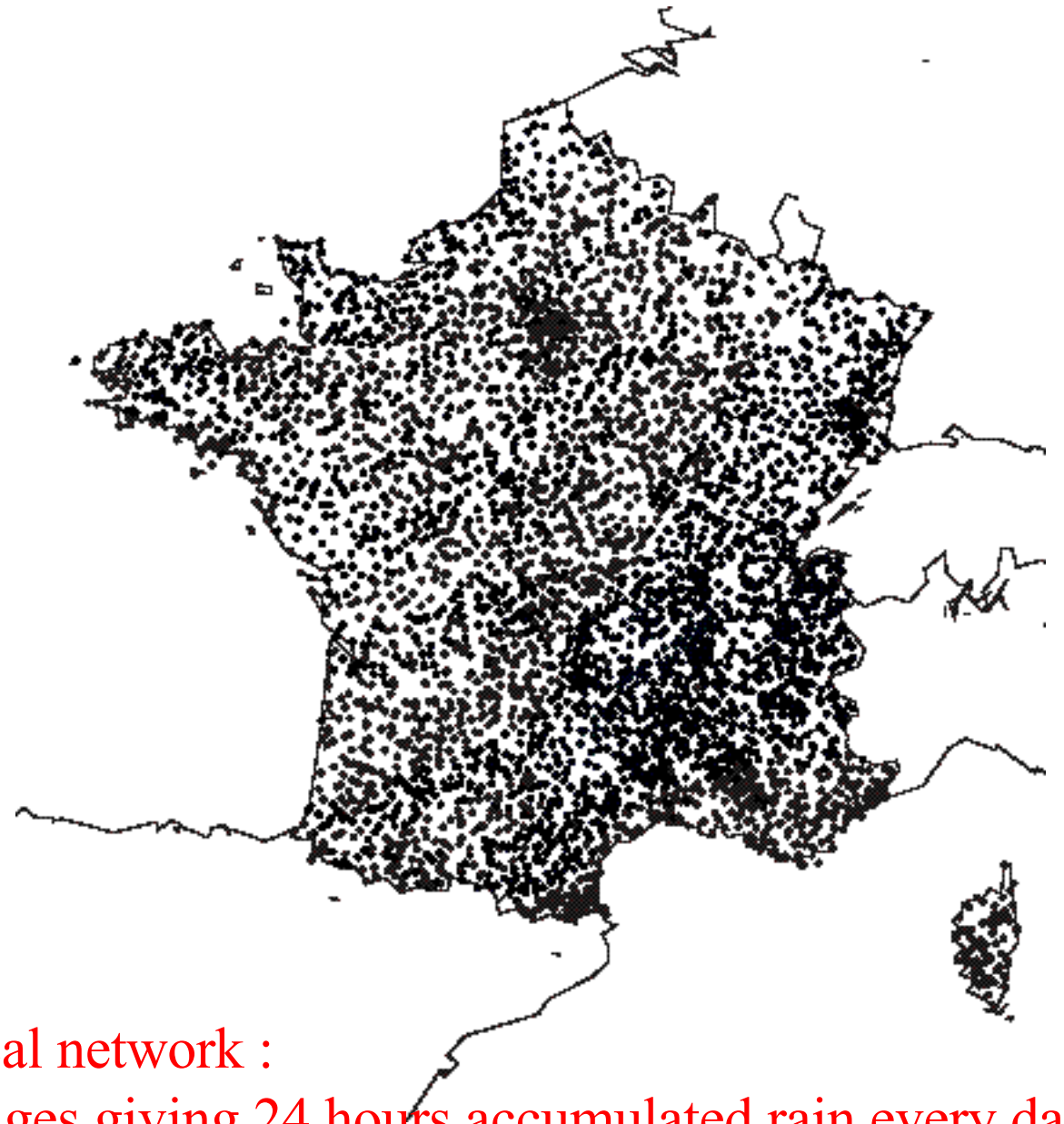
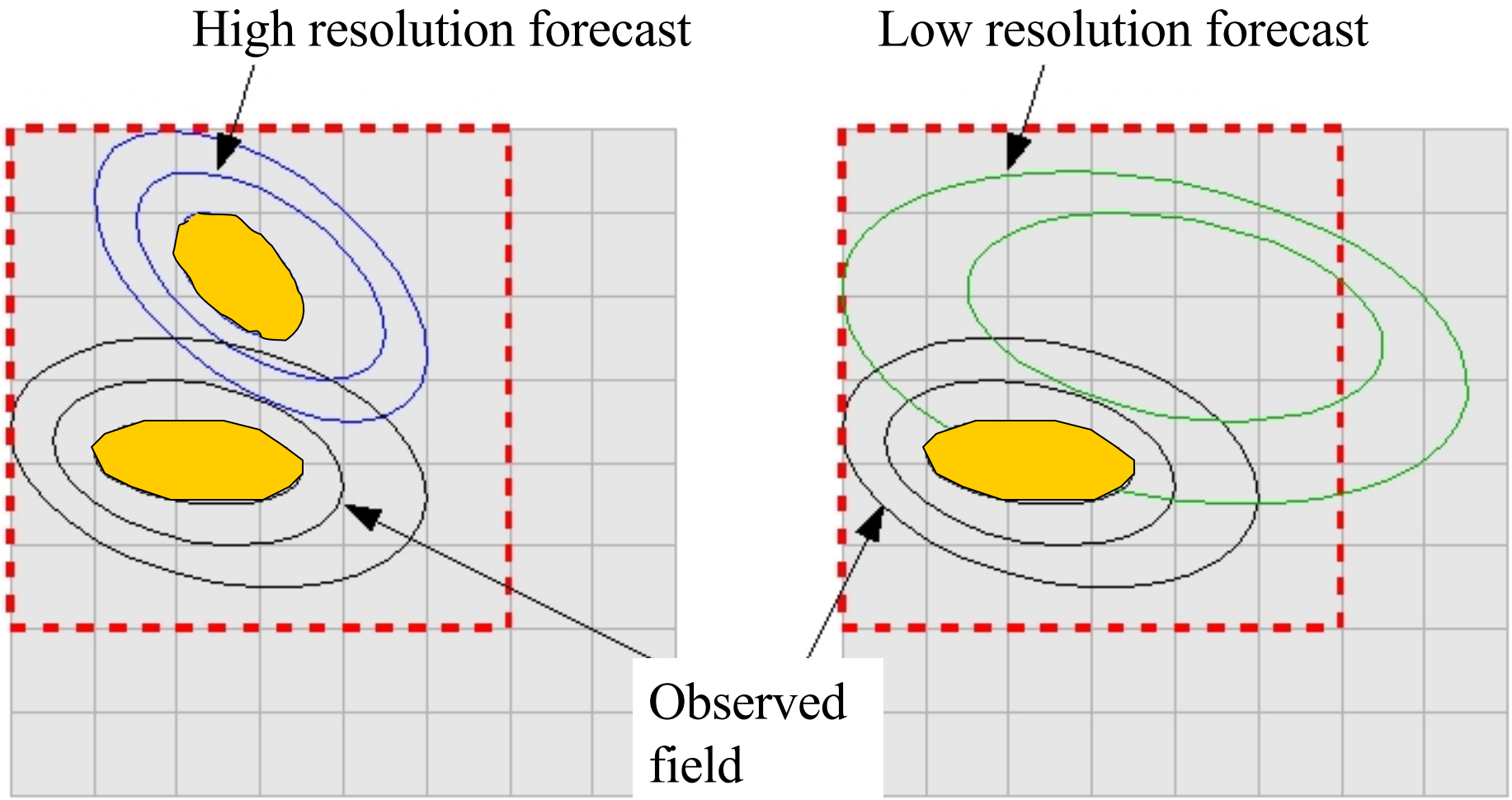


Climatological network :
4000 raingauges giving 24 hours accumulated rain every day

QPF verification

- Average the data at 0.2°x0.2°
- Average the models QPF at the same grid: ALADIN 0.1→ 0.2 or AROME 0.025→0.2
- Compute the classical and probabilistic scores:BIAS, HSS, BSS… and if their difference is significant

double-penalty and neighbourhood



Fuzzy approach

- Brier Score (BS): $BS = \frac{1}{n}\sum_{k=1}^{n}(pk - ok)^2$ with $BSperf = 0$

- Brier Skill Score(BSS): $BSS = 1 - \frac{BS}{BSref}$

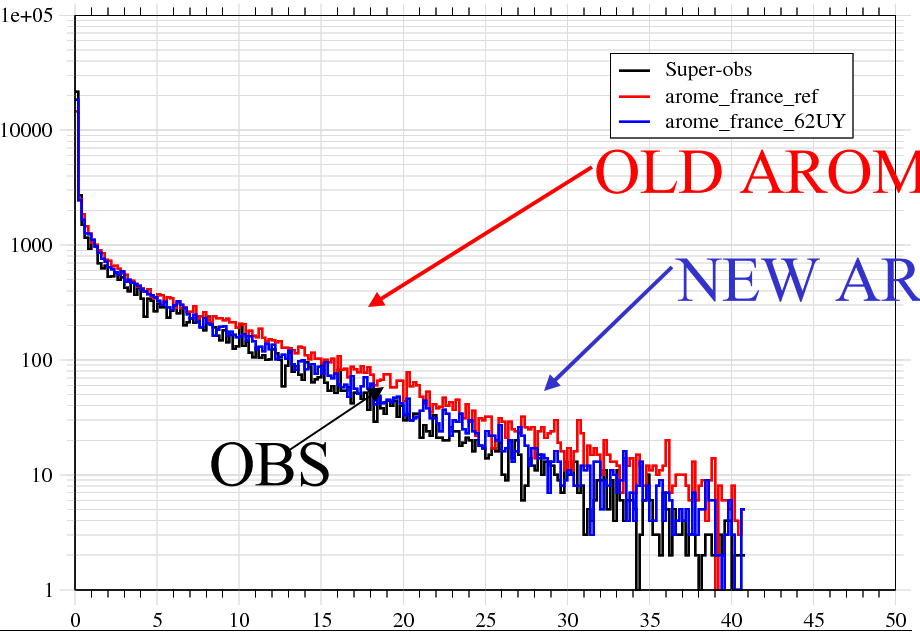
- 2 interesting limits :

  1- Neighbourhood size = 0 : $BSS \xrightarrow[v \to 0]{} HSS$

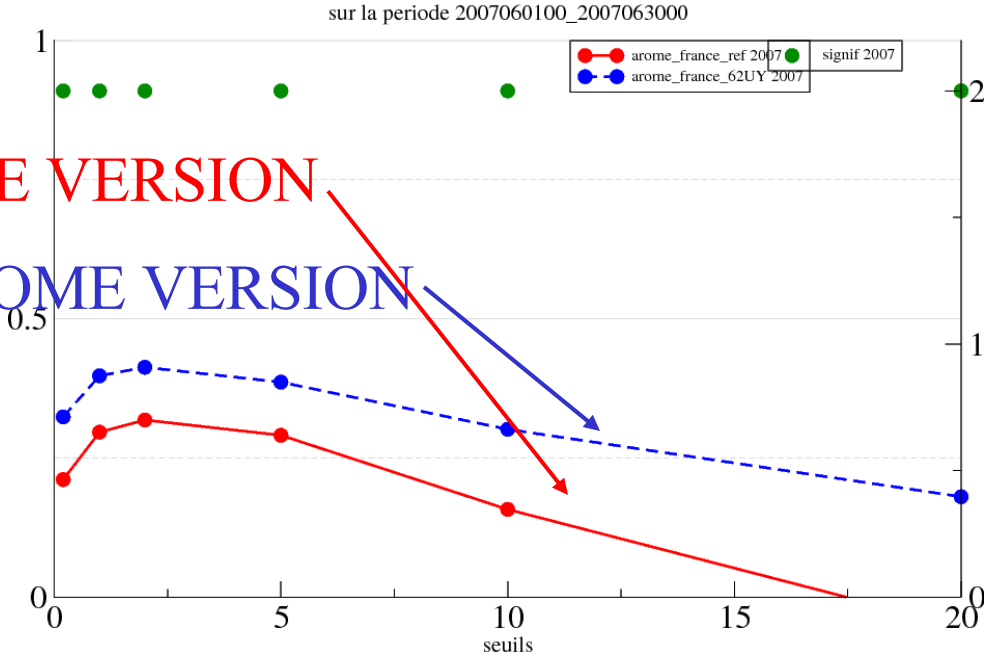
  2- Neighbourhood = simulation domain $BS \xrightarrow[v \to L]{} \frac{1}{n}\sum_{j=1}^{n}\alpha(j) \times (1 - BIAS(j))^2$

QPF verification during June 2007

Rain histogram every 0.2 mm



Heidke skill score against persistence

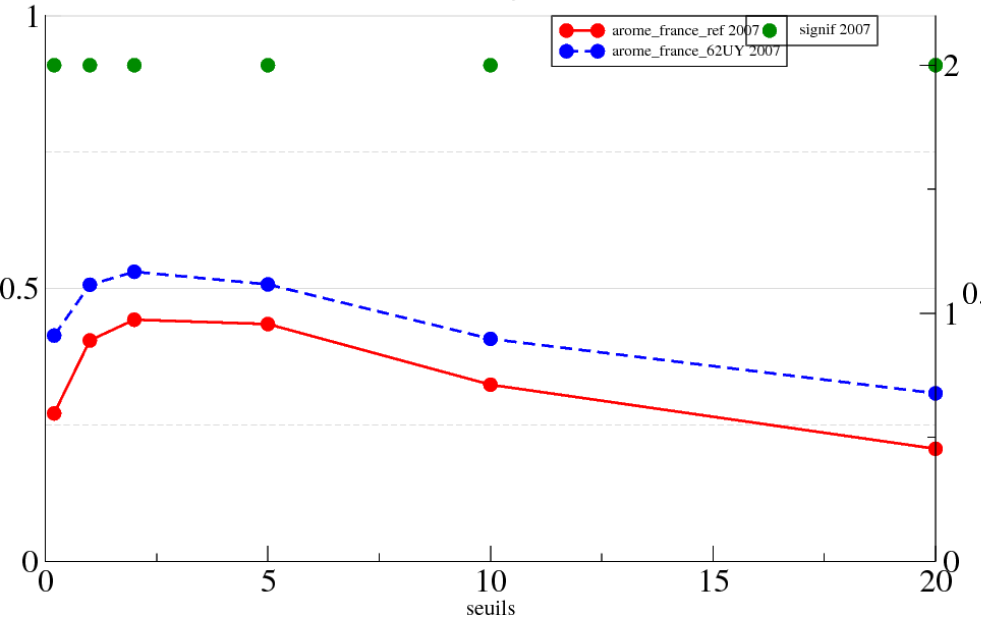


QPF verification during June 2007

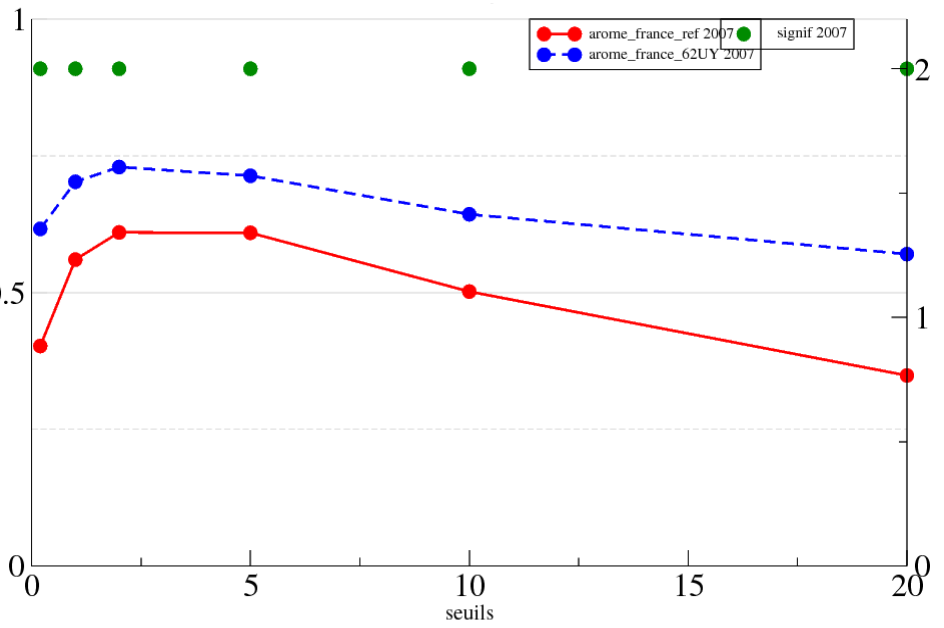
OLD AROME VERSION

NEW AROME VERSION

Brier skill score (SO) against persistence



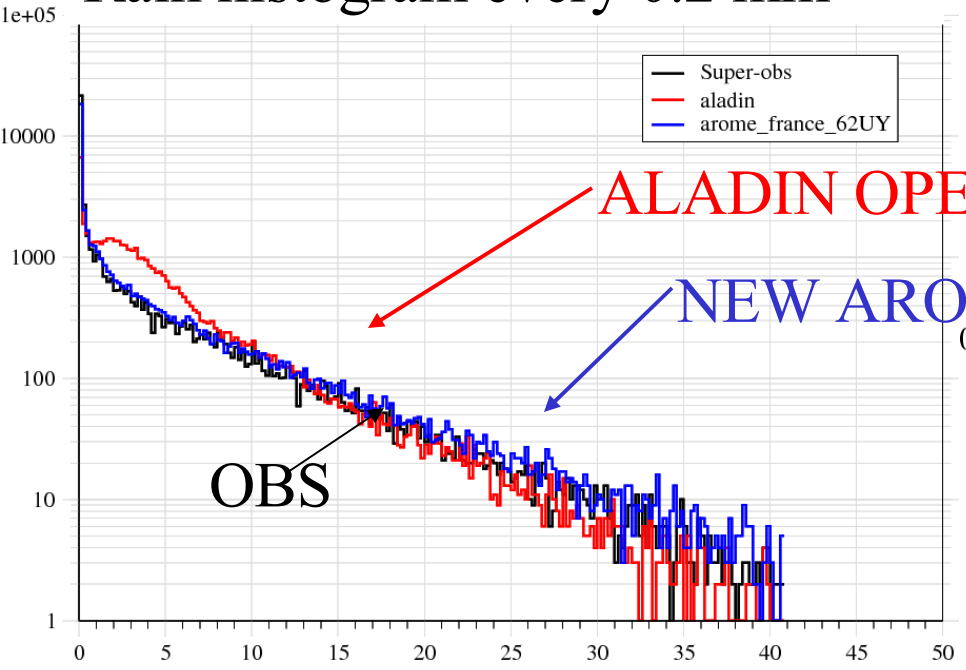
Brier skill score (NO) against persistence



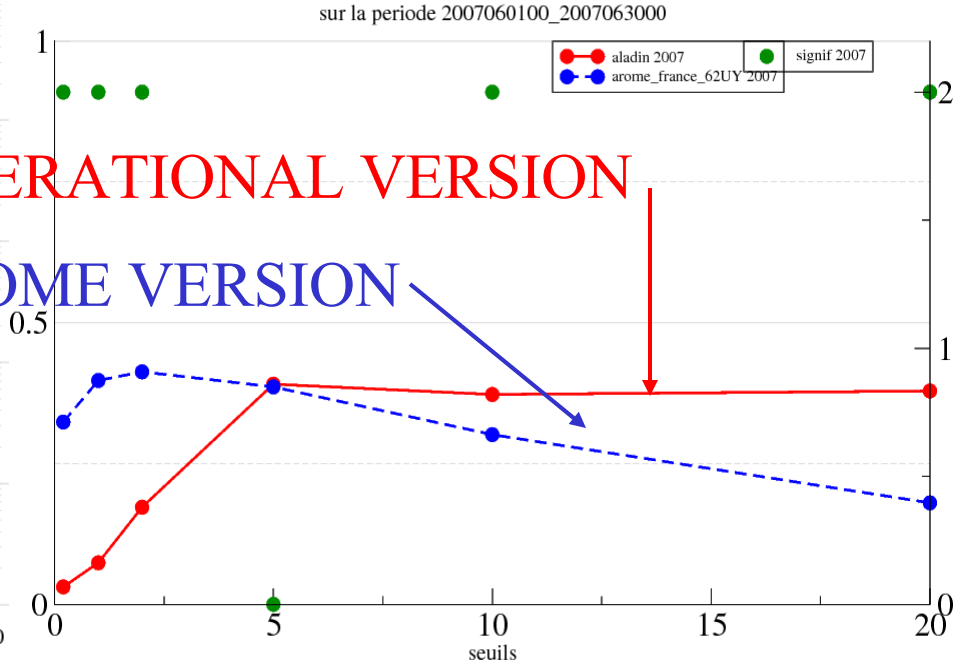
The size of the neighbourhood is 130 km

QPF verification during June 2007

Rain histogram every 0.2 mm



Heidke skill score against persistence

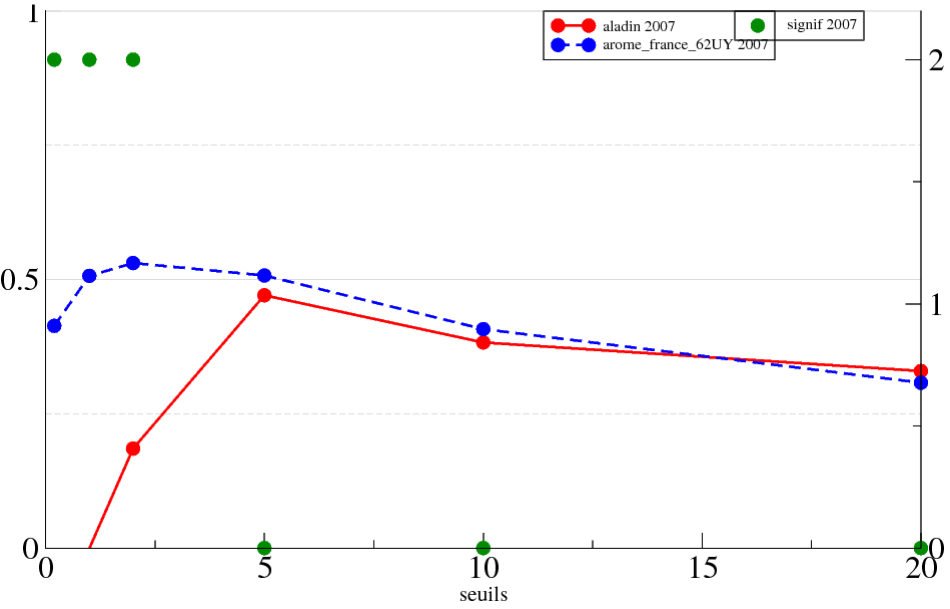


QPF verification during June 2007

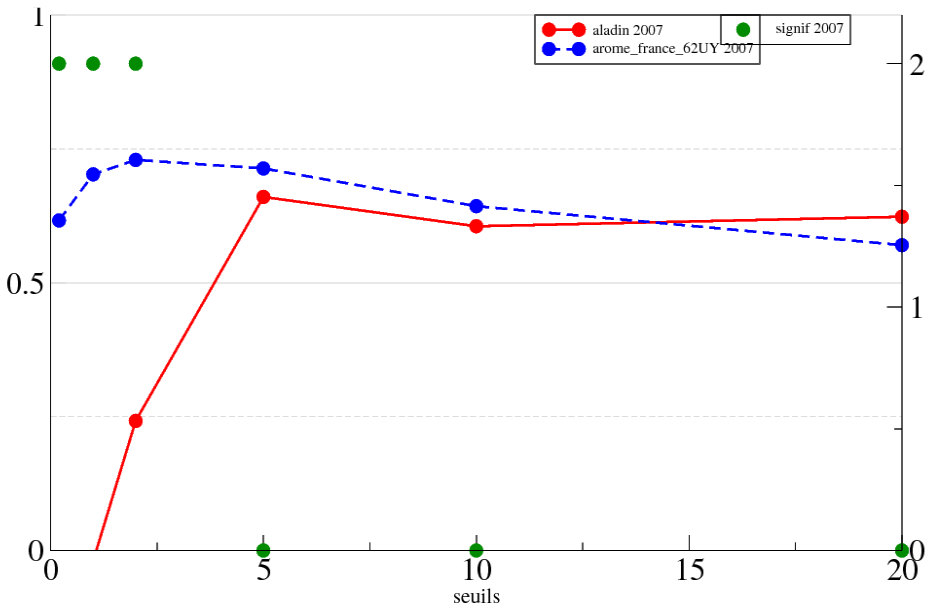
ALADIN OPERATIONAL VERSION

NEW AROME VERSION

Brier skill score (SO) against persistence



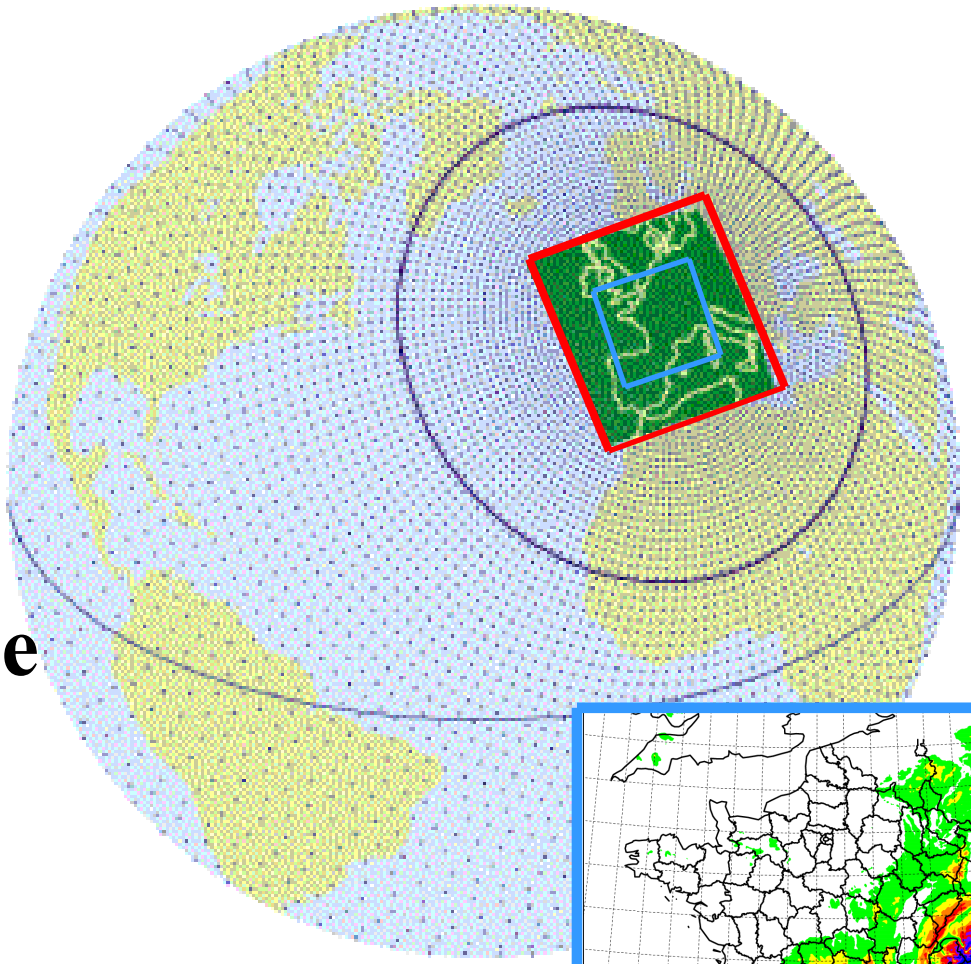
Brier skill score (NO) against persistence



The size of the neighbourhood is 130 km

Verification

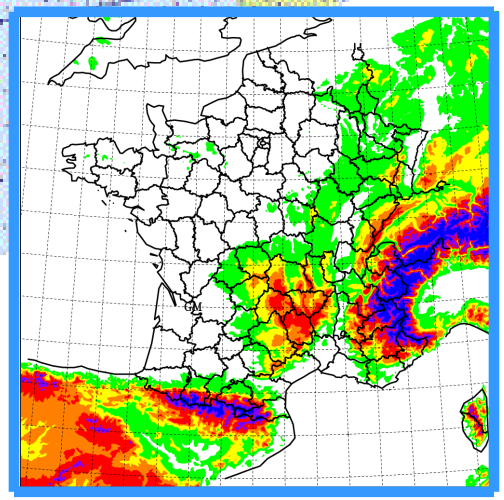
- **3 data types :**
  - **ALADIN-FRANCE**
  - **AROME**
  - SEVIRI METEOSAT 9



- **Time interval for the verification** :

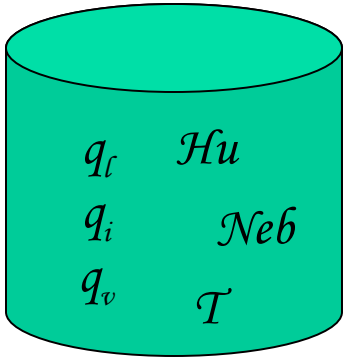
  6 hours

verification domain is the AROME domain with 0.1 ° grid



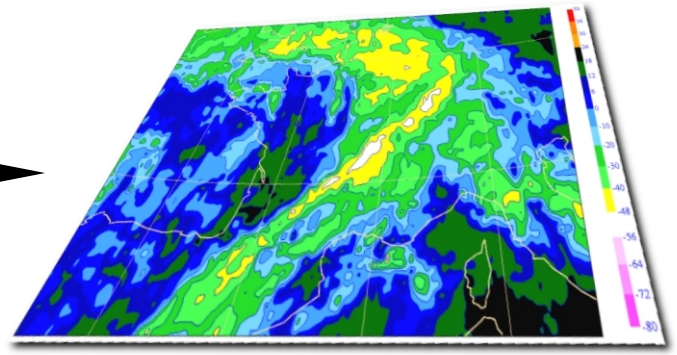
Simulated satellite images

Output of the model forecasts



RTTOV

SSI

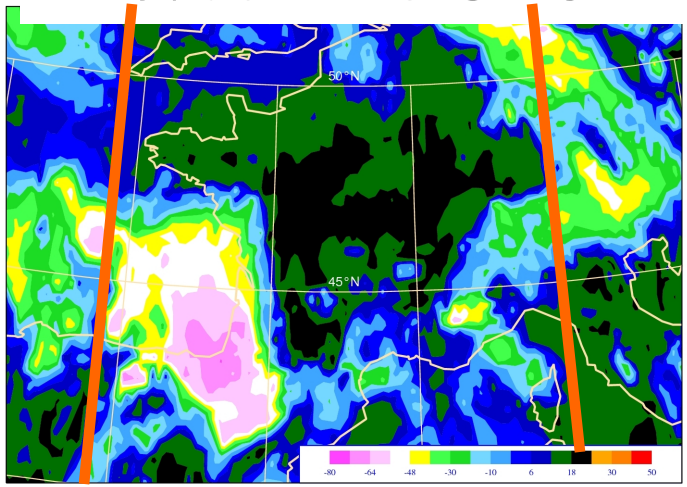


Infrared images 10.8 micrometers

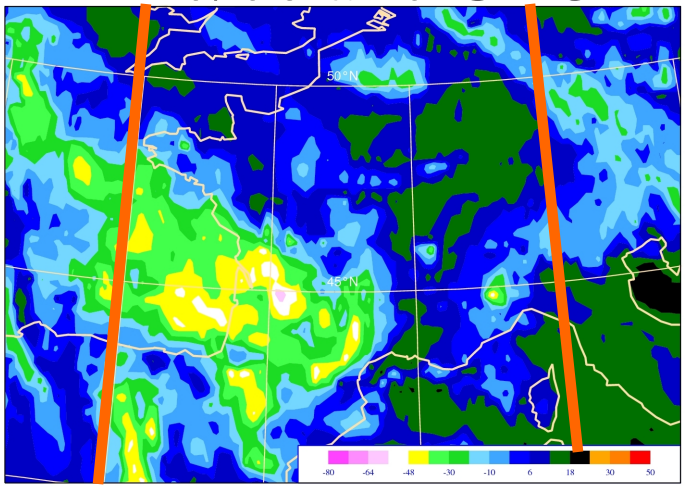
10,8 micrometers

9 june 2007 : SSI AROME

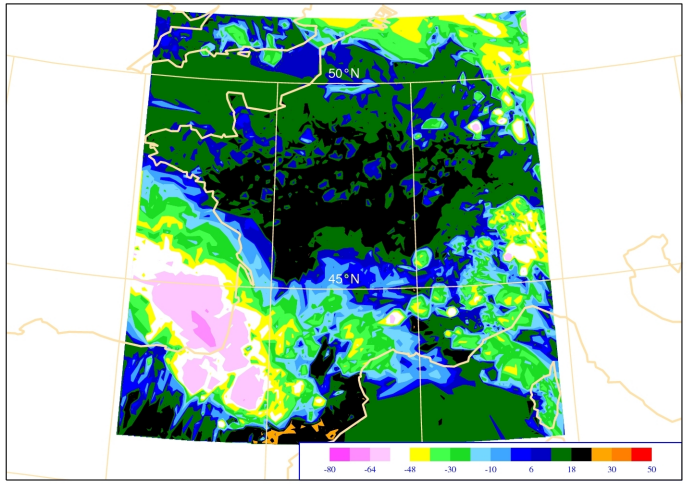
9/06 at 18 UTC

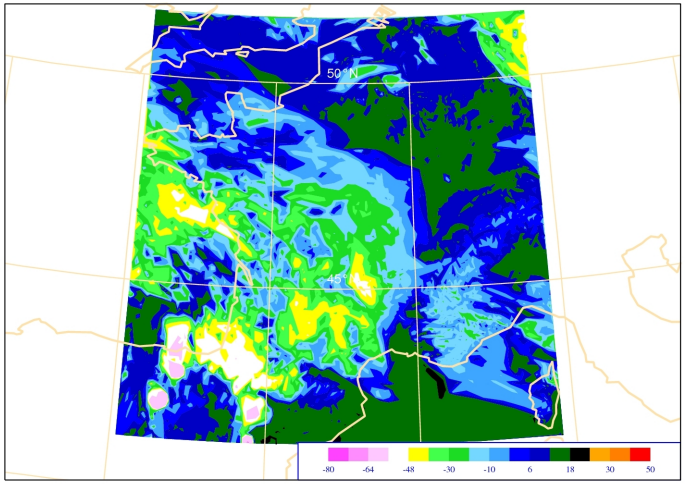


10/06 at 0 UTC



Observation



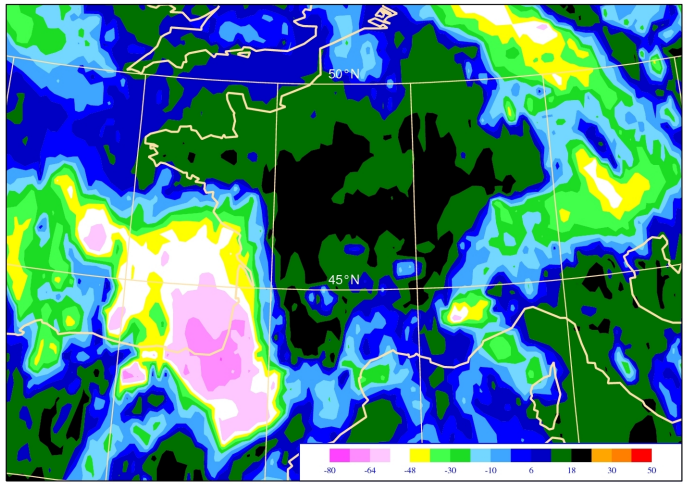


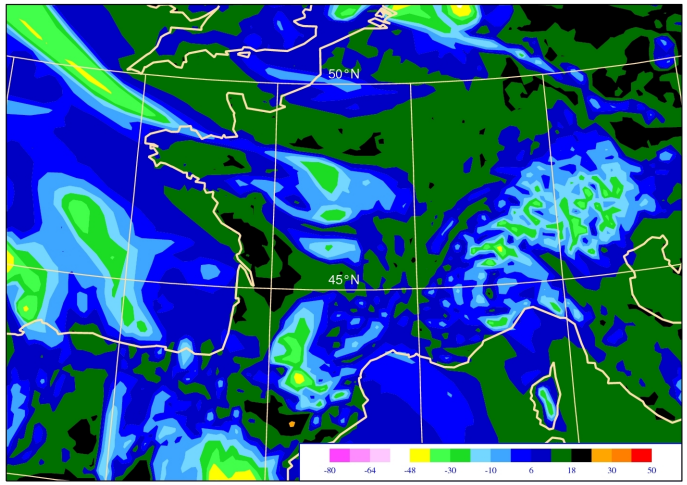
AROME

10,8 micrometers

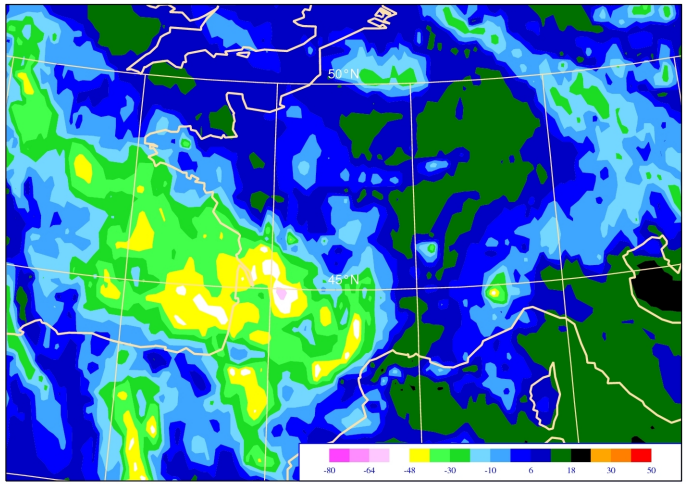
9 june 2007 : SSI ALADIN

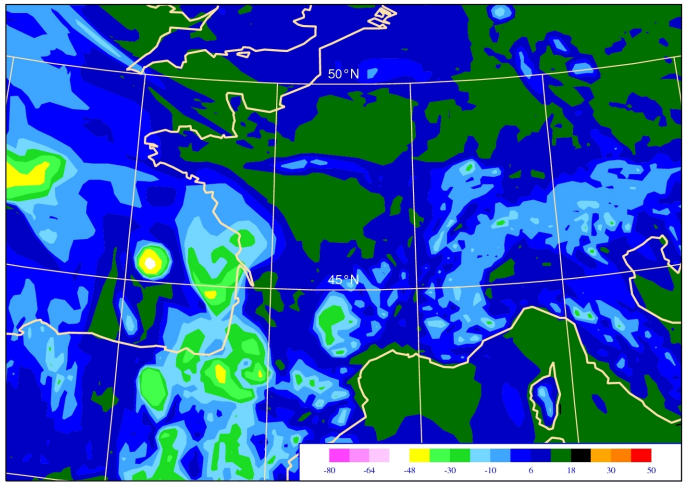
9/06 at 18 UTC





10/06 at 0 UTC



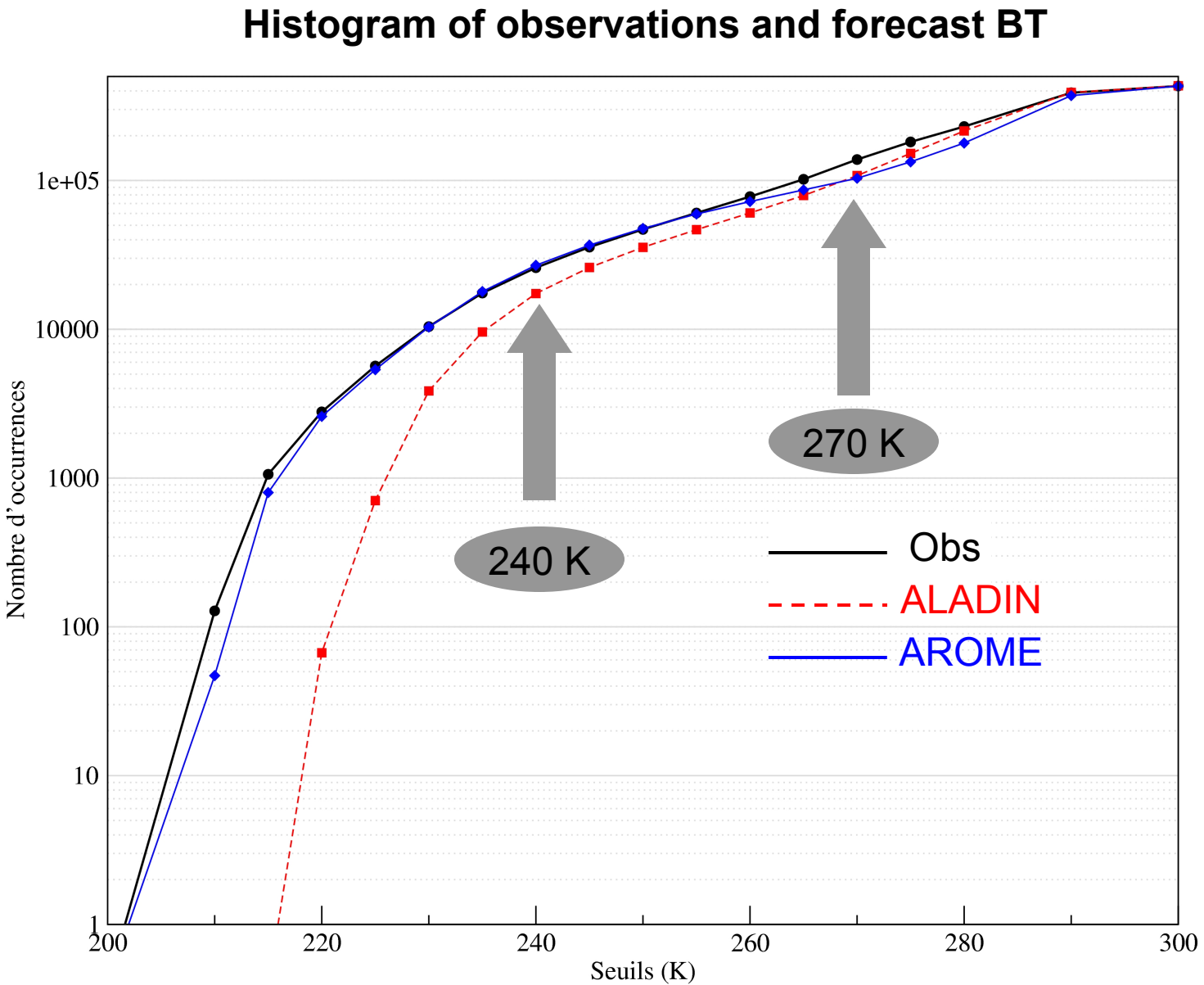


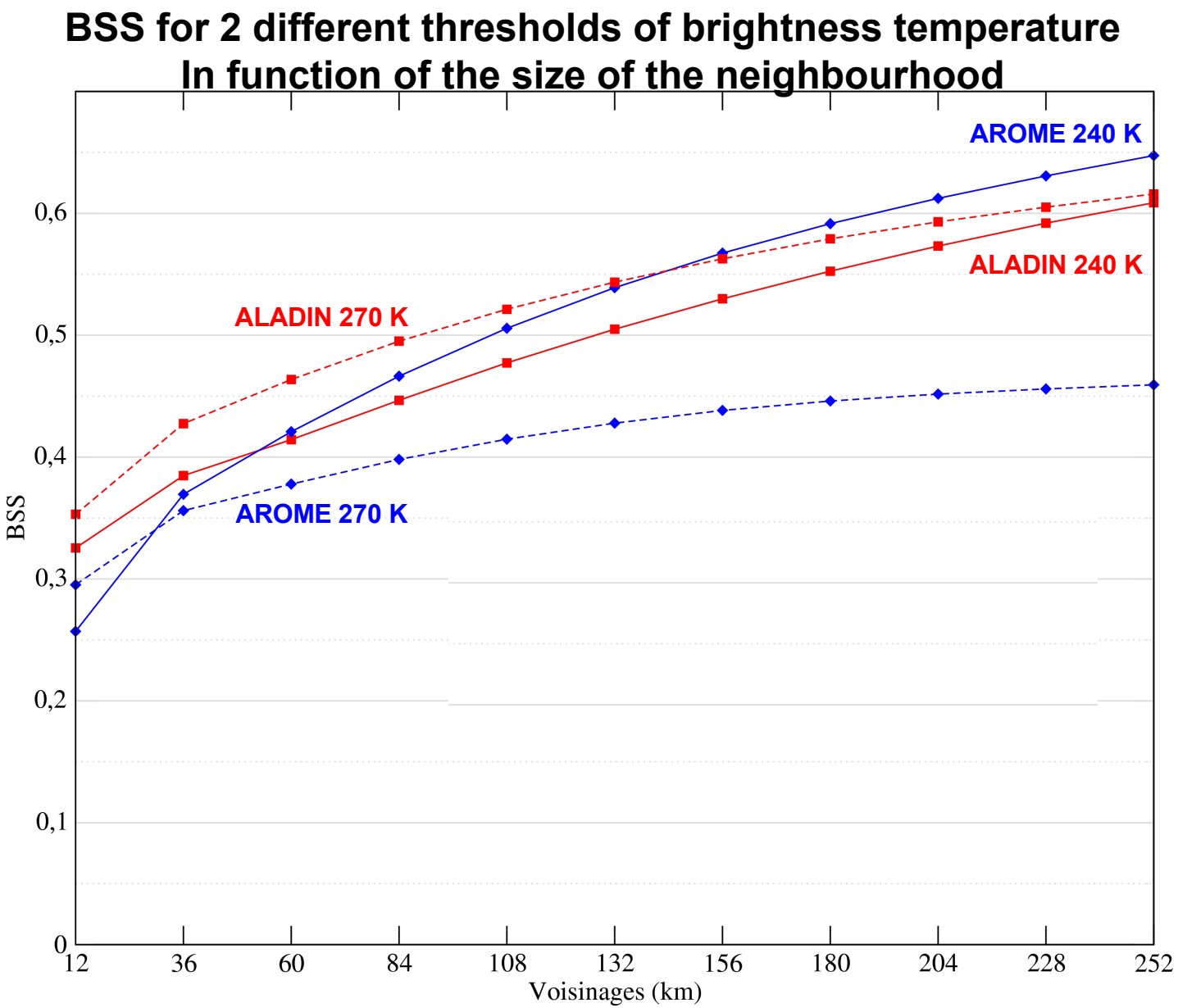
Observation

ALADIN

10,8 micrometers

Verification during June 2007




BSS for 2 different thresholds of brightness temperature
In function of the size of the neighbourhood
AROME 240 K
ALADIN 240 K
ALADIN 270 K
AROME 270 K
BSS
0
0,1
0,2
0,3
0,4
0,5
0,6
12
36
60
84
108
132
156
180
204
228
252
Voisinages (km)

Operational verification

TEMPERATURE CORR. AROMEoper (PAROME) vs Aladin (PLAD1)

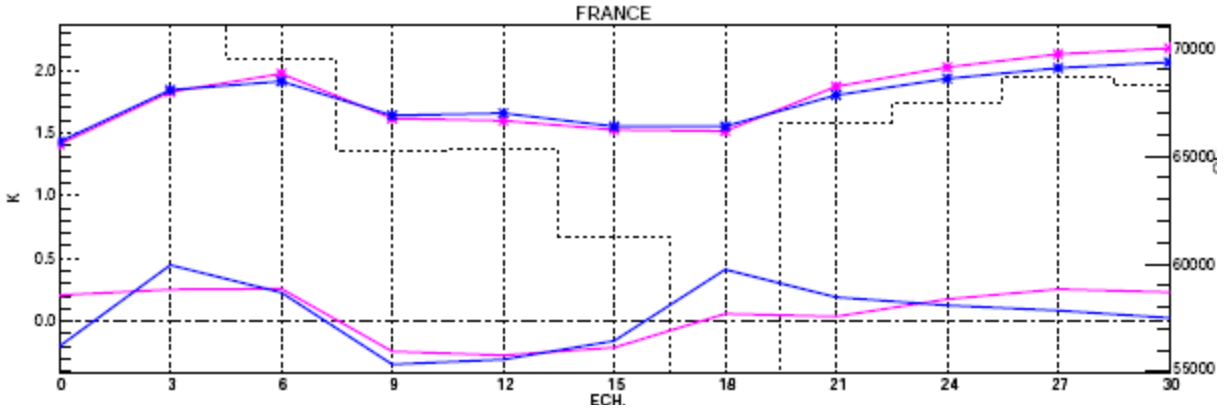
57 cas, 22/09/2008_00UTC -> 22/11/2008_12UTC

Biais PLAD1.r 0/SYNOP

Eqm PLAD1.r 0/SYNOP

Biais PAROME.r 0/S

Eqm PAROME.r 0/S



Operational verification

HUMIDITE AROMEoper (PAROME) vs Aladin (PLAD1)

57 cas, 22/09/2008_00UTC -> 22/11/2008_12UTC