

Michael Dinniman
Curriculum Vitae
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CURRENT POSITION

Research Scientist
Center for Coastal Physical Oceanography
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EDUCATION

M.S., Meteorology, University of Maryland, College Park, MD, 1996.

B.A. with High Distinction, Physics-Astronomy, University of Virginia, Charlottesville, VA, 1987.

EMPLOYMENT

1998 - present: Research Scientist, Center for Coastal Physical Oceanography, Old Dominion University.

1996 - 1998: Senior Scientist, Raytheon STX, NASA Goddard Space Flight Center.

1994 - 1996: Research Assistant, Department of Meteorology, University of Maryland.

1993 - 1994: Systems Analyst, Simulation Group, Cambridge Research Associates.

1988 - 1993: Systems Analyst, Hughes Training Incorporated.

1987 - 1988: Research Assistant, Infrared Astronomy Group, University of Arizona.

PROFESSIONAL MEMBERSHIPS

Member, American Geophysical Union

REFEREED PUBLICATIONS

St-Laurent, P., J.M. Klinck and M.S. Dinniman, 2012. On the Role of Coastal Troughs in the Transport of Ocean Heat to Ice Shelves. **Journal of Physical Oceanography**, submitted.

Galton-Fenzi, B.K., M.S. Dinniman and J. Hunter, 2012. The Pressure Gradient Force at the Front of Ice Shelves in Sigma-coordinate Ocean Models. **Ocean Dynamics**, submitted.

H.-C. Kim, W.O. Smith, Jr., E.E. Hofmann and M.S. Dinniman, 2011. Model-Derived Estimate of Primary Production and Carbon Flux in the Ross Sea. **Journal of Marine Research**, submitted.

Dinniman, M.S., J.M. Klinck and E.E. Hofmann, 2011. Sensitivity of Circumpolar Deep Water transport and ice shelf basal melt along the west Antarctic Peninsula to changes in the winds. **Journal of Climate**, revised and re-submitted.

Mueller, R.D., L. Padman, M.S. Dinniman, S.Y. Erofeeva, H.A. Fricker and M.A. King, 2011. Impact of tide-topography interactions on basal melting of Larsen C Ice Shelf, Antarctica. **Journal of Geophysical Research**, revised and re-submitted.

Padman, L., D.P. Costa, M.S. Dinniman, H.A. Fricker, M.E. Goebel, L.A. Huckstadt, A. Humbert, I. Joughin, J.T.M. Lenaerts, S. Ligtenberg, T.A. Scambos and M. van den Broeke, 2011. Oceanic controls on the mass balance of Wilkins Ice Shelf, Antarctica. **Journal of Geophysical Research**, doi:10.1029/2011JC007301, in press.

Dinniman, M.S., J.M. Klinck and W.O. Smith, Jr., 2011. A model study of Circumpolar Deep Water on the West Antarctic Peninsula and Ross Sea continental shelves. **Deep-Sea Research II**, 58, 1508-1523, doi:10.1016/j.dsr2.2010.11.013.

Pinones, M.A., E.E. Hofmann, M.S. Dinniman and J.M. Klinck, 2011. Lagrangian simulation of transport pathways and residence times along the western Antarctic Peninsula. **Deep-Sea Research II**, 58, 1524-1539, doi:10.1016/j.dsr2.2010.07.001.

Smith, Jr., W.O., M.S. Dinniman, S. Tozzi, G.R. DiTullio, O. Mangoni, M. Modigh and V. Saggiomo, 2010. Phytoplankton photosynthetic pigments in the Ross Sea: Patterns and relationships among functional groups. **Journal of Marine Systems**, 82, 177-185, doi:10.1016/j.jmarsys.2010.04.014.

Klinck, J.M. and M.S. Dinniman, 2010. Exchange across the shelf break at high southern latitudes. **Ocean Science**, 6, 513-524, doi:10.5194/os-6-513-2010.

Costa, D.P., J.M. Klinck, E.E. Hofmann, M.S. Dinniman and J.M. Burns, 2008. Upper Ocean Variability in West Antarctic Peninsula Continental Shelf Waters as Measured Using Instrumented Seals. **Deep-Sea Research II**, 55, doi:10.1016/j.dsr2.2007.11.003.

Crouch, J.R., Y. Shen, J.A. Austin and M.S. Dinniman, 2008. An educational interactive numerical model of the Chesapeake Bay. **Computers and Geosciences**, 34, doi:10.1016/j.cageo.2007.03.017.

Dinniman, M.S., J.M. Klinck and W.O. Smith, Jr., 2007. Influence of Sea Ice Cover and Icebergs on Circulation and Water Mass Formation in a Numerical Circulation Model of the Ross Sea, Antarctica. **Journal of Geophysical Research**, 112, C11013, doi:10.1029/2006JC004036.

Smith, Jr., W.O., A.R. Shields, G. Catalano, J.A. Peloquin, S. Tozzi, M.S. Dinniman and V.A. Asper, 2006. Interannual Variations in Nutrients, Net Community Production, and Biogeochemical Cycles in the Ross Sea. **Deep-Sea Research II**, 53, 815-833.

Dinniman, M.S. and J.M. Klinck, 2004. A model study of circulation and cross-shelf exchange on the west Antarctic Peninsula continental shelf, **Deep-Sea Research II**, 51, 2003-2022.

Dinniman, M.S., J.M. Klinck and W.O. Smith, Jr., 2003. Cross-shelf exchange in a model of the Ross Sea circulation and biogeochemistry, **Deep-Sea Research II**, 50, 3103-3120.

Smith, W.O., Jr., M.S. Dinniman, J.M. Klinck and E.E. Hofmann, 2003. Biogeochemical Climatologies in the Ross Sea, Antarctica: Seasonal Patterns of Nutrients and Biomass, **Deep-Sea Research II**, 50, 3083-3101.

Allen, S.E., M.S. Dinniman, J.M. Klinck, D.D. Gorby, A.J. Hewett and B.M. Hickey, 2003. On vertical advection truncation errors in terrain-following numerical models: Comparison to a laboratory model for upwelling over submarine canyons, **Journal of Geophysical Research**, 108, doi:10.1029/2001JC000978.

Dinniman, M.S. and J.M. Klinck, 2002. The Influence of Open versus Periodic Alongshore Boundaries on Circulation near Submarine Canyons, **Journal of Atmospheric and Oceanic Technology**, 19, 1722-1737.

Dinniman, M.S. and M.M. Rienecker, 1999. Frontogenesis in the North Pacific Oceanic Frontal Zones - A Numerical Simulation, **Journal of Physical Oceanography**, 29, 537-559.

CONFERENCE PROCEEDINGS

Shen, Y., J.R. Crouch, J.A. Austin and M.S. Dinniman, 2007: Interactive Visualization of Regional Oceanic Modeling System. *Proceedings of the IASTED International Conference on Graphics and Visualization in Engineering*, 59-67.

Allen, S.E., M.S. Dinniman, J.M. Klinck, B.M. Hickey, D.D. Gorby, A.J. Hewett and J. She, 2000: Using Circulation over a Coastal Submarine Canyon to Compare Numerical and Physical Modelling. *Proceedings of 5th International Symposium on Stratified Flows*, Ed: G.A. Lawrence et al., Dept. Civil Engineering, University of British Columbia, **2**, 959-964.

Dinniman, M.S., M.M. Rienecker and A.M. da Silva, 1998: A Comparison of Reanalysis Surface Stresses: Impact on a Model of the North Atlantic Ocean Circulation. *Proceedings of the First WRCF International Conference on Reanalyses*, World Climate Research Programme, **WCRP-104**, 65-68.

PRESENTATIONS (last five years)

Asper, V., W. Smith, C. Lee, K. Heywood, M. Dinniman, B. Queste, J. Gobat, Using gliders to study a phytoplankton bloom in the Ross Sea, Antarctica, MTS/IEEE Oceans '11, October, 2011.

Dinniman, M., P. St-Laurent, J. Klinck, What controls the time scale of circumpolar deep water intrusions onto Antarctic continental shelves, IUGG 2011, July, 2011.

Dinniman, M.S., J.M. Klinck and A.K. Wahlin, The importance of short duration wind events on intrusions of Circumpolar Deep Water onto Antarctic continental shelves, 6th Antarctic Meteorological Observation, Modeling and Forecasting Workshop, June, 2011.

Dinniman, M.S., J.M. Klinck, The influence of surface winds on Circumpolar Deep Water transport and ice-shelf basal melt along the west Antarctic Peninsula, IGS/FRISP 2011 Meeting, Interaction of Ice Sheets and Glaciers with the Ocean, June, 2011.

Klinck, J.M., M.S. Dinniman, Oceanic processes associated with delivery of warm water under ice shelves, IGS/FRISP 2011 Meeting, Interaction of Ice Sheets and Glaciers with the Ocean, June, 2011.

St-Laurent, P., J.M. Klinck and M.S. Dinniman, On the role of coastal troughs in the transport of ocean heat to ice shelves, IGS/FRISP 2011 Meeting, Interaction of Ice Sheets and Glaciers with the Ocean, June, 2011.

Mueller, R.D., L. Padman, M. Dinniman, S. Erofeeva, H.A. Fricker and M. King, Rapid basal melt in the northeast Larsen C Ice Shelf: tides and sensitivity to cavity geometry, IGS/FRISP 2011 Meeting, Interaction of Ice Sheets and Glaciers with the Ocean, June, 2011.

Hofmann, E.E., M.S. Dinniman and J.M. Klinck, The influence of surface winds on Circumpolar Deep Water transport and ice shelf basal melt along the western Antarctic Peninsula, ESSAS 2011 Open Science Meeting, May, 2011.

Queste, B., W. Smith, Jr., V. Asper, C. Lee, M. Dinniman, J. Gobat and K. Heywood, Seaglider deployment in the Ross Sea: advantages of glider platforms and preliminary results, 5th European Gliding Observatories Meeting, March, 2011.

Klinck, J.M., M.S. Dinniman, How variability in wind and ACC transport affects Circumpolar Deep Water transport across the west Antarctic Peninsula continental shelf and its influence on ice shelf basal melt, 2010 Fall AGU Meeting

Springer, S.R., L. Padman, M.S. Dinniman, Modeling the effects of tides on sea ice around the Antarctic Peninsula, 2010 Fall AGU Meeting

Dinniman, M.S., Wind Effects on Circumpolar Deep Water Intrusions onto the west Antarctic Peninsula Continental Shelf, CCPO Seminar Series, October, 2010.

St.-Laurent, P., J.M. Klinck, M.S. Dinniman, Idealized Experiments of Warm Circumpolar Deep Waters Intruding over the Continental Shelf of West Antarctica, 2010 WAIS Workshop, September, 2010.

Mueller, R., M. Dinniman, L. Erofeeva, H. Fricker and L. Padman, "The other guys" in "Waterworld": Ice shelf basal melt beyond plume dynamics, 2010 WAIS Workshop, September, 2010.

Dinniman, M.S., J.M. Klinck, The Influence of Surface Winds on Circumpolar Deep Water Transport and Ice Shelf Basal Melt Along the West Antarctic Peninsula, 2010 WAIS Workshop, September, 2010.

Hofmann, E.E., M.S. Dinniman and J.M. Klinck, A model study of how changes in winds affect Circumpolar Deep Water transport and ice shelf basal melt along the West Antarctic Peninsula, SCAR Open Science Conference, August, 2010.

Huckstadt, L.A., A. Pinones, M.S. Dinniman, E.E. Hofmann, J.M. Klinck and D.P. Costa, Validating hydrographic data collected by seals using shipboard CTD measurements and a circulation model in the Western Antarctic Peninsula, SCAR Open Science Conference, August, 2010.

Huckstadt, L.A., D. Palacios, B. McDonald, M.A. Pinones, M.S. Dinniman, E.E. Hofmann, M.E. Goebel, D.E. Crocker and D.P. Costa, Overlap versus segregation: Do Crabeater Seals and Elephant Seals utilize similar habitats along the Western Antarctic Peninsula?, SCAR Open Science Conference, August, 2010.

Klinck, J., E. Hofmann, M. Dinniman and D. Costa, Using instrumented seals to observe spatial and temporal variations in environmental conditions on the West Antarctic Peninsula during 2005 to 2009, SCAR Open Science Conference, August, 2010.

Pinones, A., E.E. Hofmann, K.L. Daly, M.S. Dinniman and J.M. Klinck, Modeling early life stages of Antarctic Krill (*Euphausia Superba*) in continental shelf environments on the West Antarctic Peninsula, SCAR Open Science Conference, August, 2010.

Pinones, A., E.E. Hofmann, K.L. Daly, P.H. Wiebe, M.S. Dinniman and J.M. Klinck, Remote and local connectivity of Antarctic Krill (*Euphausia Superba*) populations along the Western Antarctic Peninsula, SCAR Open Science Conference, August, 2010.

Galton-Fenzi, B.K., M.S. Dinniman and J. Hunter, The pressure gradient force at the front of ice shelves in sigma-coordinate ocean models, 2nd International Workshop on Modeling the Ocean, May, 2010.

Costa, D.P., D.E. Crocker, M.A. Fedak, M.E. Goebel, B. McDonald, L.A. Huckstadt, E.E. Hofmann, J.M. Klinck and M.S. Dinniman, Climate Change and Habitat Selection of Seals in the Western Antarctic Peninsula, 2010 Ocean Sciences Meeting, February, 2010.

Huckstadt, L., B. McDonald, A. Pinones, M.S. Dinniman, E.E. Hofmann, M.E. Goebel, D.E. Crocker and D.P. Costa, Habitat partitioning of two seal species in the Western Antarctic Peninsula, 2010 Ocean Sciences Meeting, February, 2010.

Pinones, A., E.E. Hofmann, K.L. Daly, P.H. Wiebe, M.S. Dinniman and J.M. Klinck, Remote and local connectivity of Antarctic krill (*Euphausia superba*) populations along the western Antarctic Peninsula, 2010 Ocean Sciences Meeting, February, 2010.

Dinniman, M.S. and J.M. Klinck, Wind Effects on Circumpolar Deep Water Intrusions on the West Antarctic Peninsula Continental Shelf, 2010 Ocean Sciences Meeting, February 2010.

Klinck, J.M., D.P. Costa, M.S. Dinniman and E.E. Hofmann, Using instrumented seals to observe spatial and temporal variations in environmental conditions on the west Antarctic Peninsula, 2010 Ocean Sciences Meeting, February 2010.

Dinniman, M., J. Klinck, Wind Effects on Circumpolar Deep Water Intrusions on the West Antarctic Peninsula Continental Shelf, 2009 WAIS/FRISP Workshop, September, 2009.

Dinniman, M., A. Pinones, E. Hofmann and J. Klinck, Circulation on the Western Antarctic Peninsula: Implications for biological production, Commonwealth Scientific and Industrial Research Organization Marine and Atmospheric Research Hobart Laboratories, July 2009.

Dinniman, M., Differences in the fate of Circumpolar Deep Water advected onto the continental shelf in the Ross Sea and West Antarctic Peninsula, Antarctic Climate and Ecosystems Cooperative Research Centre, University of Tasmania, July 2009.

Dinniman, M., J. Klinck and W. Smith, Jr., Difference in the fate of Circumpolar Deep Water advected onto the continental shelf in the Ross Sea and the West Antarctic Peninsula, 3rd GLOBEC Open Science Meeting, June 2009.

Klinck, J., M. Dinniman and L. Padman, Large scale context for oceanic processes on the west Antarctic Peninsula, 3rd GLOBEC Open Science Meeting, June 2009.

Pinones, M.A., E. Hofmann, M. Dinniman and J. Klinck, Circulation on the Western Antarctic Peninsula: implications for biological production, 3rd GLOBEC Open Science Meeting, June 2009.

Hofmann, E.E., J.M. Klinck, M.S. Dinniman and W.O. Smith, Understanding and Monitoring Climate Change in the Southern Ocean Mesopelagic Region, Southern Ocean Sentinel Workshop, April, 2009.

Mueller, R., L. Padman, H. Fricker and M. Dinniman, Modeling the Contribution of Tides to the Larsen-C (L-C) Ice Shelf Basal Melt Rate, 2008 Fall AGU Meeting.

Klinck, J.M. and M.S. Dinniman, Fine-scale numerical models applied to high latitude deep ocean-shelf exchange, SCOR/IAPSO Workshop on Deep Ocean Exchange with the Shelf (DOES), October, 2008.

Dinniman, M.S. and J.M. Klinck, Effect of Circumpolar Deep Water on ice shelf basal melt under Ross and George VI Ice Shelves: A regional model comparison, 2008 WAIS/FRISP Workshop, September, 2008.

Klinck, J.M., Y.S. Husrevoglu and M.S. Dinniman, A Model Study of the Influence of Sea-Ice and the Ross Ice Shelf on Water Properties, 2008 SCAR/IASC Open Science Conference, July, 2008.

Dinniman, M.S. and J.M. Klinck, A High Resolution Coupled Sea-Ice/Ocean Model for the Antarctica Peninsula Region: Warm Oceanic Water Intrusions onto the Shelf, 2008 SCAR/IASC Open Science Conference, July, 2008.

Pinones, A., E.E. Hofmann, M.S. Dinniman and J.M. Klinck, Simulations of Lagrangian particles on the Western Antarctic Peninsula: the effect of circulation dynamics, 2008 SCAR/IASC Open Science Conference, July, 2008.

Pinones, A., E.E. Hofmann, M.S. Dinniman and J.M. Klinck, Circulation on the Western Antarctic Peninsula and implications for biological production, 2008 SCAR/IASC Open Science Conference, July, 2008.

Dinniman, M.S., J.M. Klinck and A. Pinones, A High Resolution Coupled Sea-Ice/Ocean Model for the Antarctica Peninsula Region, 5th International Workshop on Antarctic Peninsula Climate Change, June, 2008.

Dinniman, M.S. and J.M. Klinck, A High Resolution Coupled Sea-Ice/Ocean Model for the Antarctica Peninsula Region, 2008 Ocean Sciences Meeting.

Klinck, J.M., Y.S. Husrevoglu and M.S. Dinniman, Continental Shelf Water Mass Distribution, Transformations and Off-Shelf Transport in a Sea Ice-Ocean Model of the Ross Sea, Antarctica, 2008 Ocean Sciences Meeting.

Husrevoglu, Y.S., J.M. Klinck and M.S. Dinniman, A High-Resolution Sea Ice-Ocean Modelling Study of the Terra Nova Bay and Ross Sea Polynyas, 2008 Ocean Sciences Meeting.

Pinones, A., E.E. Hofmann, M.S. Dinniman and J.M. Klinck, West Antarctic Peninsula Circulation and Implications for Biological Production, 2008 Ocean Sciences Meeting.

Dinniman, M.S., Modeling Ocean/Ice Shelf Interactions around Antarctica: Can a Model Determine if the "Cork" is Melting?, 2008 CCPO Spring Seminar Series, February, 2008.

Dinniman, M.S., Y.S. Husrevoglu and J.M. Klinck, Production and Export of High Salinity Shelf Water in a Model of the Ross Sea, 2007 Climate Process Team Workshop, November, 2007.

Dinniman, M.S., J.M. Klinck and W.O. Smith, Jr., Effects of Changes in the Open Ocean on the Melting Underneath the Ross Ice Shelf in a Model of the Ross Sea, 2007 WAIS/FRISP Workshop, September, 2007.

Klinck, J.M., Y.S. Husrevoglu and M.S. Dinniman, The Influence of Sea-Ice and the Ross Ice Shelf on Water Properties, 2007 WAIS/FRISP Workshop, September, 2007.

Dinniman, M.S., J.M. Klinck and W.O. Smith, Jr., Numerical Modeling of Ice Shelves and Oceans around Antarctica, 2007 Gordon Research Conference on Coastal Ocean Modelling, June, 2007.

Klinck, J.M. and M.S. Dinniman, The Importance of High Spatial Resolution for Models of Antarctic Coastal Circulation, 2nd Antarctic Meteorological Observation, Modeling, and Forecasting Workshop, June 2007.

Kamel, M., Y.S. Husrevoglu, M.S. Dinniman and J.M. Klinck, Small-Scale Winds, Polynyas, and Ocean Properties in the Ross Sea, 2nd Antarctic Meteorological Observation, Modeling, and Forecasting Workshop, June 2007.

PROFESSIONAL SERVICES

Reviewer for Geophysical Research Letters, Journal of Geophysical Research, Journal of Physical Oceanography, Deep-Sea Research II, Marine and Freshwater Research, Ocean Dynamics, Estuarine, Coastal and Shelf Science, Polar Research, Limnology and Oceanography, Antarctic Science, Ocean Science, U.S. National Science Foundation, U.K. Natural Environment Research Council, and Australian Antarctic Program

Co-convener of “Ice Shelves and Glacier Tongues - Ice on the Edge” sessions at 2011 IUGG Meeting.