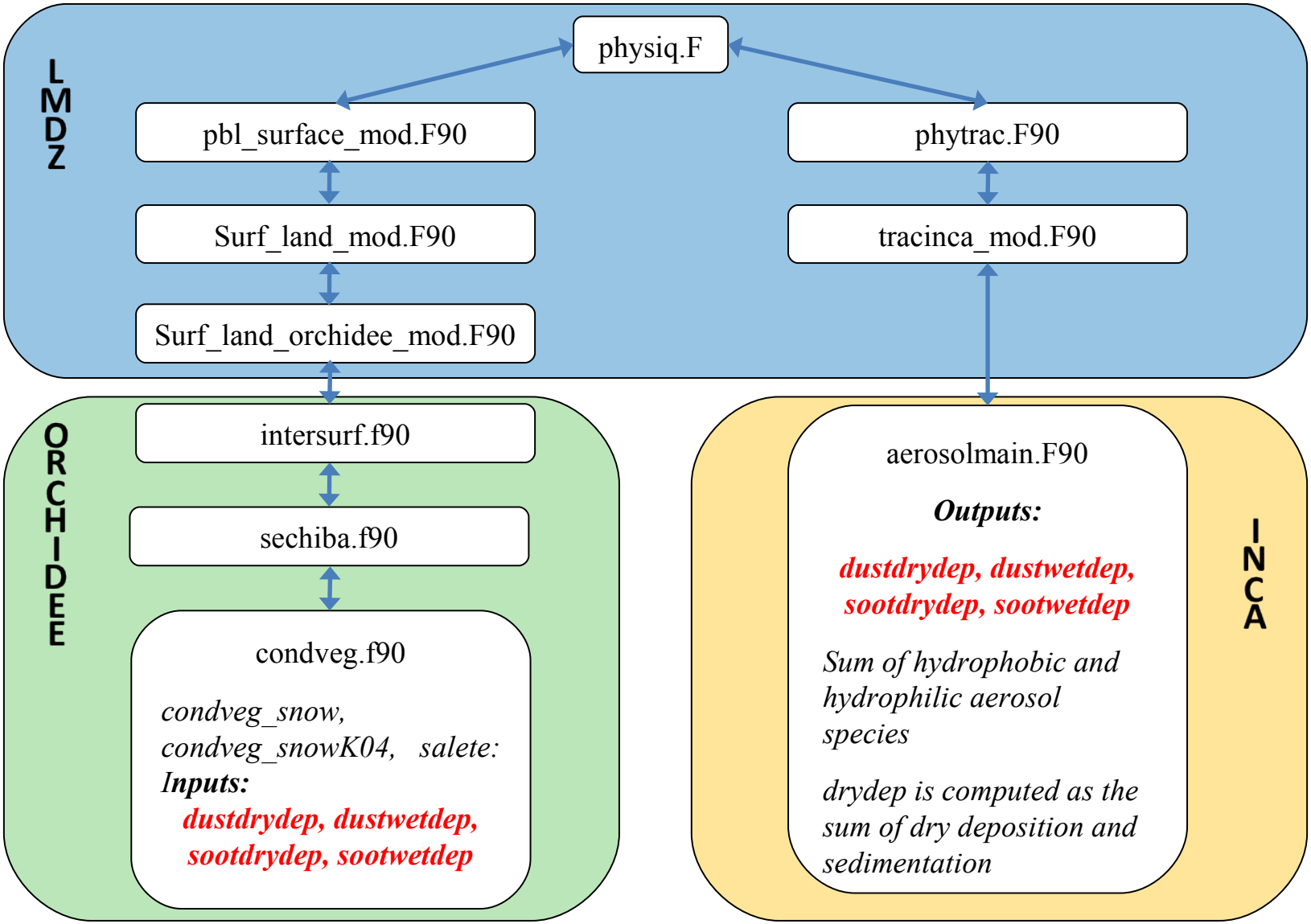
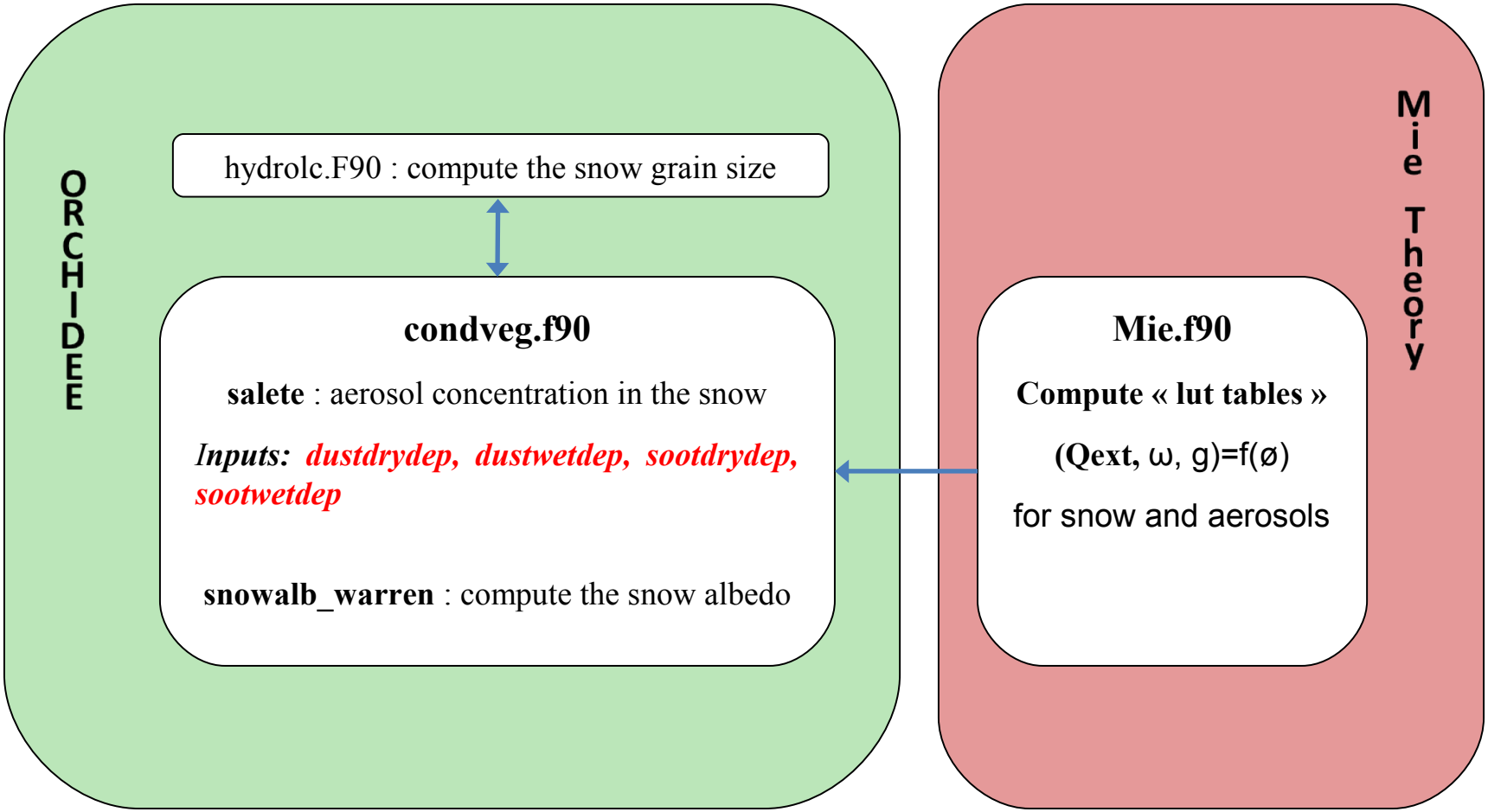
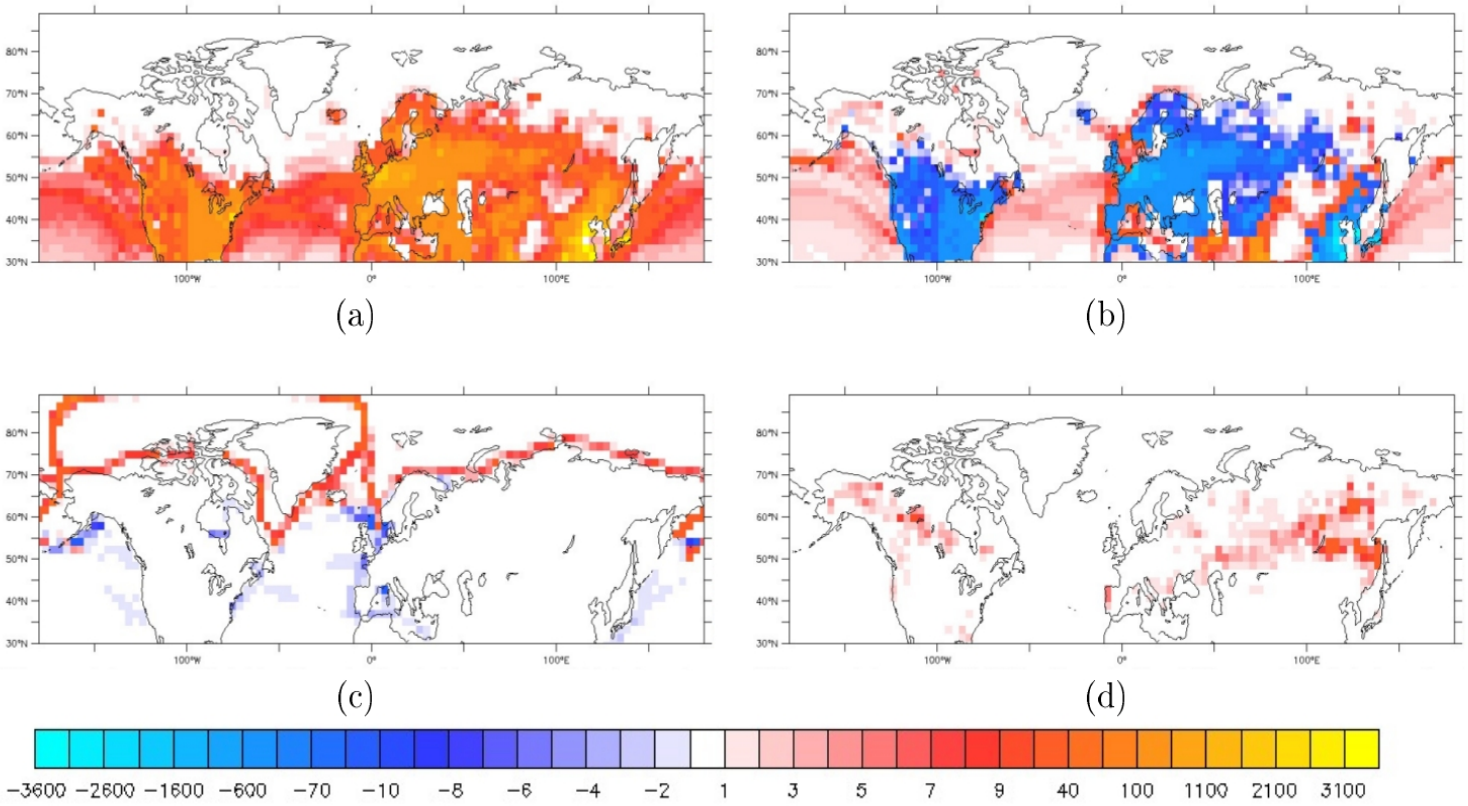
Utilisation de LMDz-ORCHIDEE-INCA pour l'étude de l'impact du dépôt d'aérosols sur la neige dans l'Hémisphère Nord



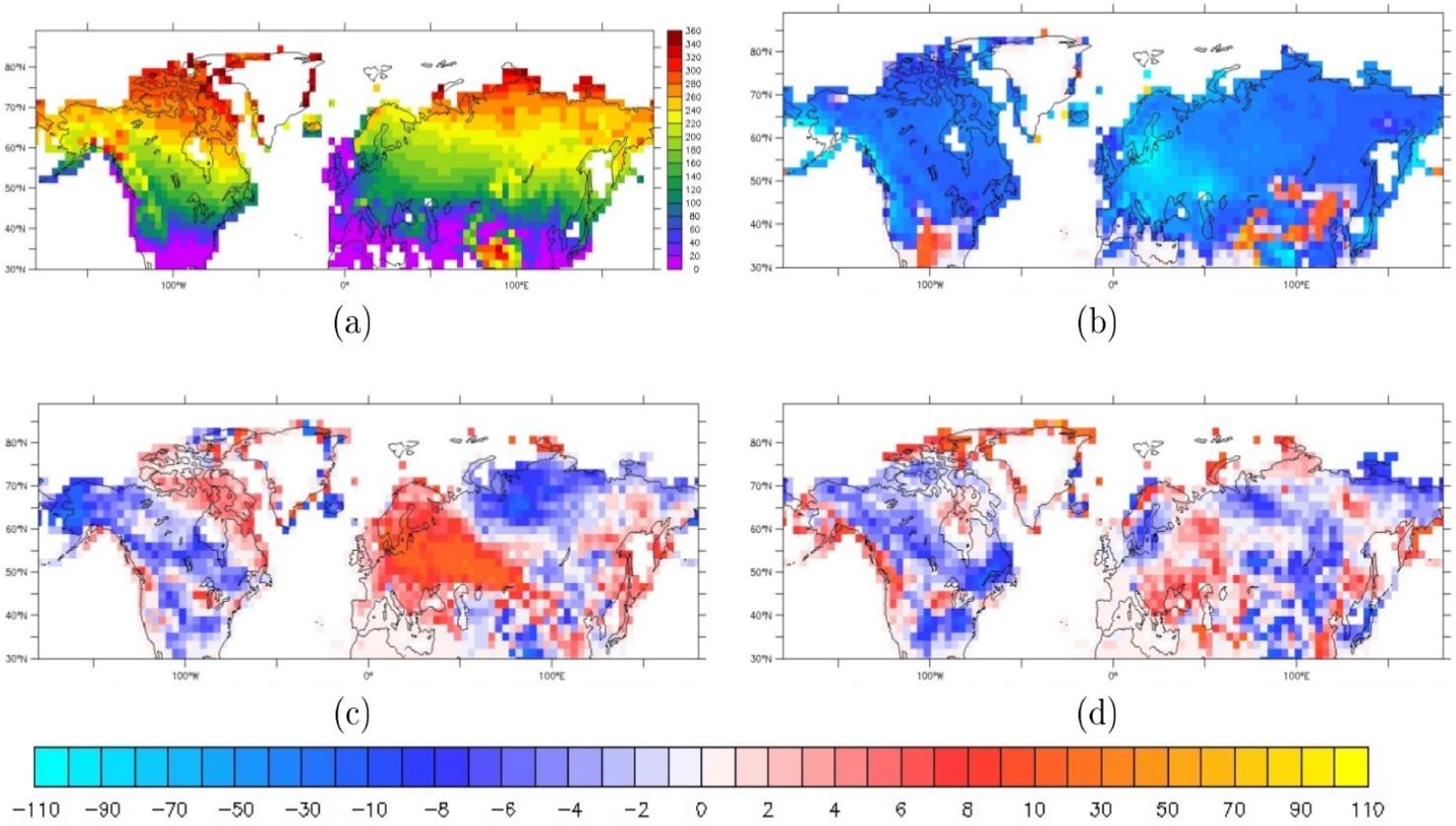
Albédo des surfaces enneigées



Application : neige et aérosol dans l'hémisphère Nord



Annual mean of BC emissions (mg m^{-2} month); (a): Current emissions (S1); (b): difference between RCP8.5 scenario (2050) and current emissions (S2-S1); (c): emission difference in a 2050 scenario with high-level ships traffic in the Arctic in comparison with RCP8.5 scenario for 2050 (S3-S2); (d): emission difference in a scenario with increased biomass burning activity in comparison with RCP8.5 scenario for 2050 (S4-S2).

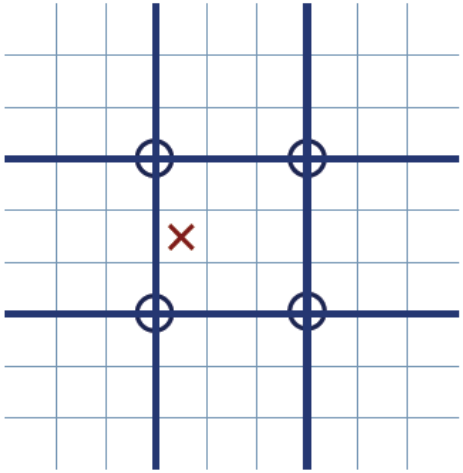


Mean number of days per year with snow at the surface (MNDWS); (a): Current (S1); (b): MNDWS difference between RCP8.5 scenario (2050) and current simulation (S2-S1); (c): MNDWS difference between a scenario with high-level ship traffic in the Arctic in comparison with RCP8.5 scenario for 2050 (S3-S2); (d): MNDWS difference between a scenario with increased biomass burning activity in comparison with RCP8.5 scenario for 2050 (S4-S2).

Menegoz et al., JGR, in prep.

Régionalisation du bilan d'énergie en surface en Antarctique

Intra/extrapolation des champs de surface avec la topographie



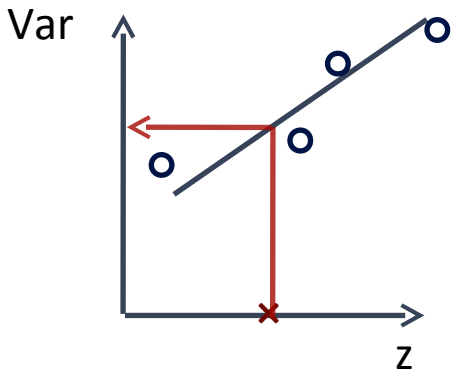


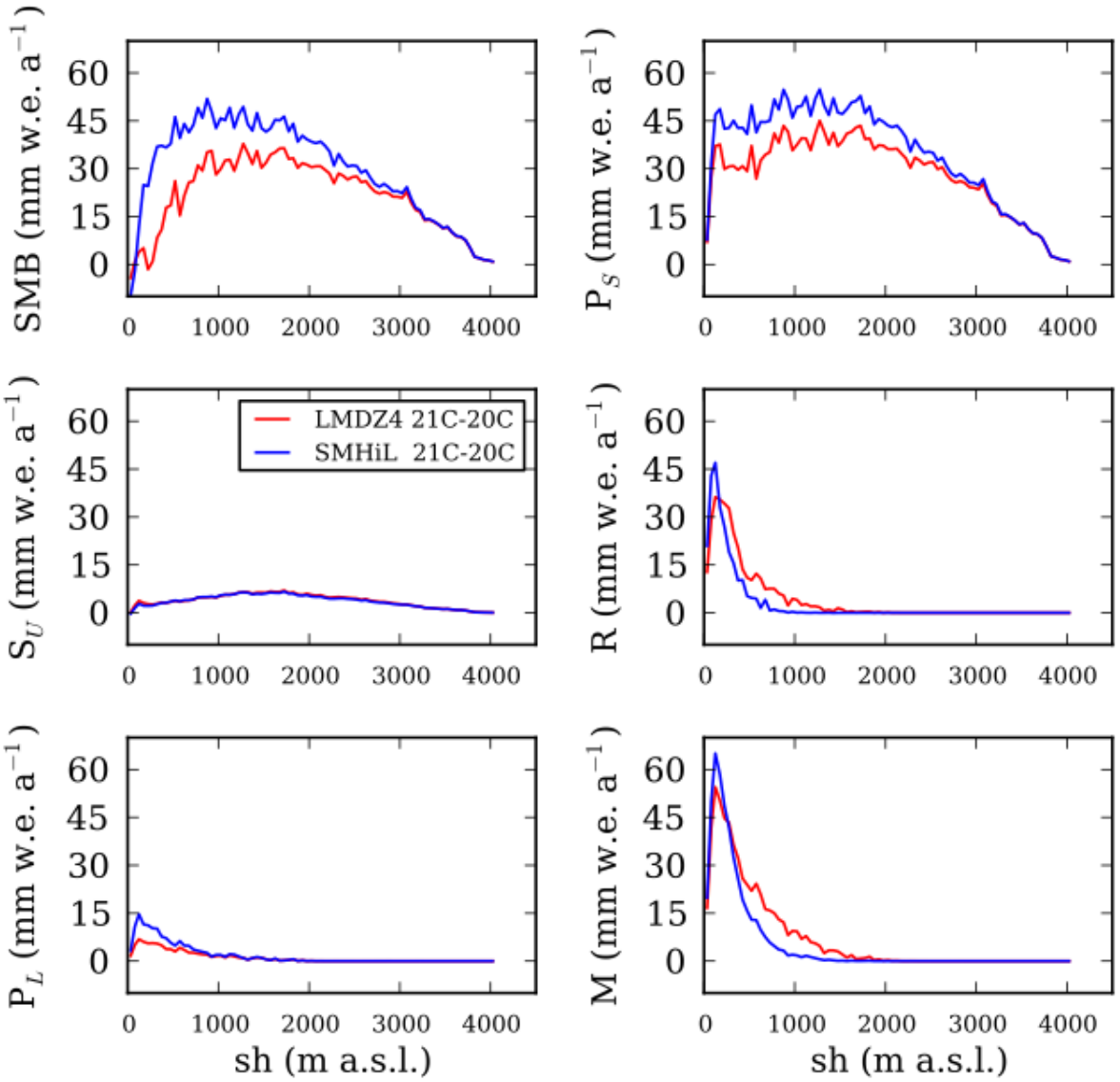
Schéma de surface de LMDZ4

Sublimation

Fonte

+ Calcul du Regel hors-ligne

LMDZ4 forcé par HADCM3 SSC / 21e s. - 20e s.

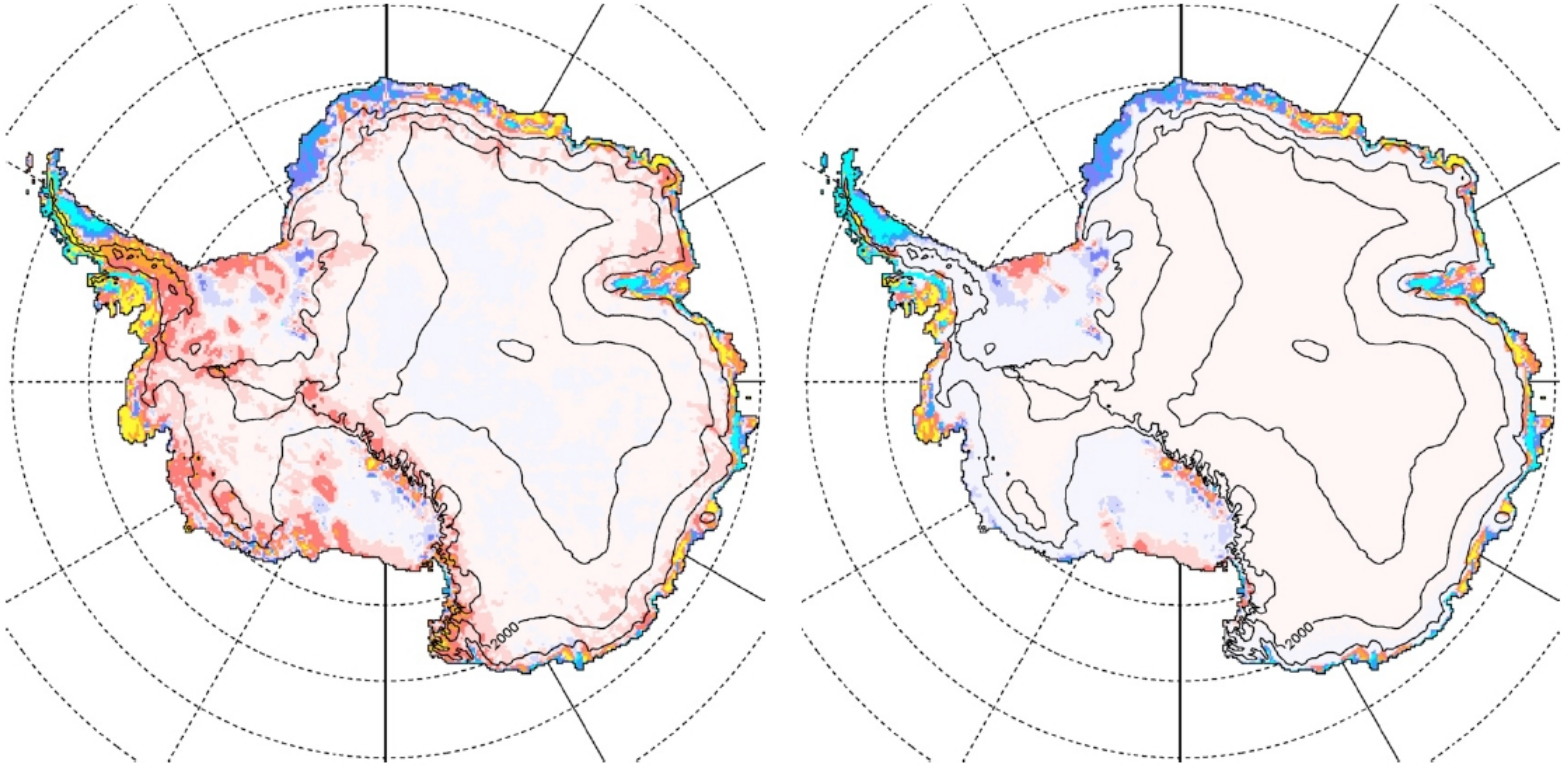


LMDZ4 forcé par HADCM3 SSC / 21e s. - 20e s.

HR = High Resolution (LMDZ4 downscaled)
LR = Low Resolution (LMDZ4 interpolated)

$\Delta SMB_{HR} - \Delta SMB_{LR}$

$-(\Delta R_{HR} - \Delta R_{LR})$



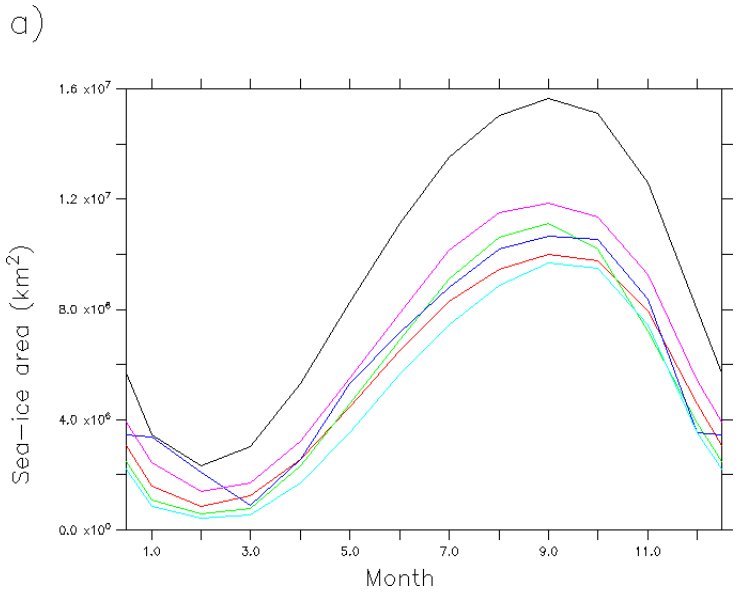
mm w.e. a^{-1}

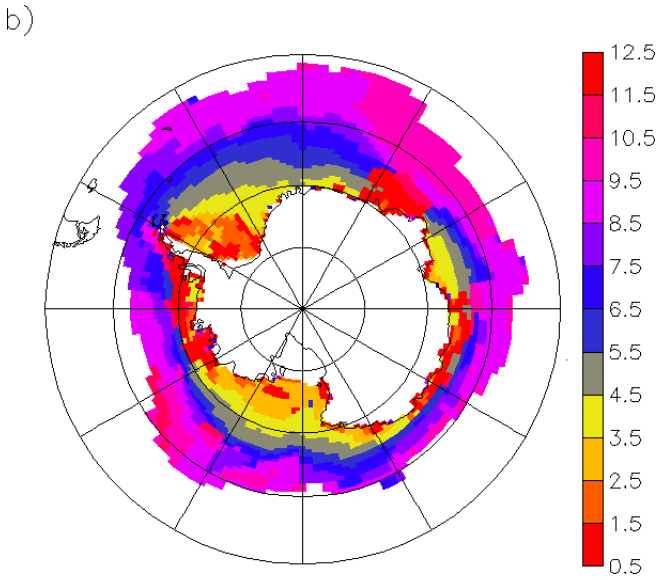
1500
700
100
50
20
5
0
-5
-20
-50
-100
-700
-1500

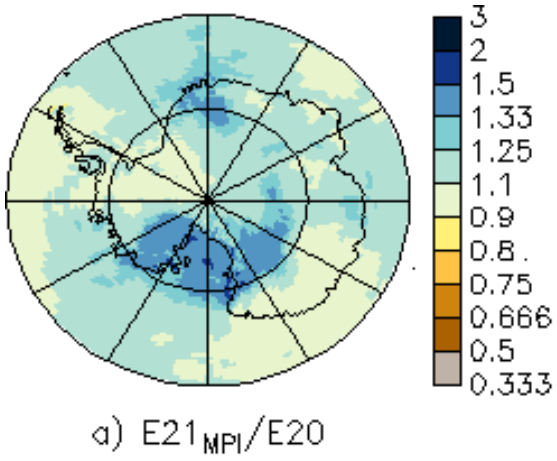
Agosta et al.,Clim. Dyn., in prep.

Régionalisation du bilan d'énergie de surface en Antarctique (2)

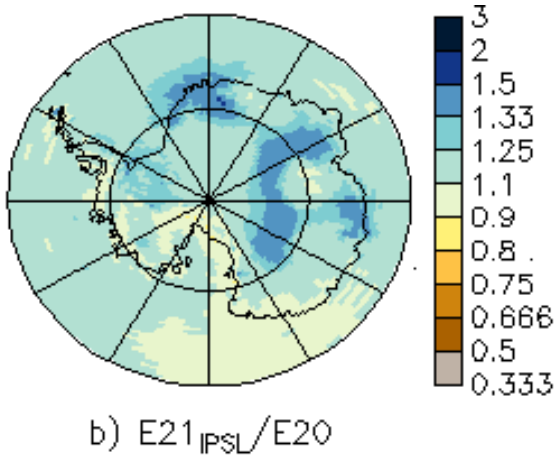
Simulations LMDZ 2080-2100 A1B, 60 km sur l 'Antarctique; forcées par les anomalies de SST et glace de mer issues de différentes simulations couplées CMIP3



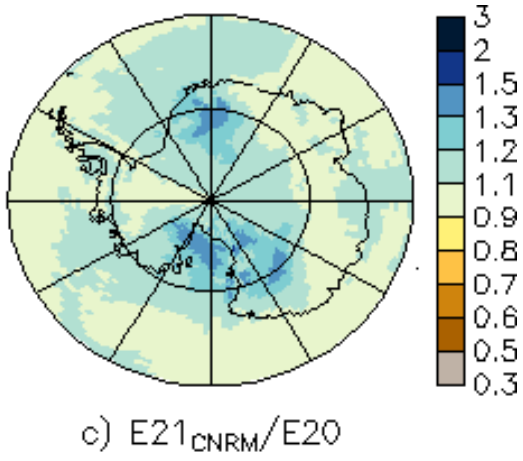




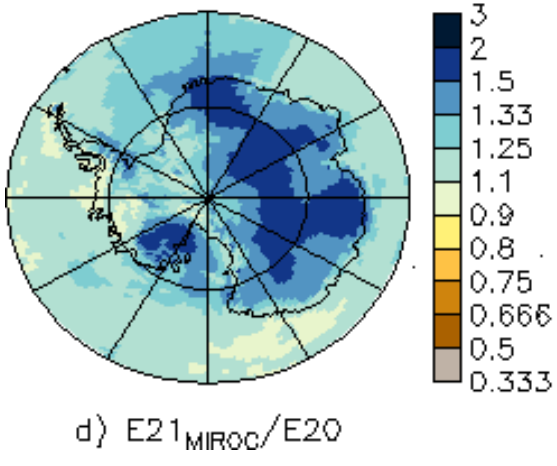
a) $E21_{MPI}/E20$



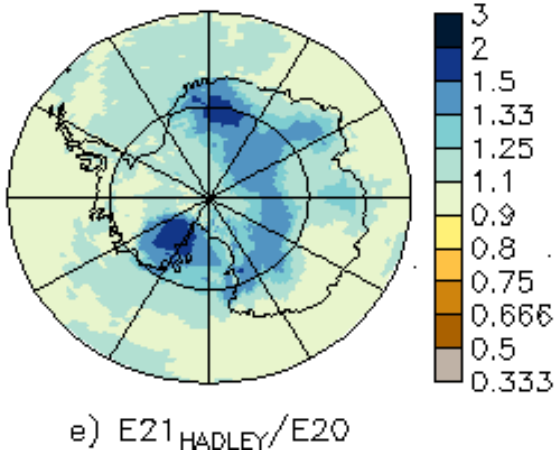
b) $E21_{IPSL}/E20$



c) $E21_{CNRM}/E20$



d) $E21_{MIROC}/E20$



e) $E21_{HADLEY}/E20$

Changement relatif de précipitation