

# PSMIP Sum Up

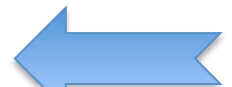
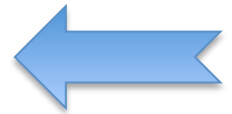
Baylor Fox-Kemper  
Annapolis, MD  
2013 Summit

## Process Study Model Improvement (PSMI) Panel

New

Final

<i>Member name</i>	<i>Institution</i>	<i>Term through</i>
Tom Farrar, co-chair	Woods Hole Oceanographic Institution	Dec. 2014
Baylor Fox-Kemper, co-chair	Brown University	Dec. 2013
Alessandra Giannini	Columbia University/International Research Institute for Climate and Society	Dec. 2015
Michael Gregg	University of Washington	Dec. 2013
Meibing Jin	University of Alaska	Dec. 2013
Igor Kamenkovich	RSMAS/University of Miami	Dec. 2013
Jennifer Kay	National Center for Atmospheric Research	Dec. 2015
Sukyoung Lee	Penn State University	Dec. 2013
Gad Levy	NW Research Associates	Dec. 2014
Joellen Russell	University of Arizona	Dec. 2013
Lou St. Laurent	Woods Hole Oceanographic Institution	Dec. 2015
Aneesh Subramanian	Scripps Institution of Oceanography/University of California, San Diego	Dec. 2015
Rob Wood	University of Washington	Dec. 2013



# Process Study Review

- Reviewed 5 written, 12 presented process studies
- Conclusions
  - Level of process study compliance with Best Practices has improved science & studies, makes PSMI review easier
    - Data Management & Openness
    - Collaboration between Obs. & Modelers
    - Often attempting model improvement, or proposing future projects to do so
  - 42 slides in 15 min?
  - Next year—4 projects removed from further review.
  - Connect with AMOC science team to review AMOC ancillary projects, may be no or reduced PSMI review
  - Successful written ~4pg format for sunseting projects or projects where team cannot attend. Will shorten discussion of these next year.
  - Will contact PIs for each project with short summary of discussion points, especially those with significant concerns.
  - Next year: more time (extra day/evening/dinner)?

# Continuing Process Study Improvements

- Can PSMI push process studies to next level of efficiency/model improvement/impact?
  - “Nature Figure” (will request next summit)
  - Best practices metrics/demonstrate impact (Gad Levy)
- Can USCLIVAR help process studies to next level of efficiency/model improvement/impact?
  - Analysis “tail” funding
    - Sequencing of blue sky process studies, then analysis & theory & modelling, then follow-up process studies.
    - Are we going to sea too often?
    - Better to foster active periods of collaboration/hand-off between trips?
  - Involvement of modeling centers—even for non-CPT projects
  - Better transitioning to operational monitoring or forecast repurposing (POS/PPAI needed!). Natural in many projects, but often overlooked or under-supported

# Model Improvement Concerns

- Funding & personnel concerns
  - Modeling centers do not have spare personnel to receive/distill/validate with process study results
  - Elimination of the CESM Liaisons, what does this mean for community engagement?
- DoE transformation
  - Withdrawal/drawdown in CESM?
  - How will scientific community/process studies/parameterization developers be engaged? Funds?
  - Applicability for USCLIVAR research:
    - 80yr not enough for decadal or even interannual statistics
    - No mention of ocean or air-sea in science goals

# Key New Developments

- Remote & autonomous sensor diversity
- Gliders, waveriders, Lagrangian floats, AUVs in process study fleets
- Multiplicity of new medium- to long-term moorings with enhanced capabilities
- ARGO & satellites increasing in use as context
- High-Res & LES: resolved eddies, internal waves & turbulence modeling in atmosphere & ocean with global implications

# Conclusions

- Appreciate role of USCLIVAR & PSMI in increasing skill & likelihood of PS leading to MI
  - But, can do better!
- Big challenges lie ahead
  - Continued funding crunch
  - DoE transformation
  - Transition to higher resolution (new parameterizations!)
  - Appreciation & demonstration of important smaller scales will challenge future obs & models.
- Should revisit Terms of Reference for consistency with Science Plan