

Modeling breakout discussion topics

1. How does modeling support MOSAiC? How does modeling benefit from MOSAiC?
2. Overview table of individual contributions: Model hierarchy is critical
3. Structured by Model & Team → Structured by Science
4. What are the scientific questions? Which processes and feedbacks are planned to investigate (coordinated effort of observation and modeling) Big interest in modeling on events
5. Process parameterization evaluation: Which? How? Process-based & statistical evaluation: Common and new metrics/diagnostics?
6. Usage of observational data: Which? Uncertainties in time & space! Supplementary satellite & reanalyses data? When (during expedition/real time data assimilation/after expedition)? What coverage (temporal & spatial scale of data)? Coupled system data products? Data output at supersites?

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7. Which modeling and which output need the observational teams?
8. Coordinated simulations and/or analysis?
 - a. Pre-MOSAIC (ASCE2014) SCM, RCM
 - b. Coordinated sensitivity studies and case studies Arctic Cordex, FAMOS,...
 - c. Evaluation of reanalyses with NP drifting stations
 - d. Link to YOPP (weather and sea-ice drift forecast, data assimilation; process modeling). 48h – 2d forecast most important, beyond it is uncertain
9. Model output data archiving
10. Organization of the „Modeling team“
 - a. Do we need sub-teams? Which structure is useful?
 - b. Structure by model hierarchy: data assimilation (atmosphere, sea ice, BGC), forecast (weather, sea ice), process modeling (LES, SCM), 3D-model studies
 - c. Structure by science topic / coordinated simulations, analysis
 - d. Team (BGC, Eco, Atm, Sea, Ice, Ocean) modeling PIs

MOSAiC Modeling Activities (Phys. & BGC/Eco)

Modeling in Support of MOSAiC

Modeling using MOSAiC data

Operational Prediction
(weather, sea ice drift, extent, etc.)

Sub-Seasonal to Seasonal and longer (S2S+) prediction of sea ice and climate

Pre-MOSAiC Modeling (LES, SCM, forced and coupled regional and global)

Post-MOSAiC Modeling (LES, SCM)

Post-MOSAiC Modeling (forced and coupled regional models)

Improved Prediction (operational & S2S)

Development of improved process / feedback / coupling parameterizations

Improved Arctic Climate Simulation (regional & global) & Long-term Prediction (interannual / multi-decadal)

Synthesis, Advancement of Knowledge & Prediction of Arctic Climate Change