

Generation Y Ocean Model...

Phil Jones (LANL), project lead,
Climate, Ocean and Sea Ice Modeling (COSIM)
on behalf of the OMWG



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...or Codename: Anglerfish



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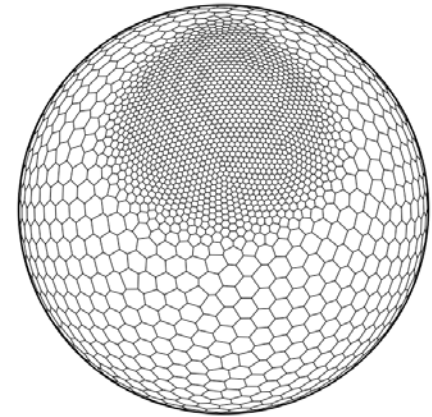


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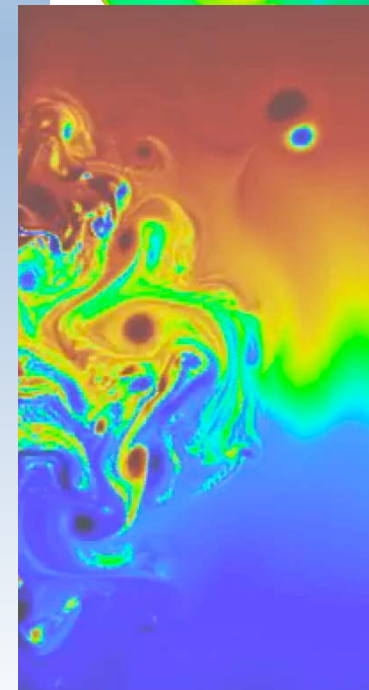
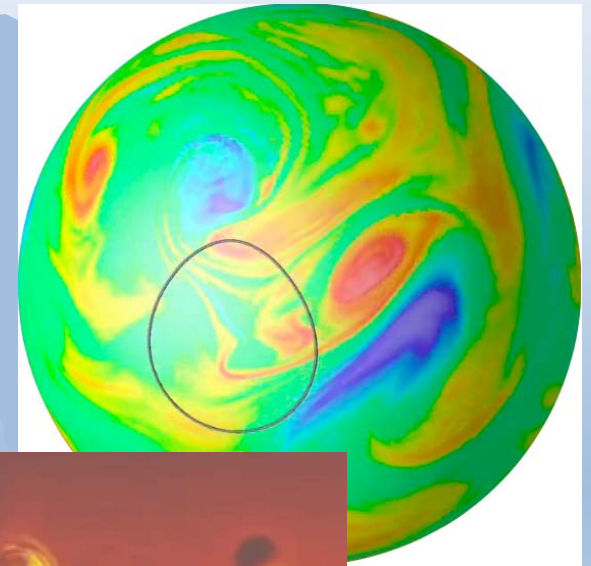
MPAS-Ocean

- Model for Prediction Across Scales (MPAS)
 - Joint LANL/NCAR/Others
- Variable horizontal resolution
 - SCVT
- Hybrid vertical coordinate (ALE)
- Two time level
 - Split-explicit predictor corrector
 - JFNK options
- New dynamics
 - Ringler, Thuburn, Klemp, Skamarock
 - Higher-order conservative advection
- Co-design hybrid architectures



Current Status

- Tested in many configurations
 - SW, double-gyre, channel
 - Ocean, unsplit, several resolutions
 - Z-level equivalent
- Time splitting
 - Implemented, being tested
- Parameterizations
 - Vertical mixing
- Performance improvements



Near Future

- CESM Framework (4 months, CSSEF)
 - Generalized ocean model
 - Interpolation, coastlines and other issues
- Finish time integration (months)
- High-order transport (months)
- Parameterizations (on-going)
- Diagnostics and I/O (on-going)
- Performance (months-1 year)
 - Computational co-design
- Hybrid vertical coords (on-going)



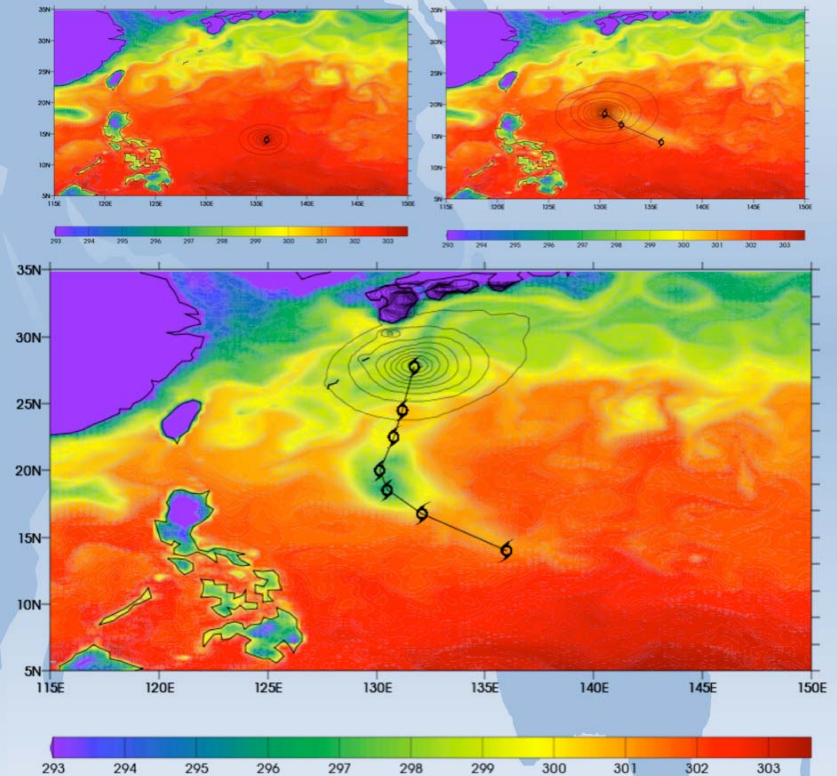
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Whither (wither?) POP

- Ocean Limited Development For Additional Research and Testing (OLD FART)
 - Changes for CESM
 - Elimination of mixing steps
 - Fresh water flux conditions and surface layer issues
 - Incorporation of additional parameterizations
 - Advection, implicit time stepping?
- Eddy-resolving configurations



This Model Brought to You By:

- DOE
 - COSIM (3+ FTEs)
 - CSSEF (2? FTEs LANL and NCAR)
 - Computational Co-design (1+?)
 - Regional Project (postdocs)
 - EaSM
- NSF
 - MMM, CGD
 - EaSM