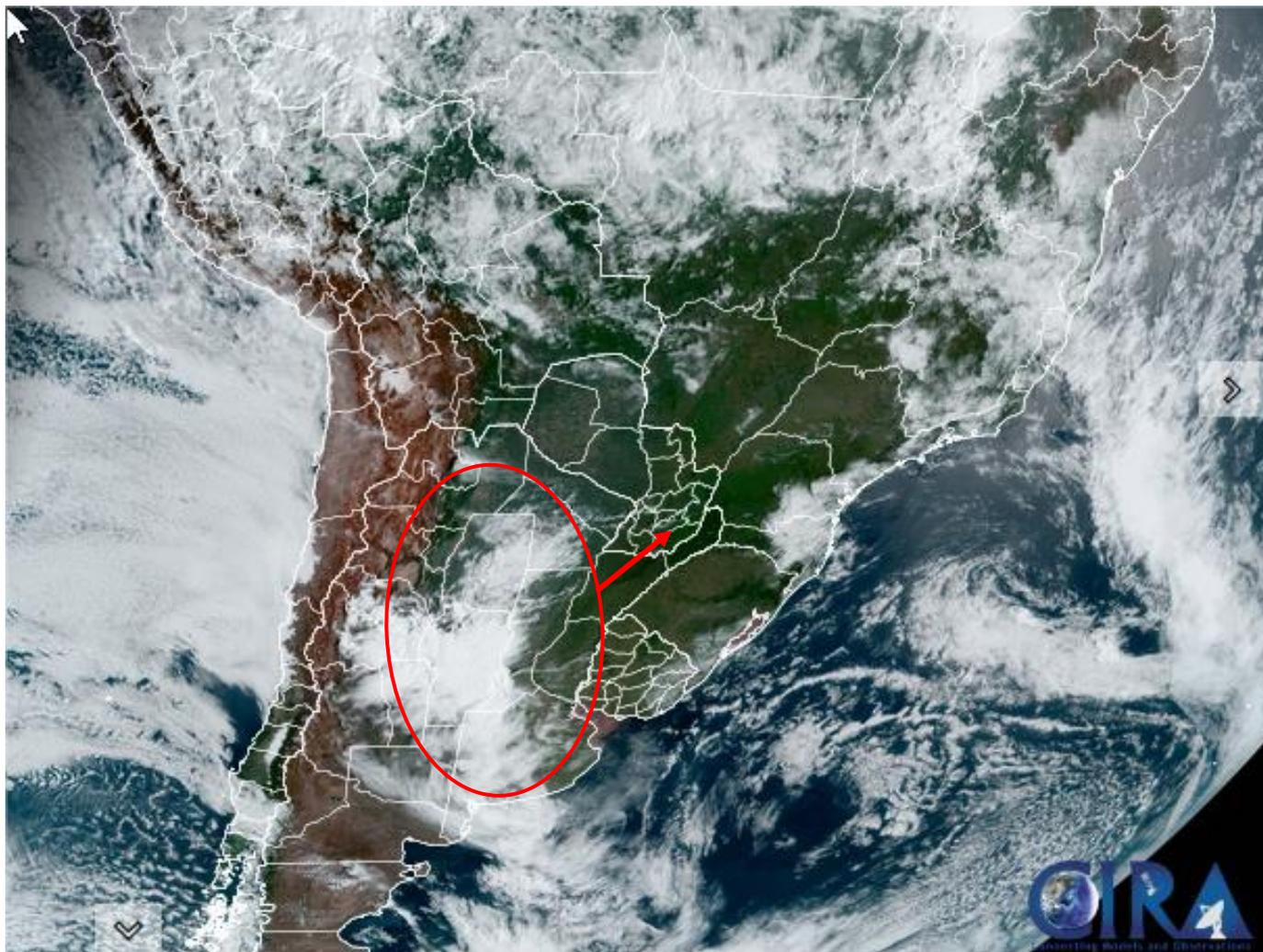
### Estabilidade da seca:

- Barra Grande (rio *Uruguai*)
- Foz Chapecó (rio *Uruguai*)
- Passo Real (rio *Jacuí*)

Fonte: CEMADEN/MCTI

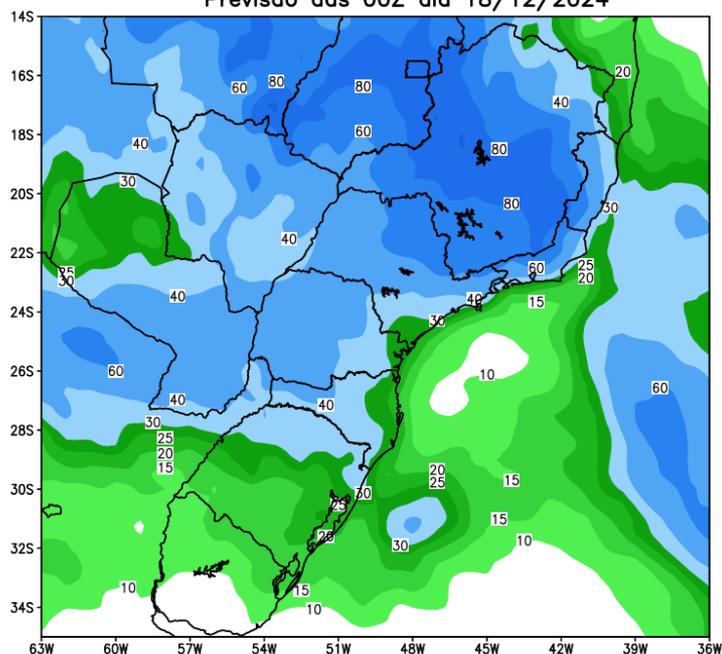
Previsão de Precipitação: Climate Forecast System (CFS)

## Situação meteorológica atual

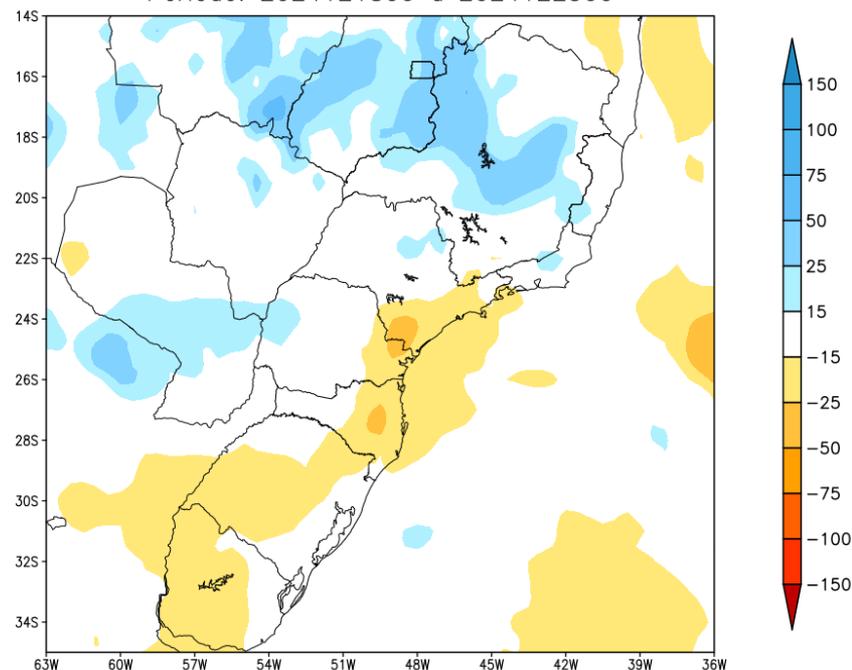


## Previsão de chuva próximos 7 dias

GEFS / BRASIL\_SUL  
Precipitação acumulada 1aSem (mm)  
Previsão das 00Z dia 18/12/2024



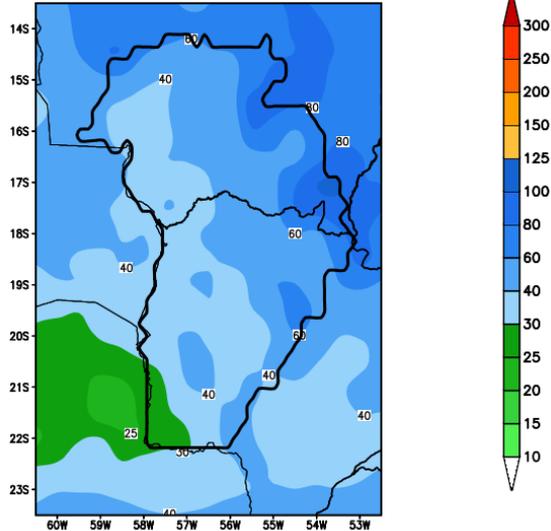
Anomalia de Precipitação BR SUL (mm)  
Período: 2024121800 a 2024122500



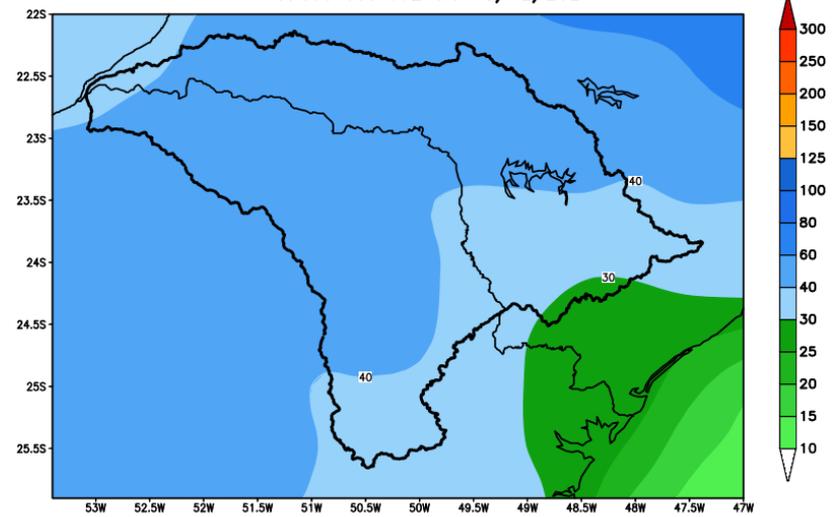
MODELO GEFS

# Previsão para as principais bacias

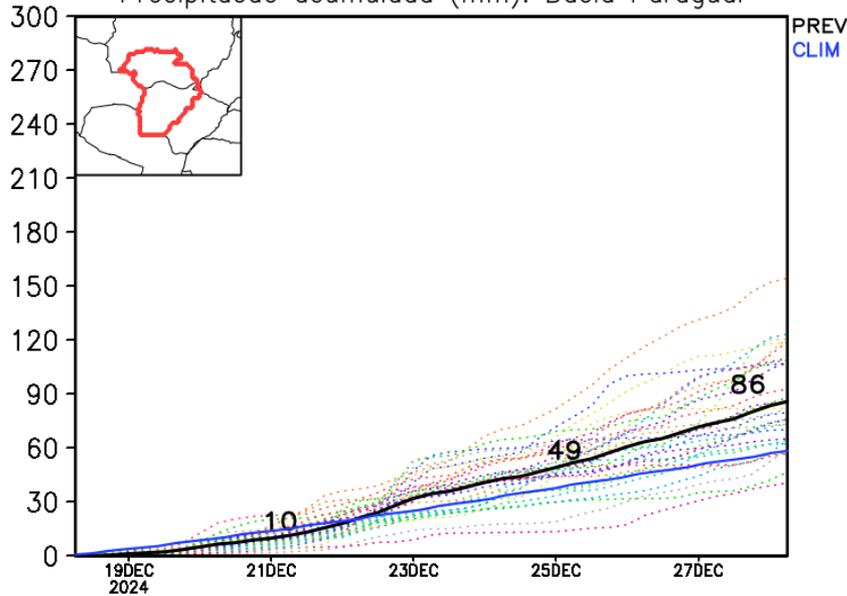
GEFS / Bacia do Rio Paraguai  
Precipitação acumulada em 7 dias (mm)  
Previsão das 00Z dia 18/12/2024



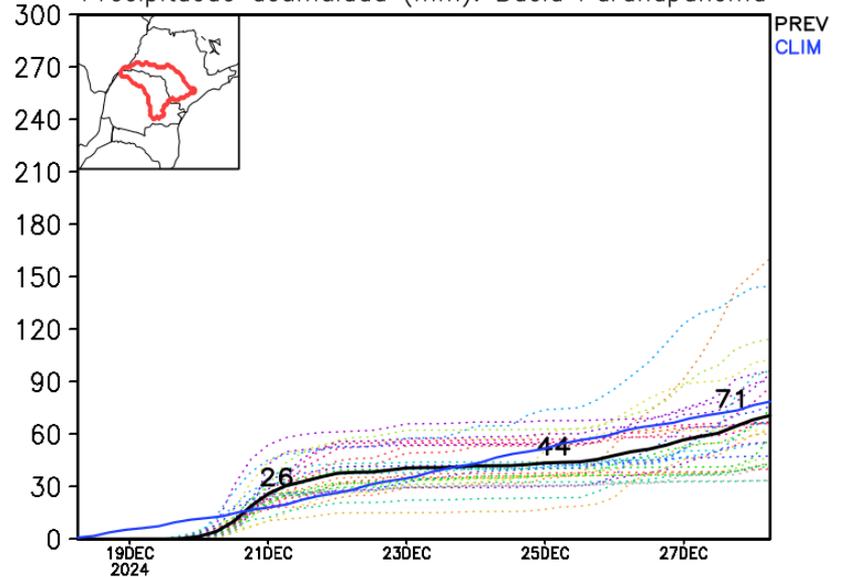
GEFS / Bacia do Rio Paranapanema  
Precipitação acumulada em 7 dias (mm)  
Previsão das 00Z dia 18/12/2024



Precipitação acumulada (mm): Bacia Paraguai



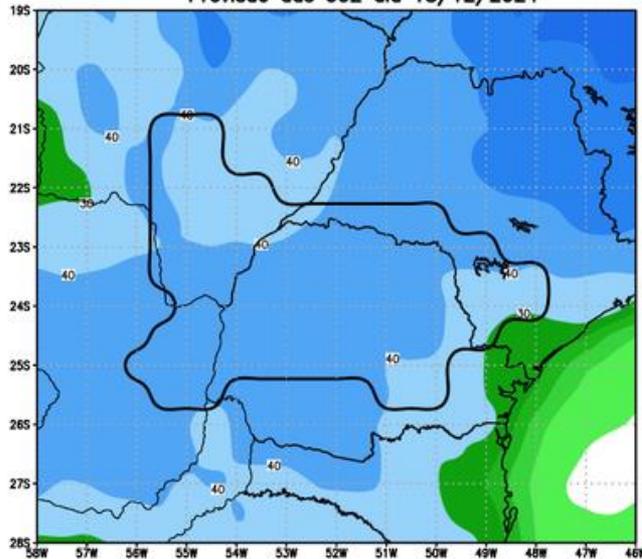
Precipitação acumulada (mm): Bacia Paranapanema



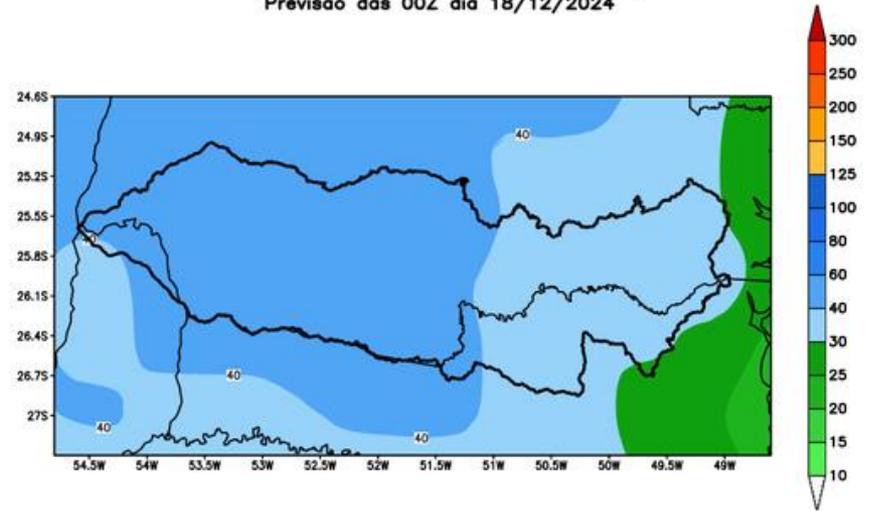
MODELO GEFS

# Previsão para as principais bacias

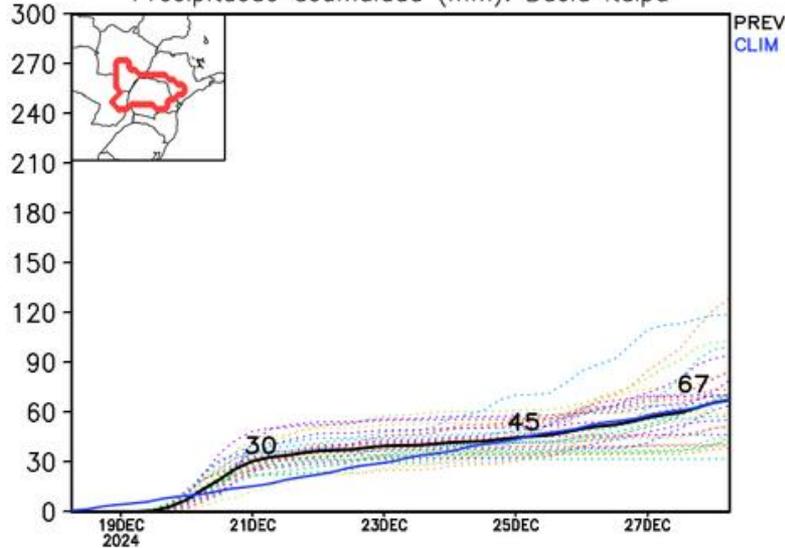
GEFS / Itaipu  
Precipitação acumulada em 7 dias (mm)  
Previsão das 00Z dia 18/12/2024



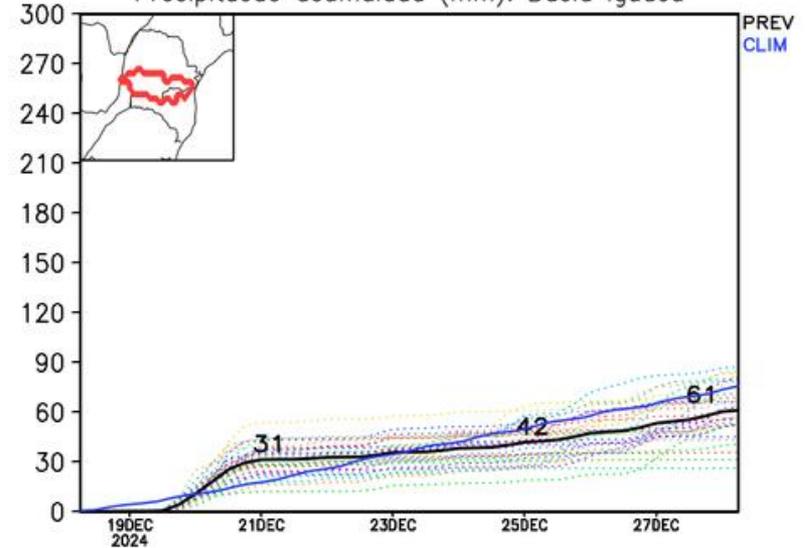
GEFS / Bacia do Rio Iguacu  
Precipitação acumulada em 7 dias (mm)  
Previsão das 00Z dia 18/12/2024



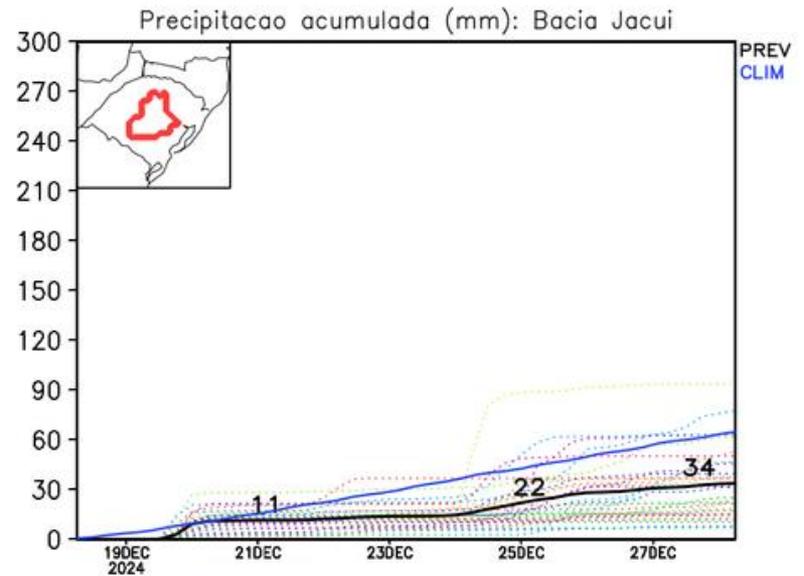
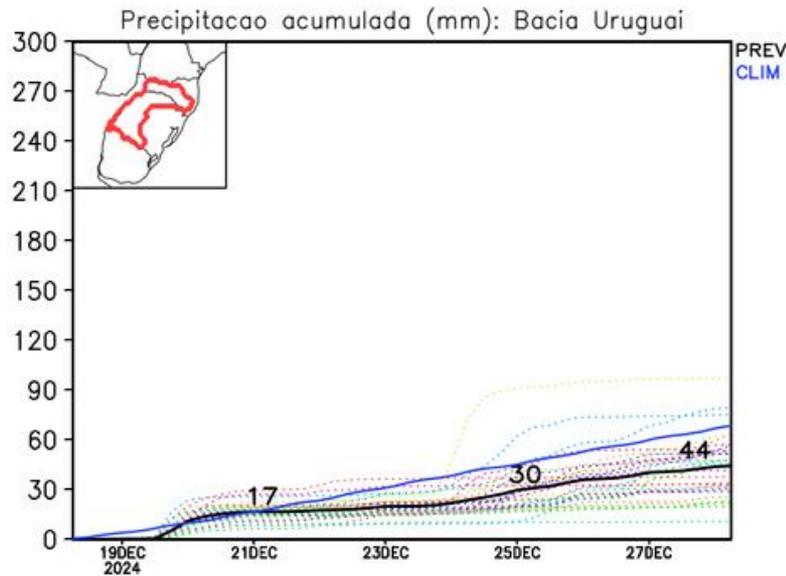
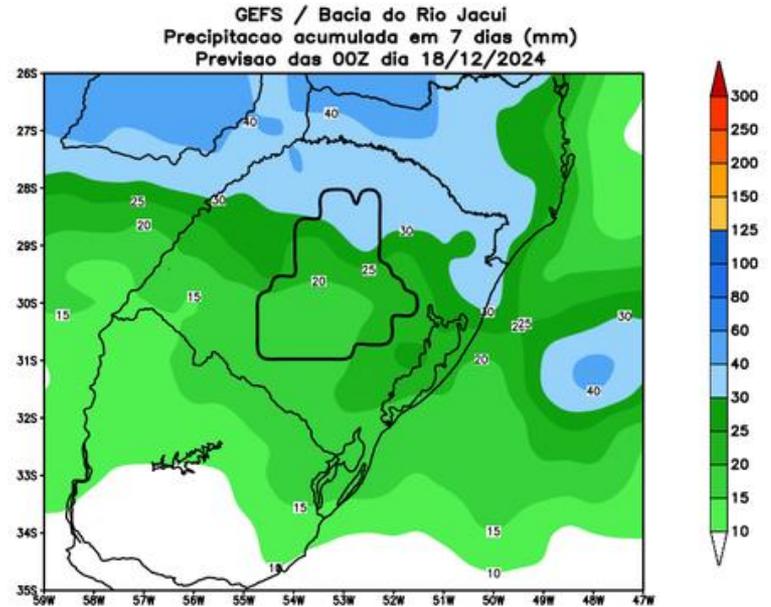
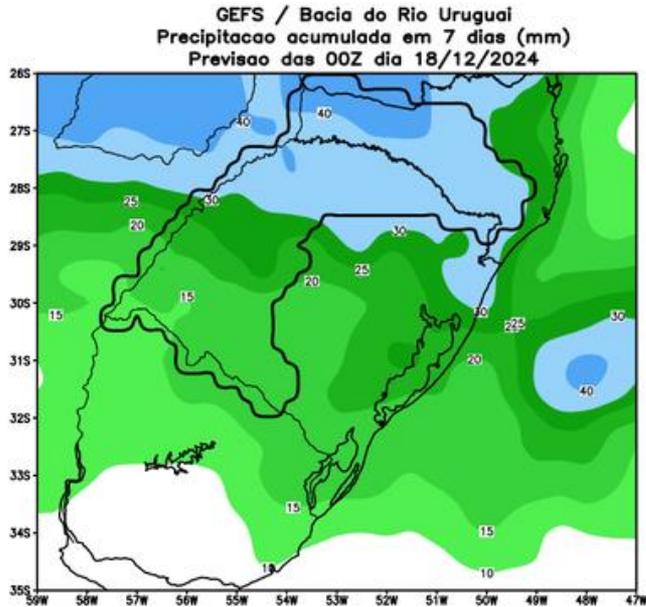
Precipitação acumulada (mm): Bacia Itaipu



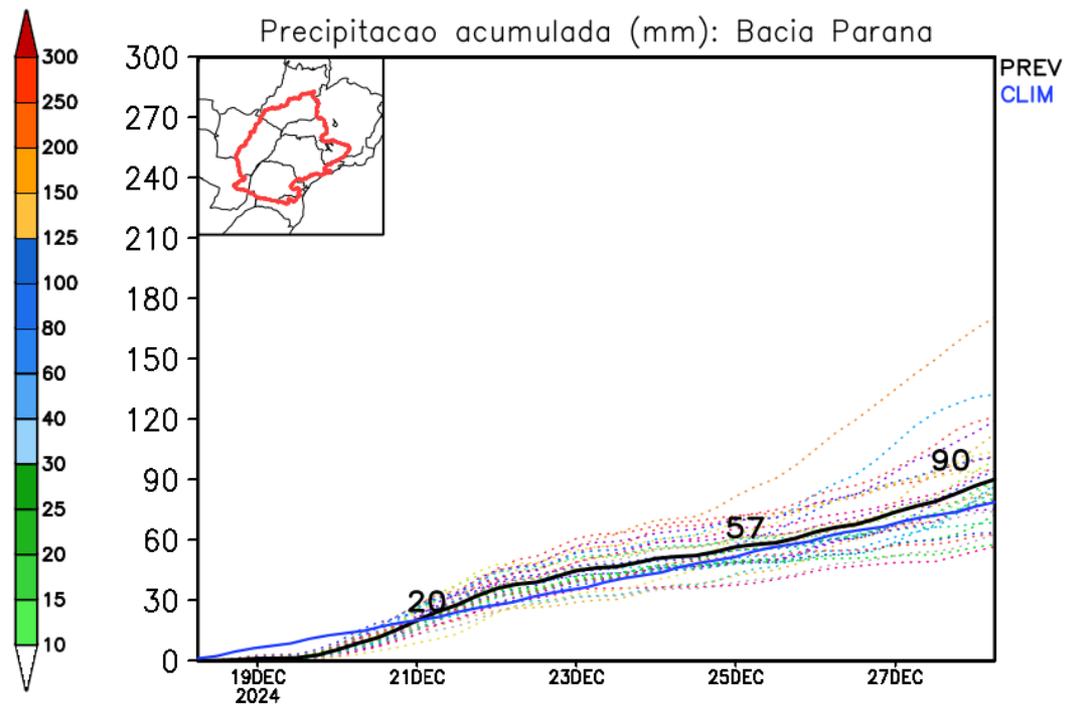
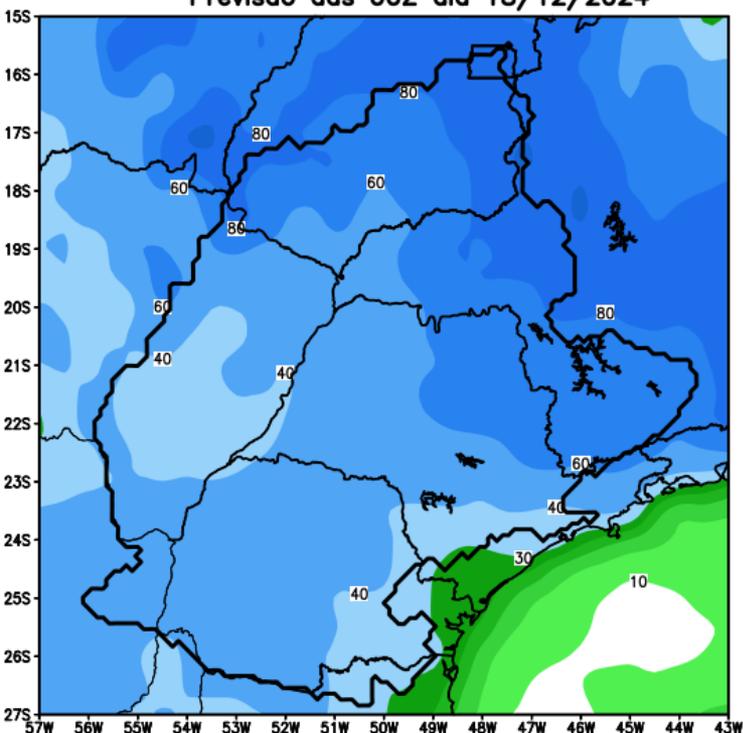
Precipitação acumulada (mm): Bacia Iguacu



# Previsão para as principais bacias

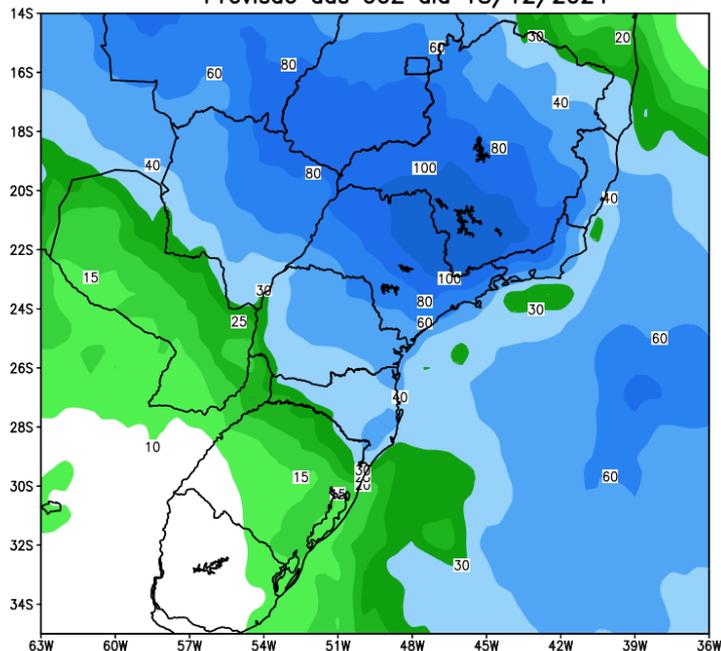


GEFS / Bacia do Parana  
Precipitacao acumulada em 7 dias (mm)  
Previsao das 00Z dia 18/12/2024

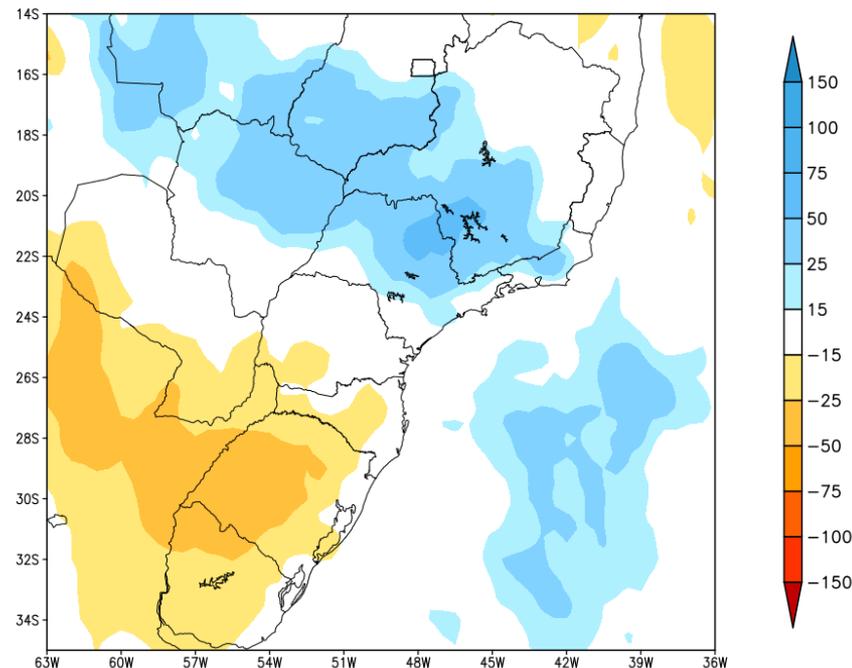


## Tendência para a segunda semana

GEFS / BRASIL\_SUL  
Precipitação acumulada 2aSem (mm)  
Previsão das 00Z dia 18/12/2024



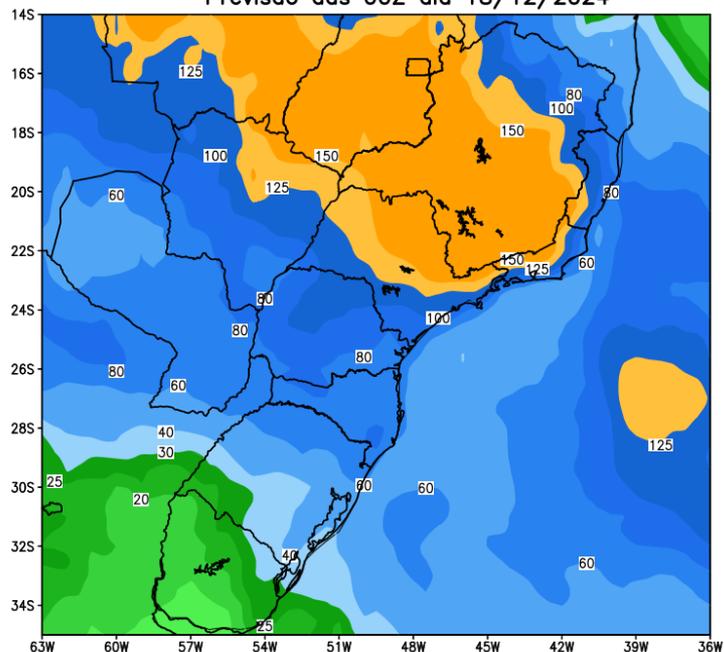
Anomalia de Precipitação BR\_SUL (mm)  
Período: 2024122600 a 2025010100



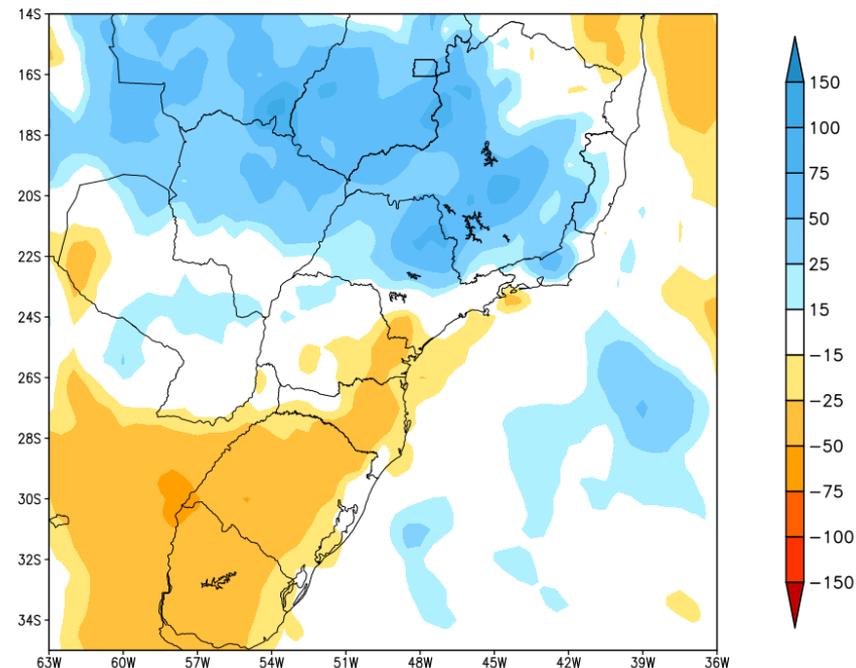
MODELO GEFS

## Tendência para as duas próximas semanas

GEFS / BRASIL\_SUL  
Precipitação acumulada 14 dias (mm)  
Previsão das 00Z dia 18/12/2024



Anomalia de Precipitação BR SUL (mm)  
Período: 2024121800 a 2025010100

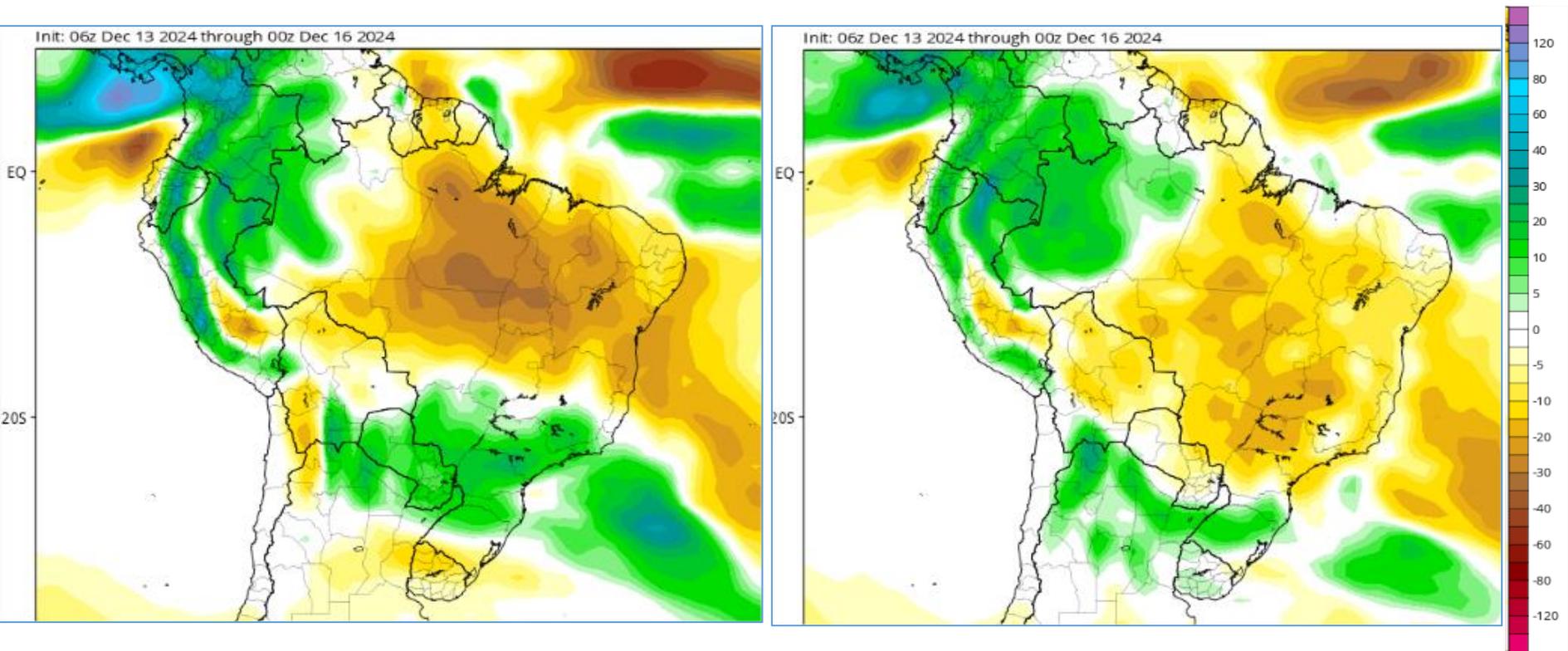


MODELO GEFS

# Tendência 3a e 4a semanas

30 Dez -06 Jan

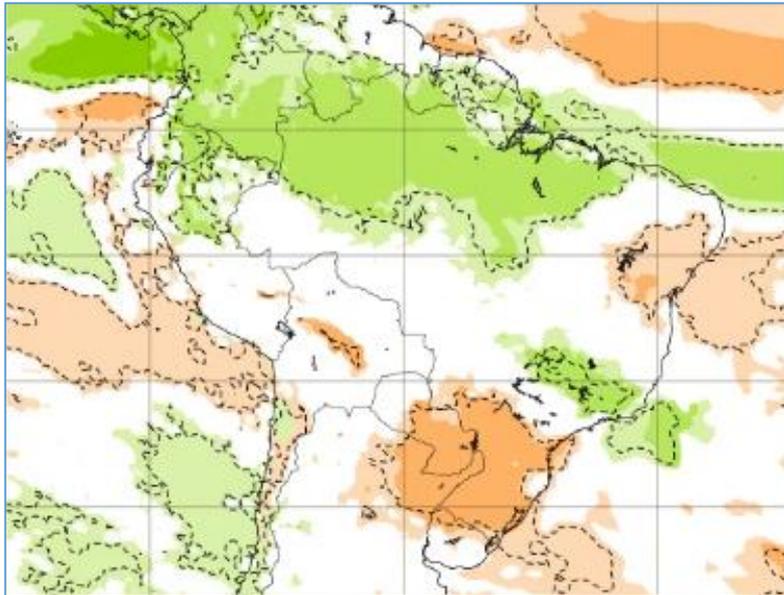
06-13 Jan



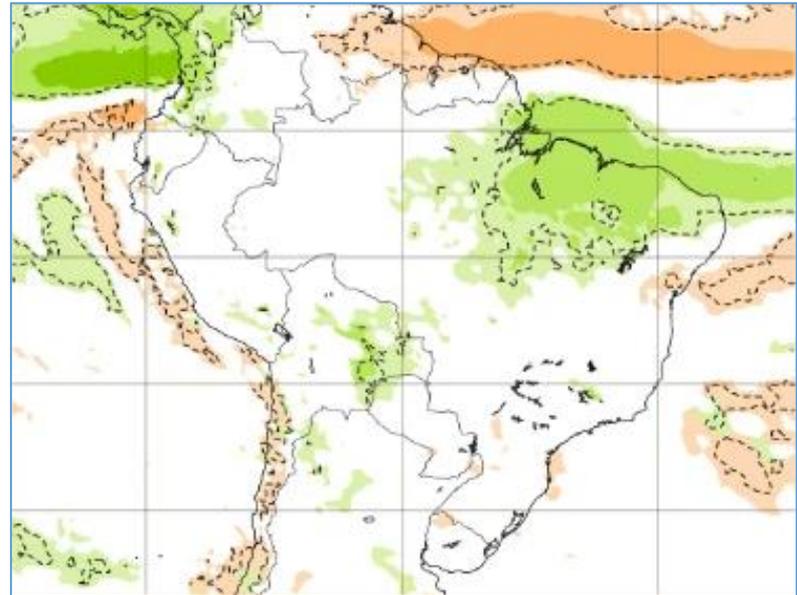
CFSv2 Accumulated Precip. Anomaly (mm)

# Tendência para 3ª e 4ª semanas

30 Dez -06 Jan

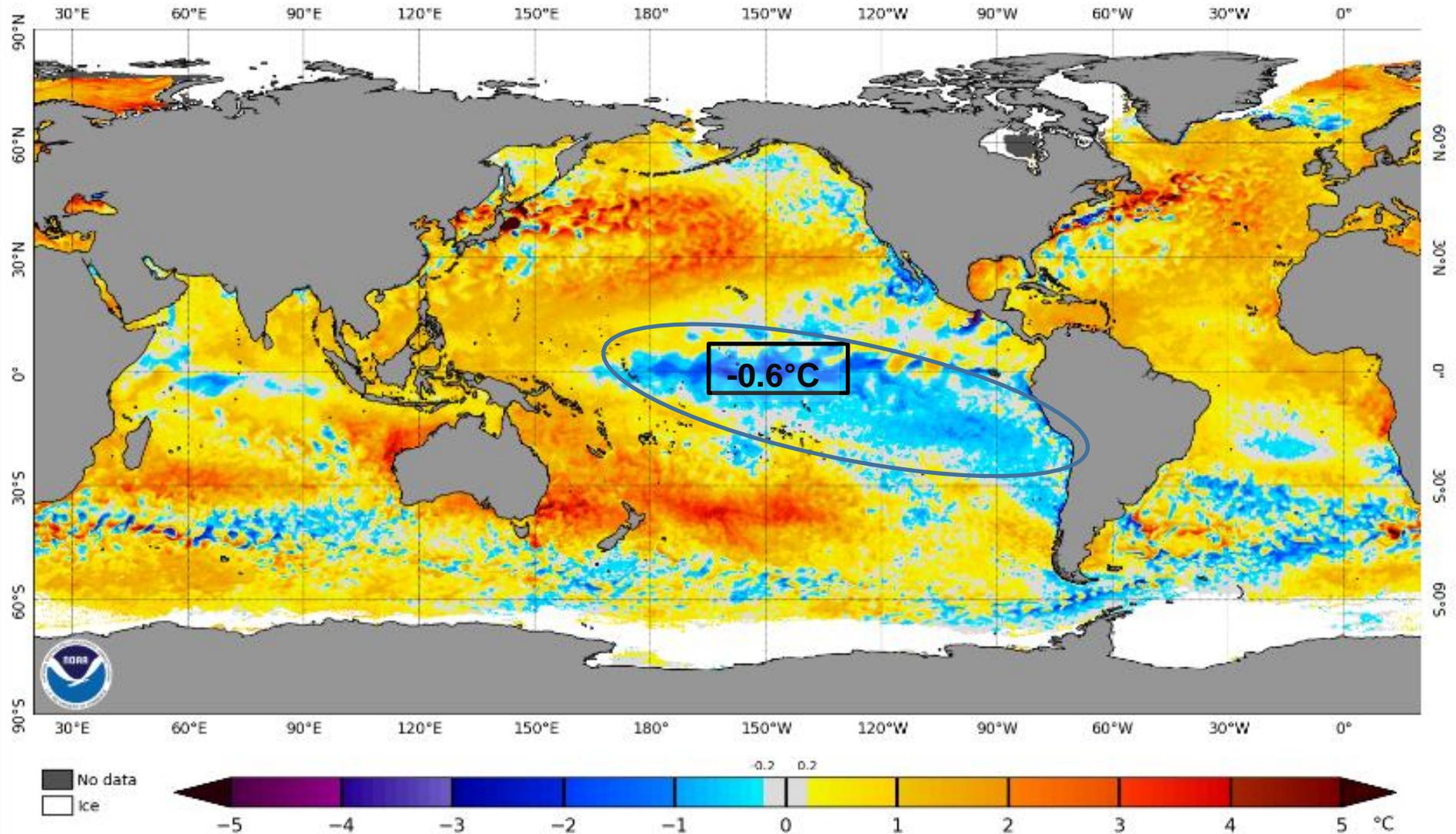


06-13 Jan



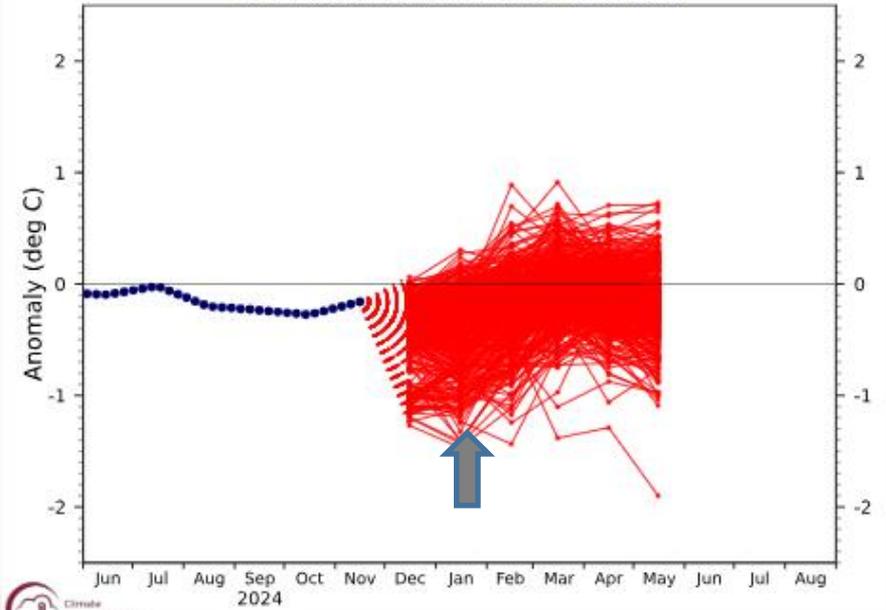
# Status Atual: **La Niña Watch**

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 16 Dec 2024

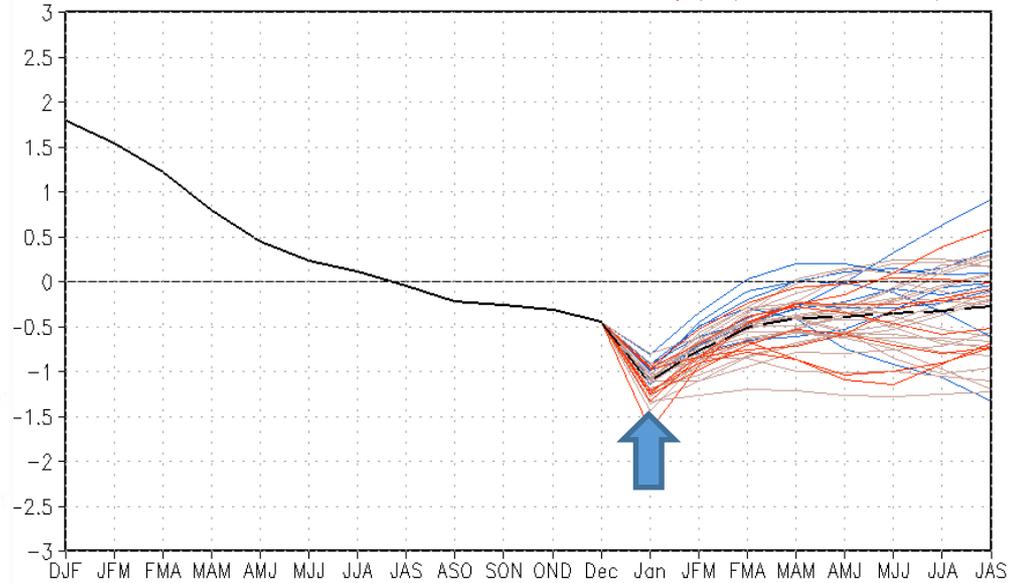


# Previsão do “ENSO”

NINO3 SST anomaly plume  
C3S multi-system forecast from 1 Dec 2024  
ECMWF, Met Office, Météo-France, CMCC, DWD, NCEP, JMA, ECCC  
Monthly mean anomalies relative to ERA5 1991-2010 climatology



CFSv2 forecast Nino3.4 SST anomalies (K) (PDF corrected)



- Latest 8 forecast members
- Forecast ensemble mean
- Earliest 8 forecast members
- NCEI Olv2.1 daily analysis
- Other forecast members

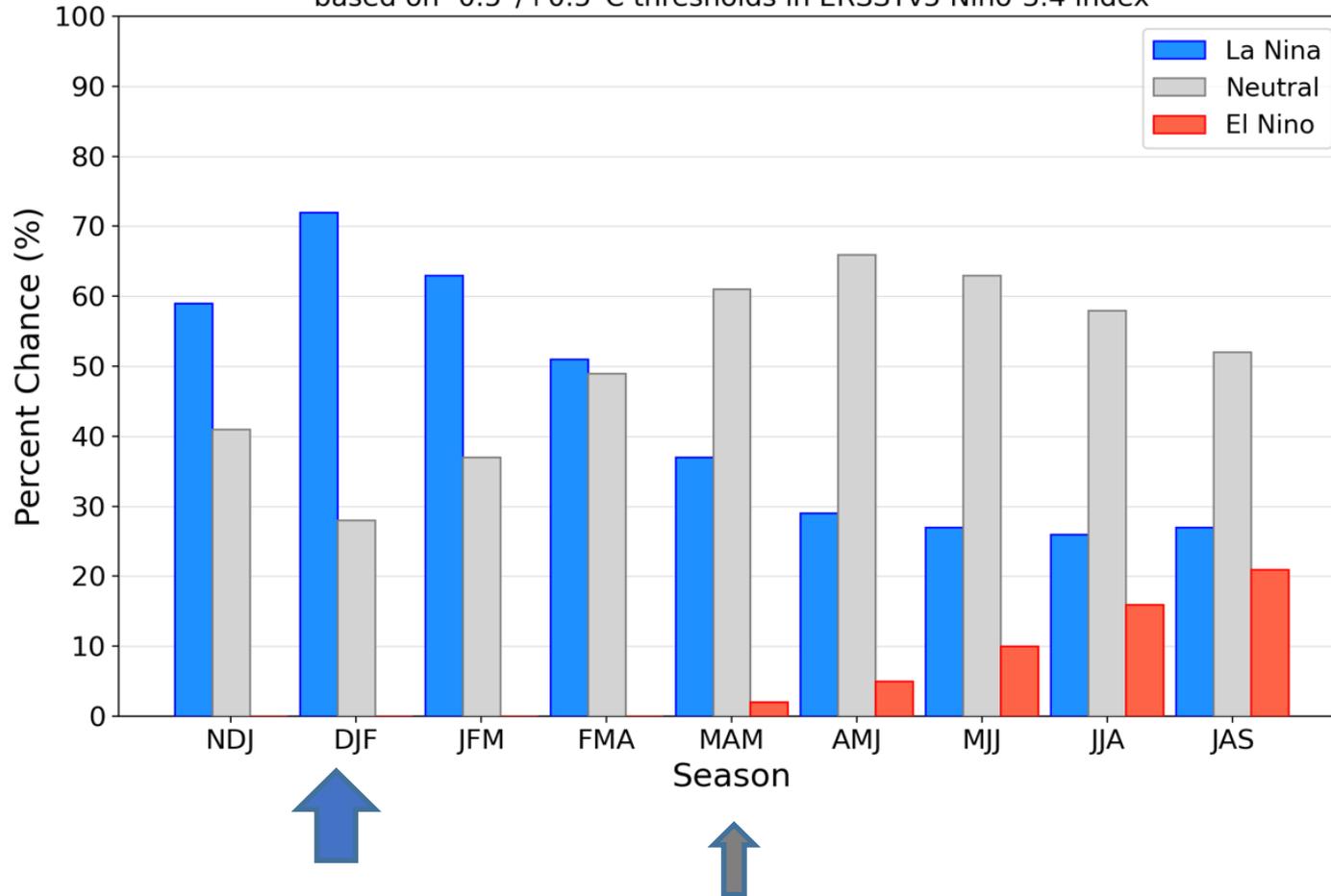
(Climatology base period: 1991–2020)

Atualizado 16 de dezembro

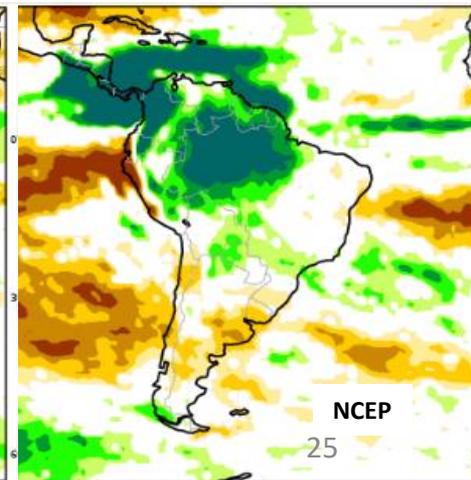
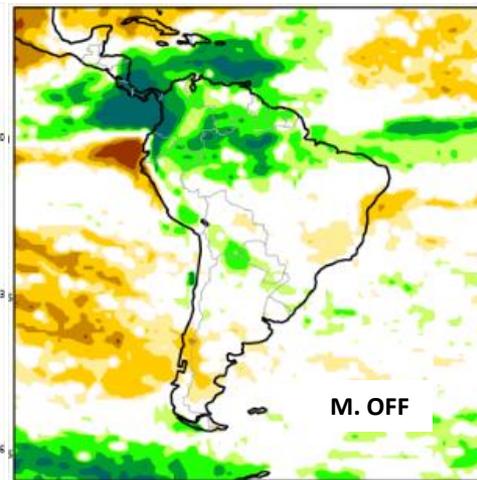
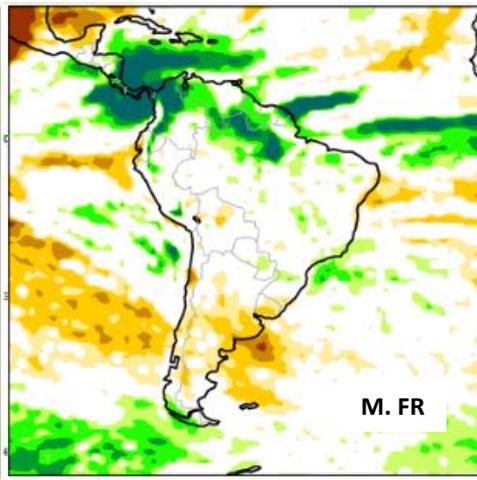
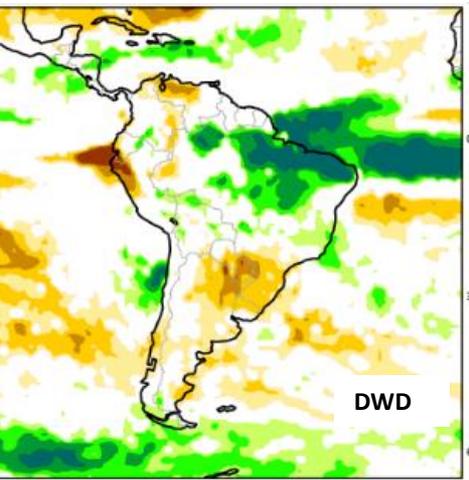
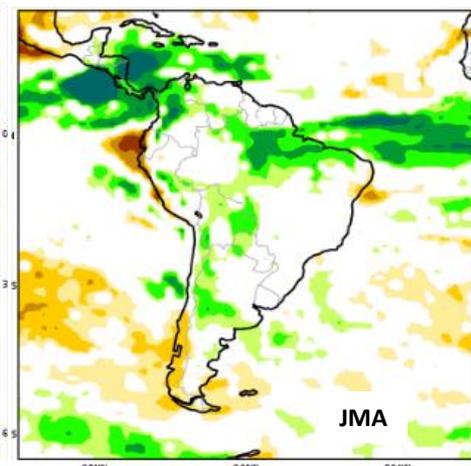
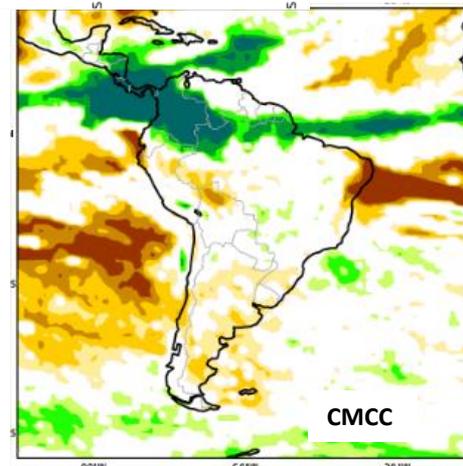
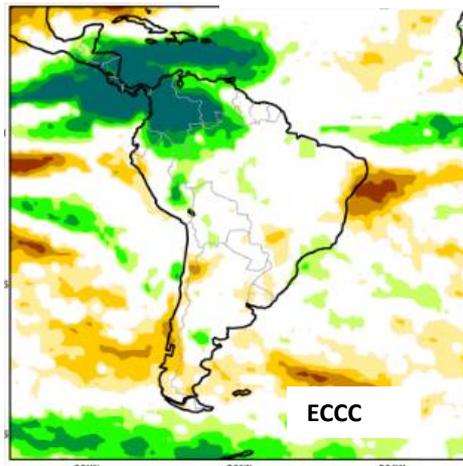
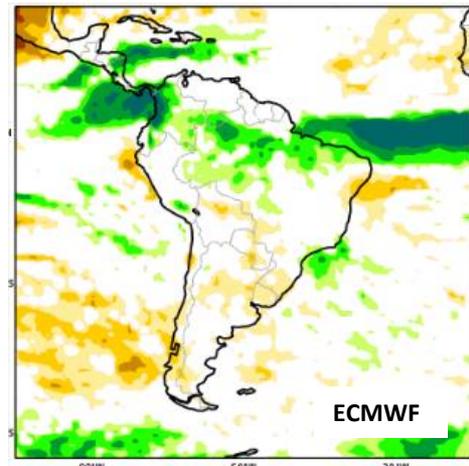
# Previsão do “ENSO”

## Official NOAA CPC ENSO Probabilities (issued December 2024)

based on  $-0.5^{\circ}/+0.5^{\circ}\text{C}$  thresholds in ERSSTv5 Niño-3.4 index

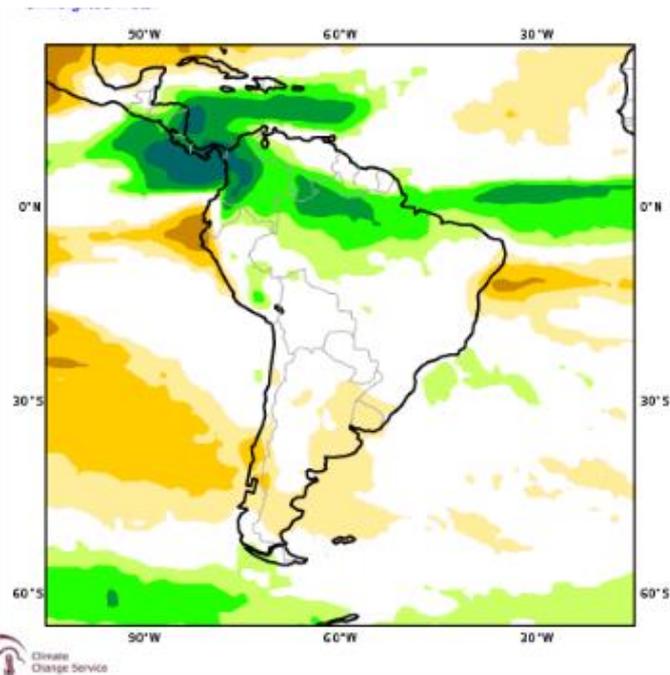


# Previsão Sazonal de Chuva JFM

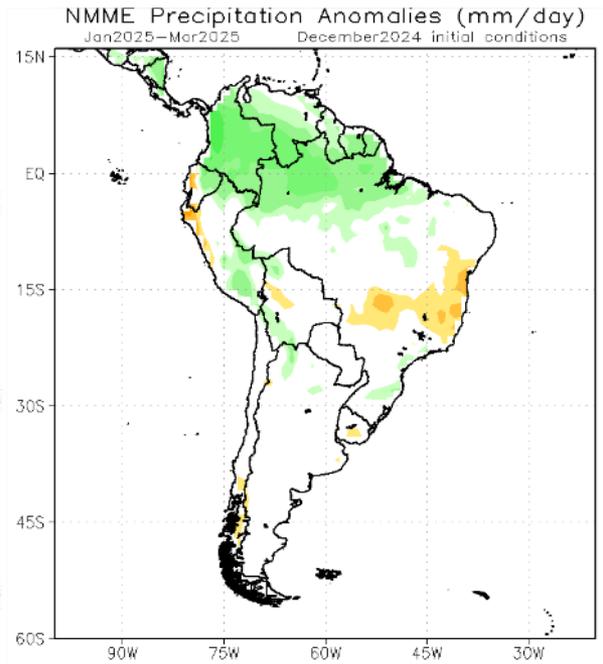


# Previsão Sazonal de Chuva Multi-Modelo

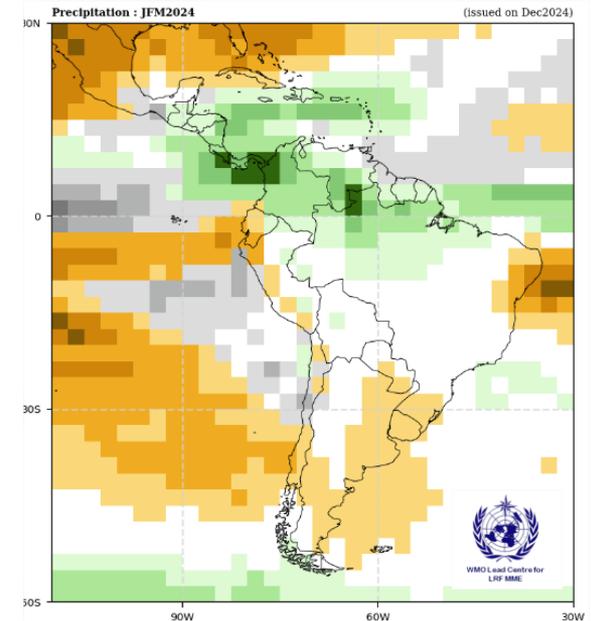
Janeiro-Fevereiro-Março



Modelos Europeus



Modelos Norte Americanos



Modelos da WMO