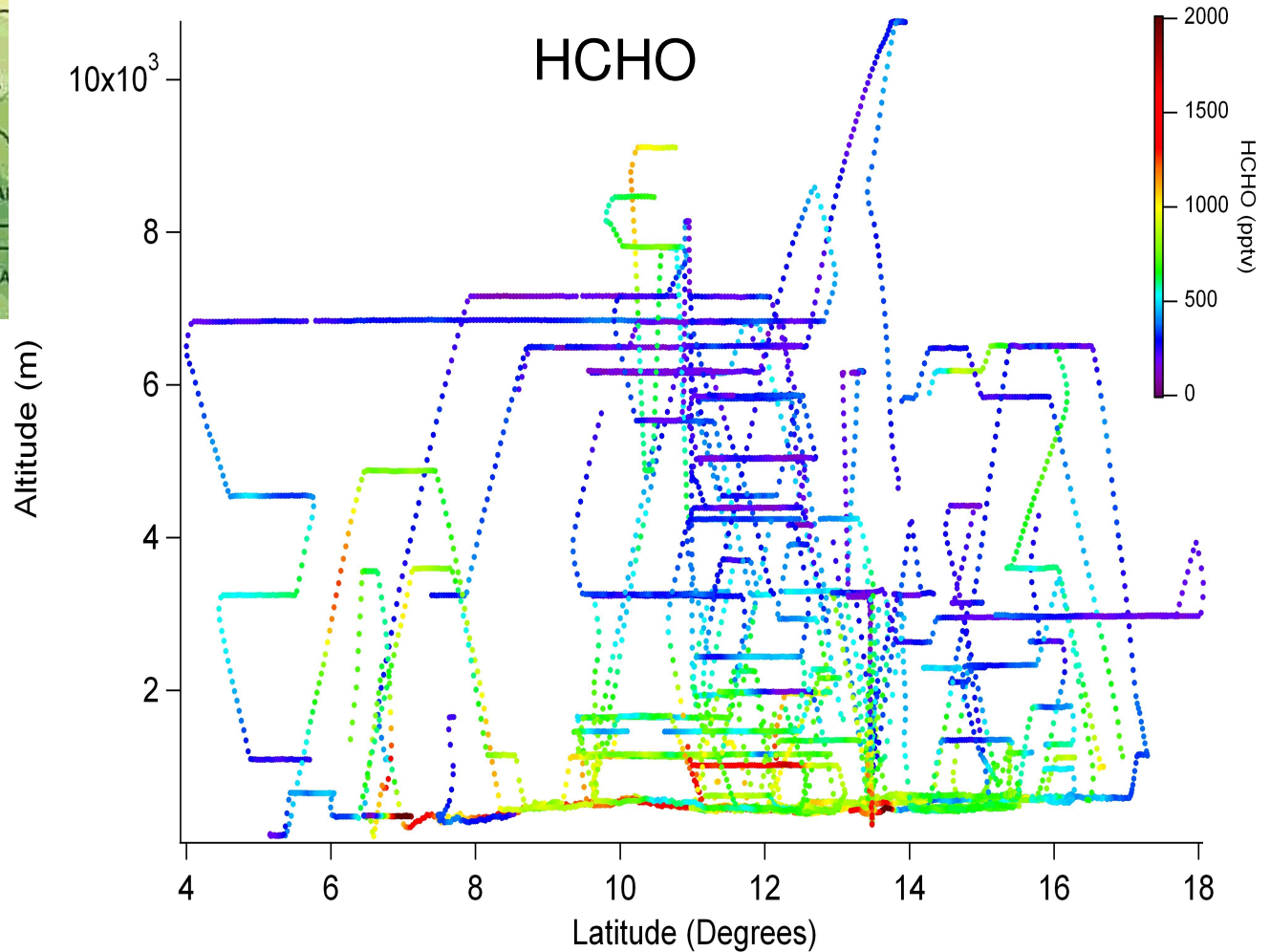
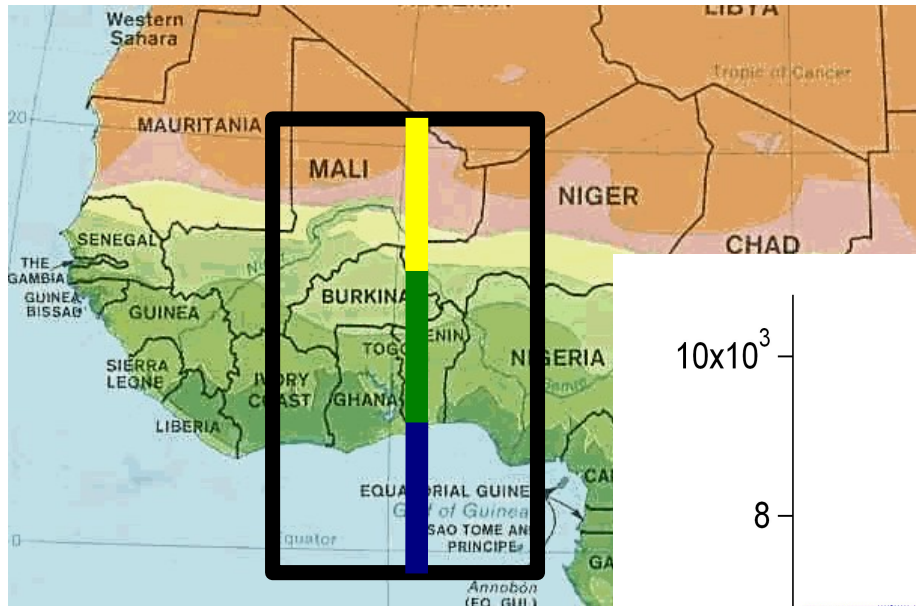


# West Africa atmospheric composition August 2006



# AC&C Vertical distribution

## Ideas from the AMMA program



### 1. Meridional distribution of chemical species over WA

#### What has been done in AMMA?

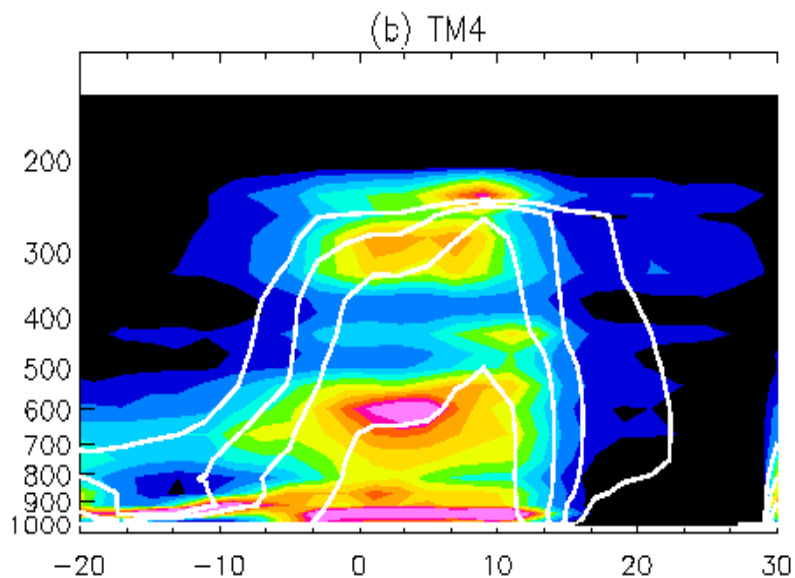
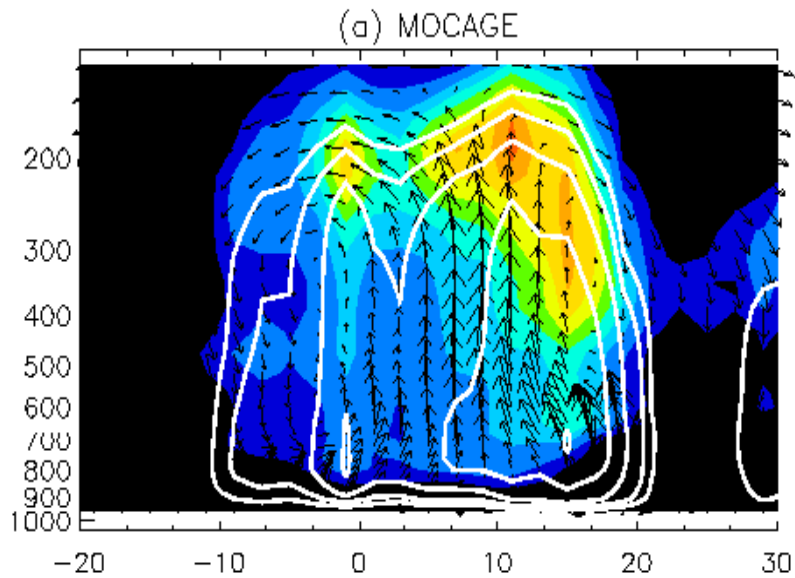
- Intercomparison of tracer transport (*Williams et al.*, BAMS)
- Intercomparison of LiNO<sub>x</sub> source (*Barret et al.*, ACP in prep.)

TM5 (KNMI), LMDz-INCA (IPSL), MOCAGE (Meteo-France), p-TOMCAT (Univ Cambridge)

#### What could be done ?

- Intercomparison of ozone and (soluble) precursors meridional distributions vs. observations

# A step further: comparison of convective mass fluxes



August 2006 latitude-pressure cross-sections of convective mass fluxes averaged over 10W-40W. Color contours represent the detrainment mass fluxes ( $\text{kg}/\text{m}^2/\text{s}$ ) and solid white contours the updraft mass fluxes ( $0.001, 0.002, 0.004, 0.008, 0.016 \text{ kg}/\text{m}^2/\text{s}$ ).

# AC&C Vertical distribution

## Ideas from the AMMA program



## 2. CRM (explicit convection) vs. 1D column (parameterized convection) - “*GCSS approach*”

### What is being done ?

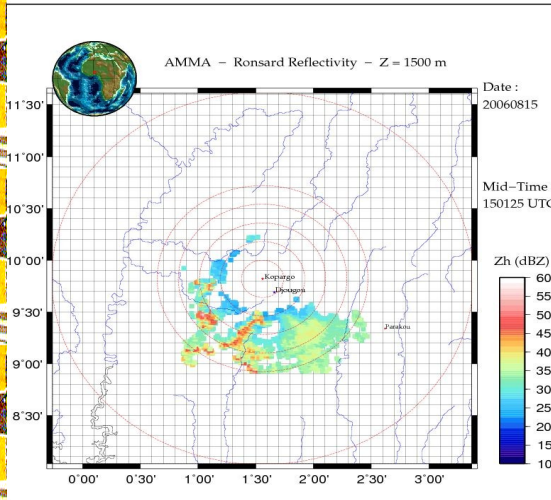
Case study (15 August 2006) convective system over Benin  
Full chemistry with the Meso-NH CRM model

### What could be done ?

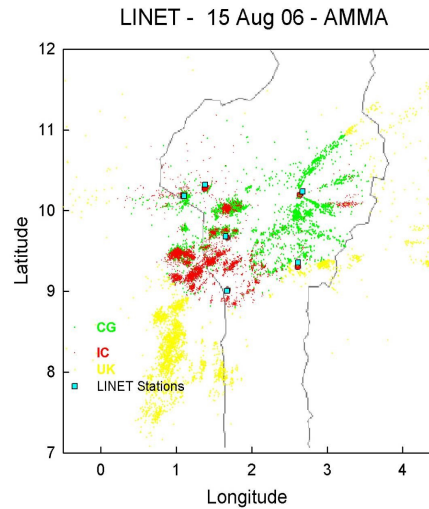
- Intercomparison of CRM simulations with obs (radar, aircraft measurements – chemistry and dropsondes, lightning network, ...)
- Comparison with 1D column from CTM or mesoscale models
- Definition of new diagnostics for convection (apparent heat source  $Q_1$ , apparent moisture sink  $Q_2$ , apparent tracer source  $Q_3$ ?)

A new WMO International Cloud Modeling case ? see Barth et al., 2007, ACP

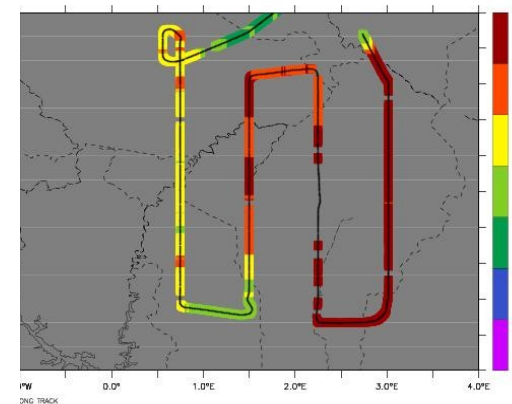
# AMMA Case study: 15 August 2006



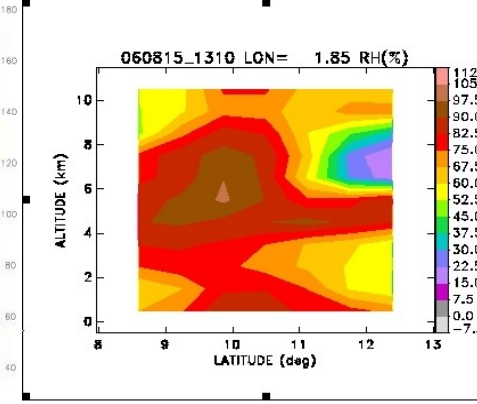
RADAR



LINET

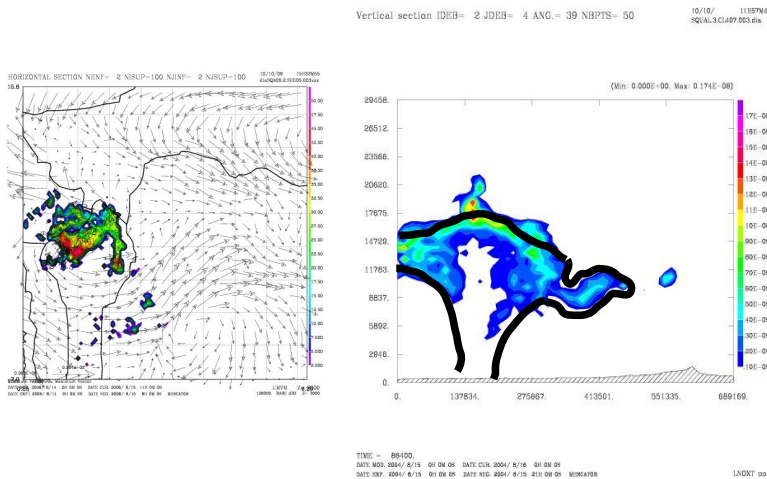


AIRCRAFT CHEM



DROPSONDES

CRM simulations

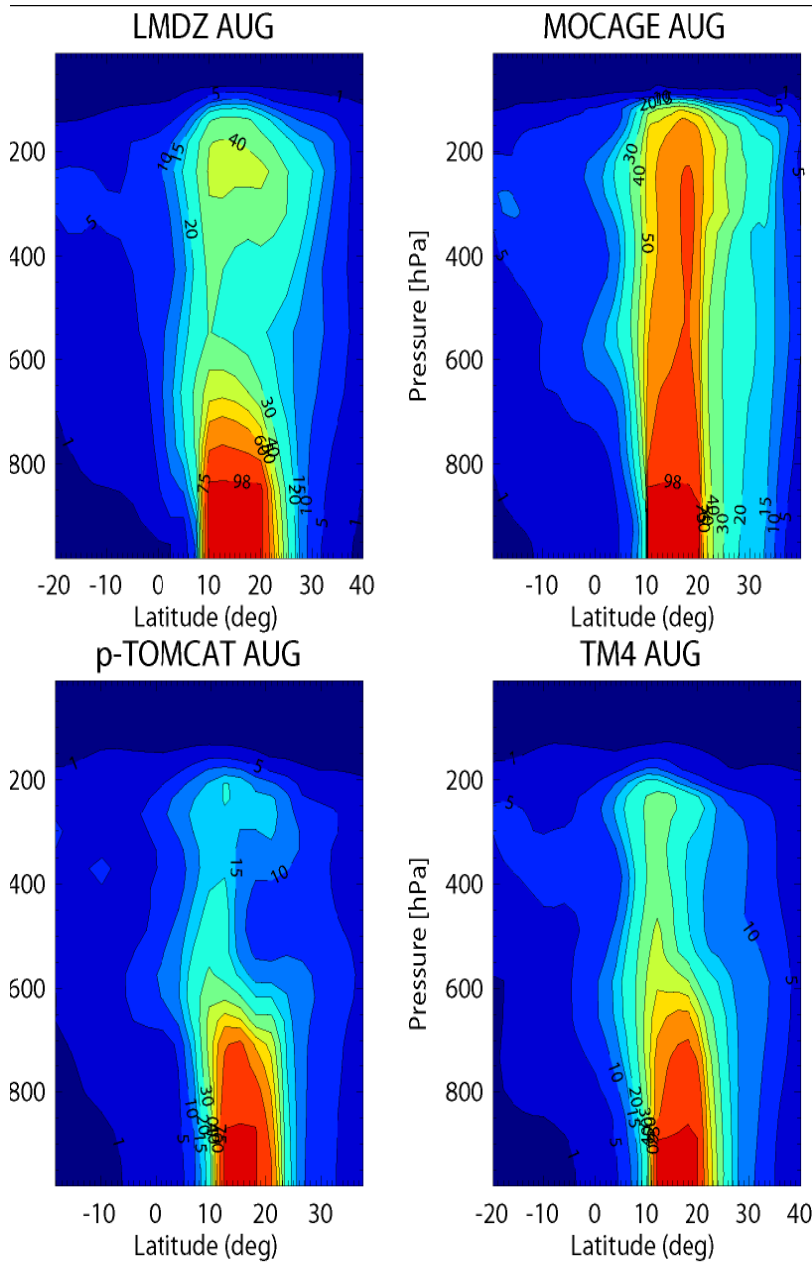


← comparison  
new diagnostics ? →

1D column

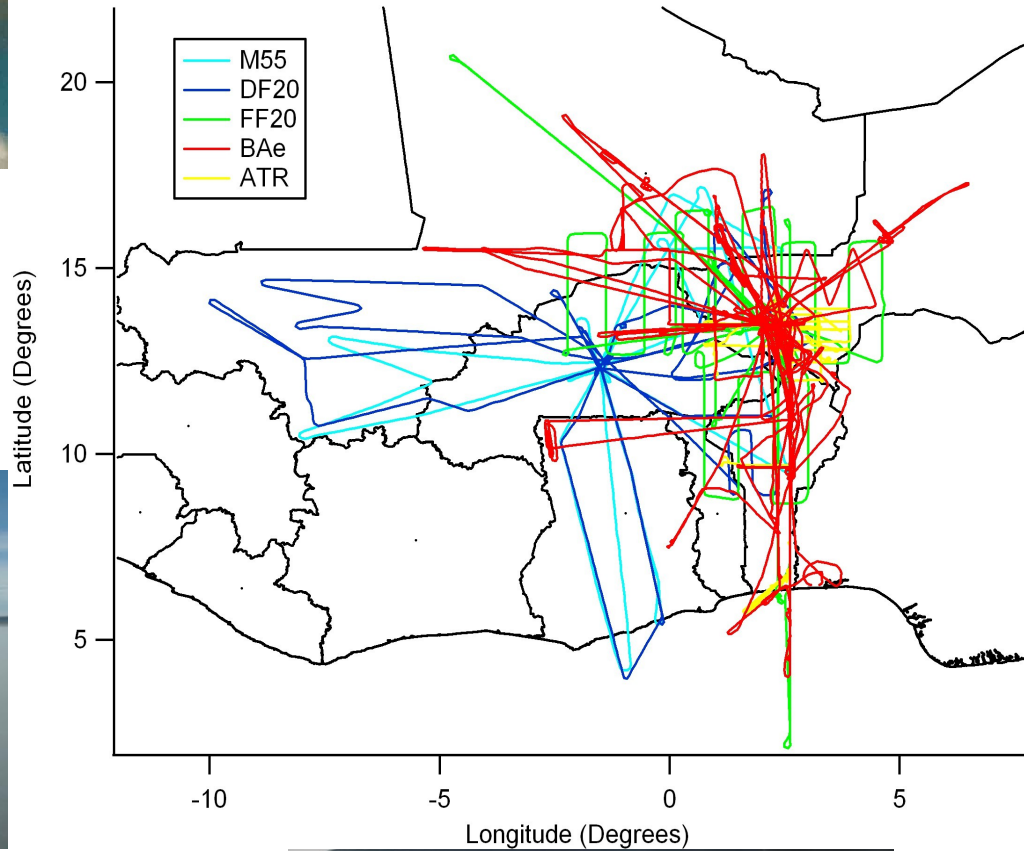
parameterized  
convection and  
scavenging

# Models intercomparison over West Africa



Monthly means of the tropospheric distribution of the Sahel passive tracer (10°N-20°N) for August 2006

# Experimental strategy Special Operation Period



# Meridional distribution of chemical compounds over West Africa

Meso-NH

BAe-146

