Modeling of Ocean Dynamics and Variability of Relevance to Greenland's Marine Terminating Glaciers

or

Modeling regional Arctic Climate System at process scale using Regional Arctic System Model (RASM)

to resolve

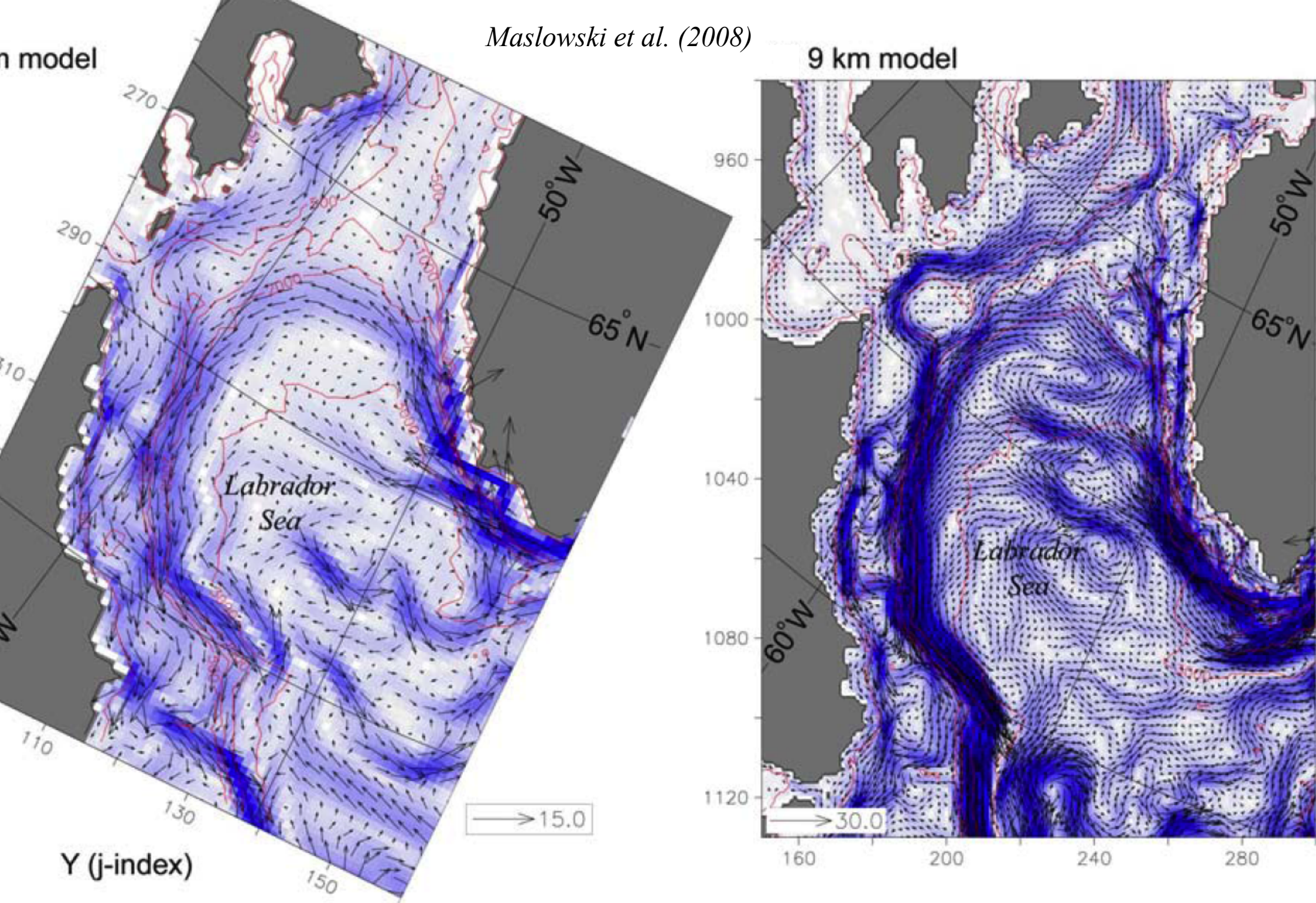
- key physical **processes** in individual system components and
- **coupling** channels between different system components

through

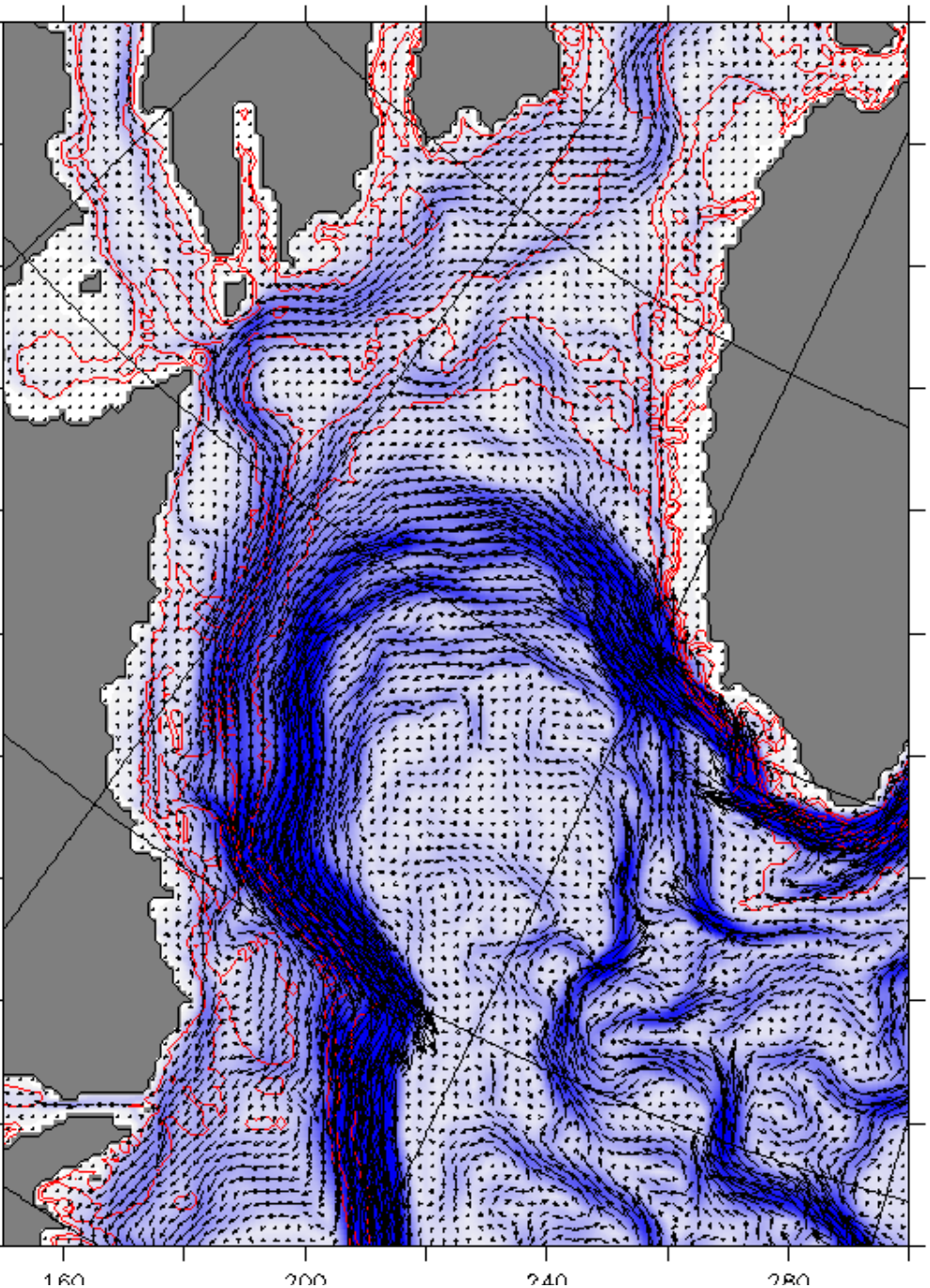
rarchical modeling approach using both regional and global model
complement each other and help reduce uncertainty.

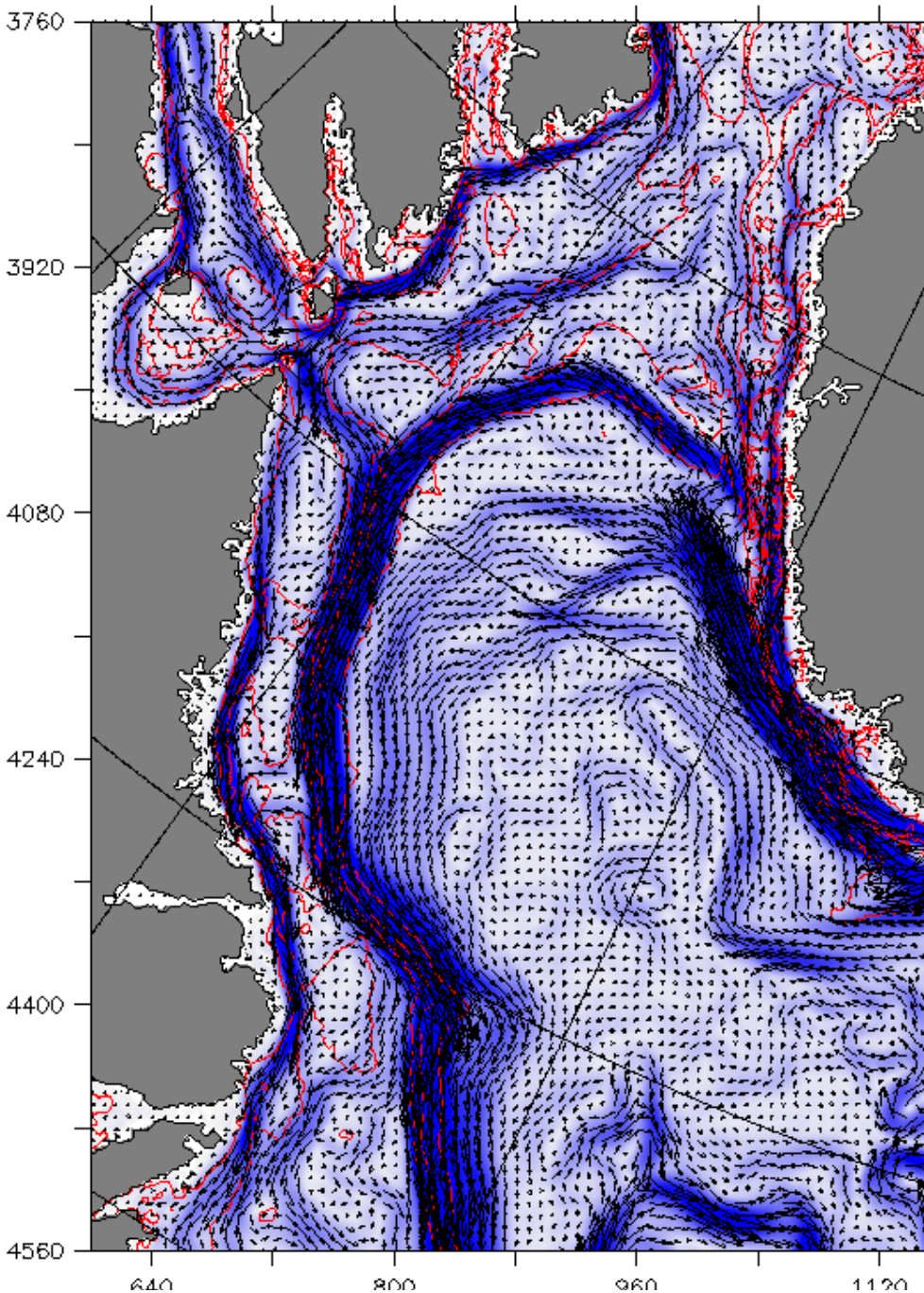
Maslowski, R. Osinski, J. Clement Kinney, S. Hossainzadeh, A.F. Rober
Tulaczyk and RASM Team Members

Maslowski et al. (2008)

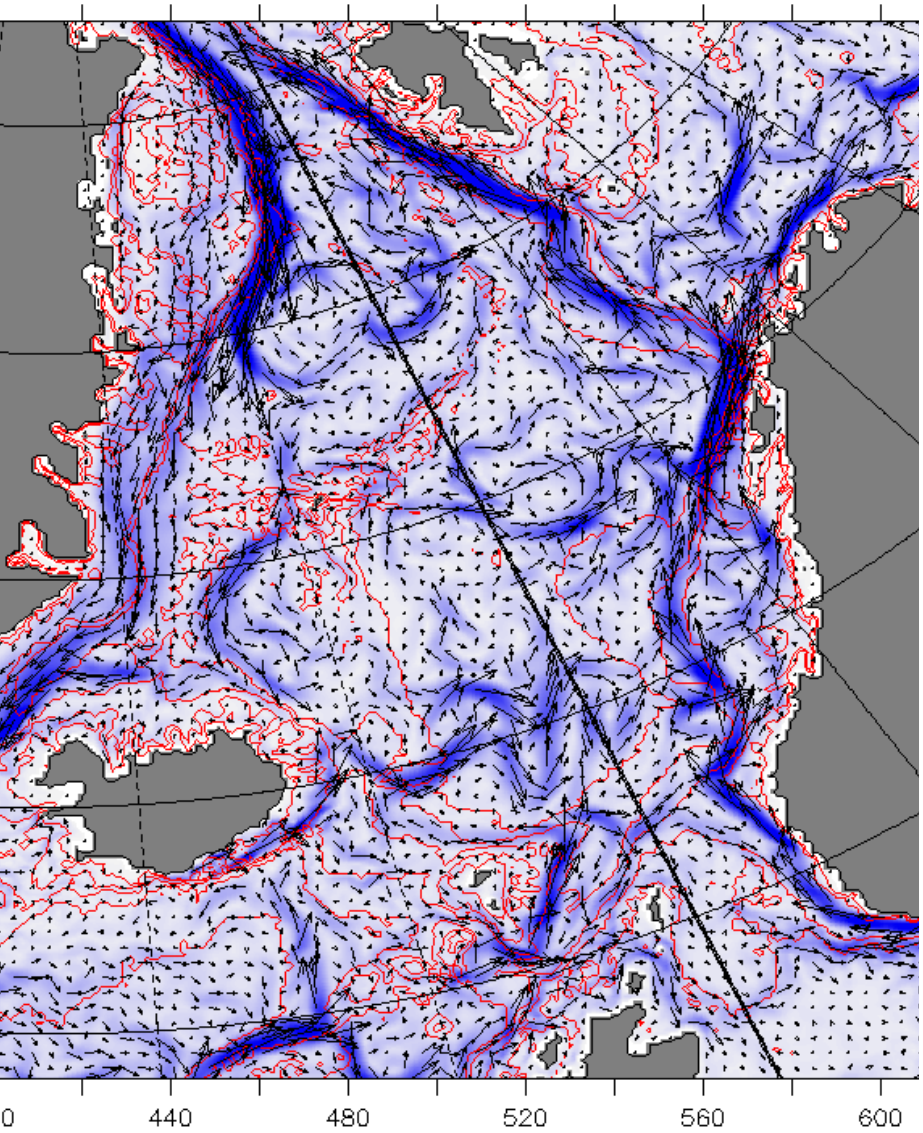


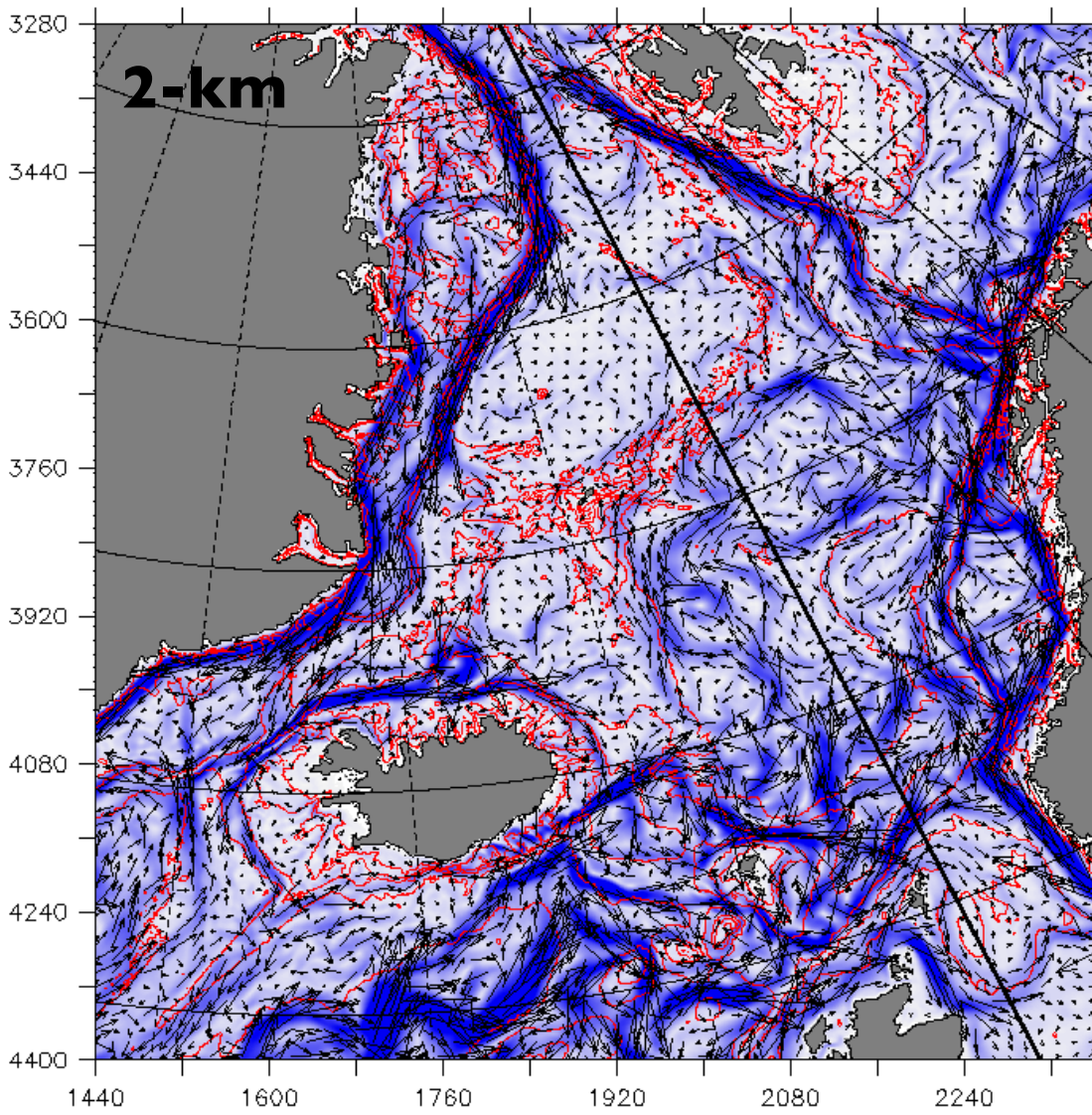
ignificantly stronger and better defined currents in the 9-km model (n
different vector scales)





- stronger and reaching further north coastal flow along west Greenl
- main recirculation further north





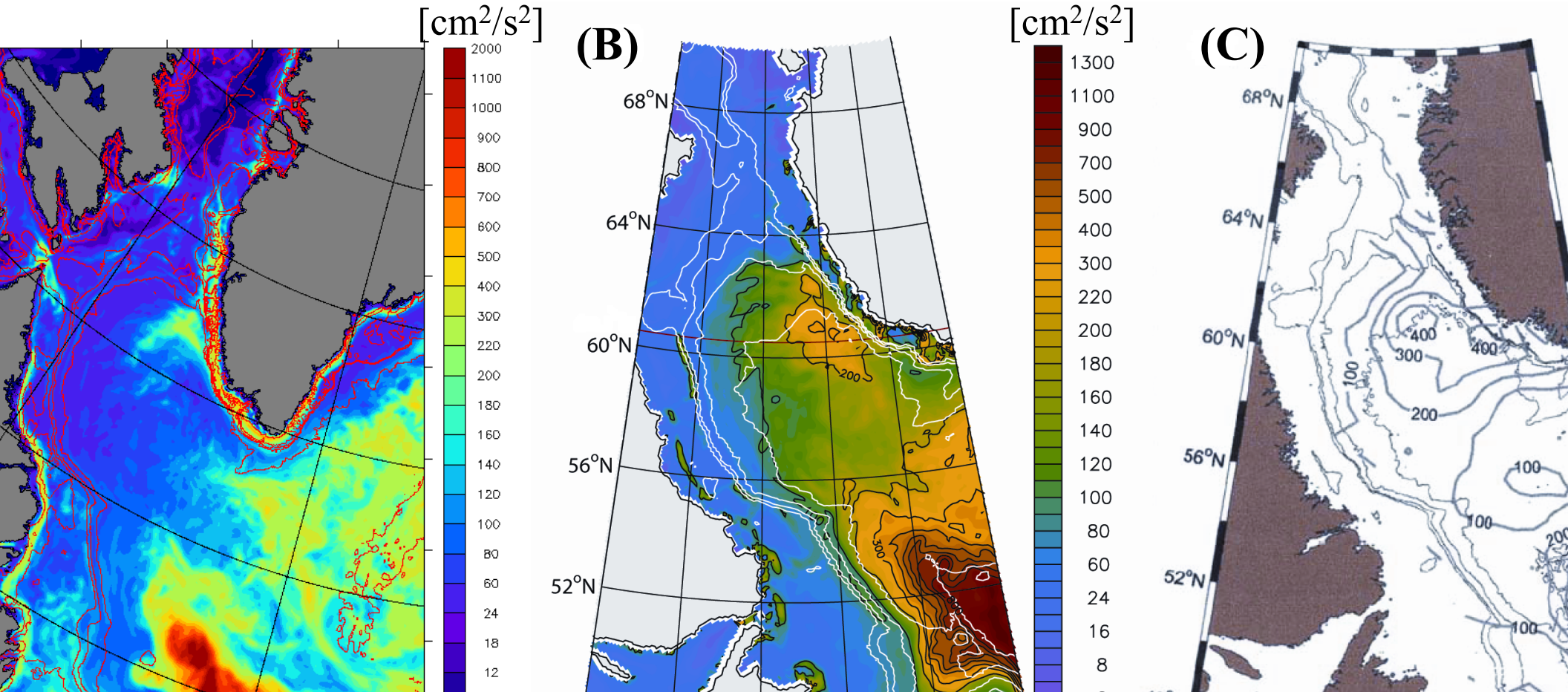
Main differences:

- EGCC and NCC
- Irminger Current inflow into the Iceland Sea
- better defined circulation across the Iceland-Scotland Ridge

(A) Surface (0-5m) annual mean Eddy Kinetic Energy (EKE) 2-km mo

(B) Surface (0-5m) annual mean Eddy Kinetic Energy (EKE) 9-km mo

(C) Horizontal distribution of EKE deduced from the surface drifte relased in North Atlantic Ocean and Labrador Sea during 1993- (Cuny et al. 2002)



Atmosphere - Polar WRF (gridcell ≤50km) -

Land Hydrology – VIC (same as WRF) |

Ocean - LANL/POP (gridcell ≤10km) |-> R

Sea Ice - LANL/CICE (same as POP) |

Flux Coupler – NCAR CPL7 -

+

Dynamic Vegetation – VIC + CLM

Dynamic Ice Sheet – Glimmer-CISM+

Glacier and Ice Caps (GIC)