



Modeling of Arctic Marine Primary Production and Dimethylsulfide (DMS) Cycling using the Global Coupled Ice-Ocean Model: CICE-POP Biogeochemistry (BGC) Model

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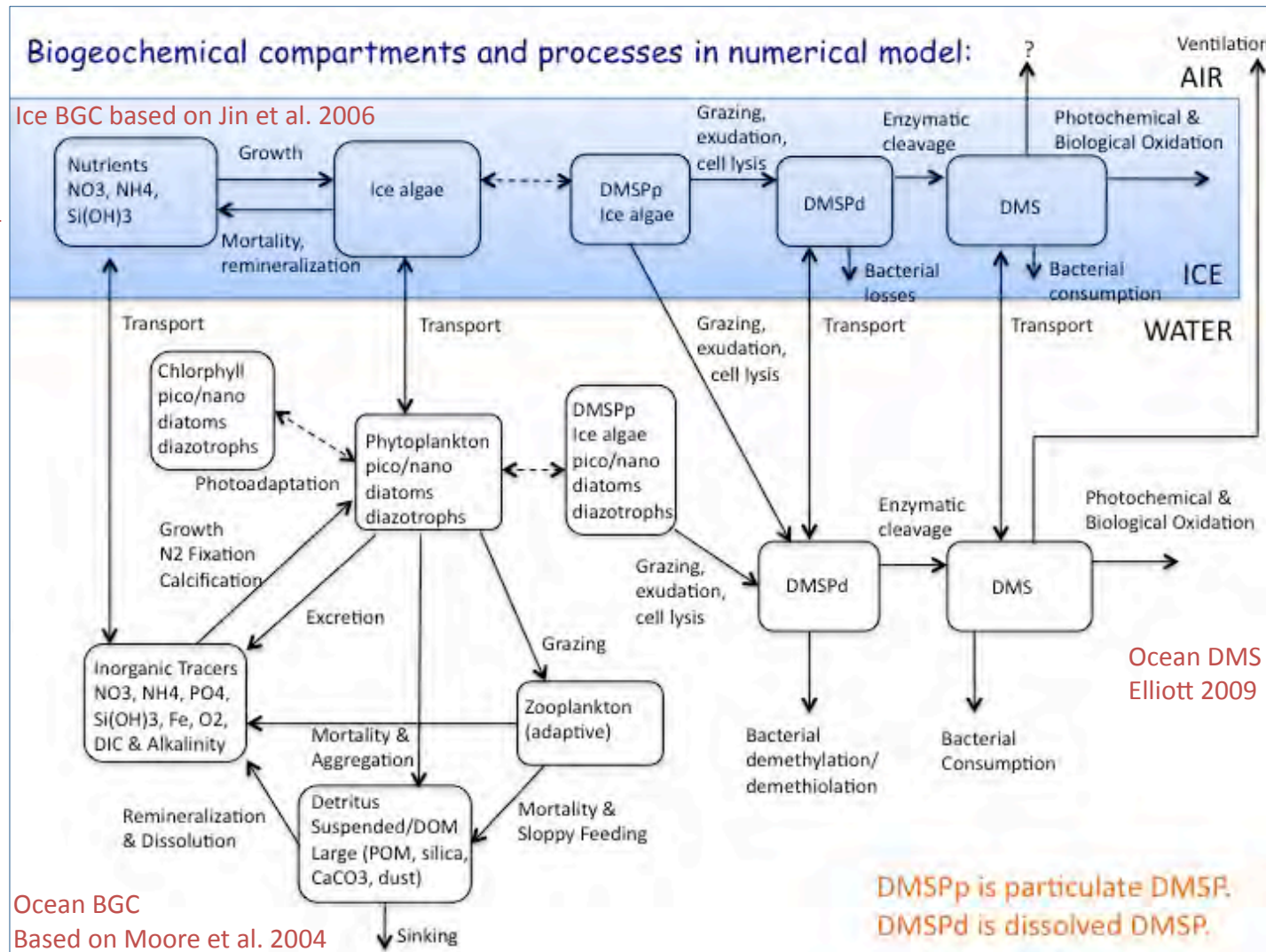


Ice BGC
Deal et al. 2011

Ice-Ocean BGC
Jin et al. 2012

Ice BGC DMS
Elliott et al. 2012

Ice-Ocean BGC DMS
Deal et al. in prep.



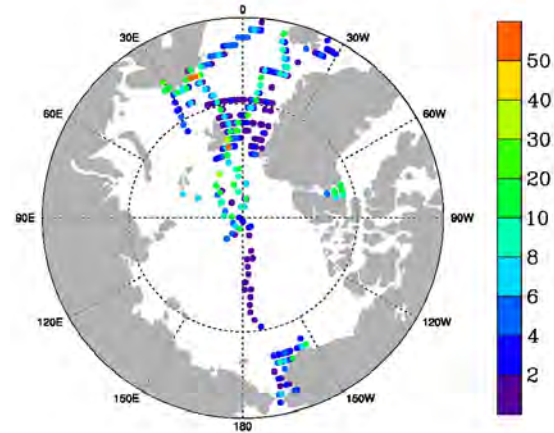
Acknowledgements, DOE grant number DE-FG02-08ER46502, IARC/JAMSTEC Cooperative Research Agreement



Distribution of seawater DMS concentration data from NOAA PMEL DMS database.

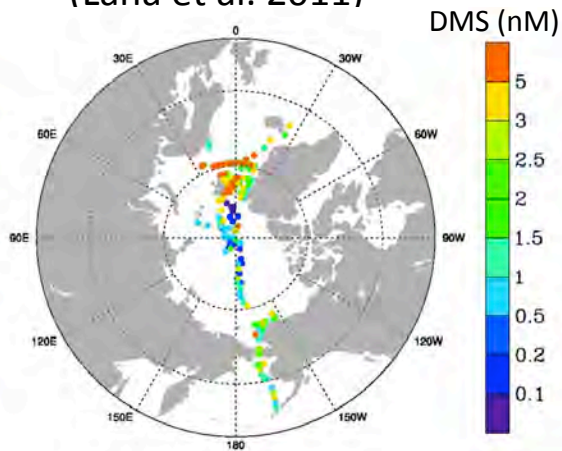
<http://saga.pmel.noaa.gov/dms/>

DMS data density (number)

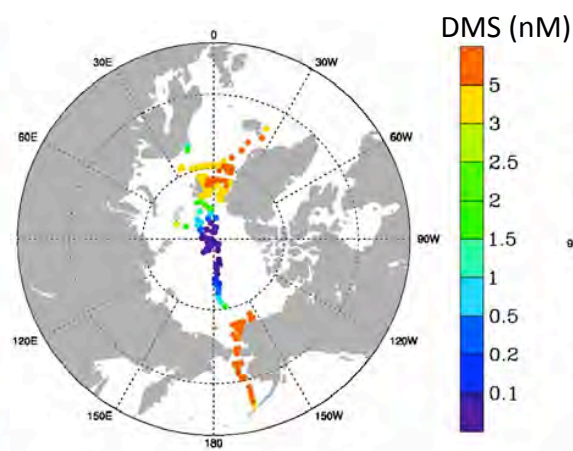


Sea surface DMS concentrations in summer (June-July-Aug) for years 1958-2009

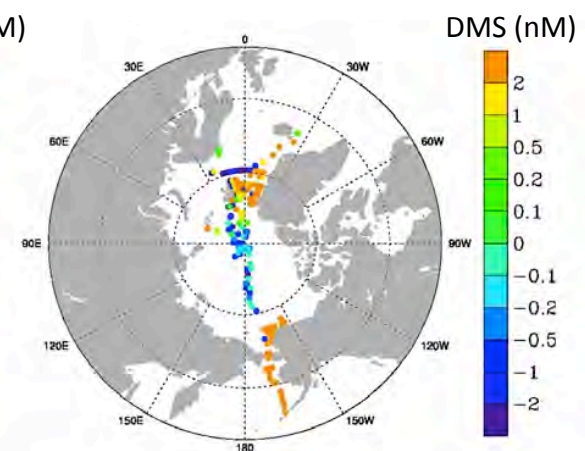
Gridded Observations
(Lana et al. 2011)



Modeled Values

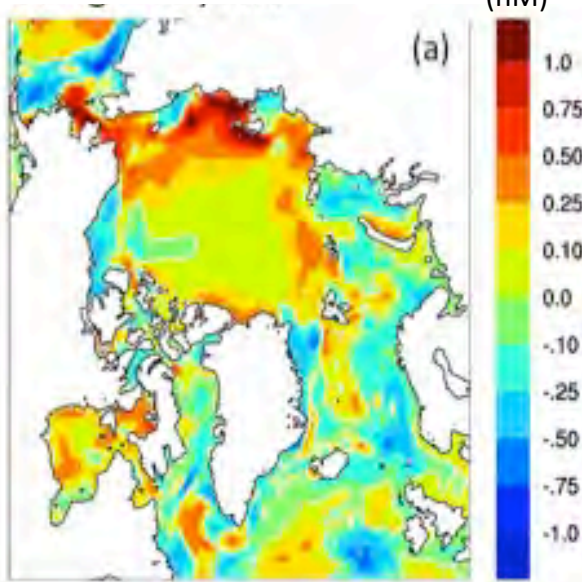


Modeled – Gridded Observations

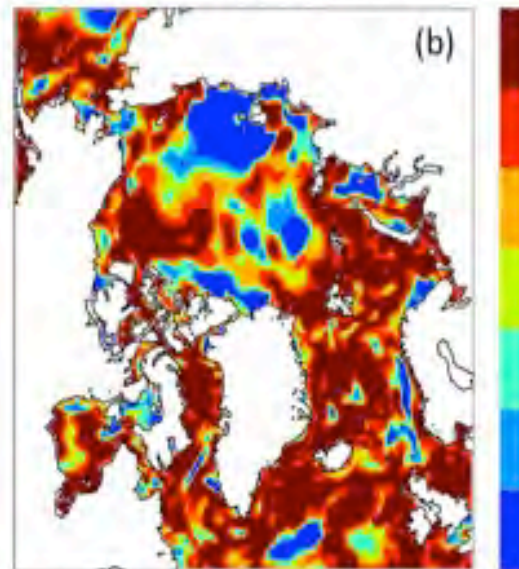


Model results suggest increasing DMS emissions where sea ice reduction is most prevalent.

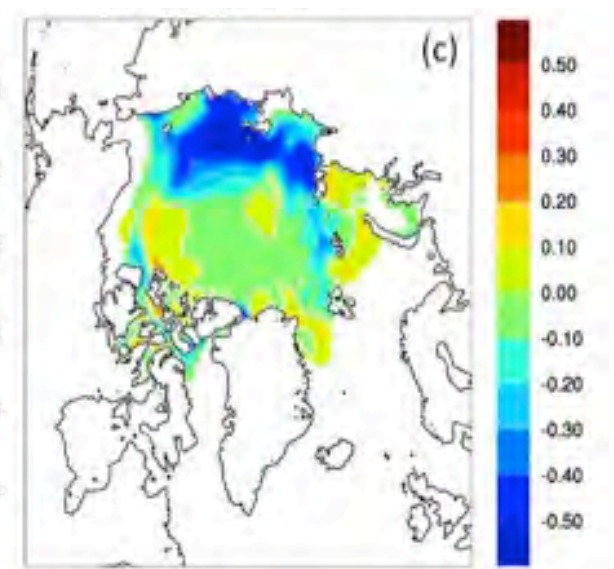
DMS for low (2002, 2003, 2005-2007)
minus high (1998-2001, 2004) ice years.
(nM)



P-value of student t-test for DMS.

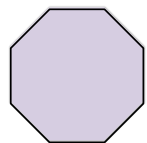
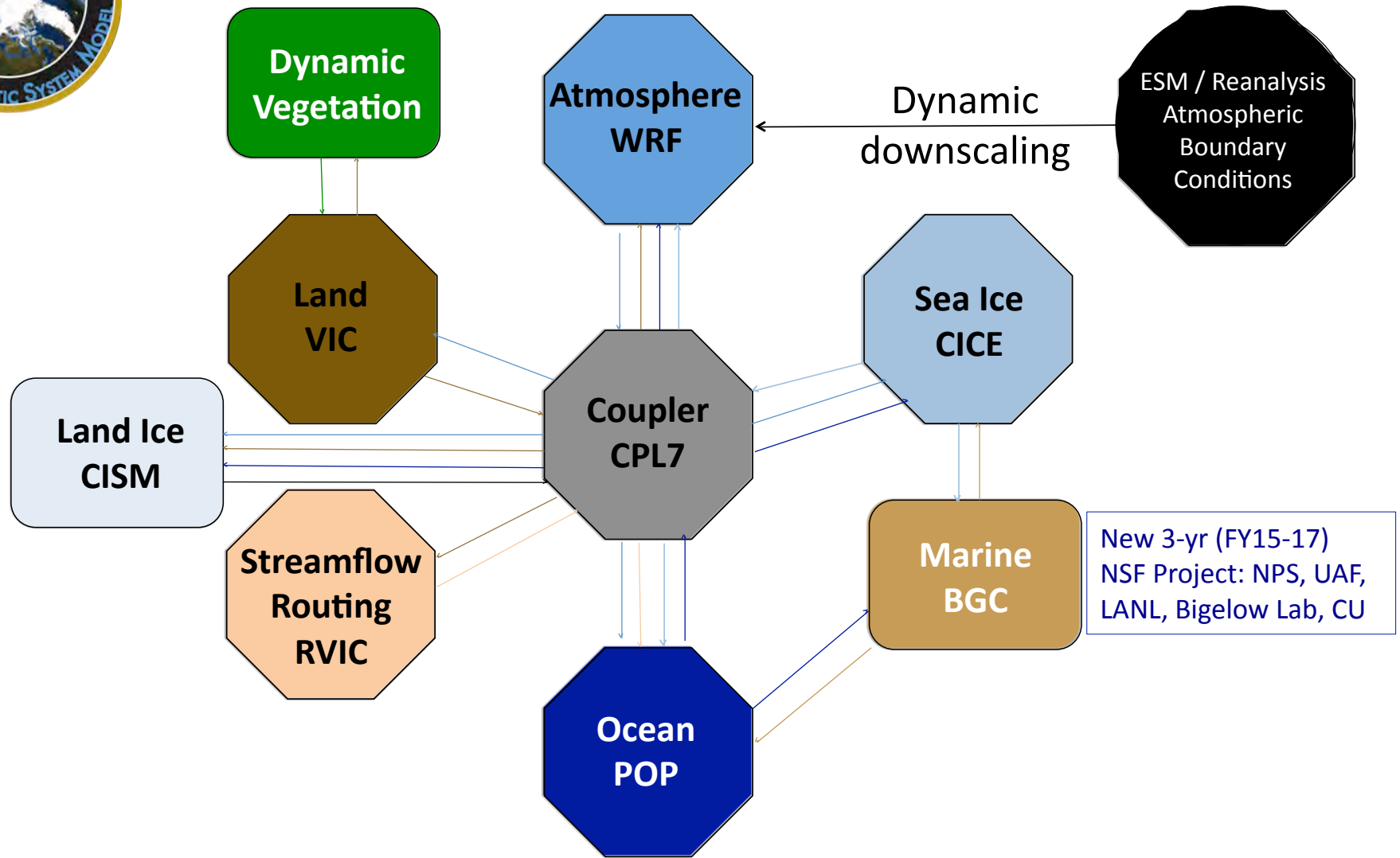


Ice concentration for low minus high
ice years.





RASM wiring diagram – near future (funded)



Model Component



New Model Component



Fluxes