

The Arctic Visiting Speakers' Series – Individual Perspective

Host Institution: Tim Boyd, Oregon State University

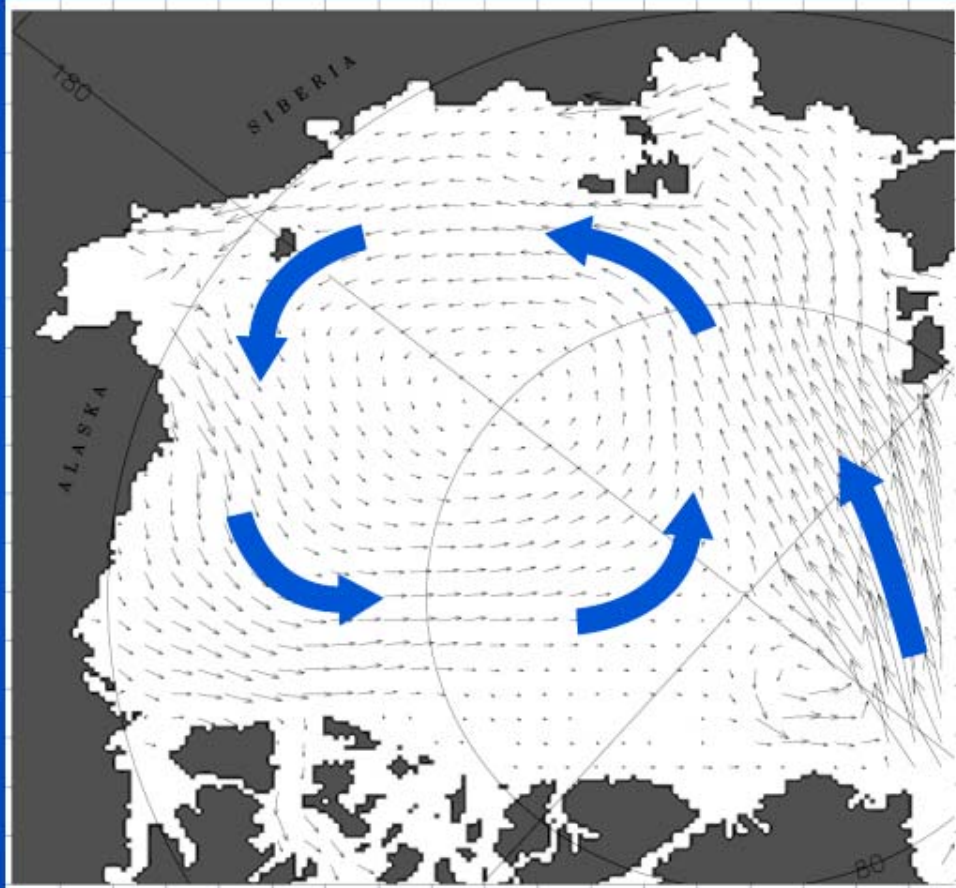
Arctic Visiting Speaker: Wieslaw Maslowski, Naval
Postgraduate School

ARCUS Annual Meeting, Washington DC - 05/17/2002

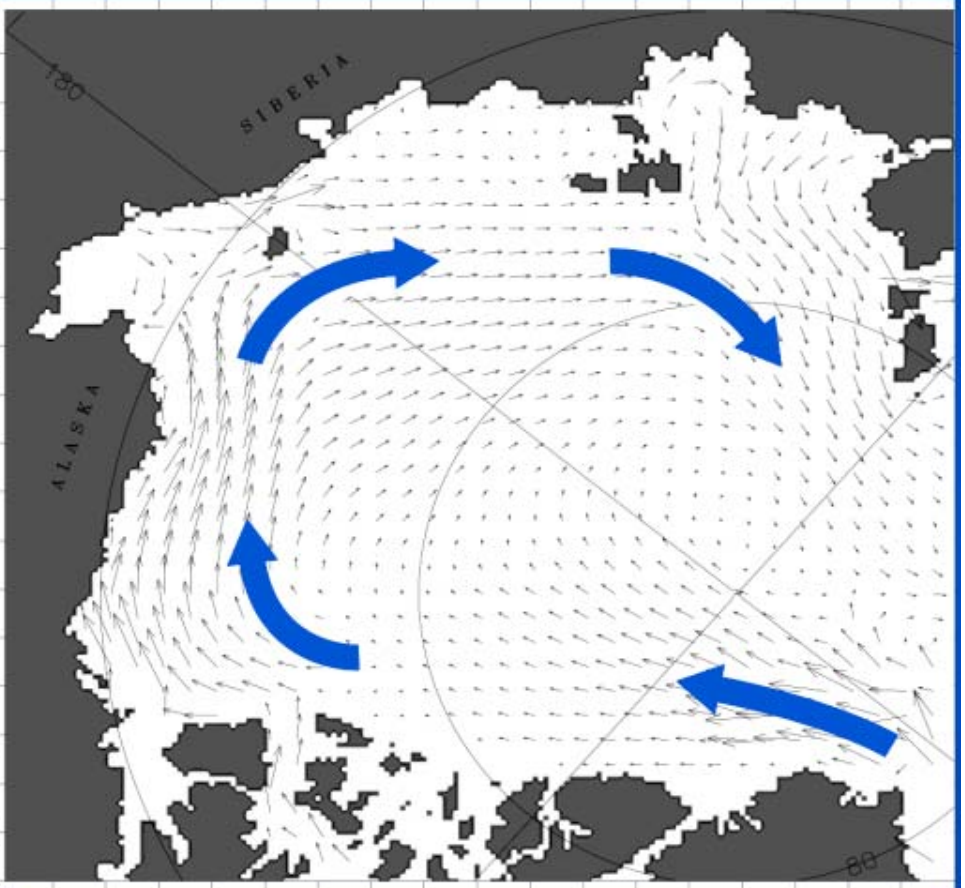
Arctic Visiting Speaker Presentations

- 3 professional presentations on
“Modeling the Arctic Ocean and Sea Ice in Support
of Arctic Climate Change Studies”
- results from 1979-98 integration of the 18-km coupled
ice-ocean model of the pan-Arctic region presented at
OSU
- some of results are summarized in two recent papers:
Maslowski et al., GRL 2001
Maslowski et al., Annals of Glaciology 2002
- both papers available at: <http://www.oc.nps.navy.mil/sbi>

Model Mean Sea Ice Drift Anomalies

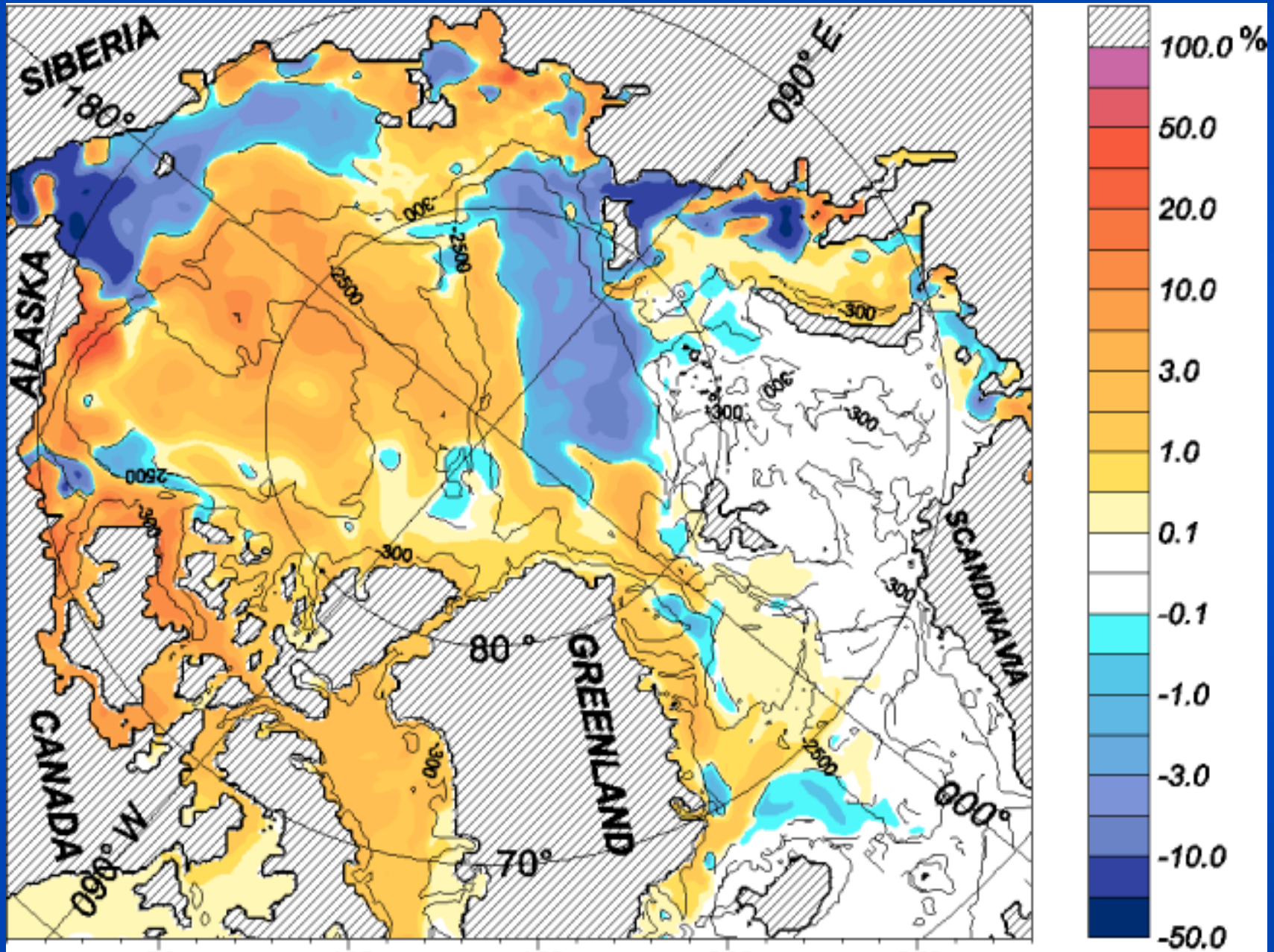


Difference of Mean
1991/92-1981/82

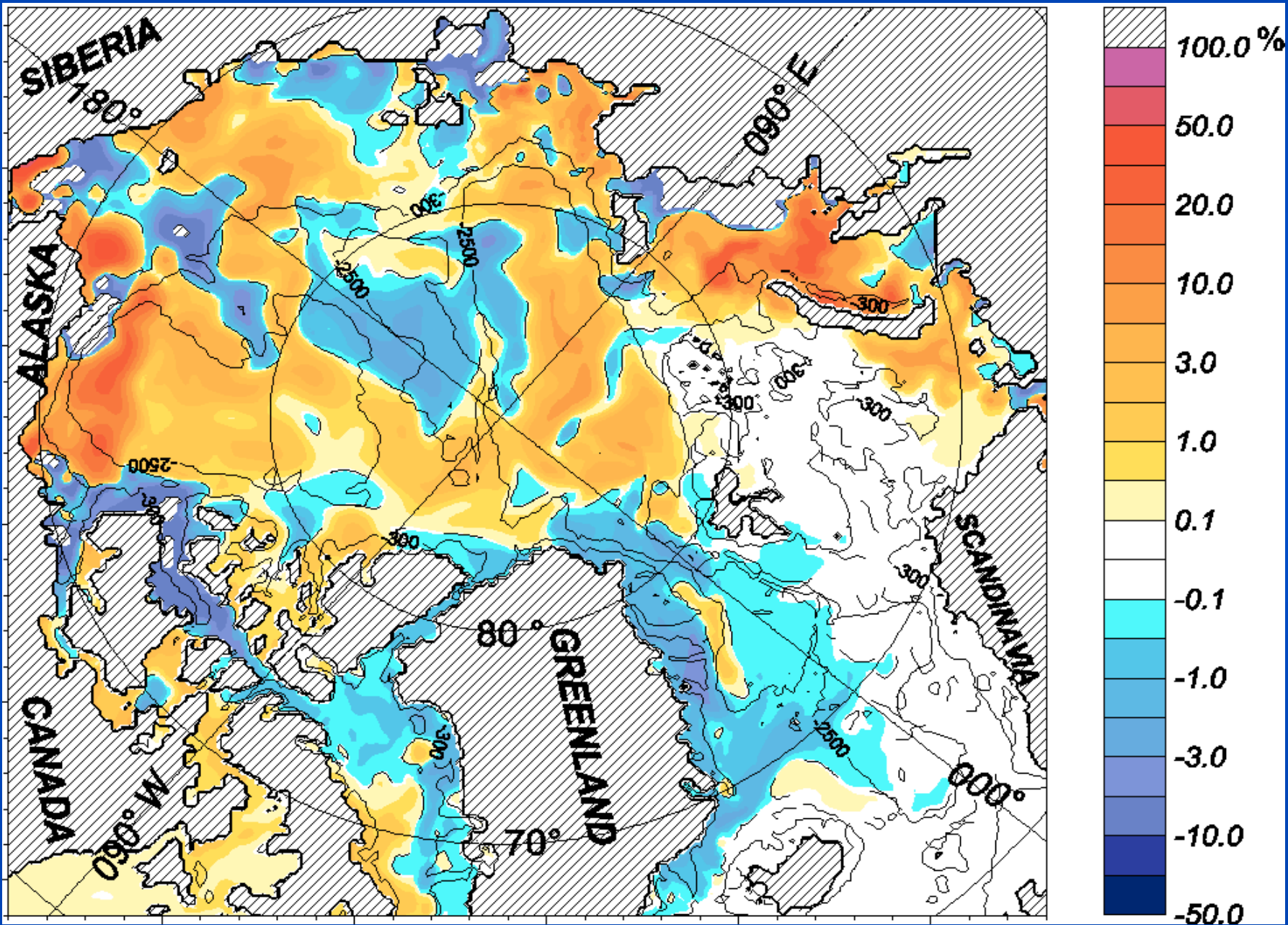


Difference of Mean
1997/98-1991/92

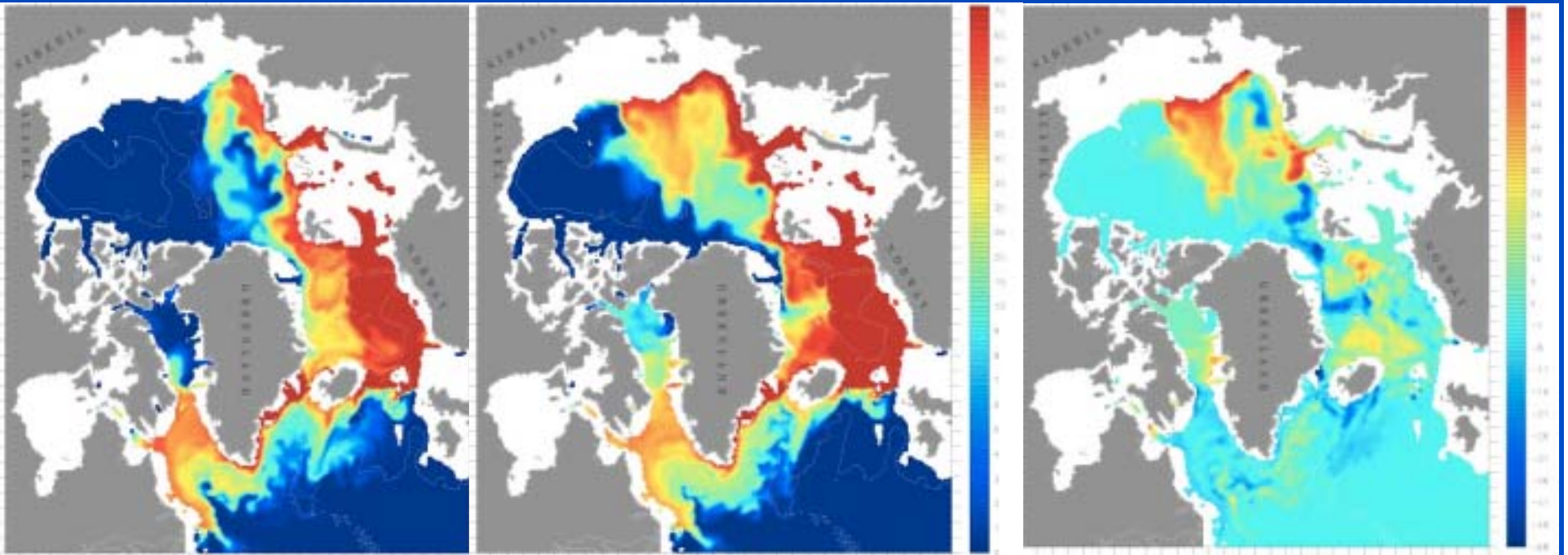
Total Fresh Water Tracer Anomaly Concentration (0-20m) of 1993-1983



Total Fresh Water Tracer Anomaly Concentration (0-20m) in 1998-1993



Atlantic Water Tracer Concentration (280-360m)
in 1979 and 1993 and Anomaly 1993-1979

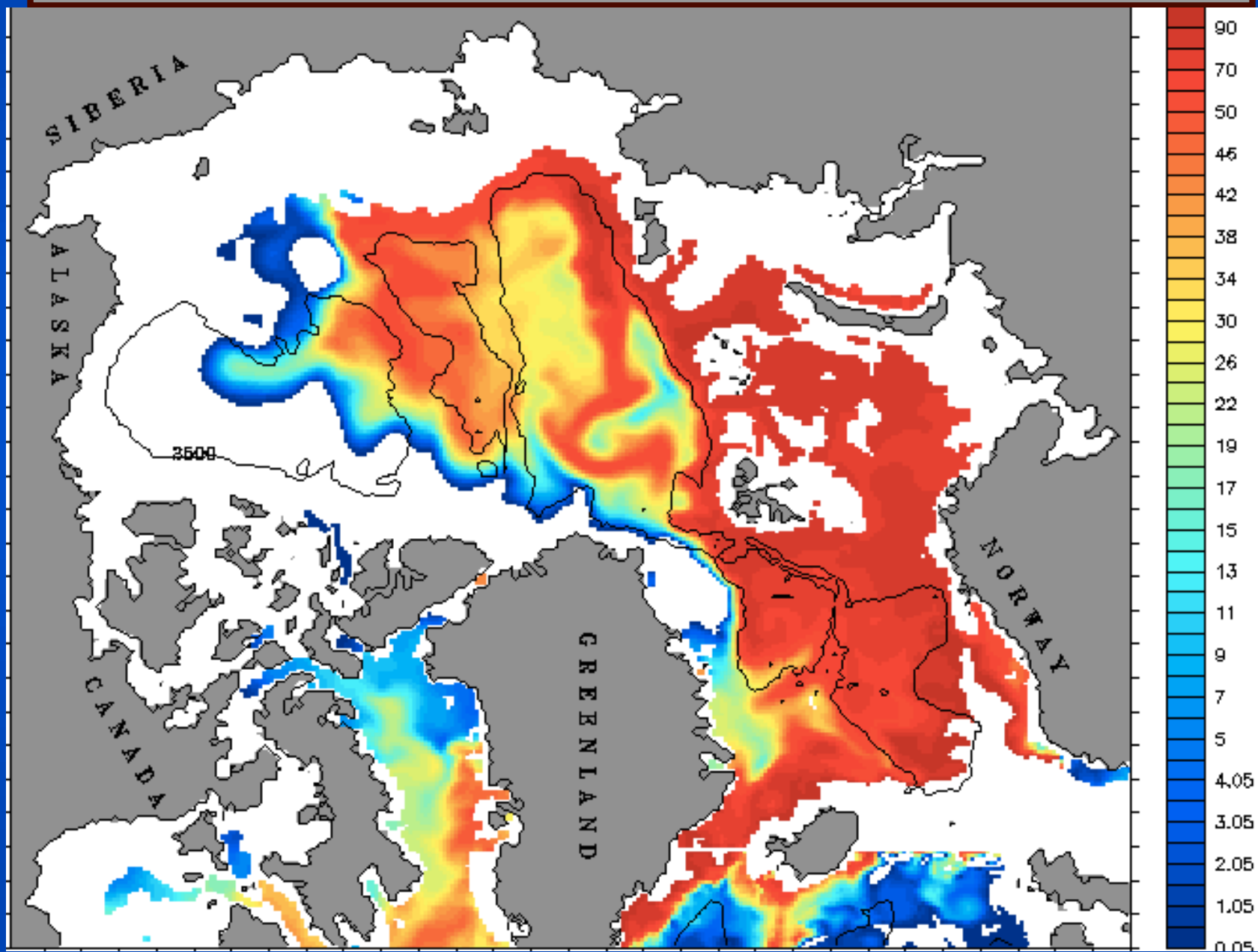


1979

1993

1993-1979

Atlantic Water Tracer Concentration (180-220m) in 1998



Conclusions

- Model simulates the observed ‘cyclonic’ shift in the sea ice and ocean conditions during the late 1980s and the early 1990s
- Model ‘predicts’ an opposite trend in the late 1990s – needs critical verification
- Variability in regional atmospheric forcing appears to be driving changes in the pan-Arctic region
- Fresh water and sea ice exports affect the global thermohaline circulation – re: freshening of the dense overflows over both the Greenland-Scotland Ridge and in the Labrador Sea
- Significant differences in spatial and temporal response of the Arctic Ocean to climate change – insights not possible otherwise
- Models can provide important information on the large scale changes that can be used in guiding future fields experiments and long term data collection