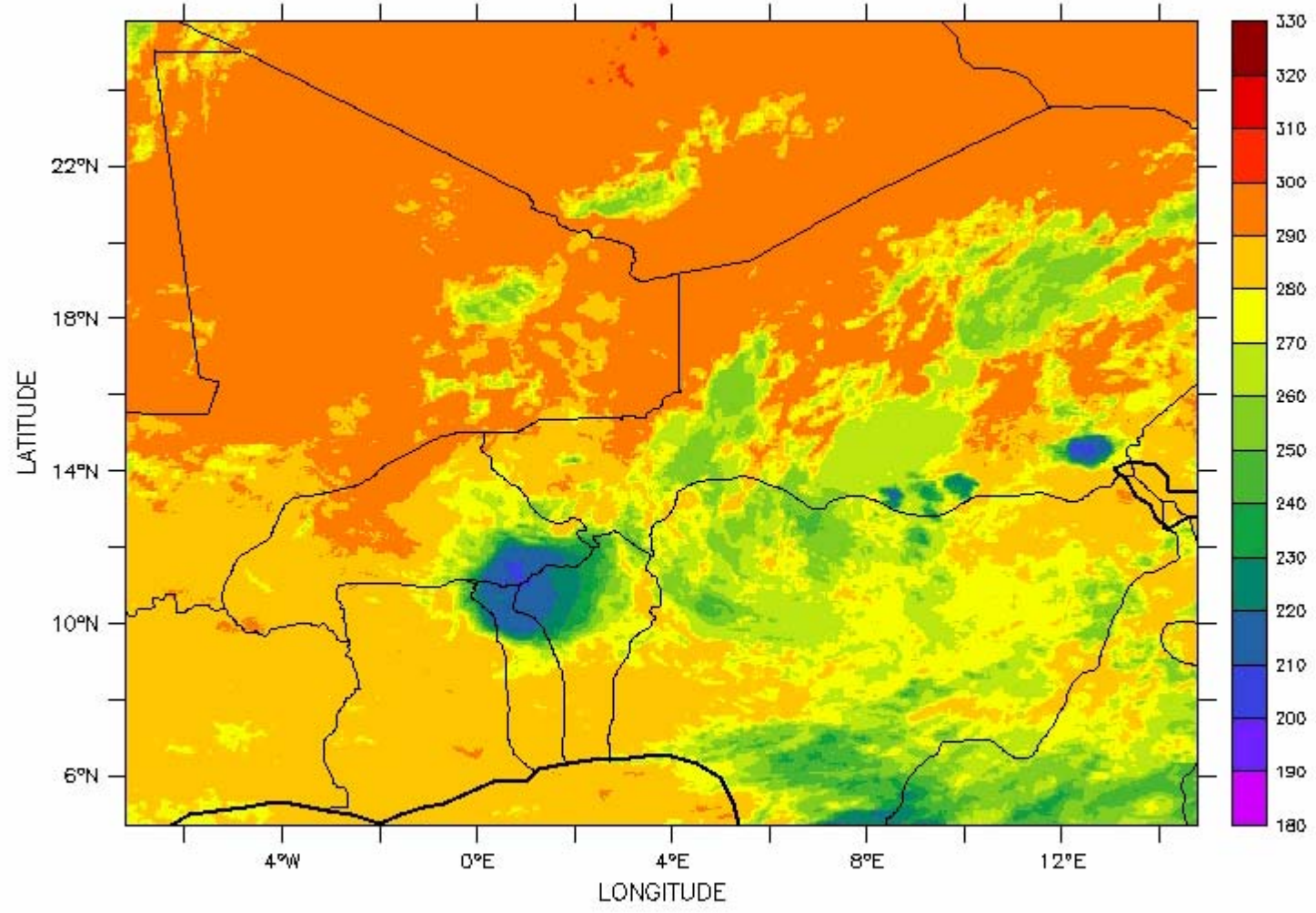


HAPEX-Sahel

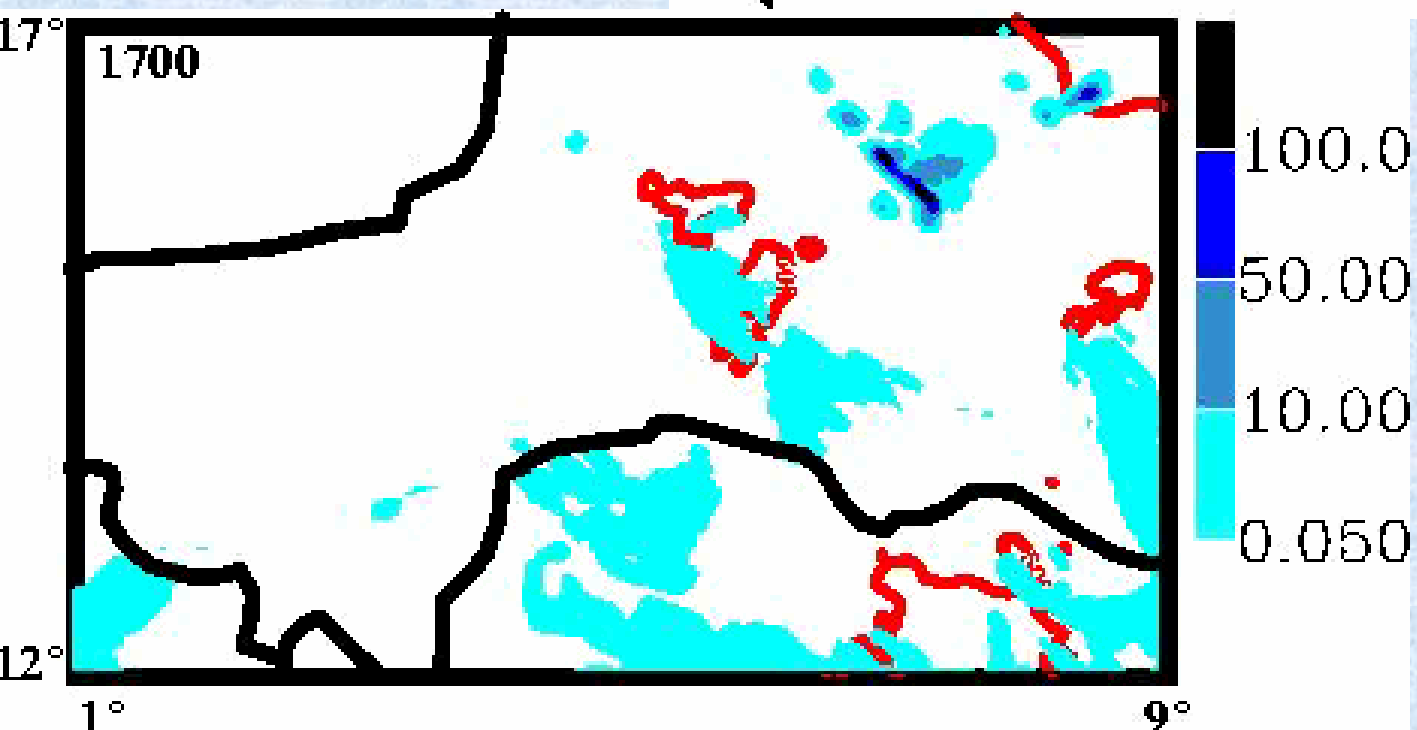
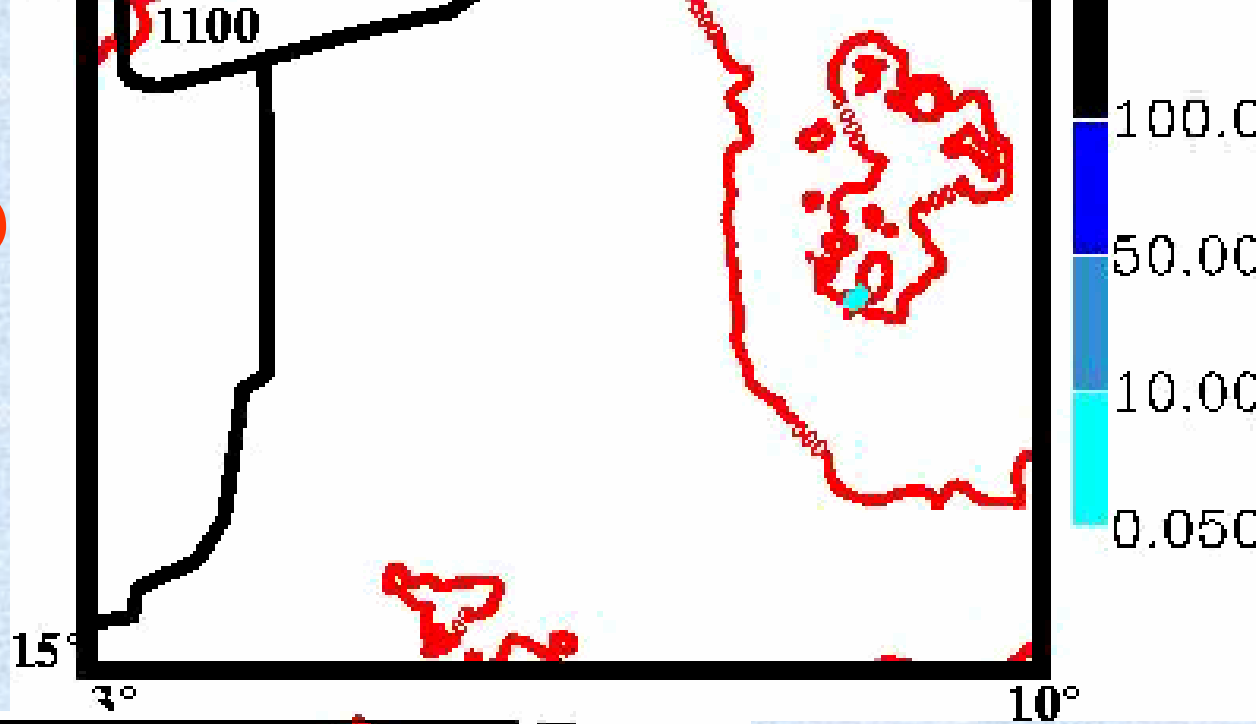
21-22 Août 1992

TIME : 21-AUG-1992 06:00



IR Brightness Temperature (K)

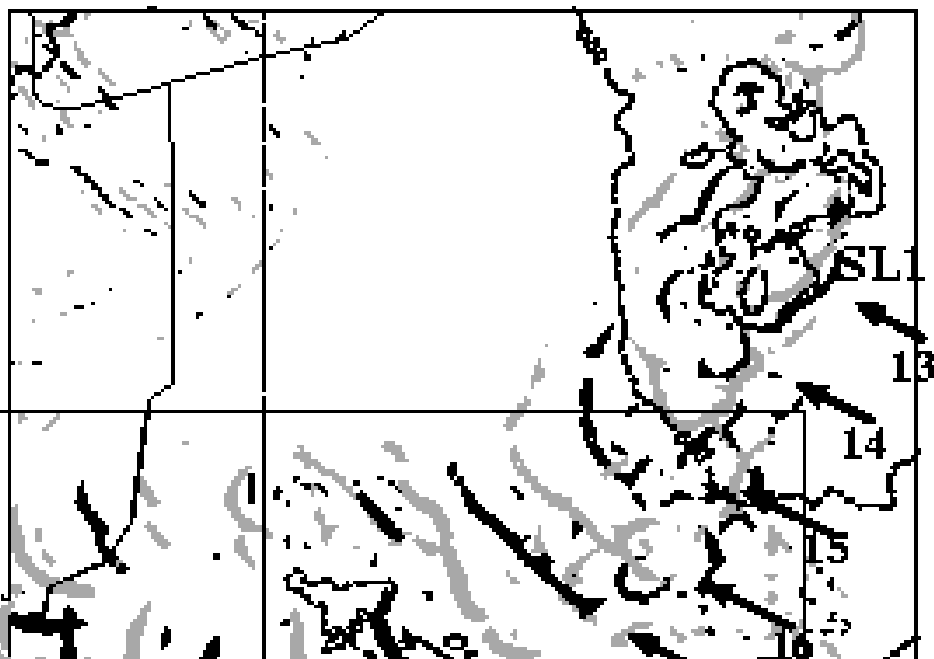
Cycle de vie de la ligne de grains (LG)



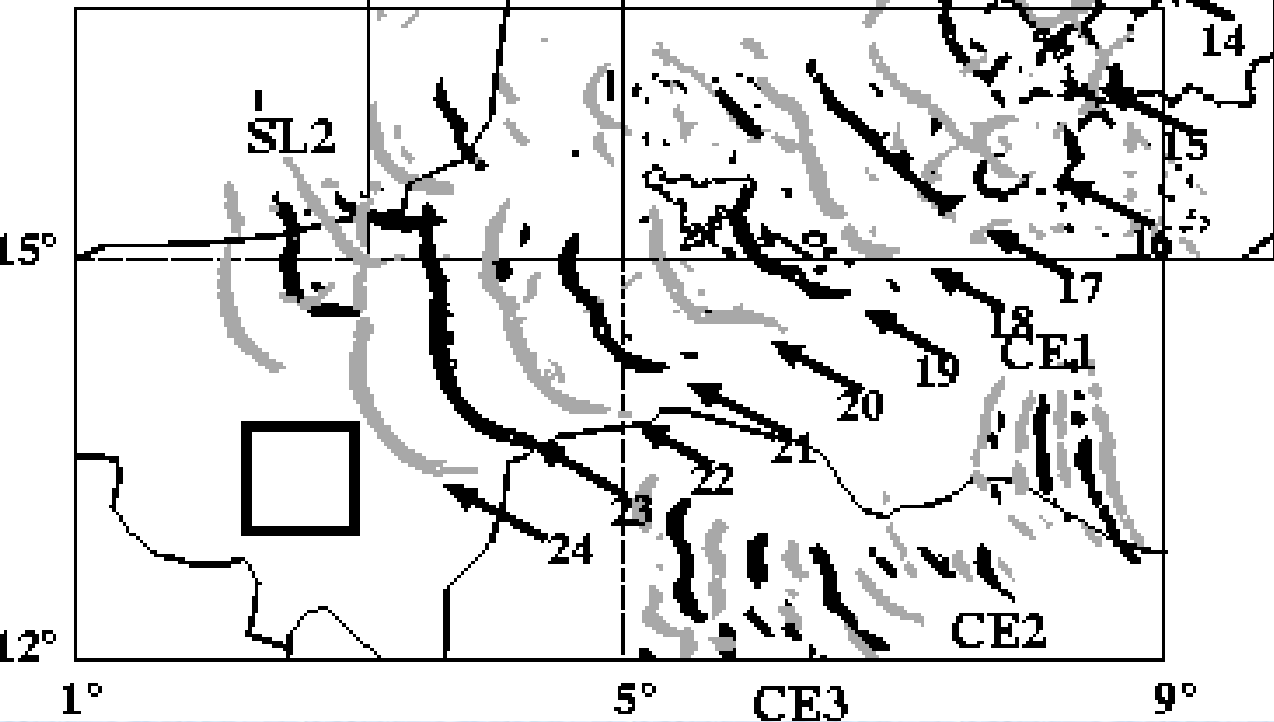
Résumé Propagation LG

$W > 1 \text{ m/S}$

mod2a



mod2b



Phases

initiale (11h-16h)
mature (16h-24h...)

Régime stationnaire LG :
déplacement régulier

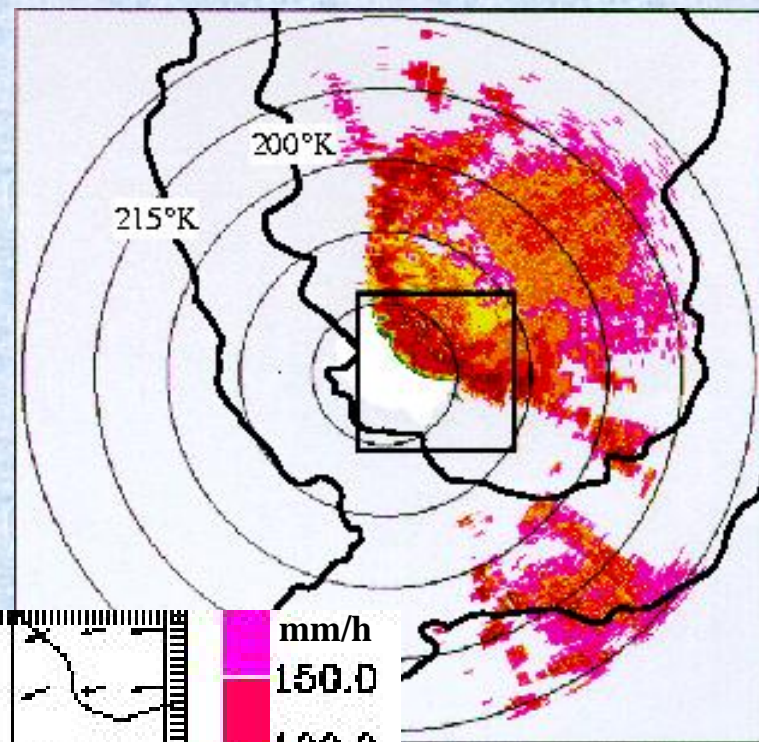
(17 m/s)
plus de 12 heures
près de 1000 km

Convection secondaire

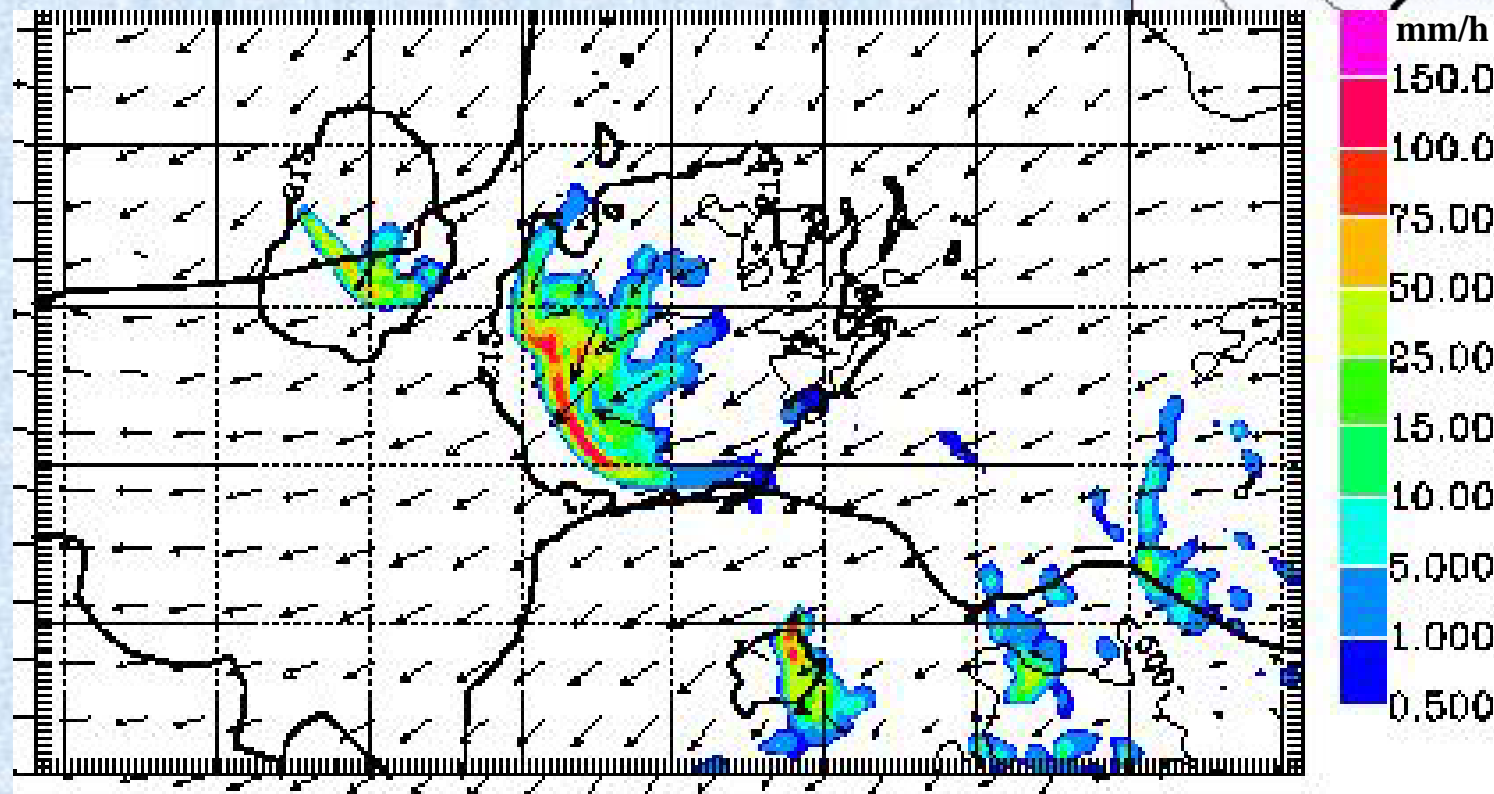
Phase mature de la LG

Comparaison à 22h
Radar Météorologique
de Niamey (dbZ)
Précipitations au sol (mm/h)

Vent (m/s) 650 hPa
altitude AEJ

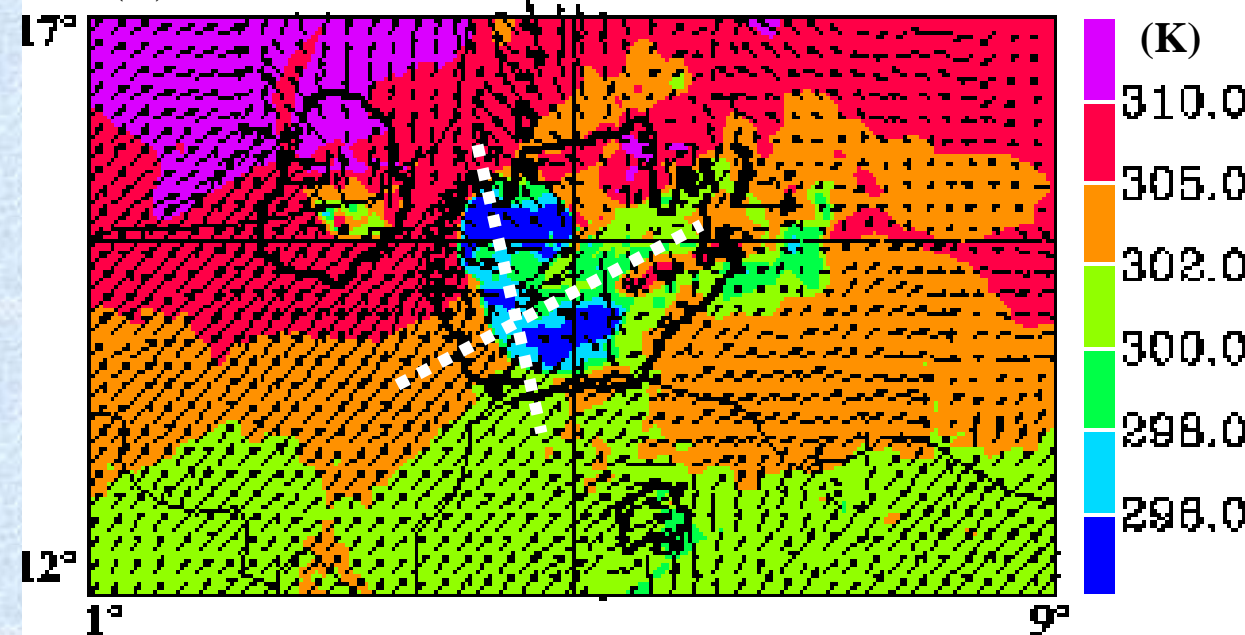


30m/s
→



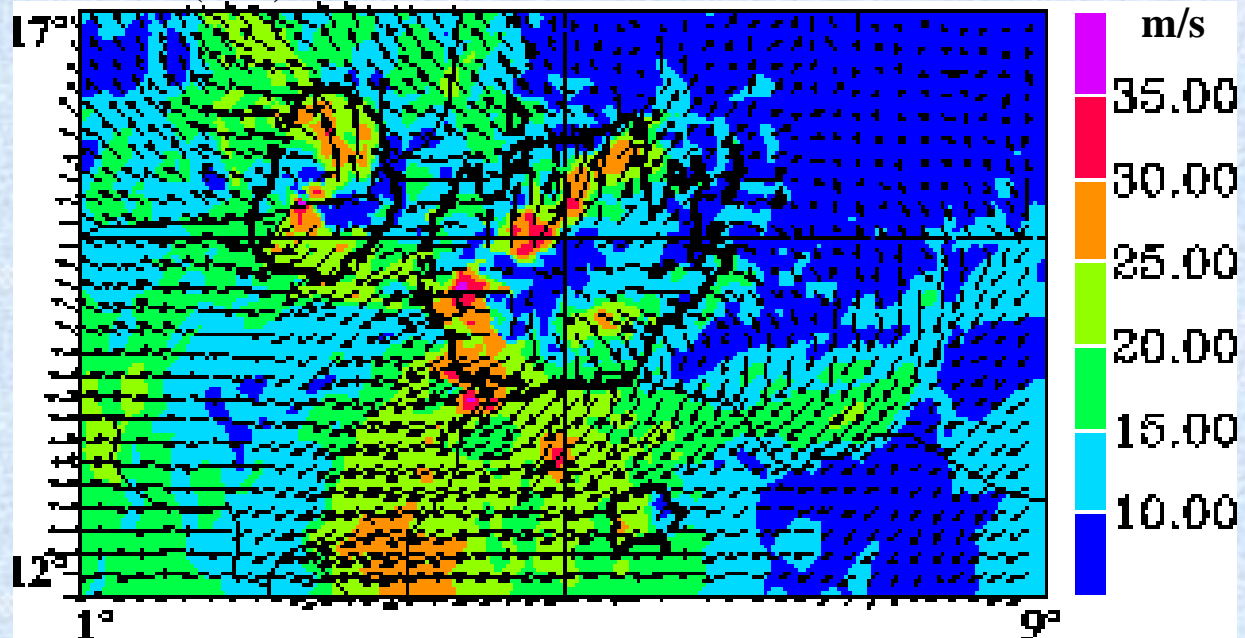
Phase mature de la LG

θ_v (K) Vent surface



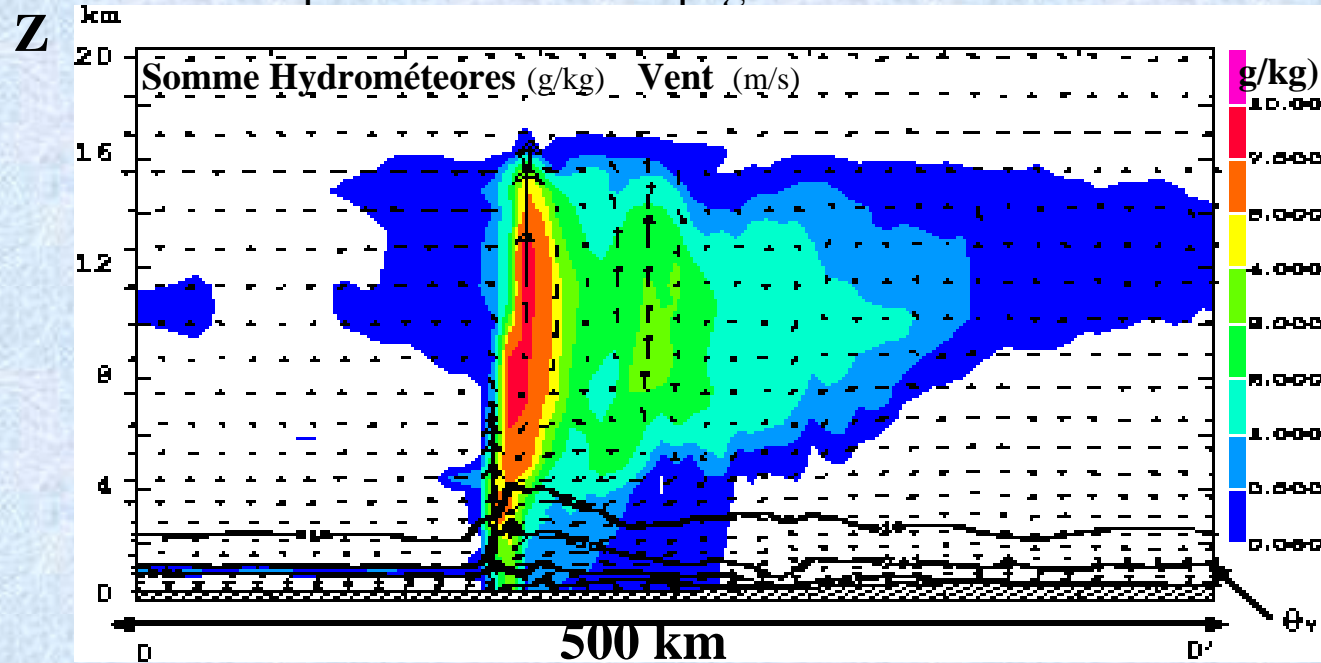
- **Zone Barocline :**
gradient 10 K / 500 km
- **Perturbation Convection**
10 K ~ Observation
(SYNOP, HAPEX)
- **Mousson Intense**

Vent (m/s) 150 hPa



- **Divergence anticyclonique**
Altitude TEJ

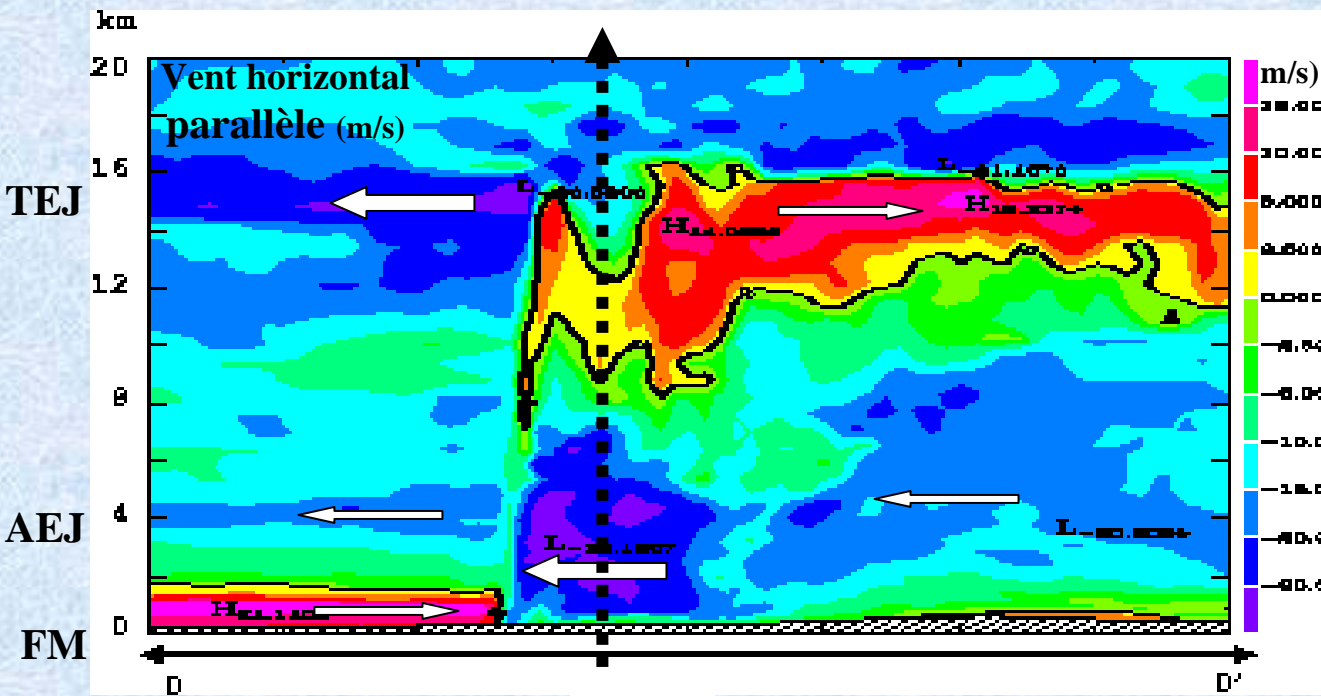
Coupes Verticales / Propagation LG



Partie convective
forts courants
intenses précipitations
enclume avant

Partie stratiforme
large enclume
mouvements mésoéchelle

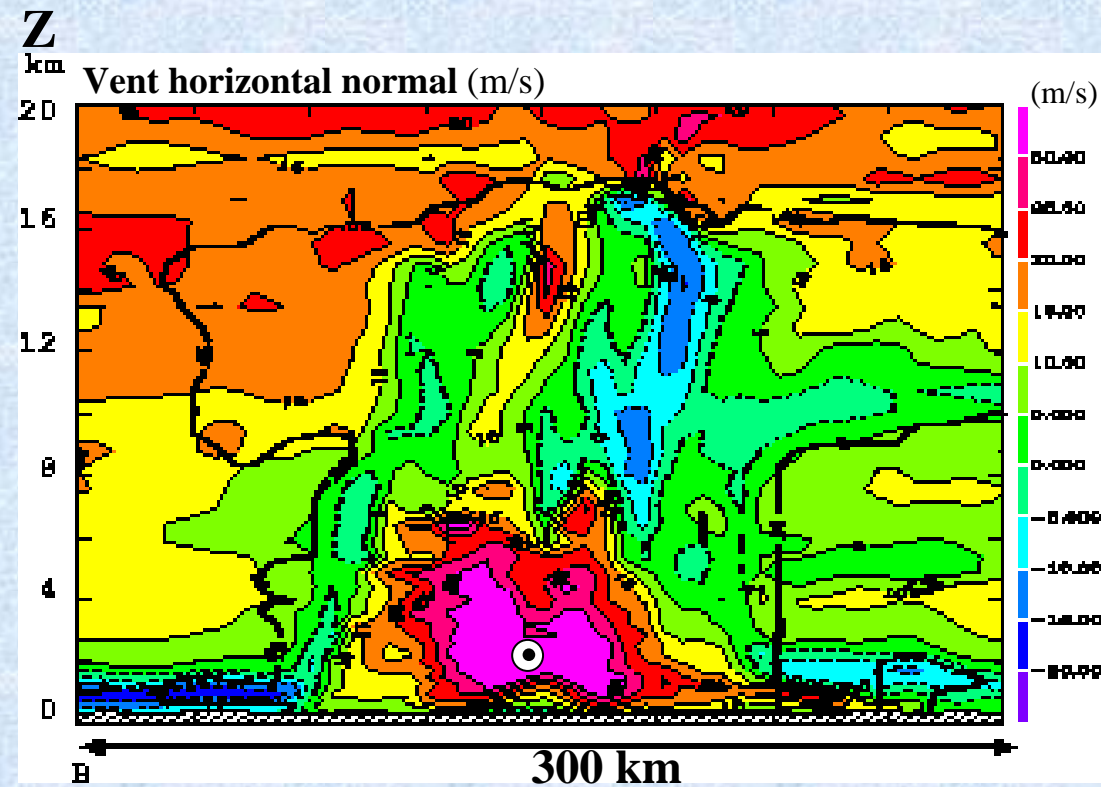
Courant de densité
épaisseur ~ 3 km



Flux
avant vers arrière PS

Courant de retour
arrière vers avant PC

Coupe Verticale // arc convectif

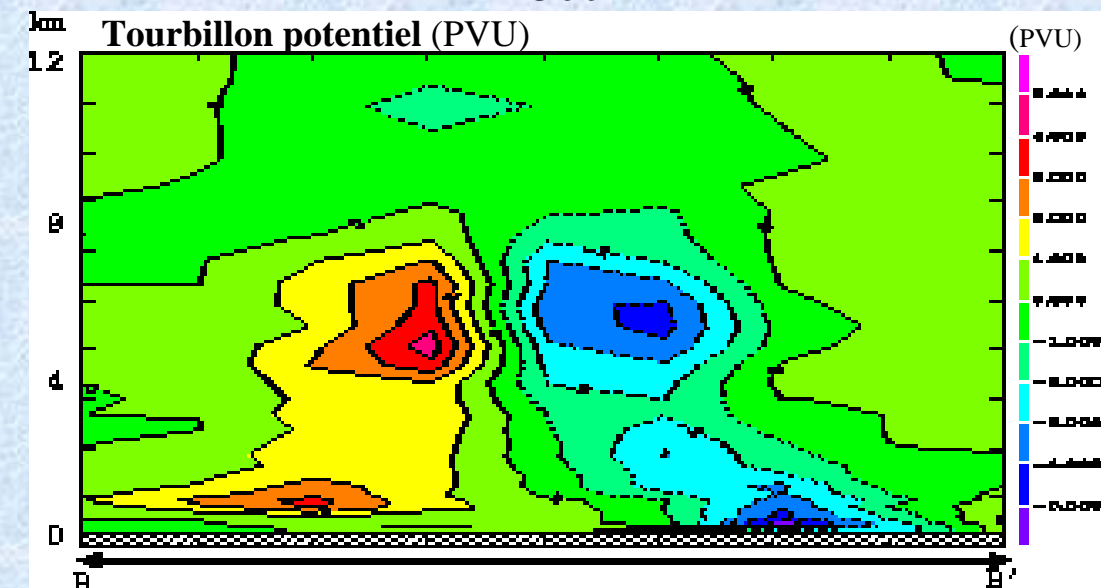


courant de retour intense

30 m/s

Injection flux de mousson

Variabilité le long de la ligne



Dipôle de mésovortex

altitude ondes d'est

Inversion Gradient Méridien de TP

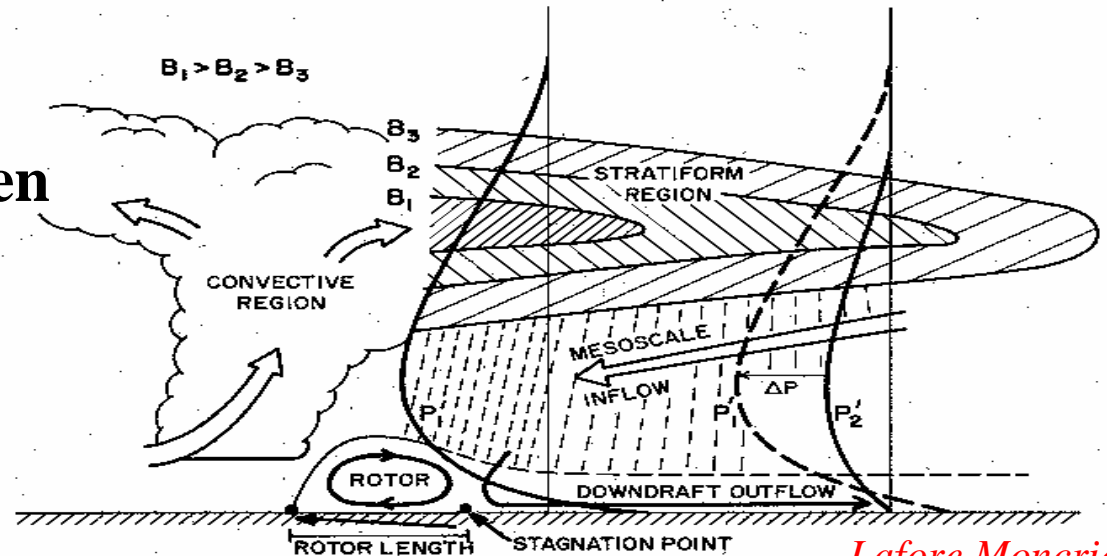
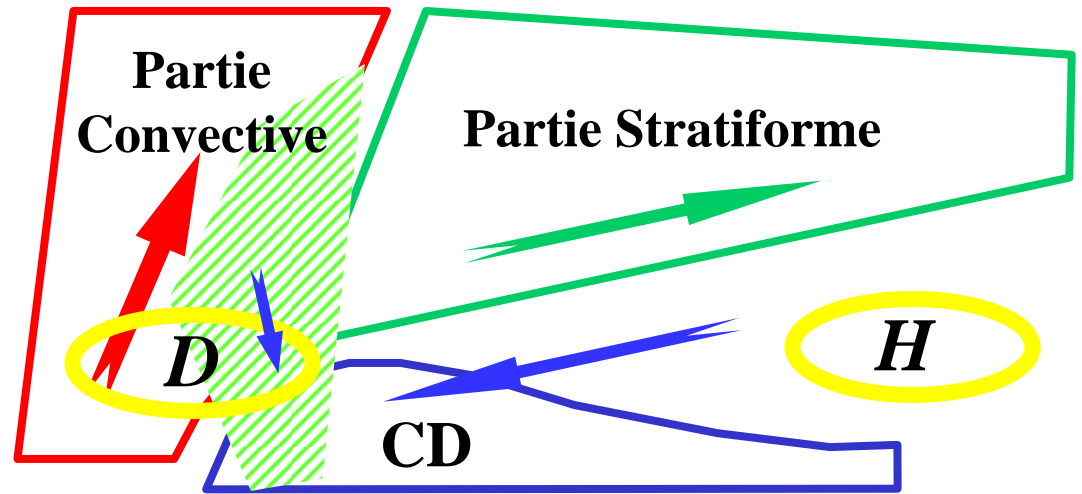
Modèle conceptuel de Ligne de Grains

(enseignement de COP81)

LG = Système Auto-entretenu

→ Convection → Précipitation → Poche d'air froid (évaporation) → étalement du CD →

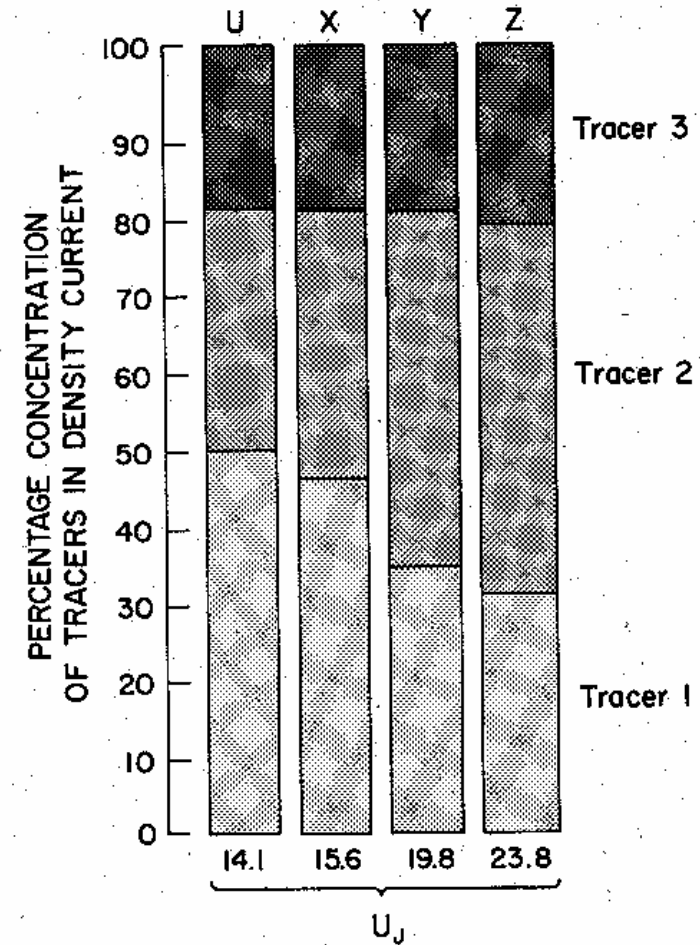
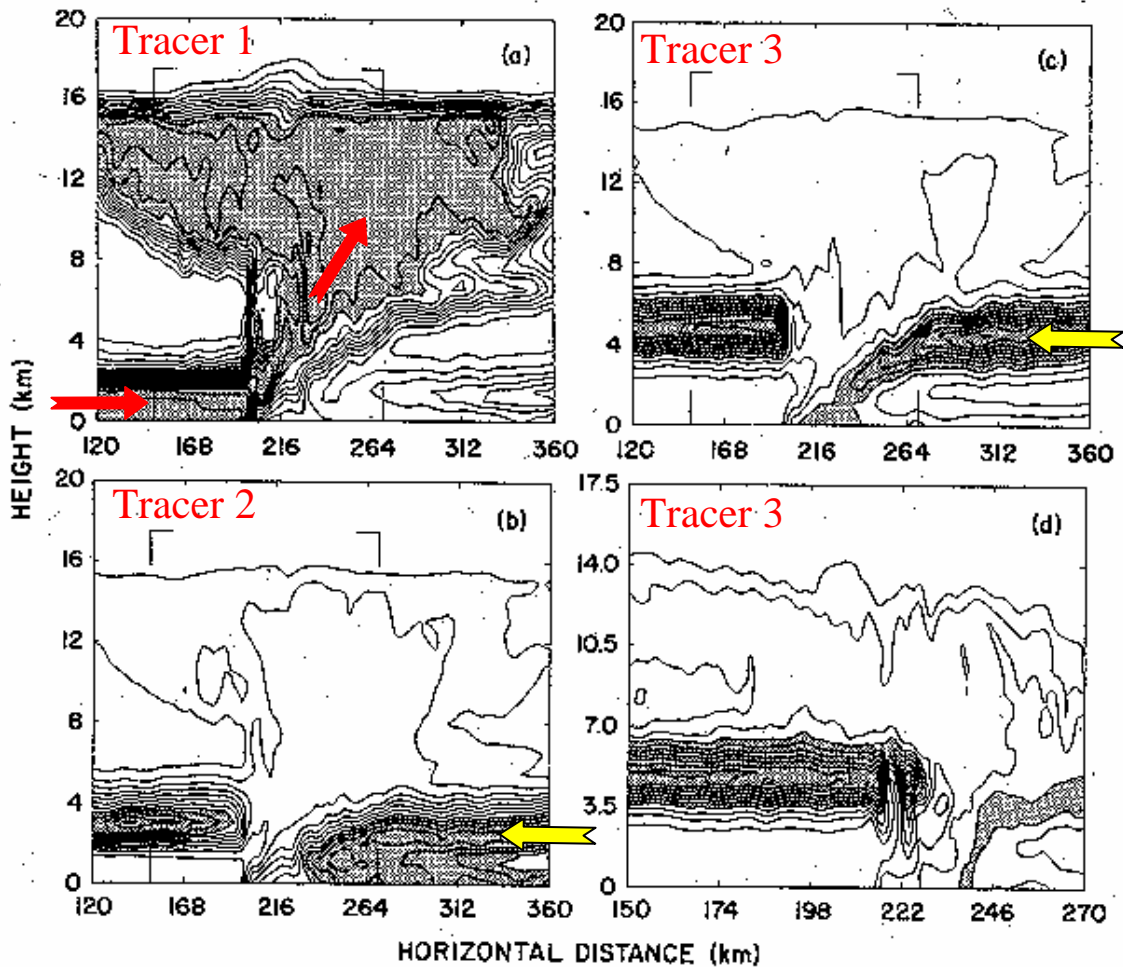
- **Partie convective**
- **Courant de Densité**
- **Partie stratiforme (glace)**
- **Conditions favorables**
 1. Instabilité CAPE
 2. Cisaillement
 3. Air sec
- **Pas de convergence en basse couche**



Analyse à l'aide de traceurs

- ← African Easterly Jet: Sec (Fux relatif)
- Flux de mousson: Chaud et humide

Impact de l'intensité de l'AEJ
Sur la composition du CD

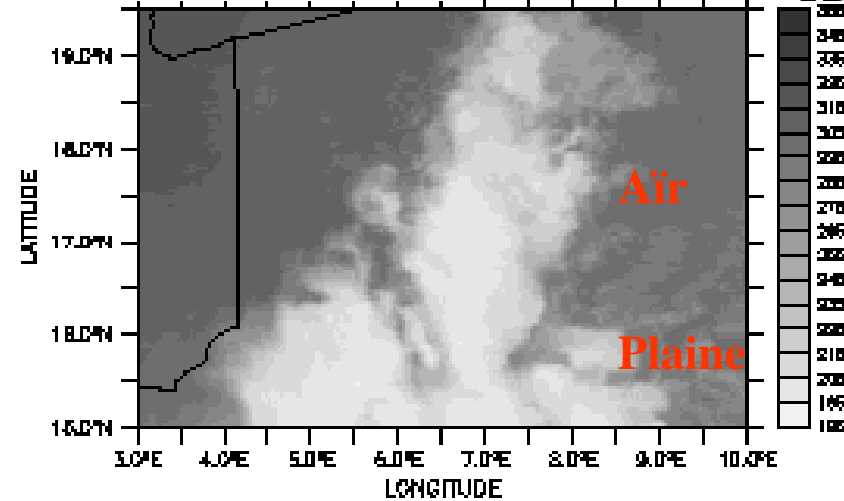


Développement

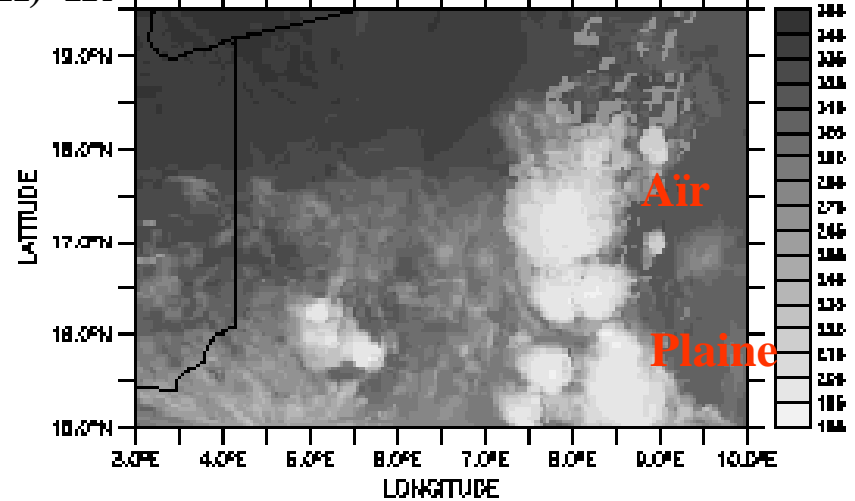
15 UTC

TB (K) IR

15 UTC



METEOSAT-4 IR EBBT (K)

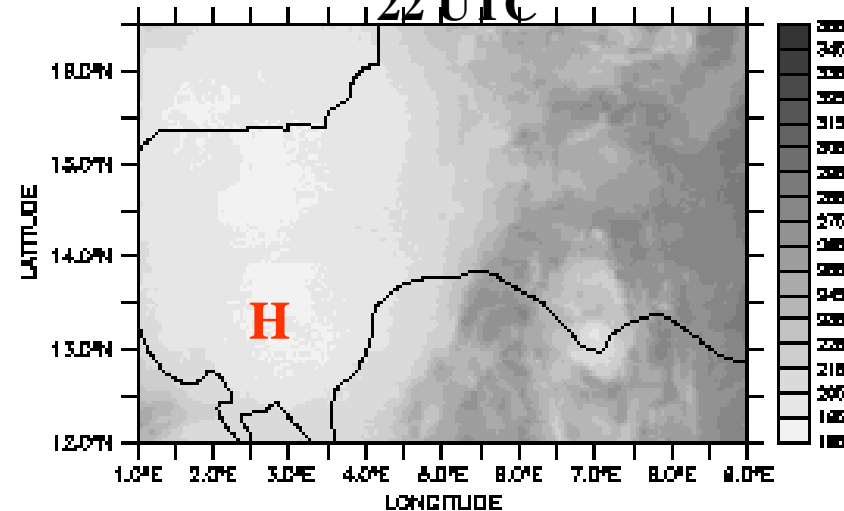


MESO-NH IR EBBT (K)

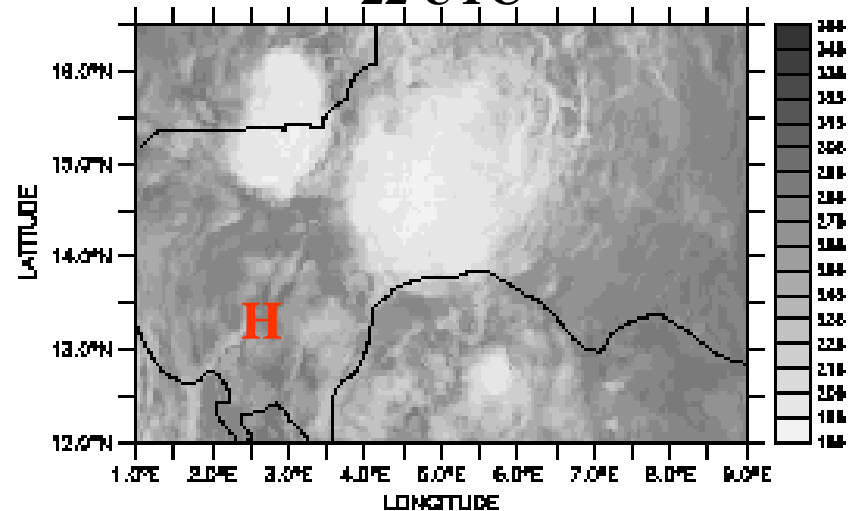
Phase Mature

22 UTC

22 UTC



METEOSAT-4 IR EBBT (K)



MESO-NH IR EBBT (K)