

# **Modelo BRAMS**

## **Regional 8KM**

### **Implantação Operacional/Testes**

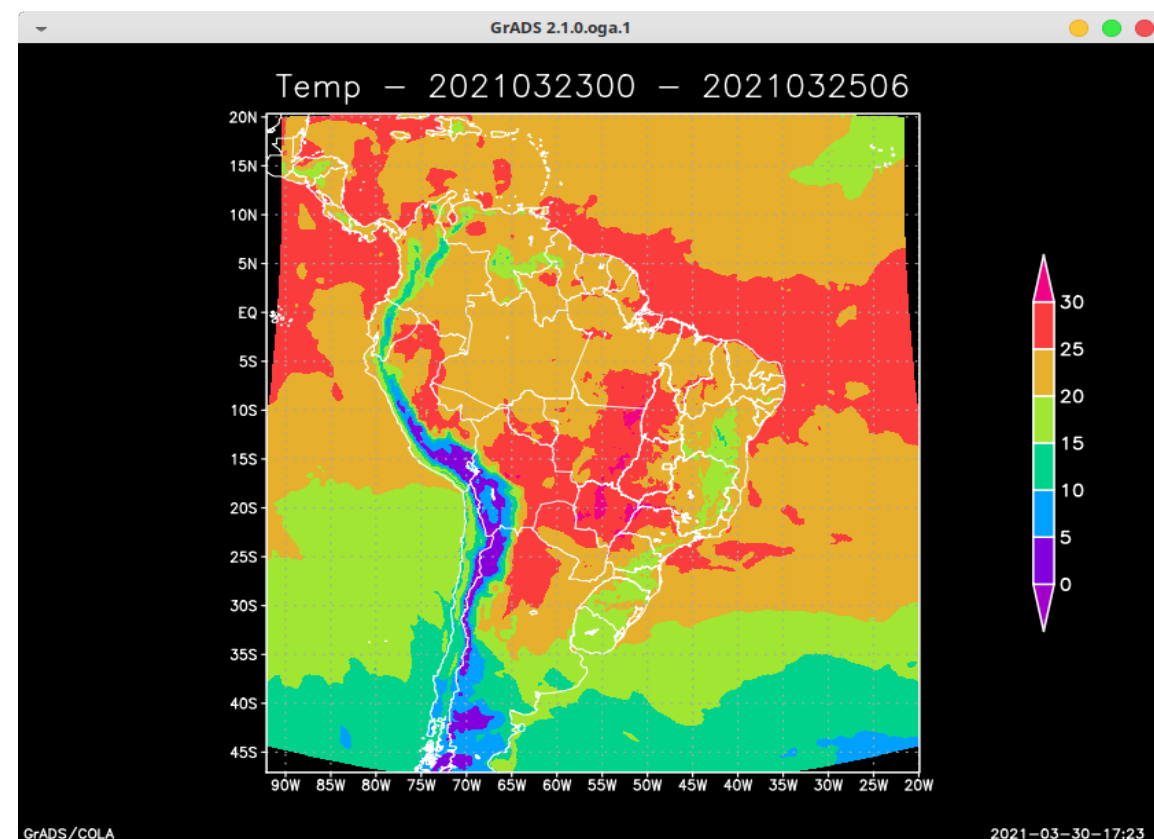
Luiz Flávio Rodrigues  
Saulo Ribeiro de Freitas  
Denis Eiras

## Características

	XC50
Modelo Versão	BRAMS 5.6
Compilador	Cray
Pre	Programa Fortran ou GFS Leitura direta
CI/CC Meteorológico	GFS (GEOS5/ECMWF/BAM - * testes)
Pós Processamento	Nativo
IAU	Incremental Analysis Update (IAU) Ligado
Par. Cumulus	Grell-Freitas 2018 - GEOS5
Microfísica	Greg-Thompson
Dinâmica	RK (O=5) + WALCEK
Superfície	Jules
Radiação	RRTMG
timestep	45 seg
Resolução	8 km
compilação	-O0 (poucos -O2) -hfp1 -hvector1
Processadores	1040
Tempo para 7 dias	1h55min*



## Domínio



### Variações no tempo:

Rodada 7 dias:

6702 seg – Domingo/9h

6884 seg

6839 seg

6904 seg

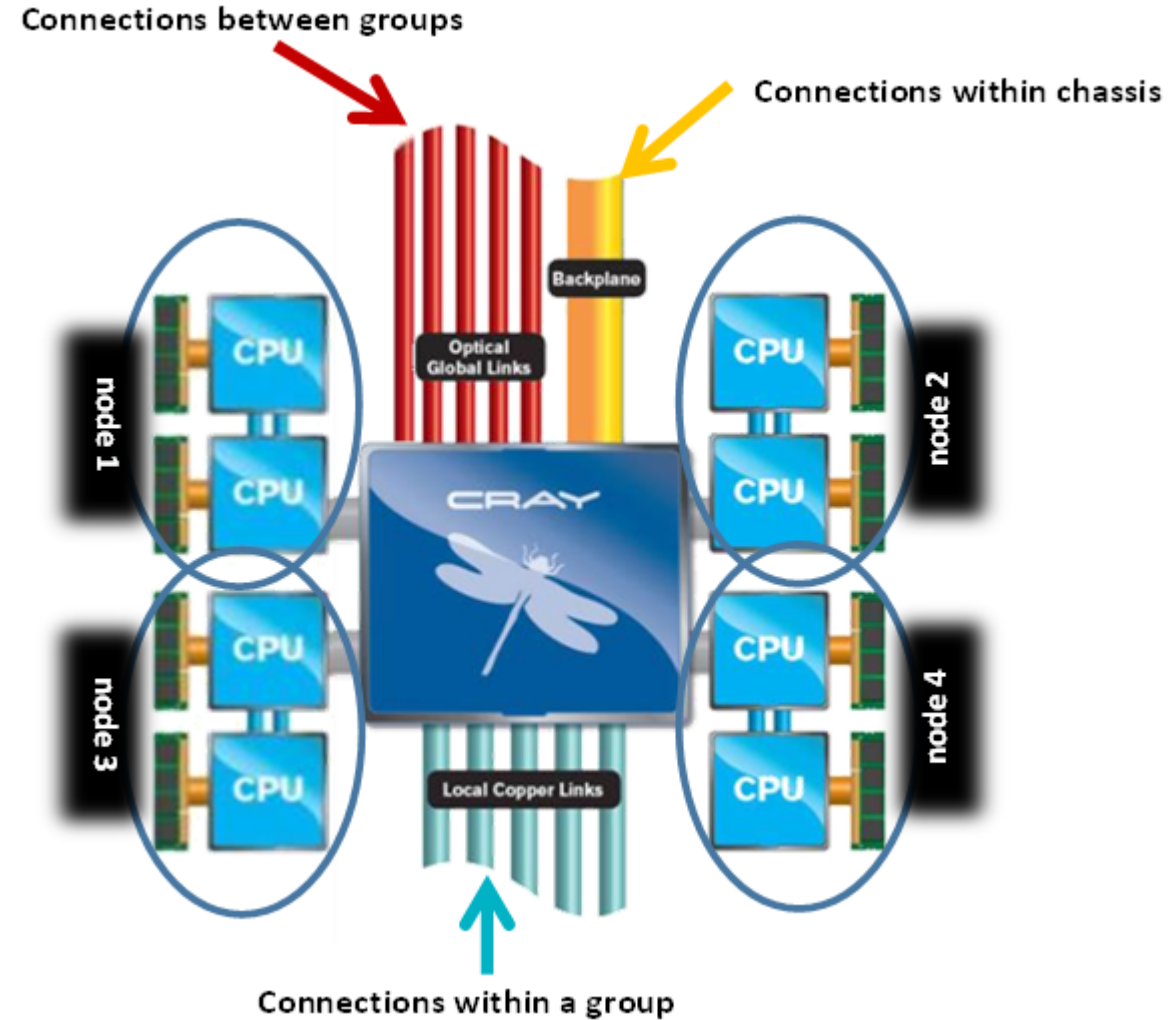
7043 seg

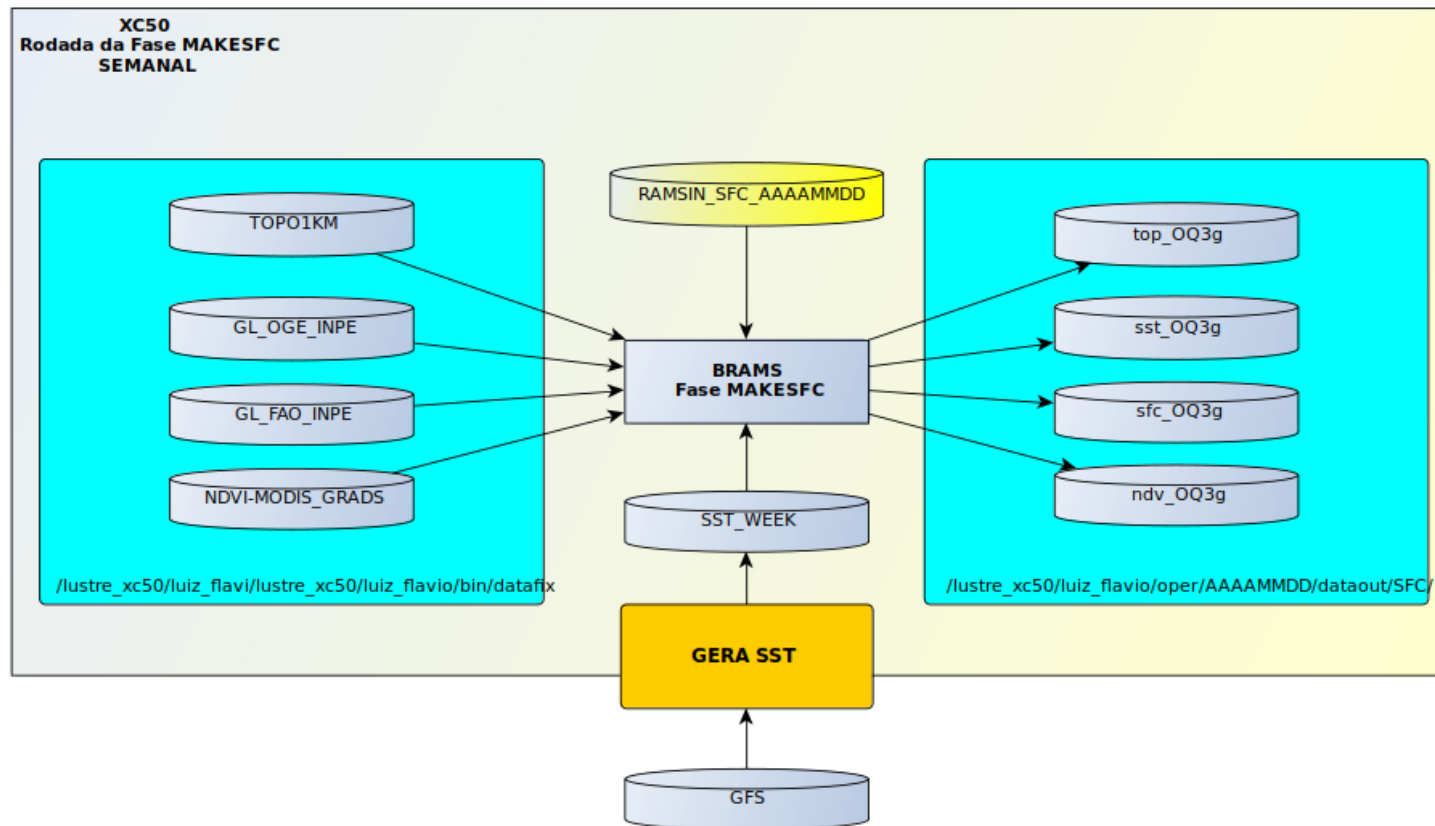
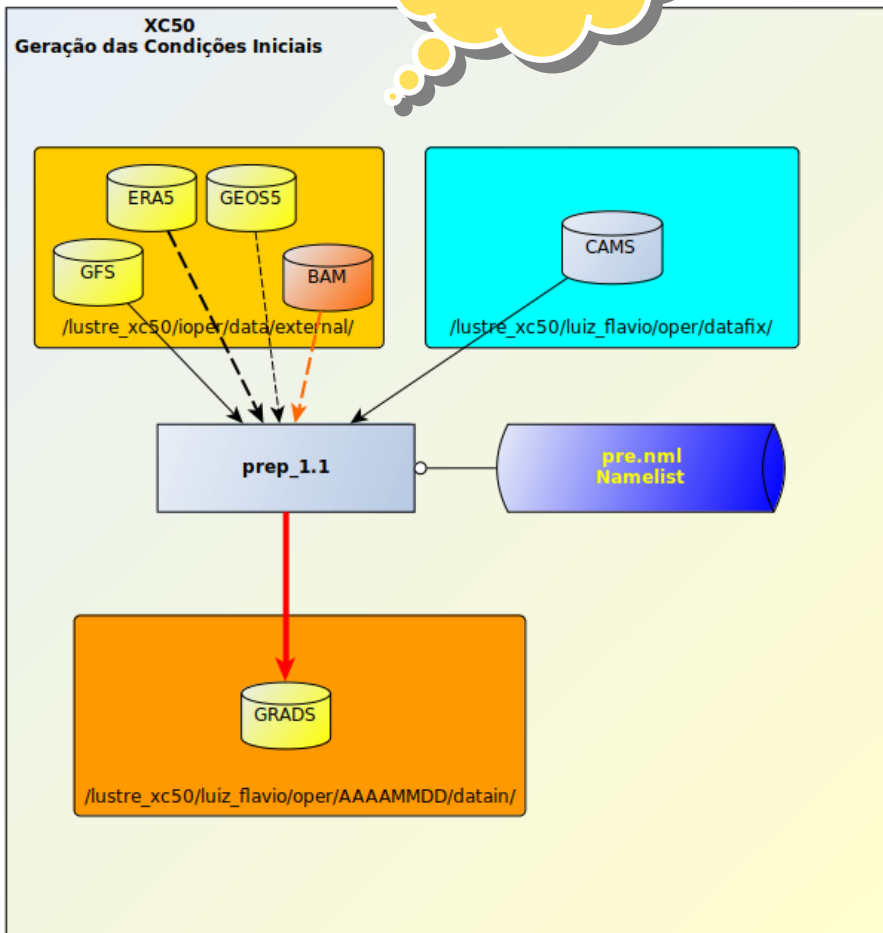
7171 seg

7638 seg \* (IO massivo - 1h/1h)

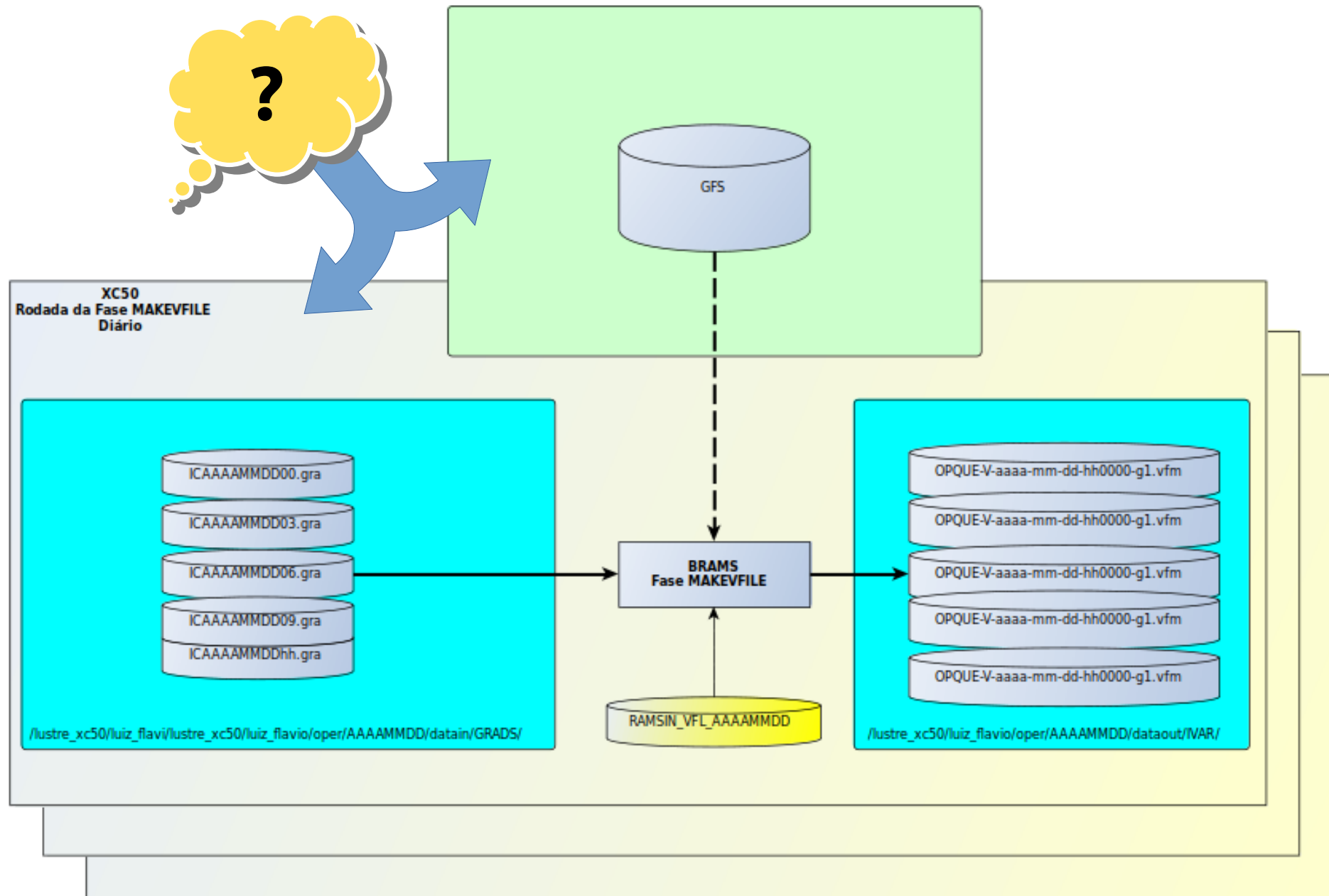
7 % sem IO – proximidade Aries

14 % com IO - Lustre/canais

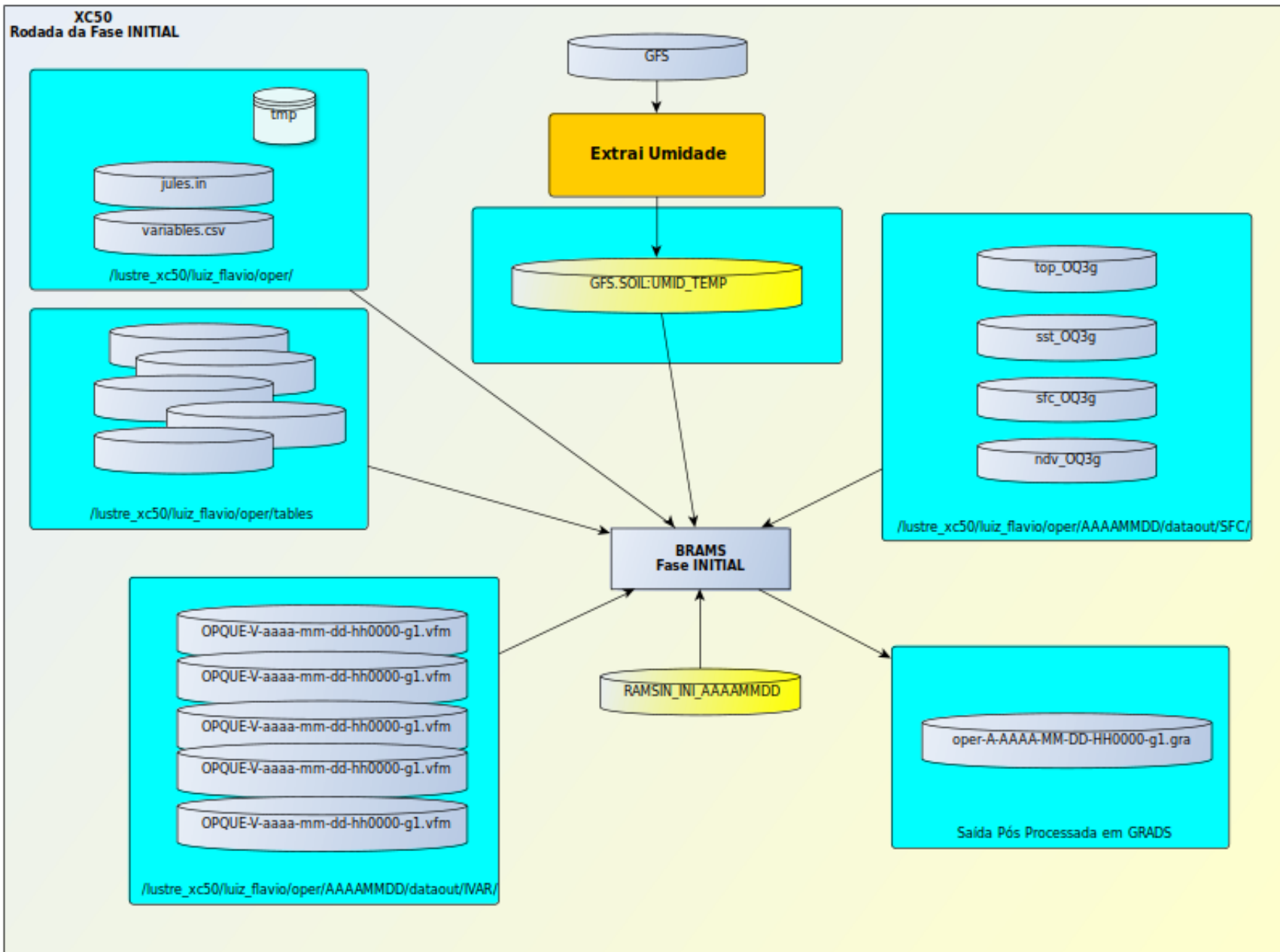




## Modelo BRAMS - Regional 8KM



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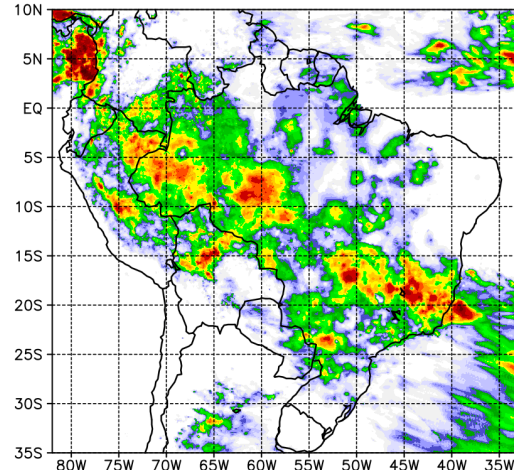


MERGE

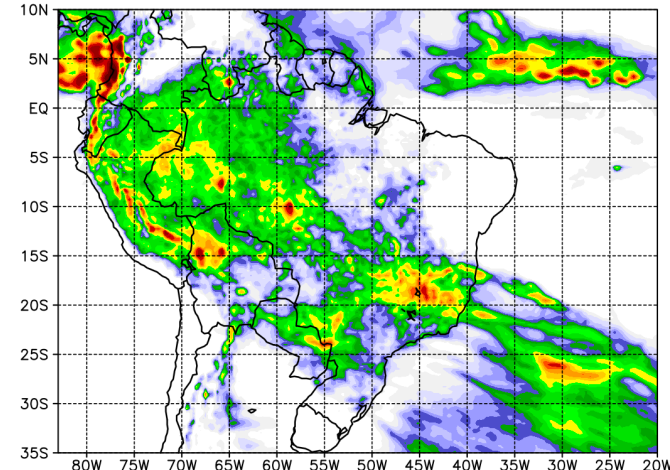
ERA-5

BRAMS-8km

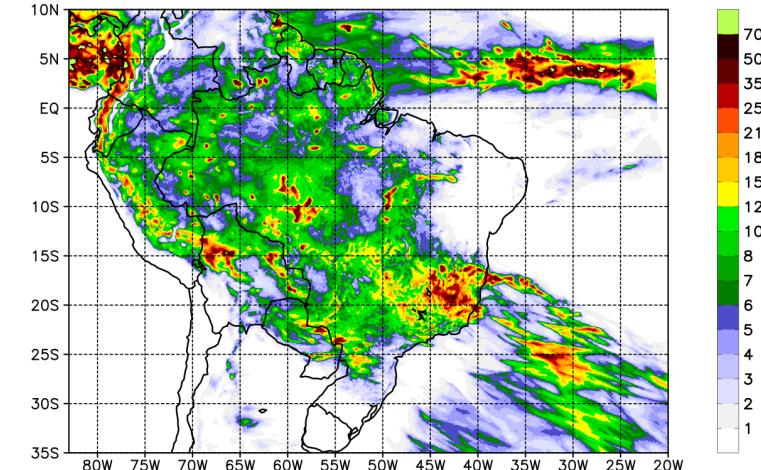
prec 4.5596 mm/day -FCSTDAY:1  
EXP= MERGE\_CPTEC\_201912\_02to07.nc



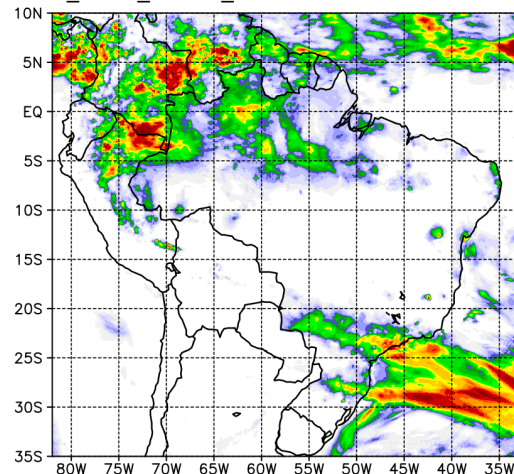
TP 4.6688 mm/day -FCSTDAY:1 at 18UTC  
EXP= era5.nc 02DEC2019 to 07DEC2019



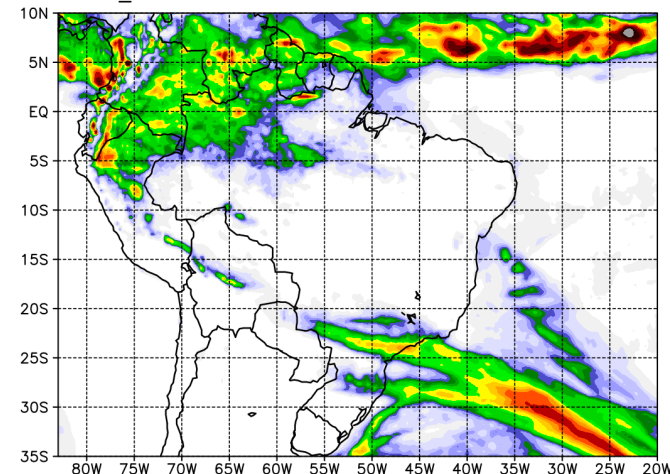
PRECIP 5.4065 mm/day -FCSTDAY:1  
EXP= pcpoper\_im12-IAU2-IBC:ERA5-8km\_fcstday1to3.nc



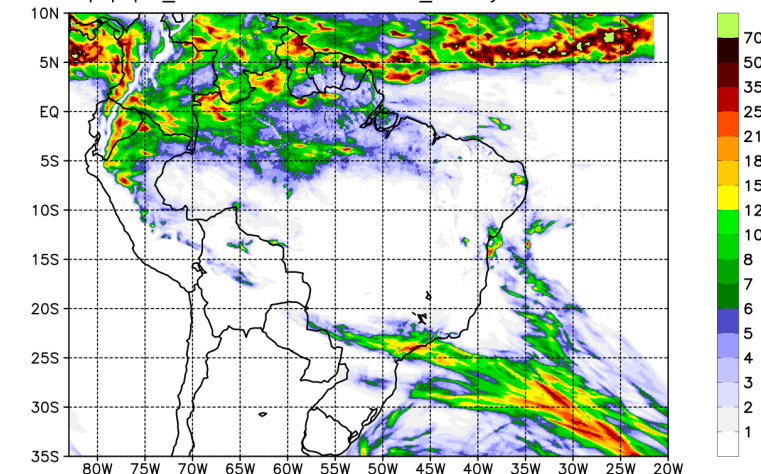
prec 3.6875 mm/day -FCSTDAY:1  
EXP= MERGE\_CPTEC\_201907\_02to07.nc



TP 3.9494 mm/day -FCSTDAY:1 at 18UTC  
EXP= era5\_2019JUL.nc 02JUL2019 to 07JUL2019



PRECIP 4.1971 mm/day -FCSTDAY:1  
EXP= pcpoper\_im7-IAU2-IBC:ERA5-8km\_fcstday1to3.nc



DEZEMBRO  
02 - 07

JULHO  
02 - 07



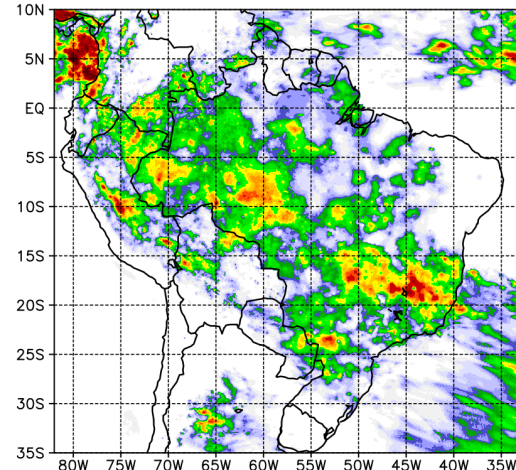
MERGE

ERA-5

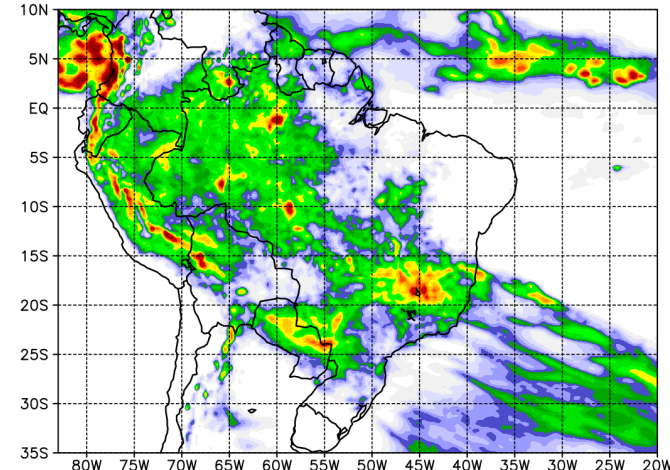
BRAMS-8km

DEZEMBRO  
03 - 08

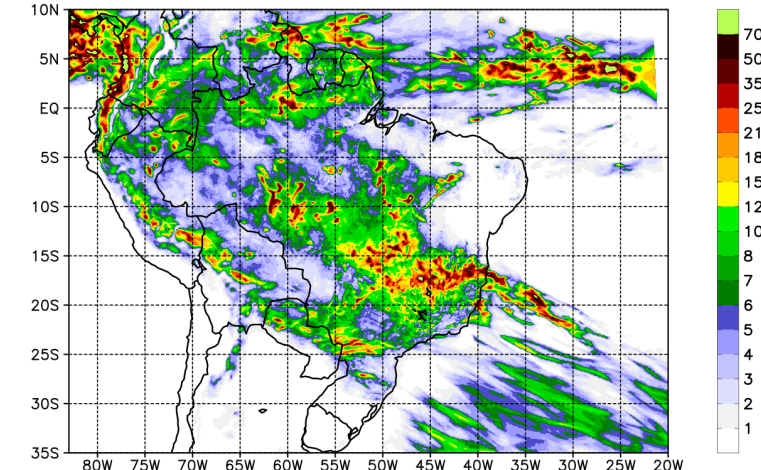
prec 4.3525 mm/day -FCSTDAY:2  
EXP= MERGE\_CPTC\_201912\_03to08.nc



TP 4.4353 mm/day -FCSTDAY:2 at 18UTC  
EXP= era5.nc 03DEC2019 to 08DEC2019

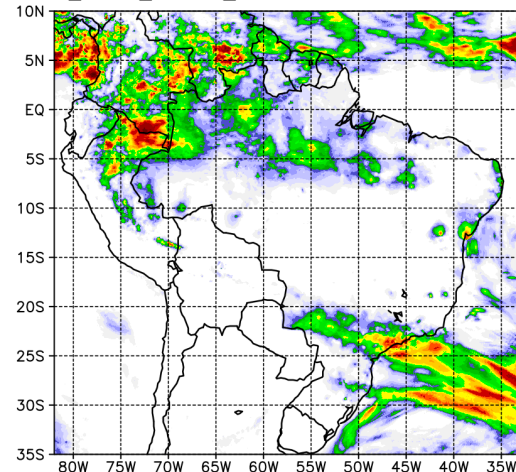


PRECIP 5.0596 mm/day -FCSTDAY:2  
EXP= pcpoper\_im12-IAU2-IBC:ERA5-8km\_fcstday1to3.nc

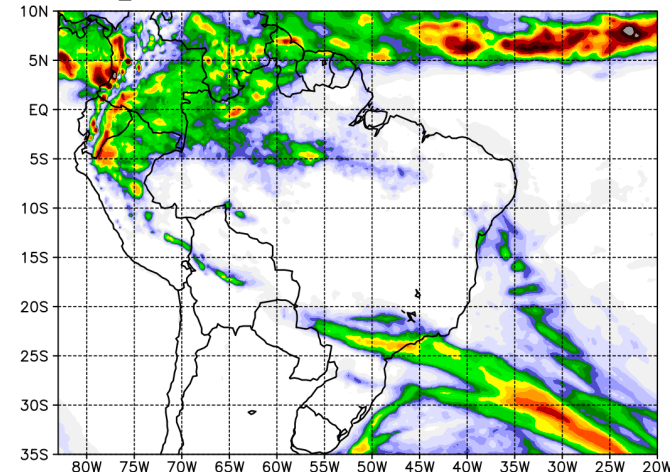


JULHO  
03 - 08

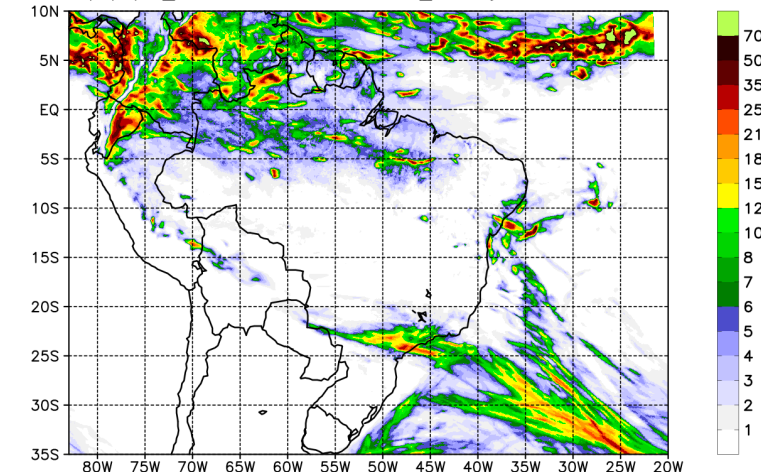
prec 3.4384 mm/day -FCSTDAY:2  
EXP= MERGE\_CPTC\_201907\_03to08.nc



TP 3.7738 mm/day -FCSTDAY:2 at 18UTC  
EXP= era5\_2019JUL.nc 03JUL2019 to 08JUL2019



PRECIP 3.8662 mm/day -FCSTDAY:2  
EXP= pcpoper\_im7-IAU2-IBC:ERA5-8km\_fcstday1to3.nc





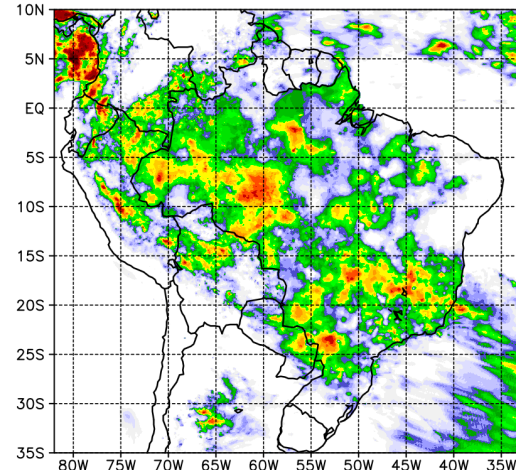
MERGE

ERA-5

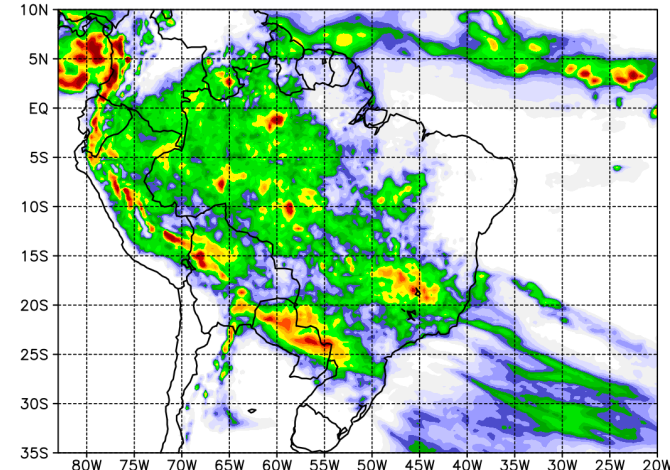
BRAMS-8km

DEZEMBRO  
04 - 09

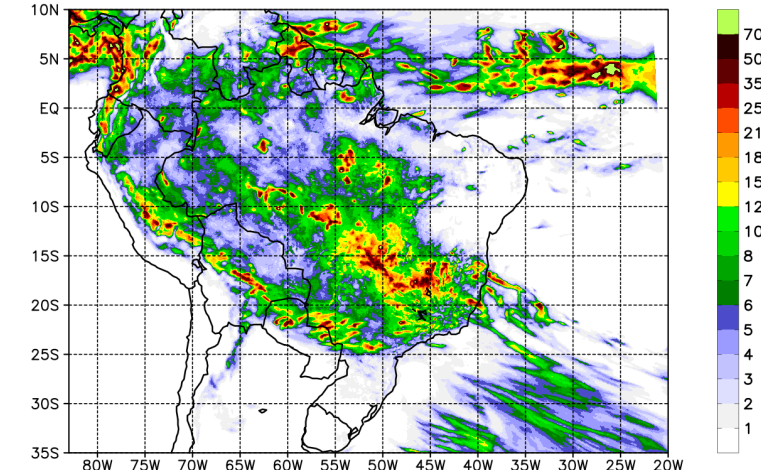
prec 4.4602 mm/day -FCSTDAY:3  
EXP= MERGE\_CPTC\_201912\_04to09.nc



TP 4.3833 mm/day -FCSTDAY:3 at 18UTC  
EXP= era5.nc 04DEC2019 to 09DEC2019

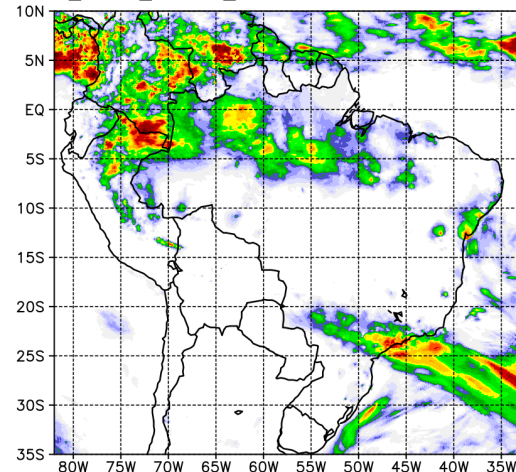


PRECIP 4.6121 mm/day -FCSTDAY:3  
EXP= pcpoper\_im12-IAU2-IBC:ERA5-8km\_fcstday1to3.nc

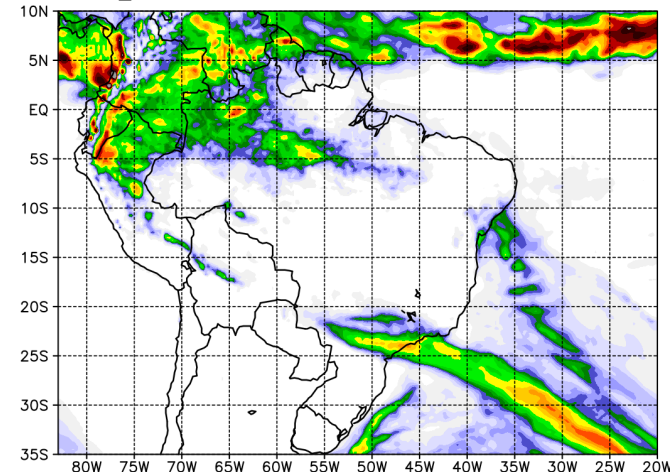


JULHO  
04 - 09

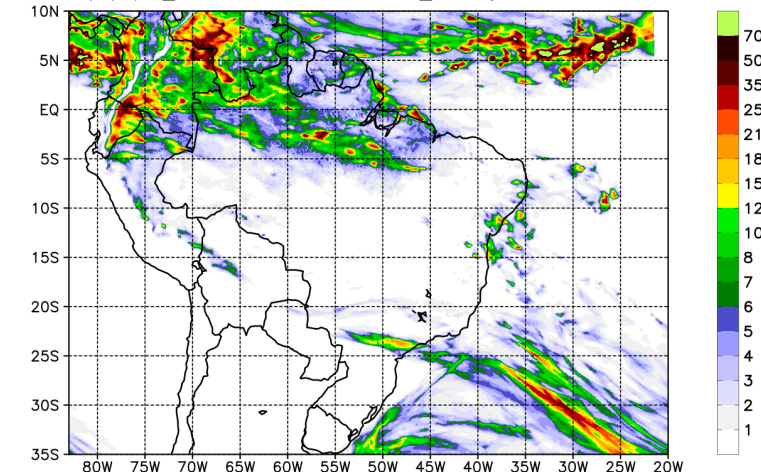
prec 3.3204 mm/day -FCSTDAY:3  
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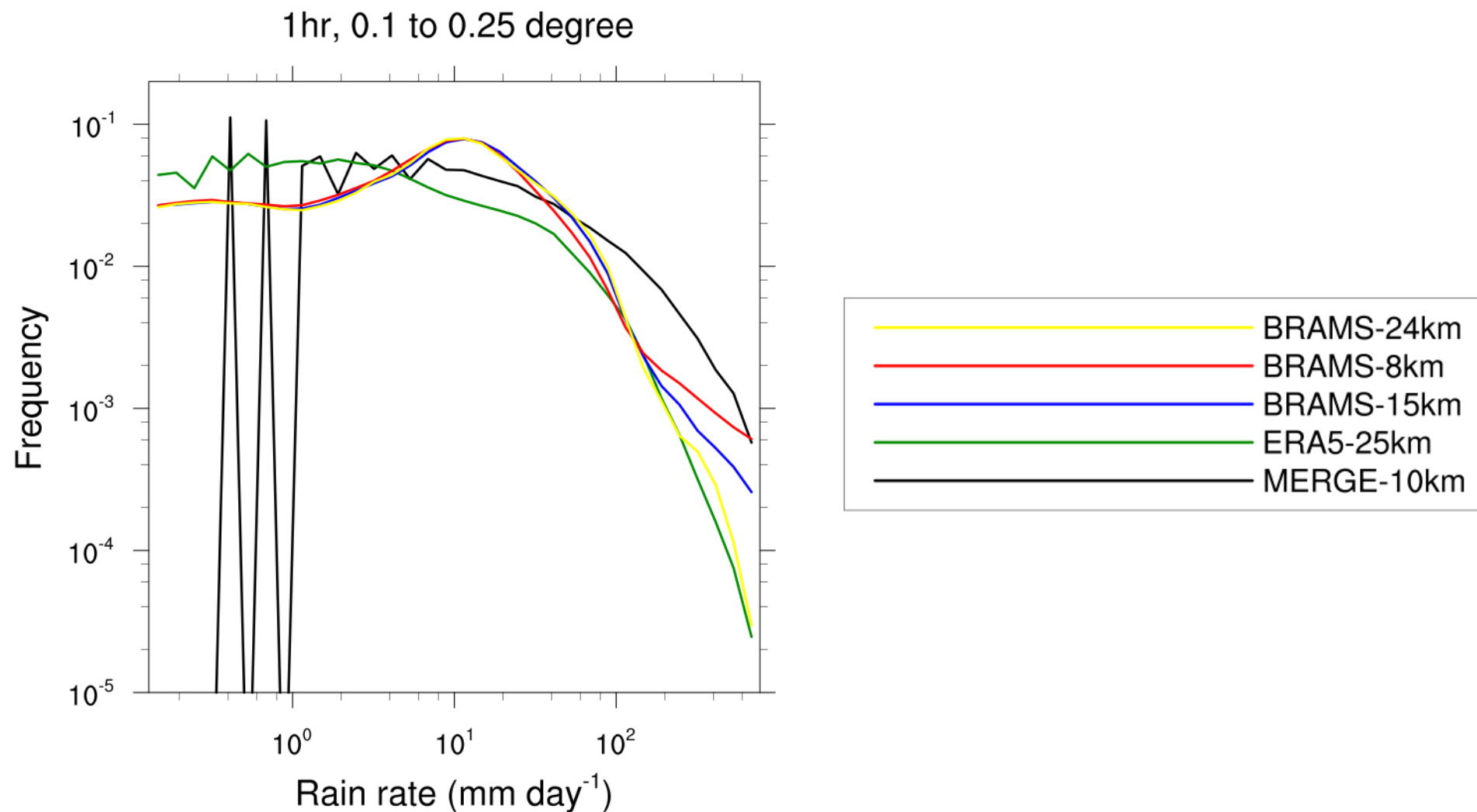
TP 3.7170 mm/day -FCSTDAY:3 at 18UTC  
EXP= era5\_2019JUL.nc 04JUL2019 to 09JUL2019



PRECIP 3.6120 mm/day -FCSTDAY:3  
EXP= pcpoper\_im7-IAU2-IBC:ERA5-8km\_fcstday1to3.nc

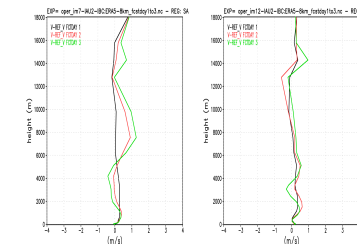
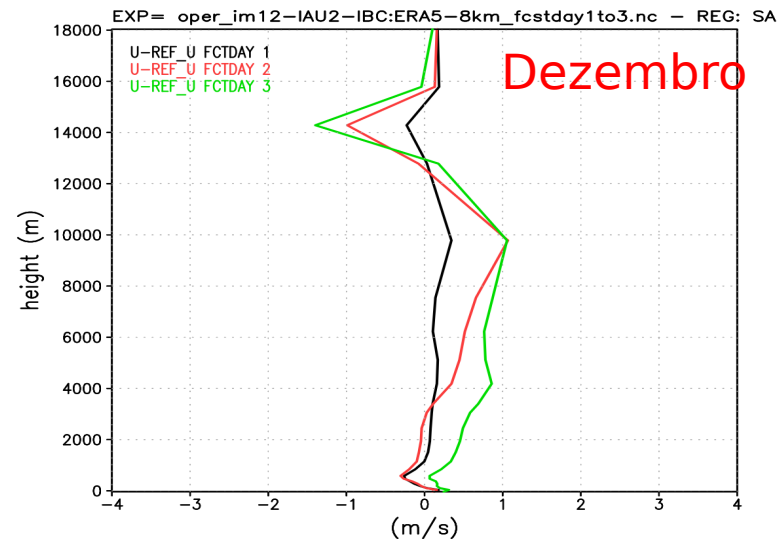
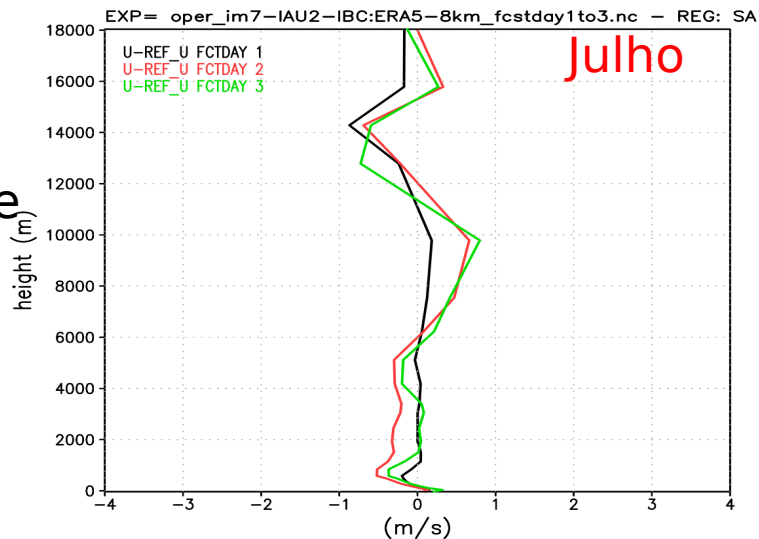


# Histograma de Precipitação – previsão 0-24h

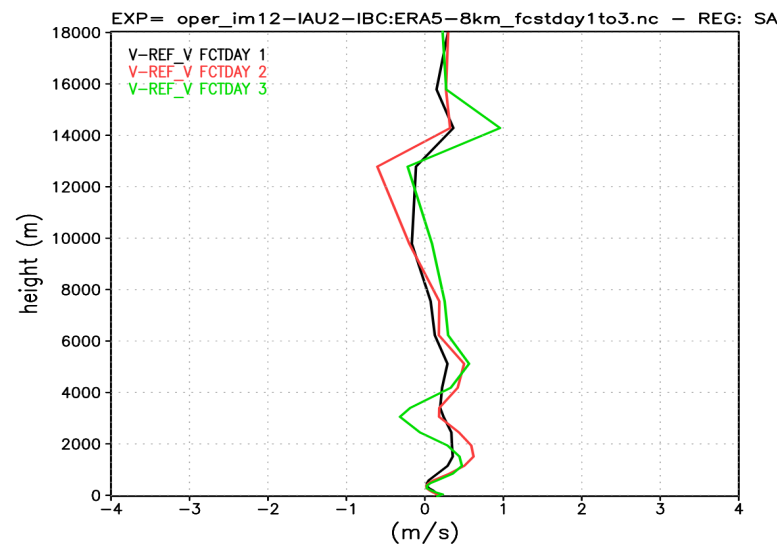
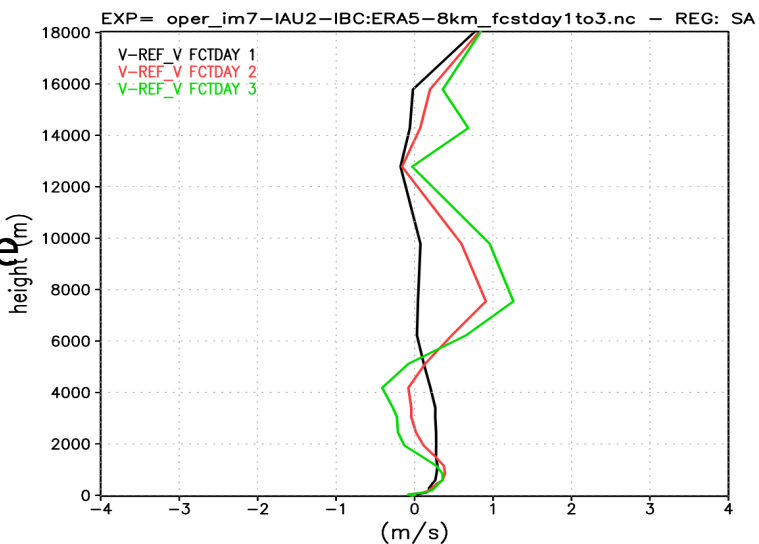


# Viés médio do vento horizontal

Componente  
U



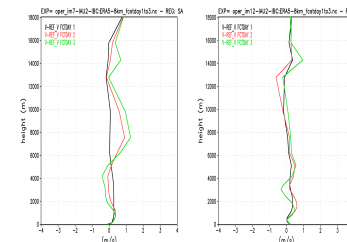
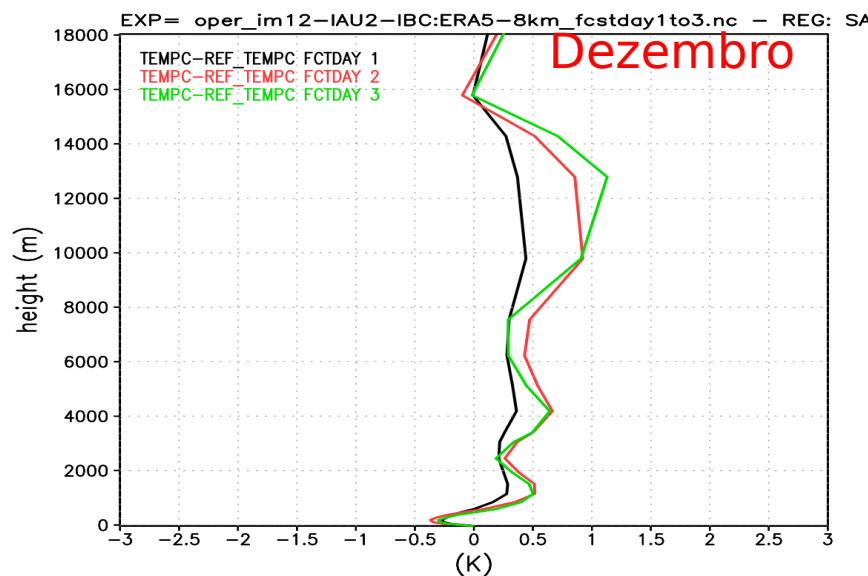
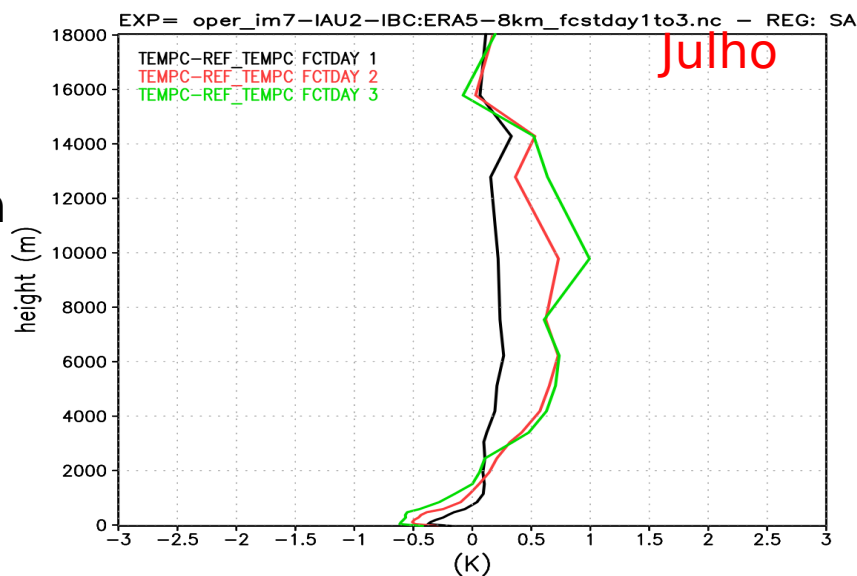
Componente  
V



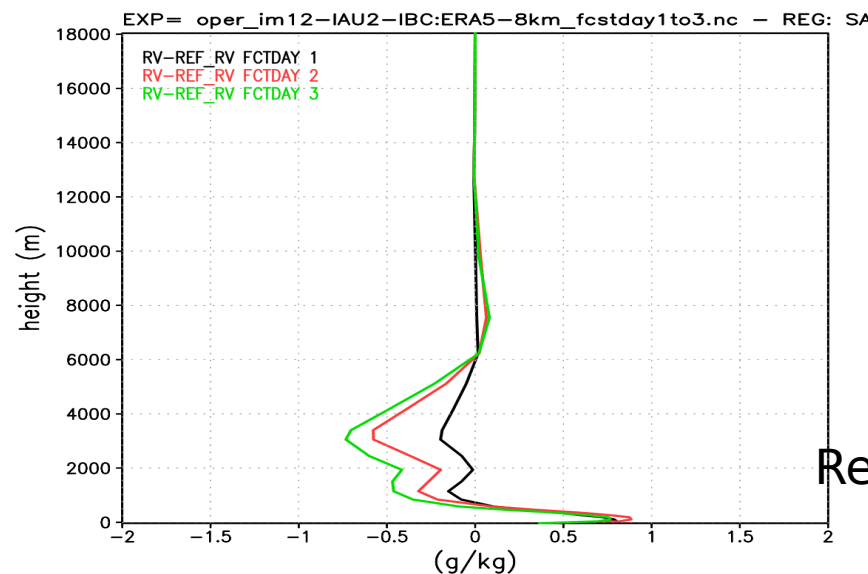
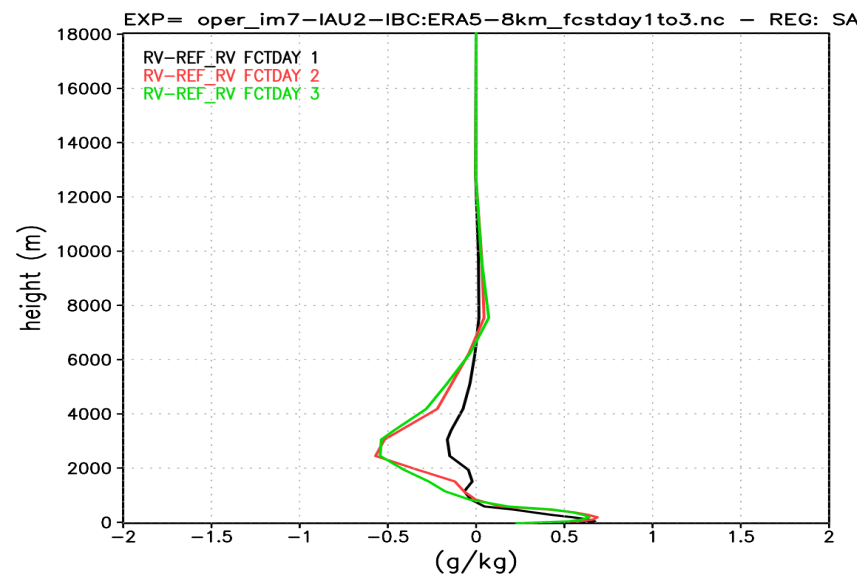
Referência:  
Reanálises ERA5 /  
ECMWF

# Viés médio da temperatura e razão de mistura do vapor de água

Temperatura



Qv

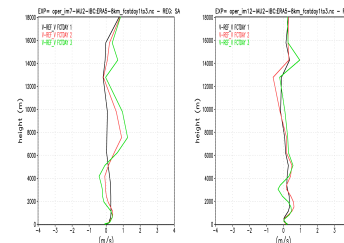
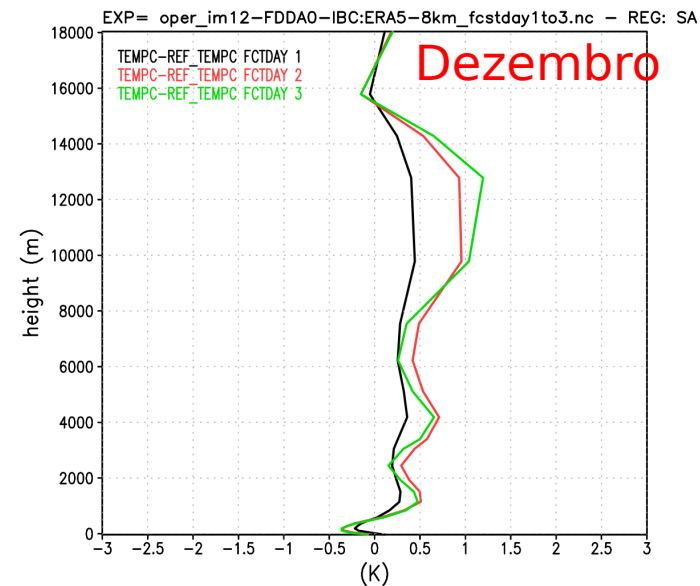
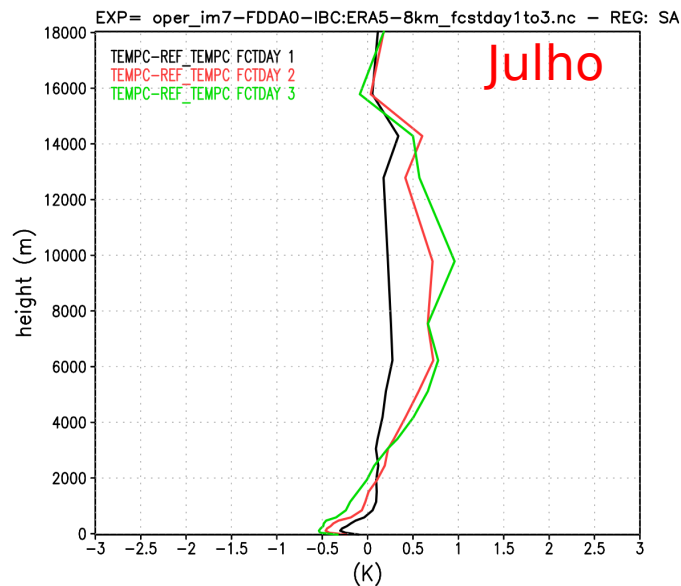


Referência:  
Reanálises ERA5 /  
ECMWF

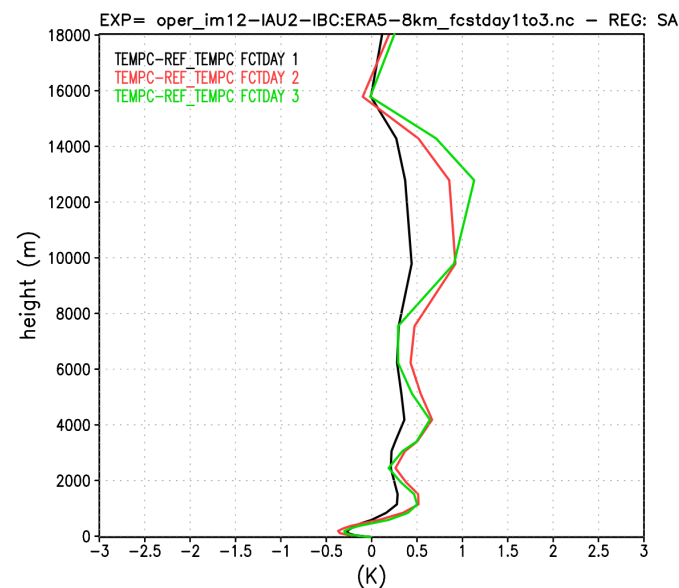
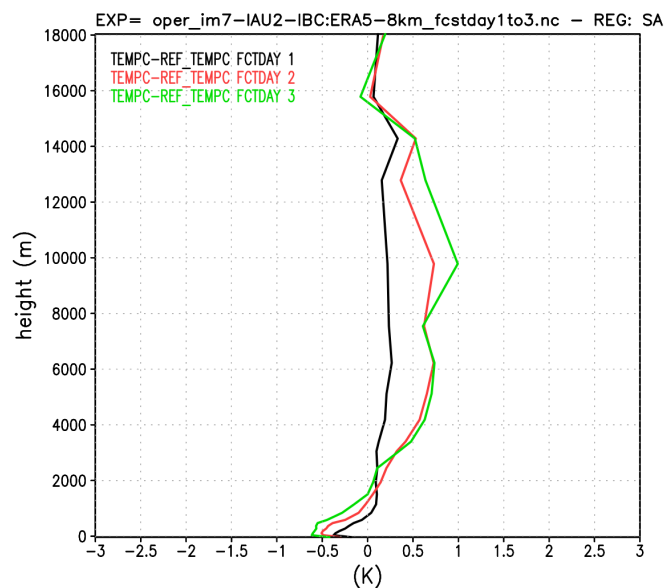


## Viés médio da temperatura

‘Cold-Start’



‘Incremental  
Analysis Update’



Referência:  
Reanálises ERA5 /  
ECMWF