# extreme event of precipitation in
# state of Santa Catarina, B

## REME PRECIPITATION

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## RENT MODELS

Global model forecasted the blocking 10 days in advance;
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## R THE FACT

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# orographically induced w
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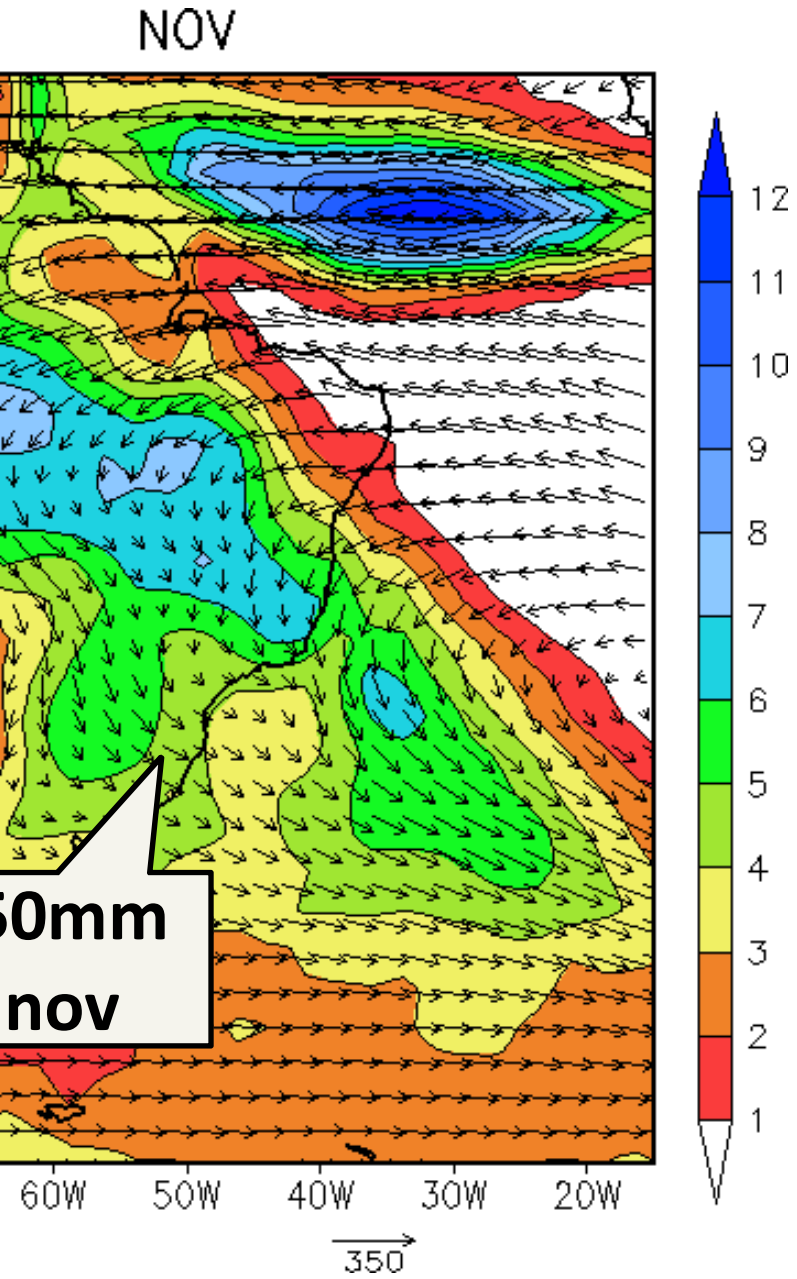
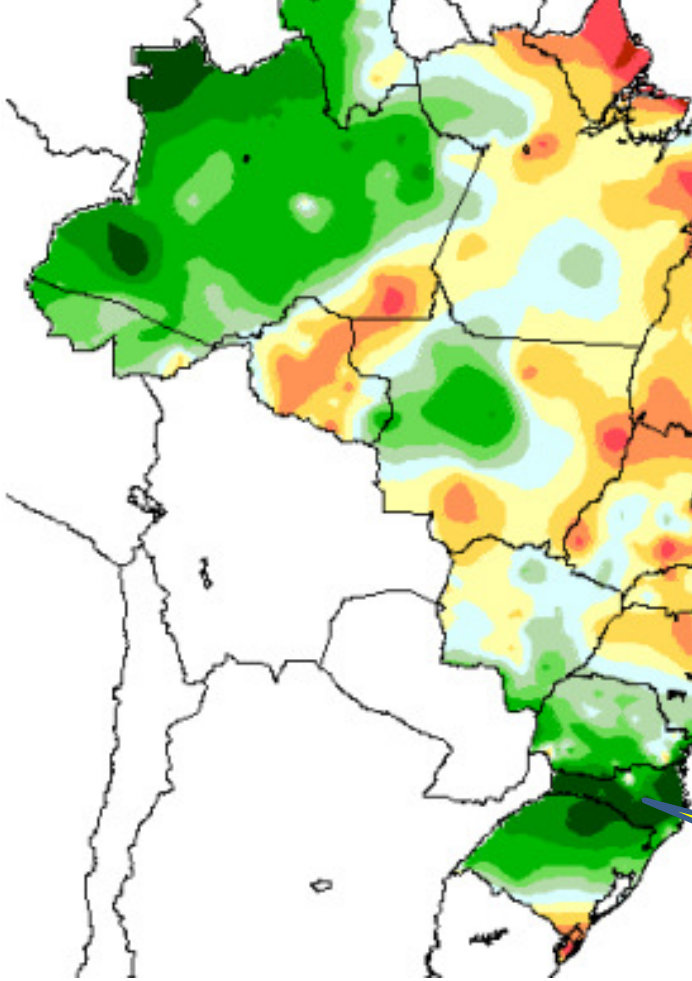
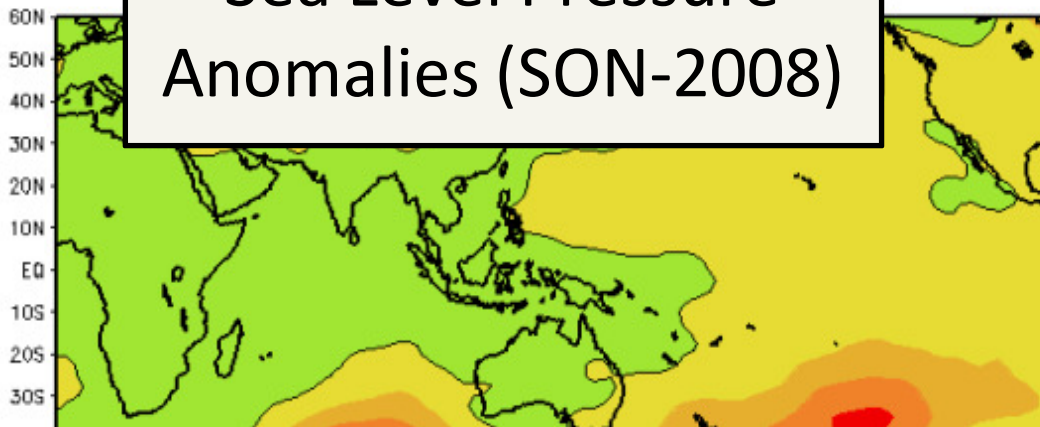



**50mm**
**nov**

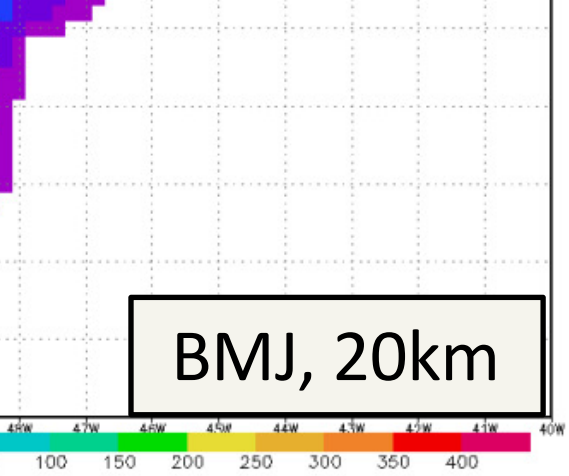
Moisture Trans. and Precip. – Nov
GPCP + ECMWF
ERA40, 80-2001

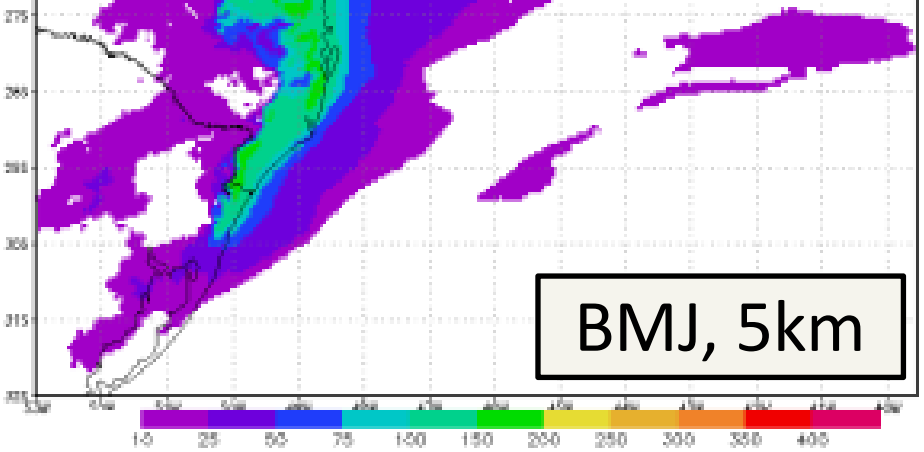


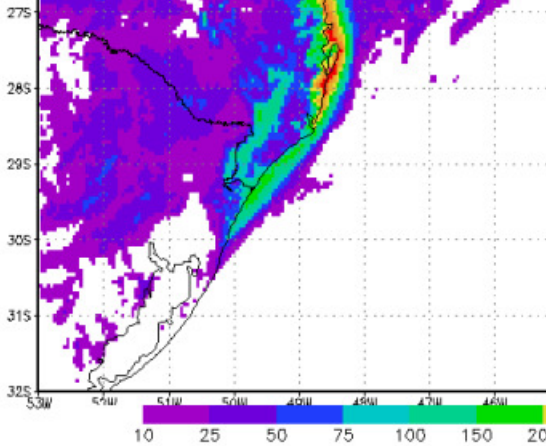
Sea Level Pressure Anomalies (SON-2008)




total precip in nov 2008
x1.5 - 4 previous record in




# OUR MODEL SIMULATIONS

**EL**

RAMS, same
ysics

to 500 #/cc – and
stant

tic cloud water,
w and ice

y CPTEC Global

**Coarse Vertical**

- $dz_0$ = 120 m
- dz stretch ratio = 1.2
- dzmax = 1000m, 32 levels

**Horizontal**

- 2 grids= 20km / 5km
- Topo = 10km / 1km

**Physics**

**Fine Vertical**

- $dz_0$ = **60 m**
- dz stretch ratio =
- dzmax = **500m,**

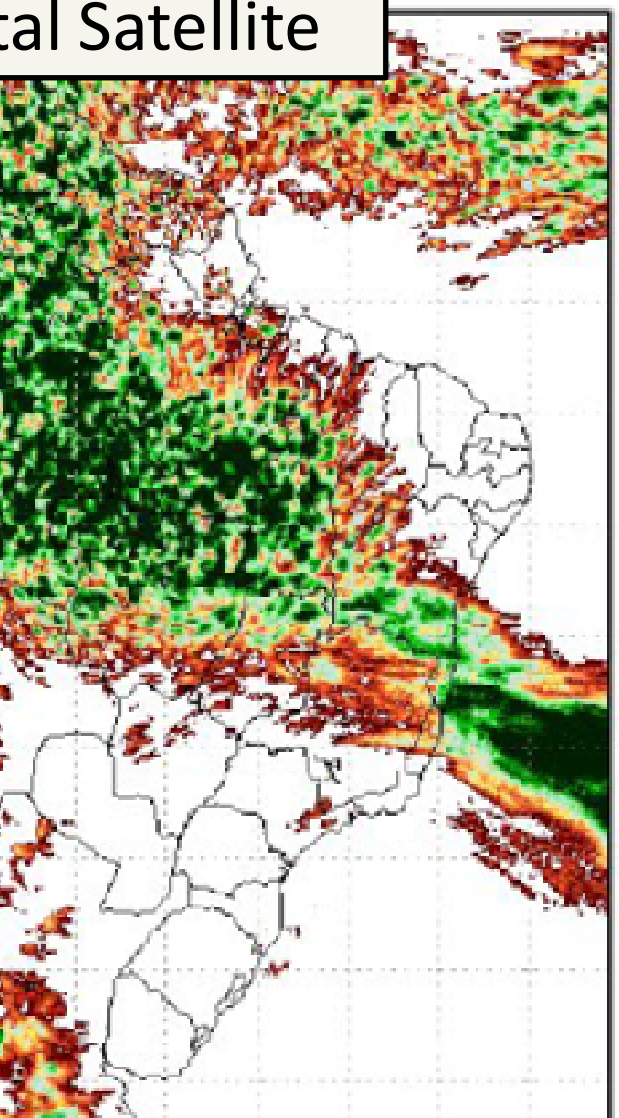
**Horizontal**

- 3 grids= **40 / 10**
- Topo = **10km / 1**

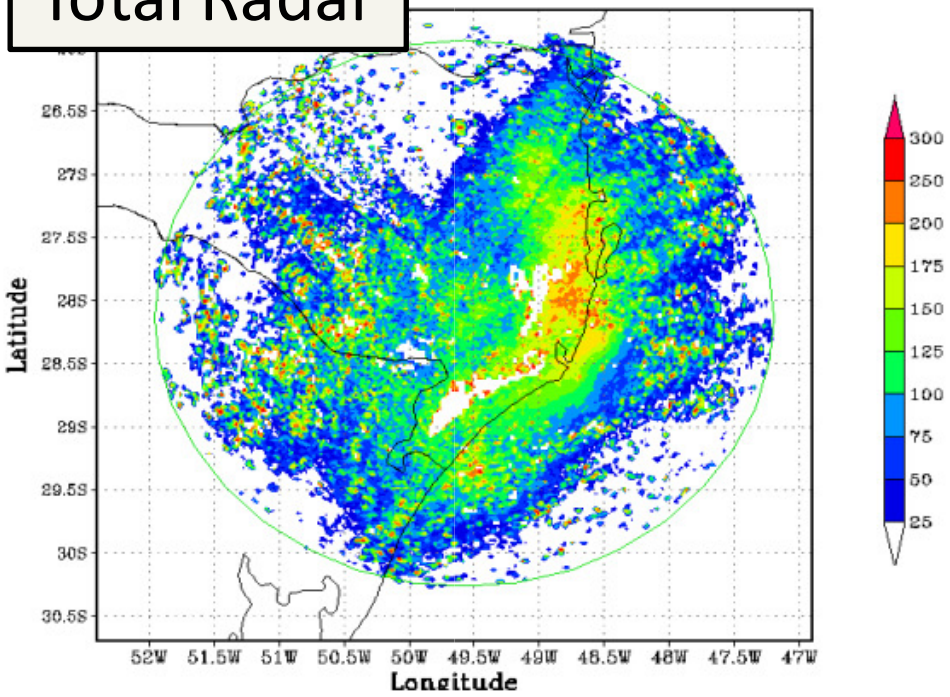
**Physics**

precipitation not able to detect; Radar
timated precipitation; 97% of warm clouds

tal Satellite



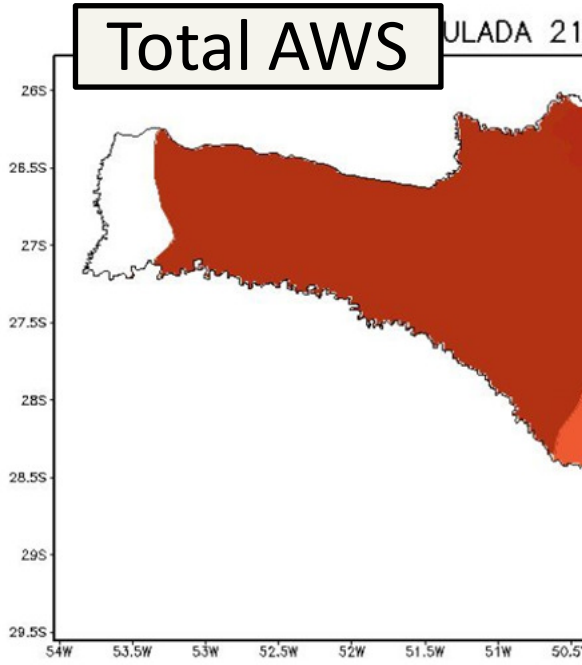
Total Radar



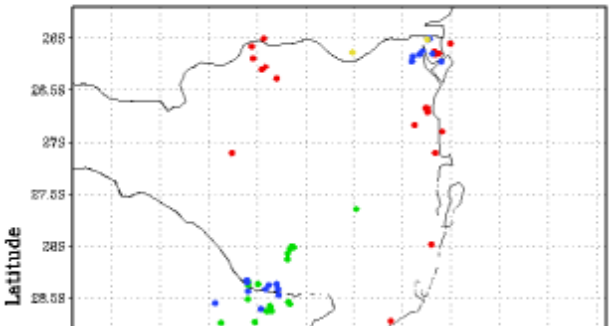




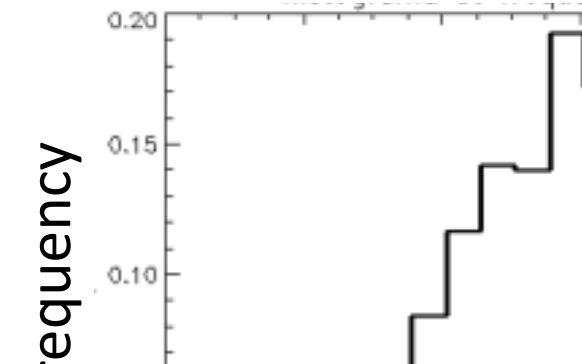
Total AWS




Lightning




GOES 10 Brightne



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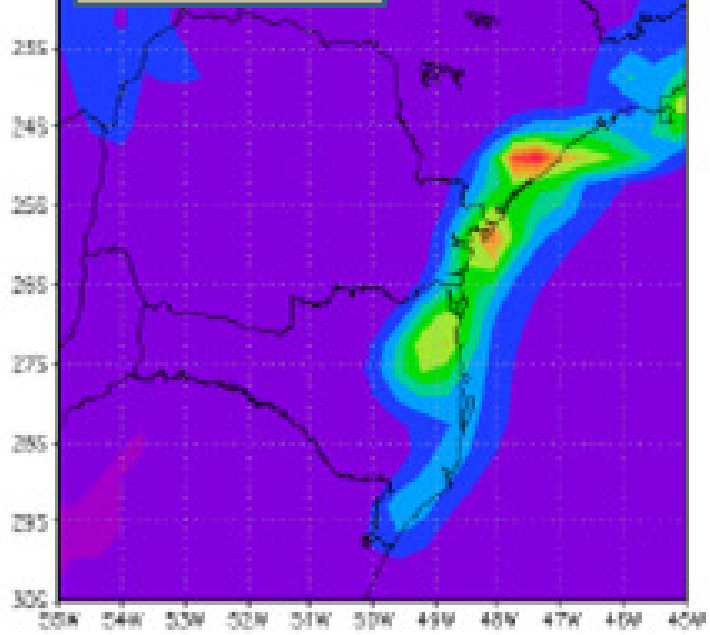
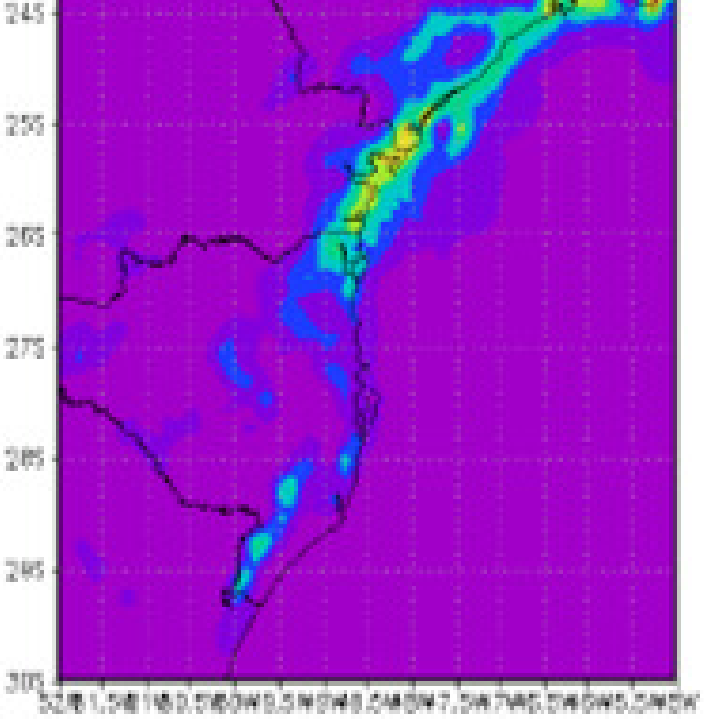
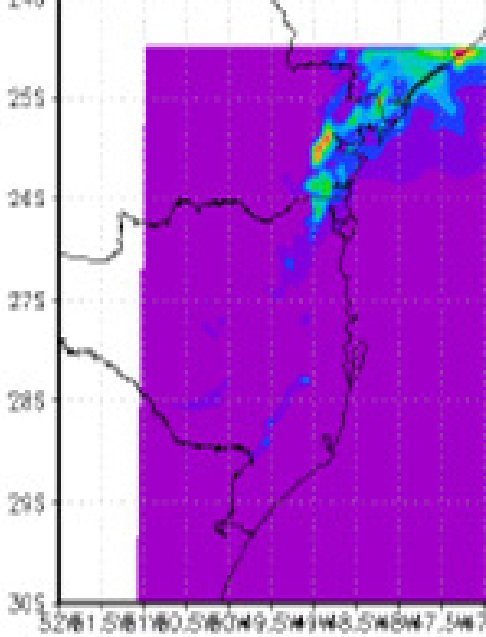
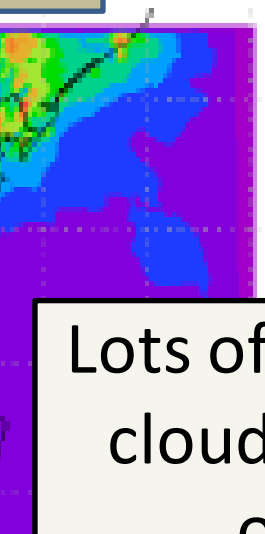




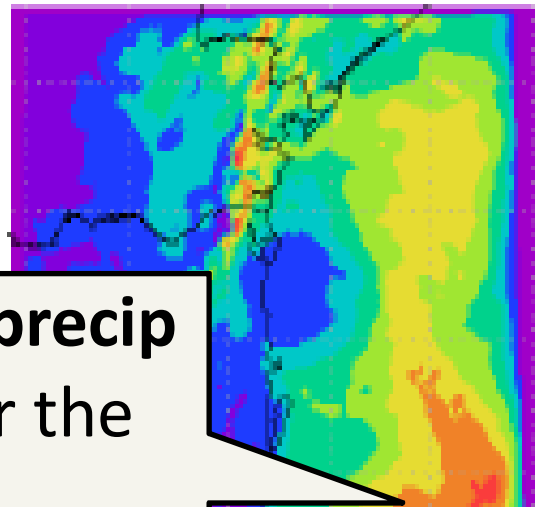


## WATER, Resol. 2.5km

km

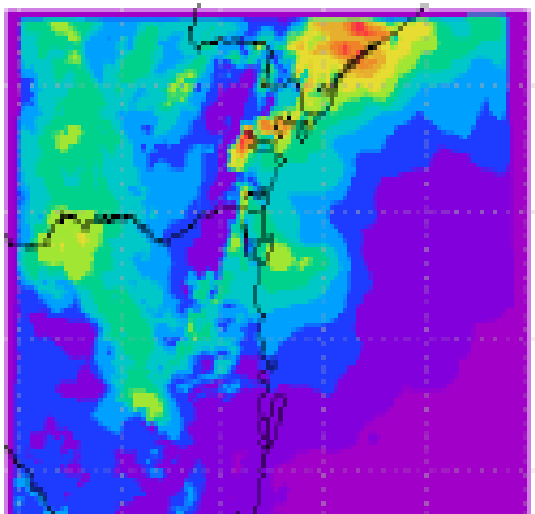


2.2km

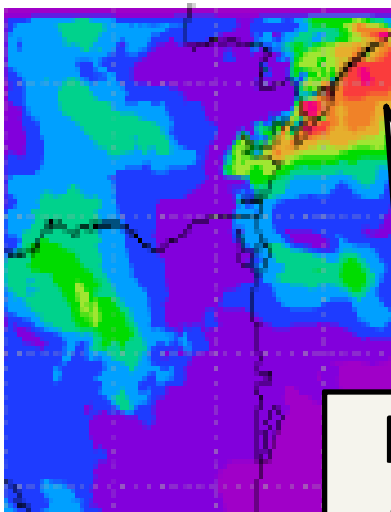


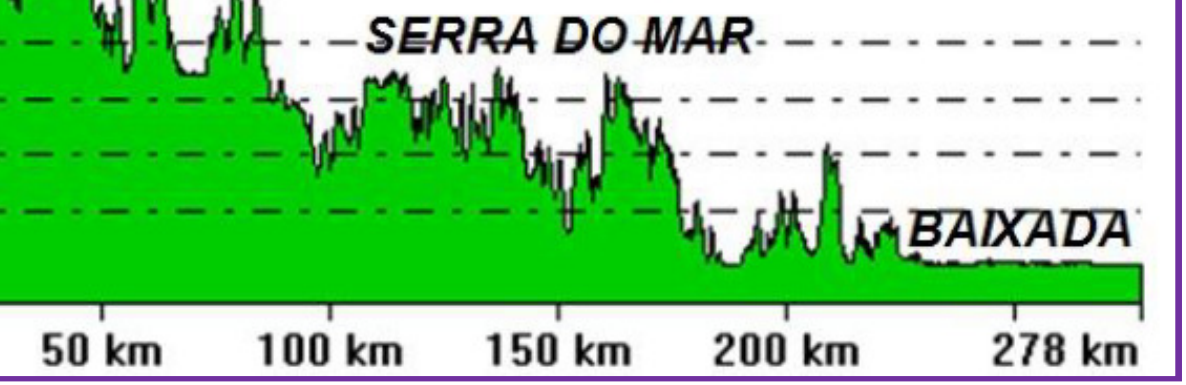
Lots of **non precip** clouds over the ocean!

3.6km



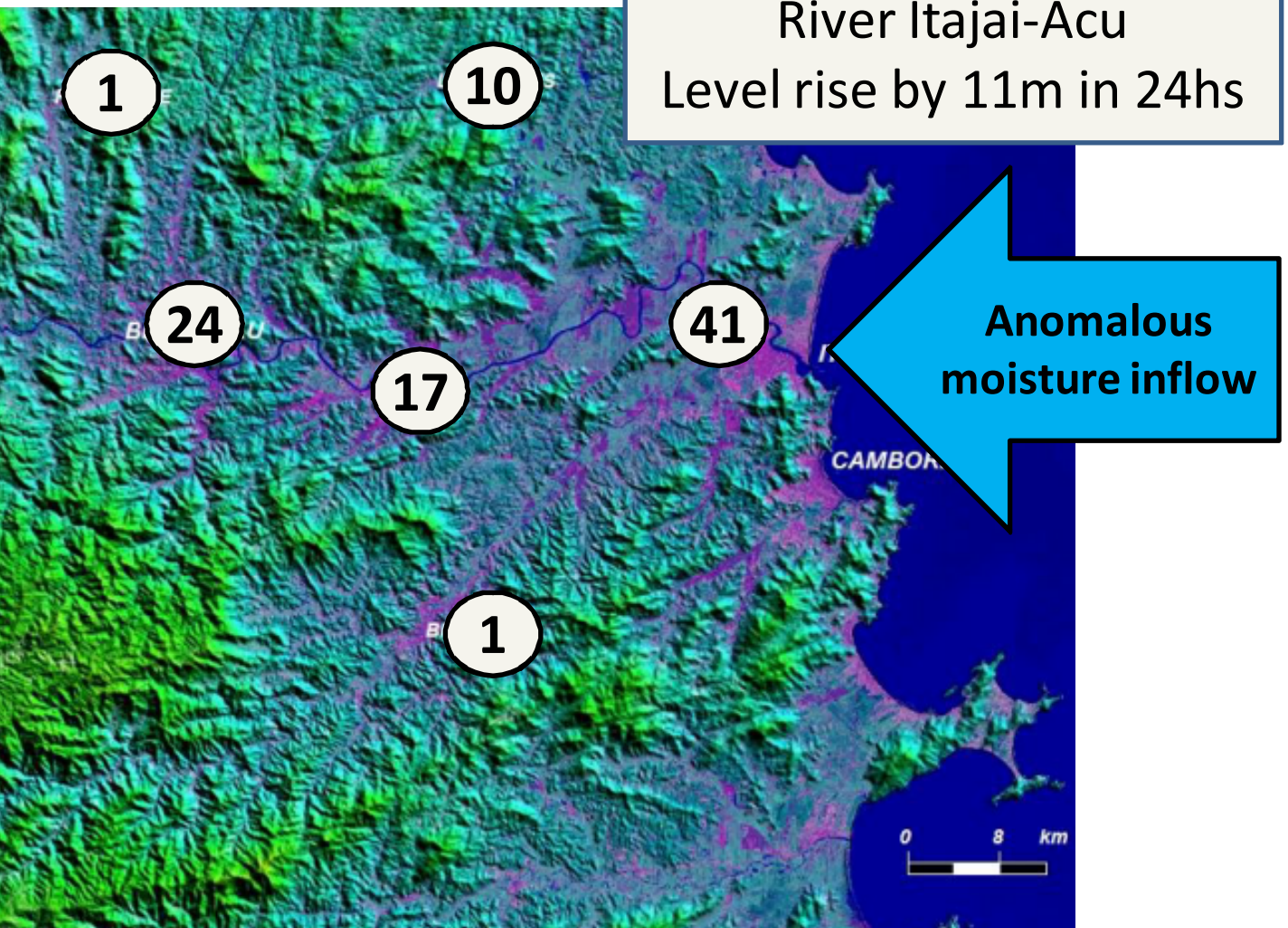
4.2km

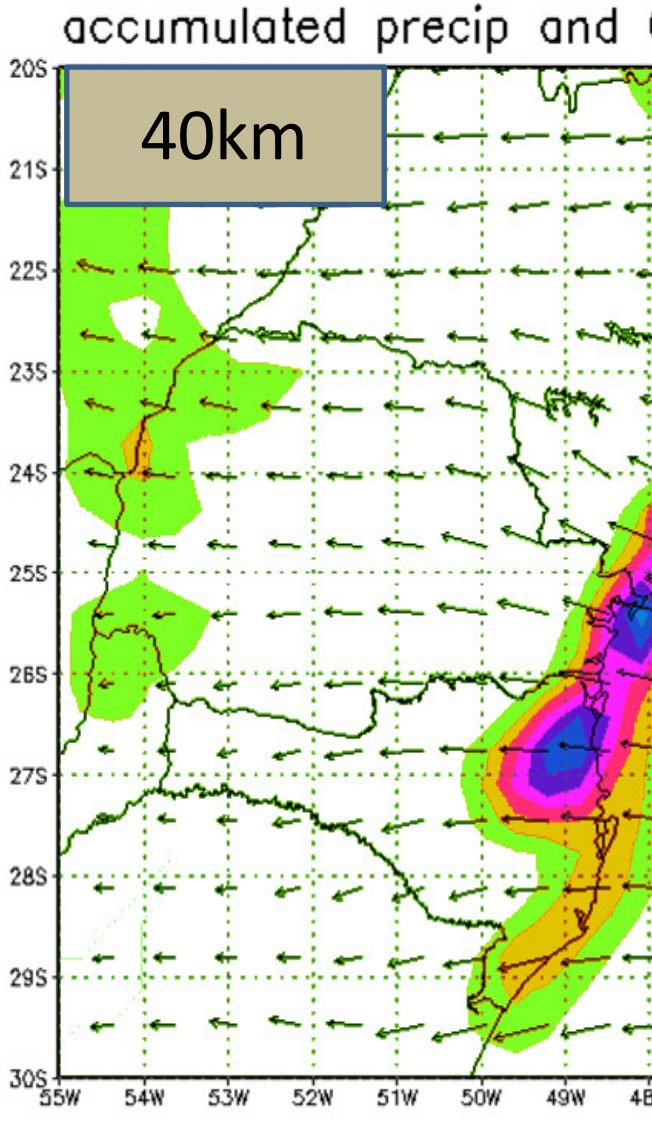





# WINDS

River Itajai-Acu
Level rise by 11m in 24hs



n configuration seems
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, with significant impact
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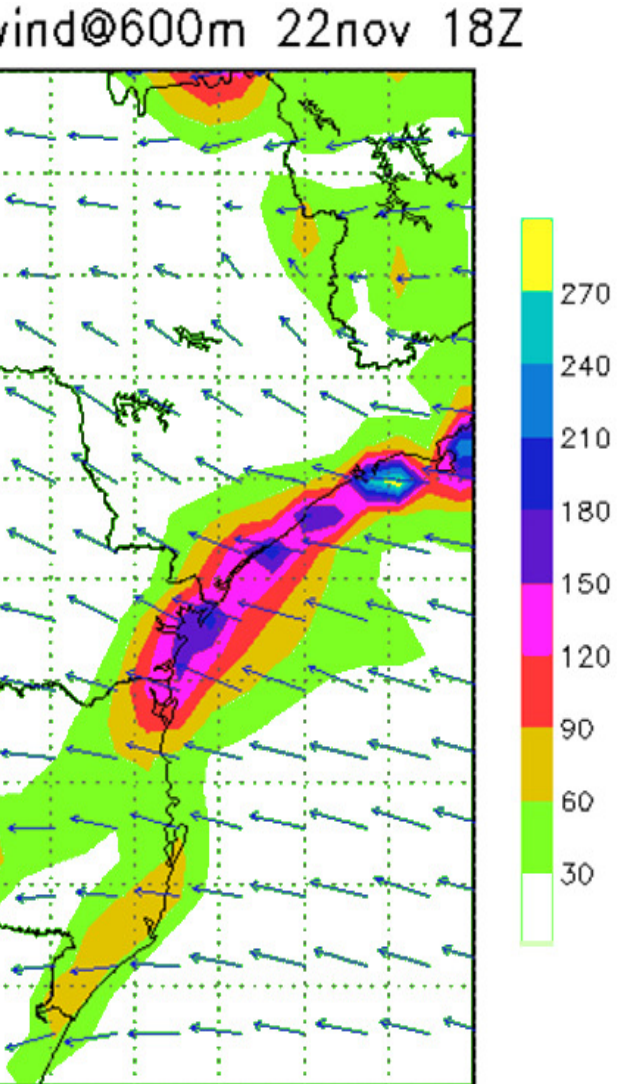


the boundary conditions too

- We are doing a series of simu with various domain sizes

- How could decreasing Δz ruin vertical profile?
  - We are checking surface fluxe turbulence, etc…
- Why in a 3-grid simulation, p 40km looks better than at 2.5
  - We are checking shallow clou the ocean and evaporation

Maybe not enough resolution