

Precipitation forecasts in Argentina Project 6

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Moya, Harri Myllyniemi and Martina Suaya

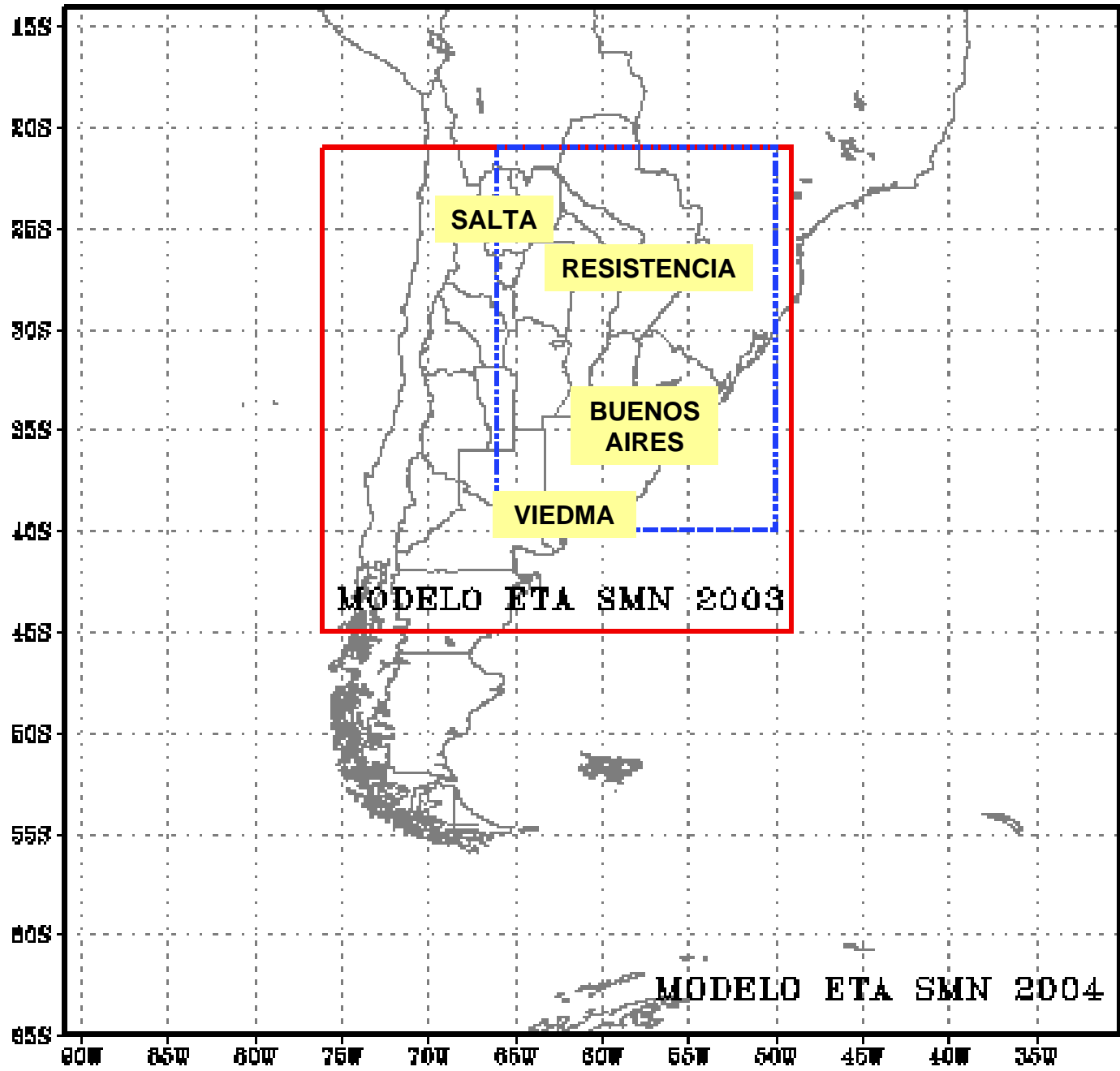
The Third International Verification Methods Workshop

31 January – 2 February 2007

Data description

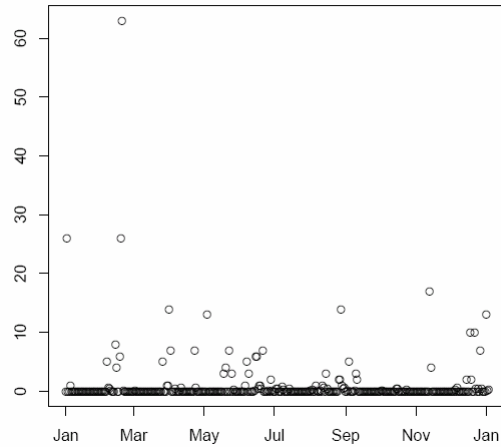


- One year dataset of 24 hour accumulated precipitation on 9 location in Argentina
- Forecast data from ETA model for the lead times of 24, 48 and 72 hours



VIEDMA

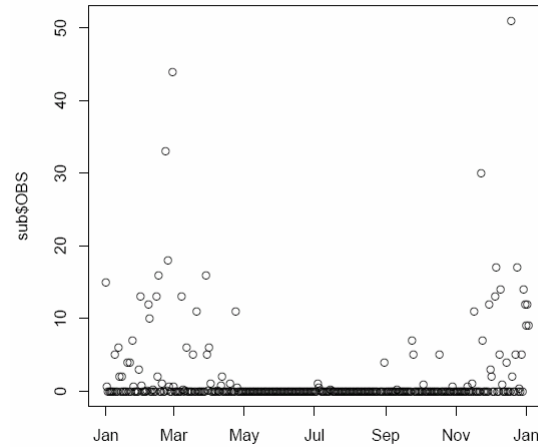
station 87791



Dry
station

SALTA

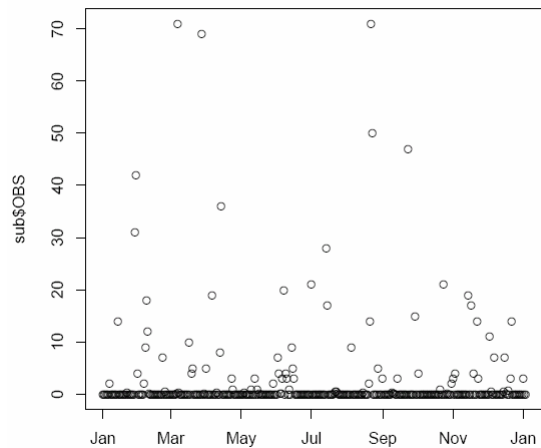
station 87047



Topographically
influenced

BUENOS AIRES

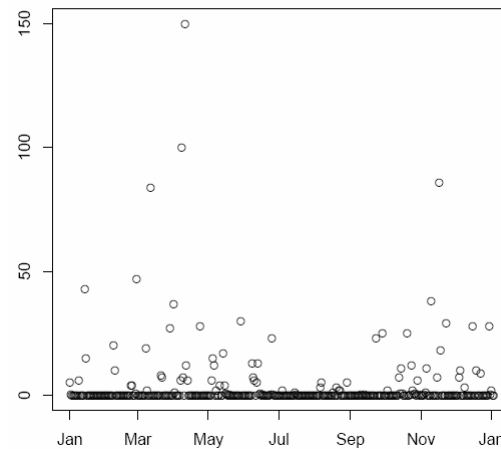
station 87576



Mixed
tropical
and mid-
latitude
regime

RESISTENCIA

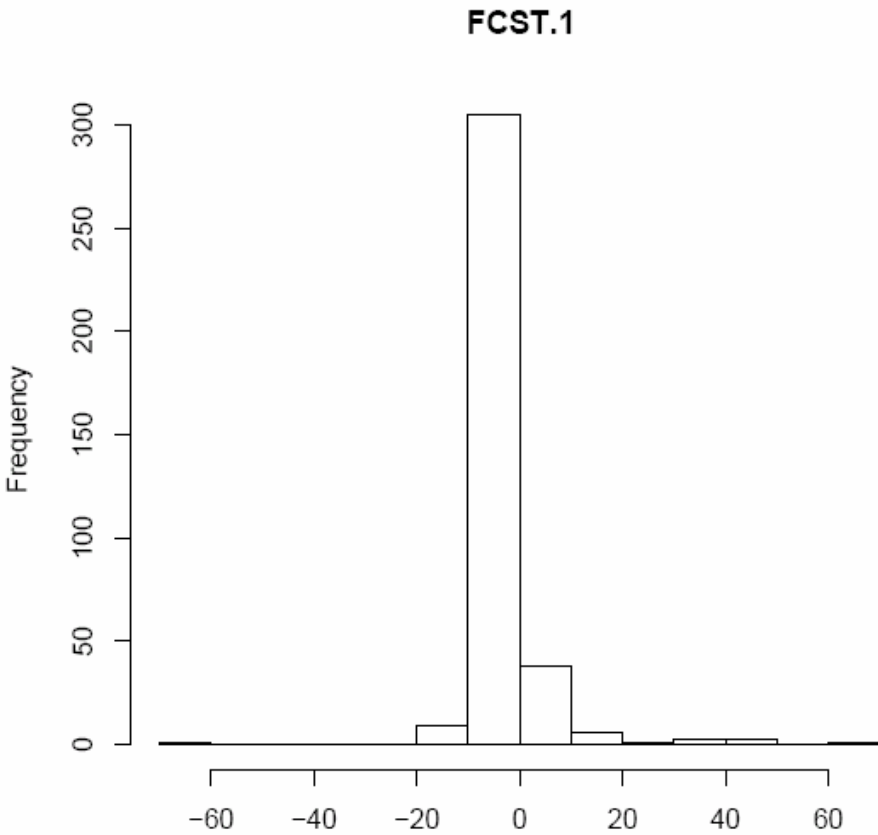
station 87155



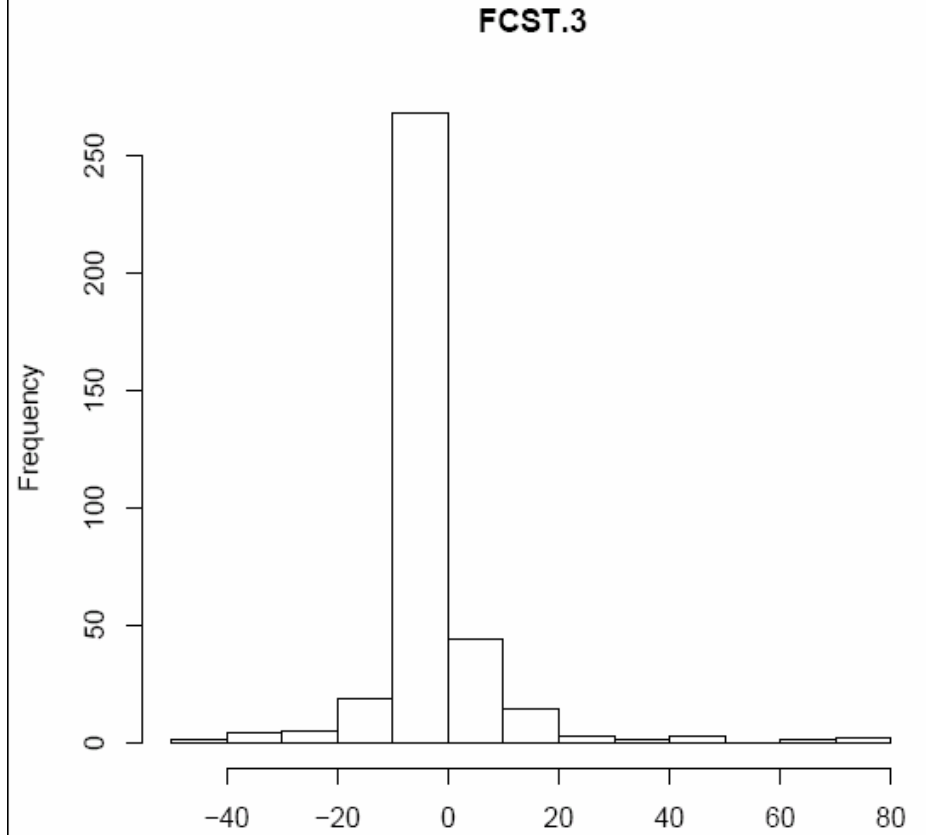
Subtropical
regime

BUENOS AIRES

DAY +1



DAY +3

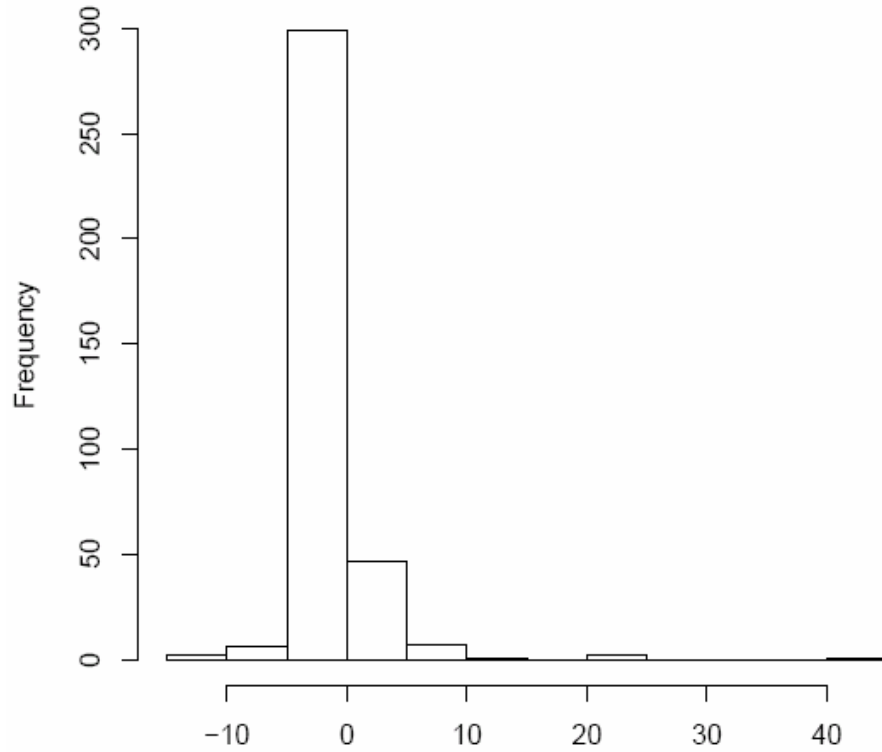


OBSERVATIONS - FORECASTS

VIEDMA

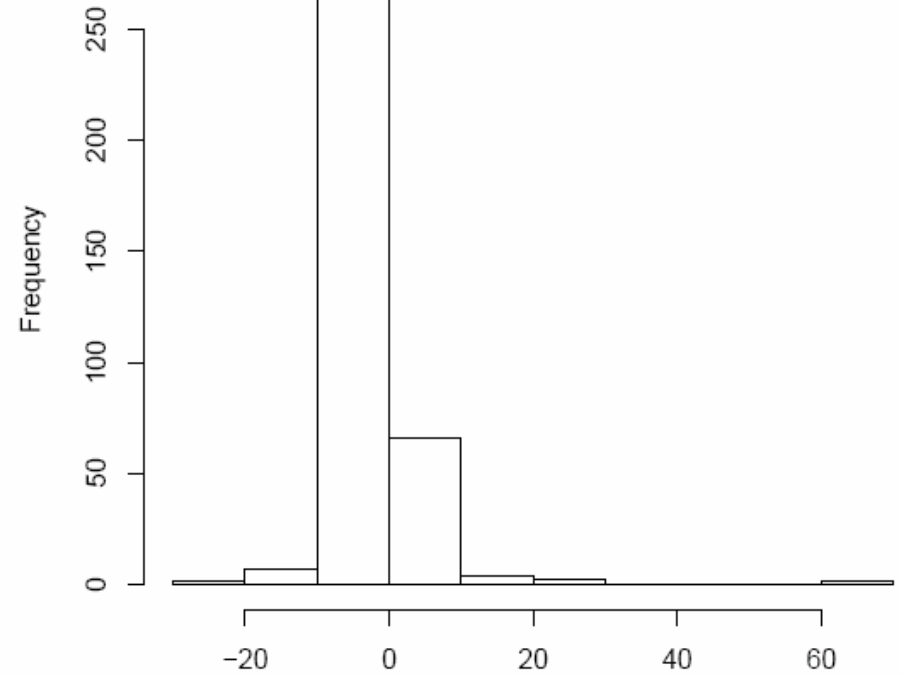
DAY +1

FCST.1



DAY +3

FCST.3



OBSERVATIONS - FORECASTS

Verification Questions

- How do the observations and the forecasts compared for each station?
- Is Day +3 forecast better than Day +1 forecast?
- What is the quality of the forecast?
- Are extreme values correctly forecasted?

Verification technique

Observations

FCST/OBS DAY 1	No rain	Light rain	Heavy rain
No rain	2378	250	61
Light rain	131	151	57
Heavy rain	41	80	130

DAY +1

FCST/OBS DAY 2	No rain	Light rain	Heavy rain
No rain	2145	350	194
Light rain	194	75	70
Heavy rain	126	79	46

DAY +2

FCST/OBS DAY 3	No rain	Light rain	Heavy rain
No rain	2023	410	256
Light rain	236	60	43
Heavy rain	169	48	34

DAY +3

Verification Scores

DAY +1

FCST D 1	No rain	light	Heavy
Bias	1.05	0.7	1.01
Hit rate	0.93	0.31	0.52
False alarm ratio	0.11	0.55	0.48
TS	0.83	0.23	0.35

DAY +2

FCST D 2	No rain	light	Heavy
Bias	1.09	0.67	0.81
Hit rate	0.87	0.15	0.14
False alarm ratio	0.2	0.78	0.82
TS	0.71	0.1	0.09

DAY +3

FCST D 3	No rain	light	Heavy
Bias	1.12	0.65	0.75
Hit rate	0.83	0.11	0.1
False alarm ratio	0.25	0.82	0.86
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Conclusions

- Forecasts are not well represented by these scores after Day +1
- In Day +1, heavy rain is better forecast than light rain
- The no rain threshold is well forecasted for the 3 days
- Forecasts on light rain in Day +2 and Day +3 is equal to climatology: $504/3320=15\%$
- If no rain was forecasted for Day +1 \Rightarrow hit = $2550/3320=0.77$ which is less than any hit rate of the forecasts

“Forecast is good except when it rains...”

**THANK YOU
FOR YOUR ATTENTION!**