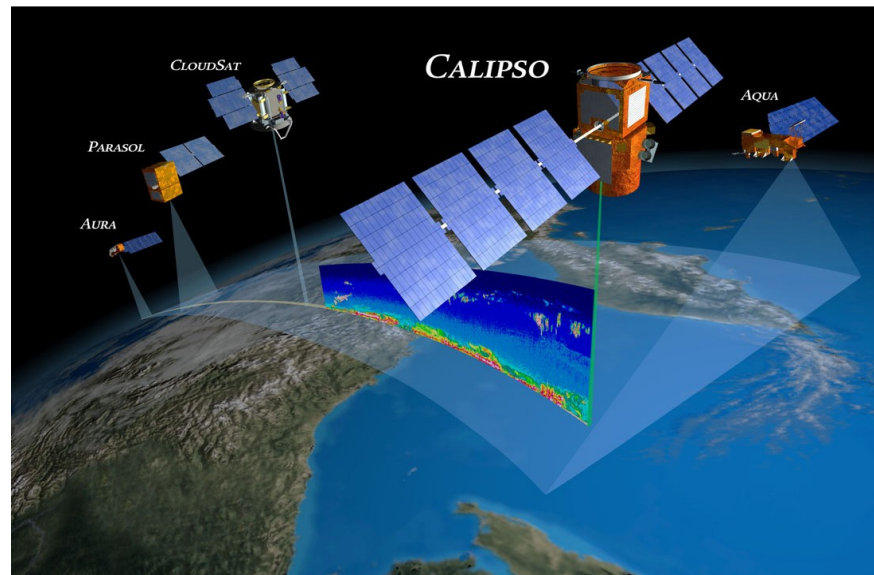


Évaluation de la fraction et de l'épaisseur optique des nuages

D. Konsta, J-L Dufresne, H. Chepger, A. Idelkadi, G. Cesana,
A. Jam, J. Jouhaud



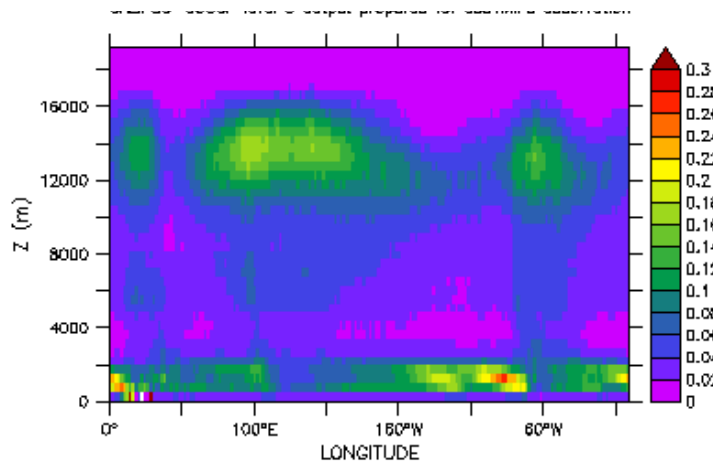
CALIPSO: Lidar, profil vertical de la fraction nuageuse

PARASOL: reflectances directionnelle du rayonnement solaire, pour un angle de visé particulier: => bonne approximation de l'épaisseur optique

COSP: simulateur d'observable

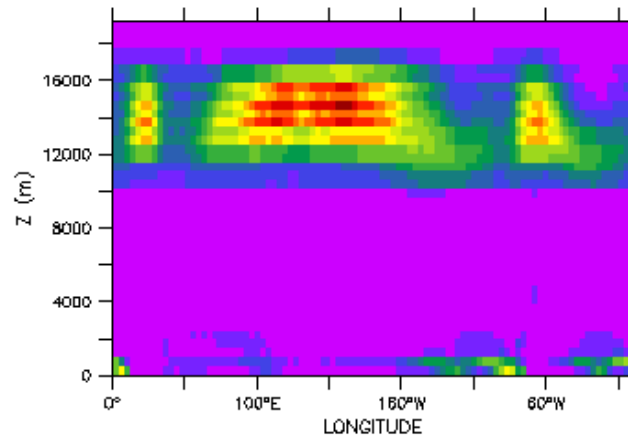
Fraction nuageuse, moyenne annuelle et méridienne [-30°:30°]

Obs GOCCP



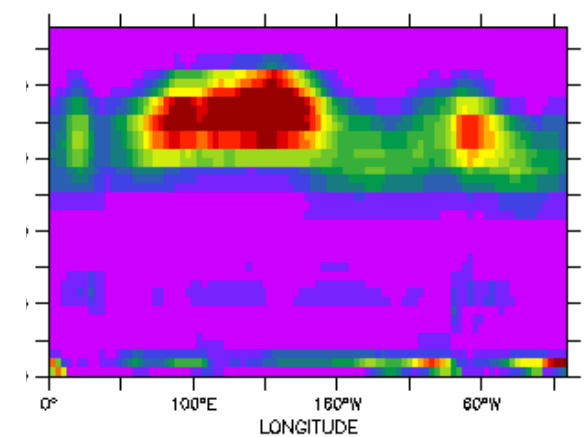
CALIPSO Cloud Fraction (%)

LMDZ5A



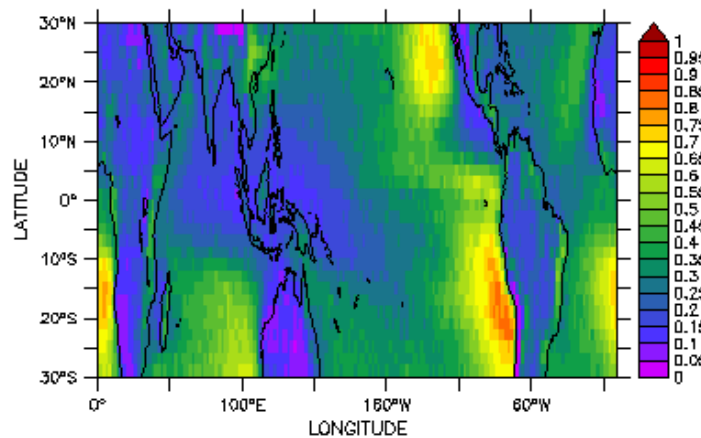
Lidar Cloud Fraction (532 nm) (1)

LMDZ5B

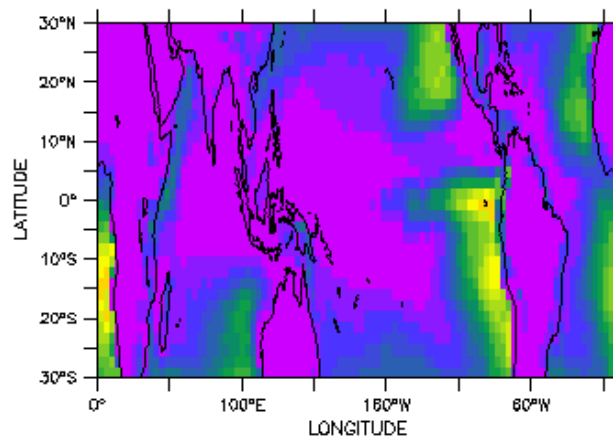


Lidar Cloud Fraction (532 nm) (1)

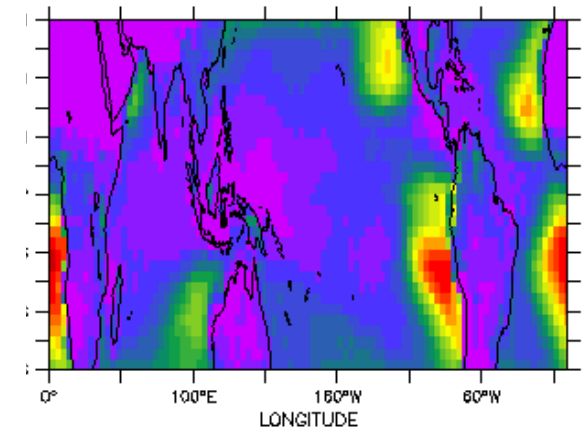
Nuages bas



CALIPSO Low-Level Cloud Fraction (%)



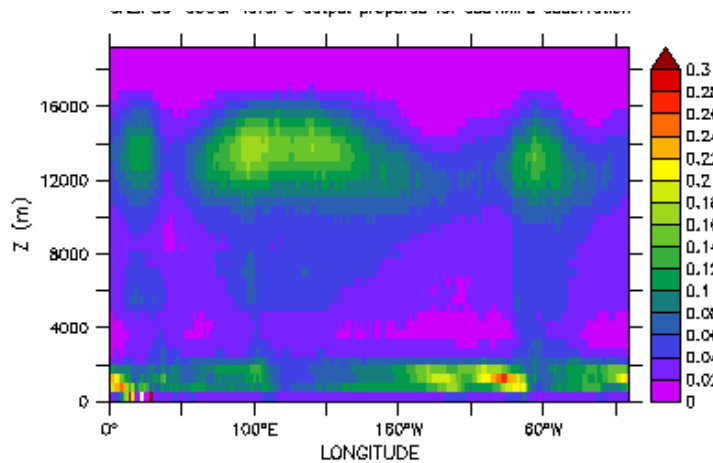
Lidar Low-level Cloud Fraction (1)



Lidar Low-level Cloud Fraction (1)

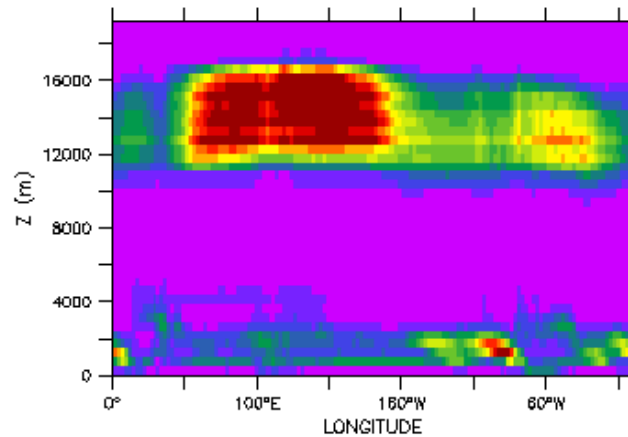
Fraction nuageuse, moyenne annuelle et méridienne [-30°:30°]

Obs GOCCP



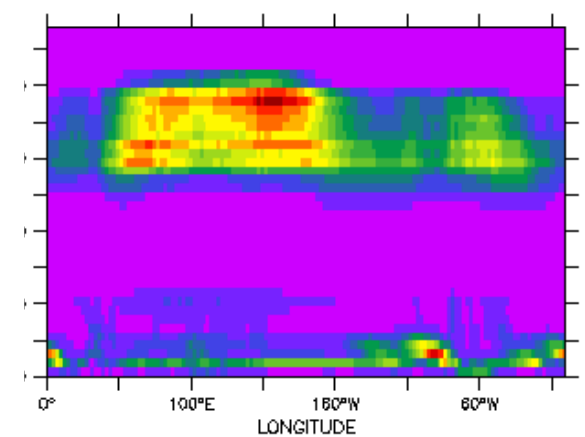
CALIPSO Cloud Fraction (%)

NPv5.17h.CLDVERT



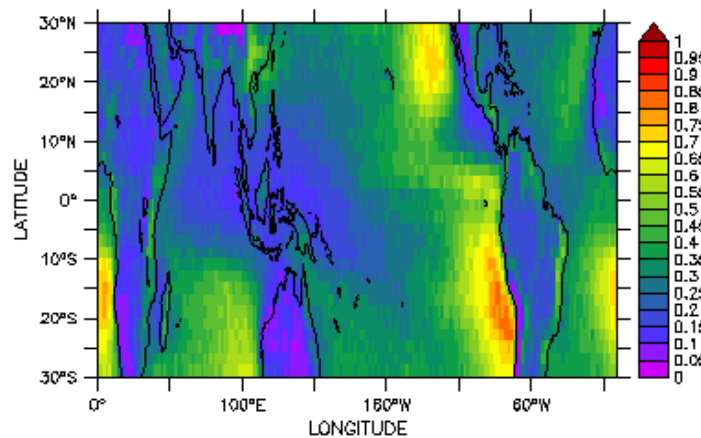
Lidar Cloud Fraction (532 nm) (1)

NPv5.3MixVert5

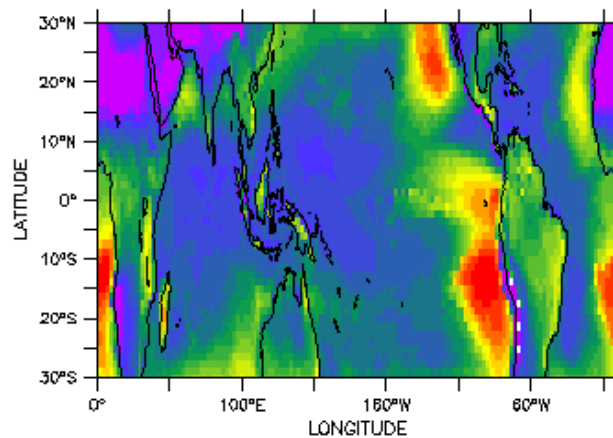


Lidar Cloud Fraction (532 nm) (1)

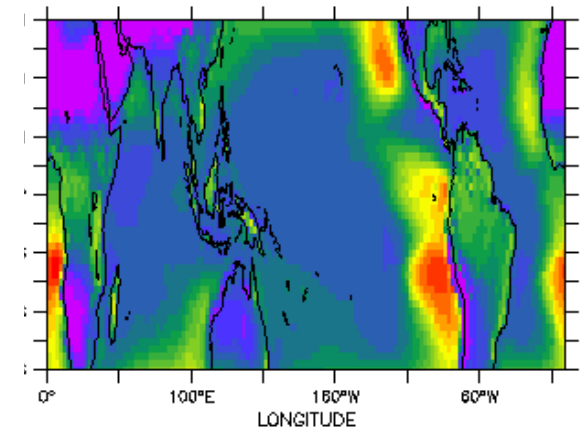
Nuages bas



CALIPSO Low-Level Cloud Fraction (%)

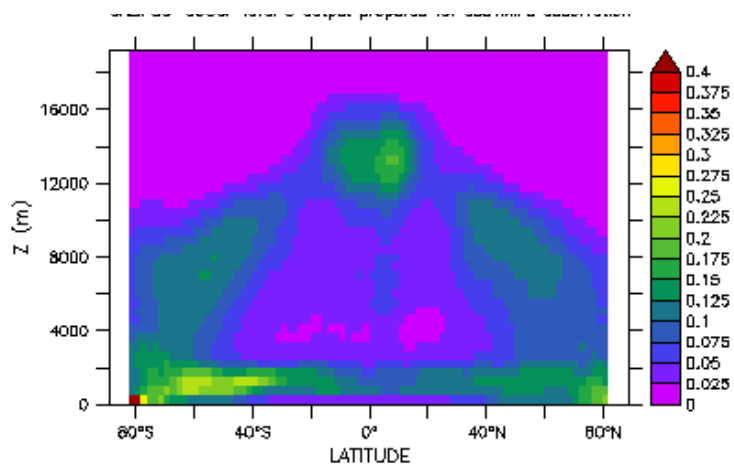


Lidar Low-level Cloud Fraction (1)



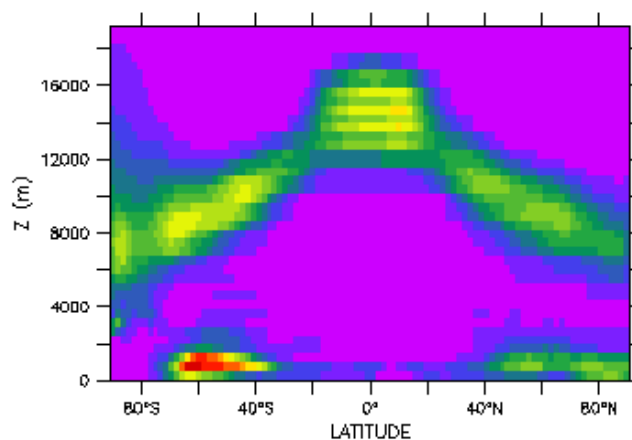
Lidar Low-level Cloud Fraction (1)

Obs GOCCP



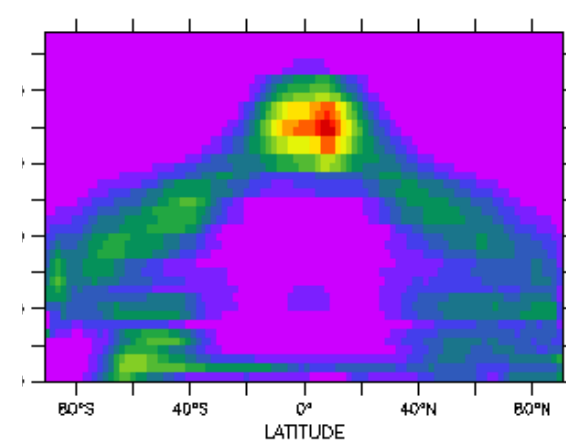
CALIPSO Cloud Fraction (%)

LMDZ5A



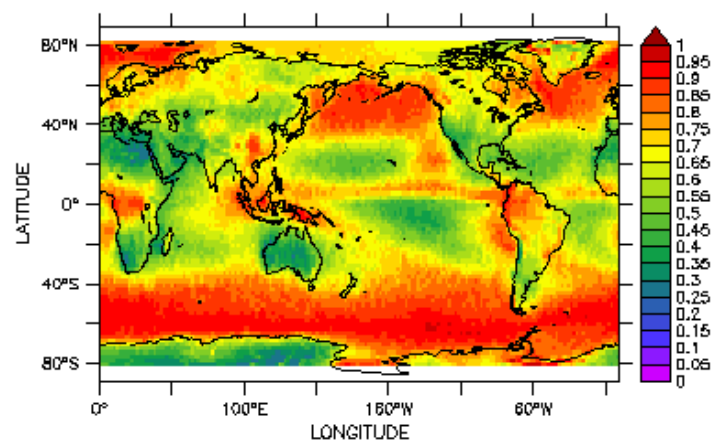
Lidar Cloud Fraction (532 nm) (1)

LMDZ5B

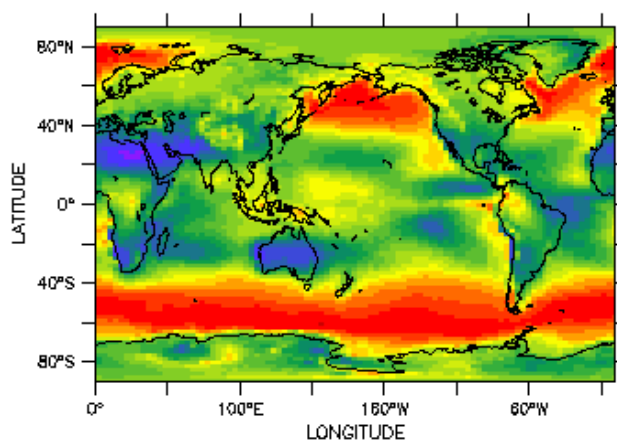


Lidar Cloud Fraction (532 nm) (1)

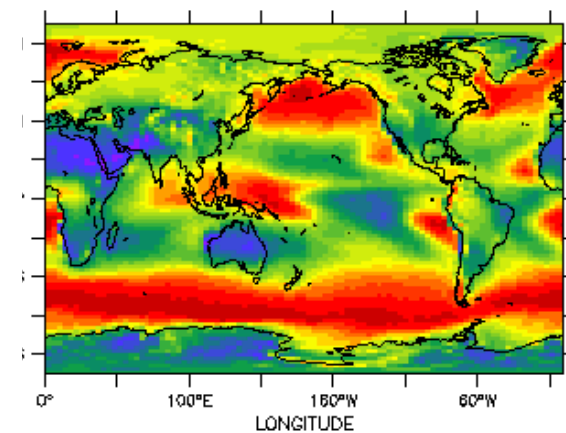
Nuages totaux



CALIPSO Total Cloud Fraction (%)

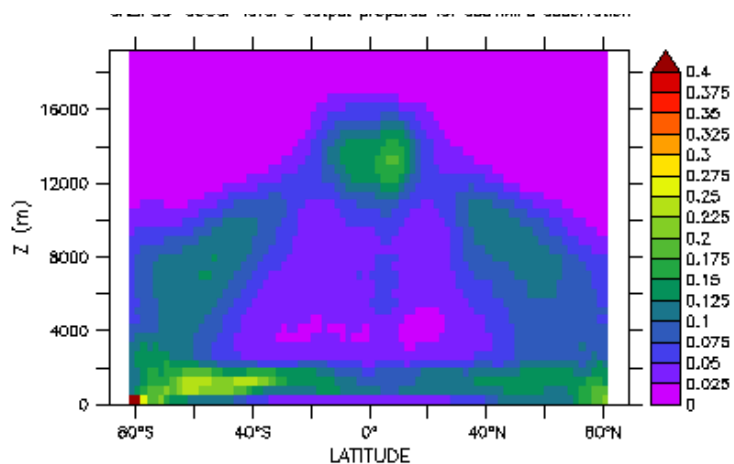


Lidar Total Cloud Fraction (1)



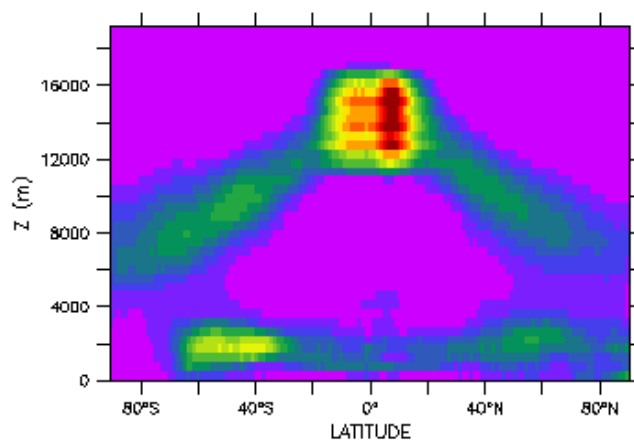
Lidar Total Cloud Fraction (1)

Obs GOCCP



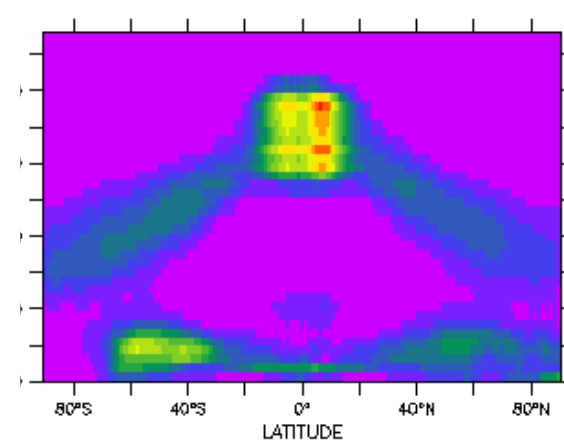
CALIPSO Cloud Fraction (%)

NPv5.17h.CLDVERT



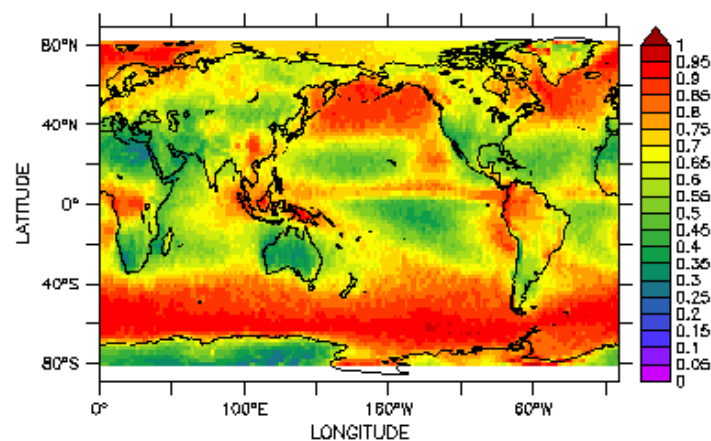
Lidar Cloud Fraction (532 nm) (1)

NPv5.3MixVert5

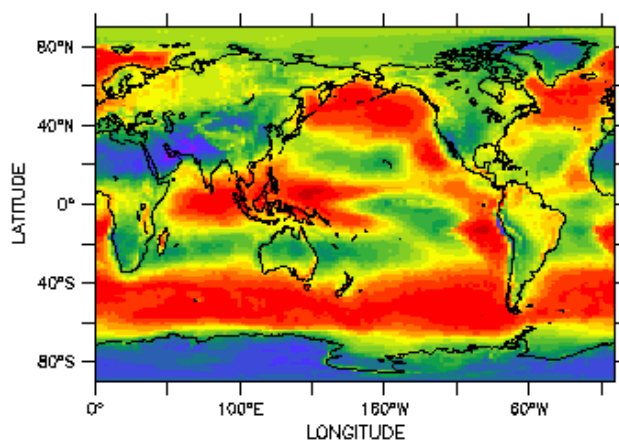


Lidar Cloud Fraction (532 nm) (1)

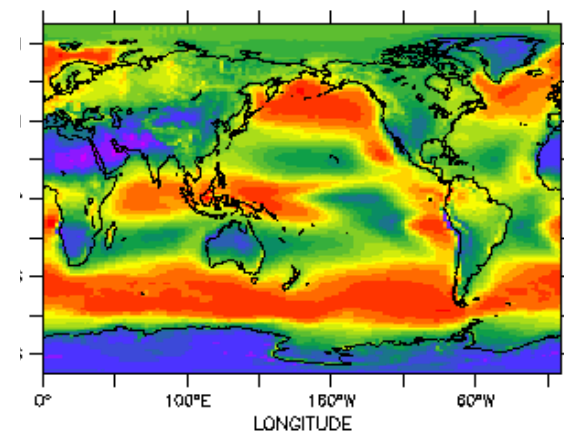
Nuages totaux



CALIPSO Total Cloud Fraction (%)



Lidar Total Cloud Fraction (1)



Lidar Total Cloud Fraction (1)

Cloud reflectance versus cloud fraction, for *low level clouds*, over the tropical oceans

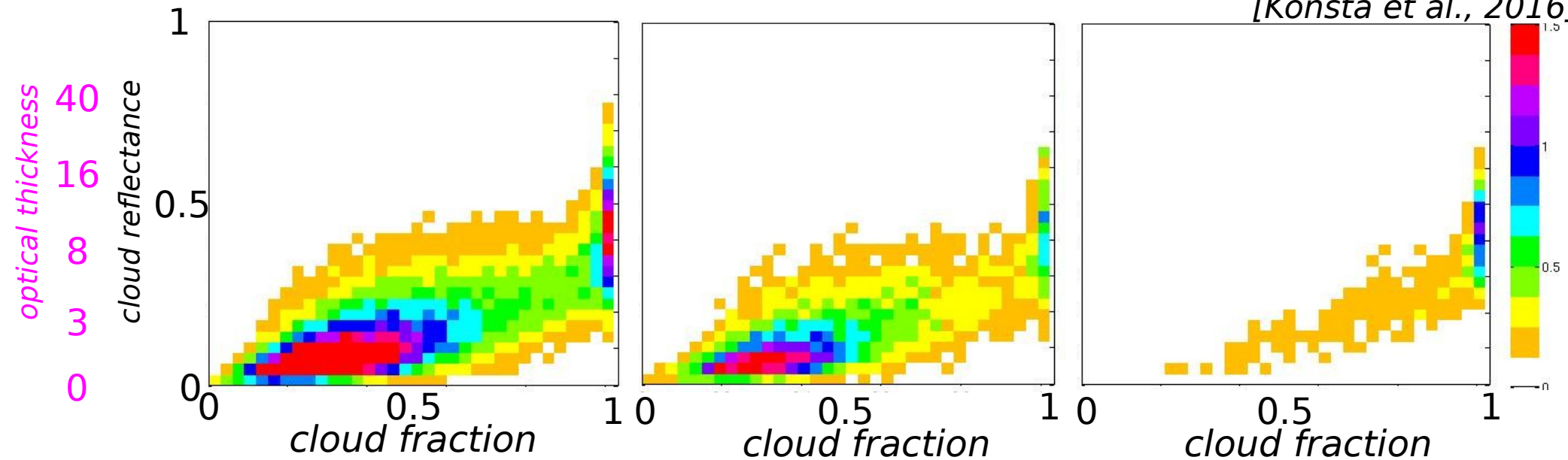
CALIPSO & PARASOL **observations, instantaneous, 2°x2° grid, 2 years (2006-2007)**

**Low level
clouds (all)**

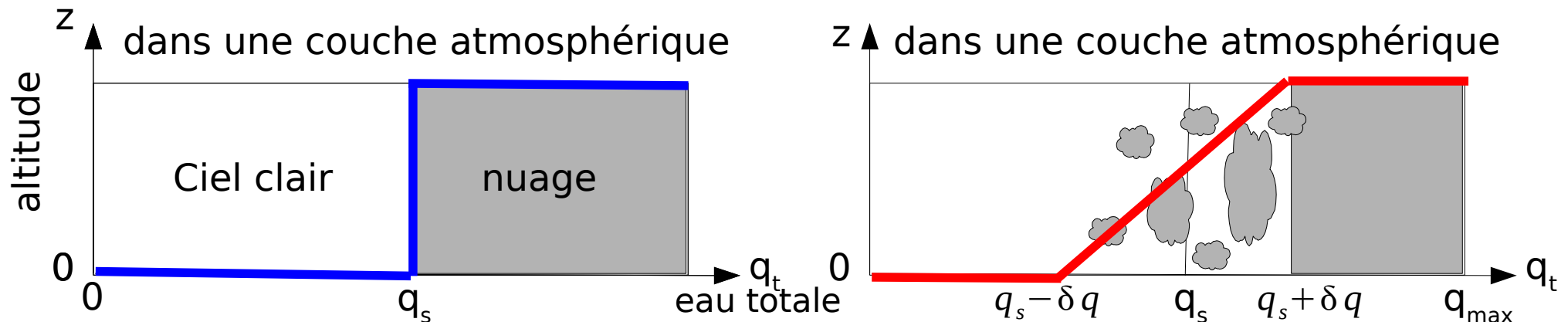
“shallow cumulus”

“stratocumulus”

[Konsta et al., 2016]

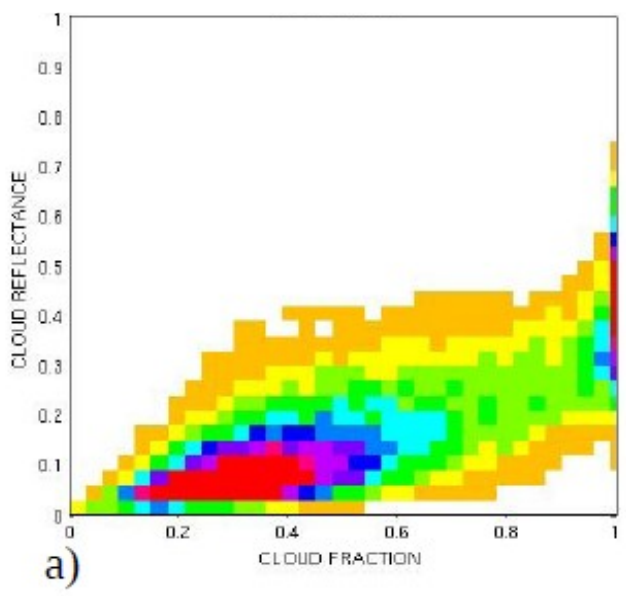


Prise en compte **hétérogénéité verticale sous-maille**; A. Jam, Jean Jouhaud

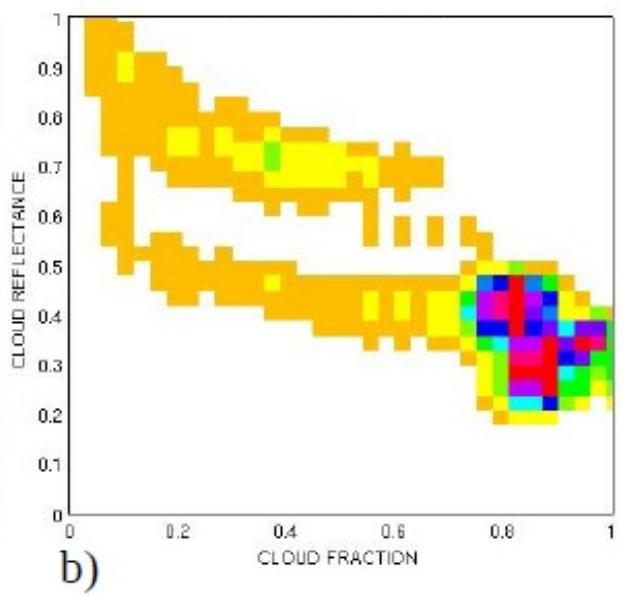


Low level

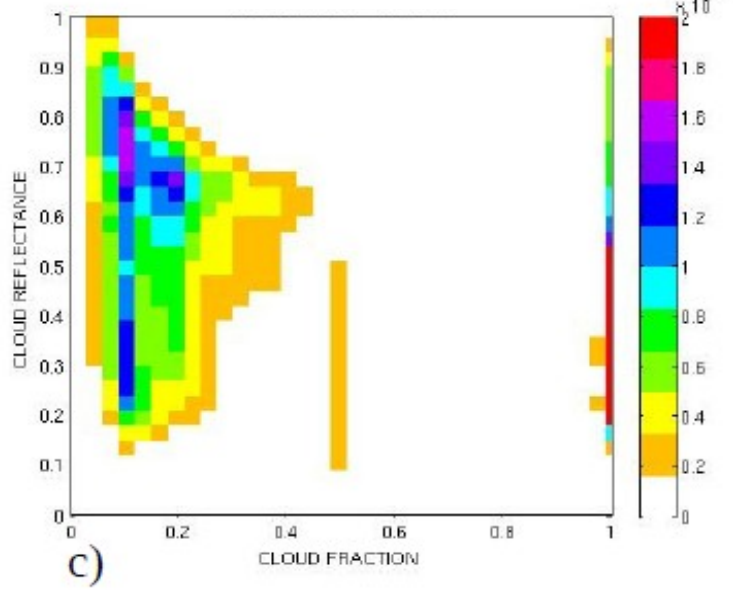
CALPSO & PARASOL (obs)



LMDZ-5A



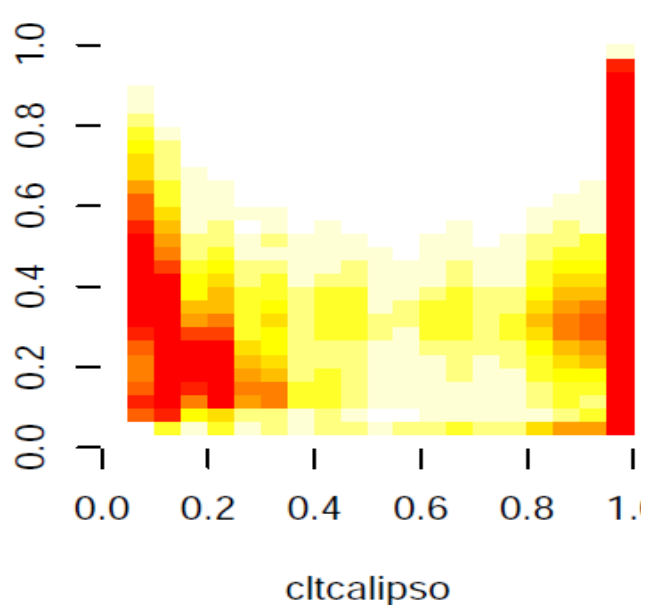
LMDZ-5B



LMDZ6

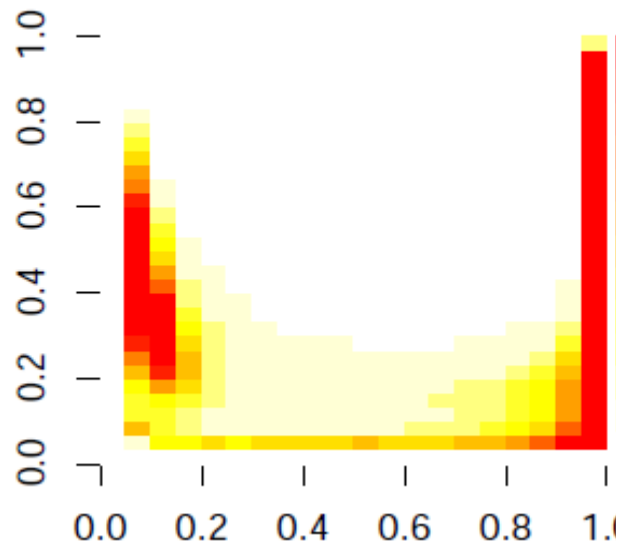
NPV4.12

Tropics, low clouds



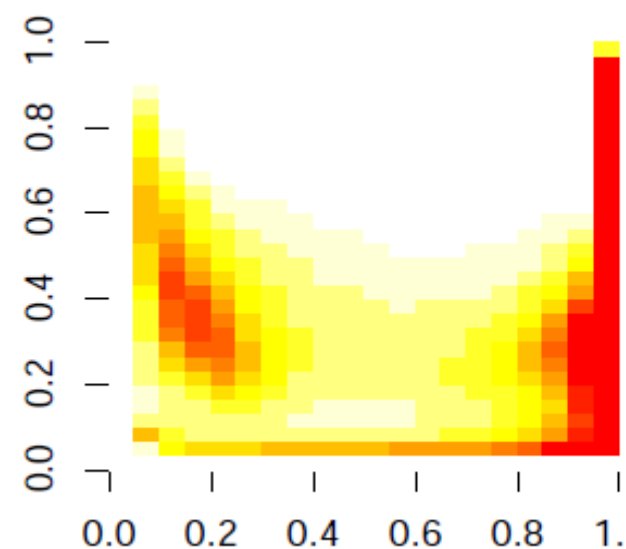
NPV5.17h

Tropics, low clouds



NPV5.17hCLDVERT

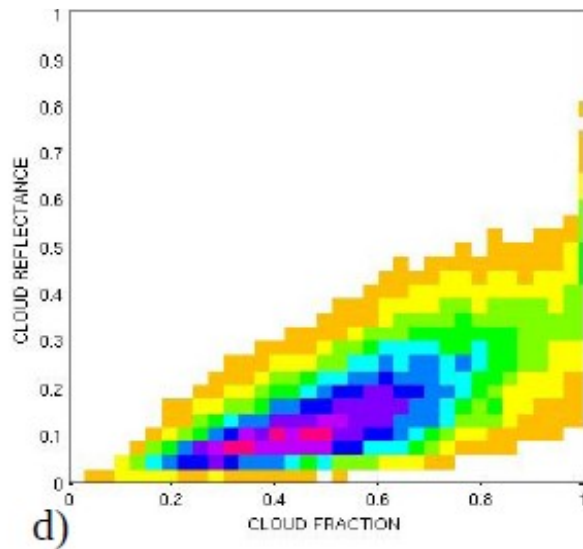
Tropics, low clouds



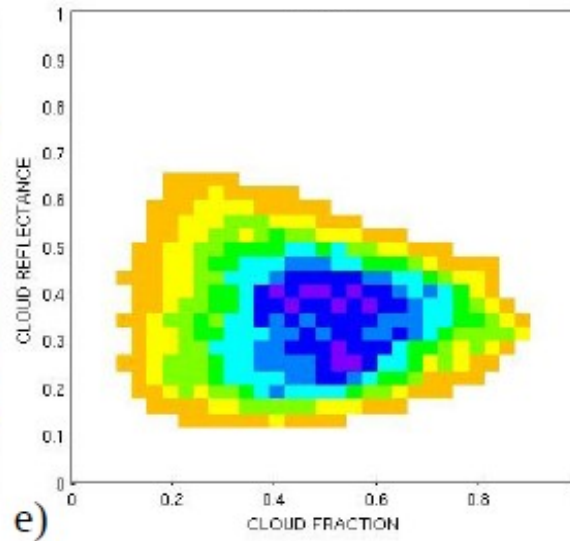
Cloud reflectance versus cloud fraction, over the tropical oceans

Total cloud, monthly mean

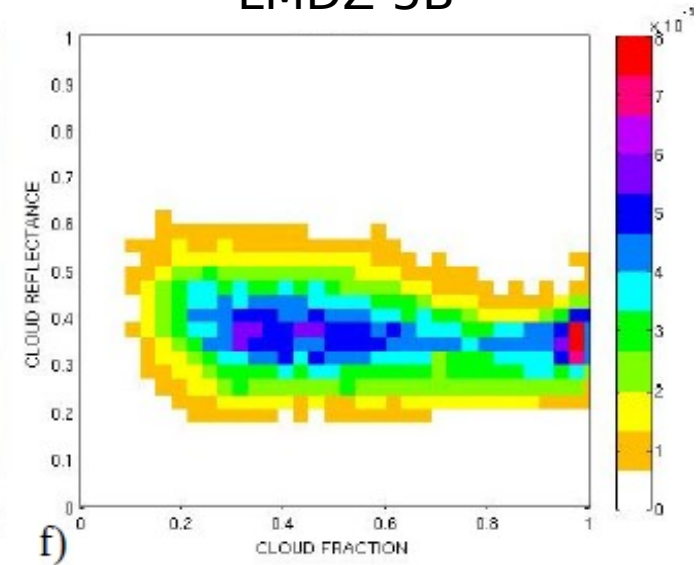
CALIPSO & PARASOL (obs)



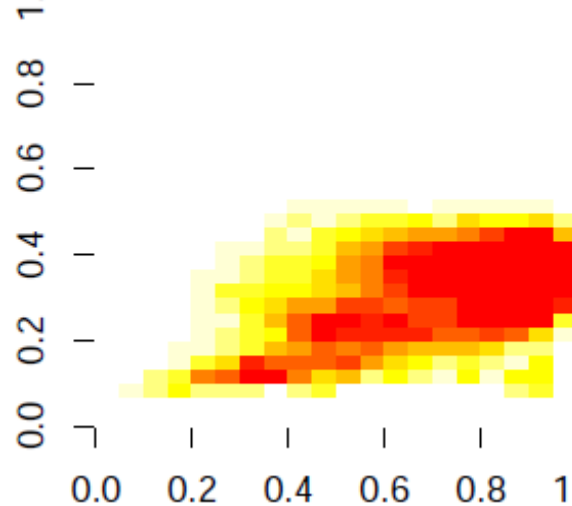
LMDZ-5A



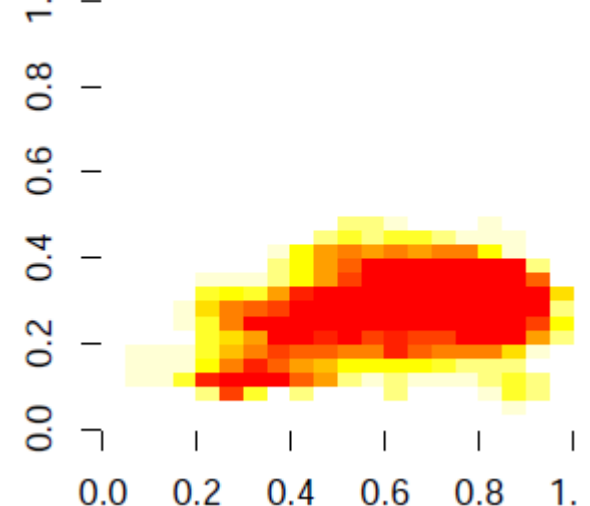
LMDZ-5B

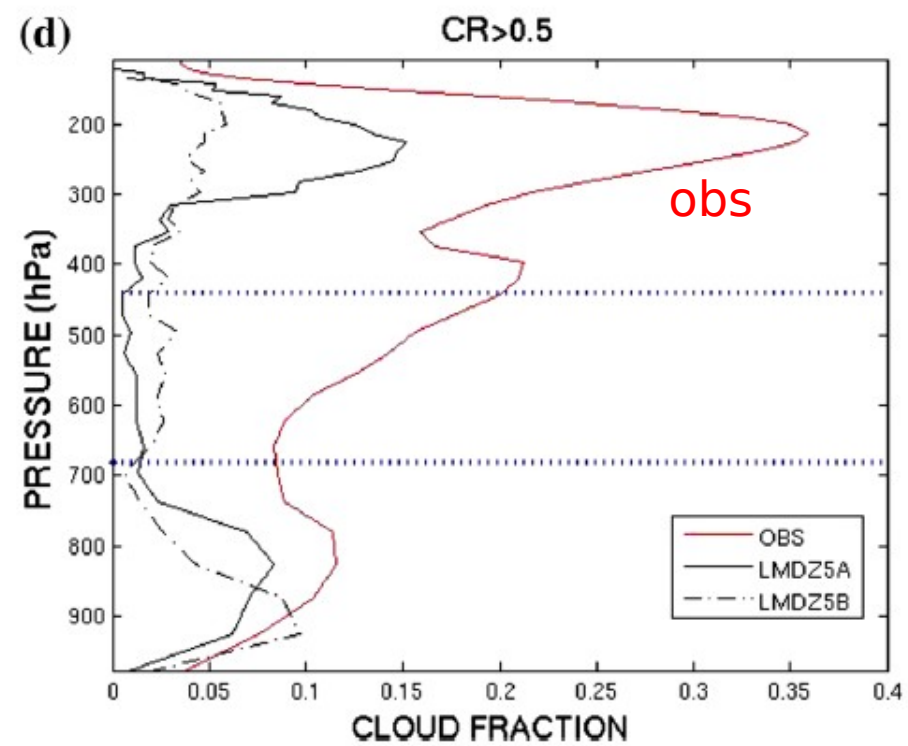
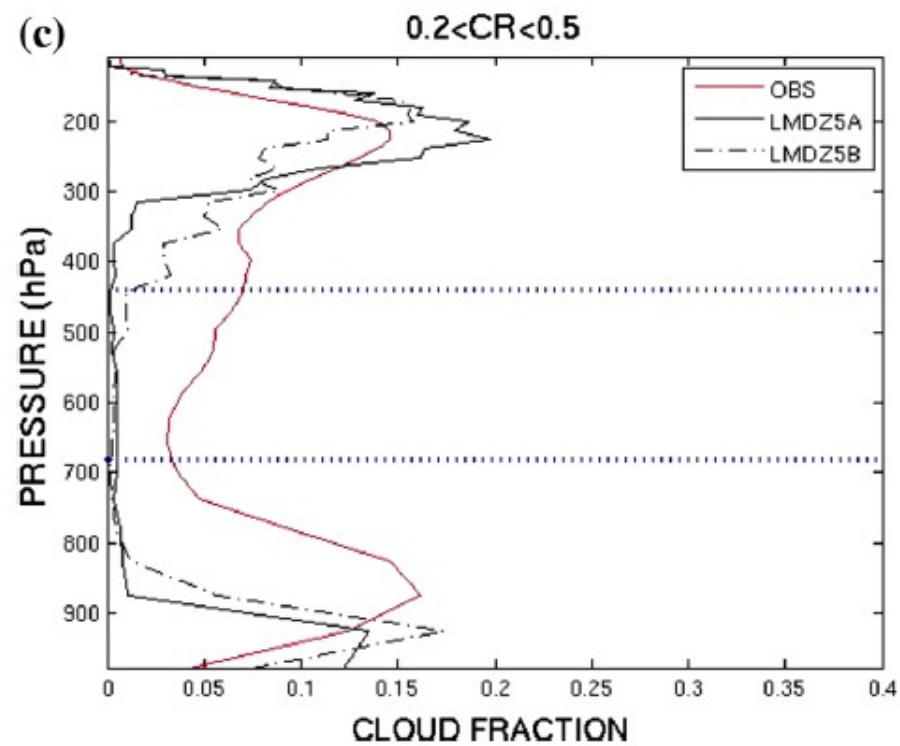
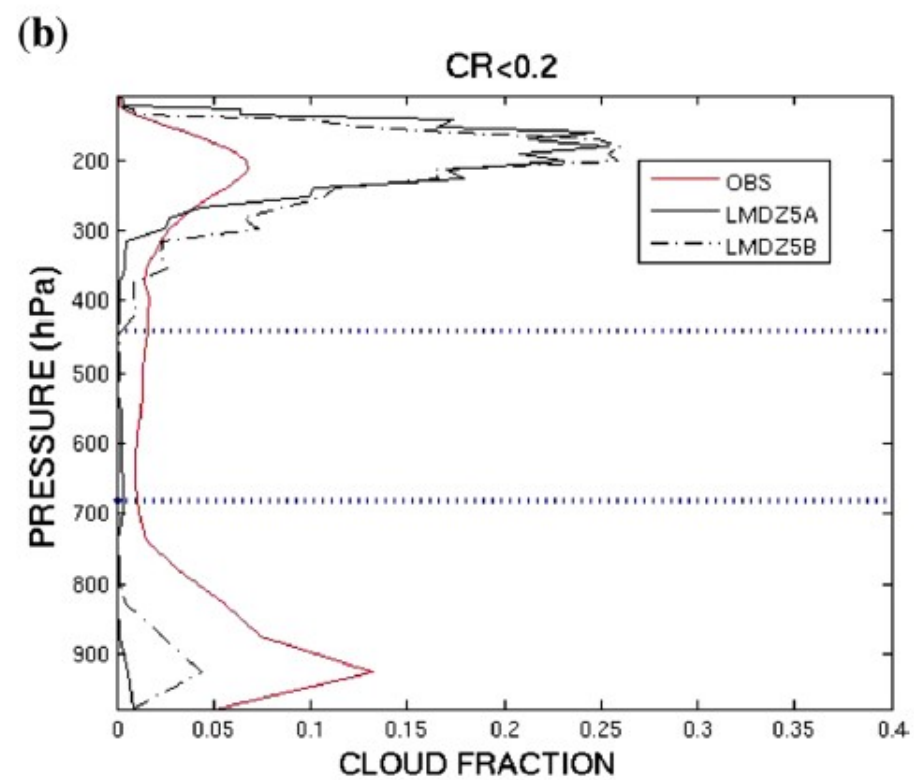
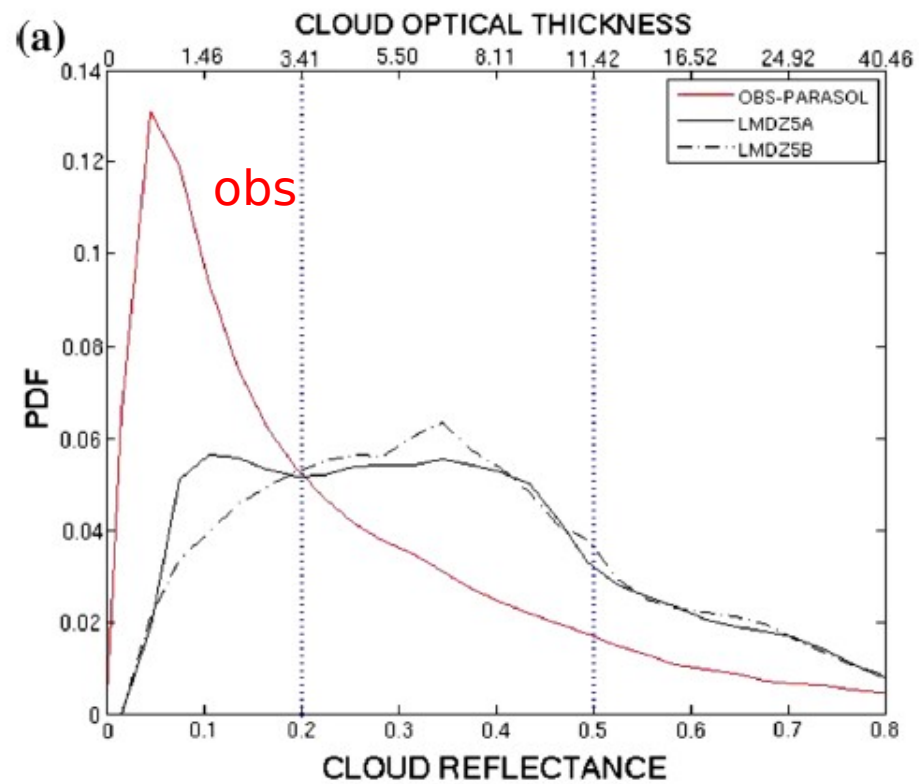


NPv5.17h.CLDVERT

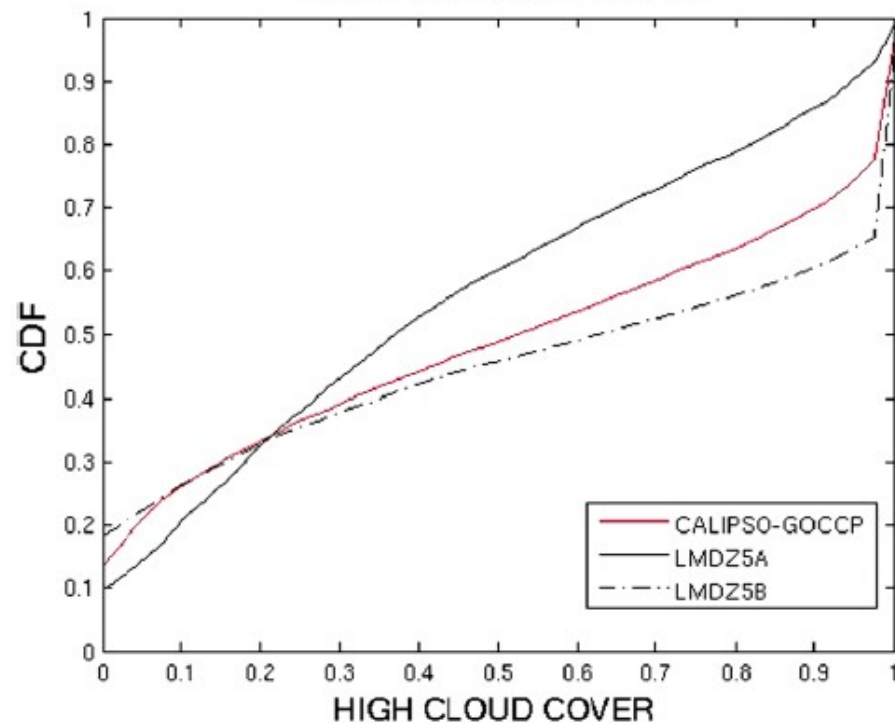


NPv5.3MixVert5

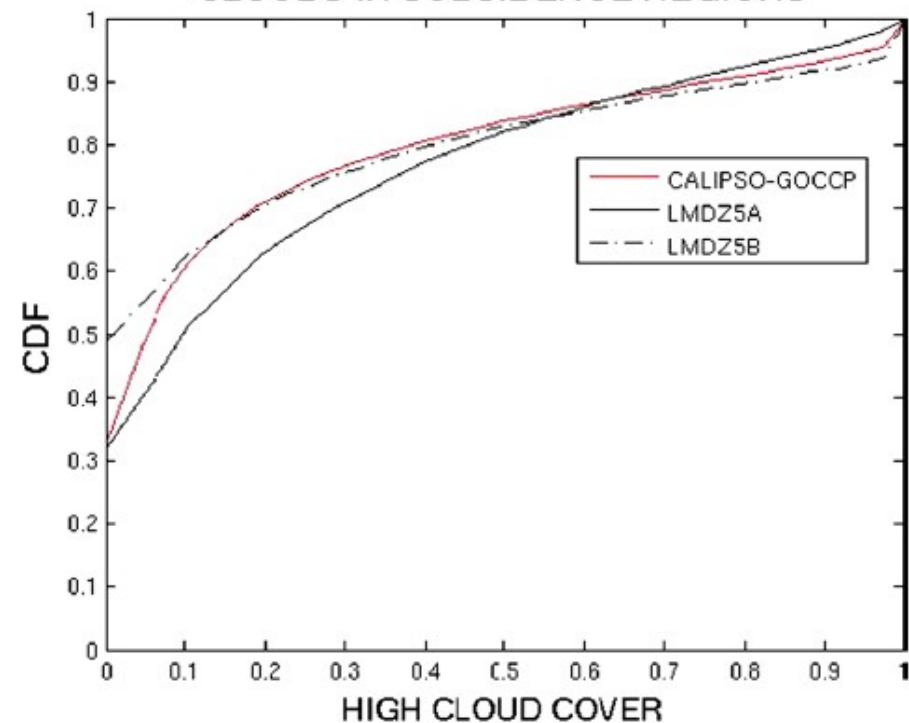




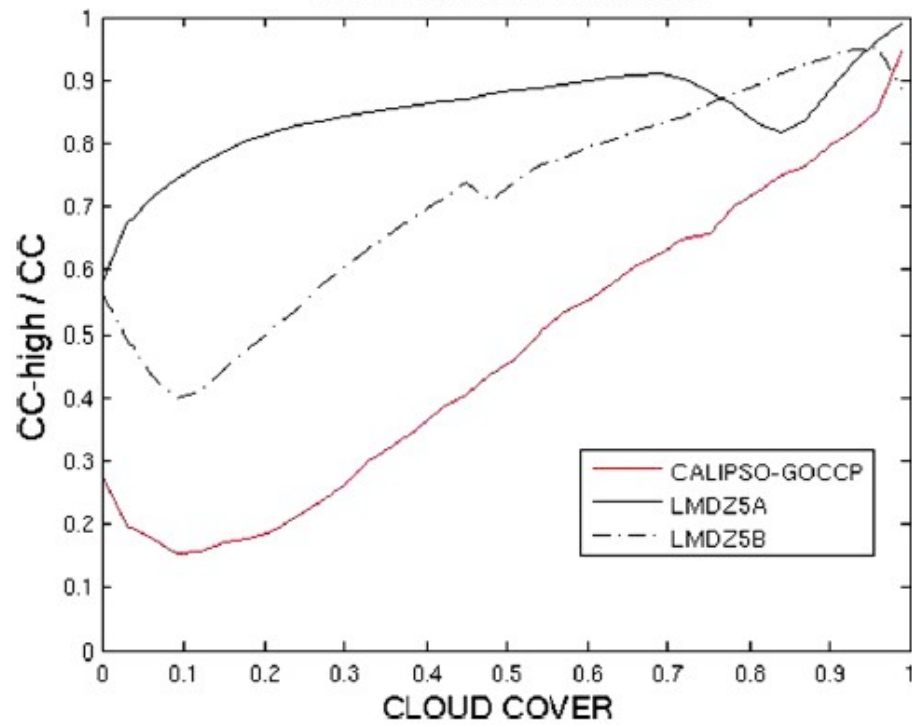
CONVECTIVE CLOUDS



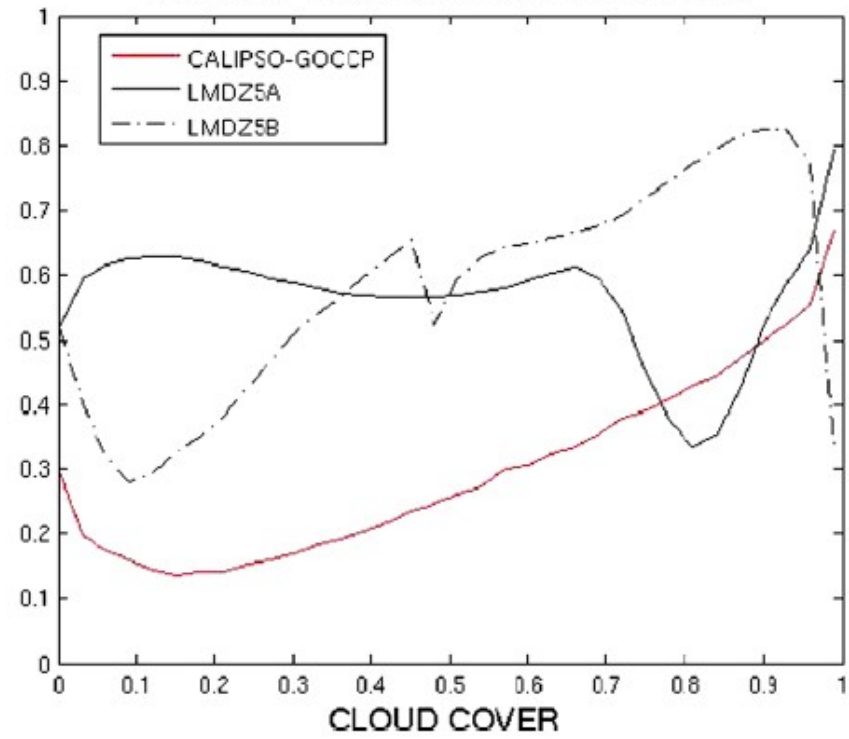
CLOUDS IN SUBSIDENCE REGIONS



CONVECTIVE CLOUDS



CLOUDS IN SUBSIDENCE REGIONS

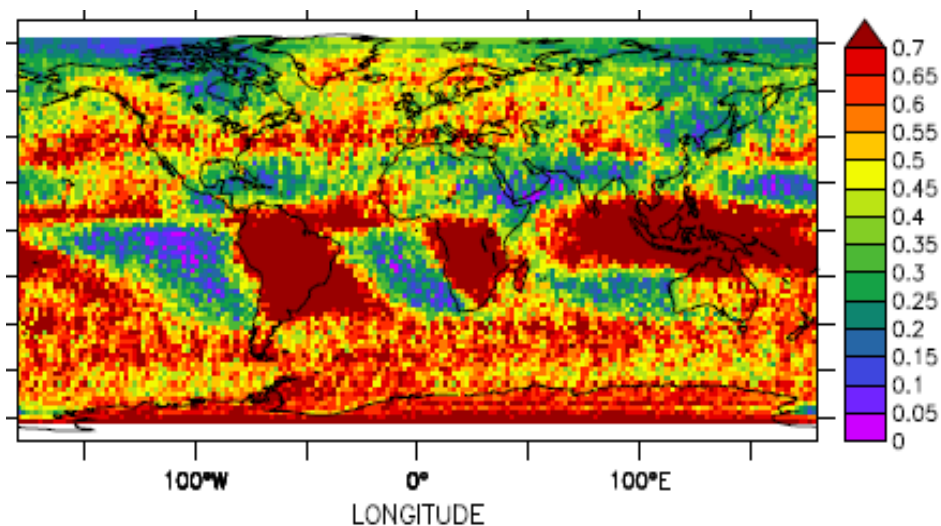


Nuages bas:

- Très nettement mieux que 5A et 5B

Nuages haut:

- Encore des pbs:
- Nuages optiquement peu épais: trop de nuages hauts
- Nuages hauts de faible fraction trop fréquents pour 5A, OK pour 5B

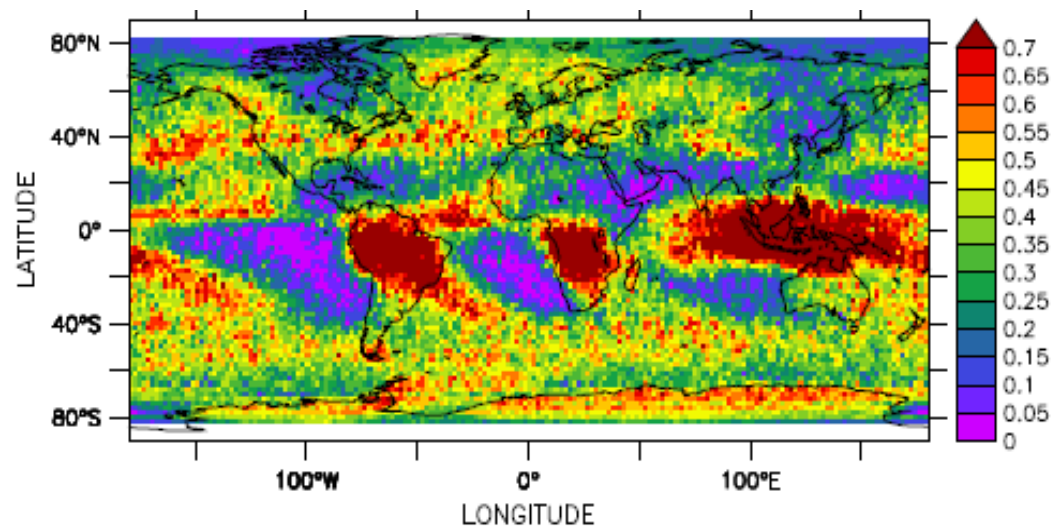


fclh_sup_10pct

FERRET Ver.6.72
NOAA/PMEL TMAP
13-NOV-2014 18:49:56

T : 0.5 to 170.5

DATA SET: MapLowMidHigh330m_2006-2013
12_avg_daily_CFMP2_sat_Z

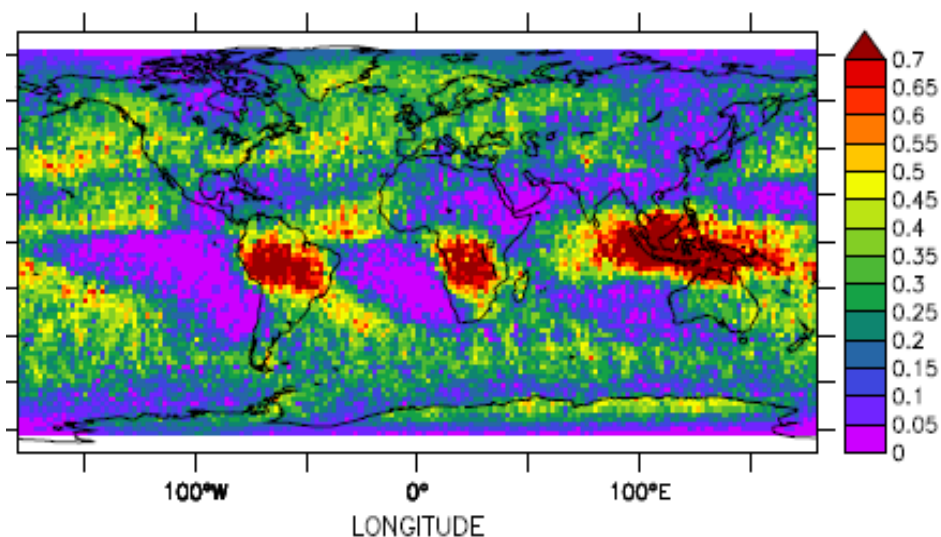


fclh_sup_30pct

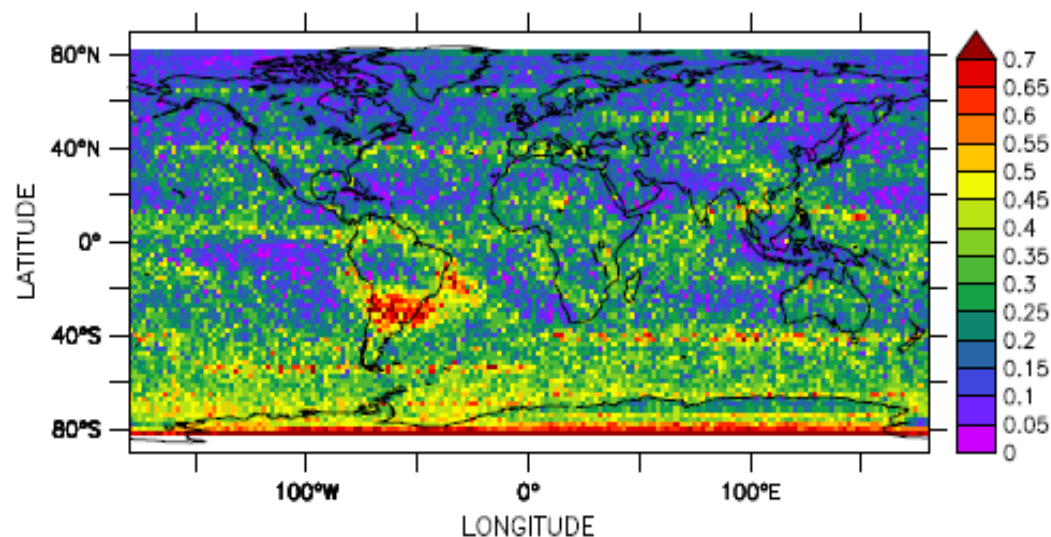
FERRET Ver.6.72
NOAA/PMEL TMAP
13-NOV-2014 18:49:56

T : 0.5 to 170.5

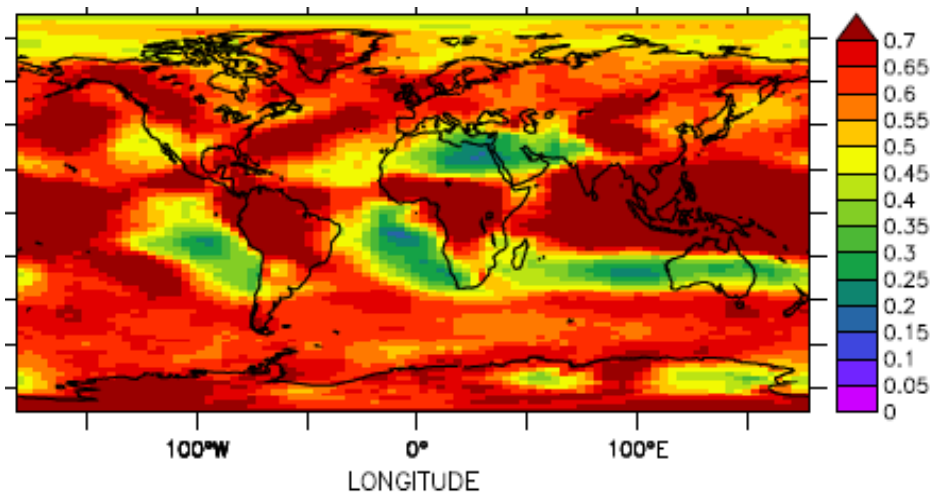
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12_avg_daily_CFMP2_sat_Z



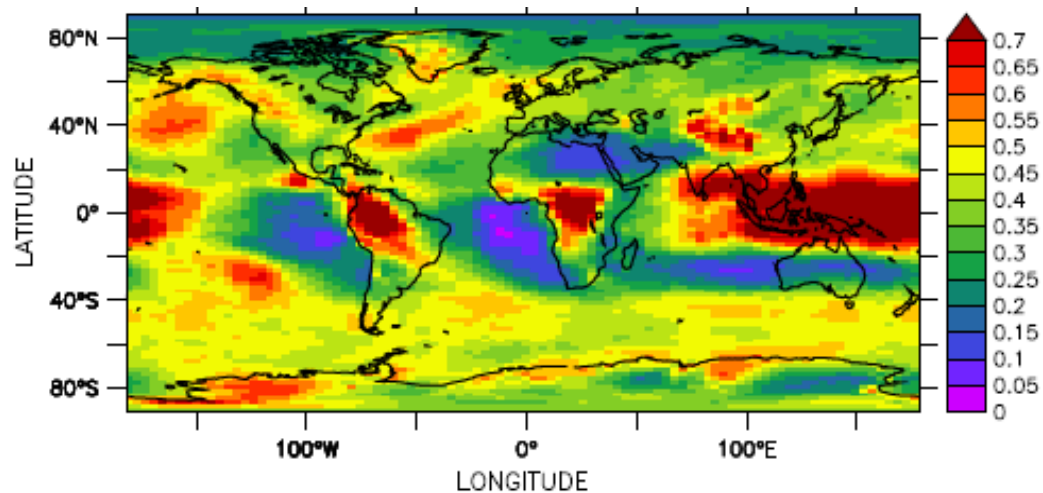
fclh_sup_60pct



fclh_in_10_60pct



fclh_sup_10pct

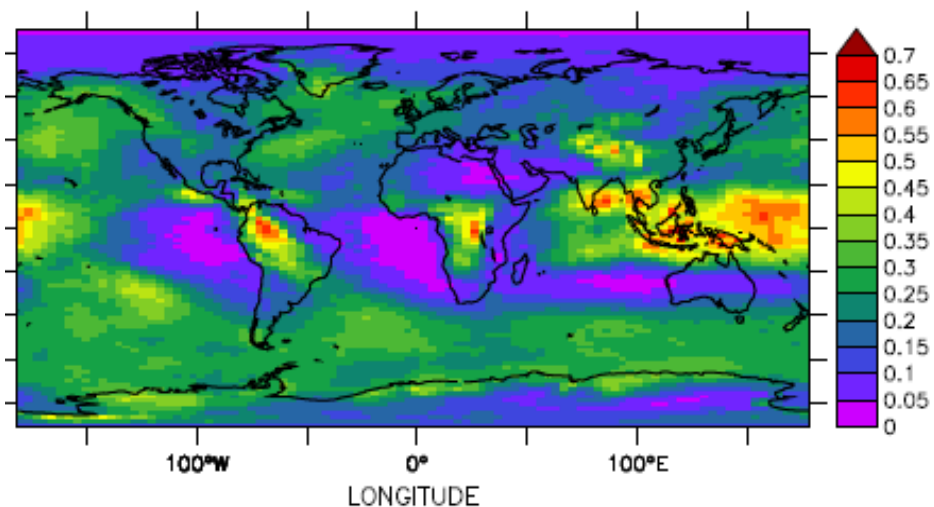


fclh_sup_30pct

FERRET Ver.6.72
NOAA/PMEL TMAP
28-AUG-2014 22:12:00

T : 0.5 to 1460.5

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19791231_HF_NIMFNCOSP

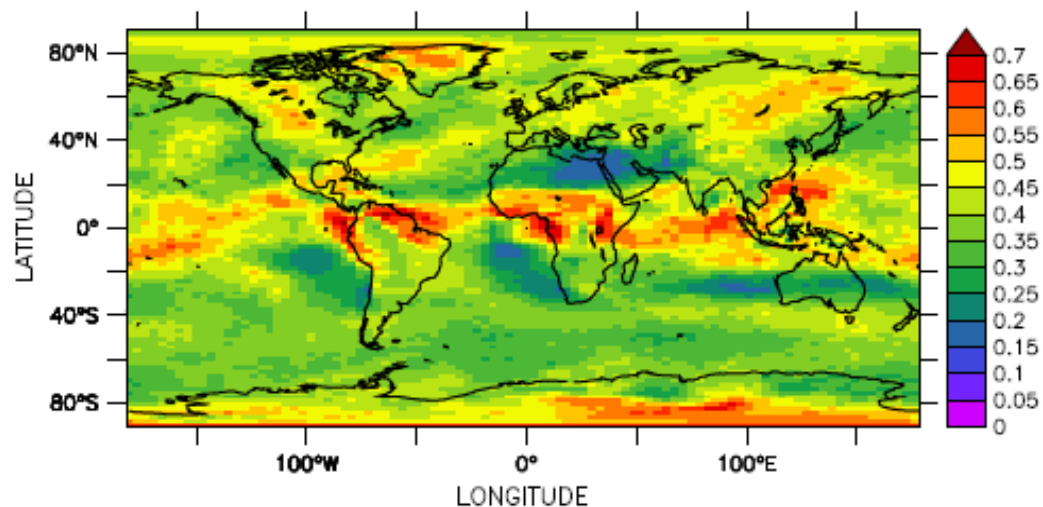


fclh_sup_60pct

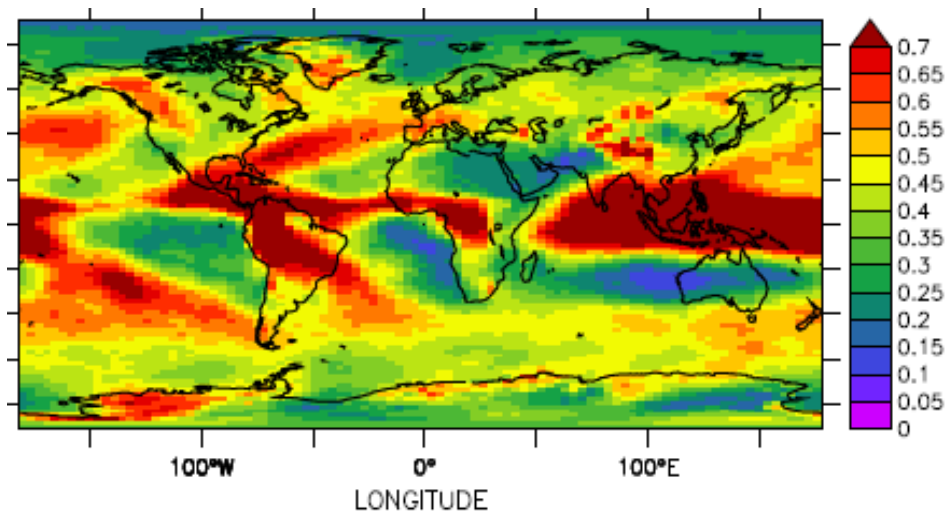
FERRET Ver.6.72
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28-AUG-2014 22:12:29

T : 0.5 to 1460.5

DATA SET: AMIPCM5A01_19790101
19791231_F_NIMFNCOSP



fclh_in_10_60pct

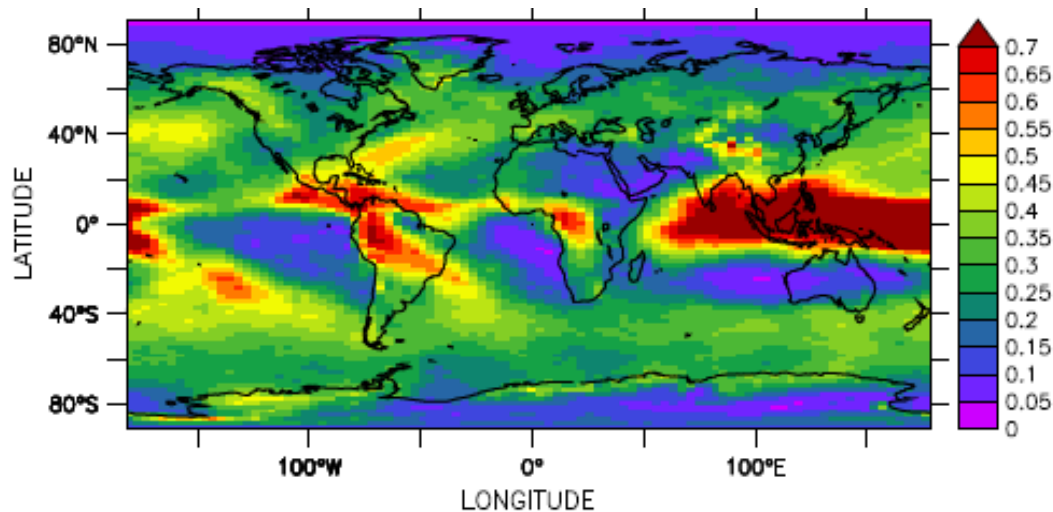


fclh_sup_10pct

FERRET Ver.6.72
NOAA/PMEL THAP
13-NOV-2014 17:50:18

T : 0.5 to 1460.5

DATA SET: AMIPCM5B01_19790101
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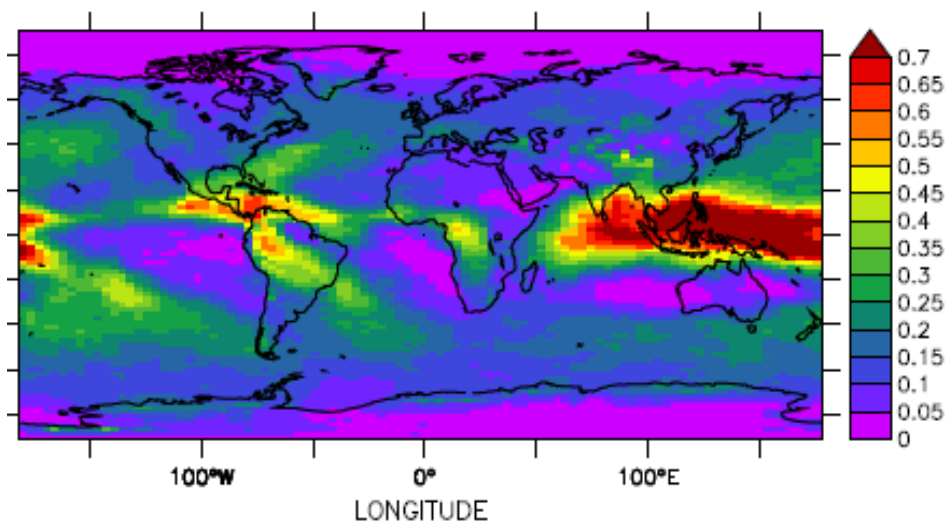


fclh_sup_30pct

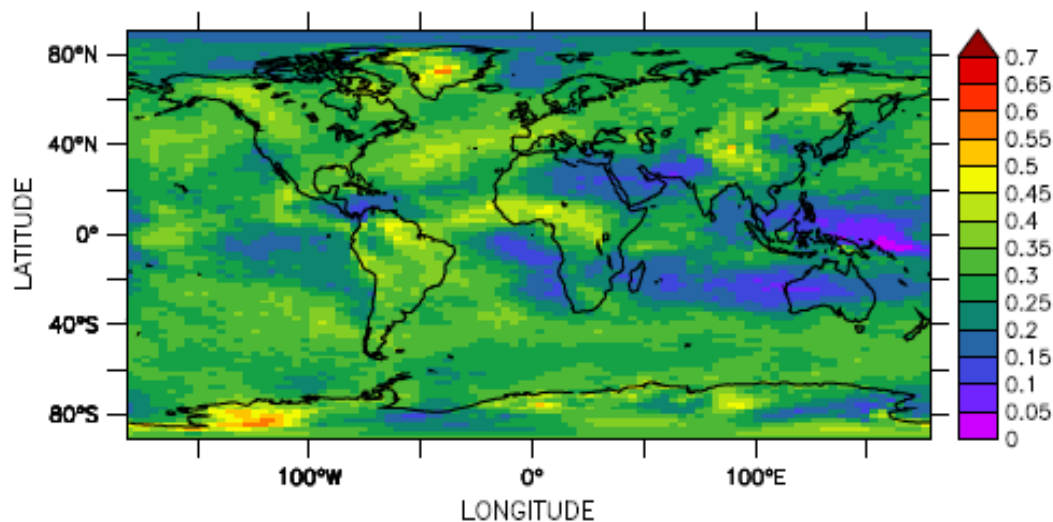
FERRET Ver.6.72
NOAA/PMEL THAP
13-NOV-2014 17:50:49

T : 0.5 to 1460.5

DATA SET: AMIPCM5B01_19790101
19791231_HF_NatHRCOSP



fclh_sup_60pct



fclh_in_10_60pct