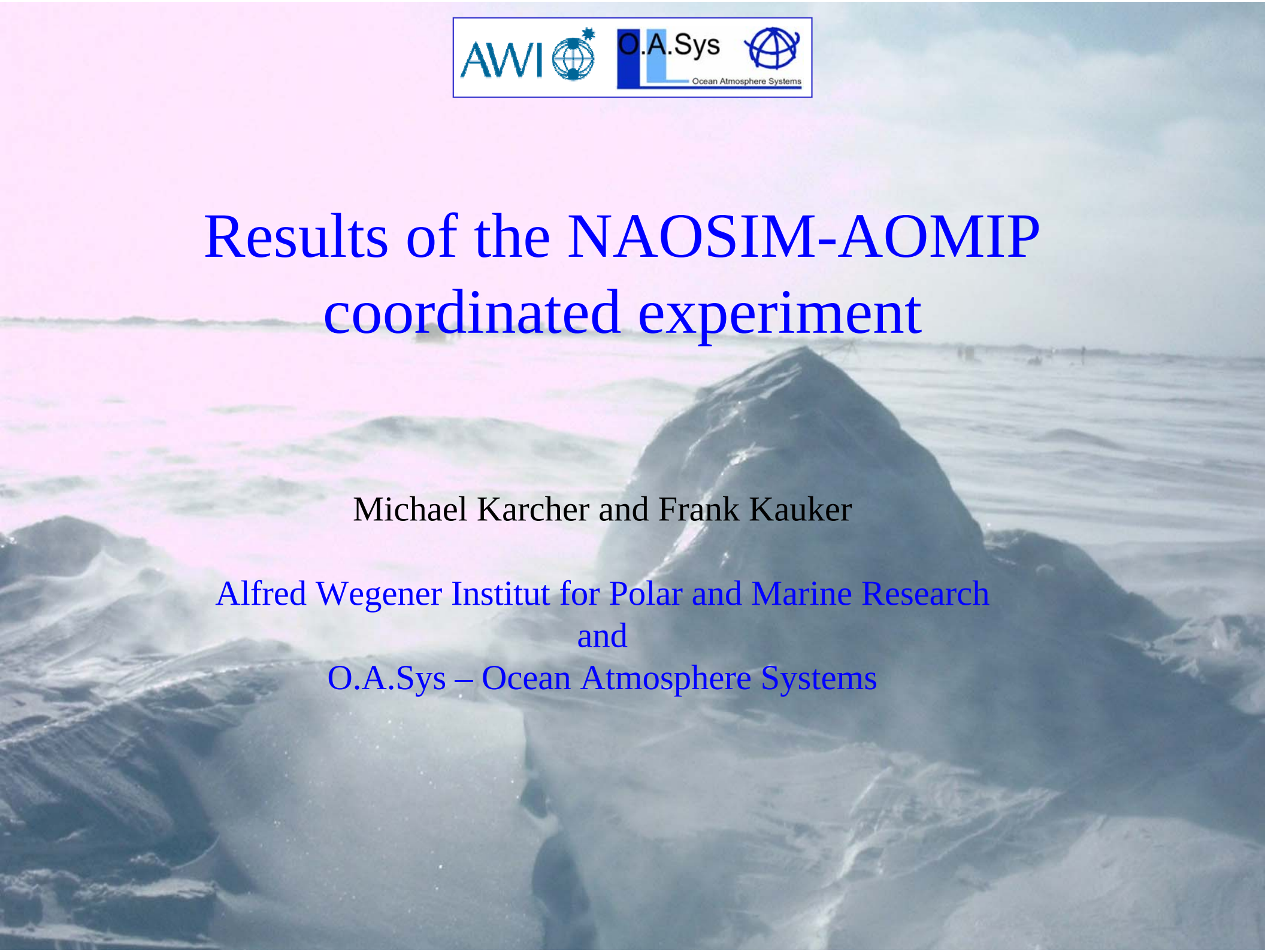
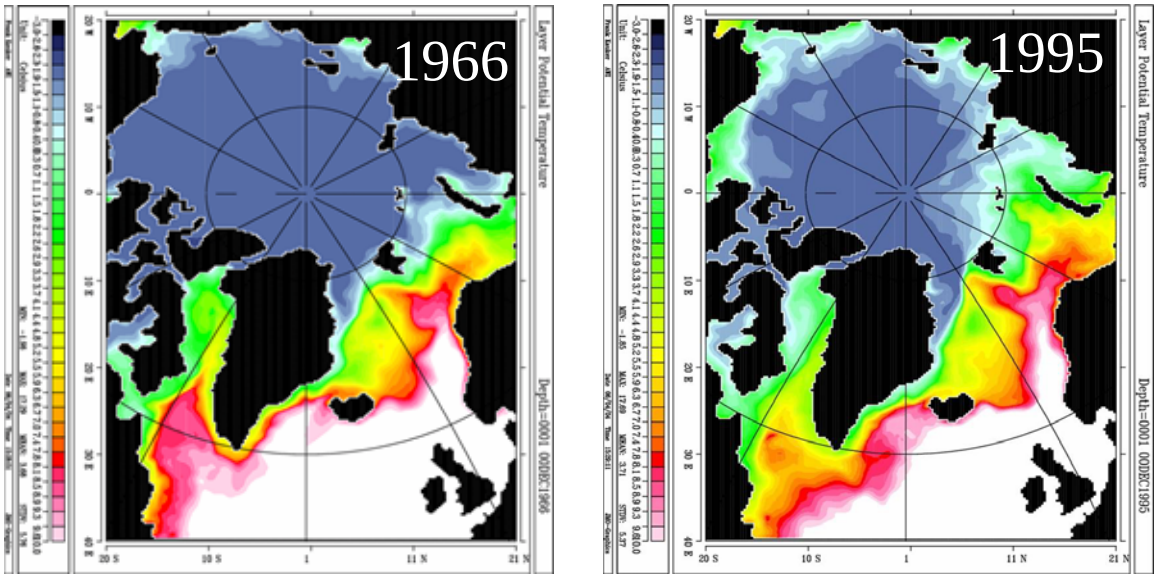


Results of the NAOSIM-AOMIP coordinated experiment

Michael Karcher and Frank Kauker

Alfred Wegener Institut for Polar and Marine Research
and
O.A.Sys – Ocean Atmosphere Systems

5m SST

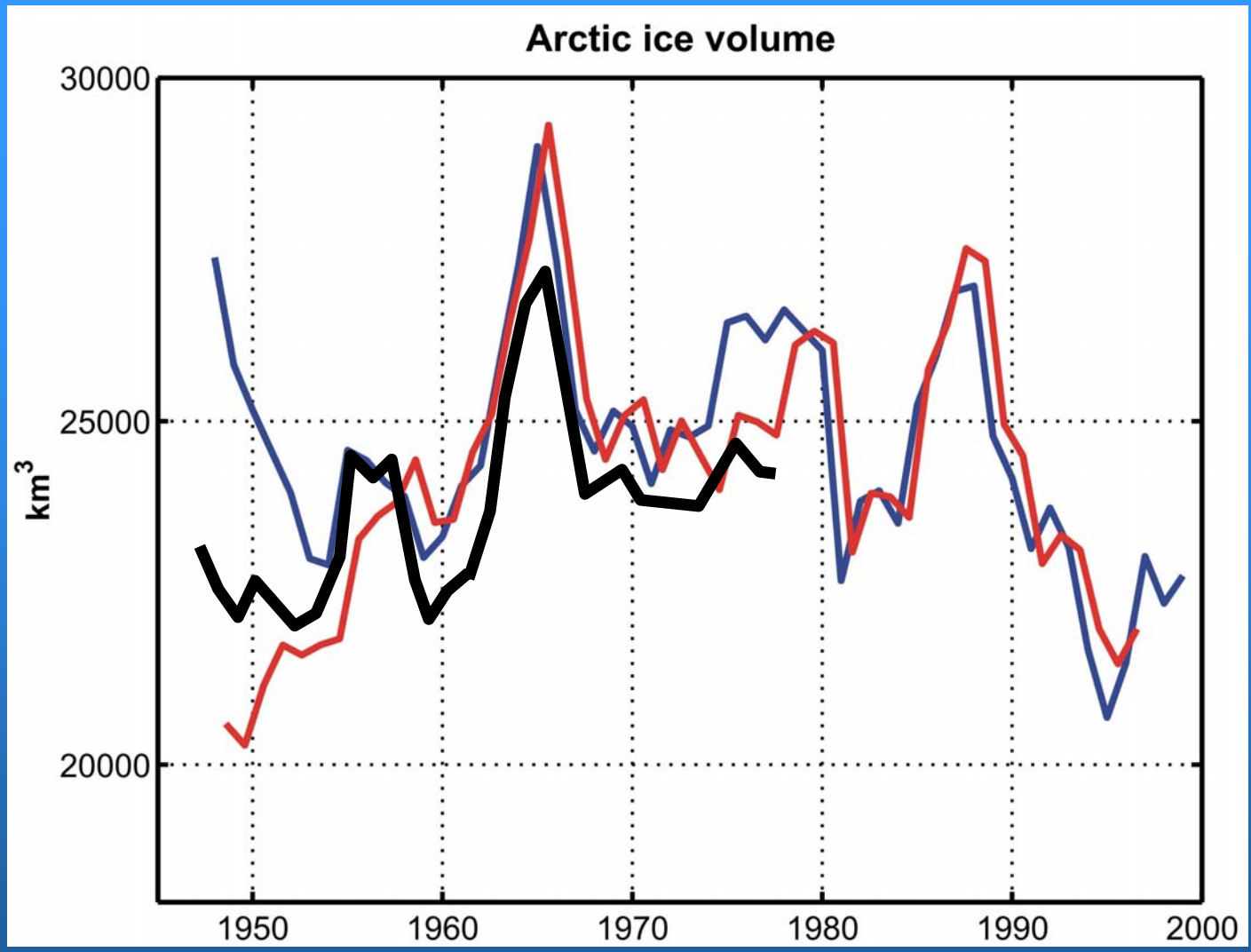


NAOSIM experiments:

- **AOMIP_spec**

- **AOMIP_fullrest (AOMIP_spec with 180d rest., Xi precip)**
- **AOMIP_NCEP (AOMIP_spec with full NCEP forcing, 180d rest.)**

- **NCEP (OMIP initial cond., full NCEP forcing, 180d rest.)**



AOMIP_spec

NCEP_high_res (high initial icevol)

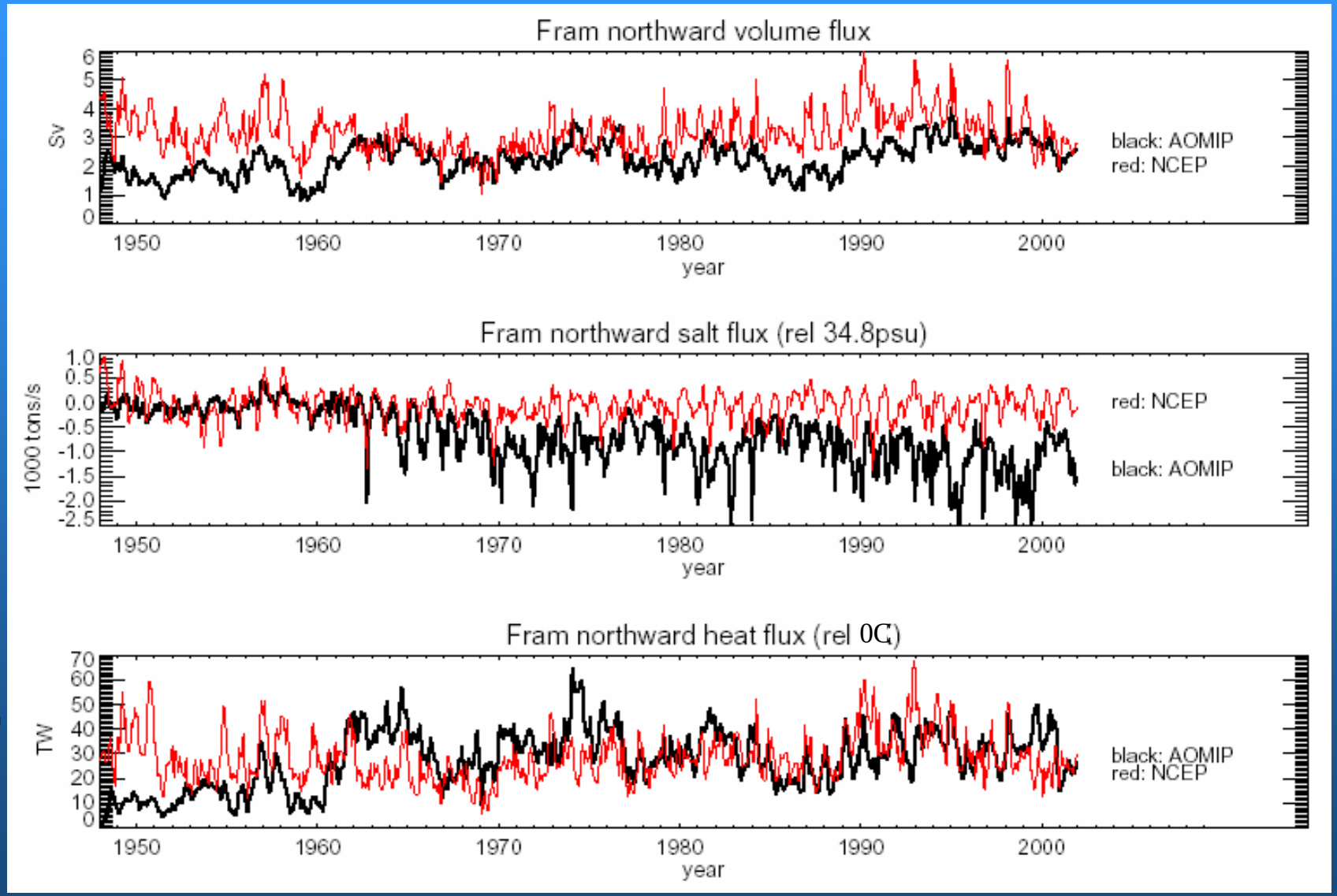
NCEP_low_res (low initial icevol)

FRAM STRAIT INFLOW AOMIP_spec vs NCEP

VOL

SALT

HEAT

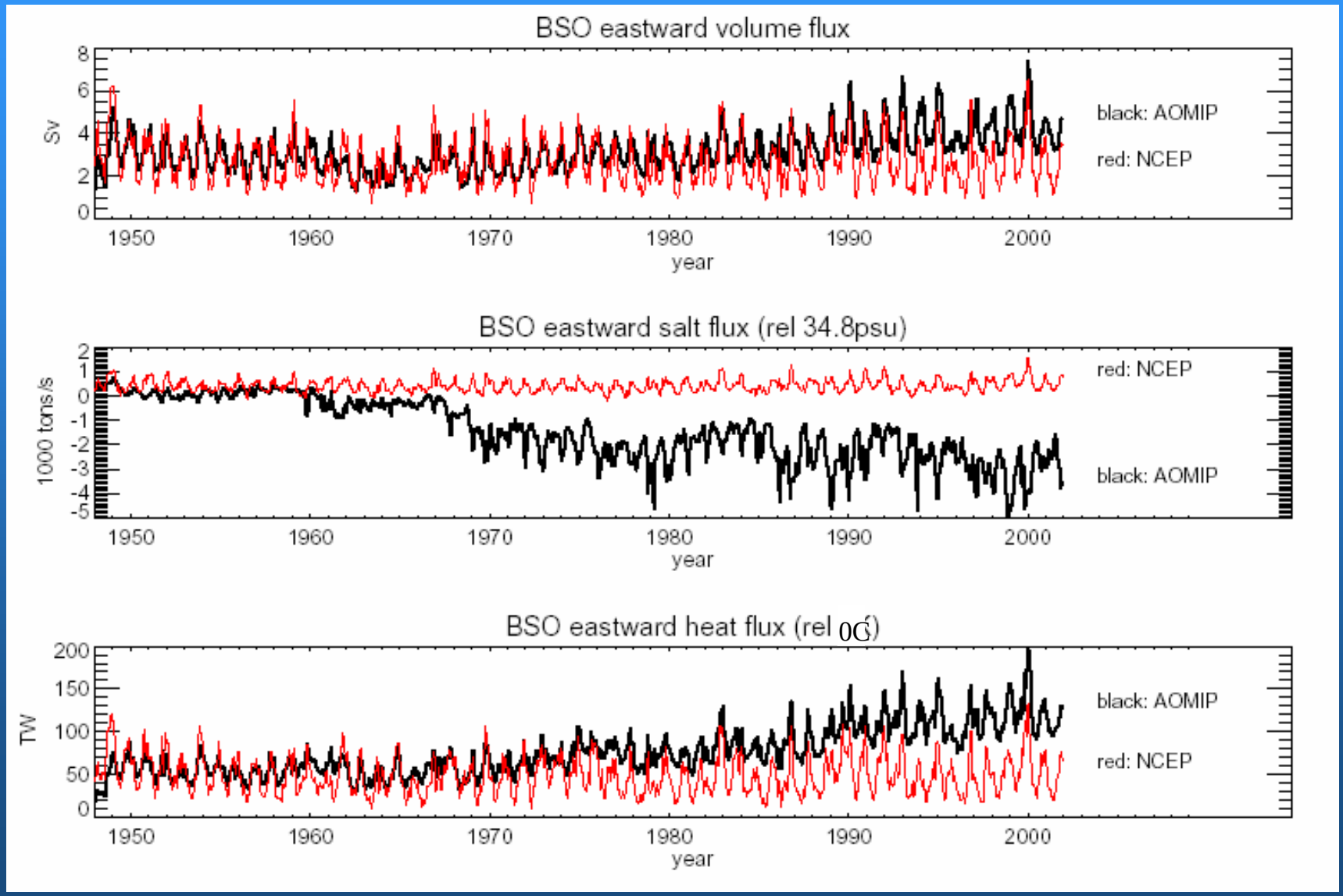


Barents Sea inflow AOMIP_spec vs NCEP

VOL

SALT

HEAT

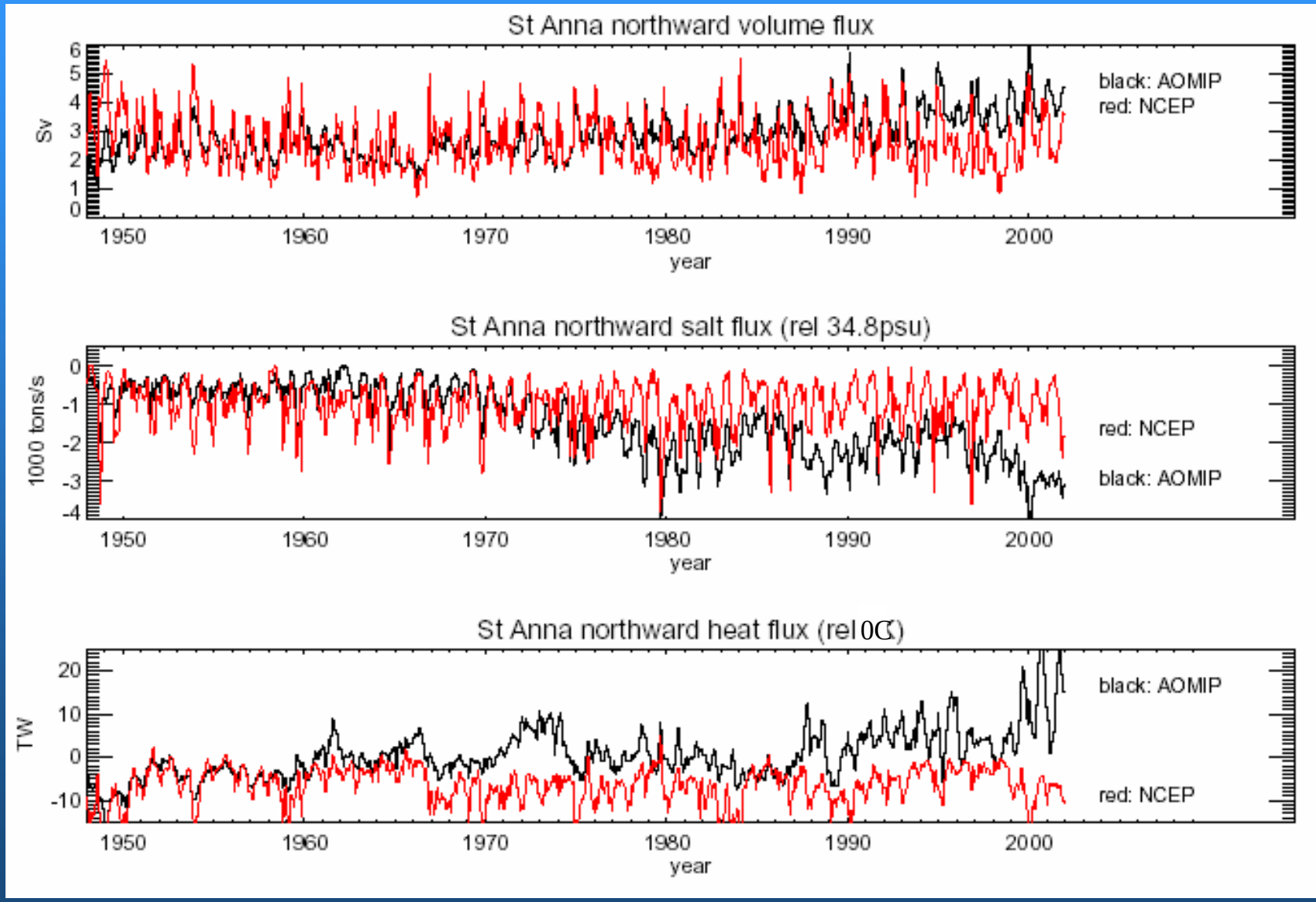


FJL-Sev.Zeml. (St.Anna trough) inflow AOMIP_spec vs NCEP

VOL

SALT

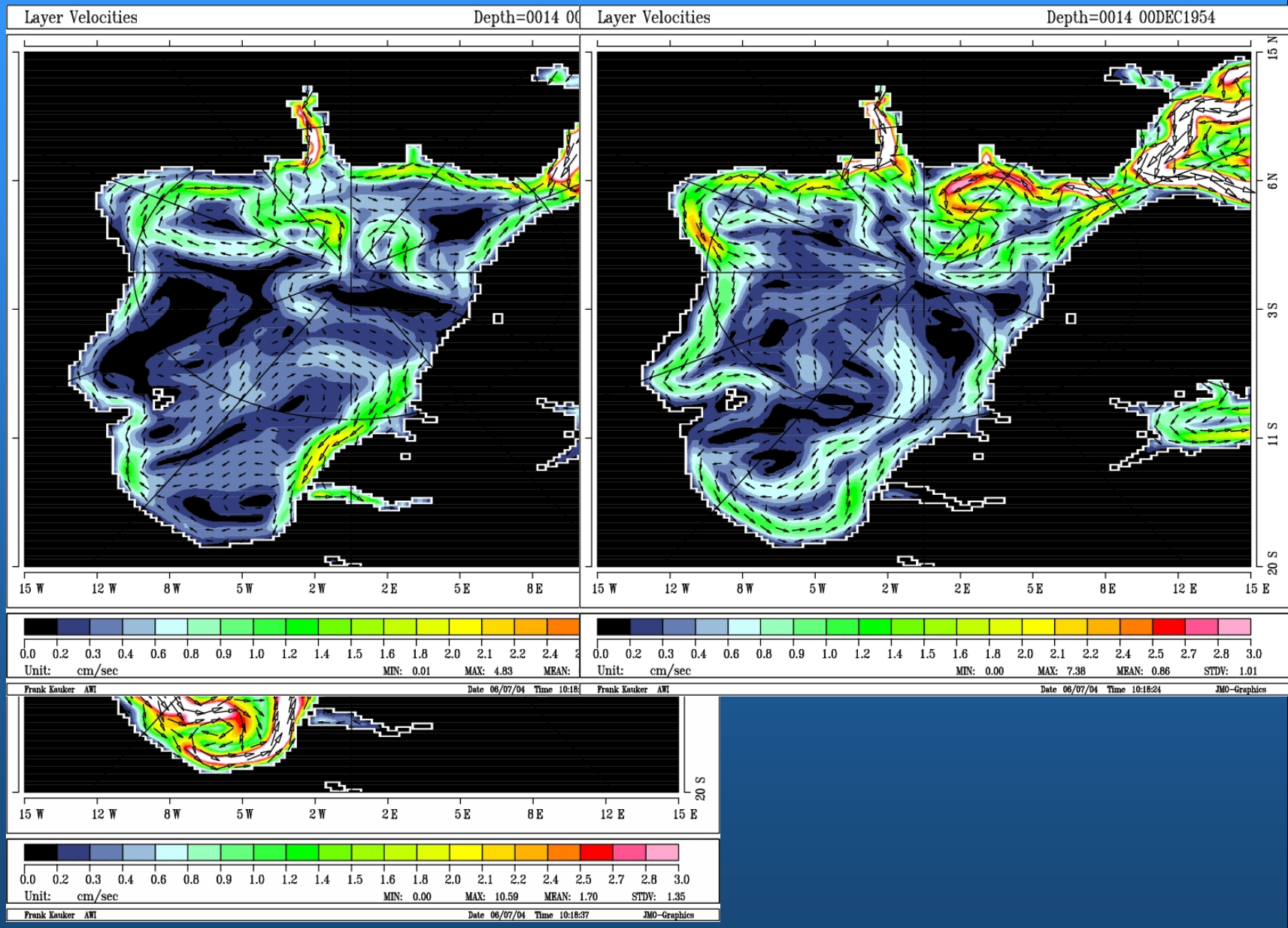
HEAT



Exp: AOMIP_spec AW velocity (300-400m)

1948 1954

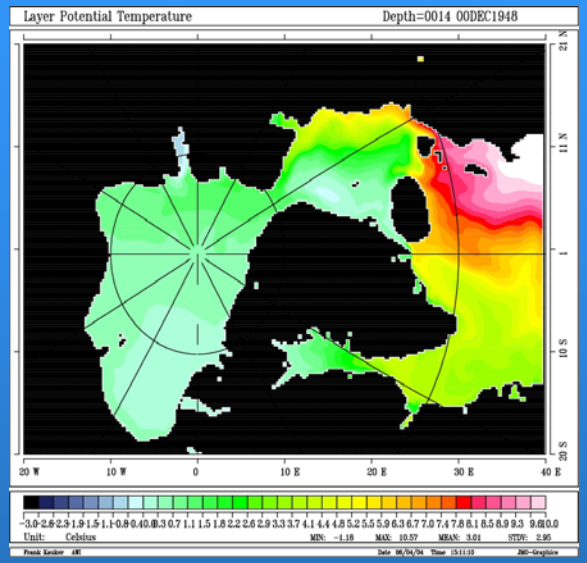
Range:
0-3 cm/s



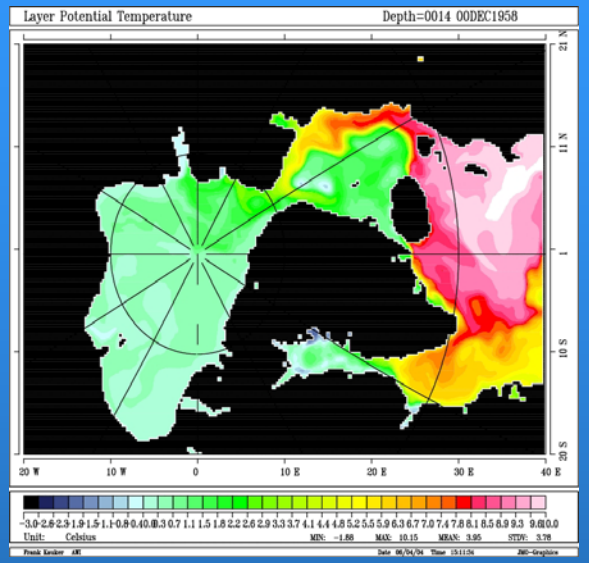
Exp: AOMIP_spec Temperature (300-400m)

Range:
-3 – 10 C

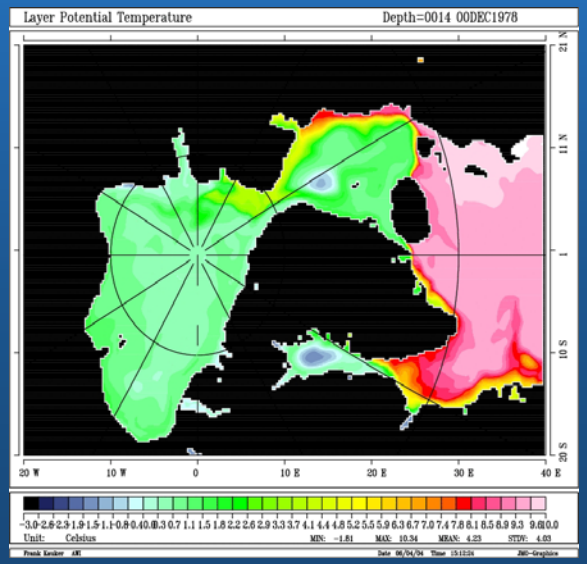
1948



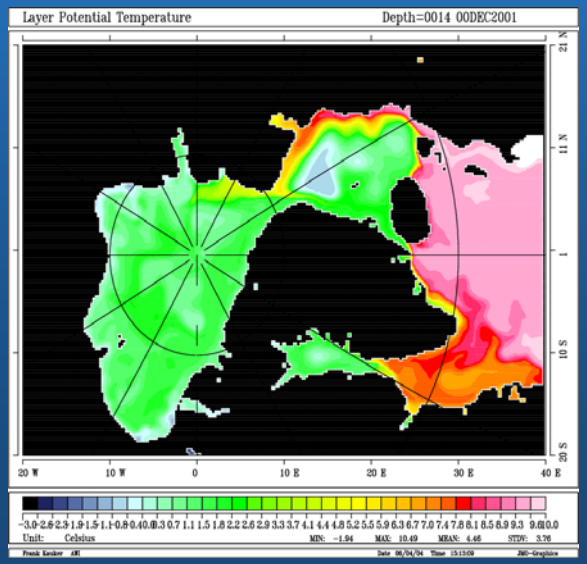
1958



1978



2001

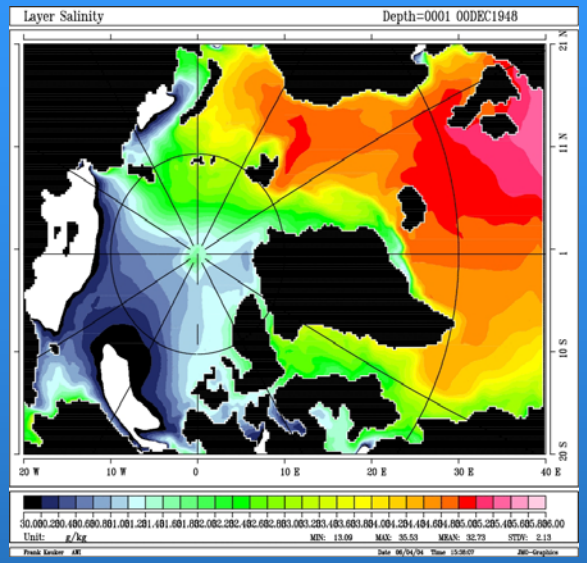


Exp: AOMIP_spec

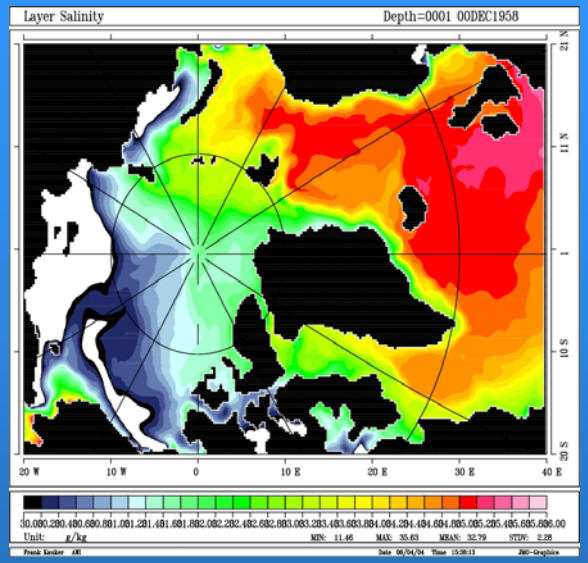
Salinity (10m)

Range: 30 - 36

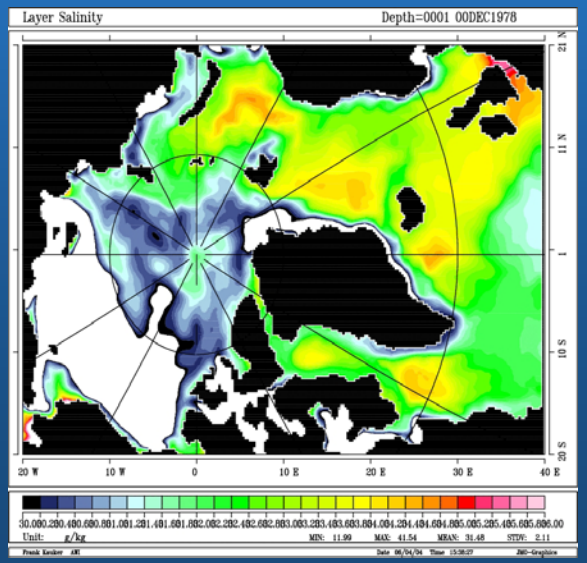
1948



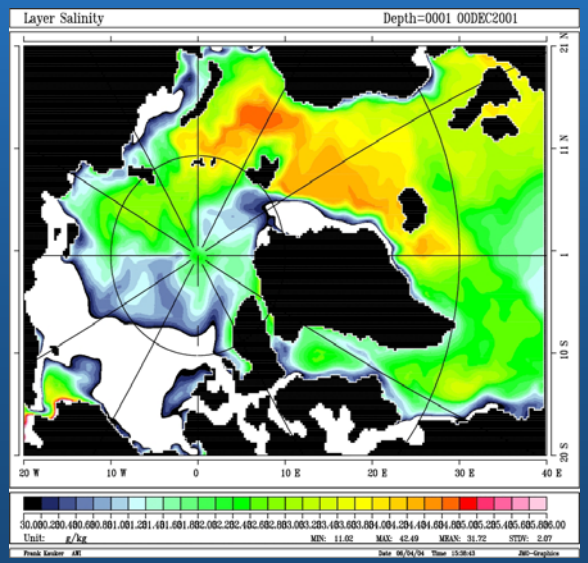
1958



1968
1978



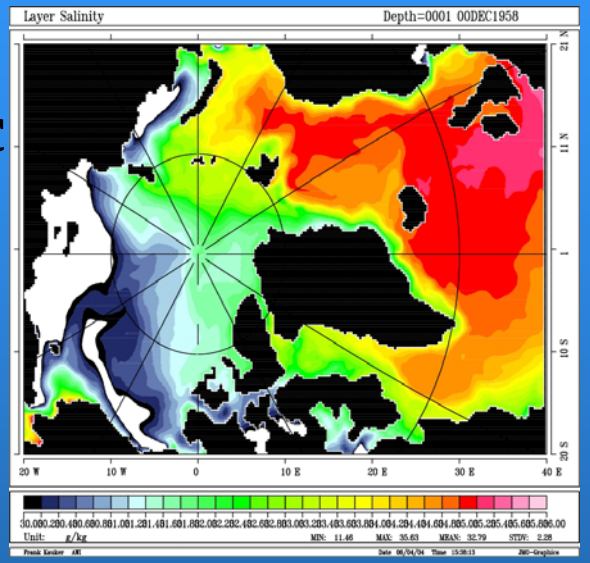
2001

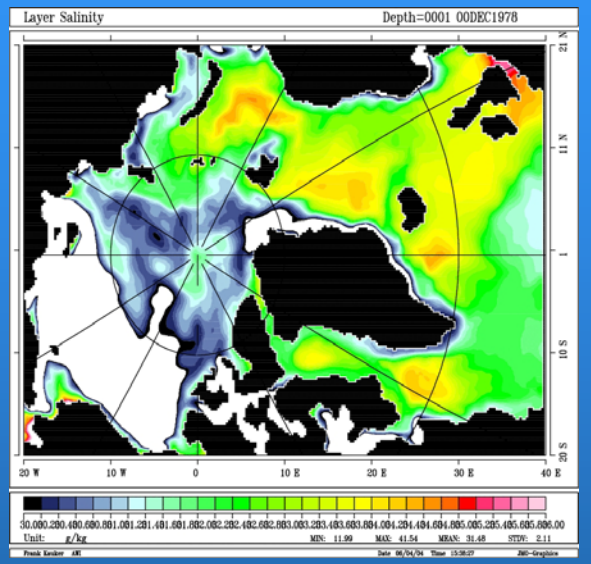


Comparison Salinity (10m)

1958 1978

AOMIP_spec

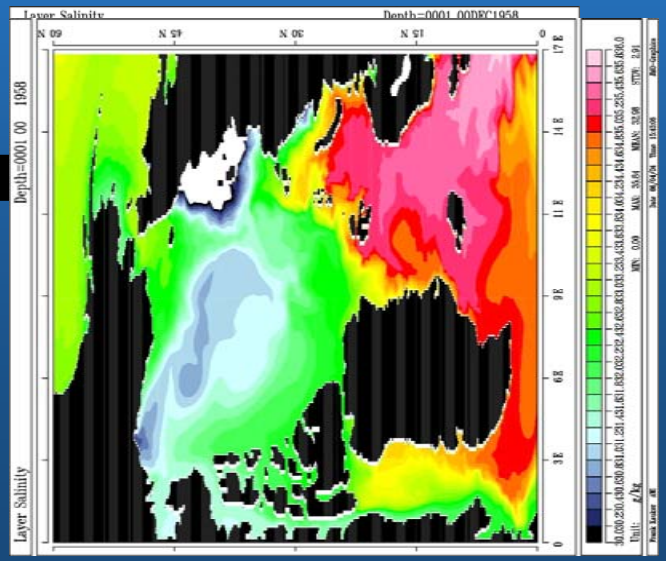


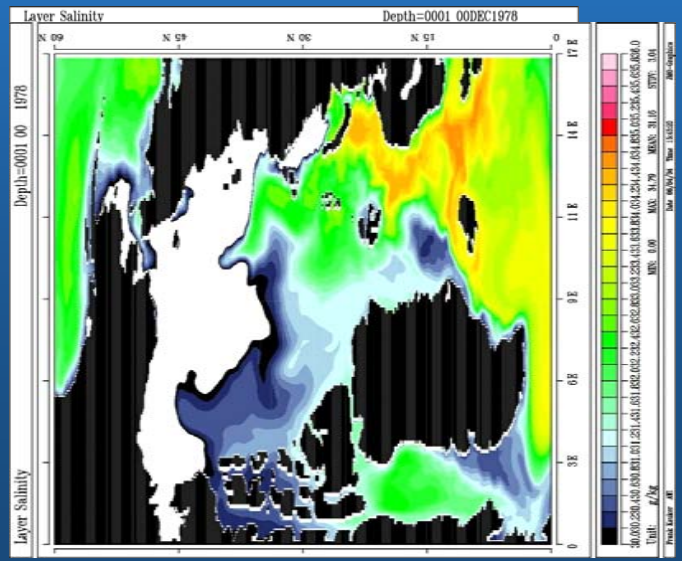


Range: 30 - 36

AOMIP_NCEP

AOMIP_spec

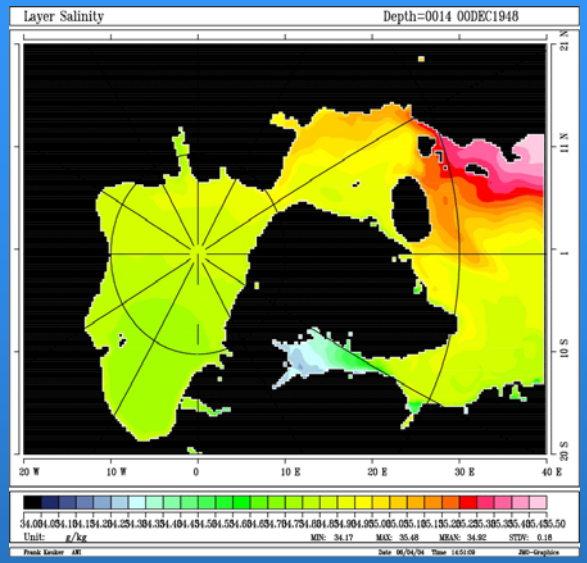




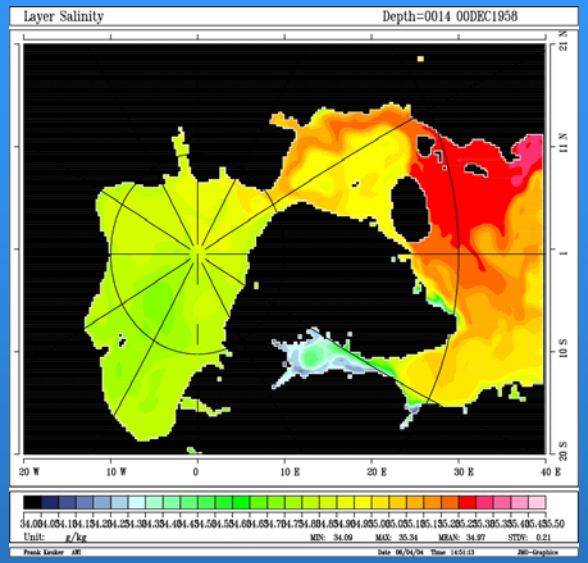
Exp: AOMIP_spec

Salinity (300-400m)

1948

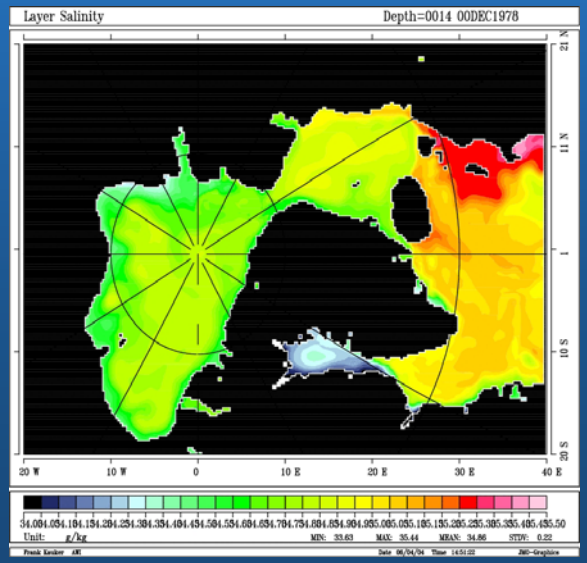


1958

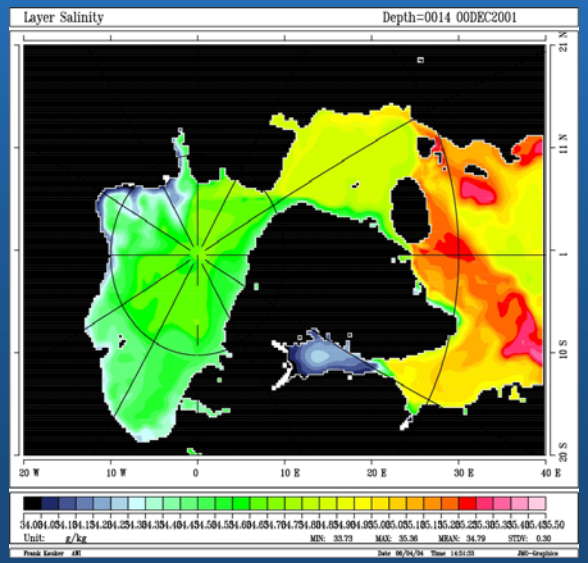


Range: 30 - 36

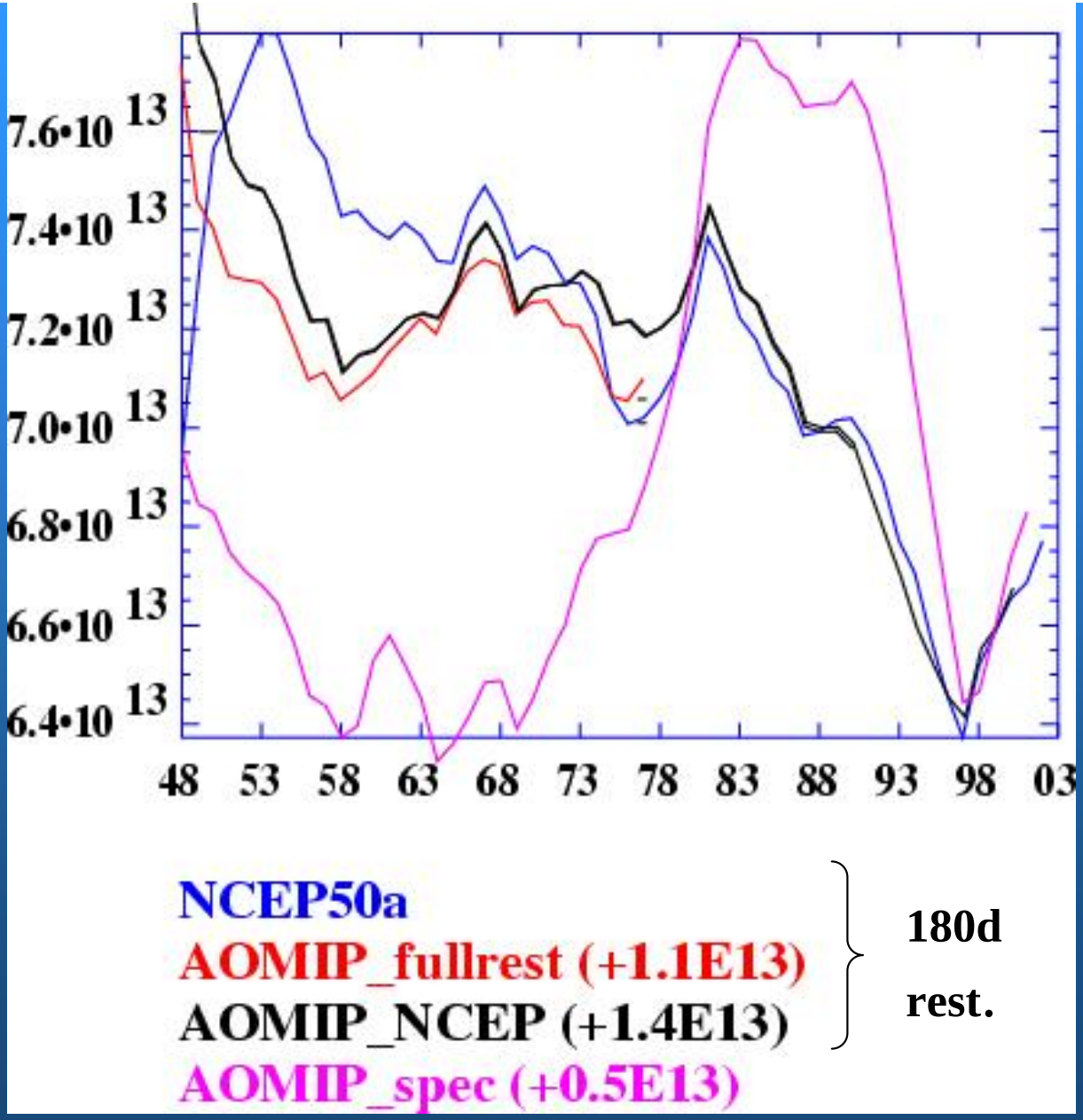
1978



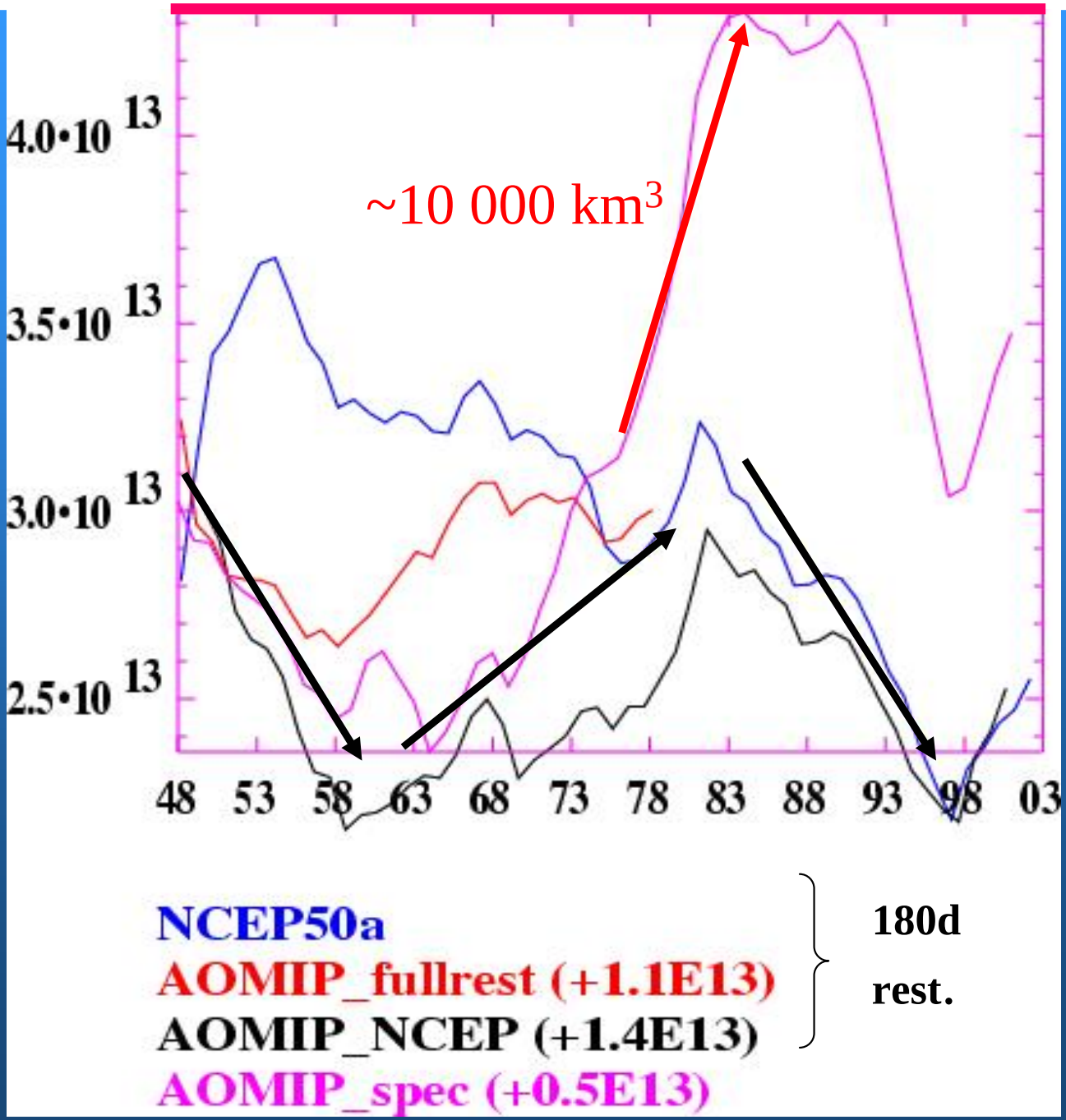
2001



Arctic Freshwater content to 34.8 (ref.: 34.8)

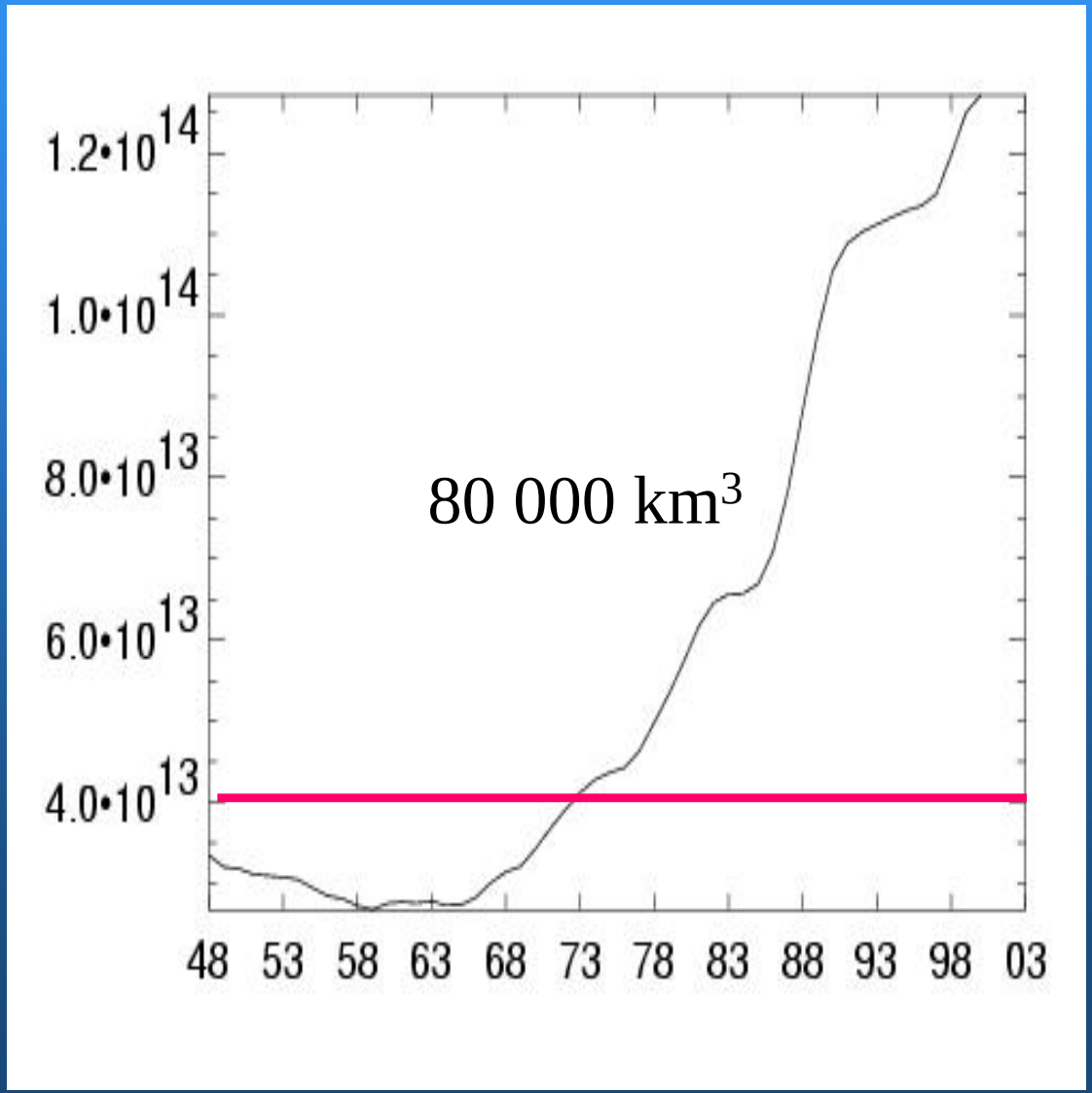


Total Arctic Freshwater content (ref.: 34.8)

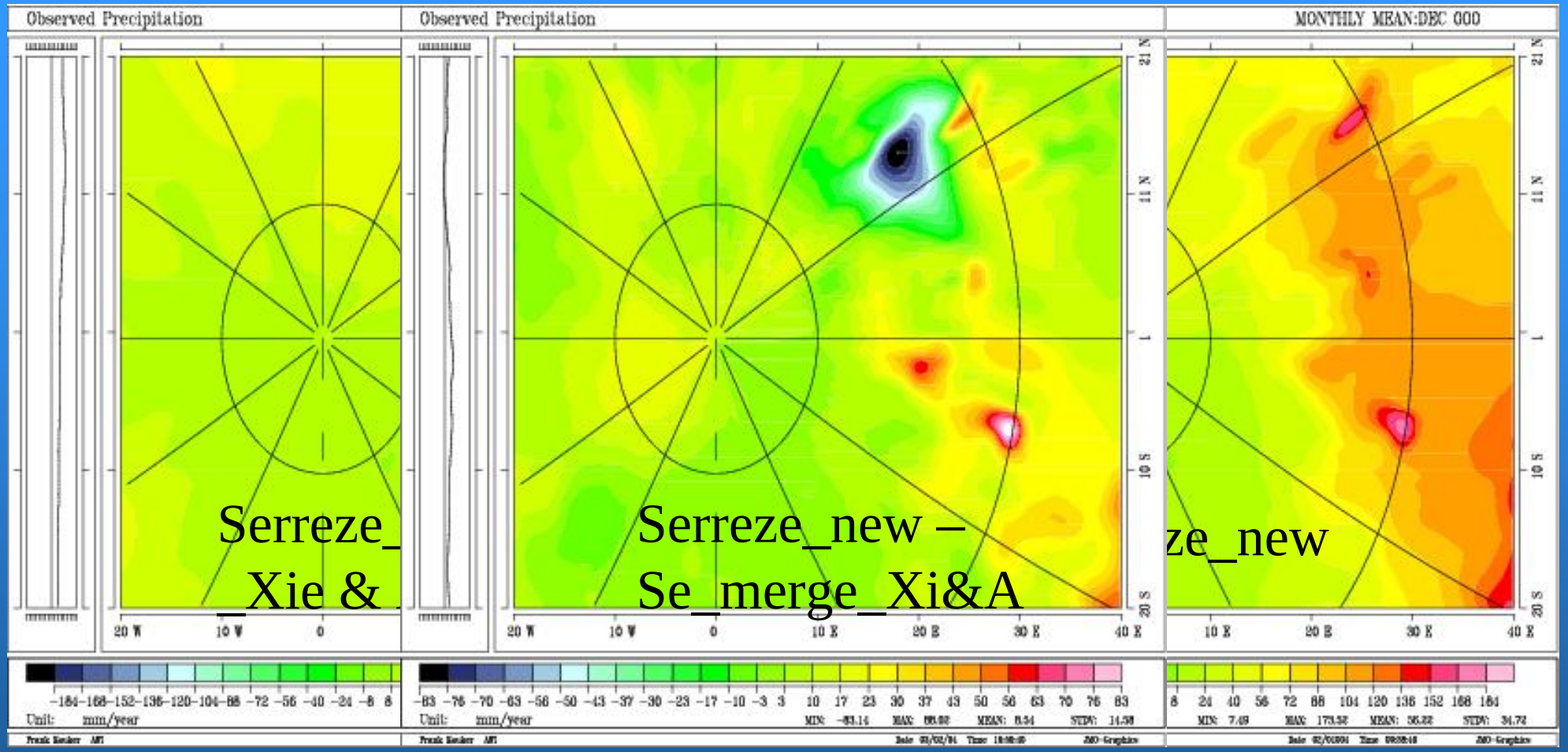


Total Arctic Freshwater content (ref.: 34.8)

AOMIP_spec (180d rest at open southern boundary)

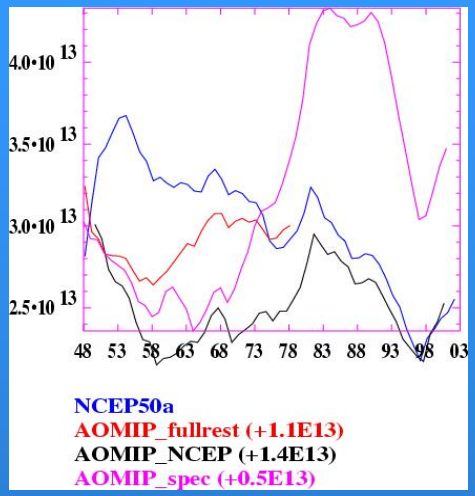


AOMIP precipitation data

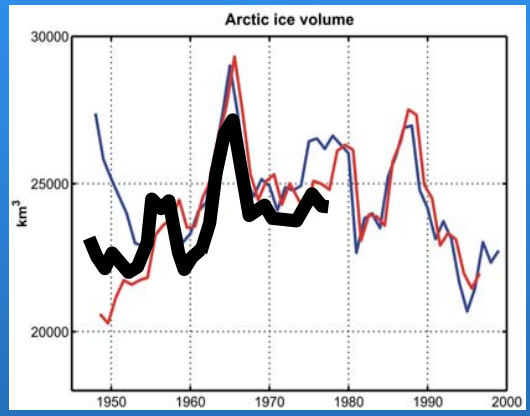


Additional Freshwater input: 1000 km^3/y

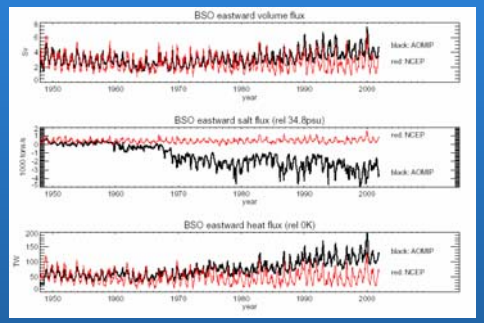
Freshwater



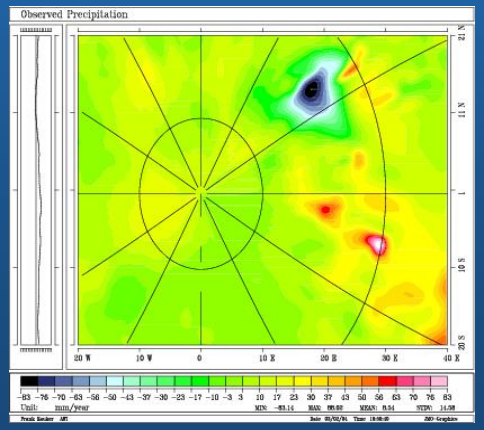
Arctic FWC rise 1965-1985:
20 000 = 1000 km^3/y



GSA Arctic icevolume loss:
5000 km^3/y



Salt inflow decrease: equiv -3000 km^3/y

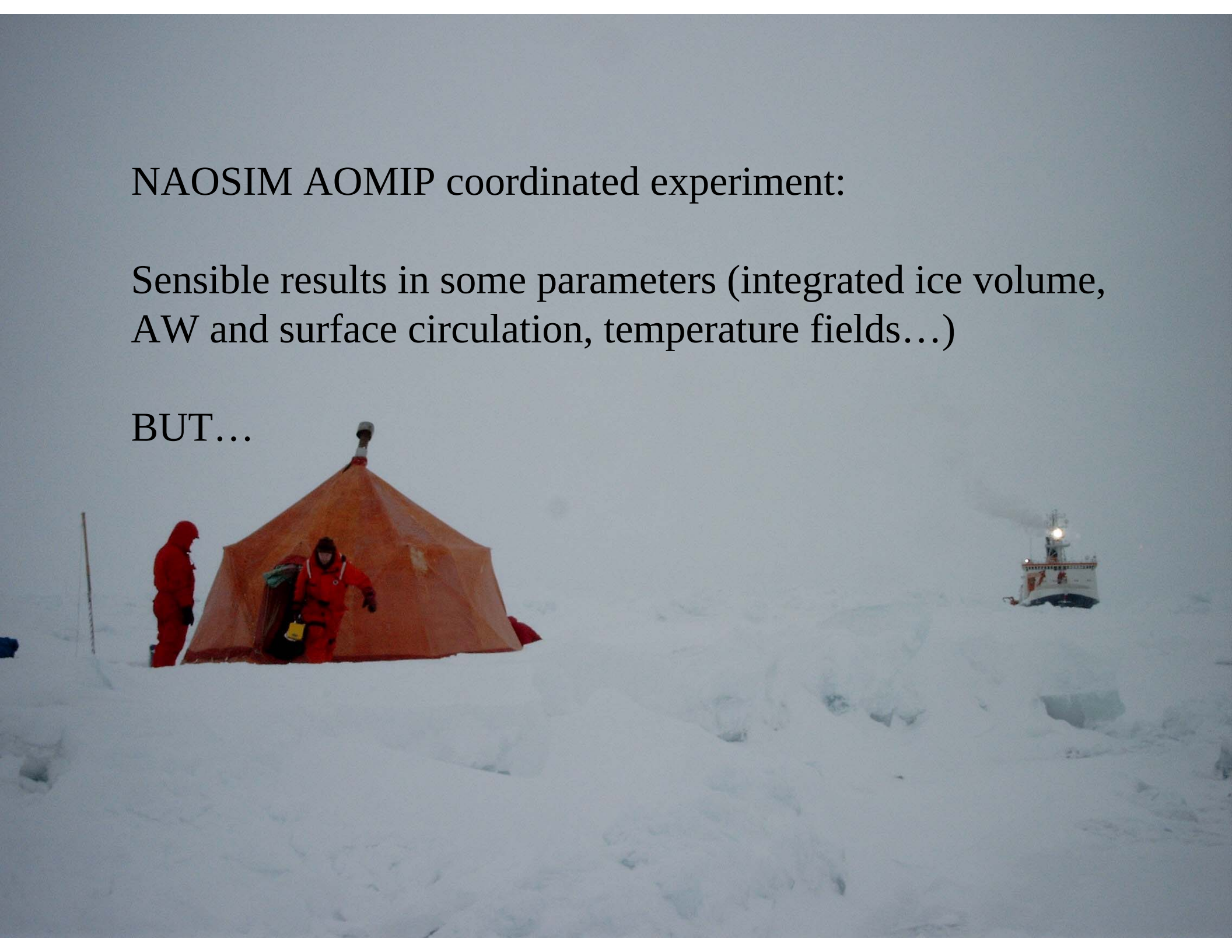


Precipitation datasets: +/- 1000 km^3/y

NAOSIM AOMIP coordinated experiment:

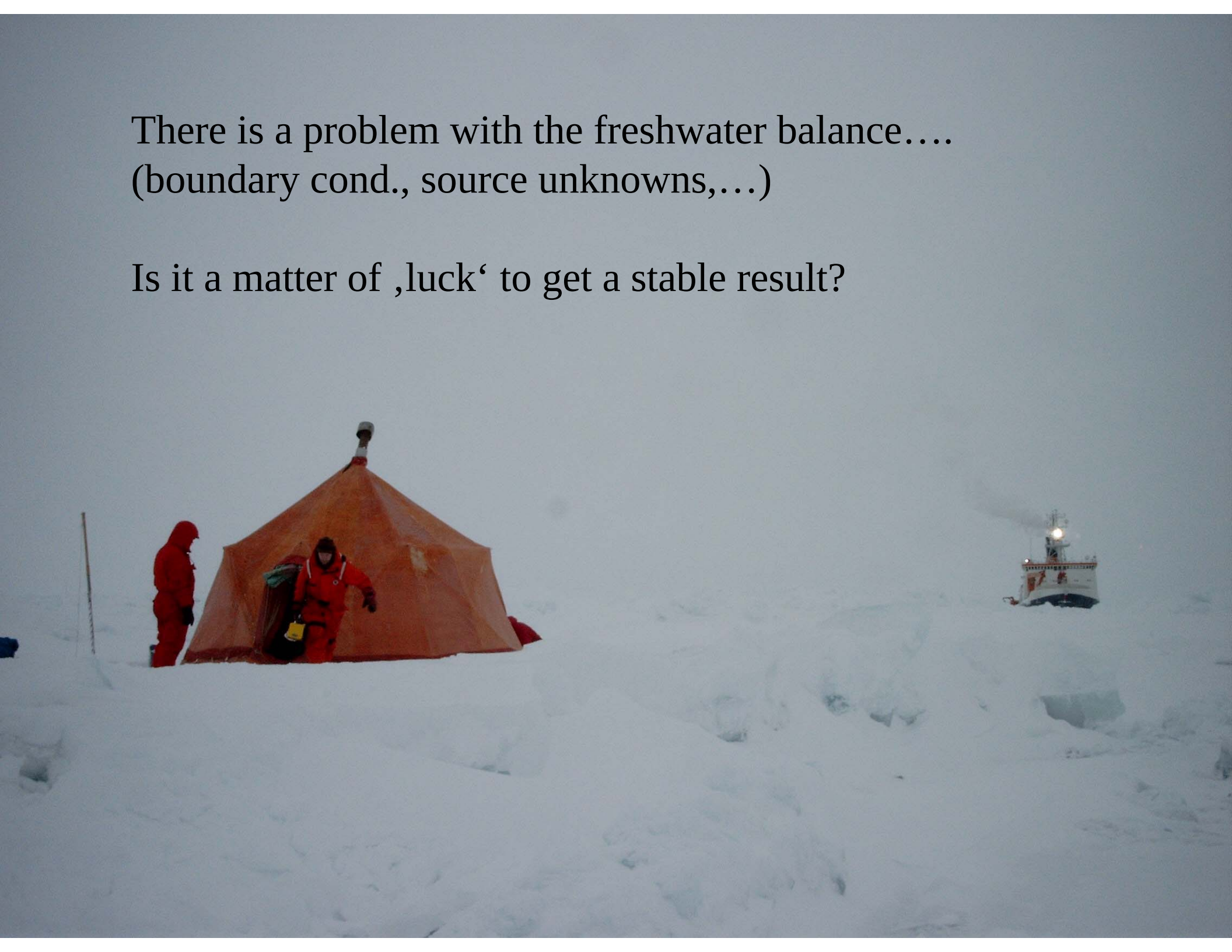
Sensible results in some parameters (integrated ice volume, AW and surface circulation, temperature fields…)

BUT…



There is a problem with the freshwater balance….
(boundary cond., source unknowns,…)

Is it a matter of ‚luck‘ to get a stable result?




… to be continued