



MAR (Modèle Atmosphérique Régional)

Modèle à aire limitée

Microphysique nuageuse pronostique

(q_w , q_i , q_s , q_r)

(pas de lessivage des aérosols)

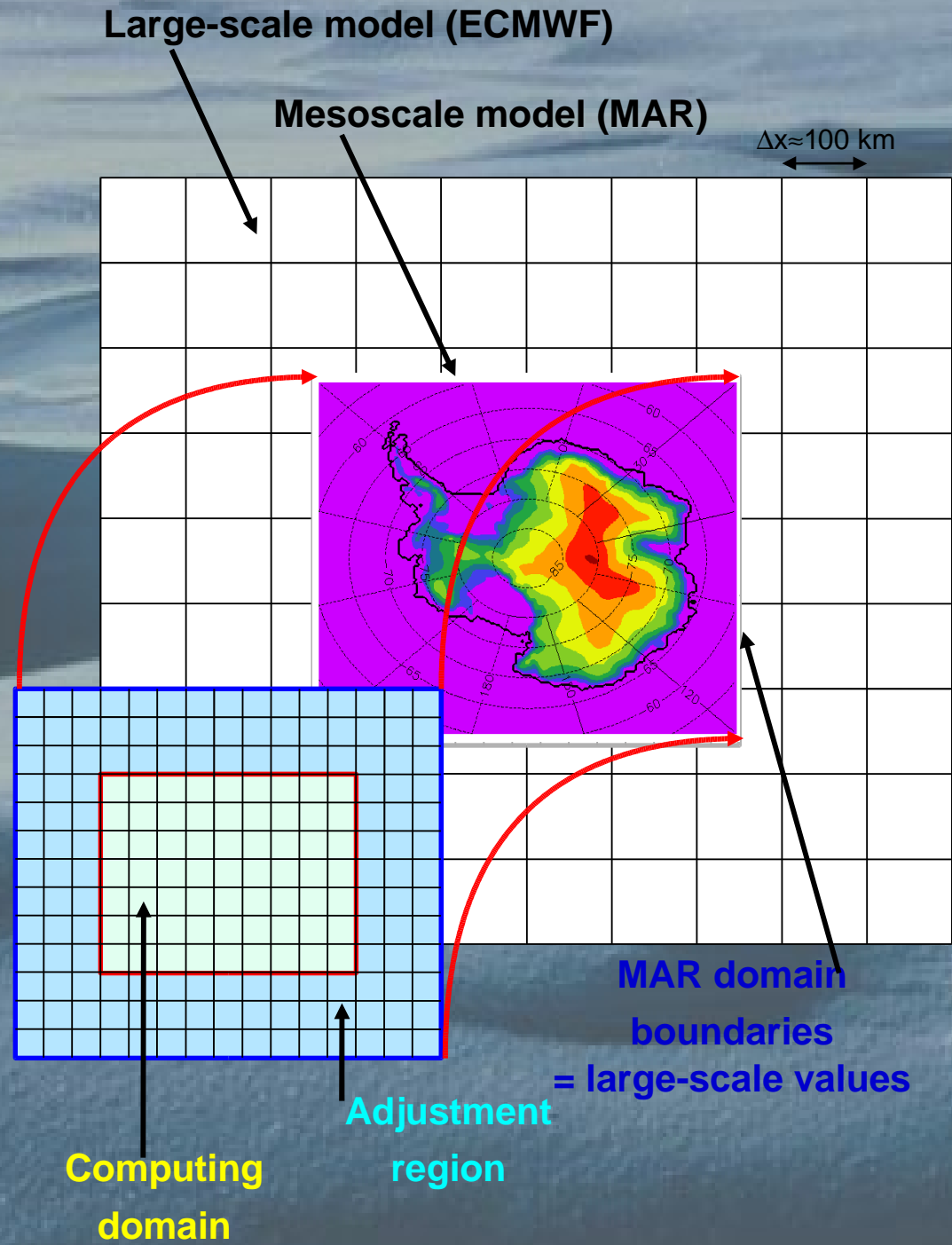
Paramétrisation de la convection

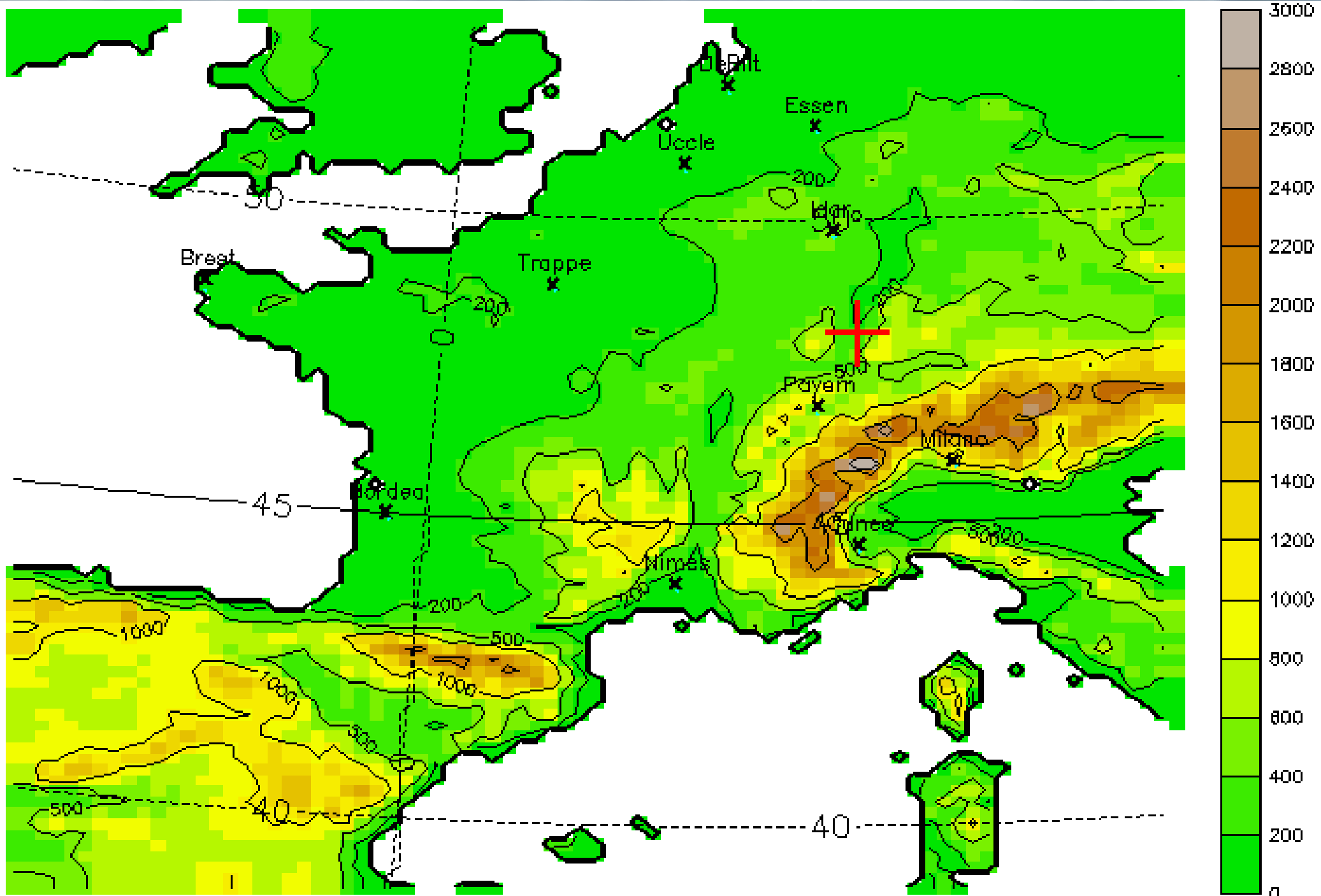
(flux de masse)

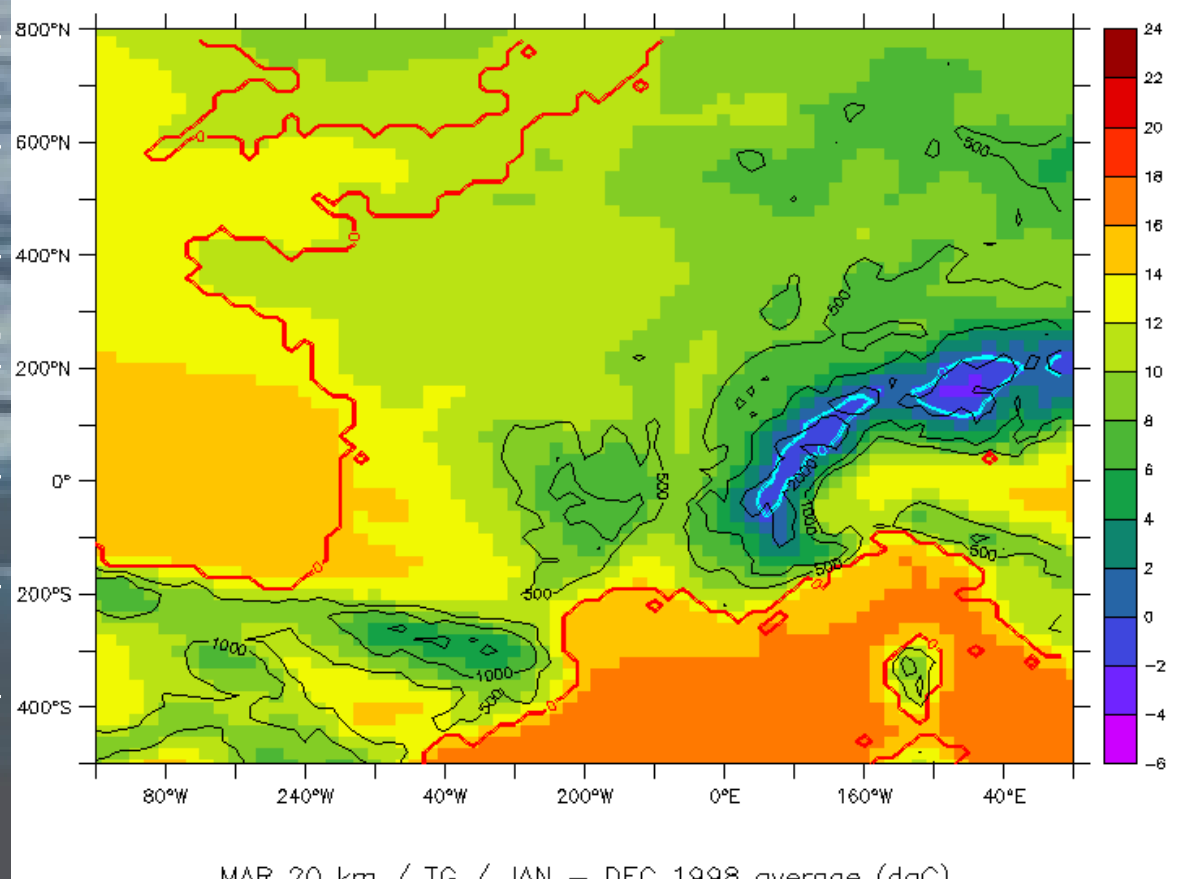
Transport des aérosols: advection, diffusion turbulente, interaction avec la surface (dépôt)

Couplé à un modèle de neige de classe CROCUS

IMBRICATION : MAR dans ECMWF

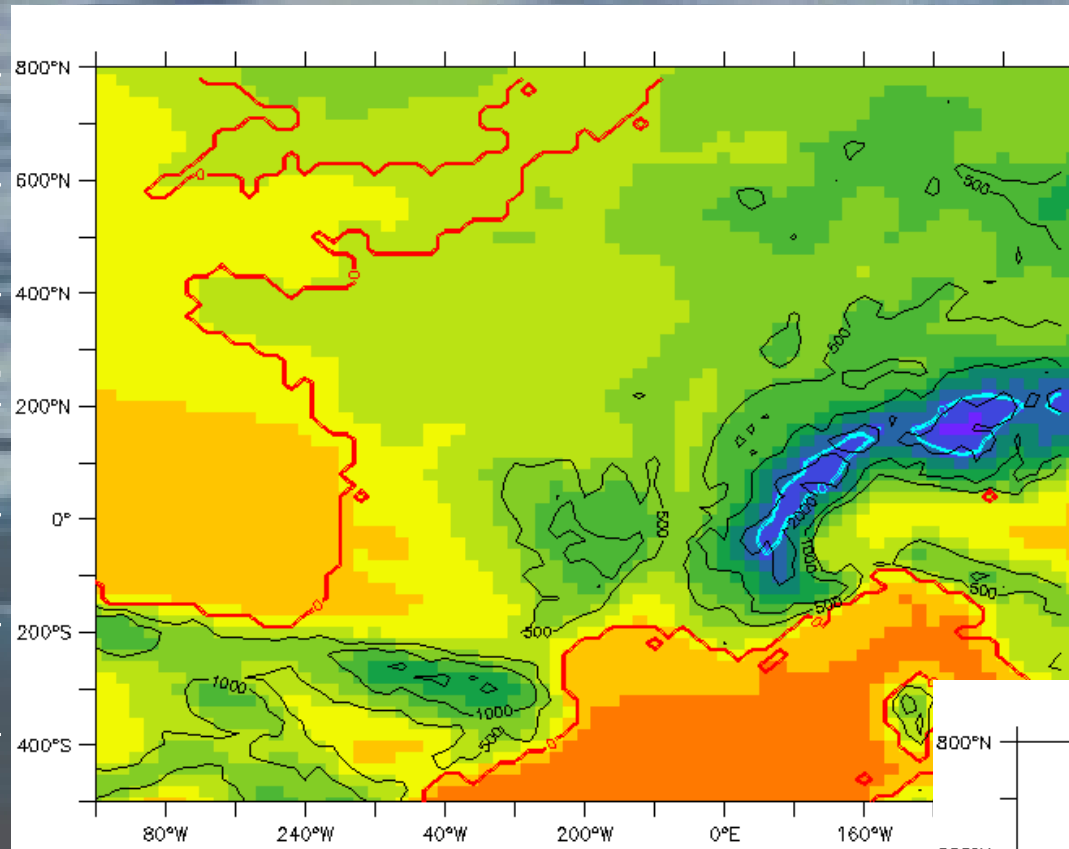






MAR

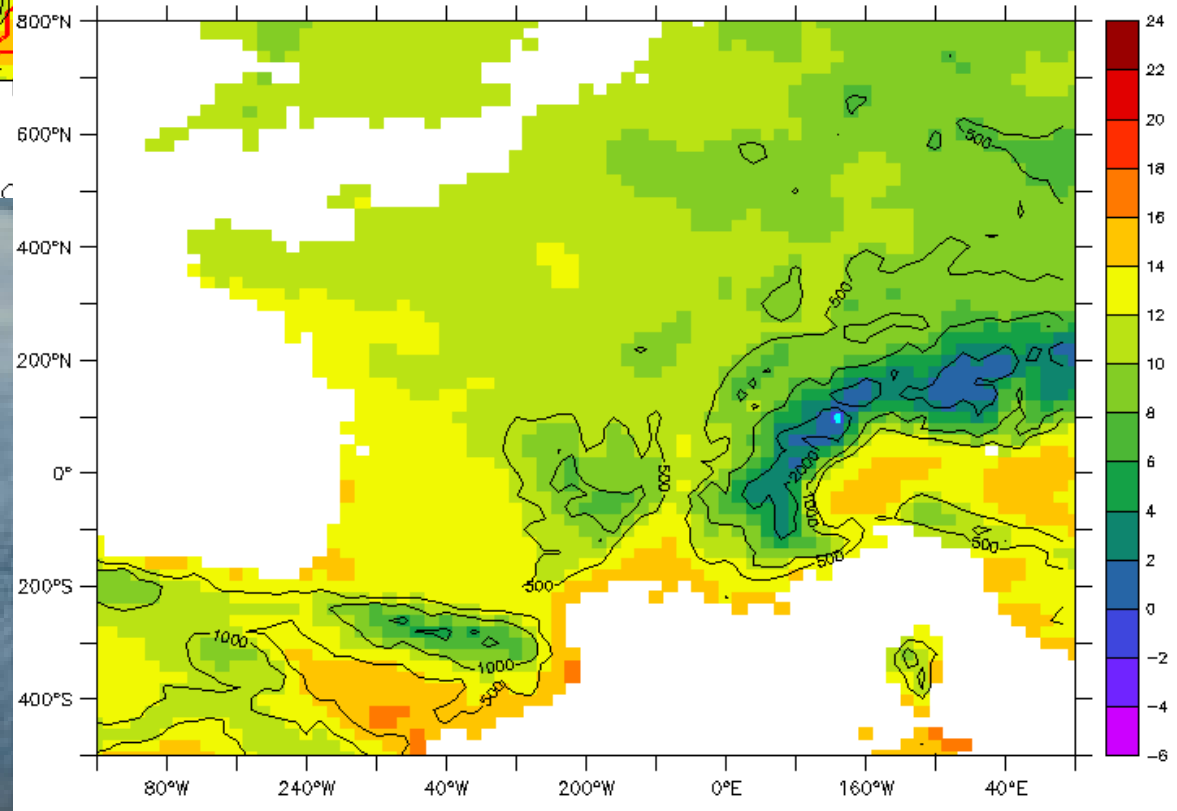
Température
moyenne annuelle



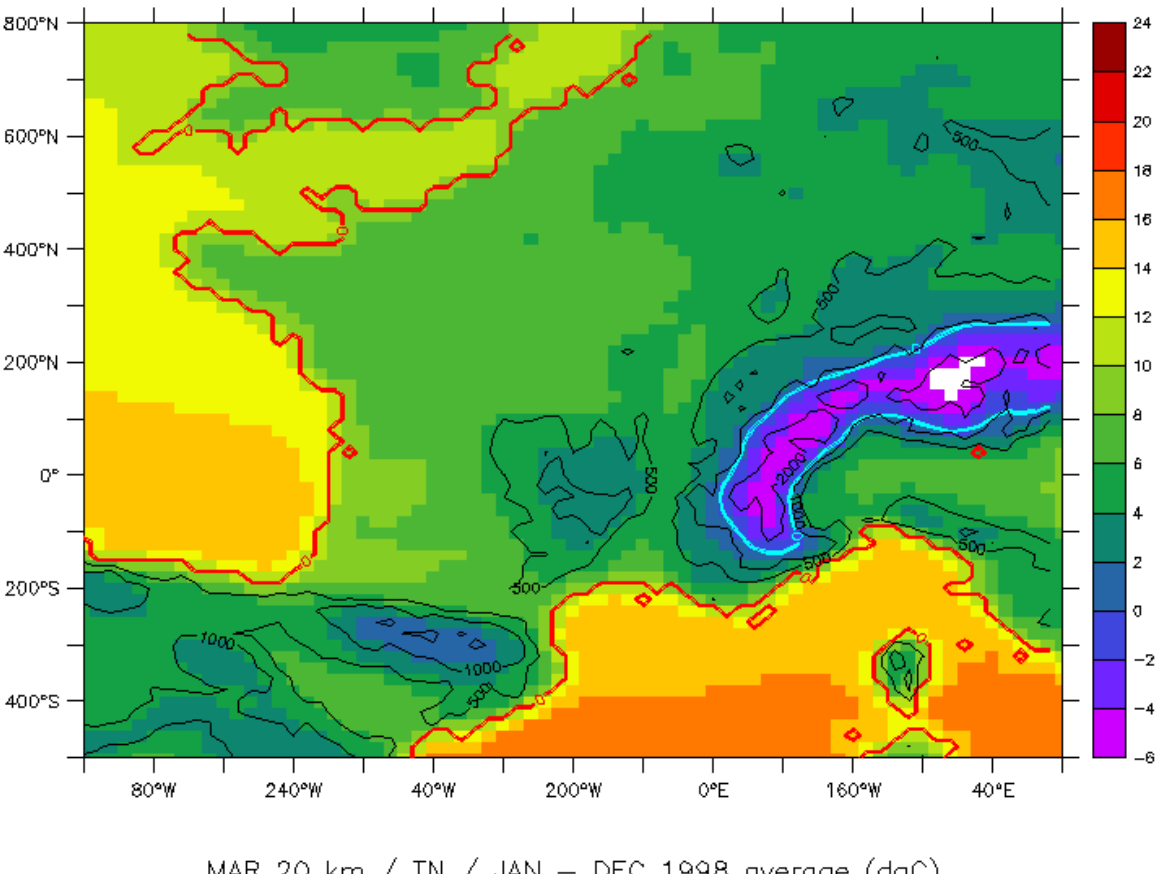
ECA&D

MAR 20 km / TG / JAN - DEC 1998 average (daC)

MAR
 Température
 moyenne annuelle

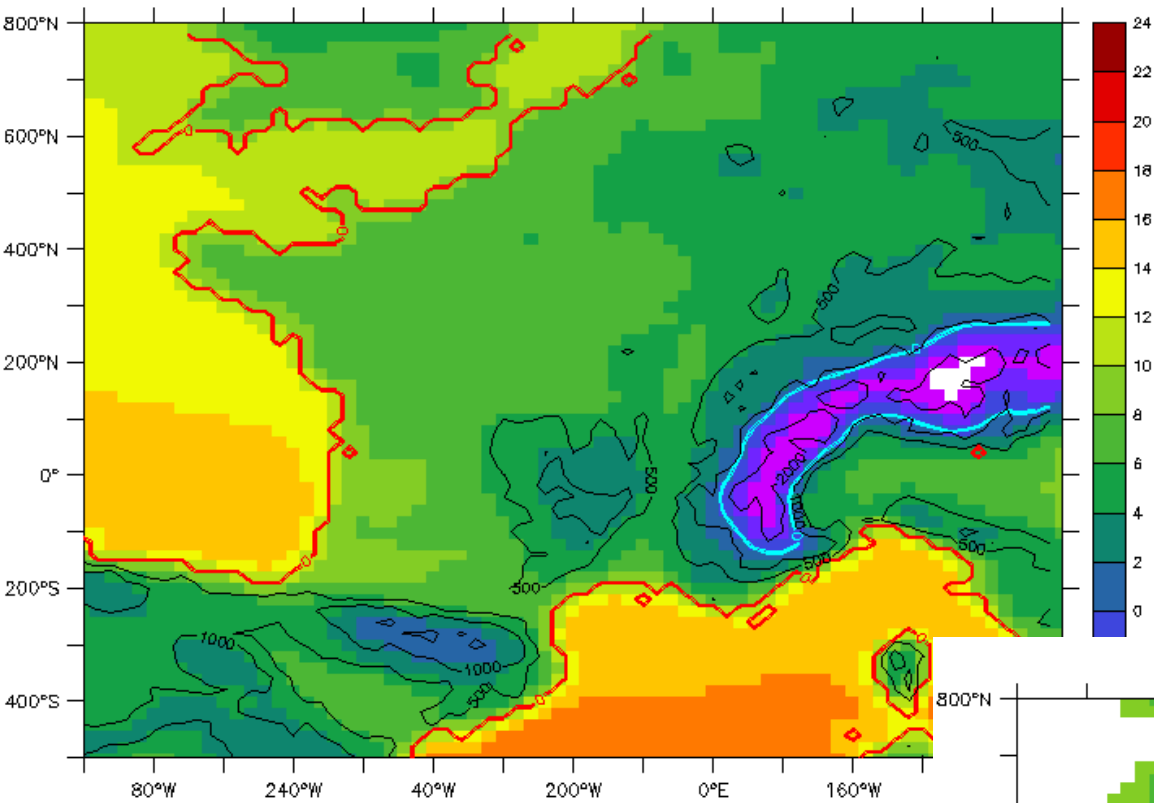


ECA&D 20 km / TG / JAN - DEC 1998 average (daC)

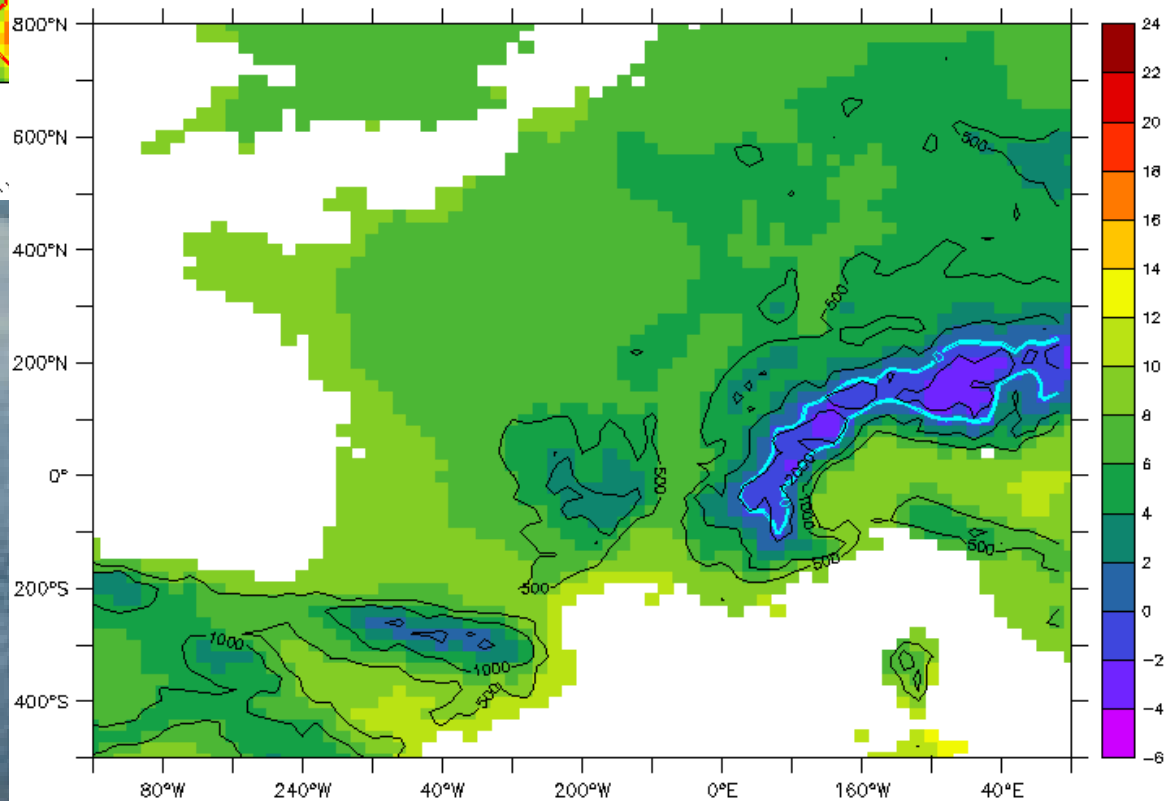


MAR

Température MIN
moyenne annuelle



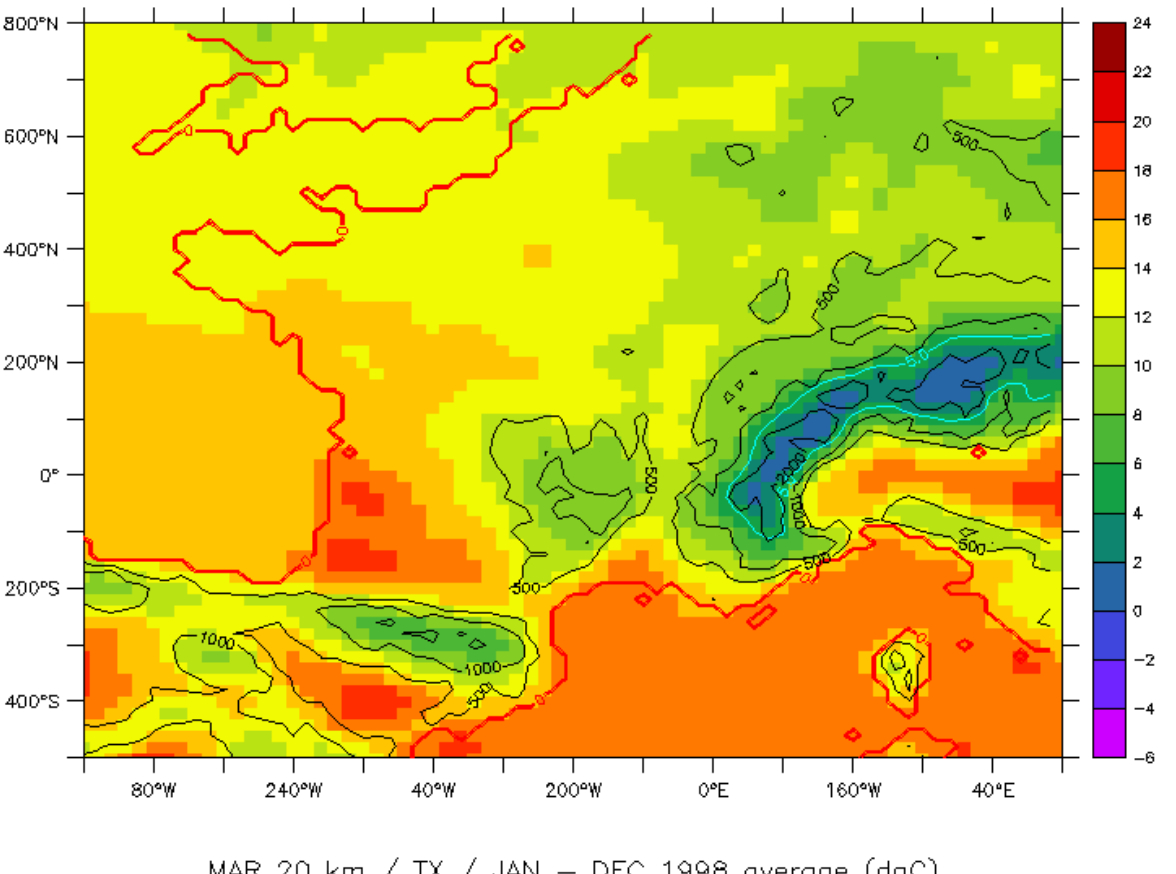
MAR 20 km / TN / JAN - DEC 1998 average (daC)



ECA&D 20 km / TN / JAN - DEC 1998 average (daC)

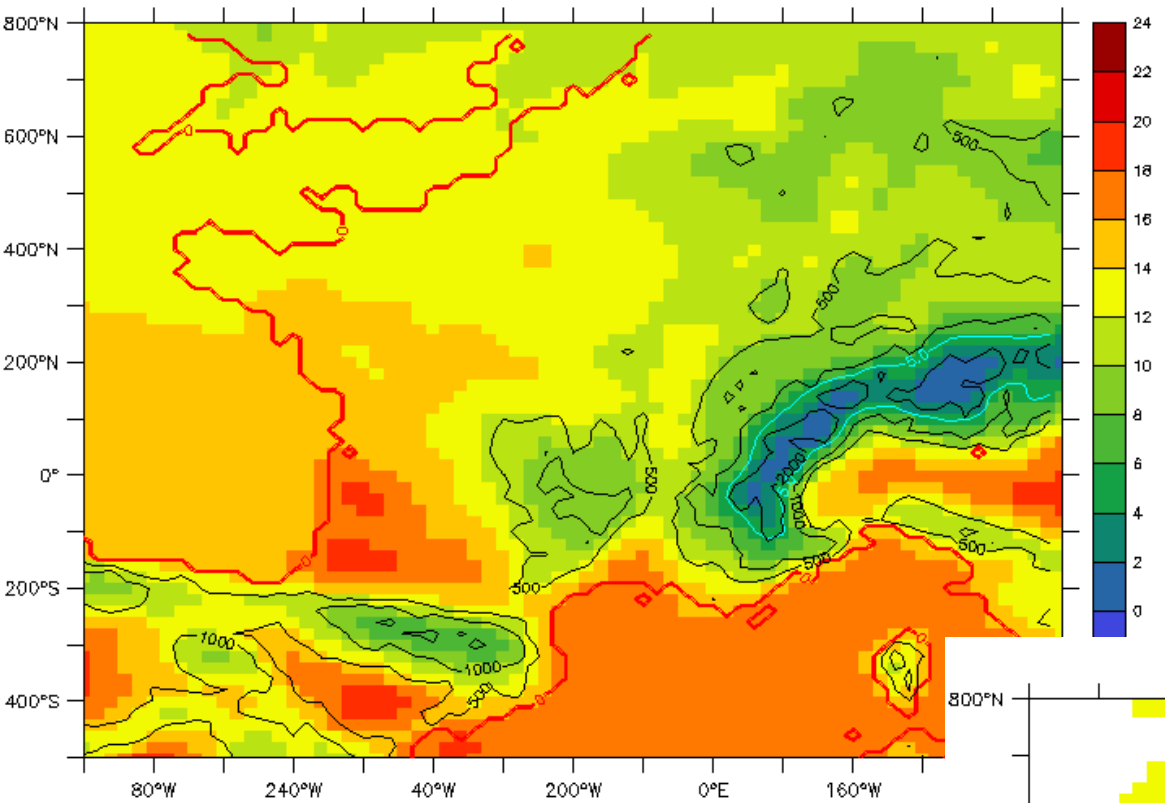
MAR

Température MIN
moyenne annuelle



MAR

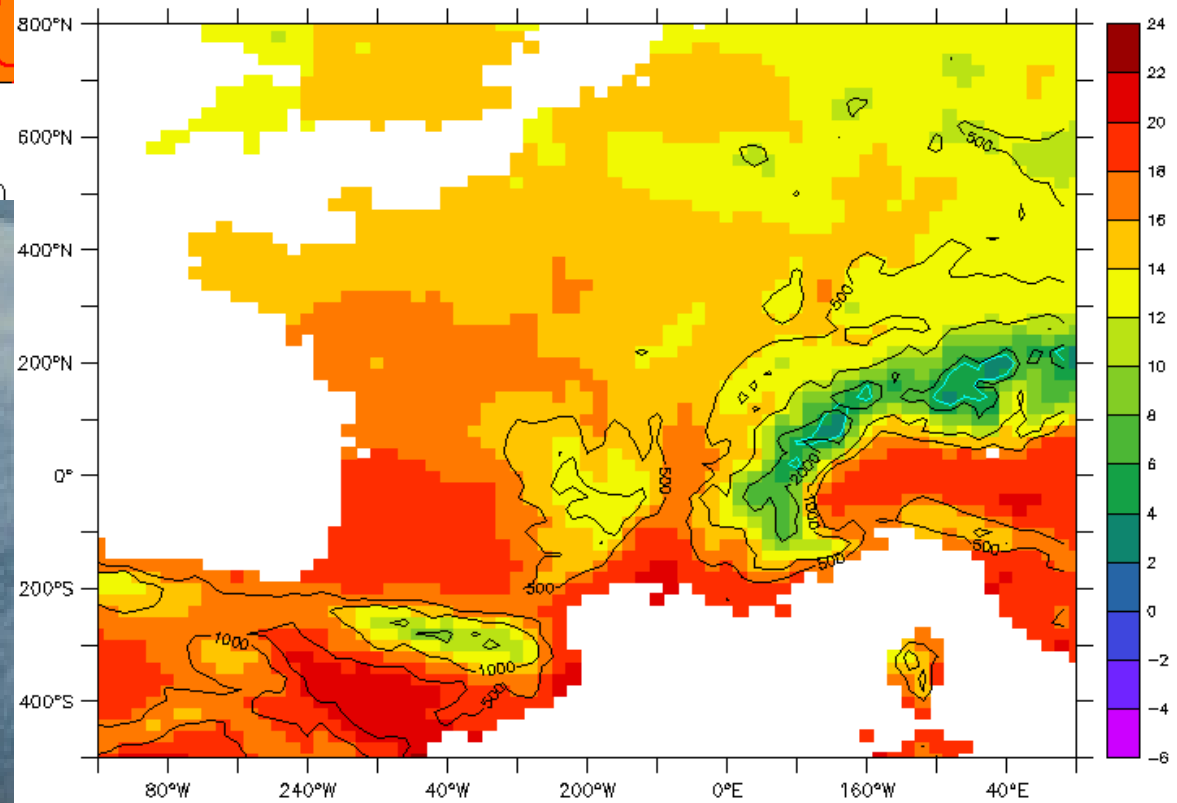
Température MAX
moyenne annuelle



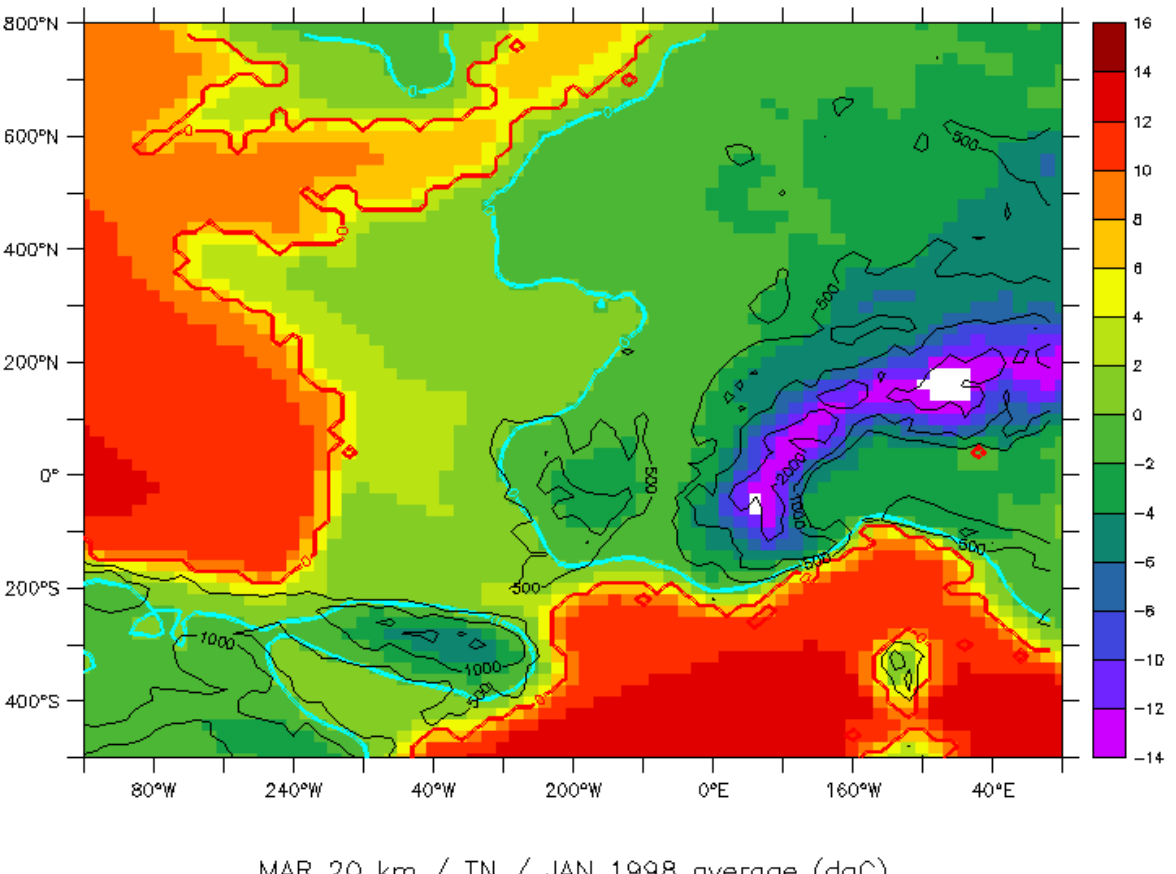
ECA&D

MAR 20 km / TX / JAN - DEC 1998 average (daC)

MAR
 Température MAX
 moyenne annuelle



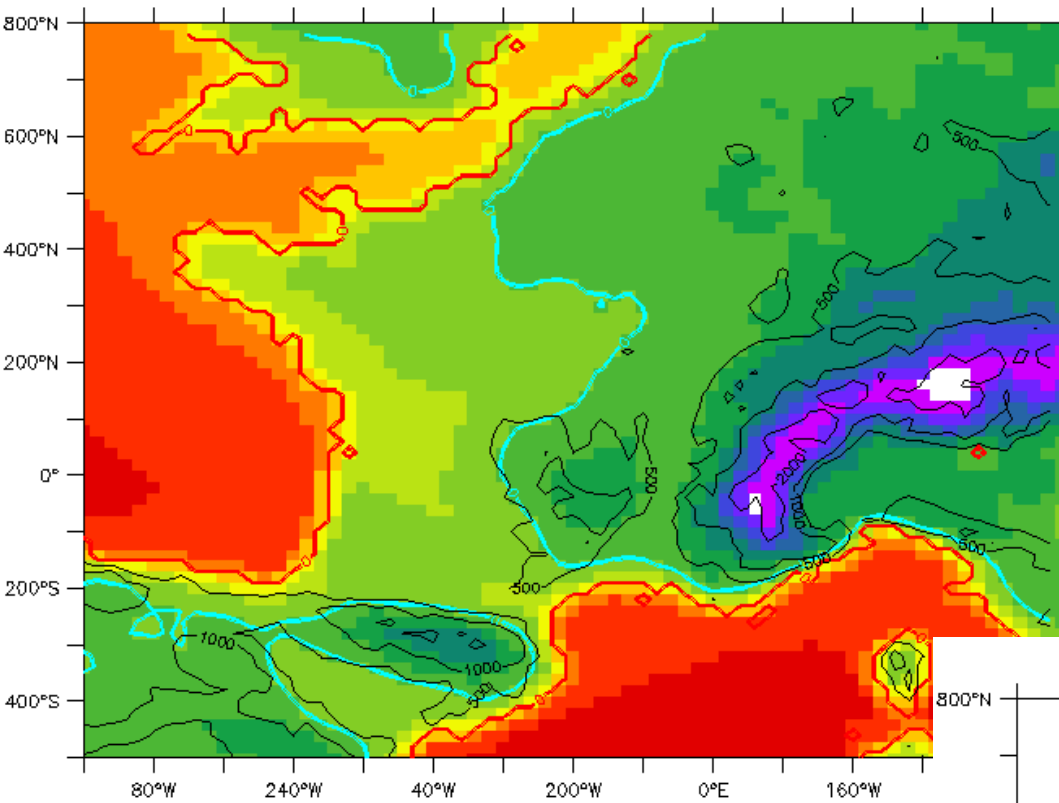
ECA&D 20 km / TX / JAN - DEC 1998 average (daC)



MAR

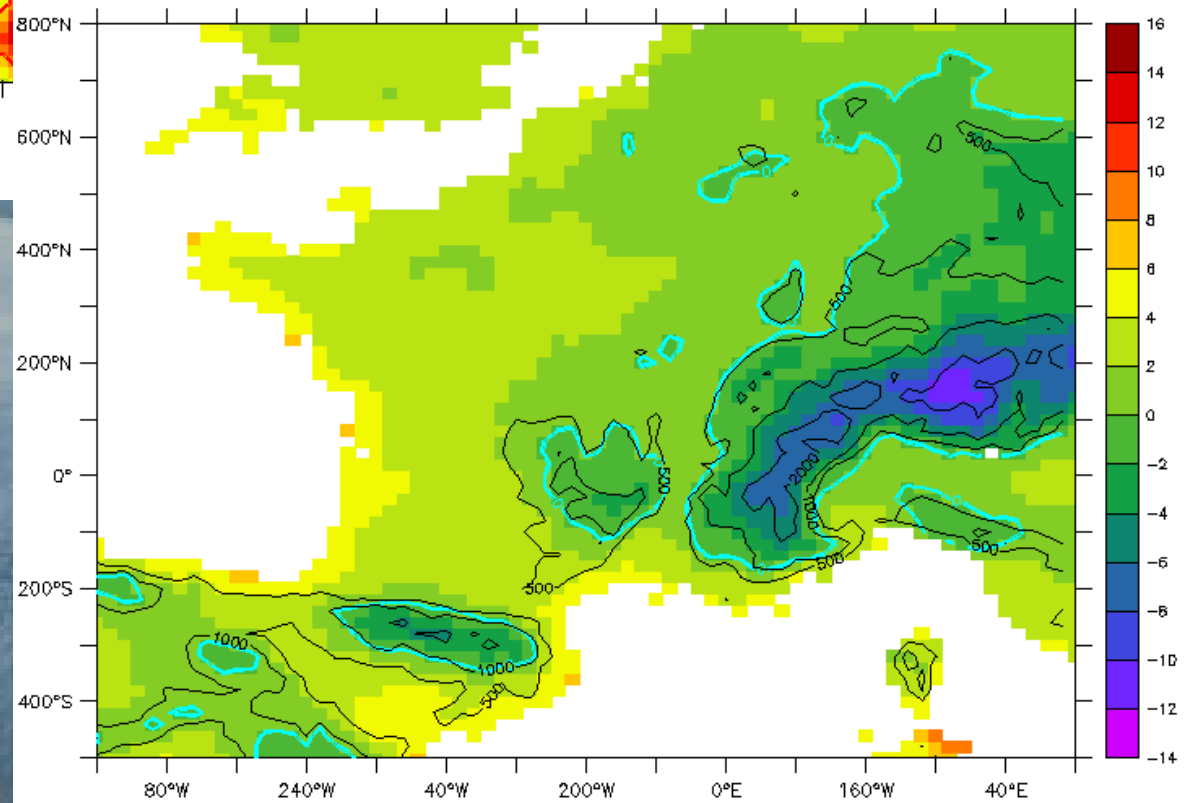
Température MIN
moyenne janvier



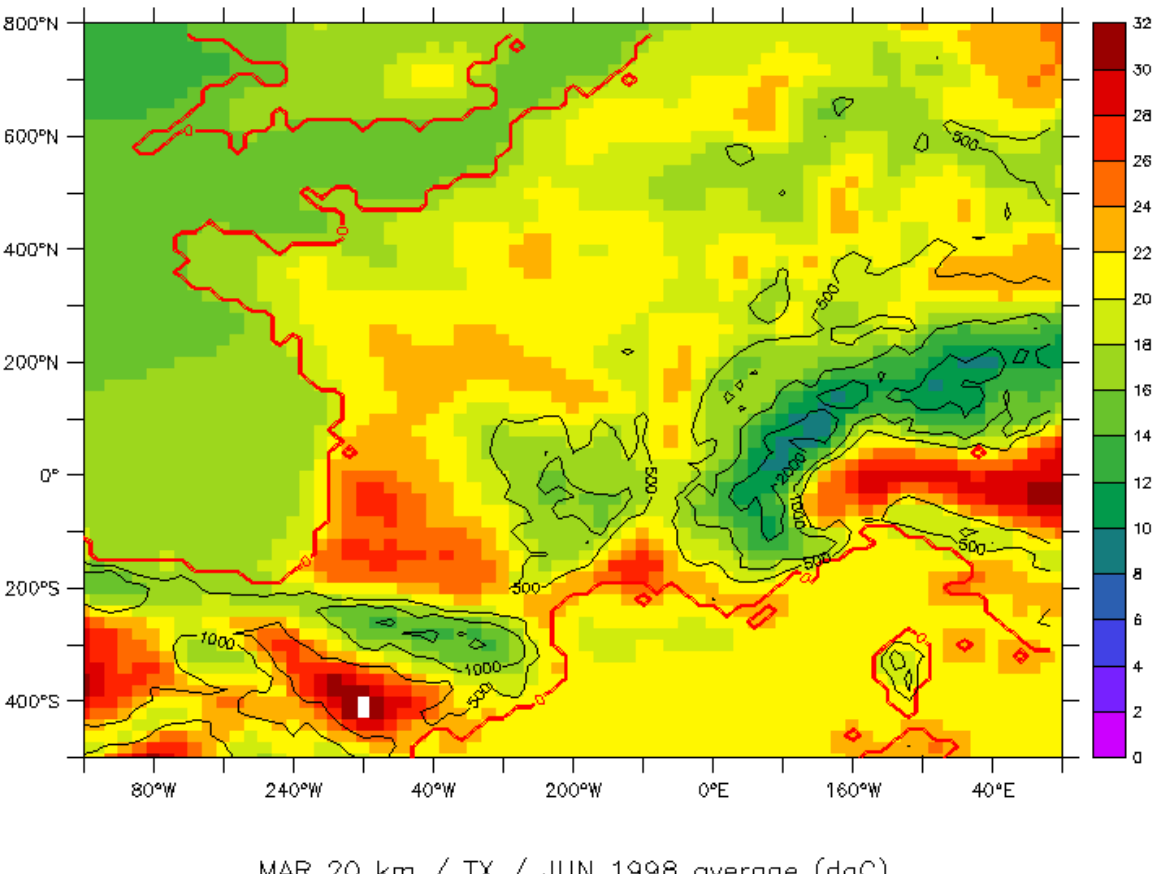


MAR 20 km / TN / JAN 1998 average (daC)

MAR
 Température MIN
 moyenne janvier

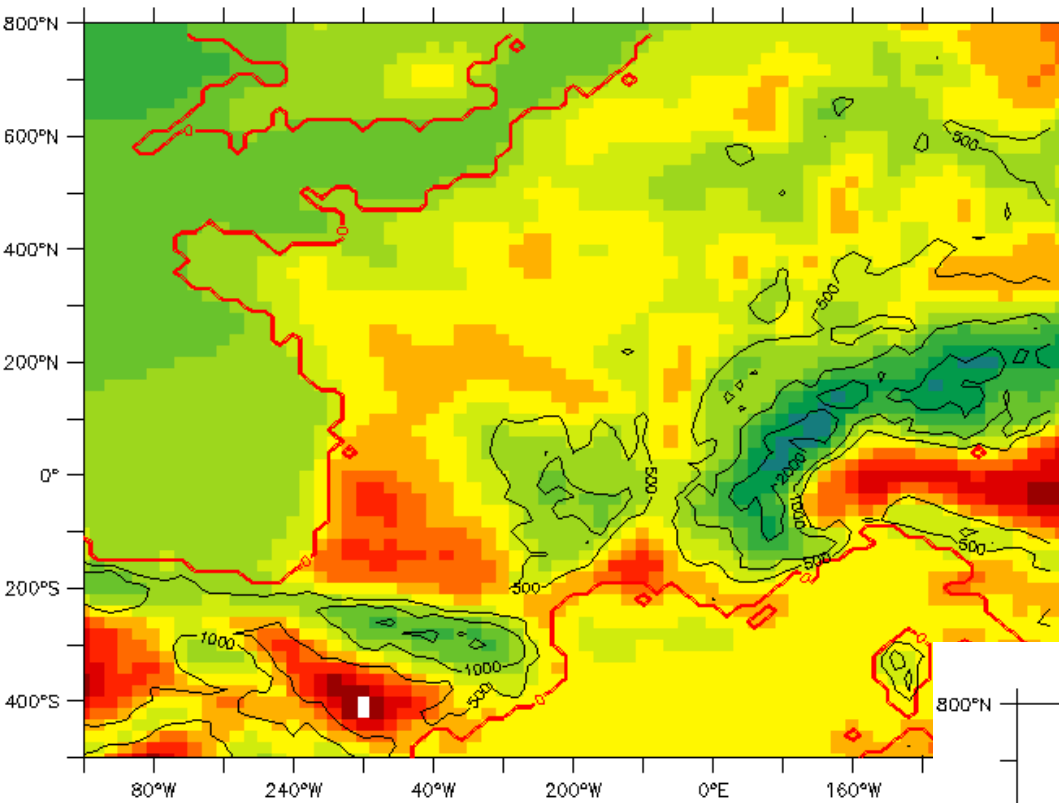


ECA&D 20 km / TN / JAN 1998 average (daC)



MAR

Température MAX
moyenne juin



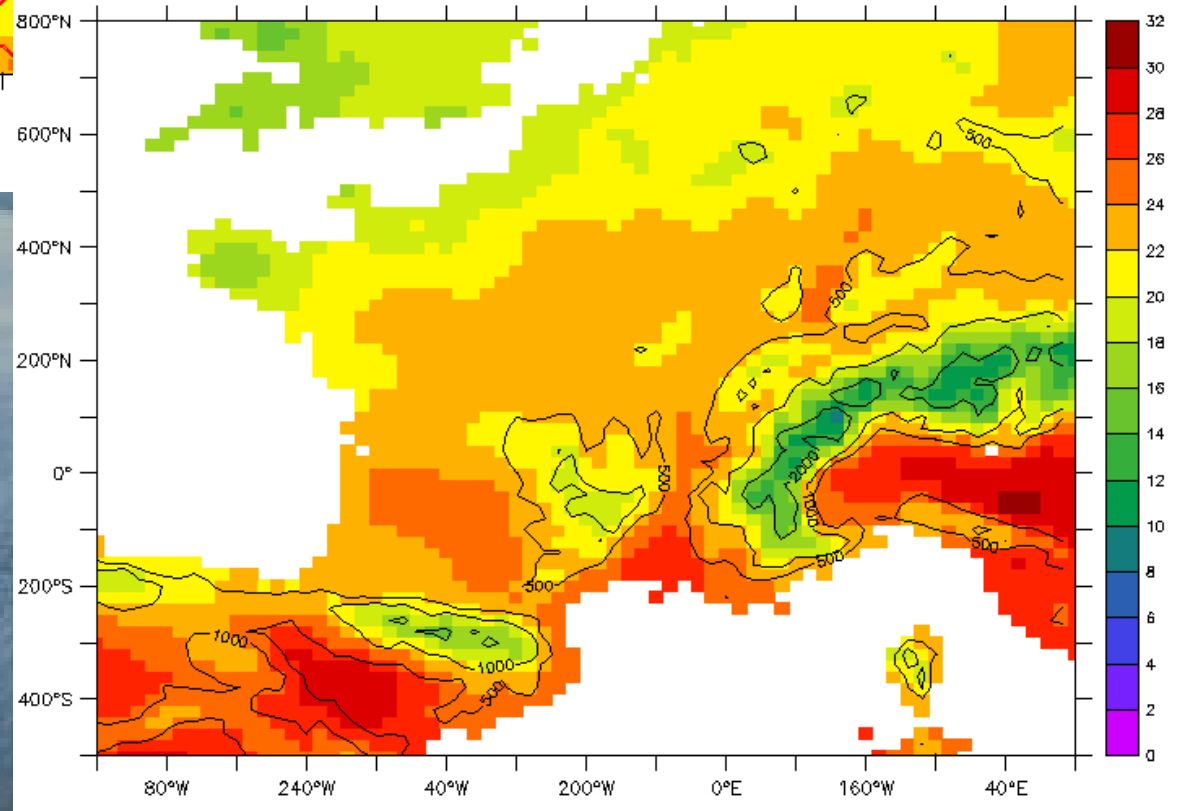
MAR 20 km / TX / JUN 1998 average (daC)



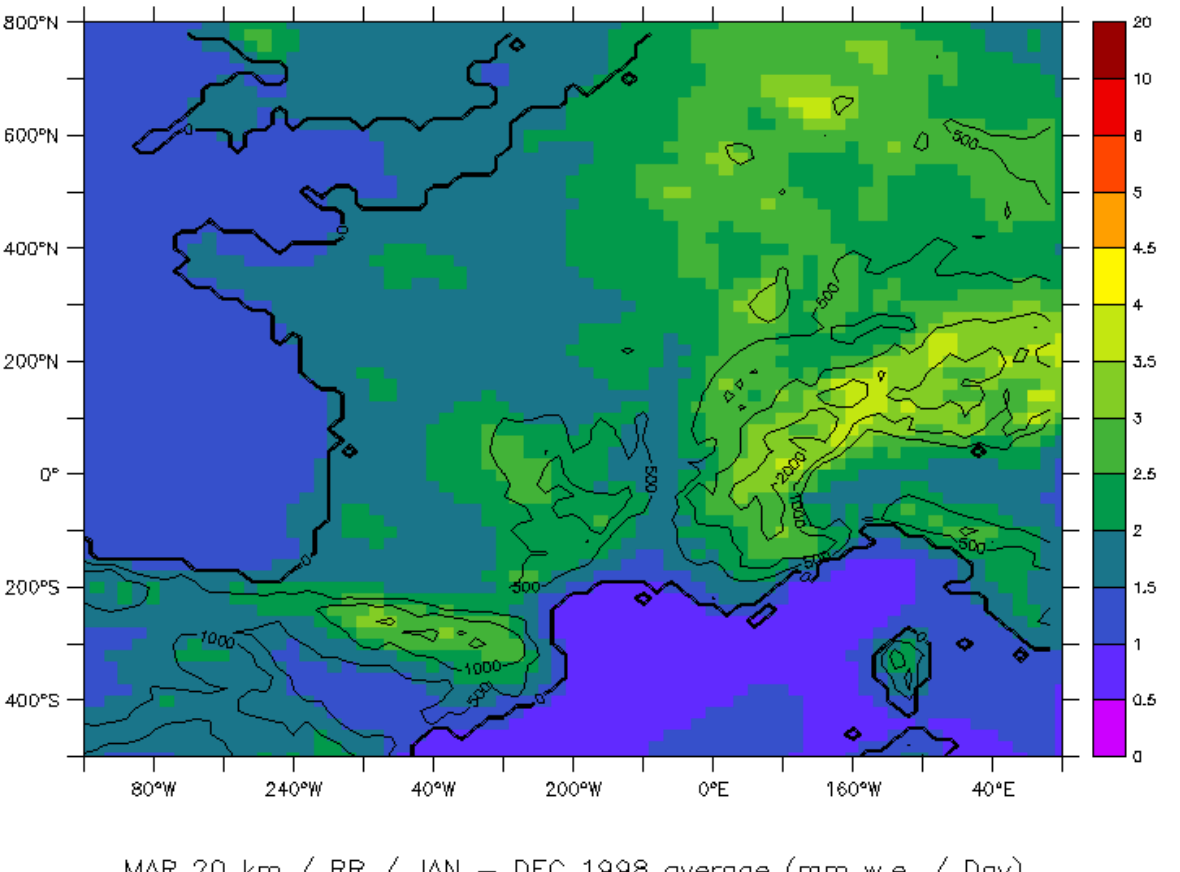
ECA&D

MAR

Température MAX
moyenne juin

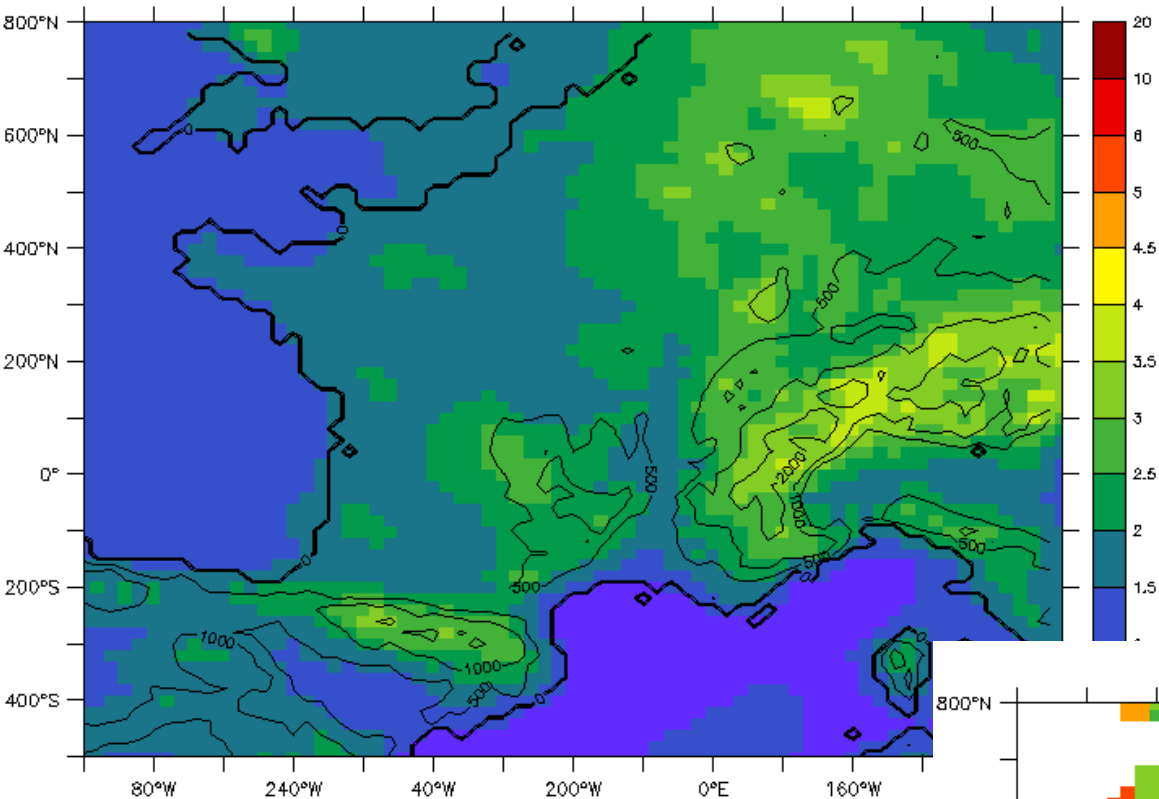


ECA&D 20 km / TX / JUN 1998 average (daC)



MAR

**Précipitations
moyenne annuelle**



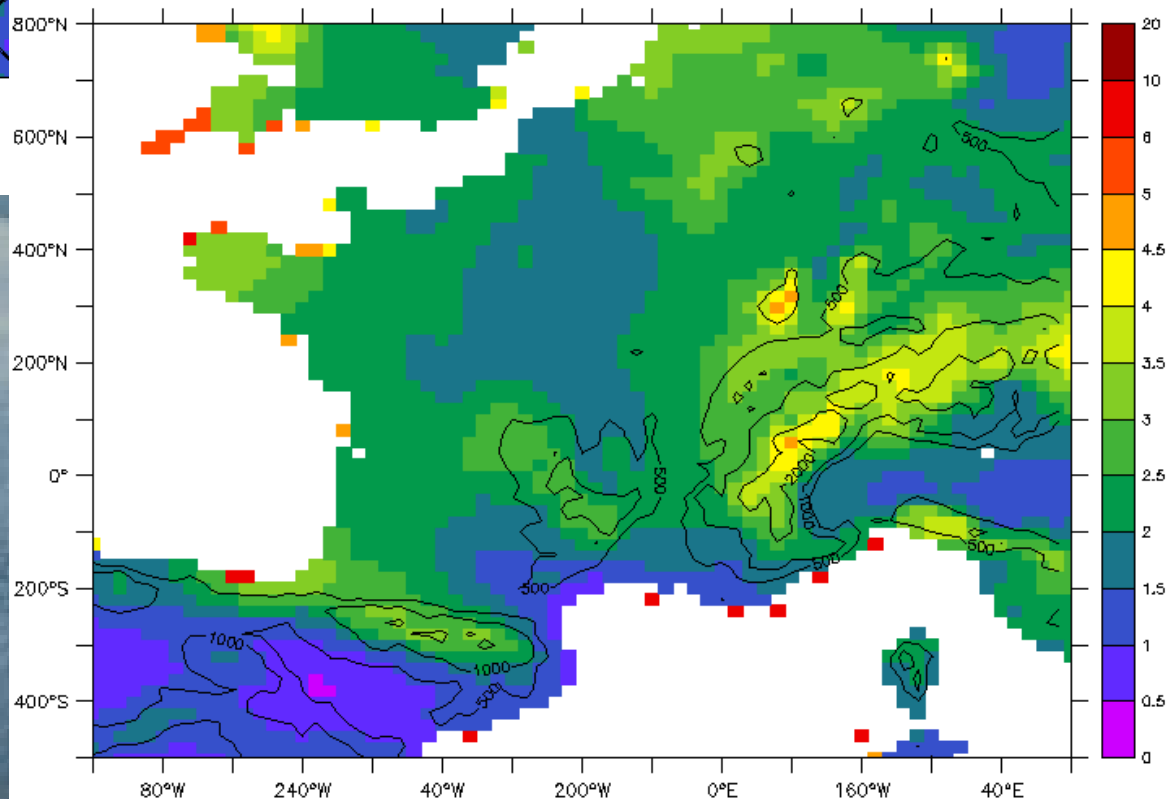
MAR 20 km / RR / JAN - DEC 1998 average (mm w.e)



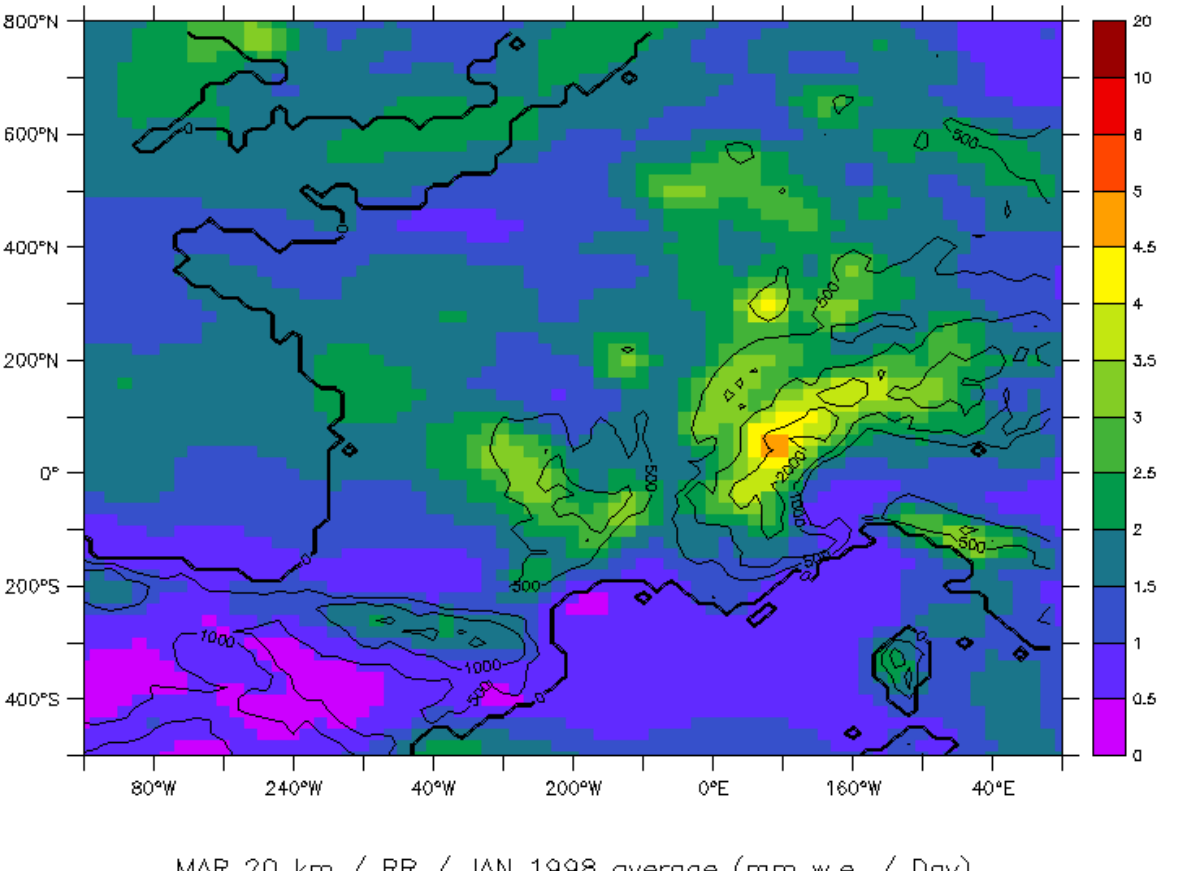
ECA&D

MAR

**Précipitations
moyenne annuelle**

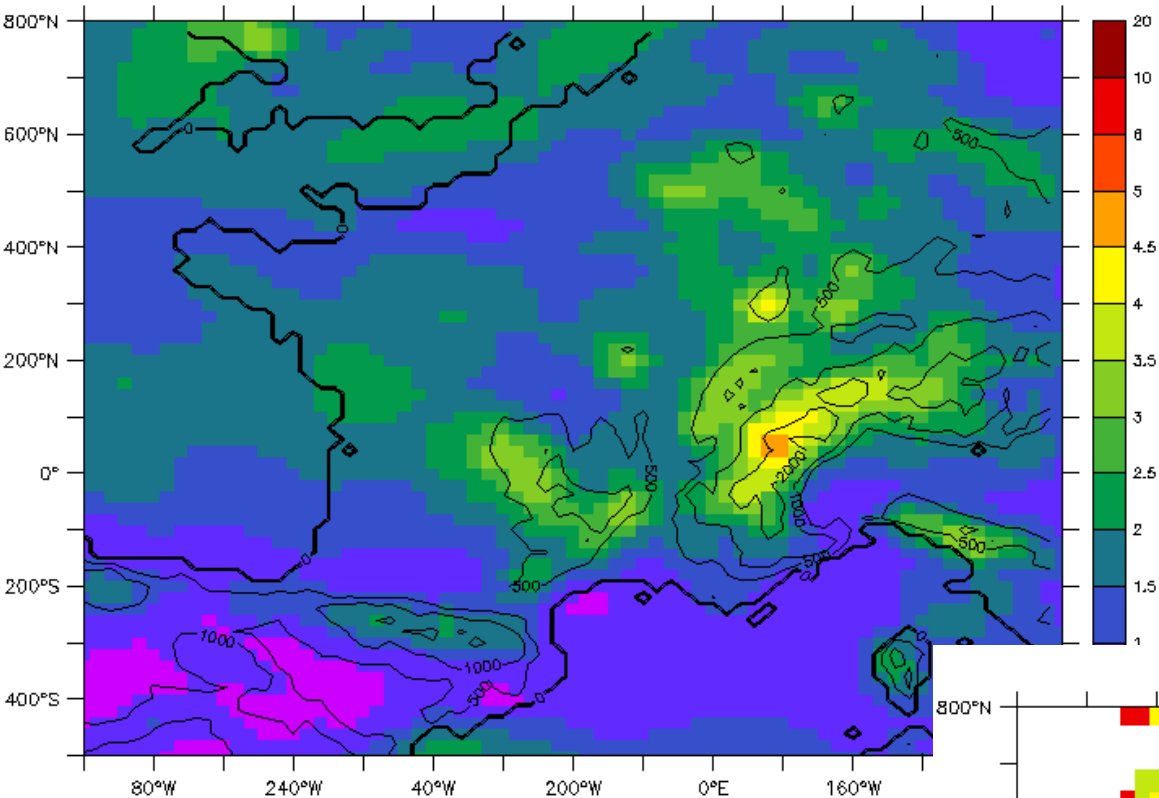


ECA&D 20 km / RR / JAN - DEC 1998 average (mm w.e. / Day)



MAR

**Précipitations
moyenne janvier**



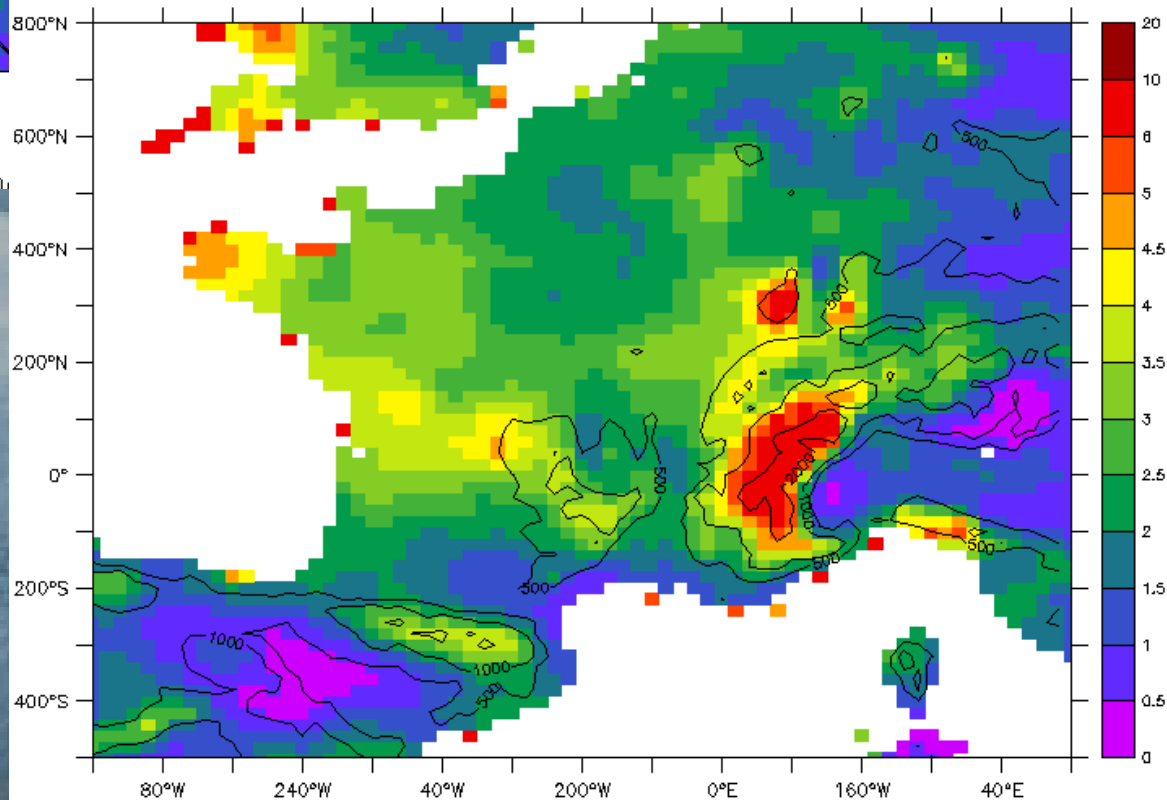
MAR 20 km / RR / JAN 1998 average (mm w.e. / Day)



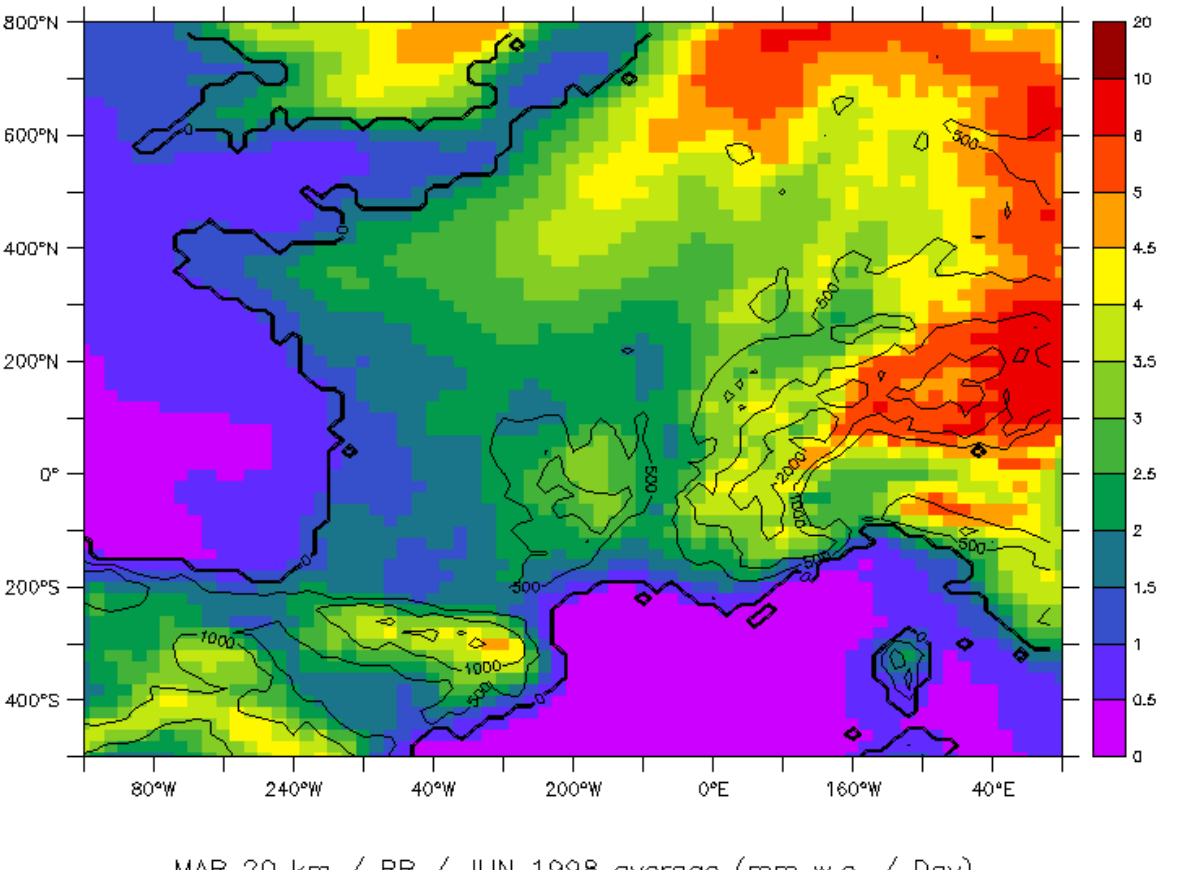
ECA&D

MAR

Précipitations
moyenne janvier

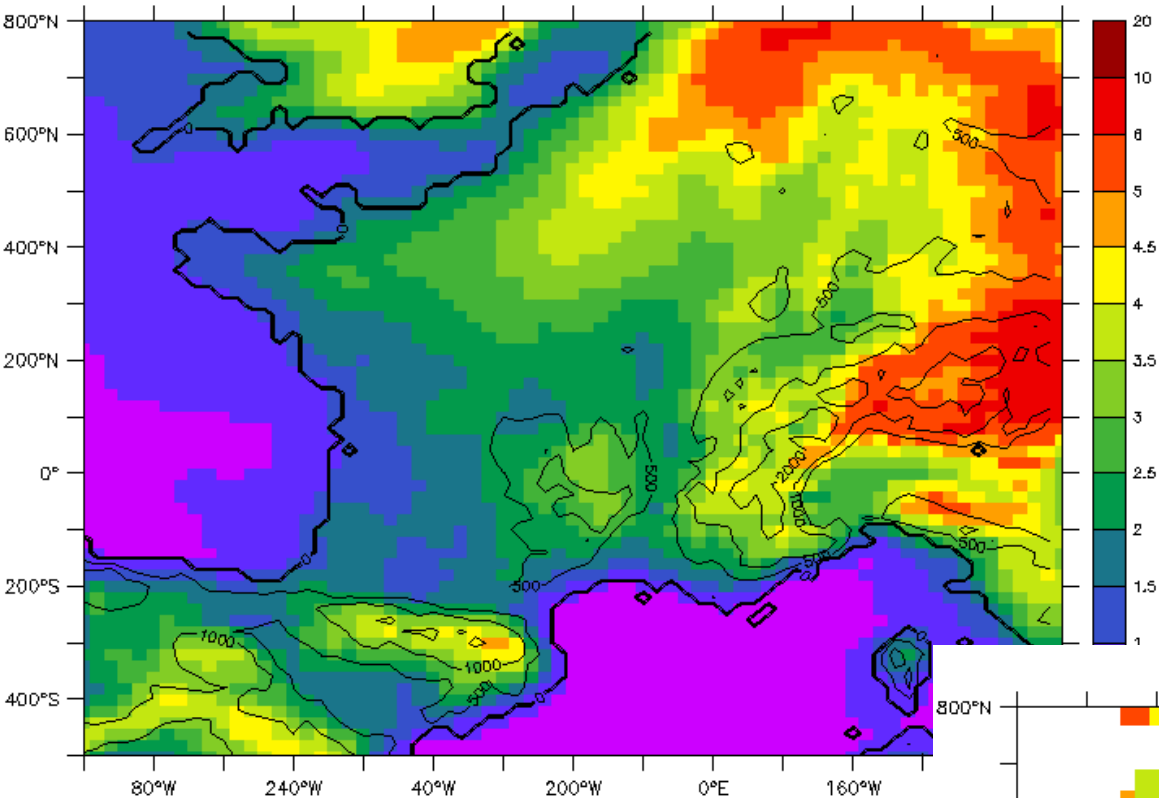


ECA&D 20 km / RR / JAN 1998 average (mm w.e. / Day)



MAR

**Précipitations
moyenne juin**

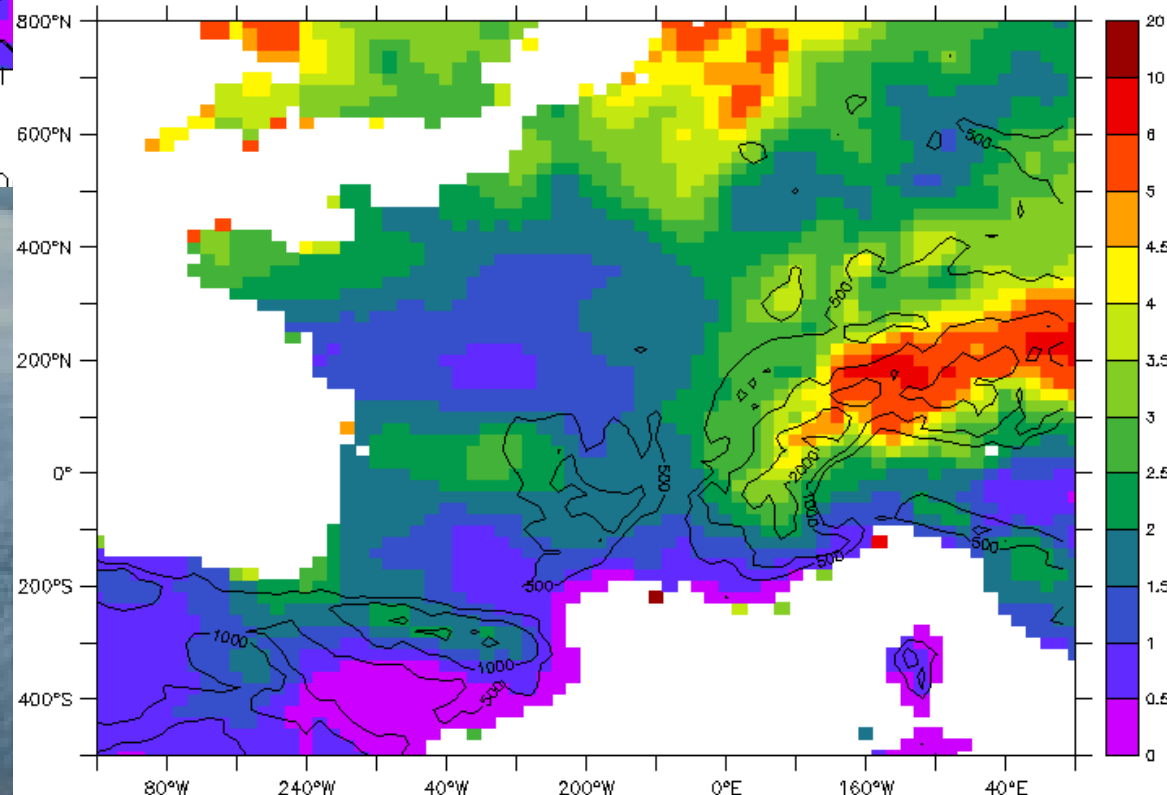


MAR 20 km / RR / JUN 1998 average (mm w.e. / D)

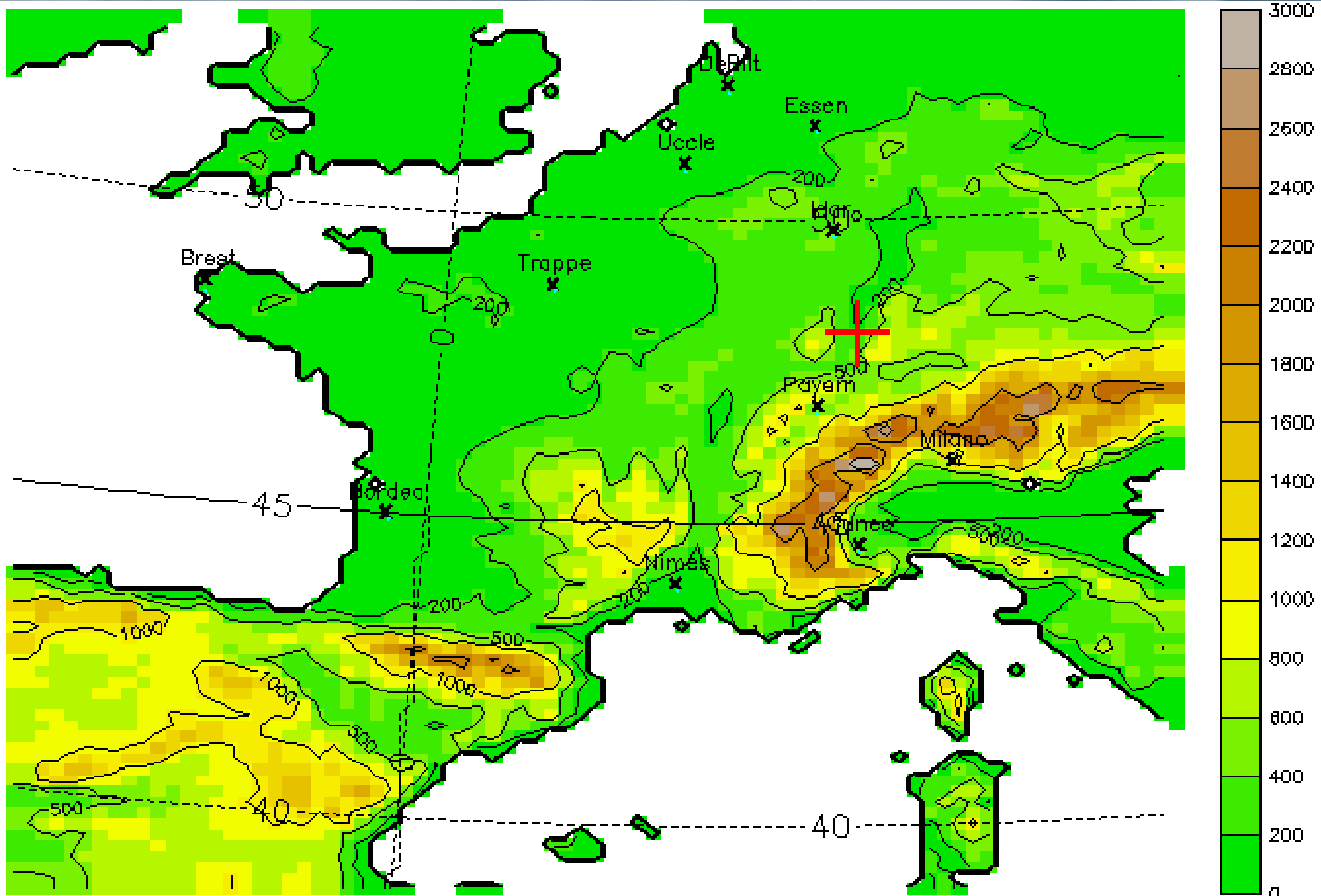


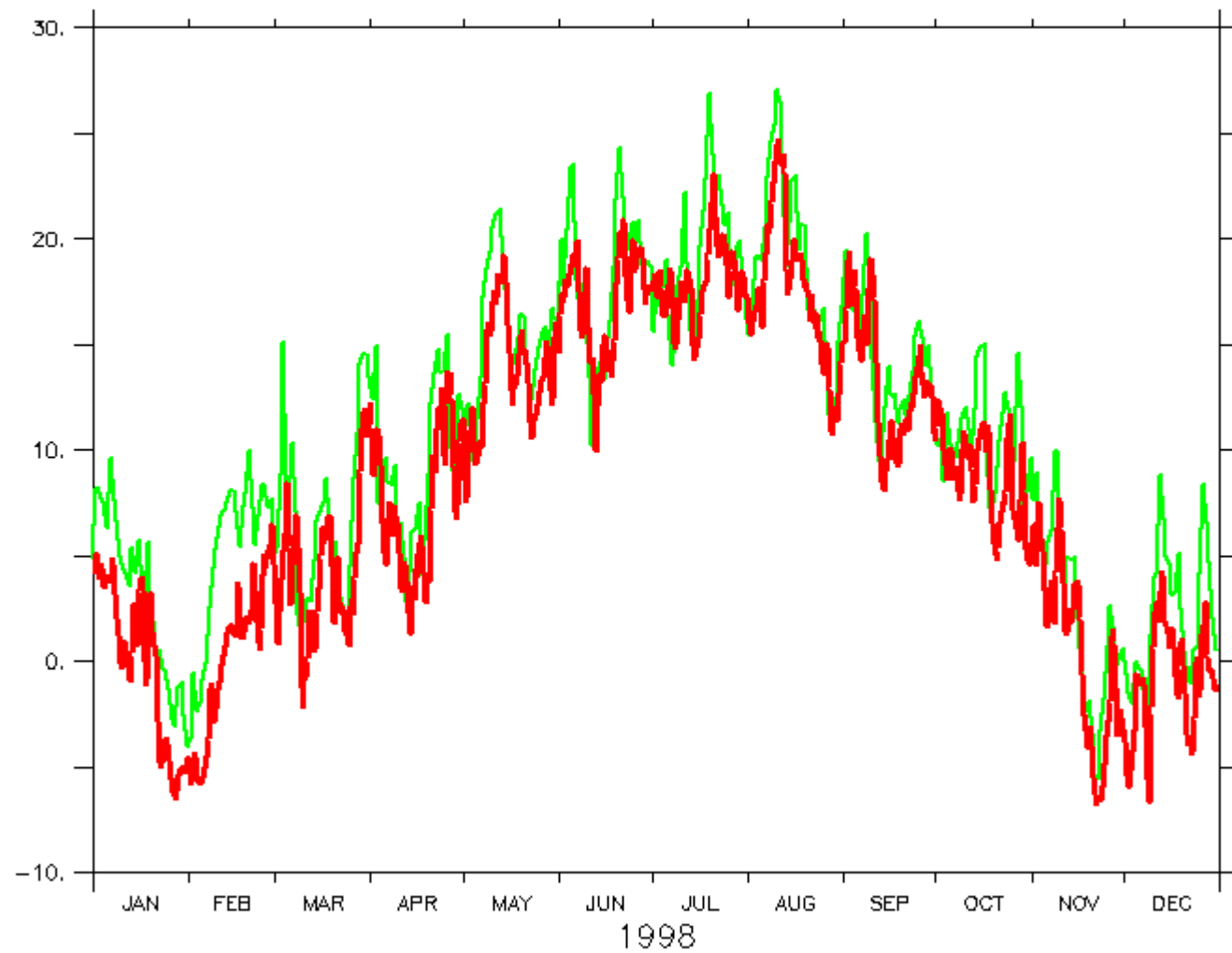
ECA&D

MAR
 Précipitations
 moyenne juin



ECA&D 20 km / RR / JUN 1998 average (mm w.e. / D)





MAR 20 km vs ECA&D OBS / (x,y) = (140,260)

Quelques remarques

Simulations à 20 km et 12 km de résolution

Bonne reproduction évènements (LBC !)

MAR sous-estime les températures et les précipitations en moyenne annuelle

Sous-estimation des précipitations l'hiver et surestimation l'été

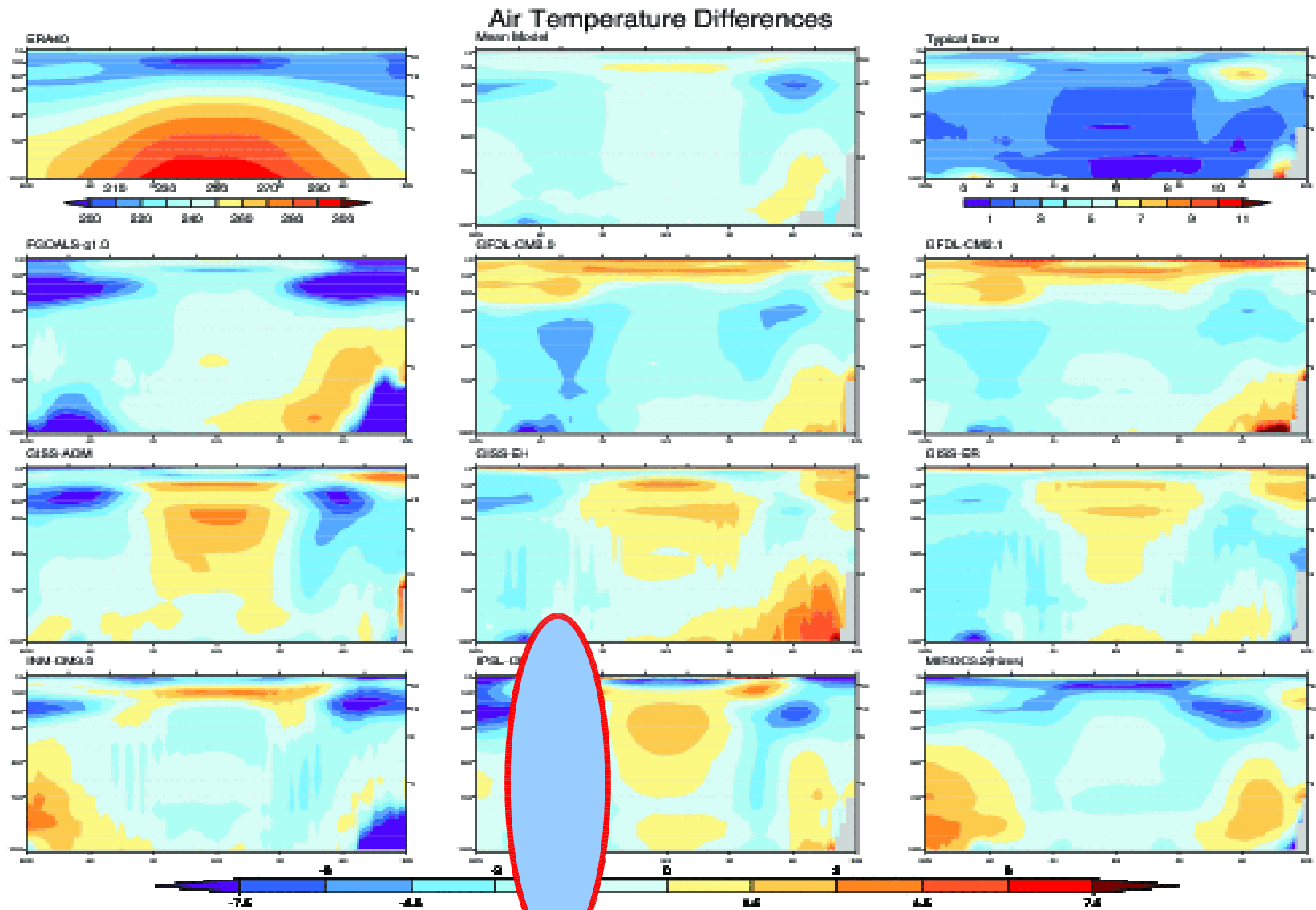
Calculs en cours:

Finalisation des simulations de scénario
à 20 km pour fin 2010

Poursuite des simulations
à 12 km de résolution



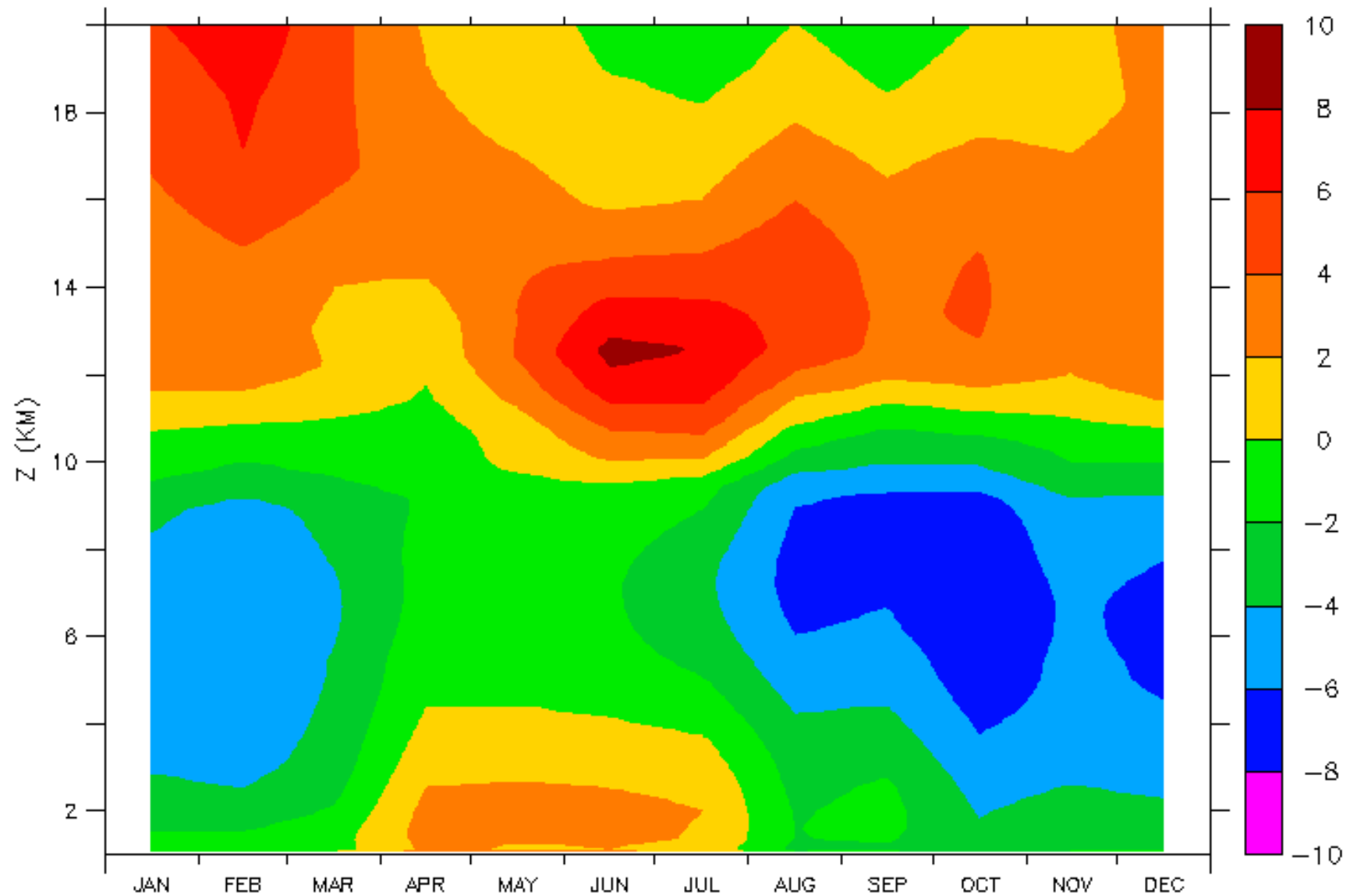




IPSL CM4

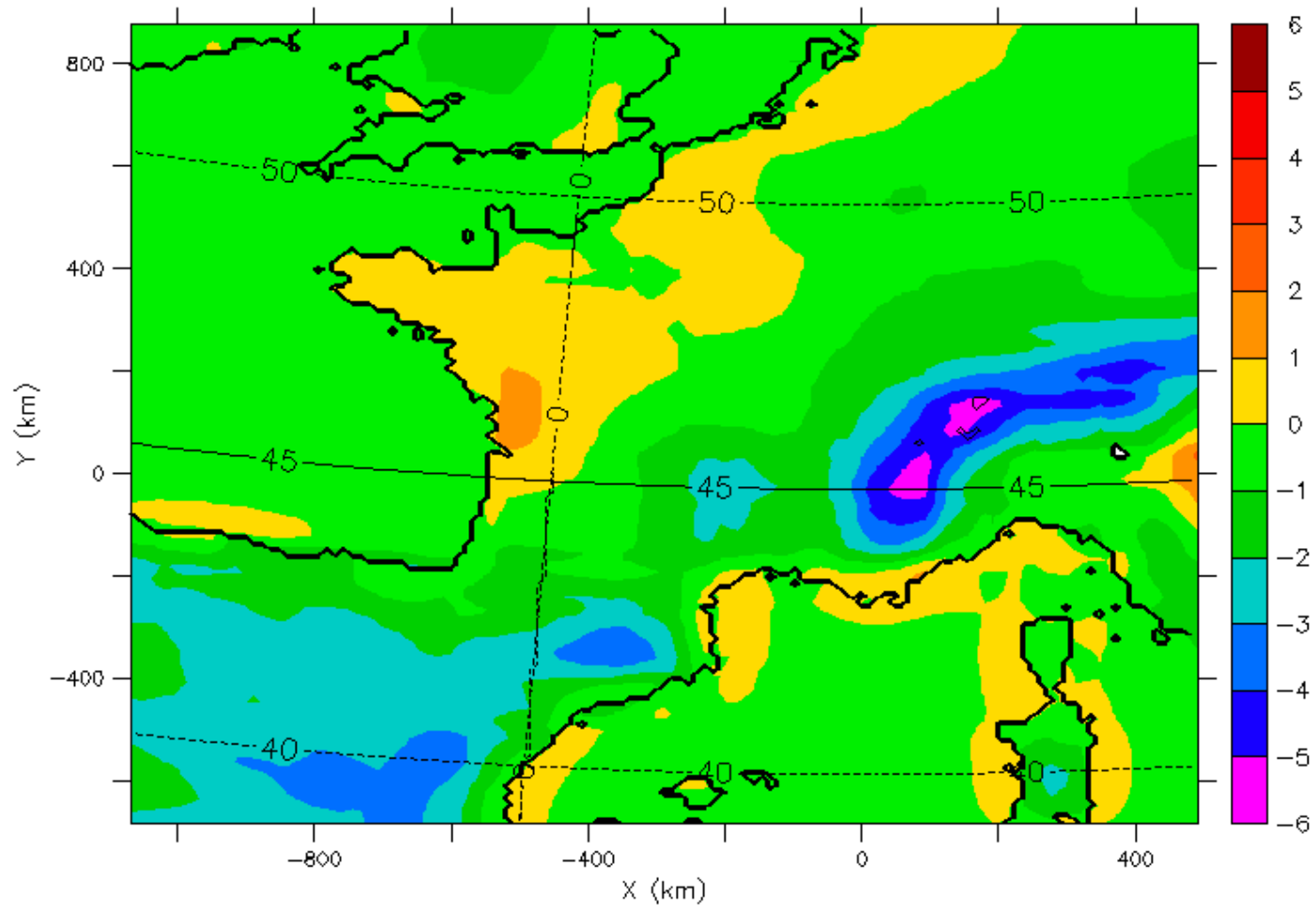
Scale **-7.5** to **7.5** (K), Mod-ERA-40

LMDZ vs ERA Interim



Chartreuse $T(\text{LMZ}) - T(\text{ERA})$ (K)

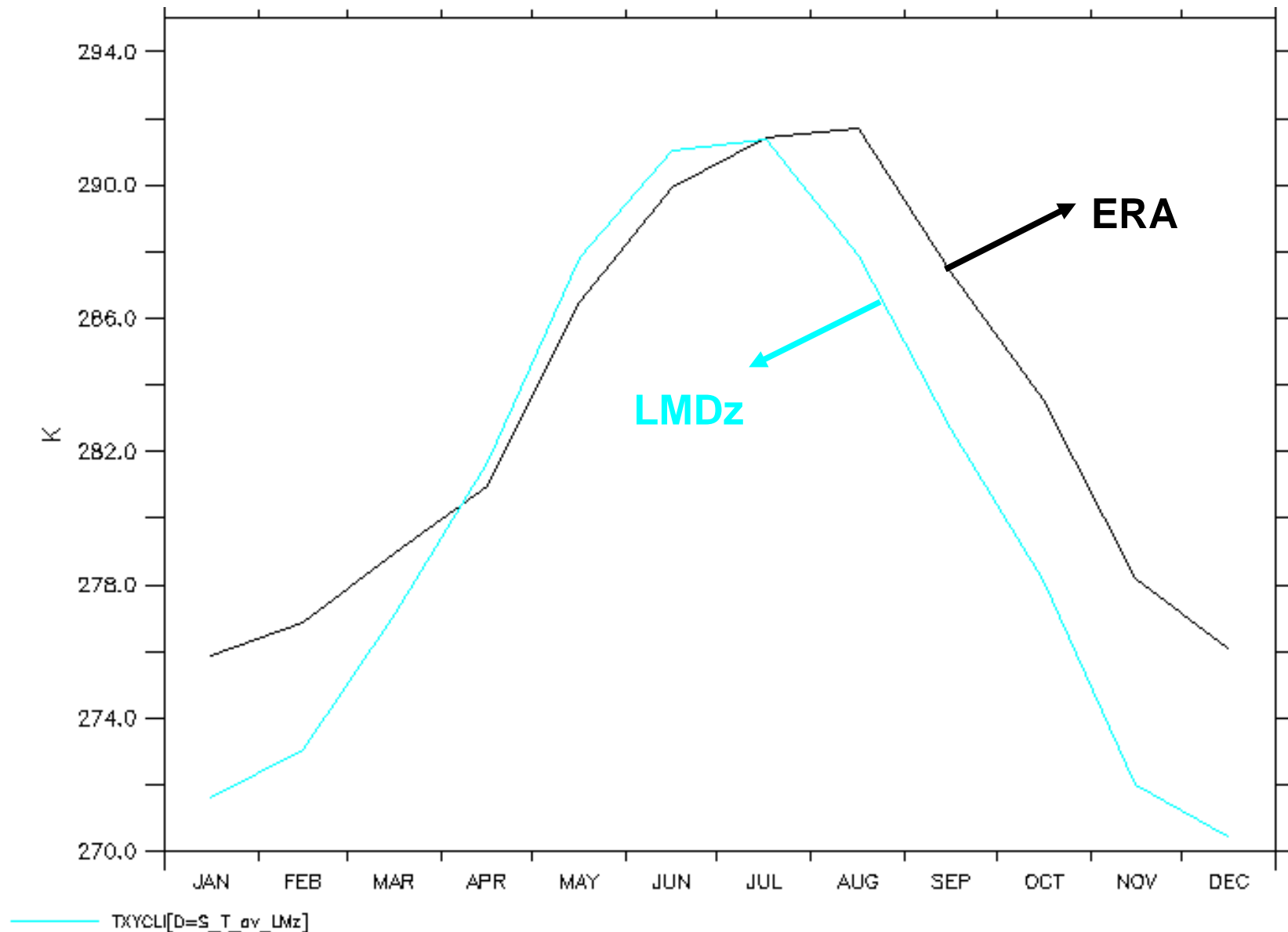
LMDZ vs ERA Interim



Surface Temperature Difference LMz - ERA (K)

LMDZ - ERAinterim

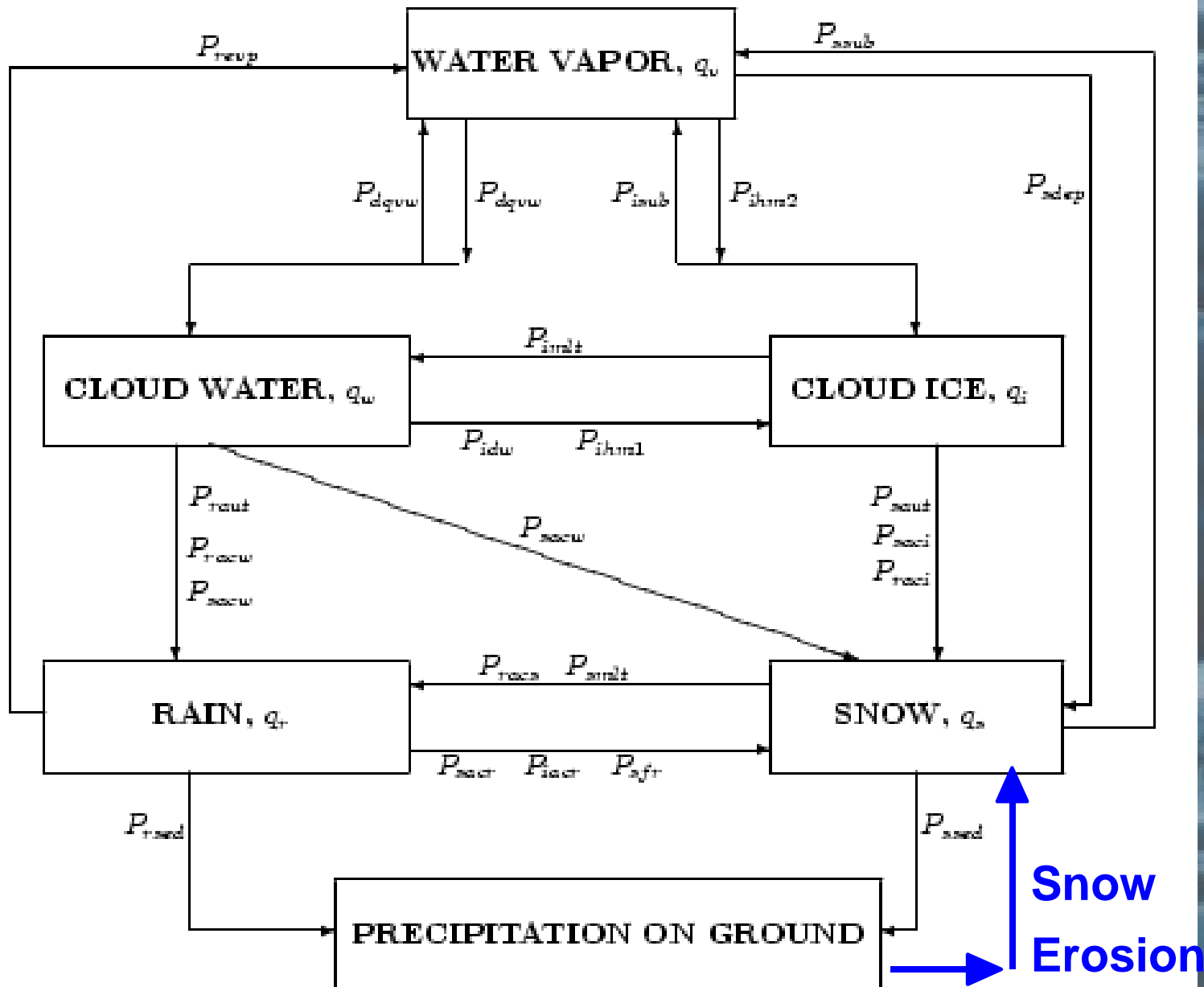
LMDZ vs ERA Interim

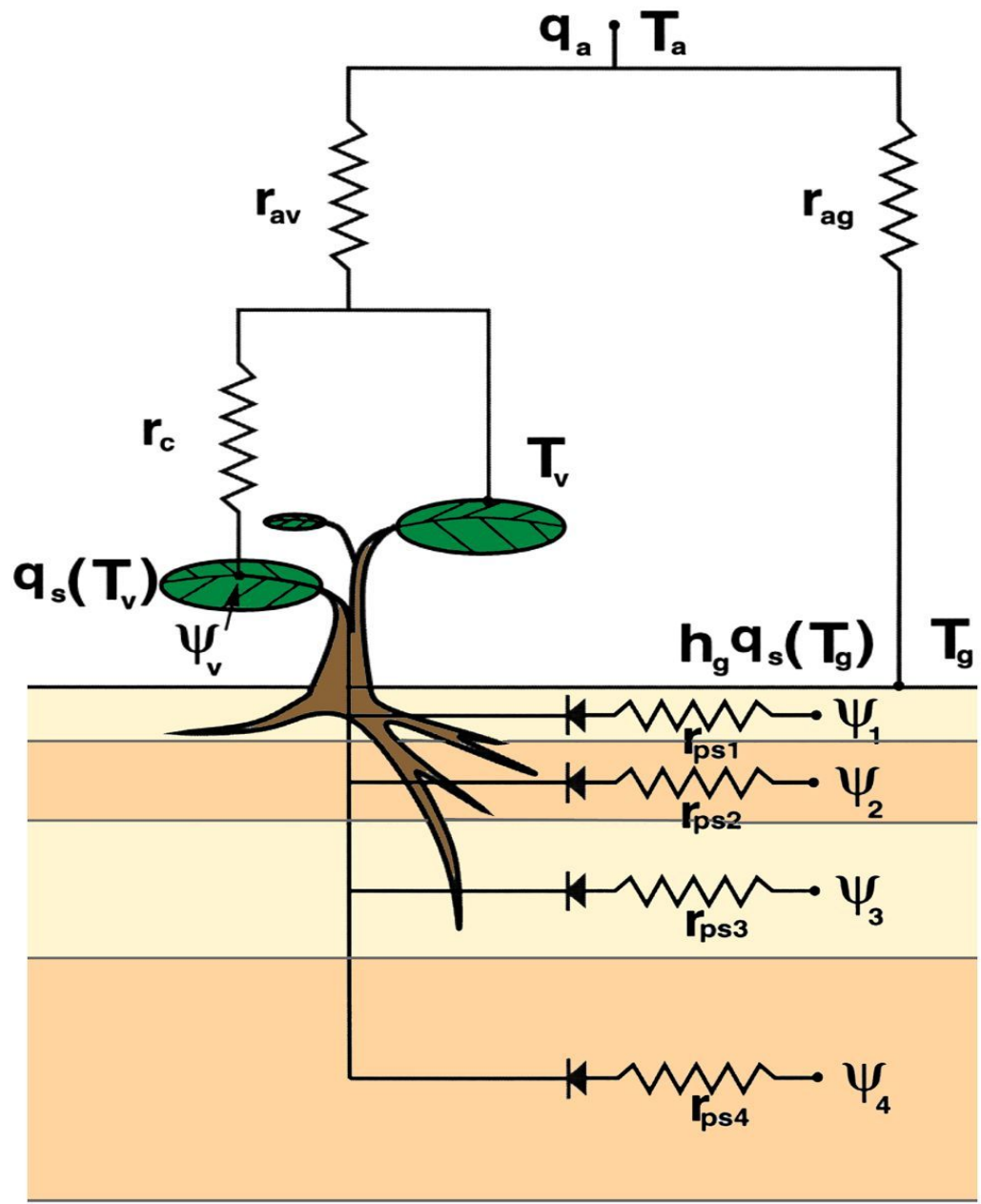


ALPS Surface Temperature Climatology (K)

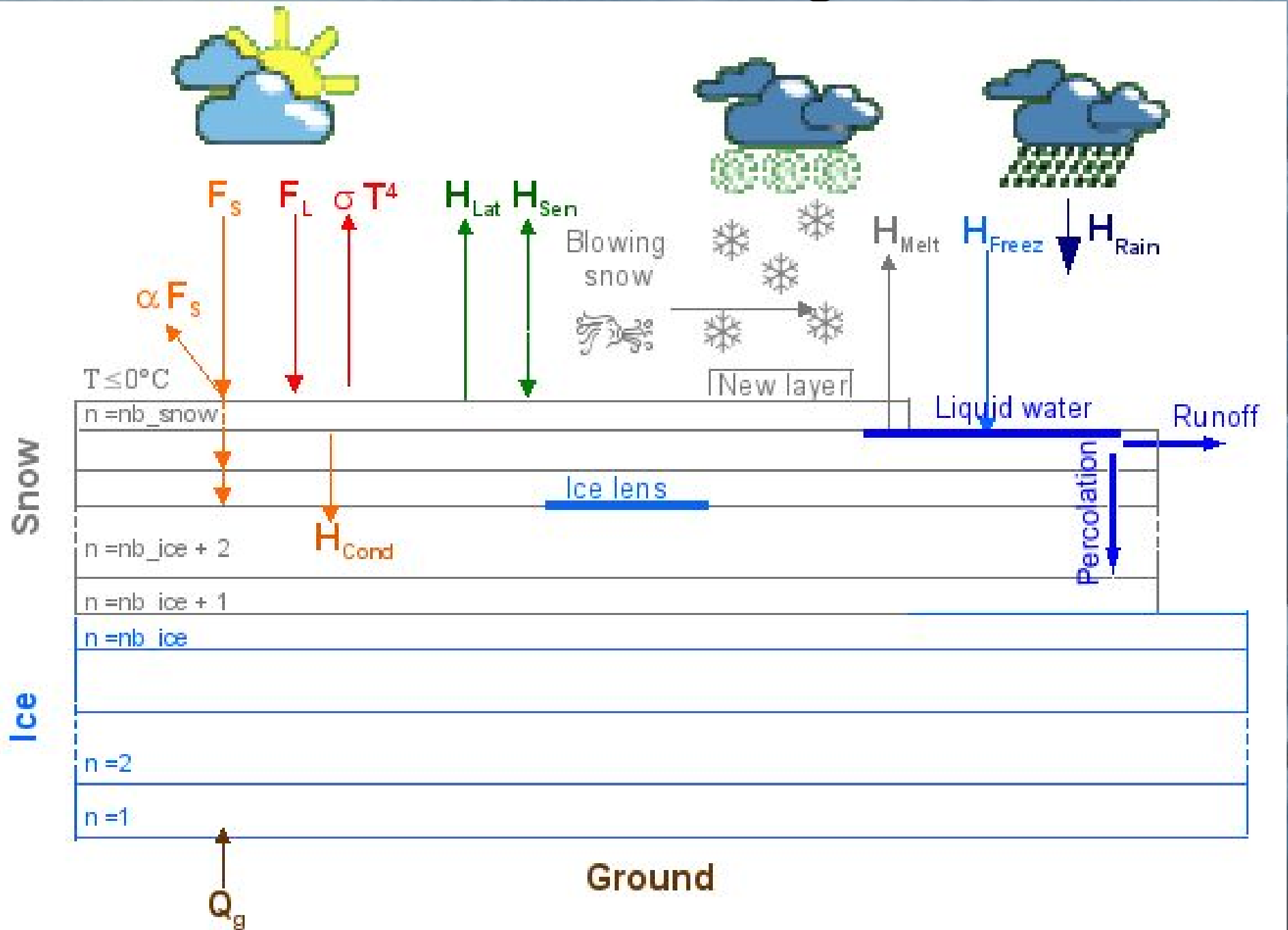


Cloud Microphysical Model

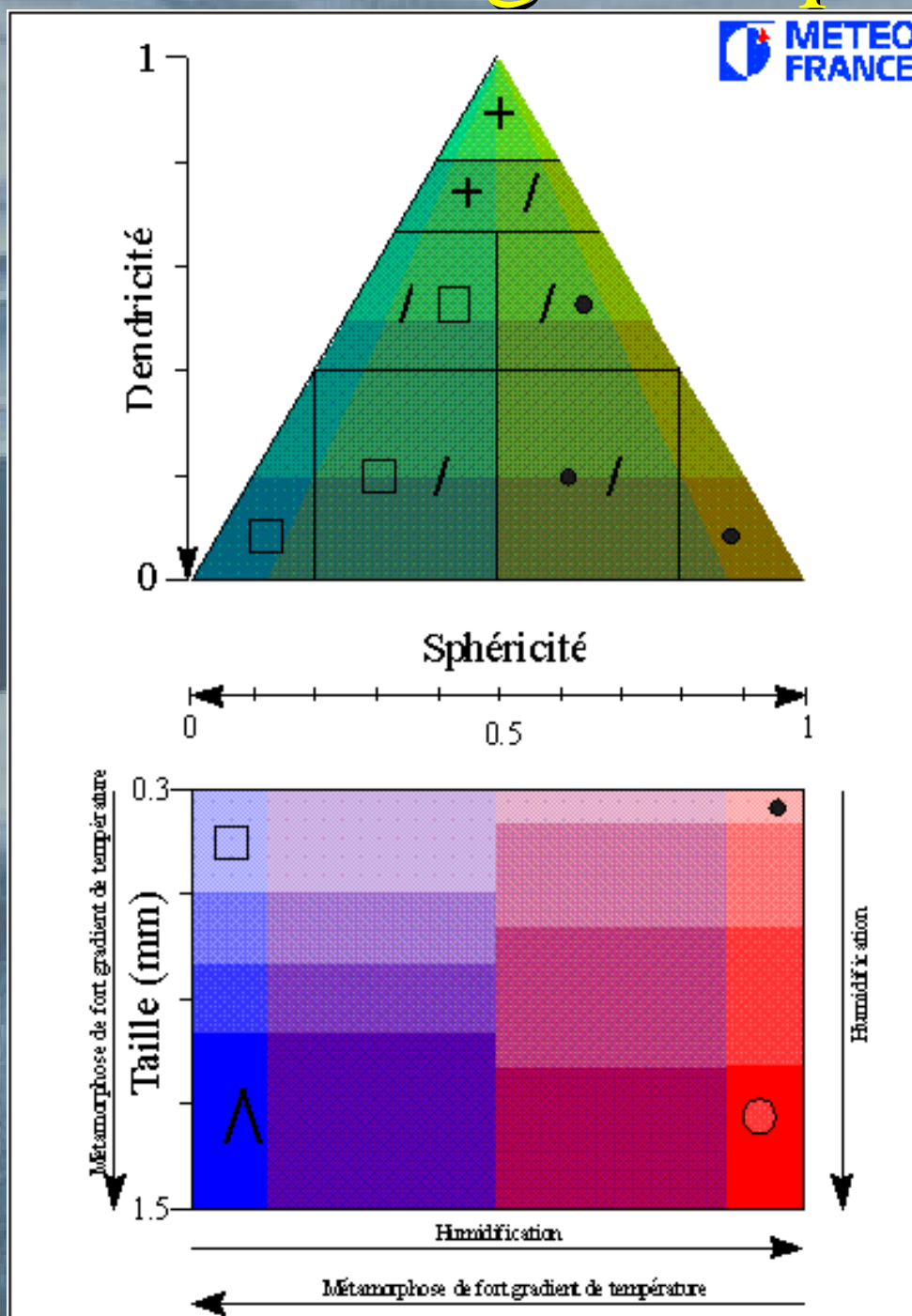




Modèle de Neige



Modèle de Neige: Propriétés



Validation (Col de Porte)

