



Interactions between Atmosphere & Chemistry/Aerosols

Kathy Law & Serge Janicot

- Introduction - Kathy Law
- The TTL & Geophysica objectives in AMMA - Francesco Cairo
- Results from the TROCCINOX campaign - Hans Schlager
- WAM dynamics for Chemists - Doug Parker & Jean-Philippe Lafore
- 2.4 objectives relevant to 2.1 - Celine Mari
- Tracer convection schemes in global models - Jean-Yves Grandpeix
- First results from LMDz-INCA over West Africa - Mai Pham

Plus lots of discussion and interaction!!

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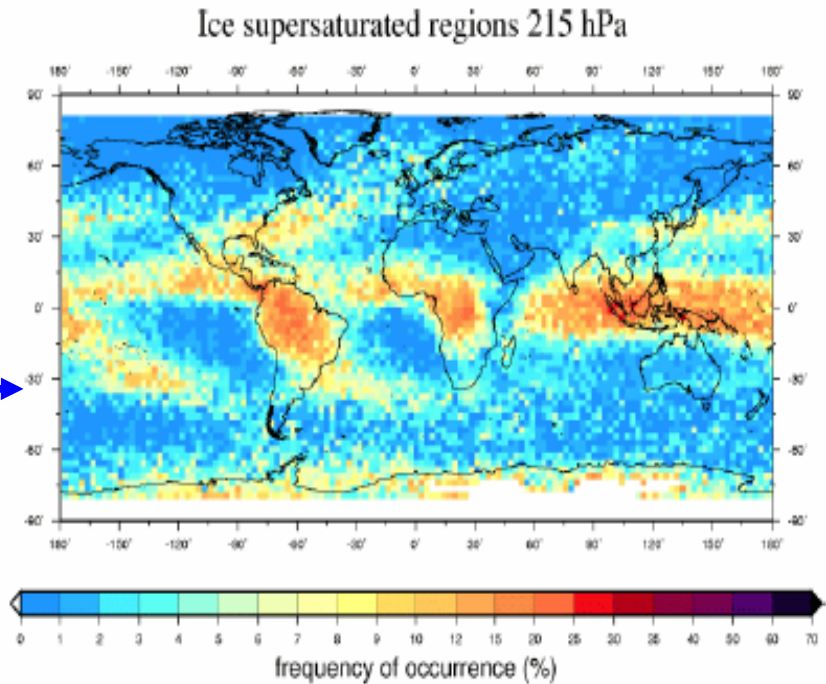
Conclusions



Points for further interaction id

- TTL and studies of cirrus
- Geophysica, CALIPSO, ISSCP

*The global distribution of ice-supersaturated regions as seen by the MLS
Peter Spichtinger, Gierens and Read*



- Aerosols - heat low dynamics etc. - on-going

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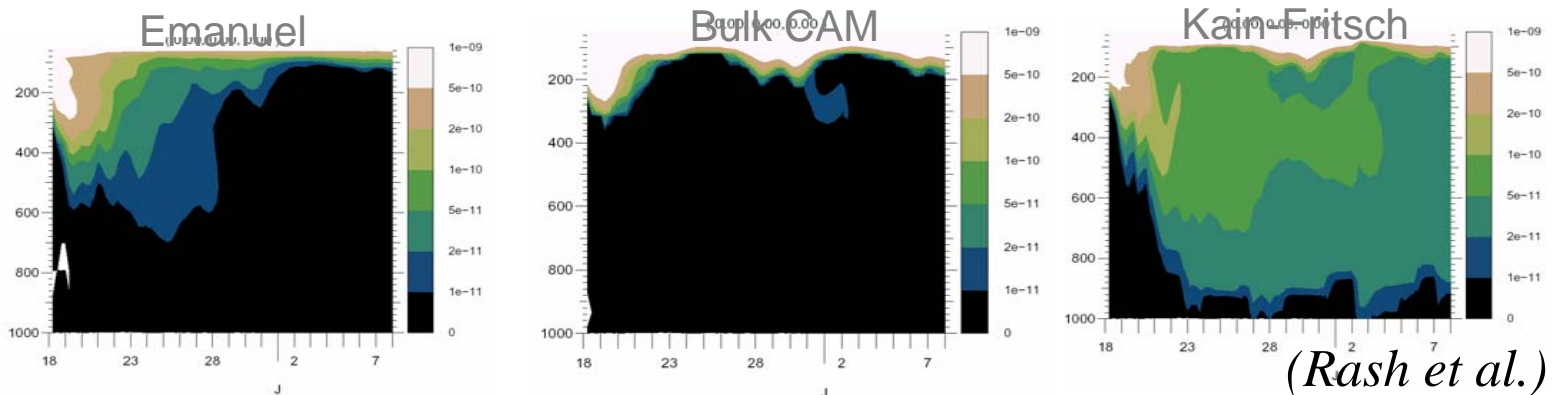
Conclusions



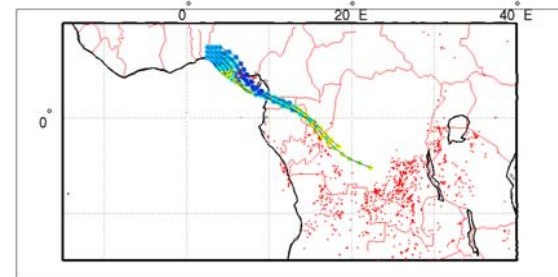
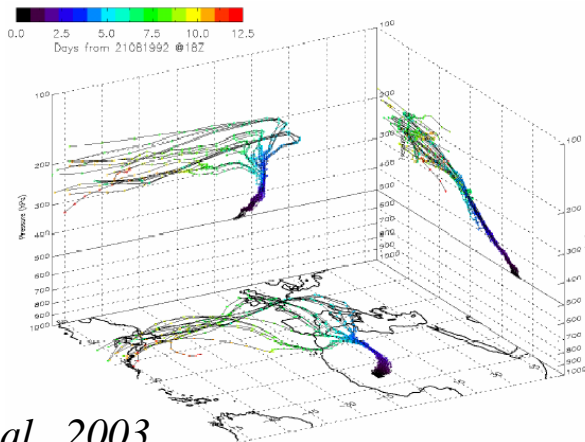
Points for further interaction identified:

- Evaluation of global model convective tracer params - initiated discussions on how to do this (continue in 4.1/1.1/2.1/2.4)

Upper Tropospheric Ozone-like Tracer / TOGA-COARE (Dec-Jan)



- Flights looking at dry intrusions/ air masses from SH (burning)



Sauvage et al., 2005

Roca et al., 2003

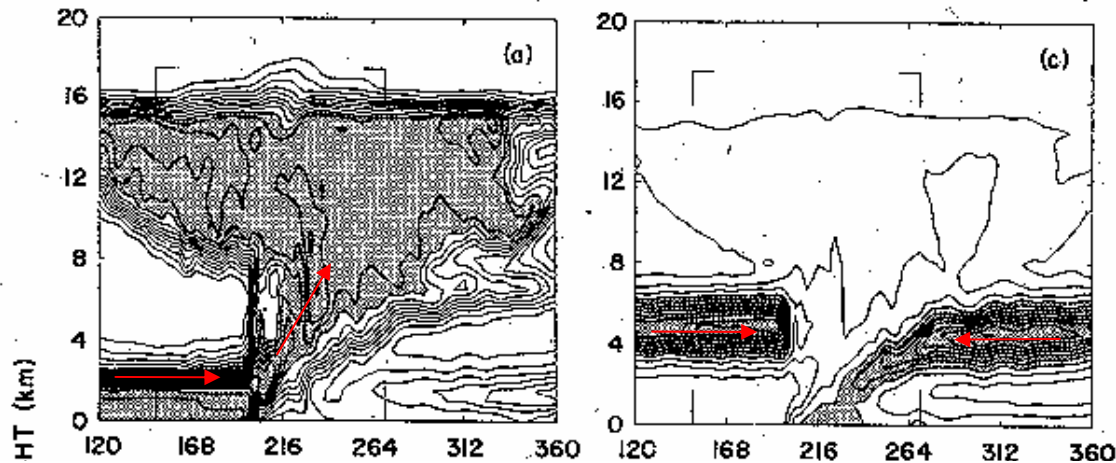
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Points for planning chem./aerosol flights:

- MCS flights - design plan for 5 aircrafts using Meso NH tracer runs;
 - important to sample (monsoon) inflow and outflow



Lafore et al., 1989

➔ 3D picture of MCS + tracers

- organise practice run using existing data from Aug '05

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Points for planning chem./aerosol flights:

- Plan flight looking at Cumulus Congestus (mid-level outflow @ 5-6km) & possibly shallow cumulus (might be important for trace gas budgets)
- Pre-convection 'background' flight better further north
- Survey type flights (e.g. N-S transect) for global model evaluation
- Lightning (NO_x) - coordinated flight of Geophysica/D-F20 with Djougou ground-based measurements



*** Regional scale models

1. Ozone budget & TTL chemical composition

MNH-C (C.Mari, C.Delon, LA)

RAMS (V. Marécal, LPCE; S. Cautenet & M. Leriche, LAMP)

BOLAM-MOLOCH (F.Fierli, ISAC-CNR)

--> Action (F. Fierli & C. Mari):

Identify one case study for intercomparison (WP21: Aug' 04 / dry run).

2. Aerosols (focus on dust)

MNH-C-Aerosols (P. Tulet, CNRM)

RAMS-Dust (G. Cautenet, LAMP)

CHIMERE-Dust (C. Schmechtig, LISA)

Regional LM/DRAIS/MADE (B. Vogel, Karlsruhe)

--> Action (C. Schmechtig):

Identify one case study for intercomparison (AERONET, satellite, ...)



*** Regional climate models

RegCM3 (Lioussé, LA-Trieste)

*** Global models

ECMWF (P. Bechtold)

LMDz-INCA (K. Law & M. Pham, SA; Hauglustaine, LSCE; Schultz, LSCE)

MOCAGE-MOPITT (V.H. Peuch & J.L. Attié, CNRM)

TM4 (C. Lioussé, LA)

TOMCAT (G. Carver & N. Warmick, Cambridge)

TM5 (G. Verver, KNMI)

--> Need for further discussions to propose a common strategy

Action (G. Verver & G. Carver): organize a meeting

*** Trajectories

Real-time satellite+FLEXPART (C. Mari, LA-ETHER)

--> Forecasts will be available for the dry season (comments welcome !)