Real time monitoring of the water budget and its use for riverflow forecast
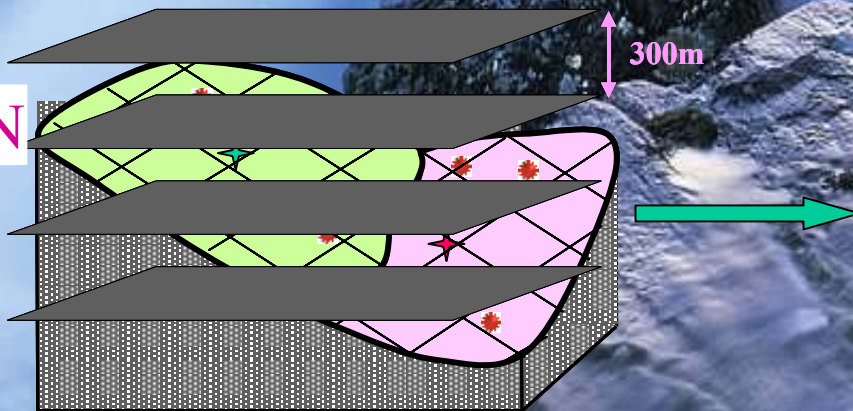
Florence Habets, Joël Noilhan, Patrick LeMoigne, Sophie Morel

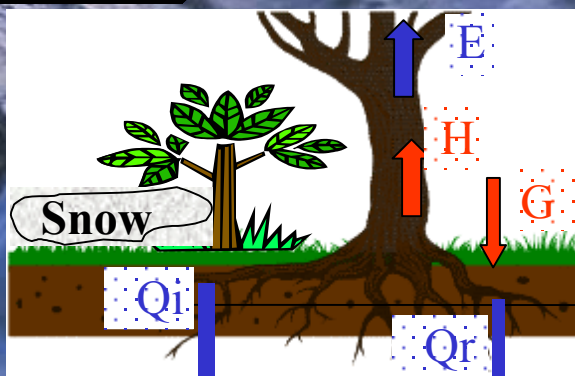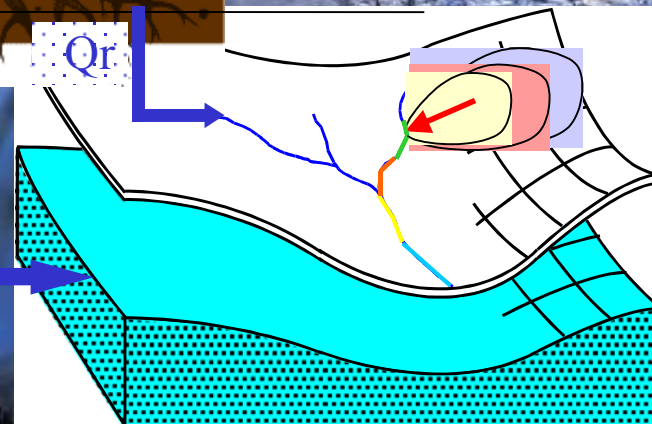Météo-France-Game/ Toulouse, France

The SAFRAN-ISBA-MODCOU system

SAFRAN

300m

Ta, Qa, Ua ,
Rg,Rat,Ps
Rain,Snow

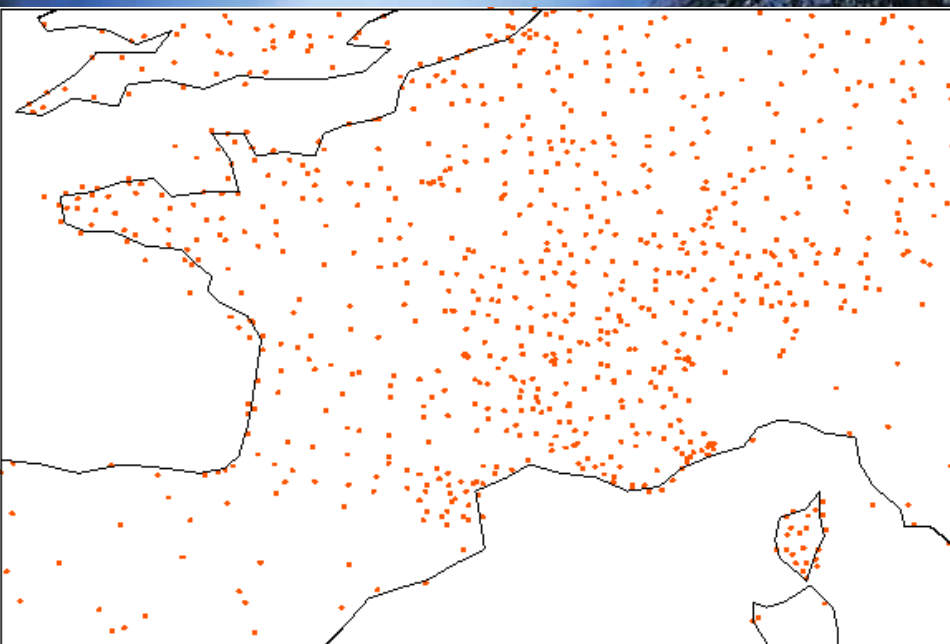**ISBA**

E

H

G

Snow

Qi

Qr

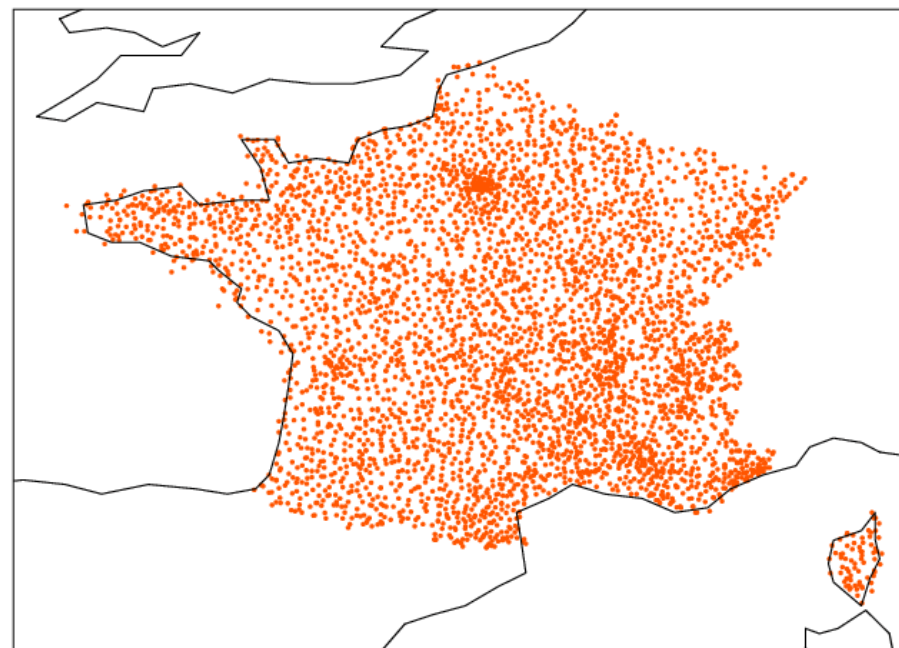**MODCOU**

riverflow

aquifer

Density of the atmospheric observation network

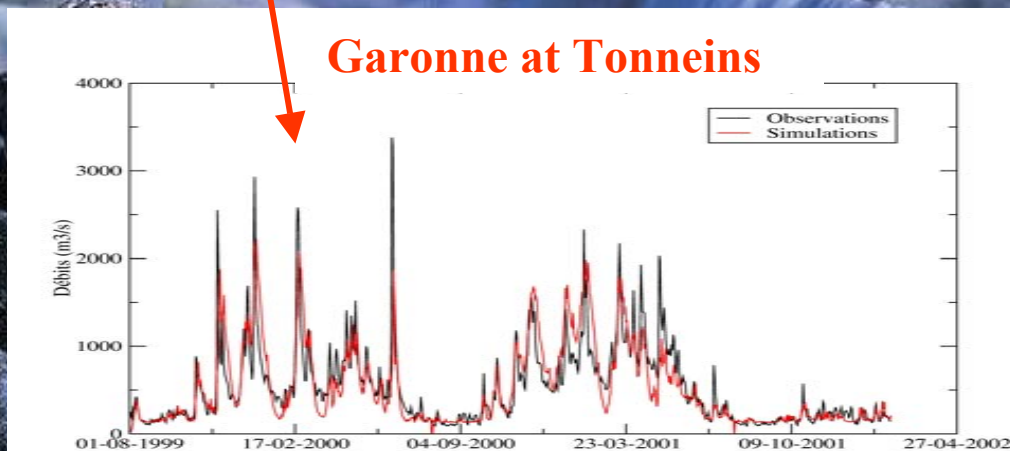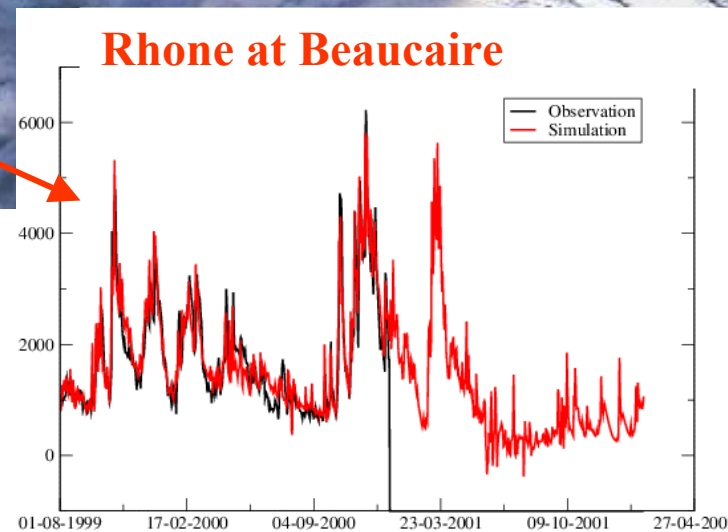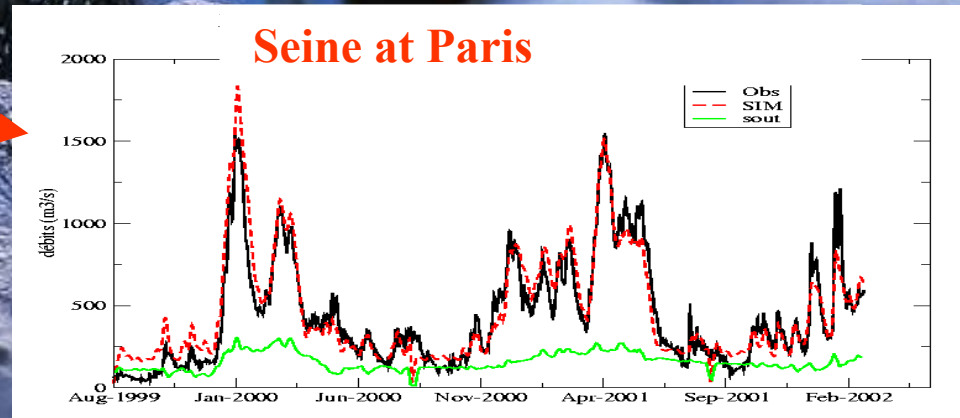Synoptique stations
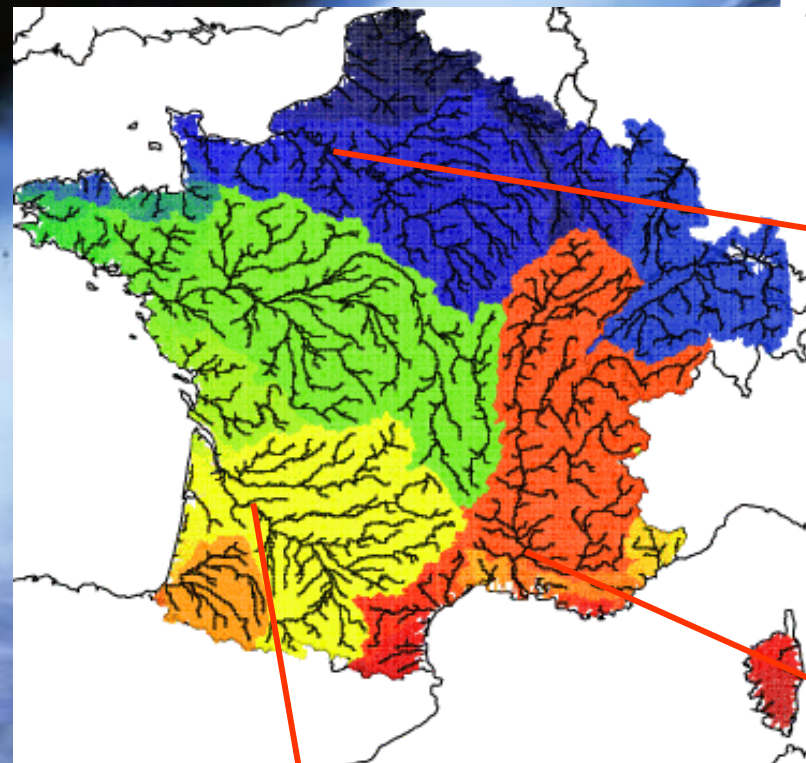(Ta, Qa, Ua, cloudiness, Rg, Rat, pressure)

Daily precipitation

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Application of SAFRAN-ISBA-MODCOU over France

Simulation of riverflows

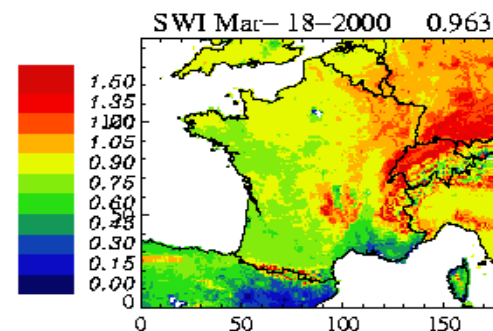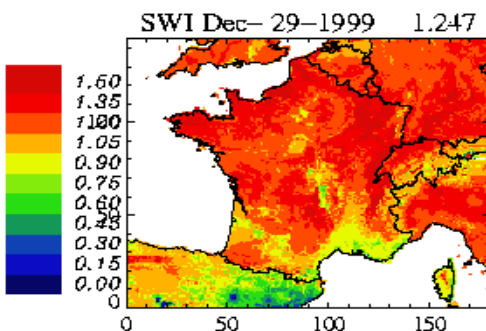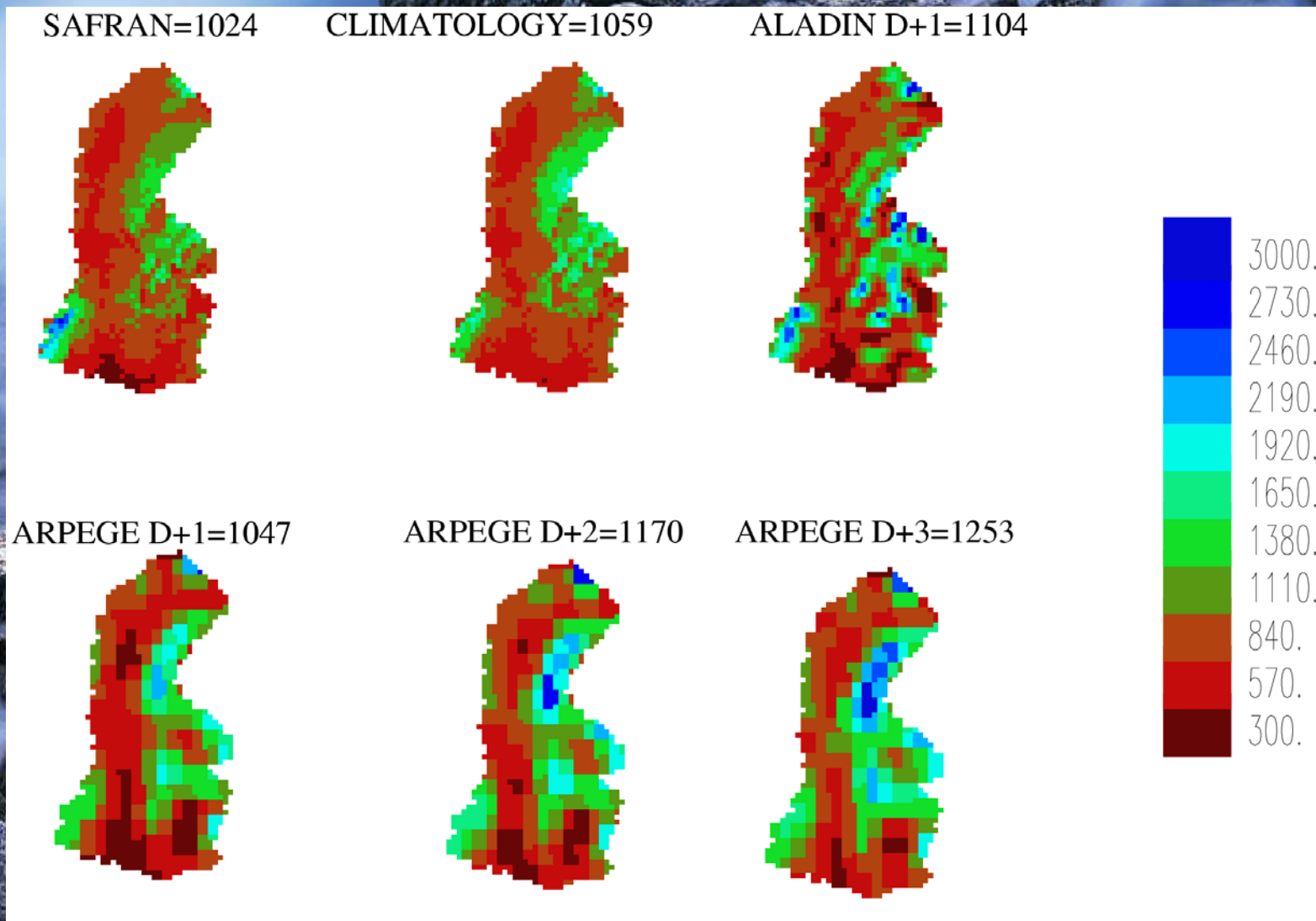**Seine at Paris**

Rhone at Beaucaire

Garonne at Tonneins

© Pierre HUCHETTE
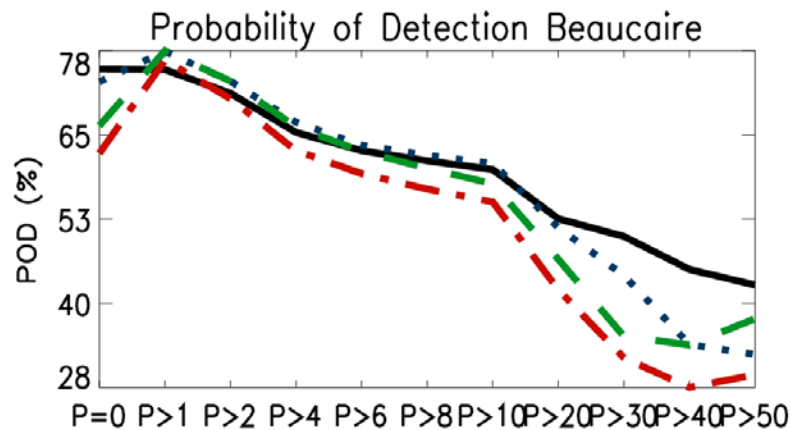
Simulation of
The soil wetness index

© Pierre HUCHETTE
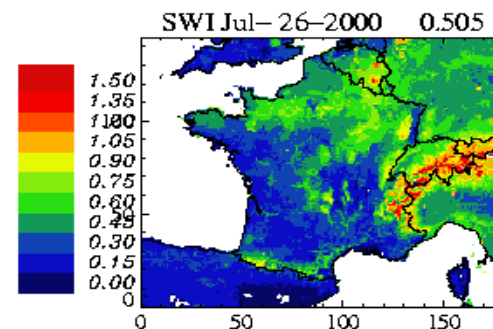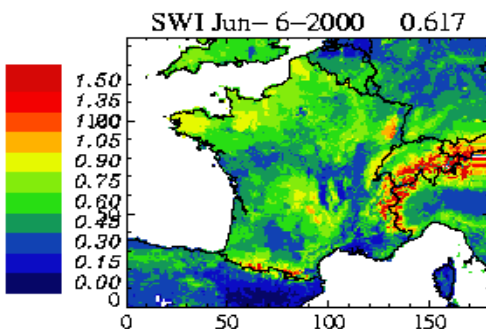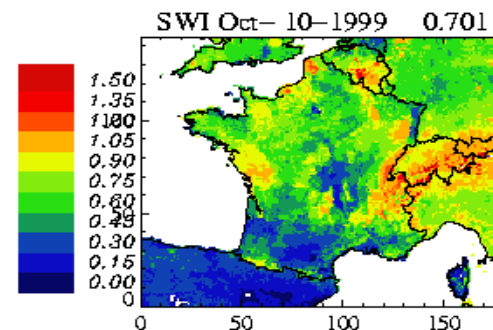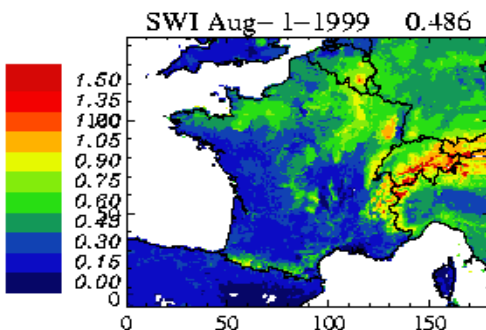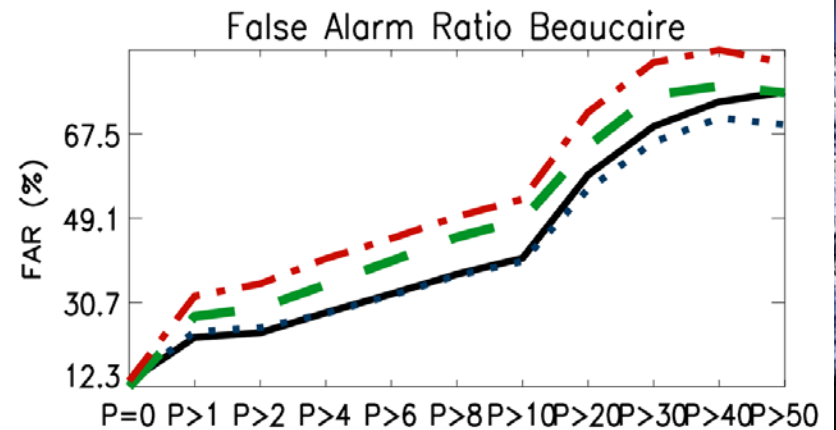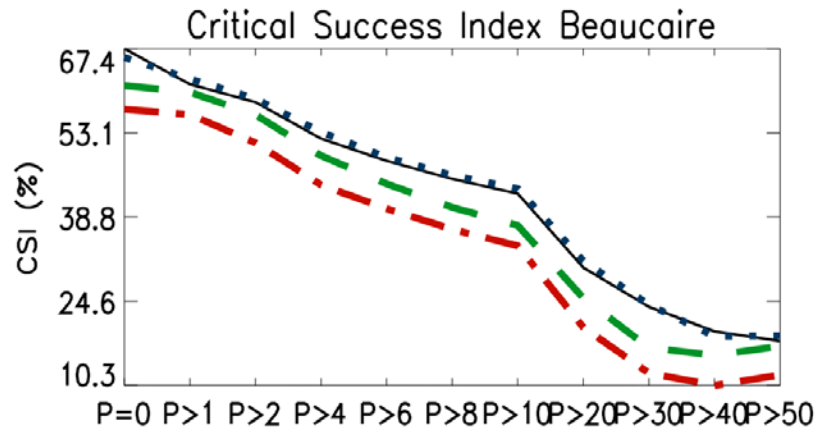
Comparison of the Accumulated annual precipitation observed (SIM) and forecasted (Aladin, Arpege)
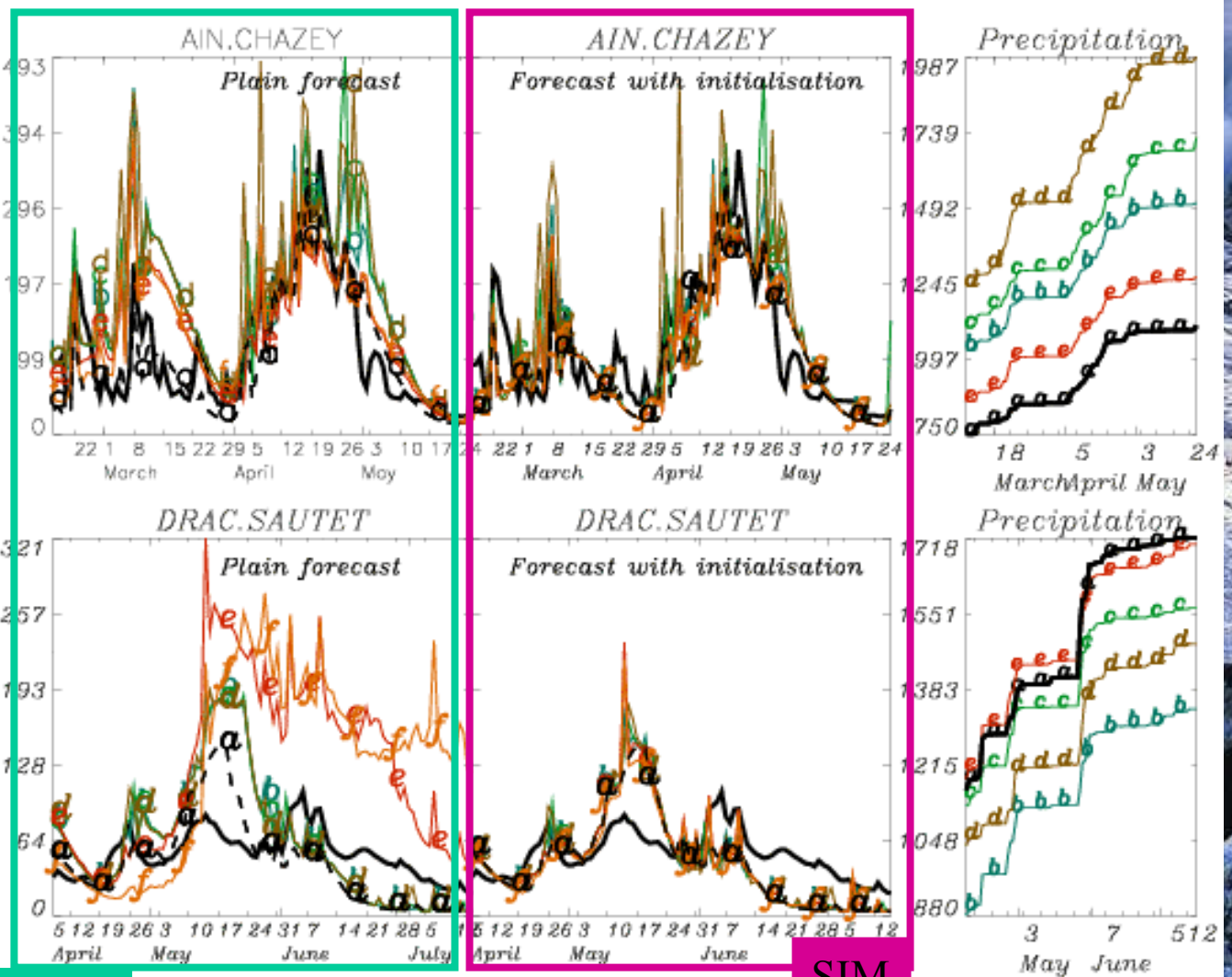
Precipitation forecast statistics

Forecasts
Without and With
Initialisation of the soil reservoirs

Guess

SIM

OBS
b ARPEGE D+1
e ALADIN D+1
f COMPLETE ALADIN D+1
a REFERENCE
c ARPEGE D+2
d ARPEGE D+3

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Average of the statistical results obtained over the 23 gauging stations

1 ARPEGE + Init

2 ARPEGE

3 ALADIN + Init

4 ALADIN

5 COMPLETE ALADIN + Init

6 COMPLETE ALADIN
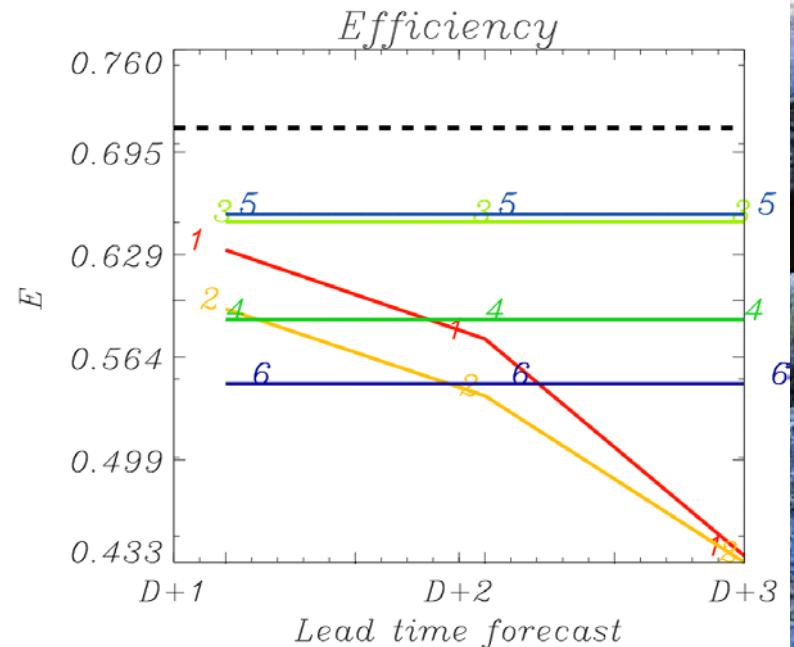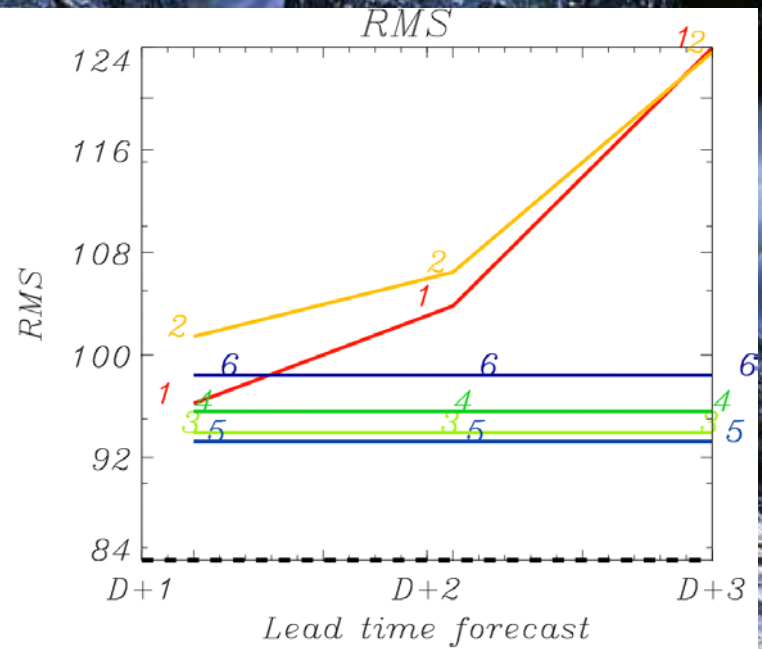
Relation between the error
on the forecasted precipitations
 and the error on the forecasted
riverflows over the 23 gages

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