

CURRICULUM VITAE

ALAN J. WALLCRAFT

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Position: Research Scientist at the Center for Ocean-Atmospheric Prediction Studies

Oct2017-present: Research Scientist at COAPS

1997 – Sep2017: Computer Scientist in the Ocean Dynamics and Prediction Branch of the Naval Research Laboratory

1991 - 1997: Principal Scientist with Planning Systems Inc, supporting contracts with the above NRL Branch

1980 - 1991: Senior Scientist with JAYCOR Inc, supporting NRL contracts

Education: Ph.D., Imperial College, University of London, England,

Numerical Analysis, 1981

B.Sc., University of Essex, England,

Mathematics and Computer Science, 1977

Member DoD HPCMP User Advocacy Group (2002 - 2017) and

Shared Resource Centers Advisory Panel (1999 – 2001)

Member Earth System Modeling Framework (ESMF)

Change Review Board (2009 - 2017)

Member NSF National Resource Allocation Committee

(2001 - 2005)

Member National Oceanographic Partnership Program (NOPP)

Ocean Information Technology Infrastructure Steering

Committee (1999 - 2002)

PI or Co-PI on eight DoD HPC Challenge projects, one DoD HPC Frontier project,

one DoD HPC Institute, and three DoD HPC CHSSI projects or portfolios

Dr. Delores M. Etter Top Navy Scientists and Engineers of the Year 2013 Award.

For the Development and Operational Transition of the Navy's Global Ocean Forecast System (GOFS).

Case study on "Eddy-resolving Global Ocean Modeling and Prediction" archived in the Permanent Research Collection of the Smithsonian National Museum of American History, 2000

Research Interests:

Numerical solution of finite difference and finite volume forms of partial differential equations, and their application to the development of eddy resolving numerical ocean circulation models. Ocean model design, development and maintenance. Application of scalable supercomputers to numerical ocean modeling. Model coupling.

Operational Ocean Prediction Reports:

- E.J. Metzger, R.W. Helber, P.J. Hogan, P.G. Posey, P.G. Thoppil, T.L. Townsend, A.J. Wallcraft, O.M. Smedstad, and D.S. Franklin, 2017: [Global Ocean Forecast System 3.1 Validation Testing](#) *NRL Report* NRL/MR/7320-17-9722
- E. J. Metzger, J. D. Dykes, A. J. Wallcraft, L. F. Smedstad, B. C. Ruston, T. R. Whitcomb, S. Chen and J. Chen, 2014: [Operational Implementation Design for the Earth System Prediction Capability \(ESPC\): A First Look](#) *NRL Report* NRL/MR/7320-14-9498
- E. J. Metzger, H. E. Hurlburt, A. J. Wallcraft, J. F. Shriver, T. L. Townsend, O. M. Smedstad, P. G. Thoppil, D. S. Franklin and G. Peggion, 2010: [Validation Test Report for the Global Ocean Forecast System V3.0 - 1/12° HYCOM/NCODA: Phase II](#) *NRL Reports* NRL/MR/7320--10-9236
- P. G. Posey, E. J. Metzger, A. J. Wallcraft, R. H. Preller, O. M. Smedstad and M. W. Phelps, 2010: [Validation of the 1/12 Arctic Cap Nowcast/Forecast System \(ACNFS\)](#) *NRL Report* NRL/MR/7320-10-9287
- E. J. Metzger, H. E. Hurlburt, A. J. Wallcraft, J. F. Shriver, L. F. Smedstad, O. M. Smedstad, P. Thoppil and D. S. Franklin, 2008: [Validation Test Report for the Global Ocean Prediction System v3.0 - 1/12° HYCOM/NCODA: Phase 1](#) *NRL Tech Report* NRL/MR/7320-08-9148

Selected Refereed Publications (by year):

- R.A. Allard, S.L. Farrell, D.A. Hebert, W.F. Johnston, L. Li, N.T. Kurtz, M.W. Phelps, P.G. Posey, R. Tilling, A. Ridout and A.J. Wallcraft, 2018: [Utilizing CryoSat-2 sea ice thickness to initialize a coupled ice-ocean modeling system](#) *Adv. Space Res.* doi:10.1016/j.asr.2017.12.030
- A.C. Savage, B.K. Arbic, J.G. Richman, J.F. Shriver, M.H. Alford, M.C. Buijsman, J.T. Farrar, H. Shama, G. Voet, A.J. Wallcraft, and L. Zamudio, 2017: [Frequency content of sea surface height variability from internal gravity waves to mesoscale eddies](#) *Journal of Geophysical Research: Oceans* vol 122 doi:10.1002/2016JC012331
- C.A. Luecke, B.K. Arbic, S.L. Bassette, J.G. Richman, J.F. Shriver, M.H. Alford, O.M. Smedstad, P.G. Timko, D.S. Trossman and A.J. Wallcraft, 2017: [The Global Mesoscale Eddy Available Potential Energy Field in Models and Observations](#) *Journal of Geophysical Research: Oceans* vol 122 doi:10.1002/2017JC013136
- E. Blanchard-Wrigglesworth, A. Barthelemy, M. Chevallier, R. Cullather, N. Fuckar, F. Massonnet, P. Posey, W. Wang, J. Zhang, C. Ardilouze, C.M. Bitz, G. Vernieres, A. Wallcraft, and M. Wang, 2016: [Multi-model seasonal forecast of Arctic sea-ice: forecast uncertainty at pan-Arctic and regional scales](#) *Climate Dynamics* doi:10.1007/s00382-016-3388-9
- Ngodock, H.E., I. Souopgui, A.J. Wallcraft, J.G. Richman, J.F. Shriver and B.K. Arbic, 2016: [On improving the accuracy of the M₂ barotropic tides embedded in a high-resolution global ocean circulation model](#) *Ocean Modelling* vol 97 doi:10.1016/j.ocemod.2015.10.011
- Hebert D.A., R. A. Allard, E. J. Metzger, P. G. Posey, R. H. Preller, A. J. Wallcraft, M. W. Phelps and O. M. Smedstad, 2015: [Short-term sea ice forecasting: An assessment of ice concentration and ice drift forecasts using the U.S. Navy's Arctic Cap Nowcast/Forecast System](#) *Journal of Geophysical Research: Oceans* vol 120 doi:10.1002/2015JC011283
- Posey P.E., E. J. Metzger, A. J. Wallcraft, D. A. Hebert, R. A. Allard, O. M. Smedstad, M. W. Phelps, F. Fetter, J. S. Stewart, W. N. Meier, and S. R. Helfrich, 2015: [Improving Arctic sea ice edge forecasts by assimilating high horizontal resolution sea ice concentration data into the US Navy's ice forecast systems](#) *The Cryosphere* vol 9 1735-1745
- Metzger, E.J., O.M. Smedstad, P.G. Thoppil, H.E. Hurlburt, J.A. Cummings, A.J. Wallcraft, L. Zamudio, D.S. Franklin, P.G. Posey, M.W. Phelps, P.J. Hogan, F.L. Bub and C.J. Dehaan, 2014: [US Navy Operational Global Ocean and Arctic Ice Prediction Systems](#). *Oceanography* vol 27 3, <http://dx.doi.org/10.5670/oceanog.2014.66>.
- Arbic, B. K., A. J. Wallcraft and E. J. Metzger, 2010: [Concurrent simulation of the eddying general circulation and tides in a global ocean model](#) *Ocean Modelling* vol 32 175-187.