

AMMA

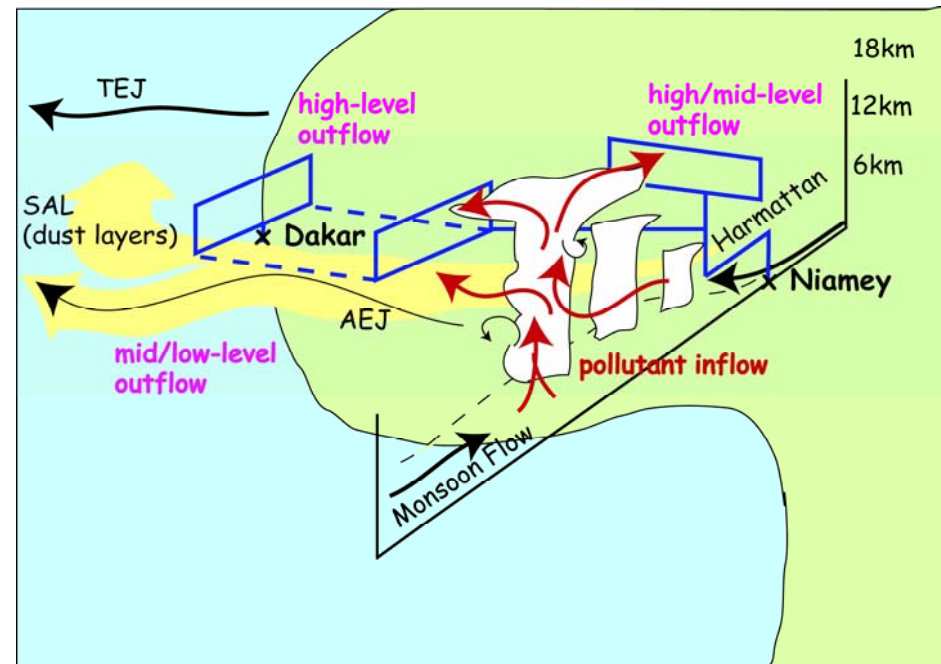


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LA : B. Sauvage, V. Thouret

- **Overall aim:** to quantify impact of WA emissions on global trop. composition, oxidising capacity and climate on seasonal & inter-annual timescales using LMDz-INCA

- **First evaluation of LMDz4-INCA**

against MOZAIC data and sensitivity studies to convection



IPSLCM

Single-column model

1D monitor for test academic or test cases

LMDZ 2D dynamical core

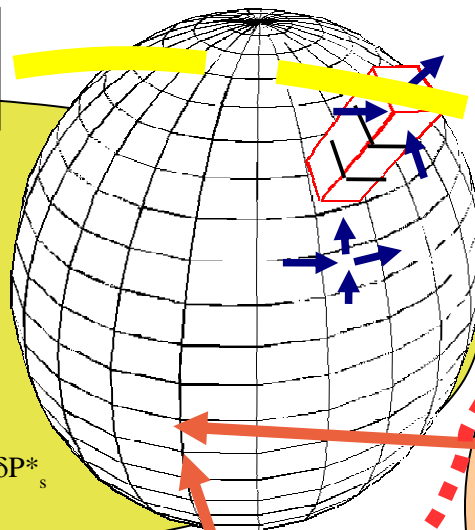
Finite difference formulation
conserving enstrophy and angular momentum

U^*, v^*, T^*, P^*_s

96x72x19

$\delta_t u^*, \delta_t v^*, \delta_t T^*, \delta_t P^*_s$

$\Delta t \sim 5 \text{ min}$



Atmospheric tracers

Transport by winds

Climatological year

Finite volume methods

* Turbulent mixing
* Convective transport

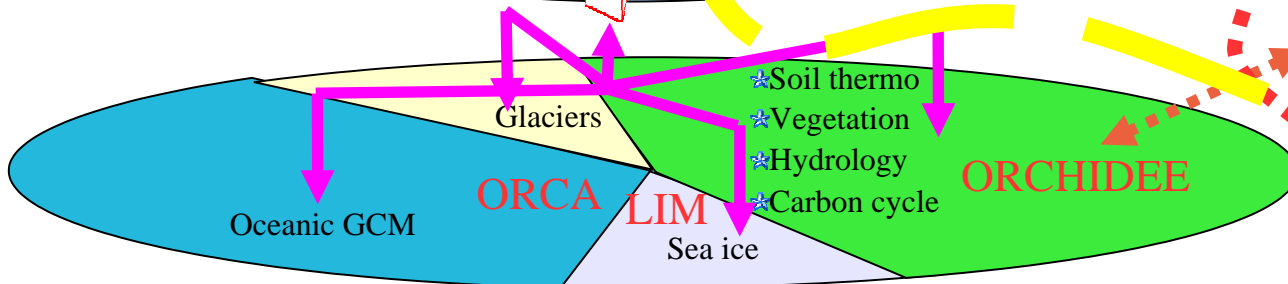
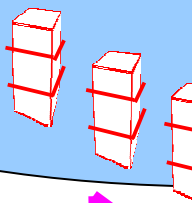
ORCHID

Several "Physics":

Earth
Mars
Titan
Parameterized
... VENUS

LMDZ physical package

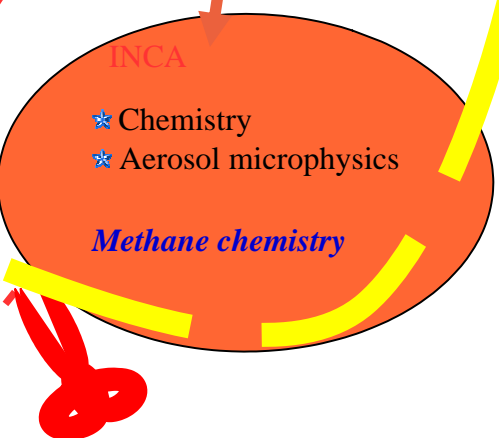
- radiation (Fouquart/Morcrette)
- boundary layer (LDM + options)
- convection (Emanuel and Tiedtke)
- clouds (New statistical scheme)
- topography (Lott)



INCA

* Chemistry
* Aerosol microphysics

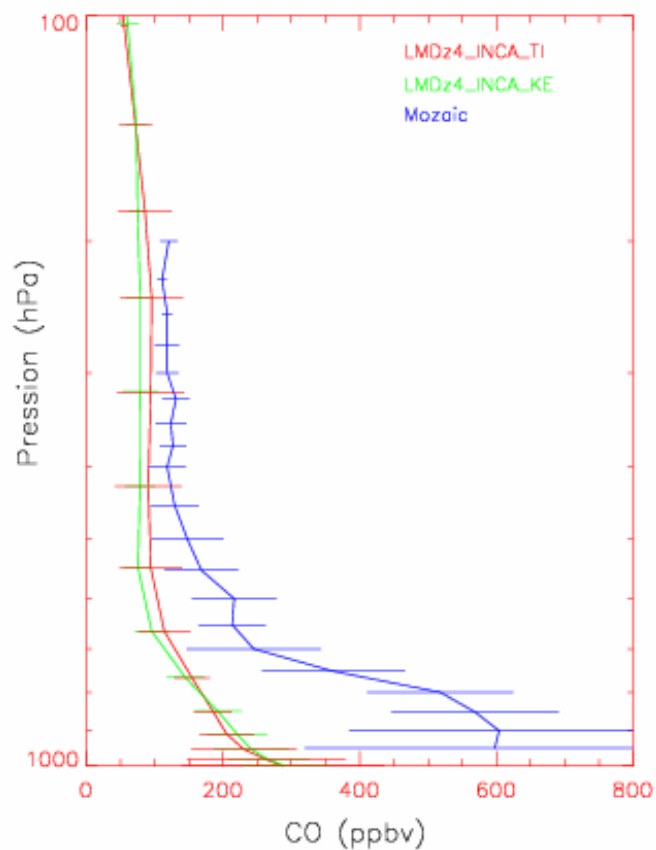
Methane chemistry



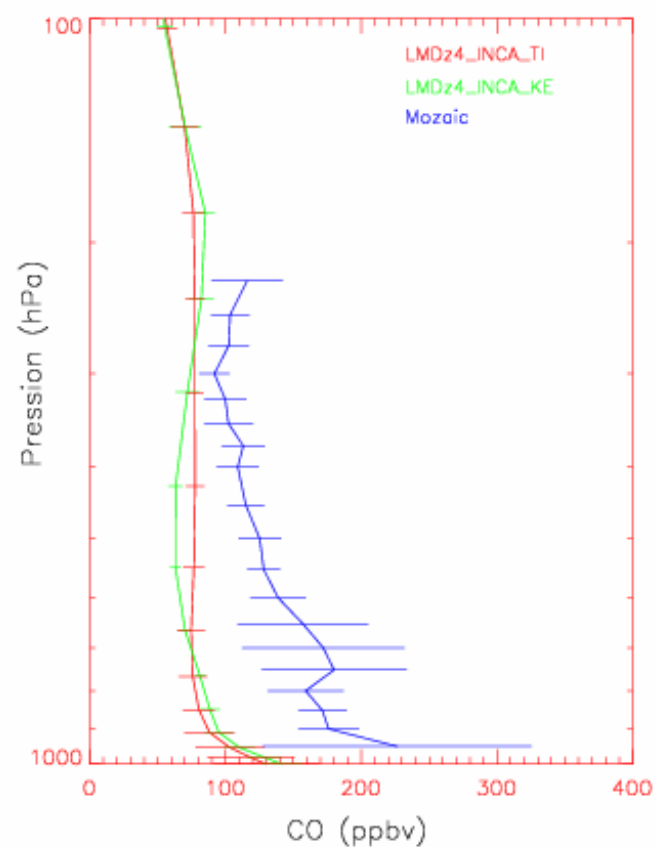


Simulated CO profiles at Lagos

Profils de CO à Lagos (3.33E-6.6N) en Janvier

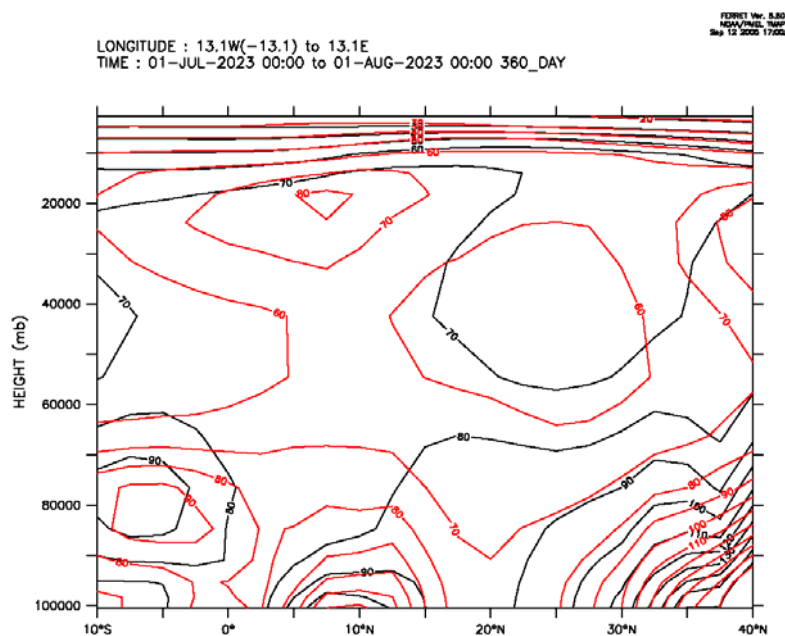


Profils de CO à Lagos (3.33E-6.6N) en Juillet

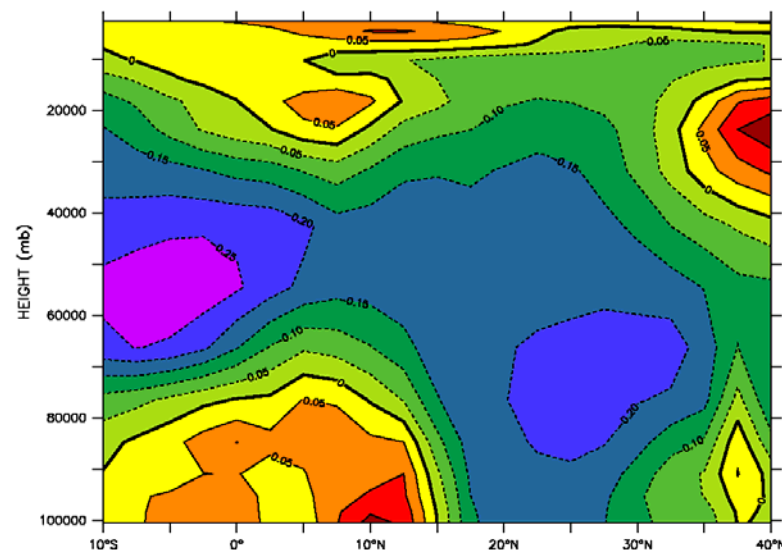




Simulated CO « AMMA transects » (Tiedtke/Emanuel)



Tiedtke
Emanuel

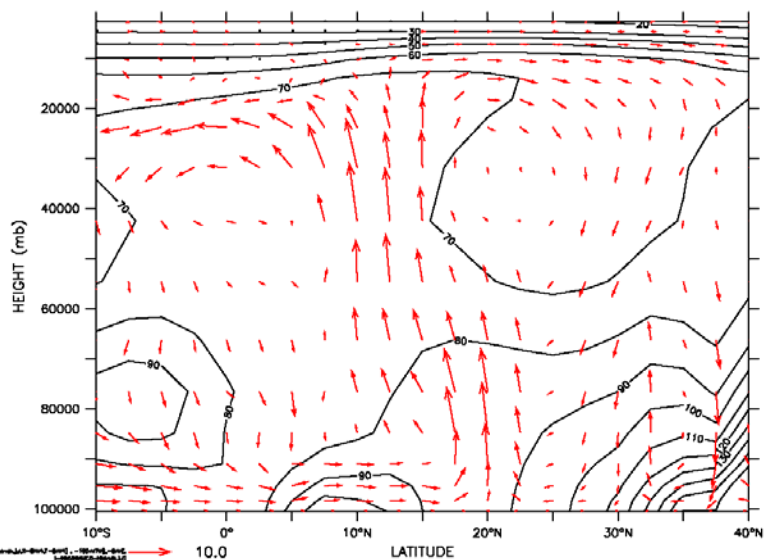




Simulated CO, wind(v, 100w) (Tiedtke/Emanuel)

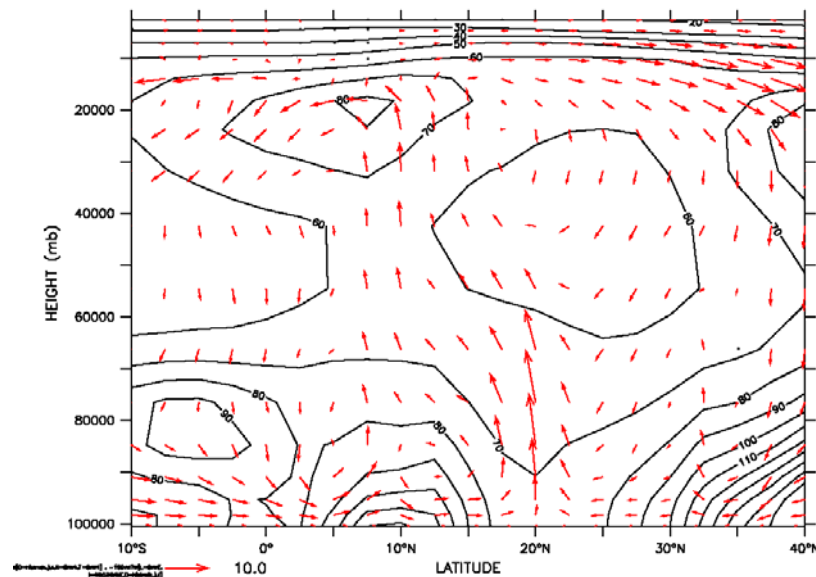
LONGITUDE : 13.1W(-13.1) to 13.1E
TIME : 01-JUL-2023 00:00 to 01-AUG-2023 00:00 360_DAY

FERRET Ver. 5.30
NOVA/PWGL TEMP
Sep 18 2000 18:08:30



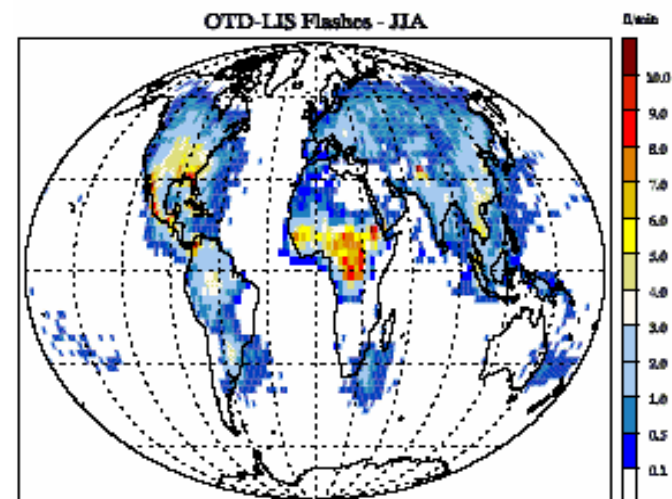
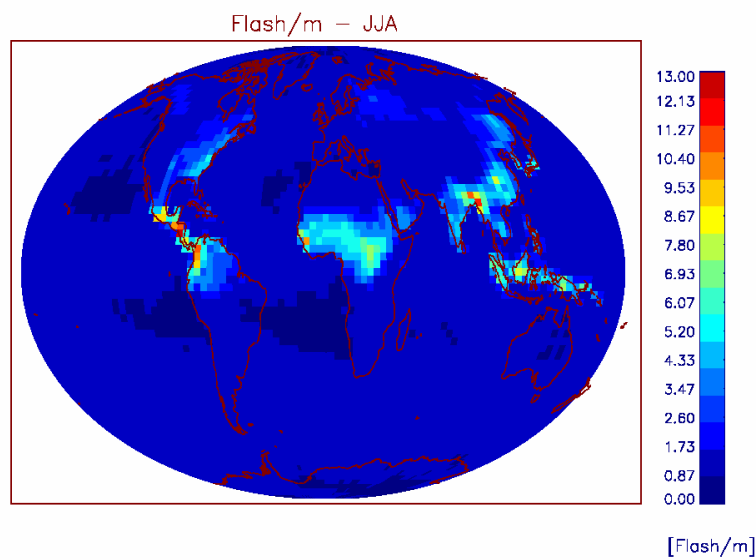
LONGITUDE : 13.1W(-13.1) to 13.1E
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FERRET Ver. 5.30
NOVA/PWGL TEMP
Sep 18 2000 18:05:43



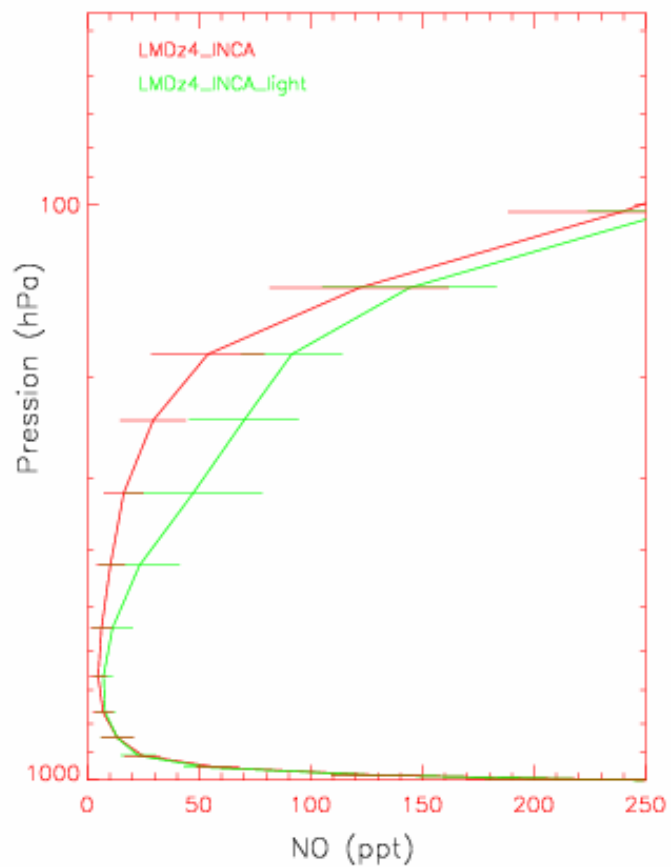


Flash frequency (LMDZ-INCA/OTD-LIS)

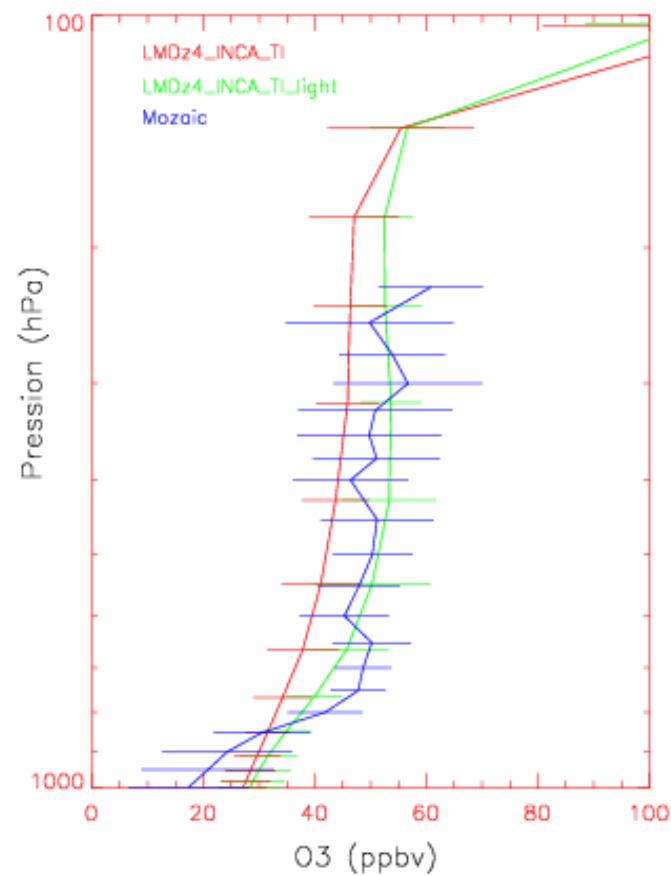




Profils de NO à Lagos (3.33E-6.6N) en Juillet



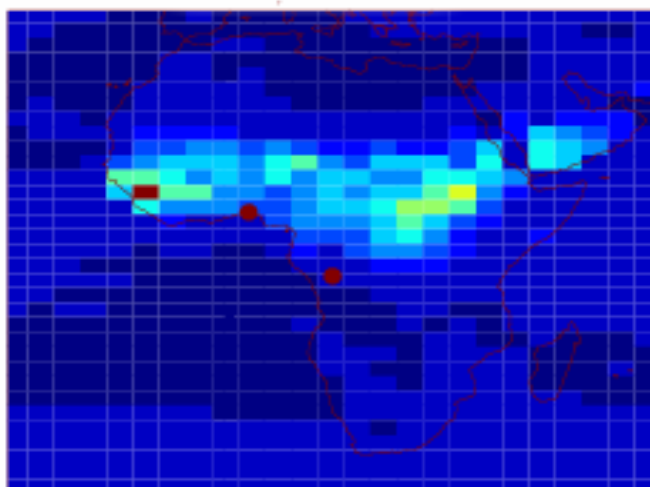
Profils Ozone à Lagos (3.33E-6.6N) en Juillet



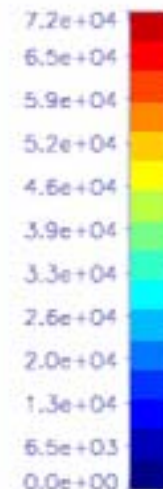
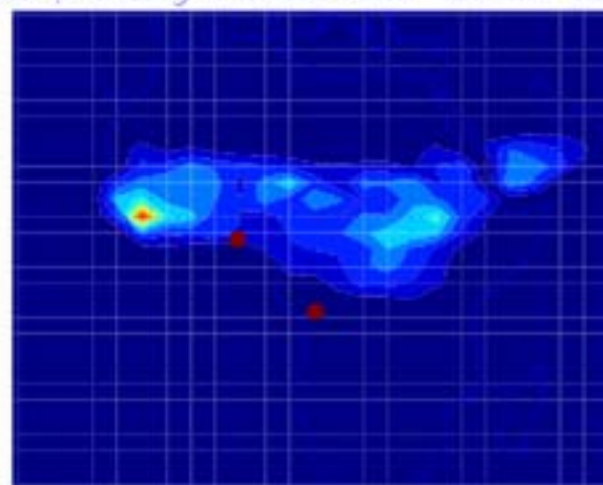
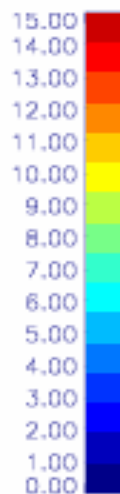


Simulated lightning (Tiedke scheme)

Flash/mn



NO prod_light a 300hPa en Juillet



molecules/cm³/s