PSMIP Sum Up

Baylor Fox-Kemper
Annapolis, MD
2013 Summit
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<tr>
<th>Member name</th>
<th>Institution</th>
<th>Term through</th>
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<tr>
<td>Tom Farrar, co-chair</td>
<td>Woods Hole Oceanographic Institution</td>
<td>Dec. 2014</td>
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<td>Baylor Fox-Kemper, co-chair</td>
<td>Brown University</td>
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<td>Alessandra Giannini</td>
<td>Columbia University/International Research Institute for Climate and Society</td>
<td>Dec. 2015</td>
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<td>Michael Gregg</td>
<td>University of Washington</td>
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<td>Meibing Jin</td>
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<td>Igor Kamenkovich</td>
<td>RSMAS/University of Miami</td>
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<td>Jennifer Kay</td>
<td>National Center for Atmospheric Research</td>
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<td>Sukyoung Lee</td>
<td>Penn State University</td>
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<td>Joellen Russell</td>
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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 sunsetting 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?
  – C is for Community—not Covert—Development
  – 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