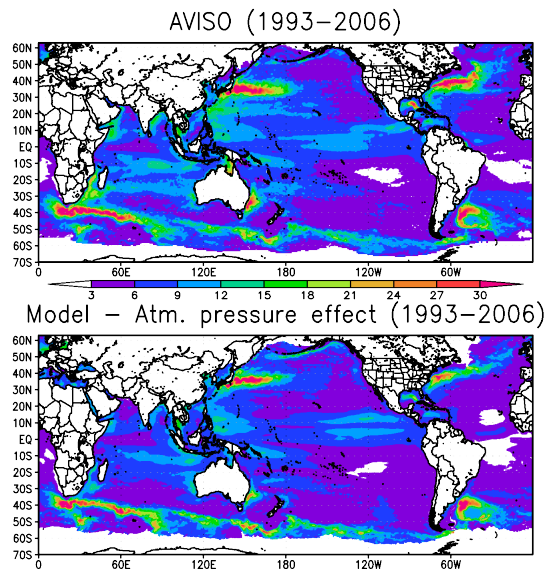# Report on ongoing work in COCO-MIROC group (AORI/U-Tokyo, DICCPR/JAMSTEC) by H. Hasumi

*AORI: Atmosphere and Ocean Research Institute
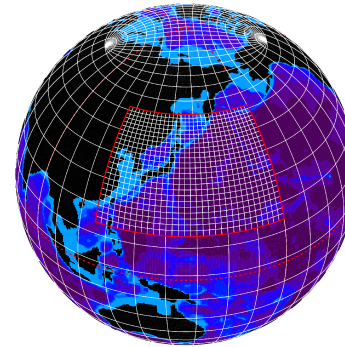**DICCPR: Department of Integrated Climate Change Projection Research

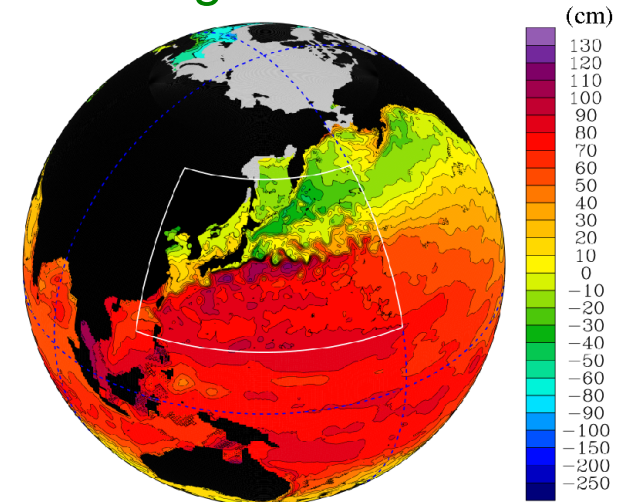## Current state-of-the-art simulations
- AOGCM with a 0.1°-grid (tri-polar) ocean model
- AOGCM with a nested-grid ocean model
  → submesoscale resolving?

AOGCM with nested-grid ocean

0.1° global ocean model (SSH stdev)

07-09.04.2014 WGOMD Workshop on High Resolution Ocean Climate Modeling (Kiel, Germany)

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Scientific questions to which high-res simulations are applied
- AOGCM with a 0.1º-grid (tri-polar) ocean model
  - ✓ Next CMIP/AR (or after next?)
  - ✓ Arctic sea ice prediction/projection (GRENE-Arctic project)
- AOGCM with a nested-grid ocean model
  - ✓ Influence of ocean front/submesoscale on
    - climate scale phenomena
    - seasonal prediction and severe weather events around Japan

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<u>Main challenges</u>
- Sea ice model(ing) under very high resolution
- Mixing parameterization
- Validation

<u>Questions we'd like to discuss in this workshop</u>
- Parameterizations (including sea ice) for eddy-resolving (or higher resolution) ocean models
- What should we do to better represent deep water formation processes in climate models (of high ocean resolution)?