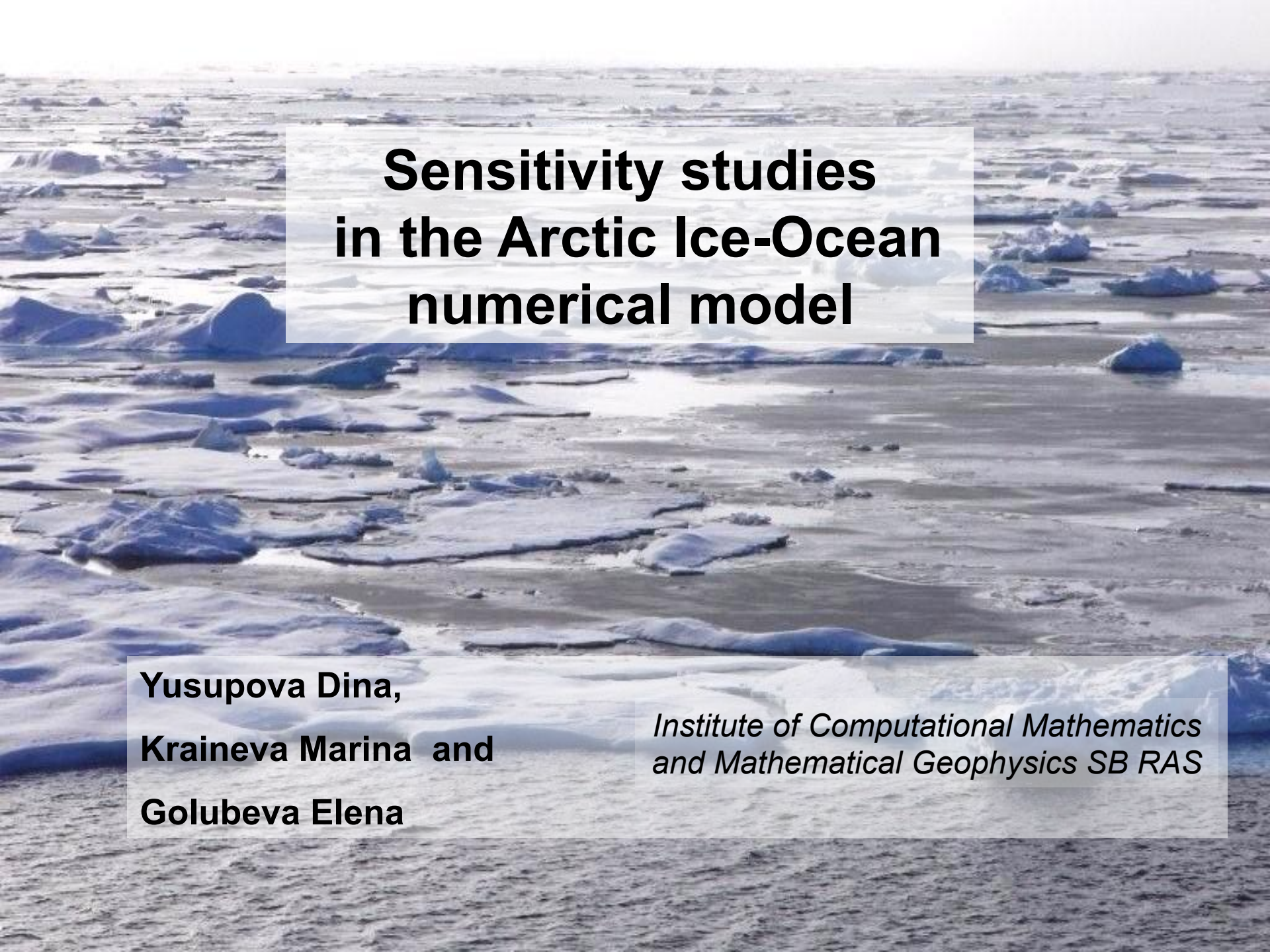


Sensitivity studies in the Arctic Ice-Ocean numerical model

Yusupova Dina,

Kraineva Marina and

Golubeva Elena

Institute of Computational Mathematics and Mathematical Geophysics SB RAS

- An improved modeling of the Arctic climate system is necessary to clarify the role of the Arctic in the global climate system.

- It’s necessary to ensure that numerical models reproduce the certain climatic processes

- The sensitivity of the regional model of the Arctic Ocean to variations in the definition of atmospheric flows is investigated

Coupled Ice-Ocean Model

3D Ocean Circulation Model of ICMMG SB RAS based on z-level vertical coordinate approach

(Kuzin [1985], Golubeva at al.,[1992], Golubeva,[2008], Golubeva and Platov,[2007])

Ice model-CICE 3.14 (elastic-viscous-plastic)

W.D.Hibler ,1979, E.C.Hunke, J.K.Dukowicz,1997, C.M.Bitz, W.H.Lipscomb 1999, W.H.Lipscomb, E.C.Hunke 2004

The list of required conditions at the surface of the ocean-ice

- heat flux:
  - latent,
  - sensible,
  - incoming solar and long-wave radiation,
  - Long-wave radiation from the surface;
- wind stress
- the flow of fresh water associated with precipitation in the form of rain and snow

The list of required atmospheric data

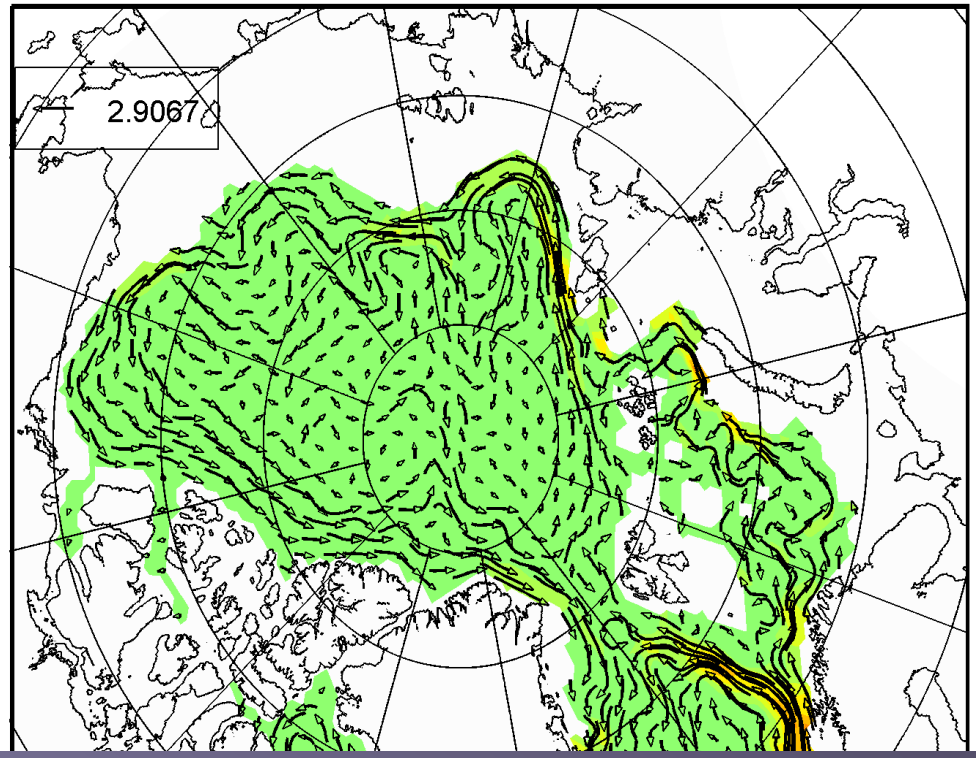
- the speed and direction of surface wind,
- the potential and the absolute temperature of the lower atmosphere,
- specific humidity,
- surface pressure,
- air density,
- the total downward solar and infrared radiation,
- the intensity of precipitation

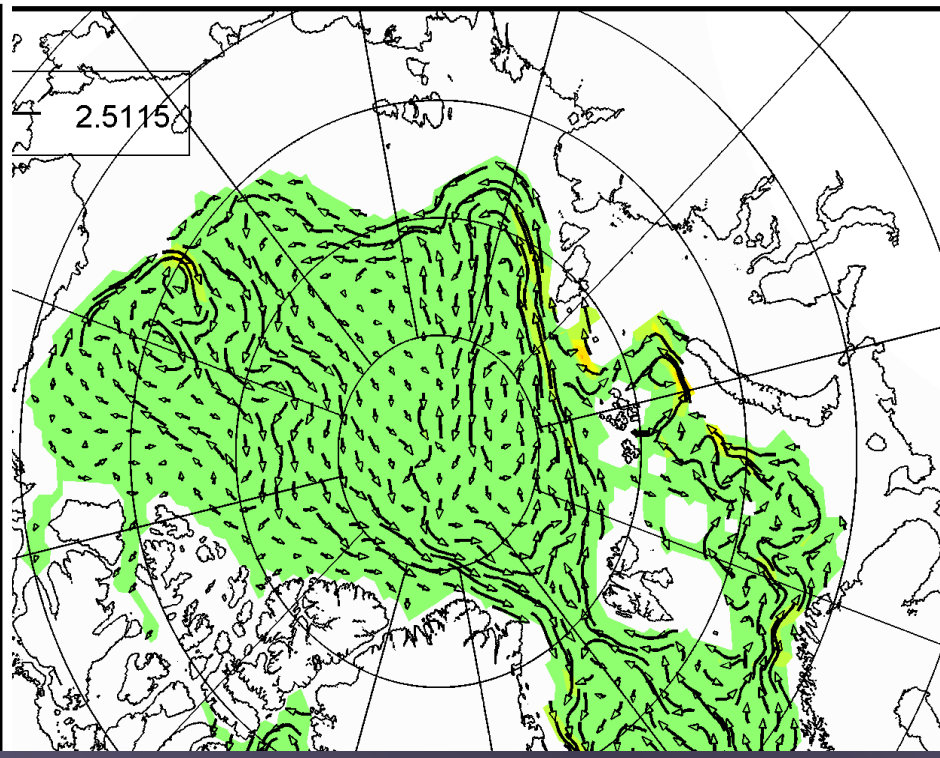
- An accent on layer of warm Atlantic waters

Results of experiment

CORE1

CORE2



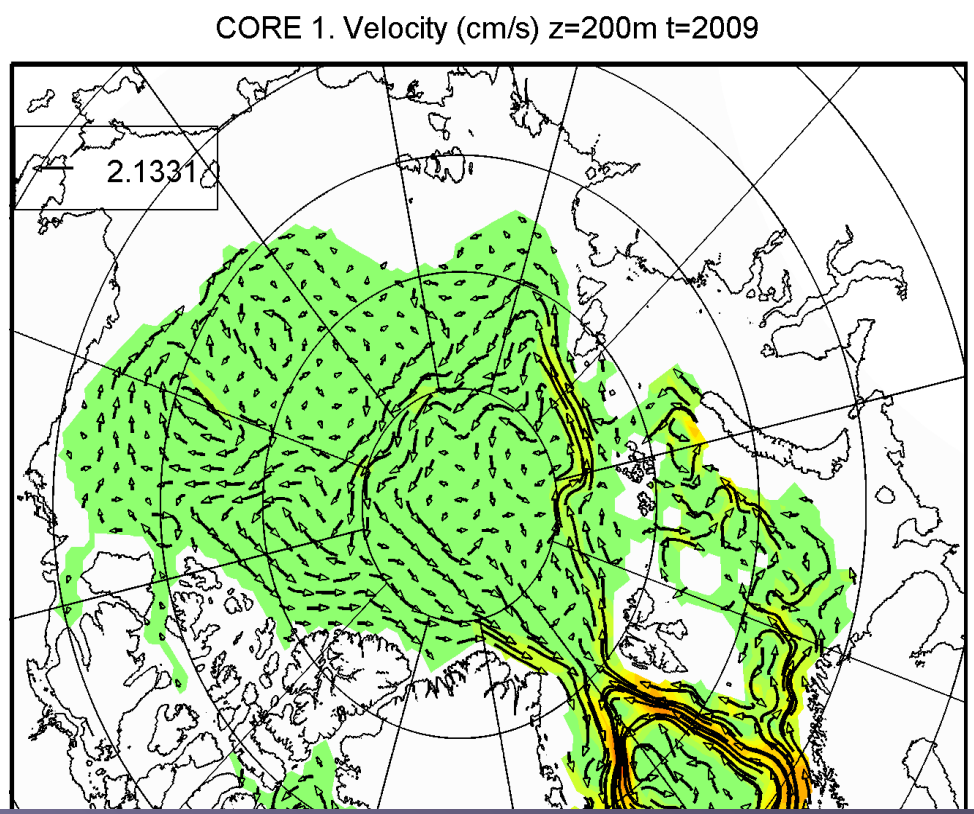


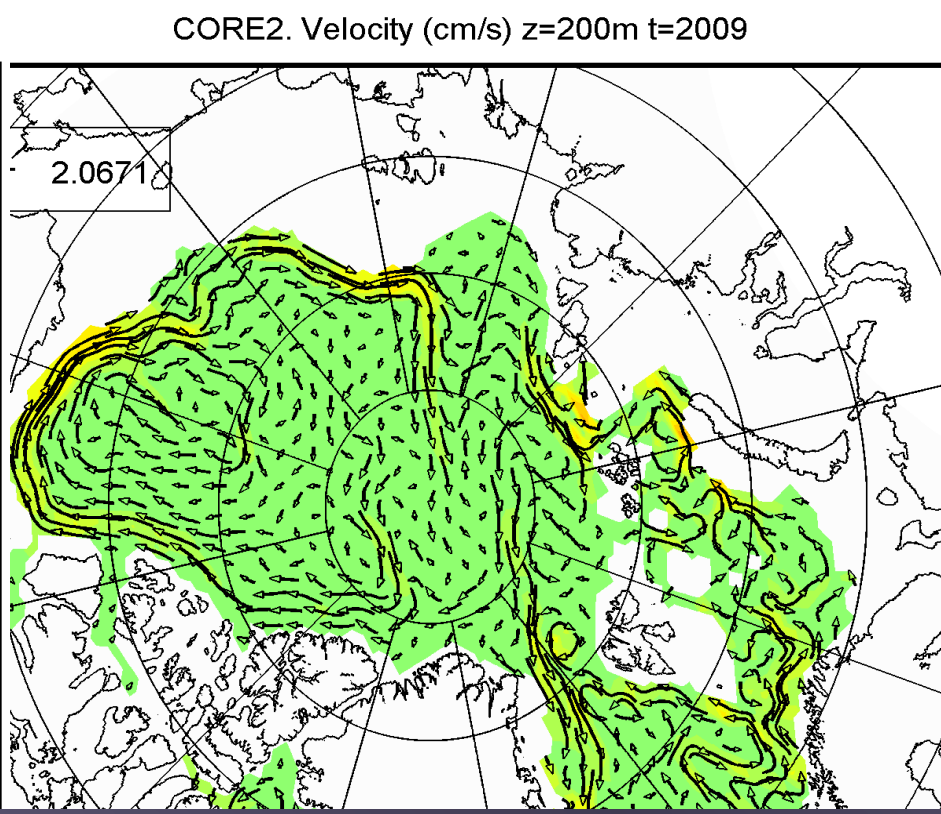
1994

Results of experiment

CORE1

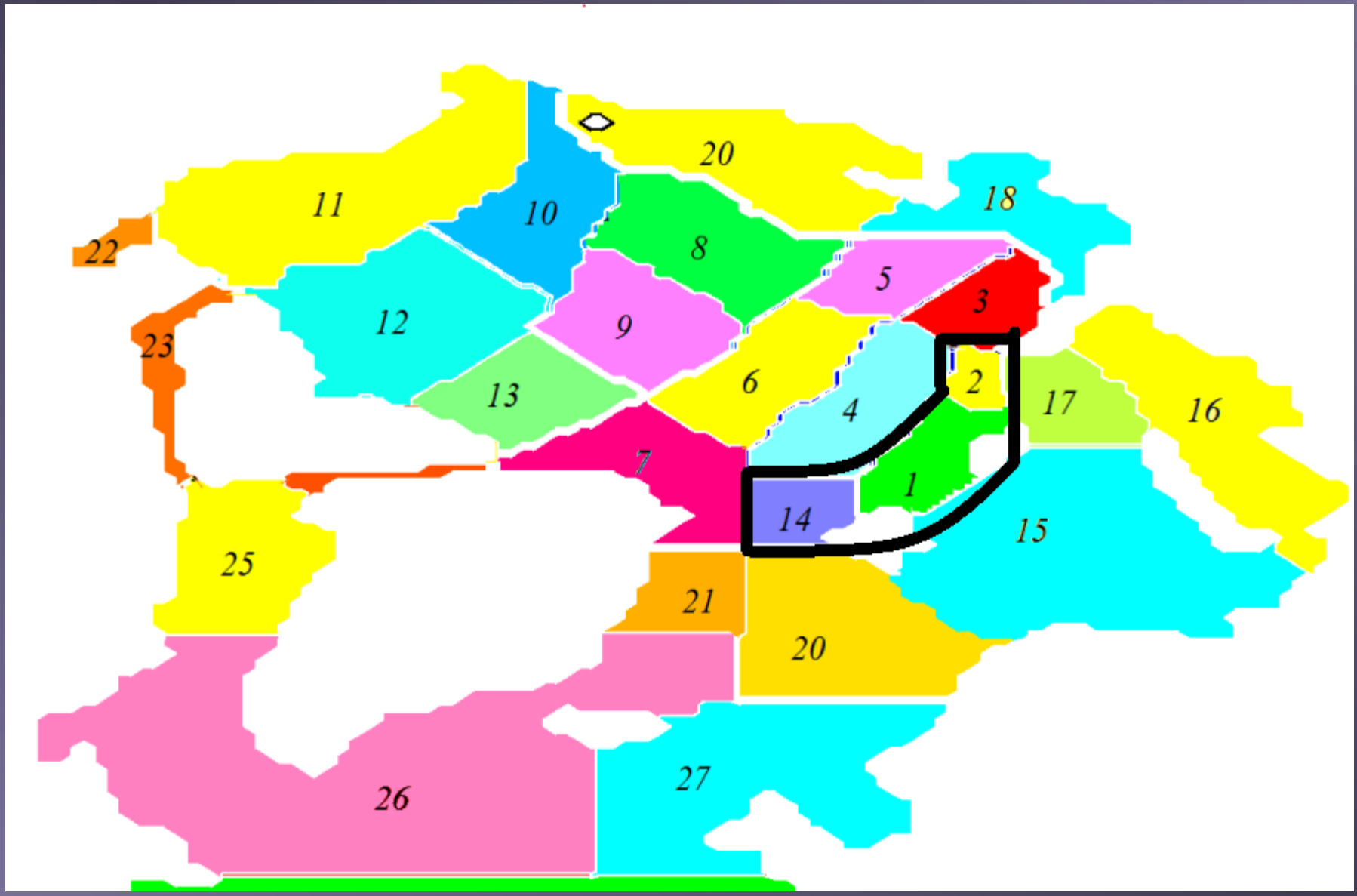
CORE2





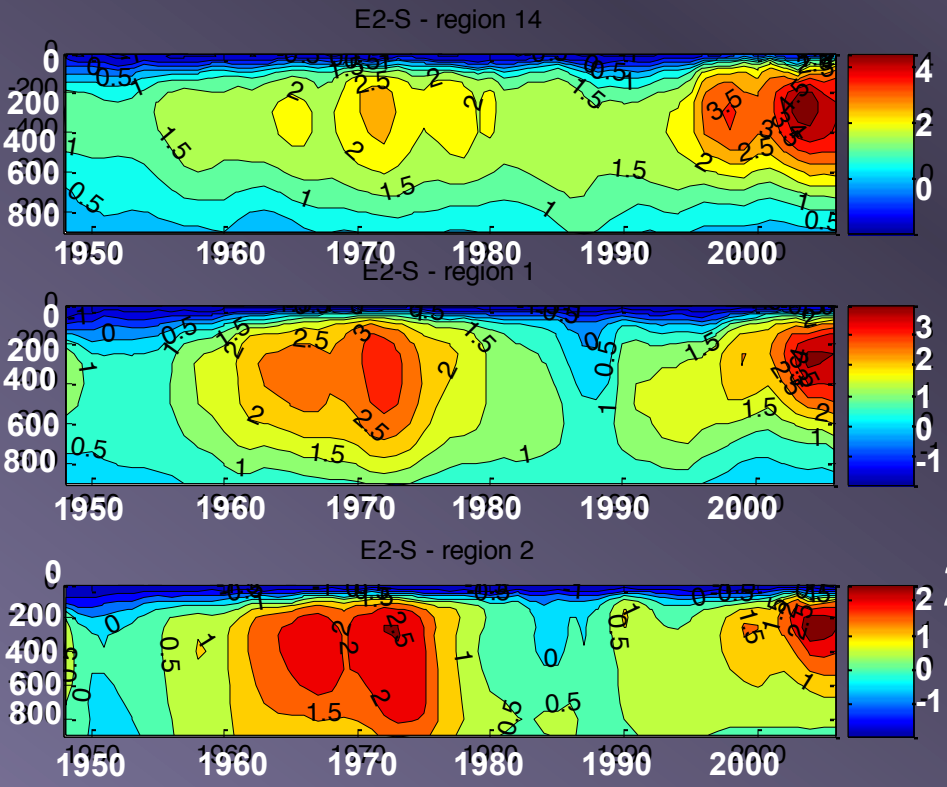
2009

Analyze



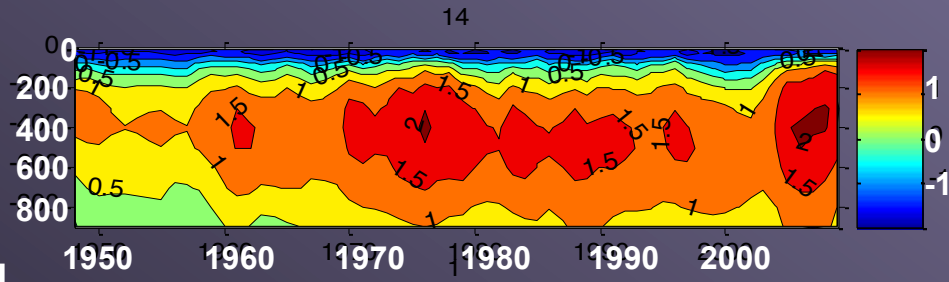
Analyze

CORE1

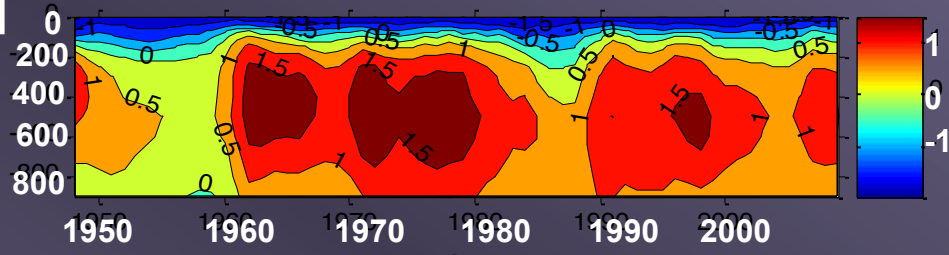


CORE2

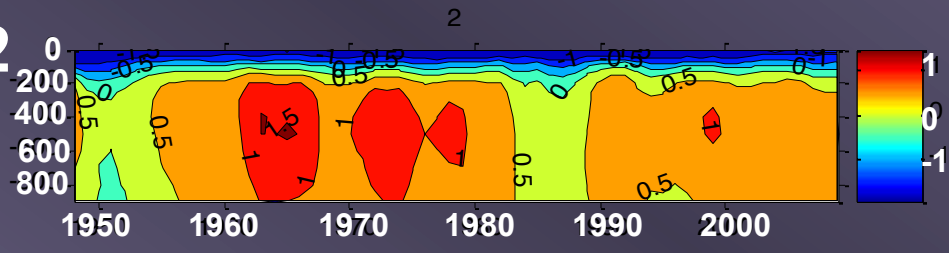
14



1



2



Thank you for attention!

Welcome to poster!