Flat Earth

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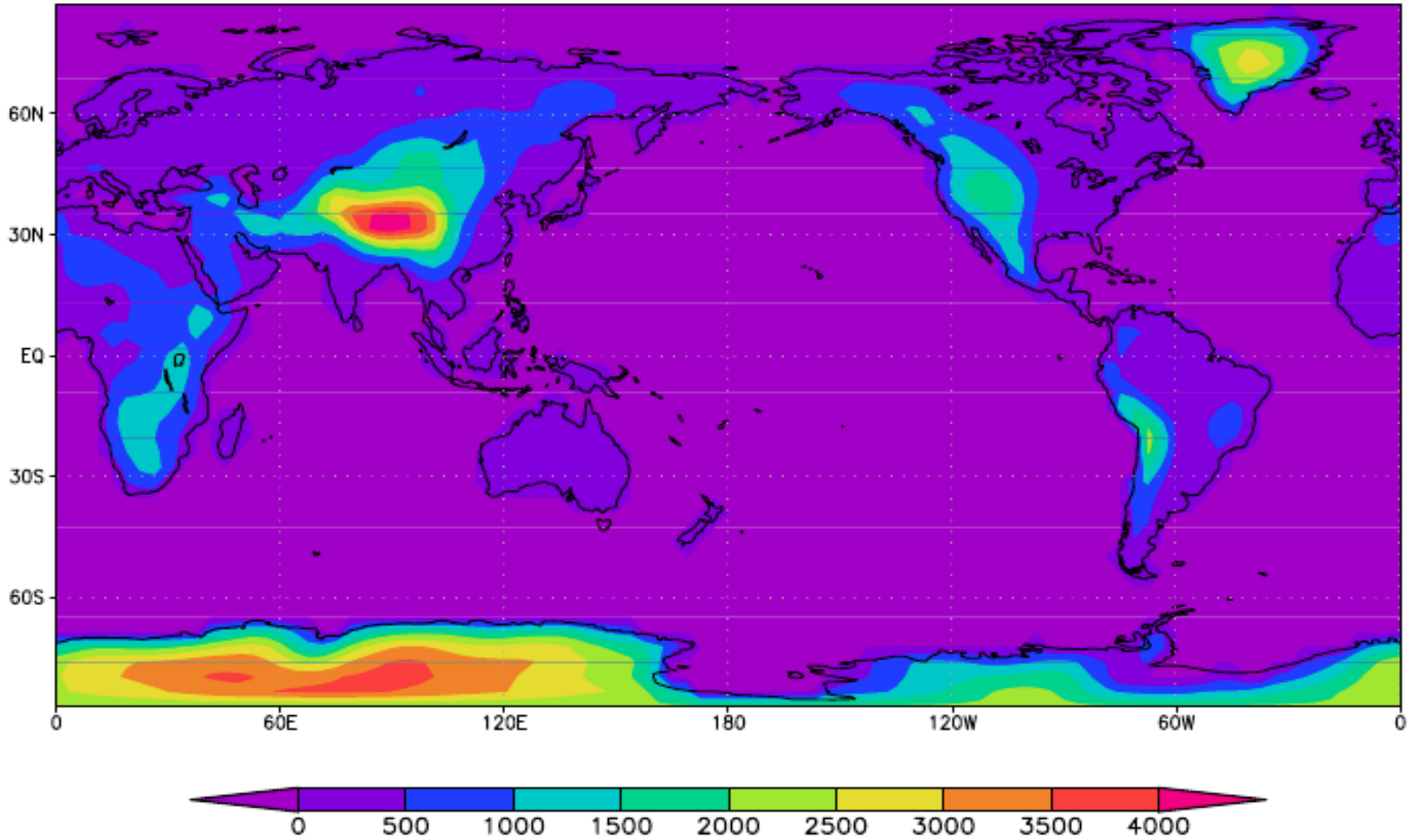
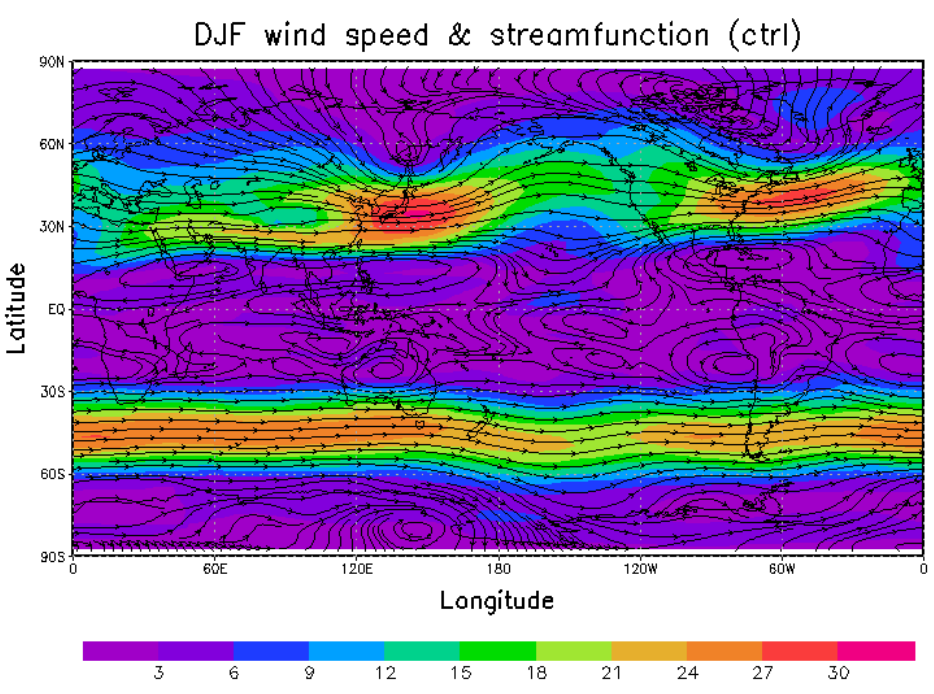
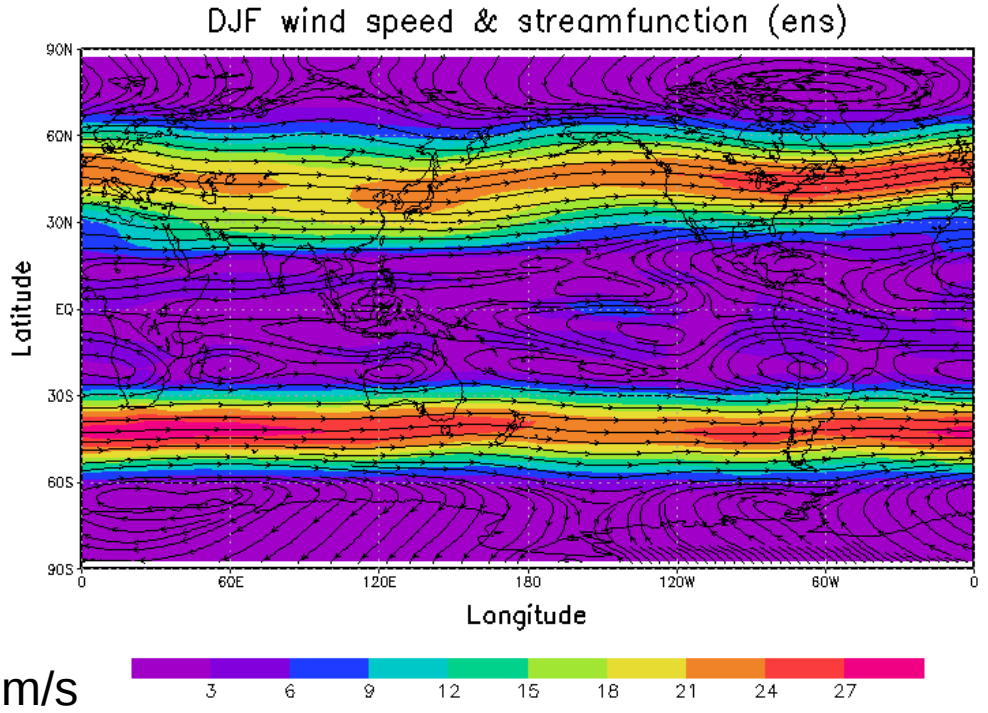


Hypothesis

- Atm. gravity waves diminish
  - Changes in transient waves and circul. Pattern
  - Changes in atmospheric heat transport
- Changes in precipitation patterns
  - Changes in carbon uptake by land
- Changes in Ocean
  - Ocean heat transport

Wind patterns

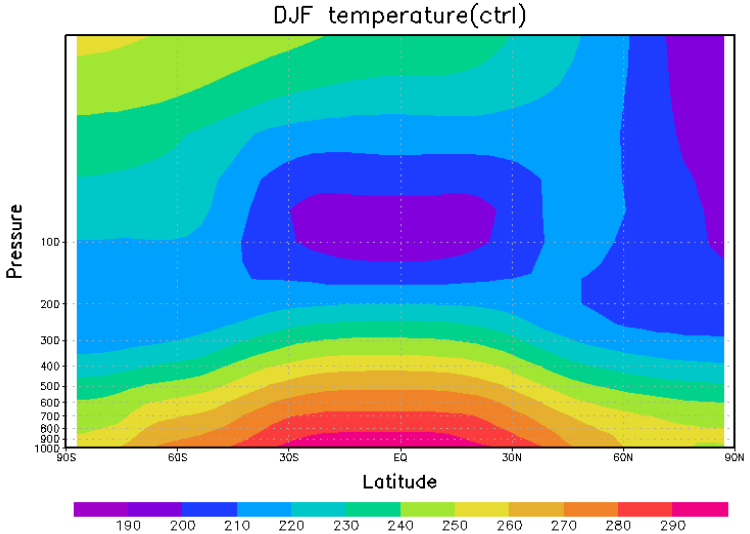




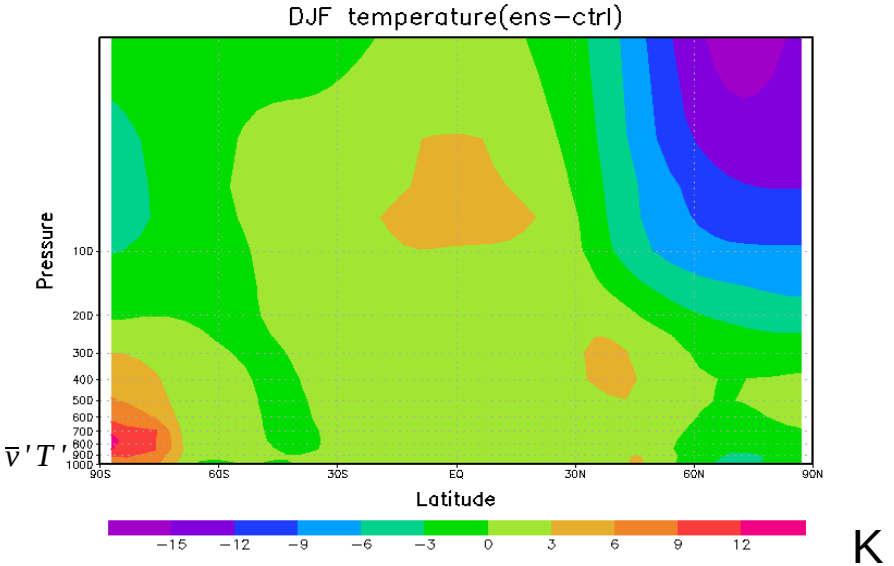
m/s

northern hemisphere:
=> wind patterns resemble southern ones
=> changes in the baroclinic zones

Latitudinal temperature (Northern Hem.)



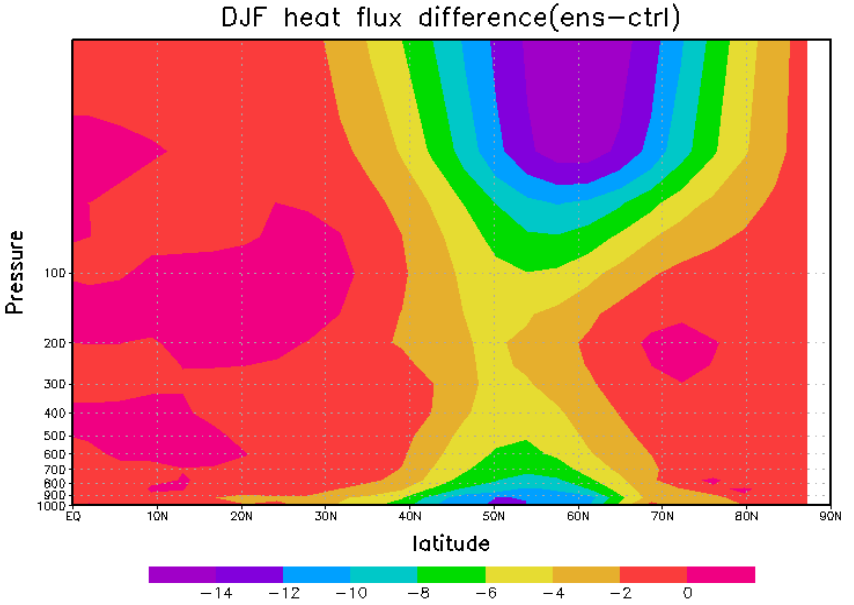
K



$\overline{v'T'}$

K

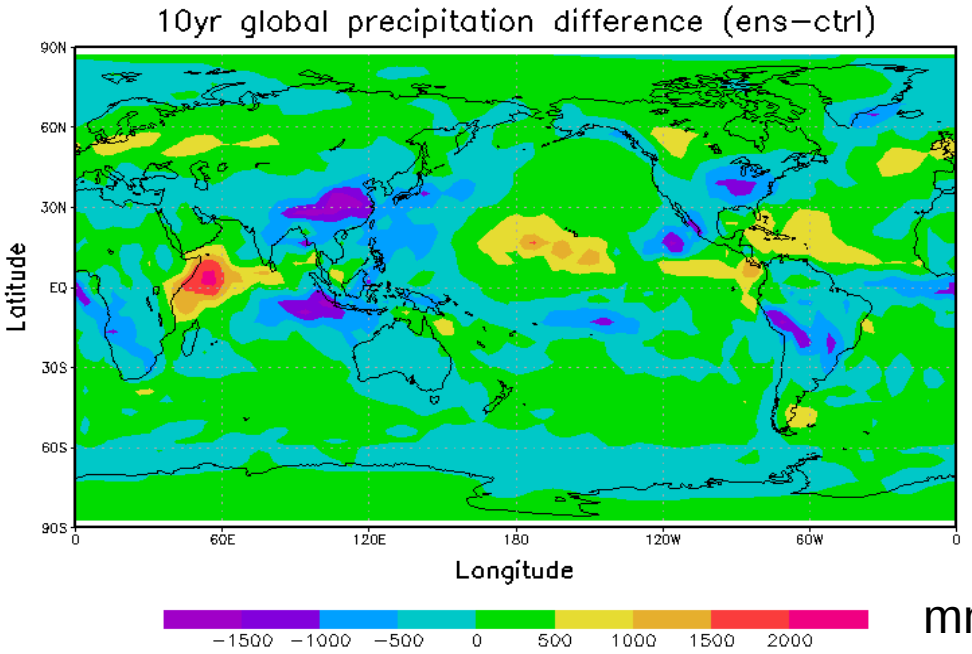
=> drastic temperature drop at the pole
=> reduction in atm heat flux at all heights



$\overline{v'T'}$

1. Atmosphere

Precipitation

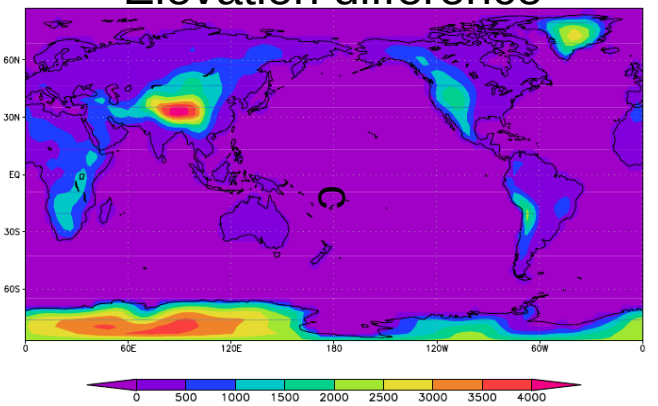


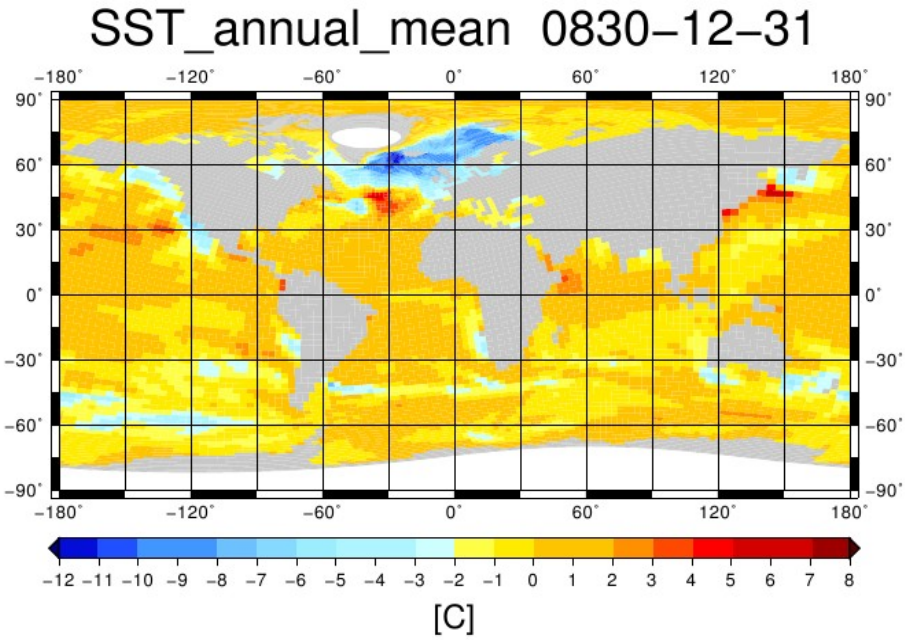
mm/yr

Change can be partly explained by:

- Mountains
- SST

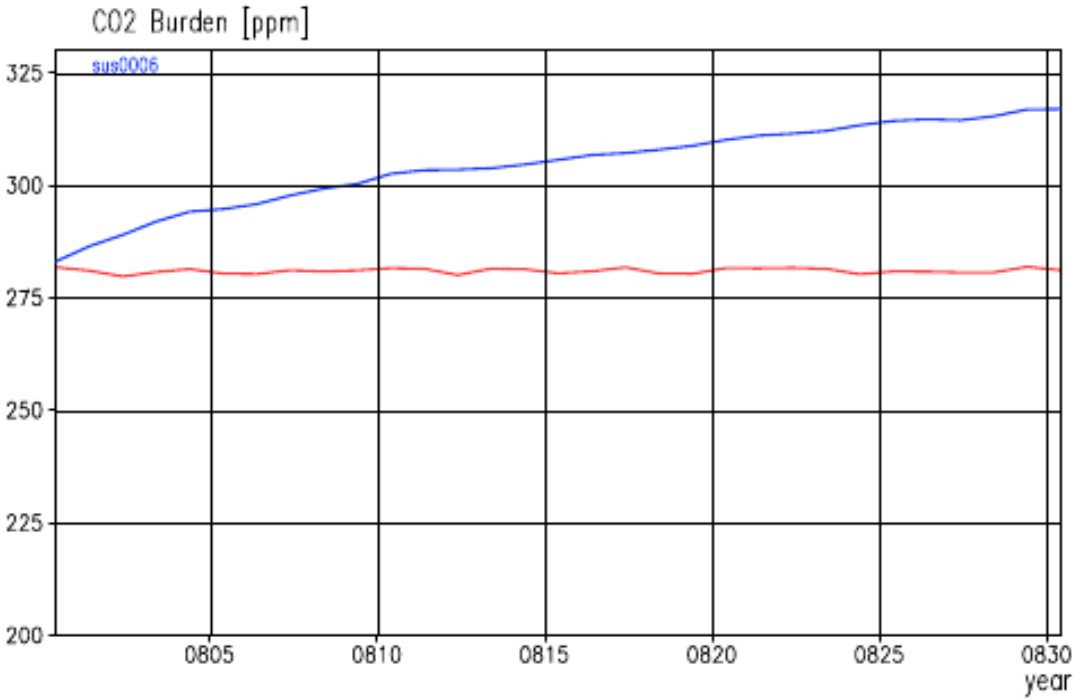
Elevation difference

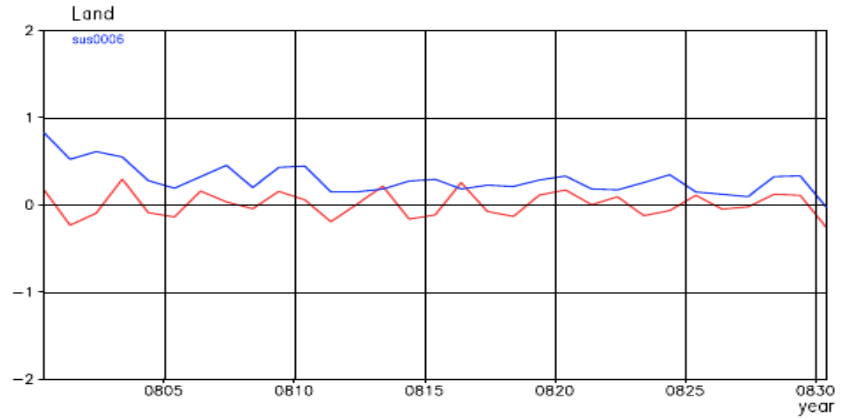


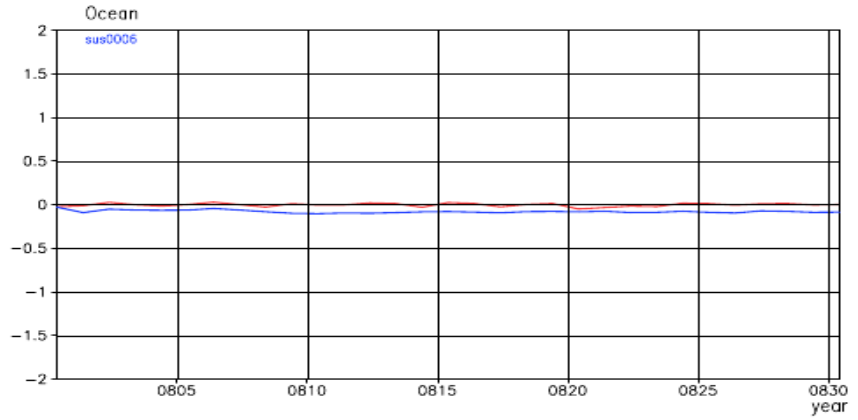


1. Atmosphere

CO2 - concentration

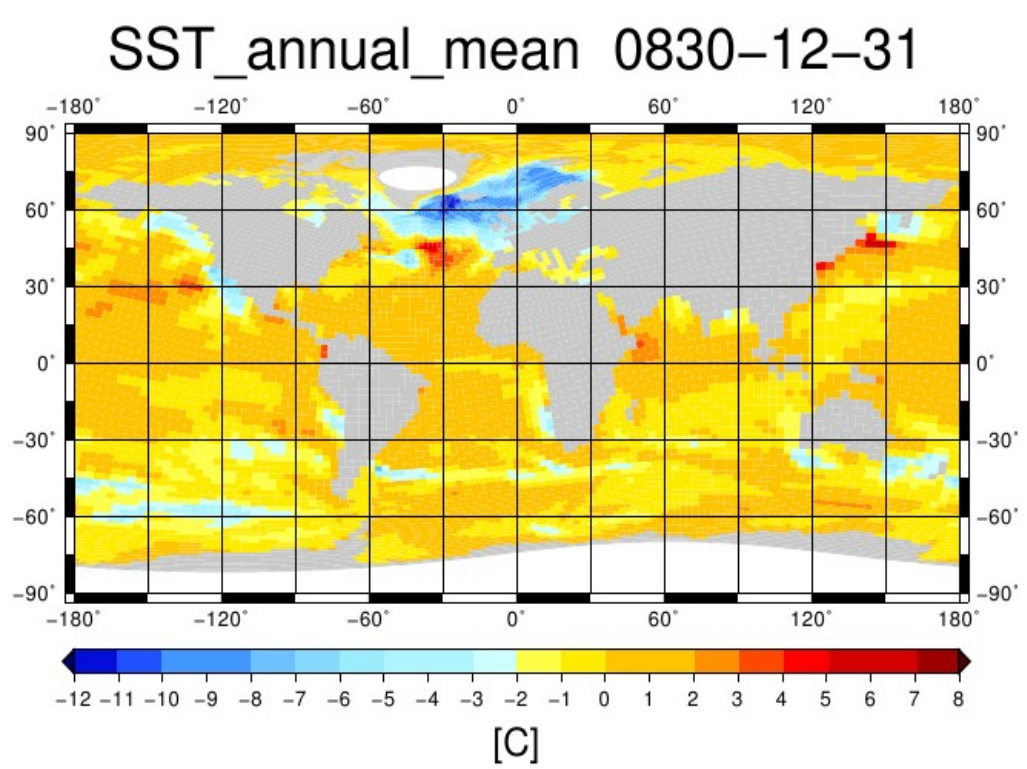


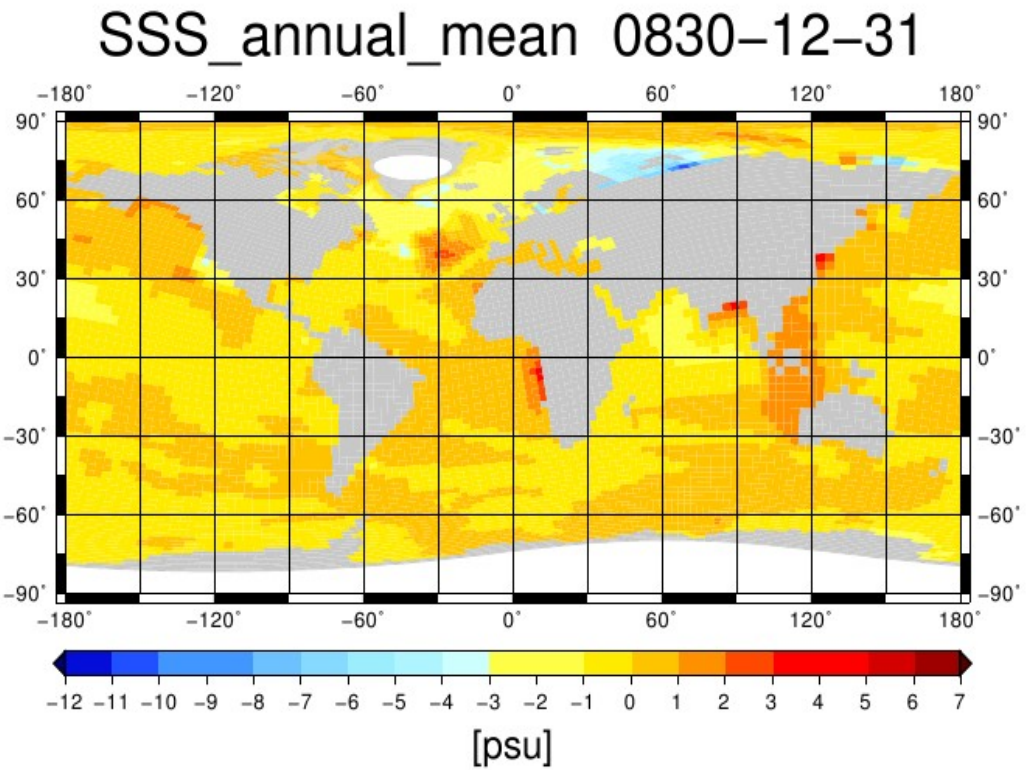




2. Ocean

Temperature and Salinity



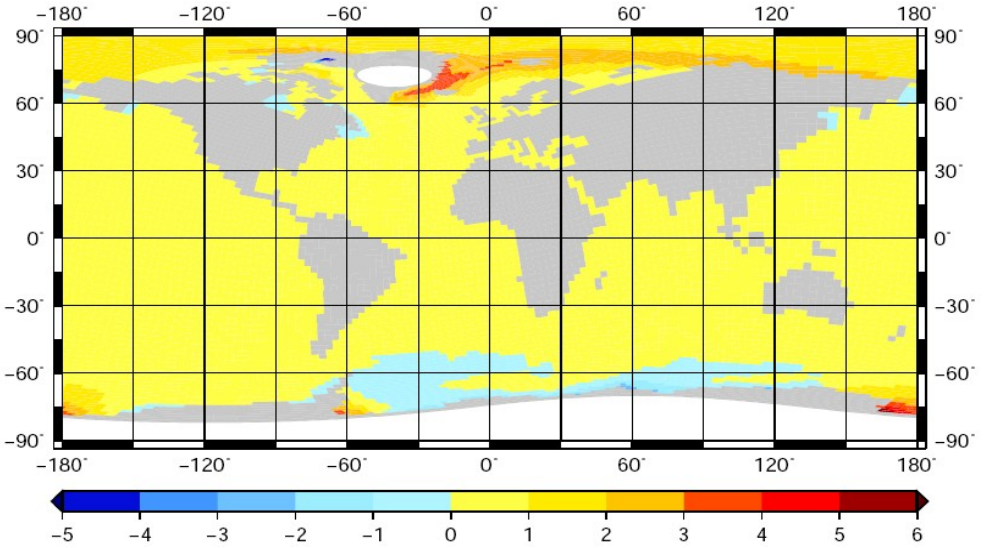


- Strong cooling in north Atlantic.
- SST increase accompanied by SSS increase in northern Atlantic.

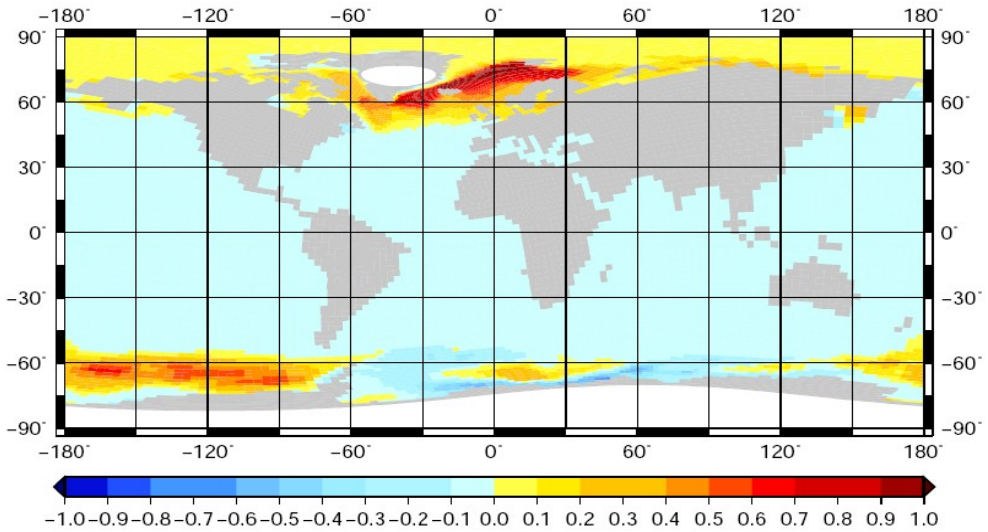
2. Ocean

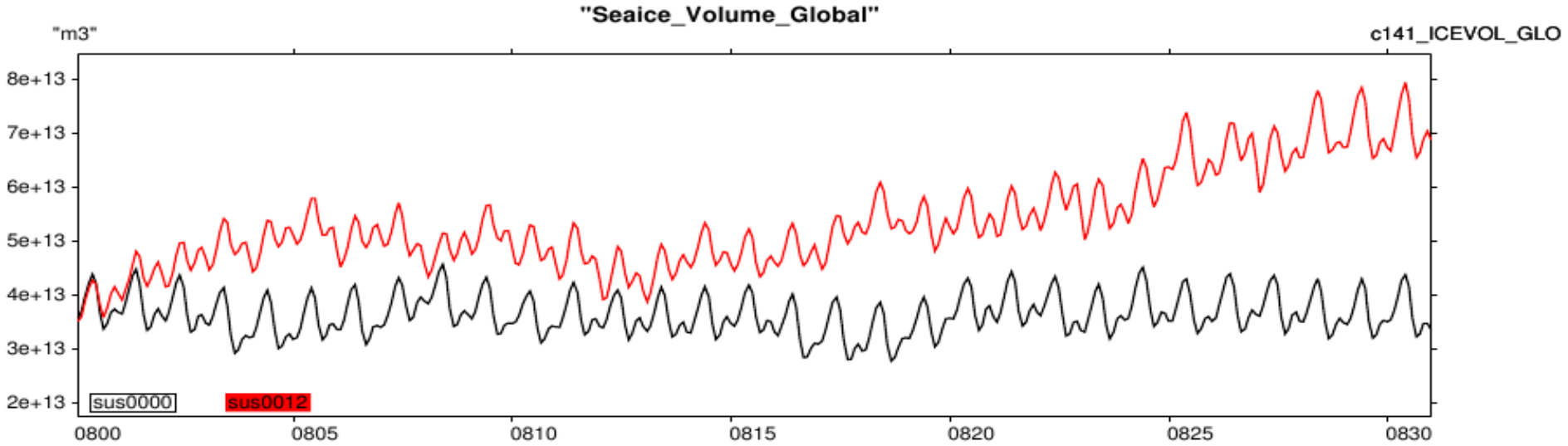
Sea Ice

Sea ice thickness difference / m (annual mean)



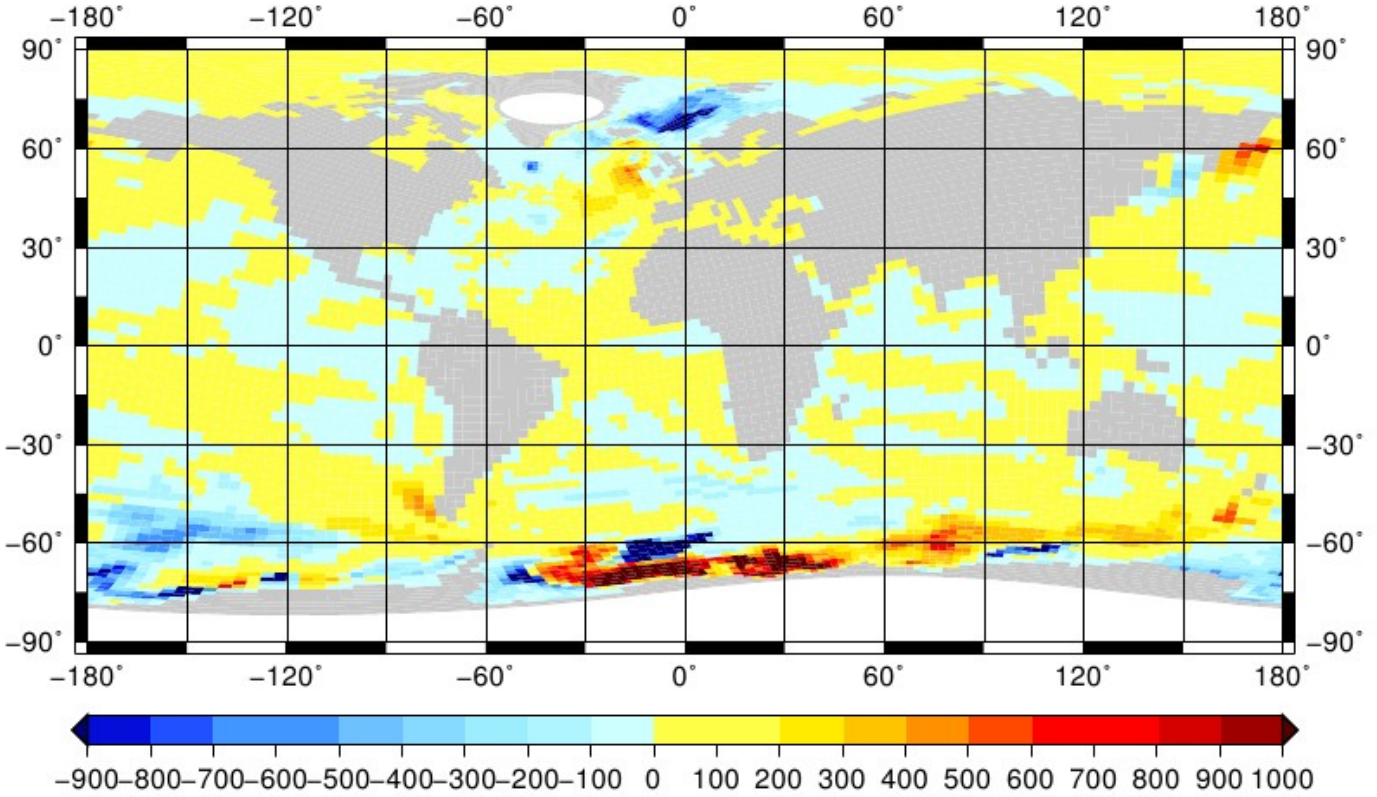
Sea ice fraction difference (annual mean)





2. Ocean

Mixed Layer Thickness

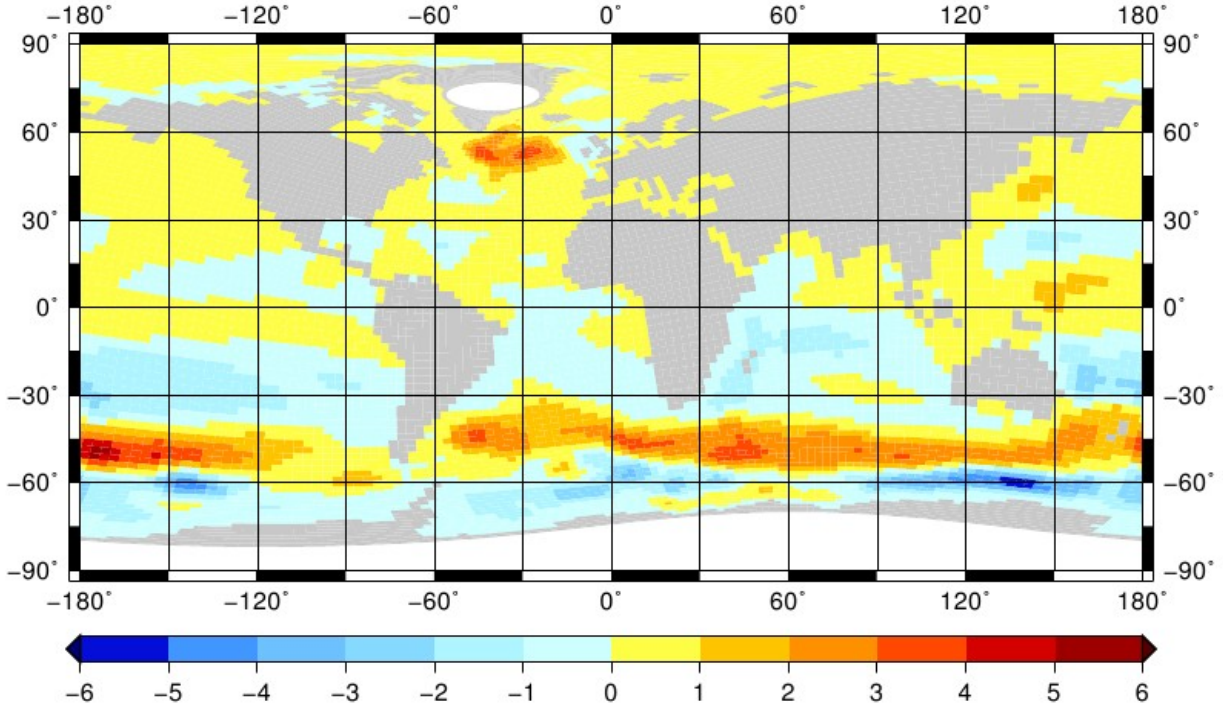


Deep water formation in northern Atlantic shifts southwards.

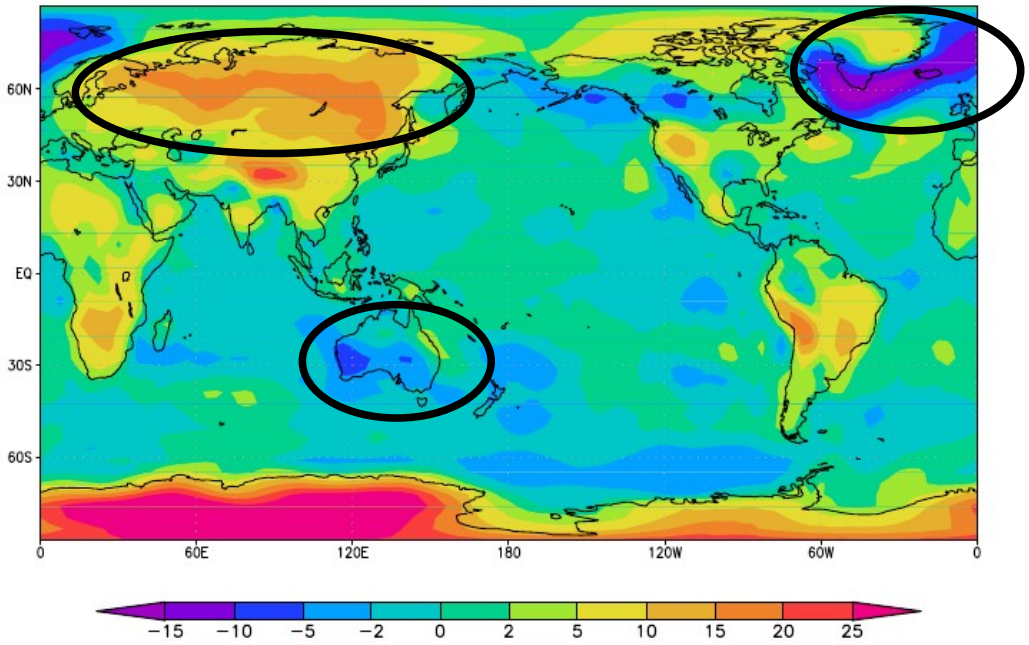
Conclusion

- Atm. meridional Temp.-gradient increase
- Wind patterns more uniform
- Deep water formation shifts southwards
- Land Carbon inventory is affected

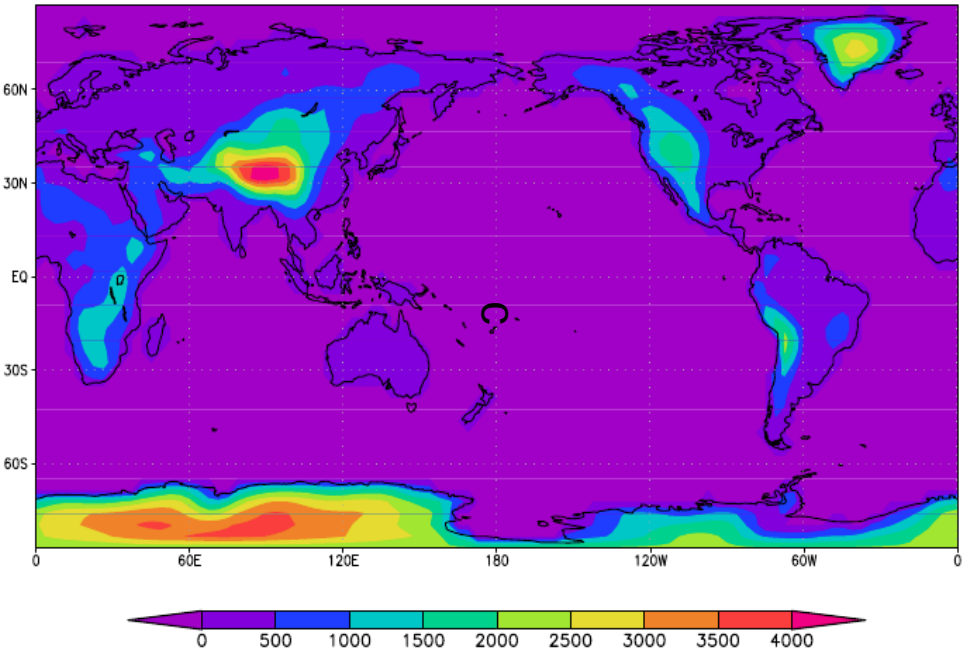
Ocean barotropic streamf. Difference / $10^7 m^3/s$(annual mean)



2m Temp difference (ens -ctrl)



Elevation difference



NPP difference (g (C) m-2 yr-1)