

# Extreme weather cases

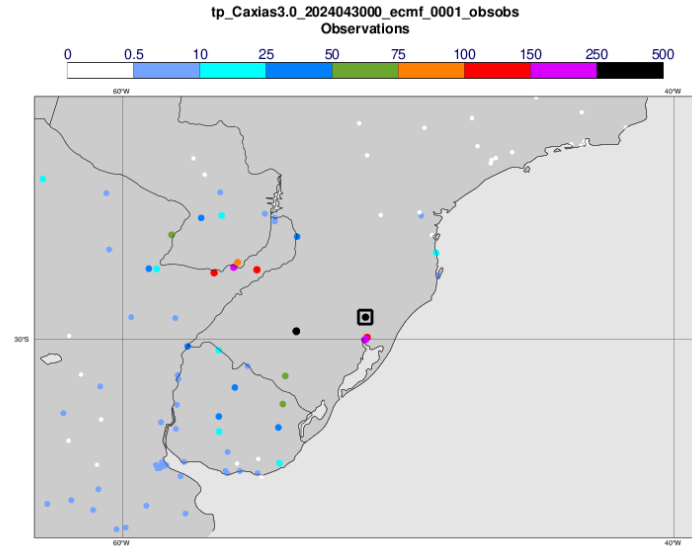
June 2024

Linus Magnusson

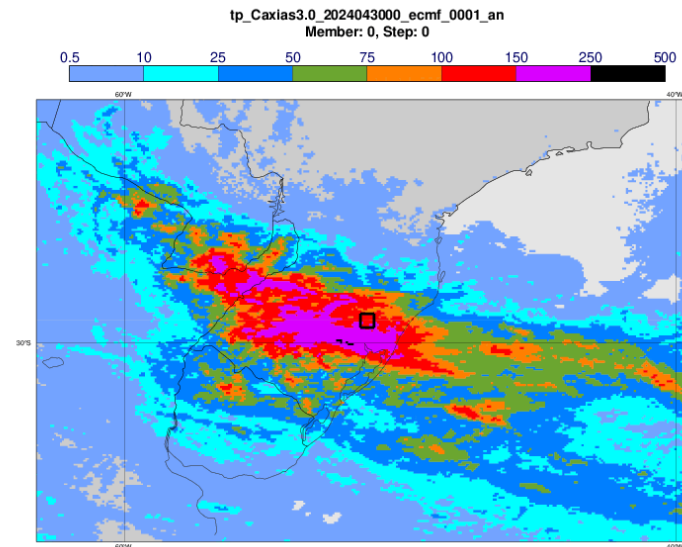
- Rainfall in Brazil April 2024  
ECMWF Severe Event Catalogue:  
<https://confluence.ecmwf.int/display/FCST/202404+-+Rainfall+-+Brazil>
- Heatwave in Argentina January 2024
- (Cold wave in Argentine May 2024)

# 3-day rainfall 30 April – 2 May

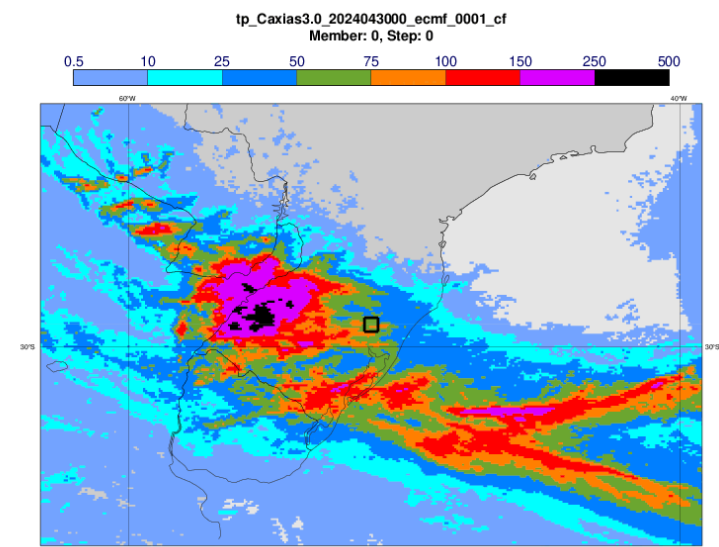
## Observations



## "Analysis"

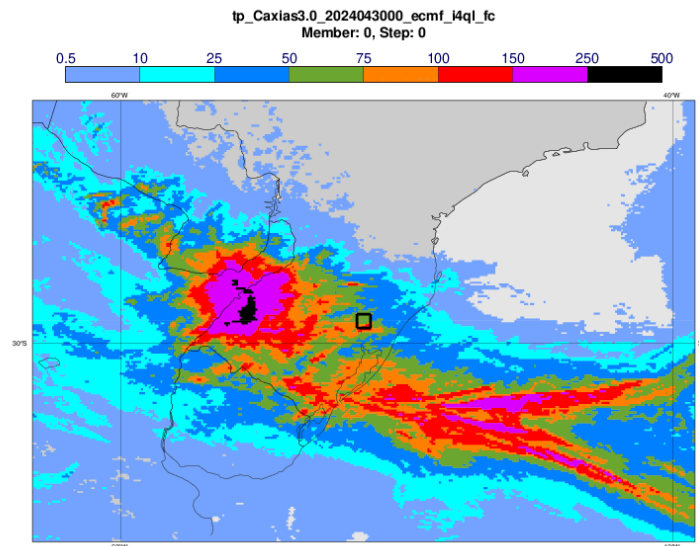


## 9-km IFS day 2-4

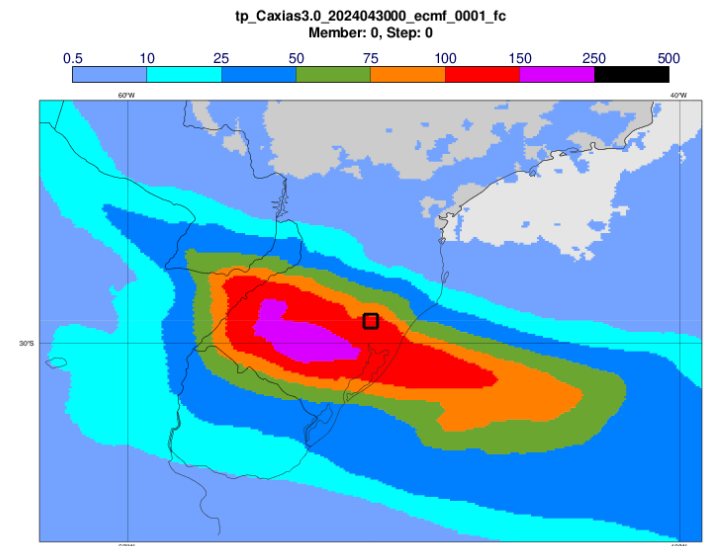


(Box marks Caxias)

## 4.4km IFS (DestinE) day 2-4



## AIFS day 2-4

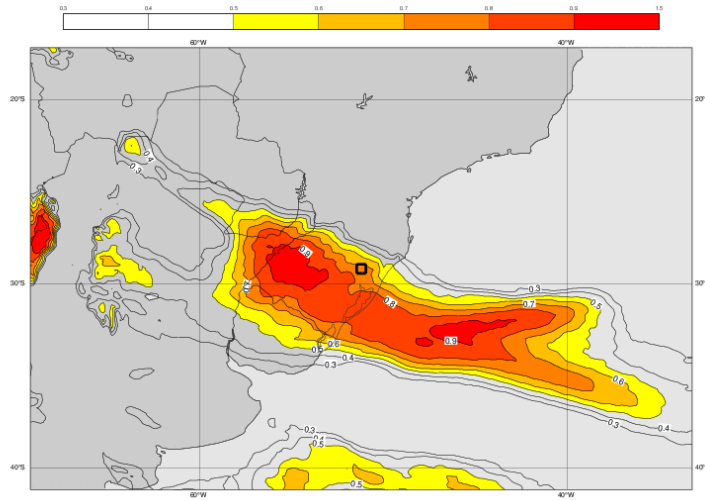


# Extreme Forecast Index 30 April - 2 May

Precipitation

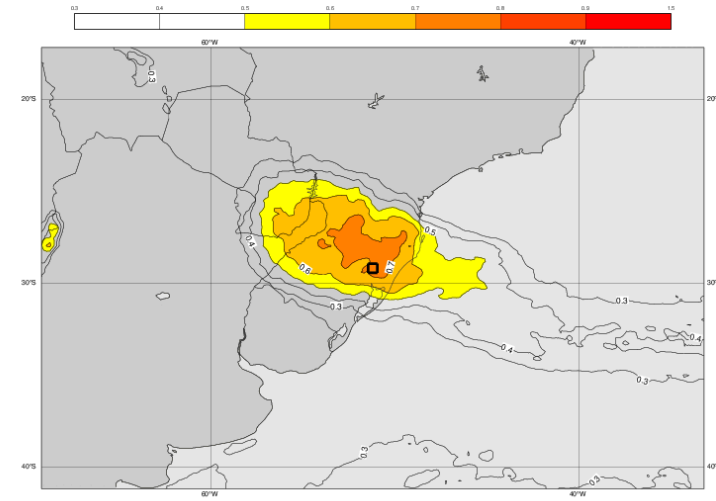
Day 1-3

efi tp, 2024043000 0-72



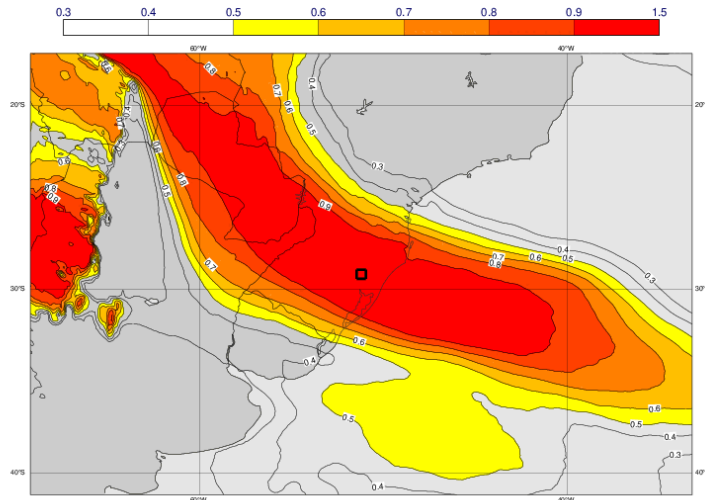
Day 6-9

efi tp, 2024042400 144-216

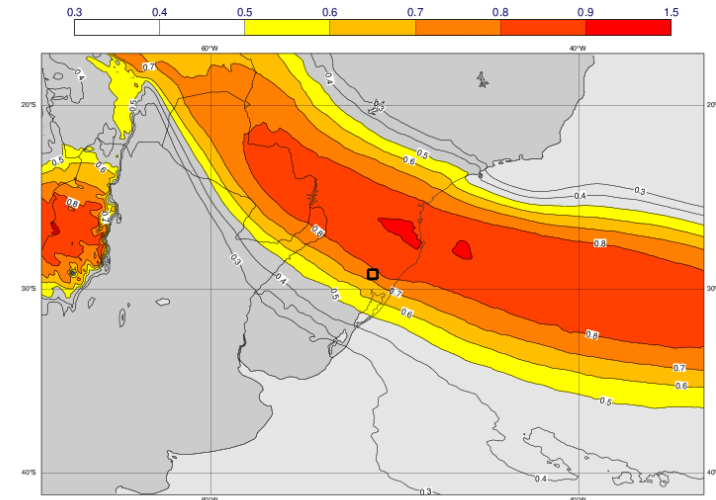


Integrated  
water  
vapour flux

efi lvt, 2024043000 0-72

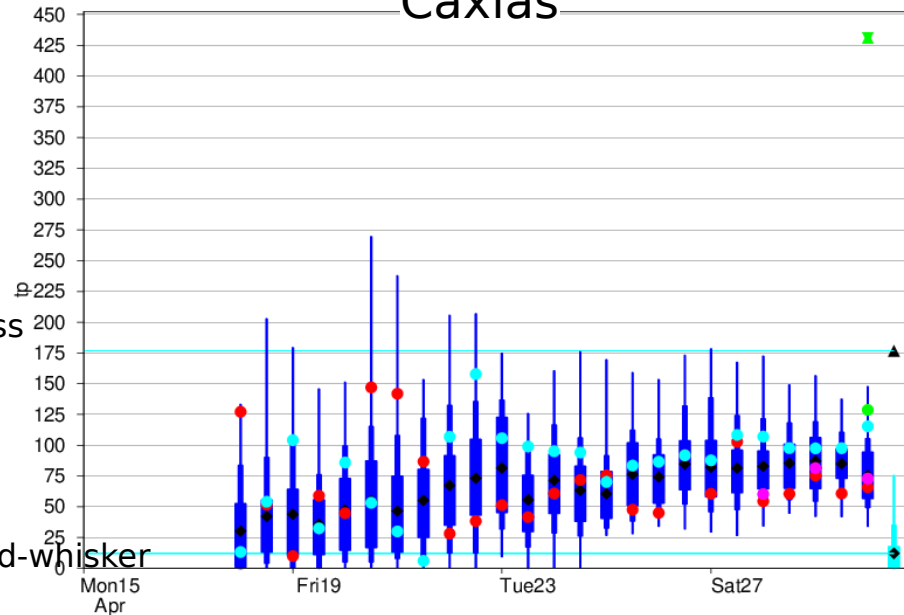


efi lvt, 2024042400 144-216



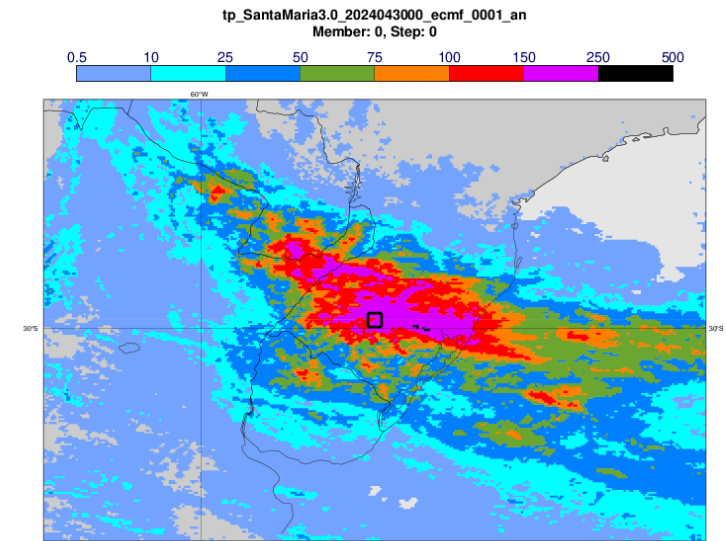
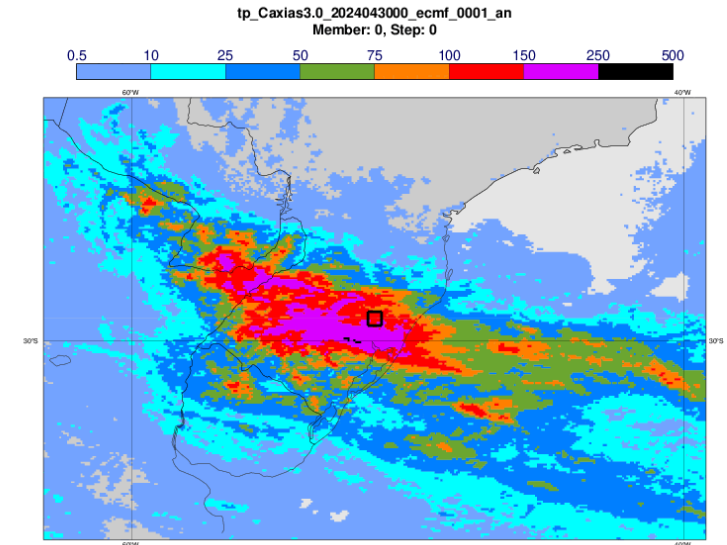
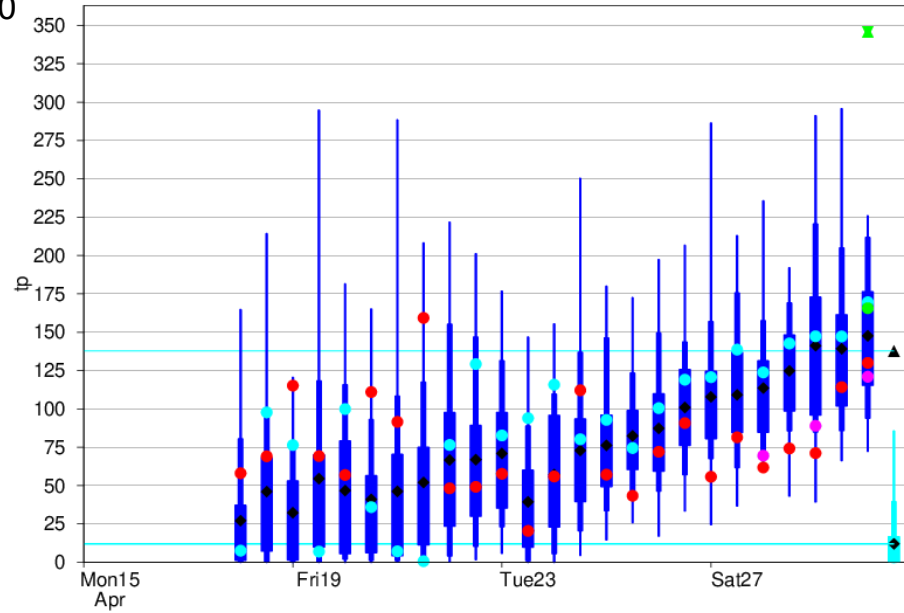
# Forecast evolution for 3-day precipitation

## Caxias



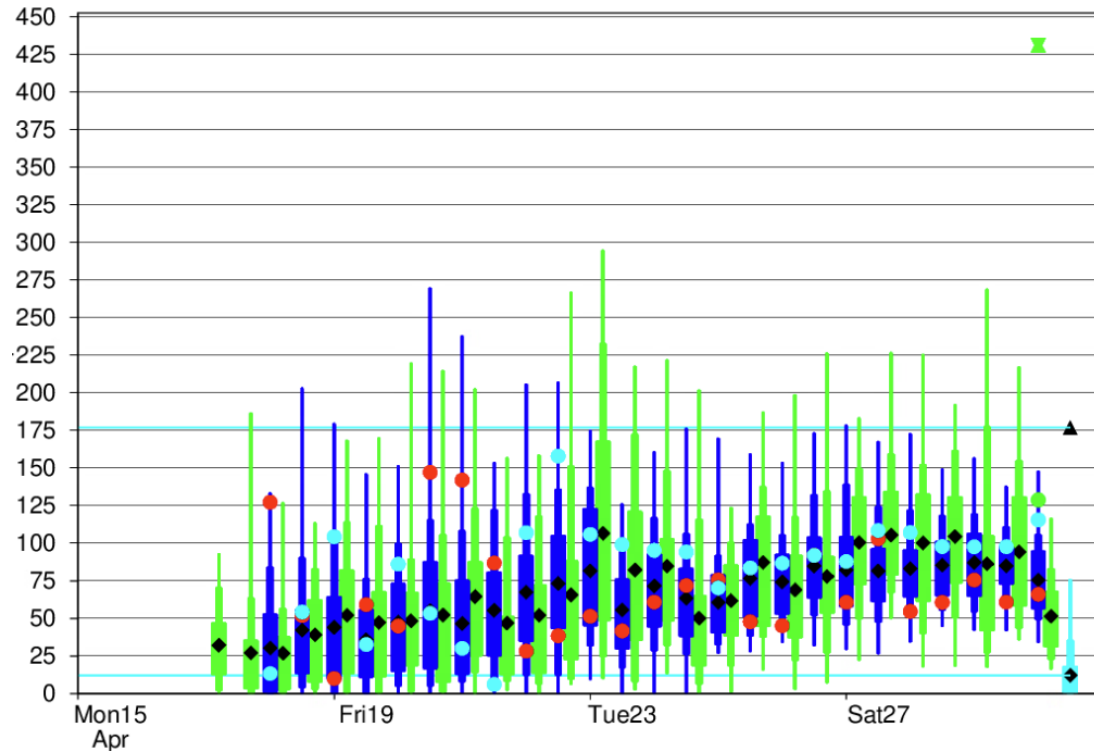
Ensemble mean as black diamonds.  
Triangle marks the maximum in the  
model climate based on 1800  
forecasts.

## Santa Maria ..

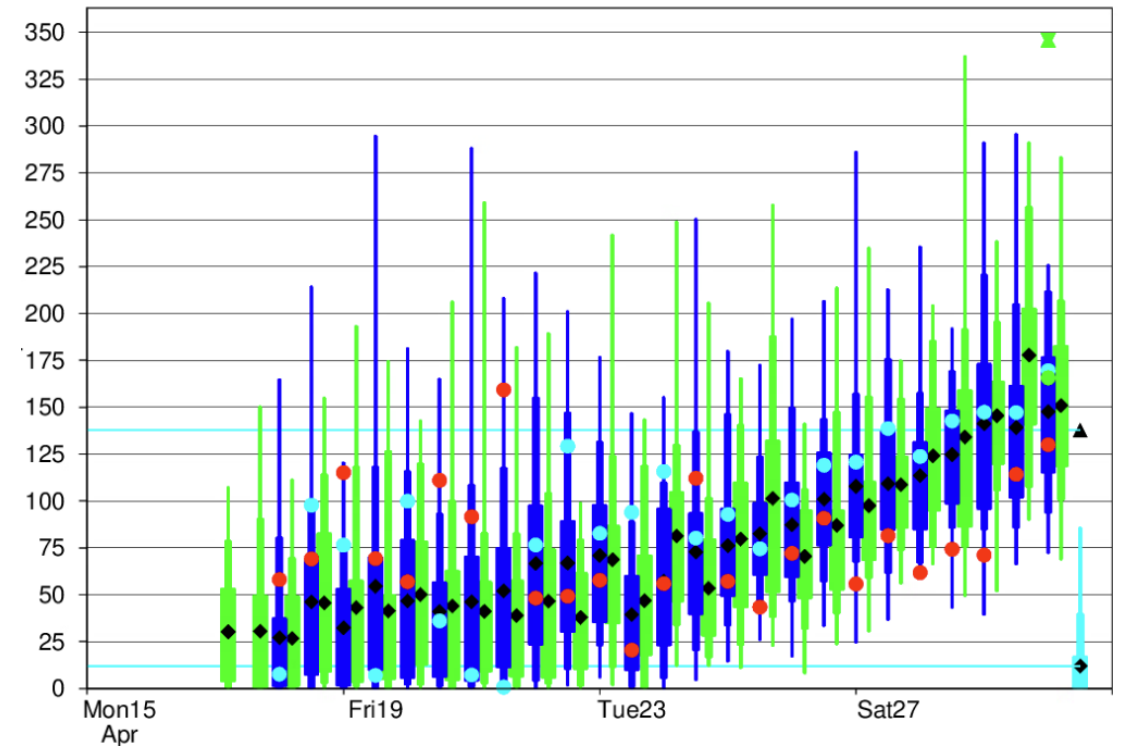


## Extra slide: Forecast evolution plots including GEFS from TIGGE (green)

Caxias



Santa Maria

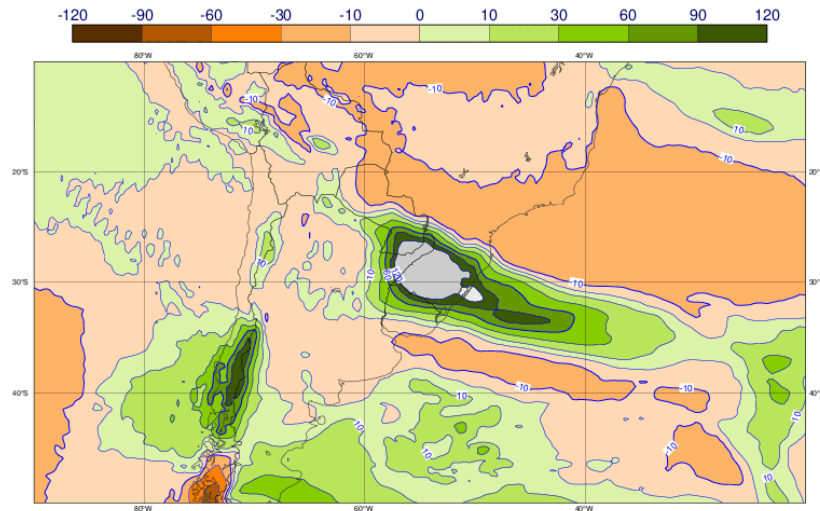


(GEFS shifted 6 hours to not overlap in the plot)

# Extended-range forecasts for weekly mean precipitation anomaly 29 April - 6 May

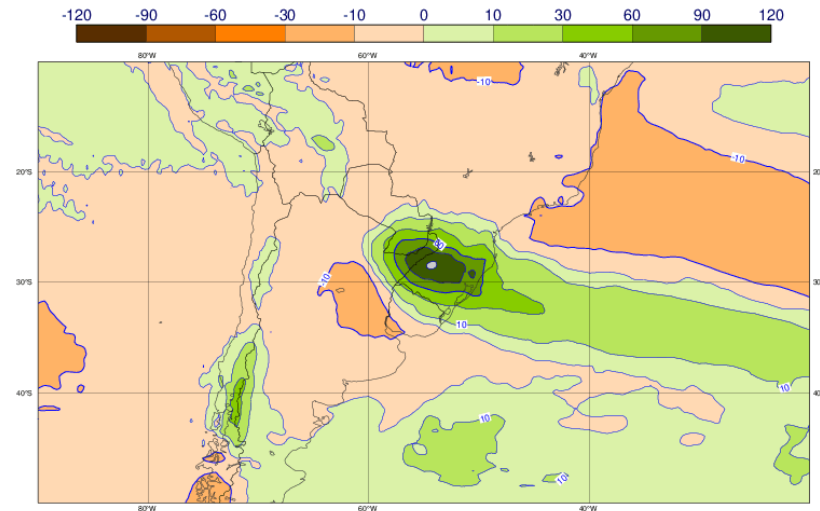
## Week 1

TP 20240429 Step: 0-168



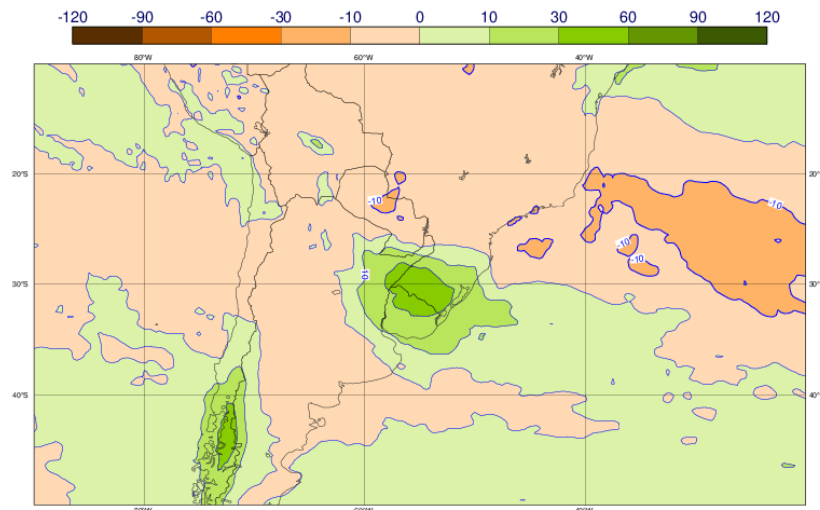
## Week 2

TP 20240422 Step: 168-336



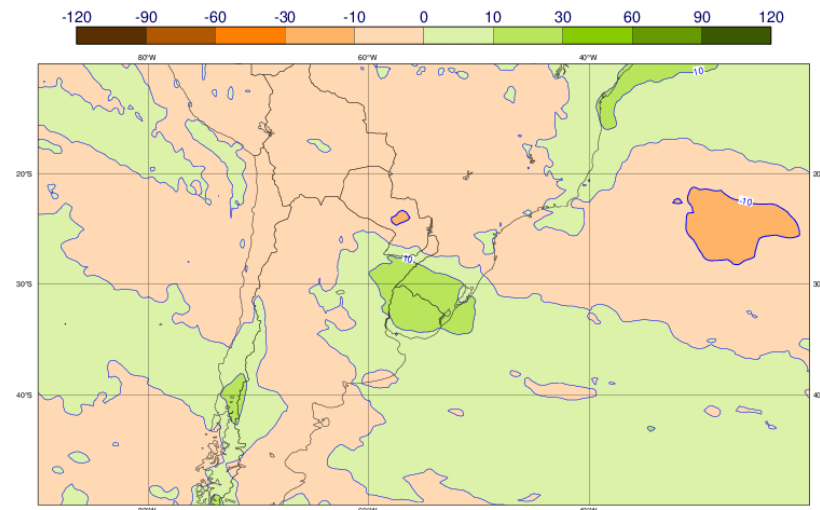
## Week 3

TP 20240415 Step: 336-504

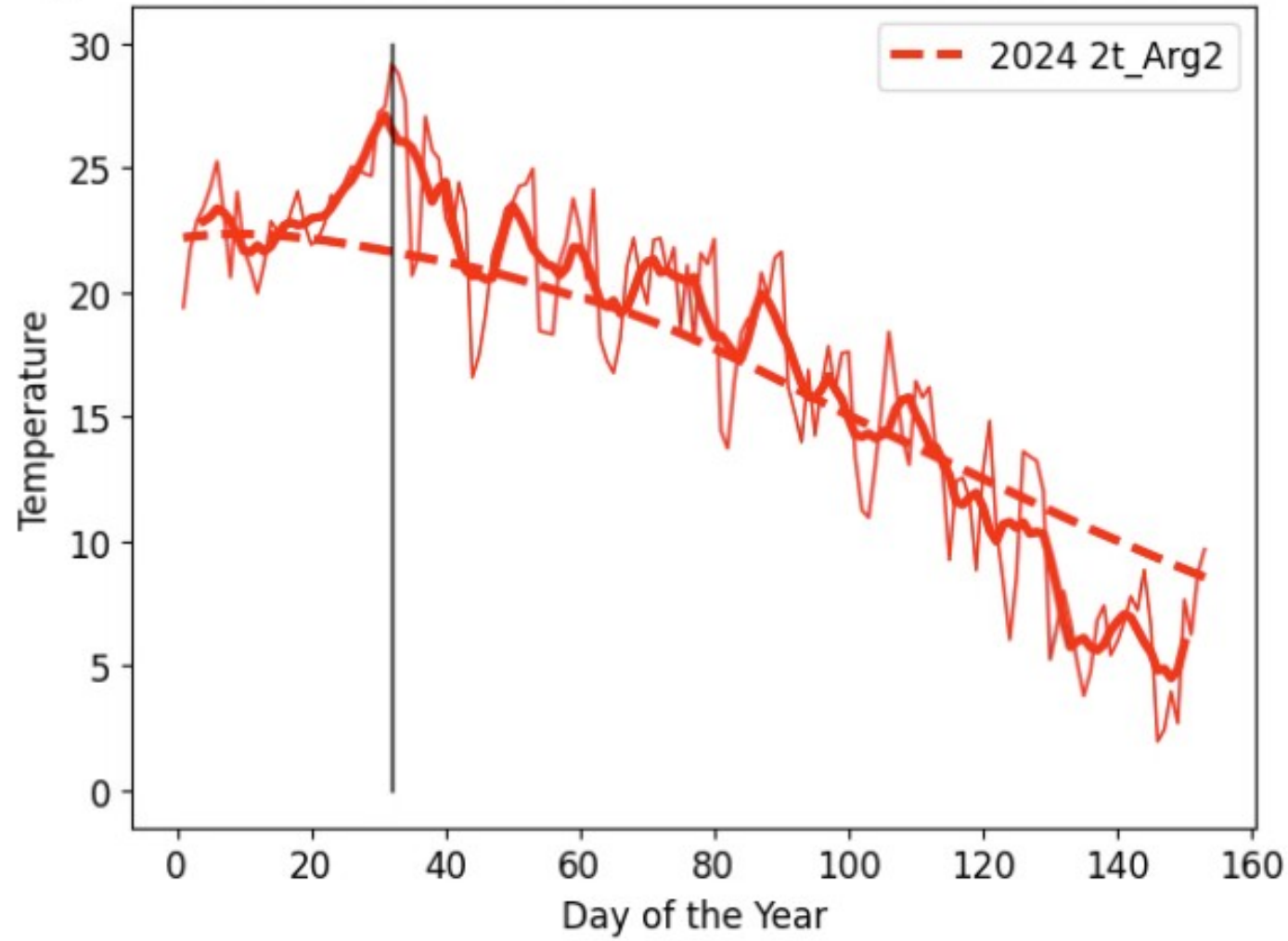


## Week 4

TP 20240408 Step: 504-672

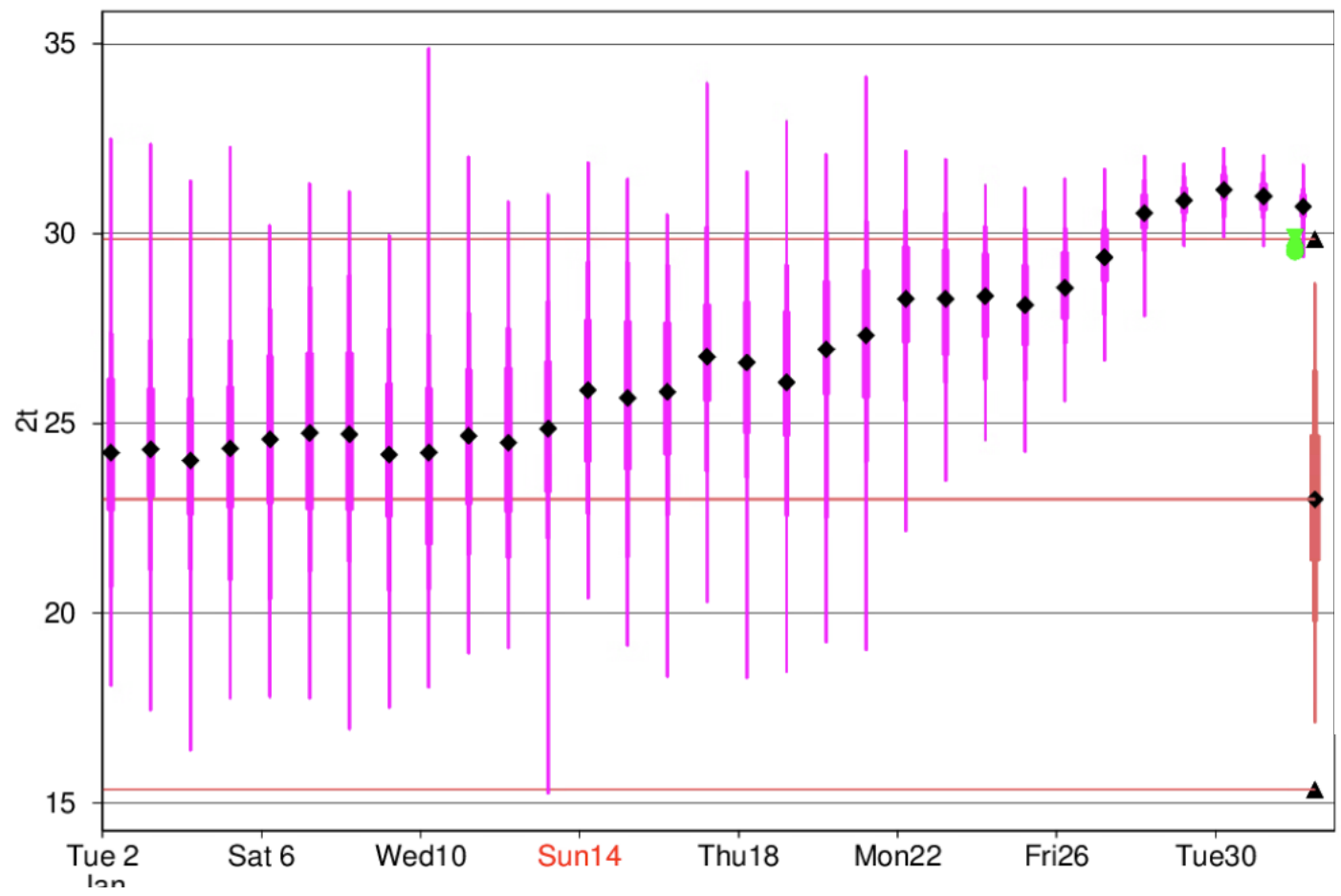


## 2-metre temperature for 34S-28S, 64W-60W

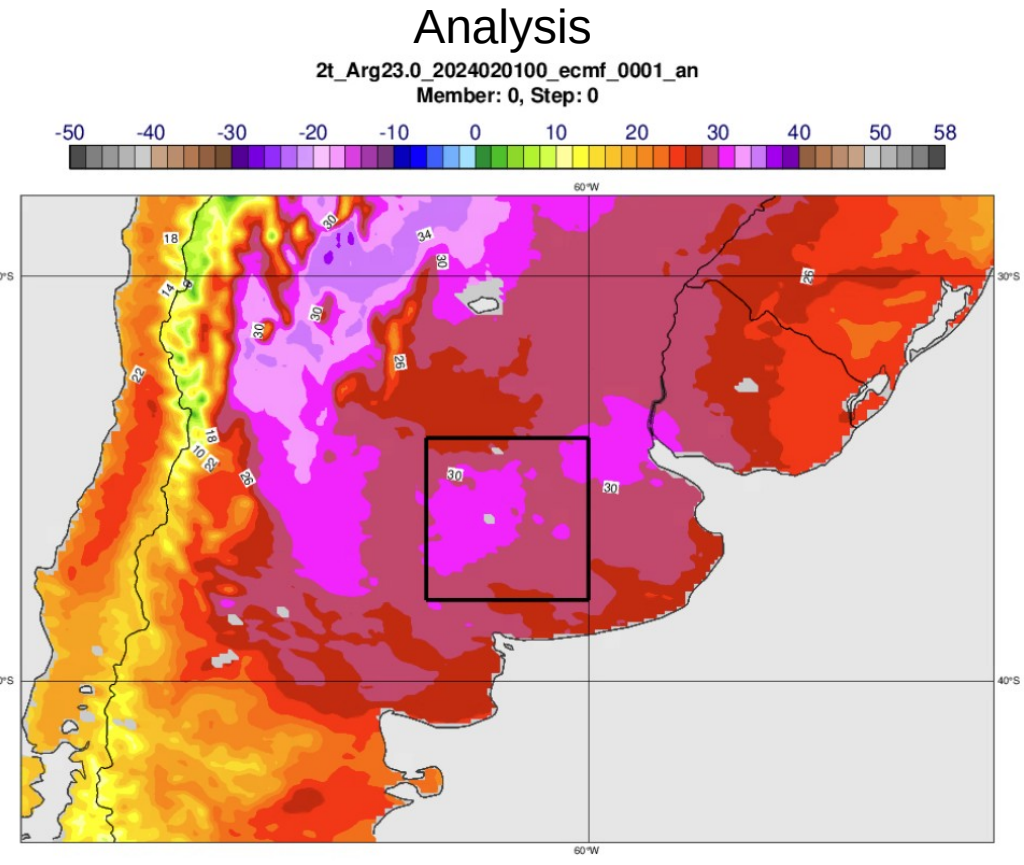


Daily mean – thin  
7-day running mean – thick  
Climate - dashed

# 2-metre temperature 1-3 February 2024



Purple – EXT-ENS distribution  
Pink – Model climate distribution

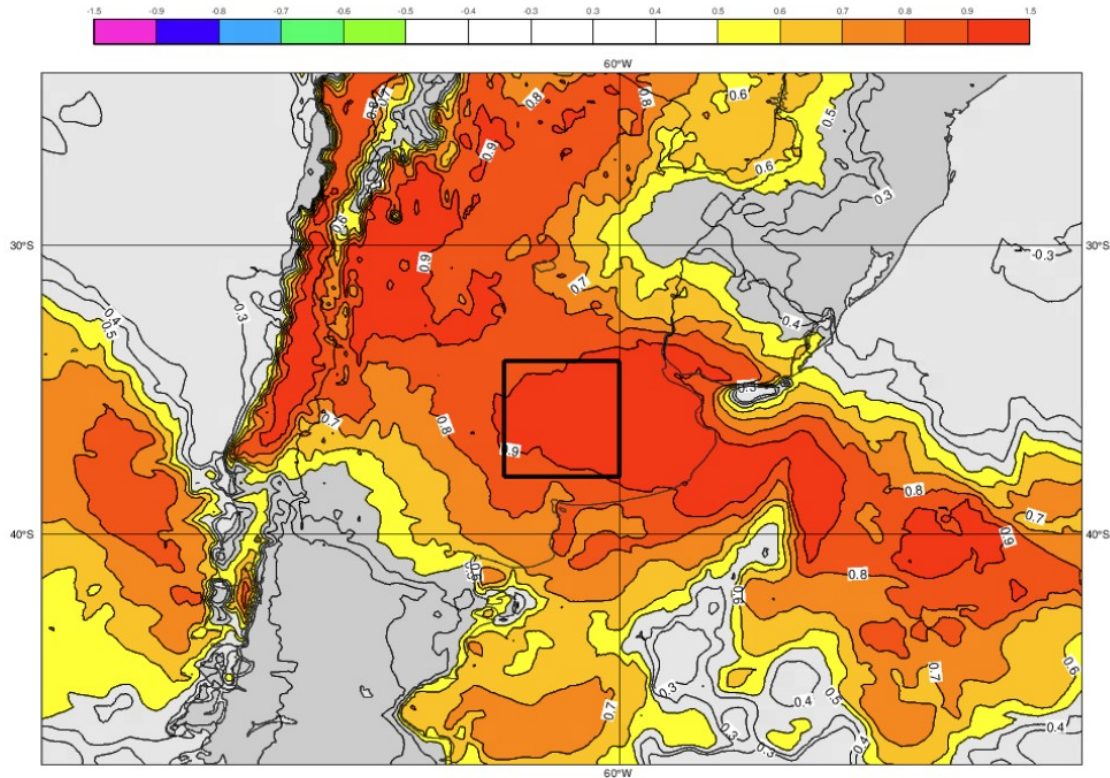


Green hourglass – Mean of obs  
Green dot - Analysis

# 3-day Extreme forecast Index 1-3 February

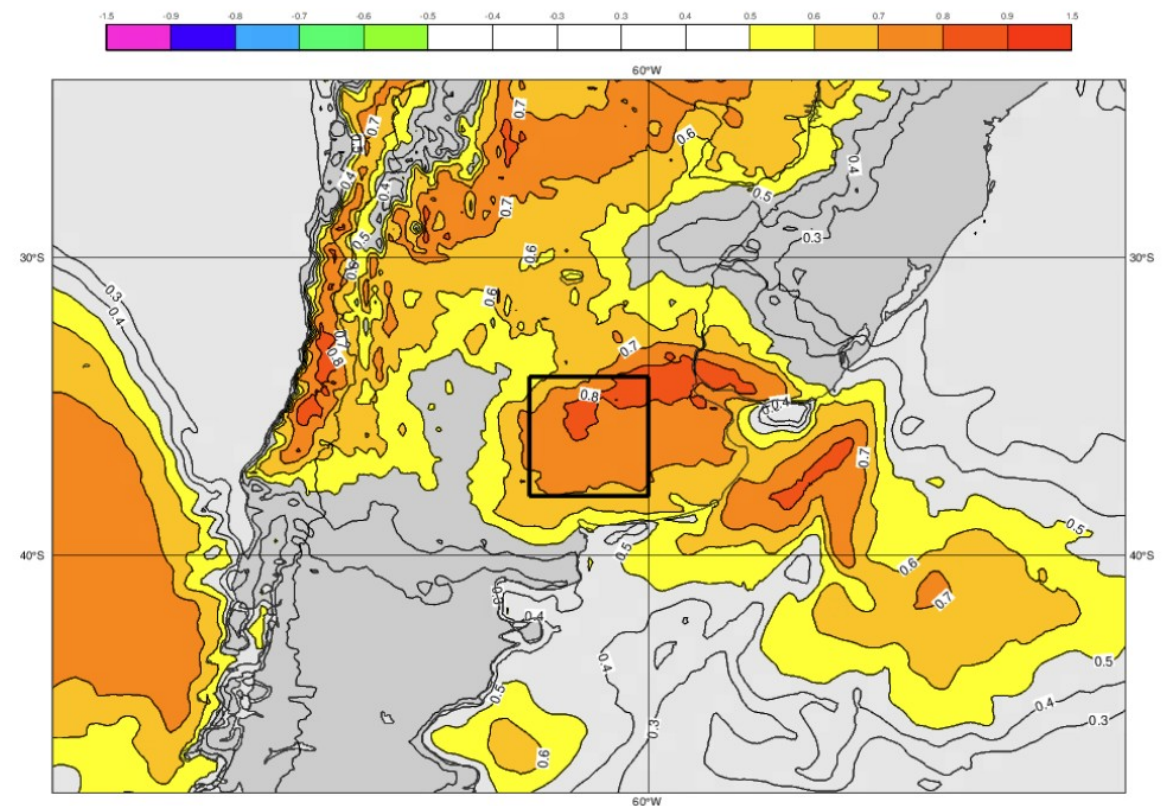
Day 1-3

efi t2m, 2024020100 0-72

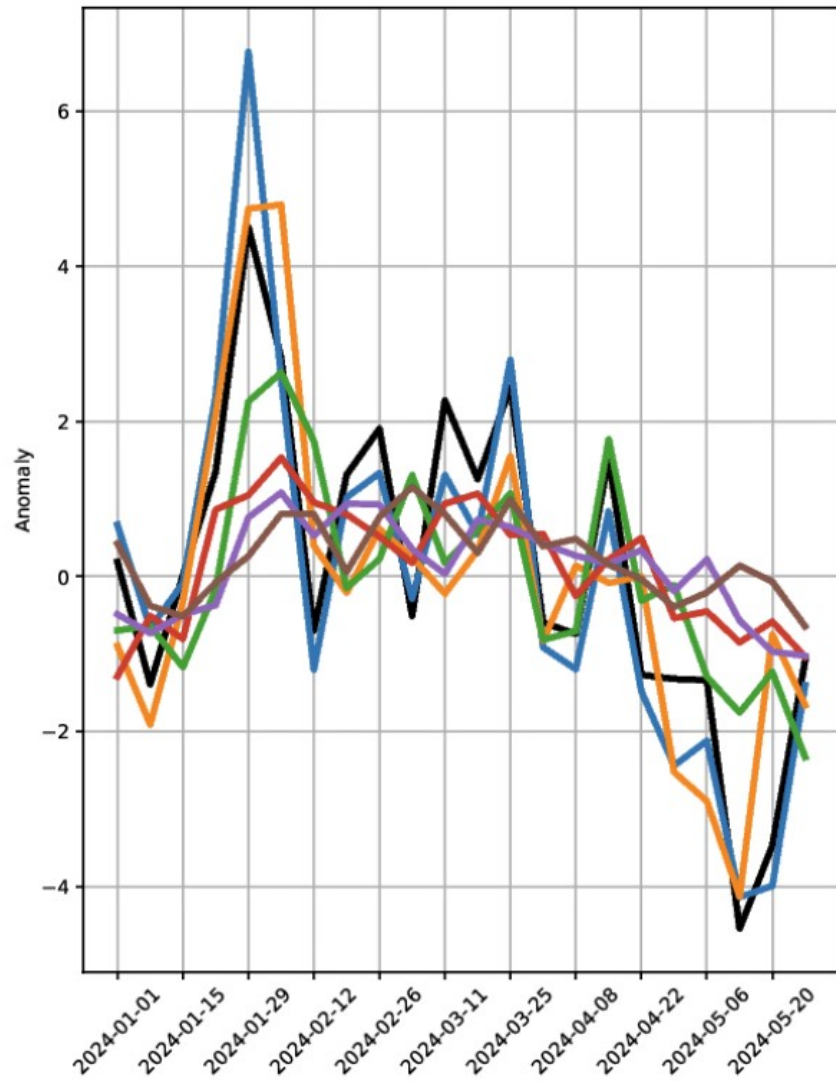


Day 6-8

efi t2m, 2024012600 144-216

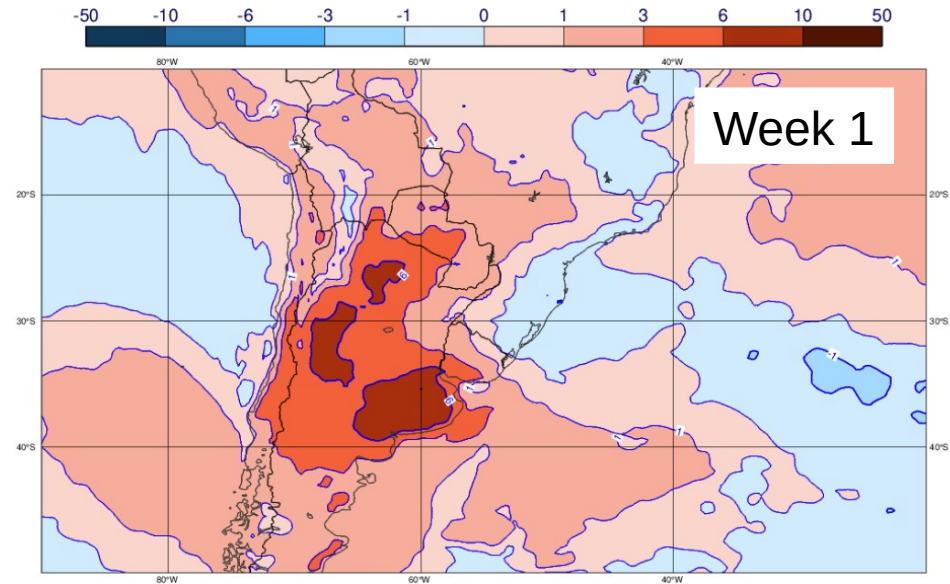


# Weekly ensemble mean anomalies

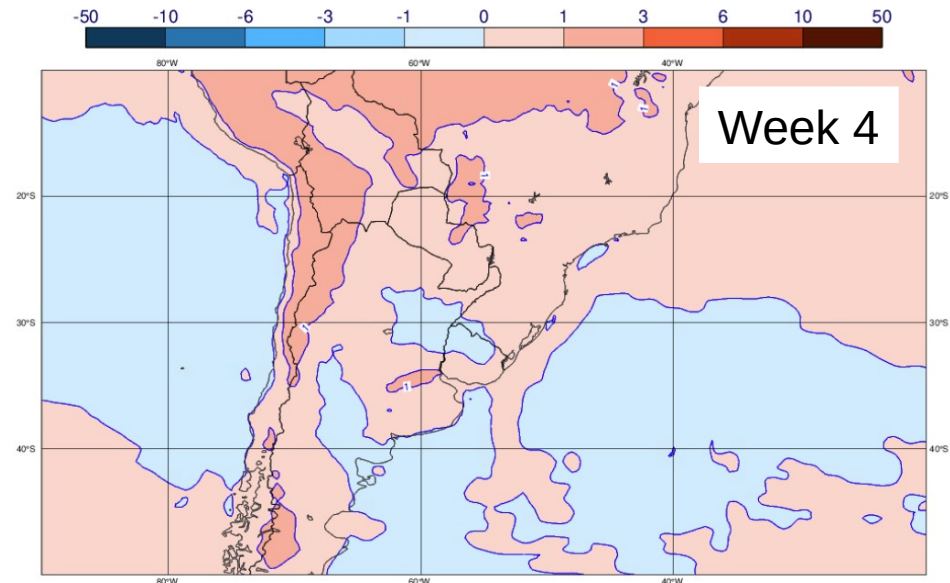


## Forecasts for week starting 29 Jan

2T 20240129 Step: 0-168

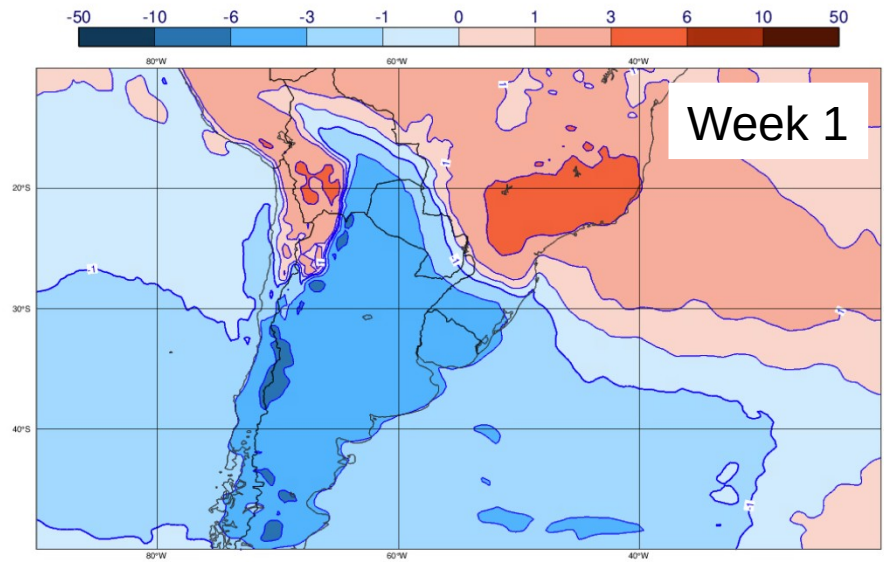


2T 20240101 Step: 672-840

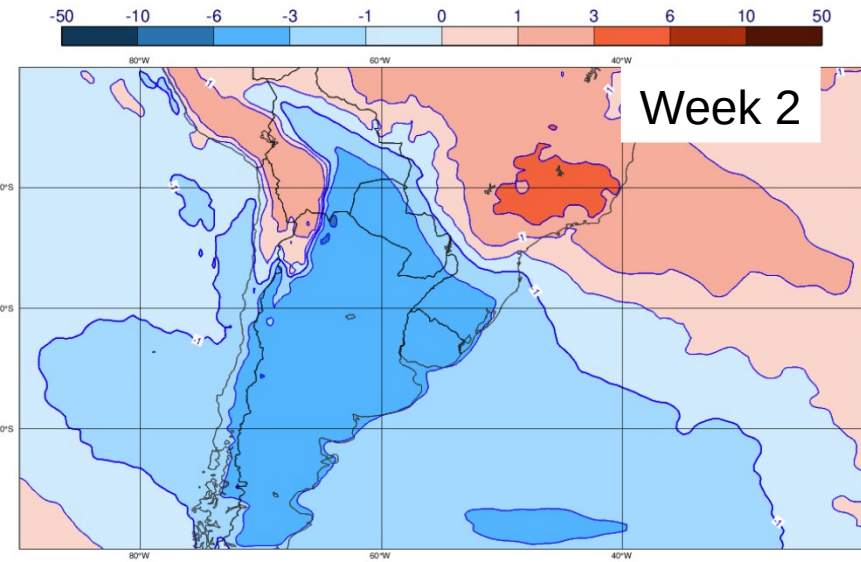


# Forecasts for week starting 13 May

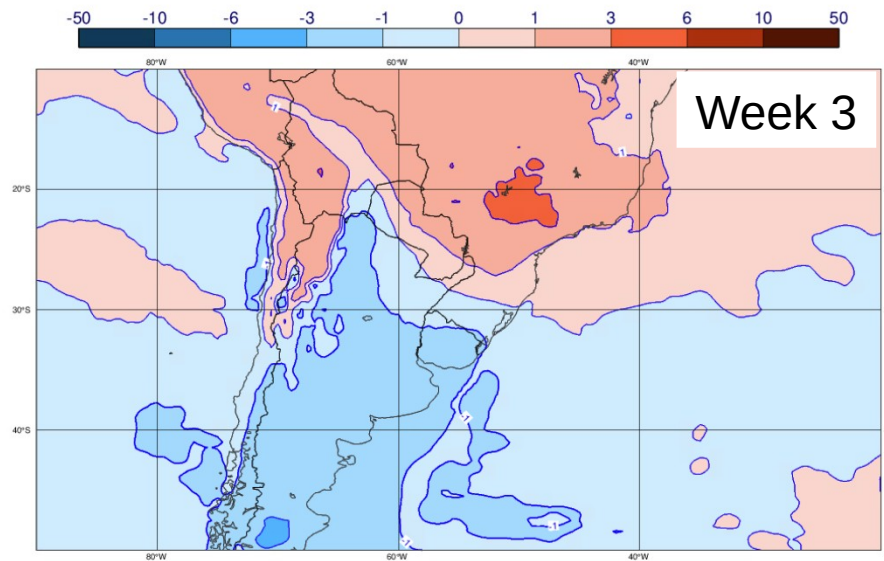
2T 20240513 Step: 0-168



2T 20240506 Step: 168-336



2T 20240429 Step: 336-504



2T 20240422 Step: 504-672

