

## Y O U N G - O H K W O N

### EDUCATION

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- 1996 B.Sc., Seoul National University, Oceanography  
1998 M.Sc., Seoul National University, Physical Oceanography (advisor: K. Kim)  
2003 Ph.D., University of Washington, Physical Oceanography (advisor: S.C. Riser)

### POSITIONS HELD

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1996. 3 – 1998. 6 Research/Teaching Assistant, Dept. of Oceanography, Seoul National University  
1998. 9 – 2003. 11 Research/Teaching Assistant, School of Oceanography, University of Washington  
2003. 12 – 2006. 2 Postdoctoral Scientist, Climate Analysis Section/Climate and Global Dynamics Division, National Center for Atmospheric Research  
2006. 3 – 2006. 10 Visiting Scientist, Climate Analysis Section/Climate and Global Dynamics Division, National Center for Atmospheric Research  
2006. 11 – 2010. 10 Assistant Scientist, Dept. of Physical Oceanography, WHOI  
2010. 10 – present Associate Scientist, Dept. of Physical Oceanography, WHOI (Tenured since May 2014)

### RESEARCH INTERESTS

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Climate variability particularly on interannual to multi-decadal time scale; Ocean's role in climate; Atmospheric responses to the oceanic variability; Large-scale ocean general circulation; Meridional overturning circulation; Mode water; Thermocline ventilation; Subduction; Upper ocean response to hurricanes

### PROFESSIONAL PUBLICATIONS AND PRESENTATIONS

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Author or co-author of 38 refereed publications, 8 other publications. Author or co-author of approximately 120 conference abstracts; participant in approximately 70 national and international conferences, symposia and workshops.

### AWARDS

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- Claudia Heyman Fellow of the Ocean Climate Change Institute, WHOI (2009-2012)  
Invited participant, ONR sponsored 2005 summer school on Lagrangian Oceanography (University of Rhode Island, RI, 2005)  
Invited participant, NSF-ONR sponsored 2<sup>nd</sup> Physical Oceanography Dissertation Symposium (PODS II) (Kona, HI, 2003)

Invited participant, NCAR Advanced Study Program Summer Colloquium on Dynamics of Decadal to Centennial Climate Variability (Boulder, CO, 2000)

## RESEARCH GRANTS

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- Coupled Atmosphere-Ocean Mixed Layer Response to Extra-tropical Ocean Heat Transport Variations (PI: Clara Deser (NCAR), Co-PI: Young-Oh Kwon): NOAA OGP CLIVAR, \$333K for FY06-08.
- Coupling An Entraining Ocean Mixed Layer Model to CCSM3 (PI: Clara Deser (NCAR), Co-PI: Young-Oh Kwon): DOE-CCPP / NSF-CLD SGER, \$25K for FY07.
- Decadal Variability of the Atlantic Meridional Overturning Circulation and Its Impact on the Climate” (PIs: Young-Oh Kwon and Claude Frankignoul): WHOI OCCI, \$81K for FY07-08.
- SGER: Quantification of Uncertainty in Argo Observation of Ocean Response to Hurricanes (PI: Young-Oh Kwon, Co-PIs: Jong-Jin Park and James Price): NSF OCE PO, \$90K for FY09-10.
- Atmospheric Coupling to Gulf Stream and Kuroshio Path Changes (PI: Terry Joyce, Co-PI: Young-Oh Kwon): NASA PO, \$463K for FY09-11.
- Collaborative Research: Evolution and Fate of Eighteen Degree Water in the North Atlantic Subtropical Gyre (PIs: Young-Oh Kwon, David Fratantoni, Fiammetta Straneo, Jong-Jin Park, Susan Lozier (Duke), and Lynne Talley (SIO)): NSF OCE PO, \$1,600K for FY10-13.
- Decadal Variability of the Atlantic Meridional Overturning Circulation and Its Impact on the Climate: Two Regimes and Rapid Transition (PI: Young-Oh Kwon, Co-PIs: Claude Frankignoul (UPMC/IPSL) and Gokhan Danabasoglu (NCAR)): NOAA CPO, \$357K for FY11-13.
- Kuroshio Transport: Interannual to Decadal Variability and the Underlying Mechanisms (PIs: Magdalena Andres, Young-Oh Kwon, Jiayan Yang): NSF OCE PO, \$542K for FY11-13.
- Collaborative Research: Large-Scale Atmospheric Response to the North Pacific Western Boundary Current Fluctuations and its Potential Predictability (PIs: Young-Oh Kwon, Claude Frankignoul (UPMC/IPSL), Mike Alexander (NOAA/ESRL), and Matt Newman (NOAA/ESRL)): NSF AGS CLD, \$957K for FY11-13
- Can changes in Silver Hake be related to and forecast by changes in the Gulf Stream path? (PIs: Terry Joyce and Young-Oh Kwon): WHOI OCCI, \$74K for FY11-12
- Collaborative Project: Ocean-Atmosphere Interaction From Meso- to Planetary-Scale: Mechanisms, Parameterization, and Variability (PIs: Justin Small (NCAR), Frank Bryan (NCAR), Joe Tribbia (NCAR), John Dennis (NCAR), R. Saravanan (TAMU), Niklas Schneider (UH), Young-Oh Kwon): DOE SciDAC, \$1,071K for FY12-14
- Collaborative Research EaSM2: Mechanisms, Predictability, Prediction, and Regional and Societal Impacts of Decadal Climate Variability (PIs: Gokhan Danabasoglu (NCAR), Jeff Anderson (NCAR), Grant Branstator (NCAR), Keith Lindsay (NCAR), Joe Tribbia (NCAR), Claude Frankignoul (UPMC/IPSL), Young-Oh Kwon, Minghua Zhang (SUNY Stony Brook)): NSF EaSM, \$3,987K for FY13-17
- Coupling Between the Atmospheric Intra-Seasonal Variability and Ocean Circulation in the Northern Hemisphere (PIs: Young-Oh Kwon, Terry Joyce, Hyodae Seo): NASA PO, \$494K for FY13-17
- A Collaborative Multi-model Study: Understanding AMOC Variability Mechanisms and Their Impacts on Decadal Prediction (PIs: Gokhan Danabasoglu (NCAR), Alicia Karspeck

(NCAR), Joe Tribbia (NCAR), Steve Yeager (NCAR), Tom Delworth (GFDL), Rym Msadek (GFDL), Anthony Rosati (GFDL), Young-Oh Kwon, Claude Frankignoul (UPMC/IPSL)): NOAA CPO, \$1,257K for FY13-16

Decadal Variability in the North Atlantic Extra-Tropics: The Role of Coupling Between Atmospheric Blocking and the Atlantic Multidecadal Oscillation (PIs: Caroline Ummenhofer, Hyodae Seo, Young-Oh Kwon, Terry Joyce): NSF AGS CLD & OCE PO, \$500K for FY14-16.

Interannual Variability of Winter-Spring Temperature in the Middle Atlantic Bight: Linkages to Large-Scale Atmospheric and Oceanic Changes (PIs: Ke Chen, Glen Gawarkiewicz, Young-Oh Kwon): NSF OCE PO, \$768K for FY15-17

Compensation Between Poleward Energy Transports in the Ocean and Atmosphere (PIs: Young-Oh Kwon, Clara Deser (NCAR), Jian Lu (PNNL)): DOE CESD RGCM, \$482K for FY16-18.

Joint Research: Interactions Between the East China Sea and North Pacific Interannual-to-Decadal Variability (PIs: Young-Oh Kwon, B. Gan (OUC), Z. Yao (OUC), T.M. Joyce, K. Chen): OUC-WHOI Joint Center, \$183K for FY16-17.

Oceanographic forecasts to improve natural resource management in the Northeast US Continental Shelf Large Marine Ecosystem (PIs: J. Nye (Stony Brook Univ.), Y.-O. Kwon, and T.M. Joyce): NASA Ecological Forecasting, \$850K for FY17-19. [*Pending*]

Development and evaluation of a seasonal-to-interannual statistical forecasting system for oceanographic conditions and living marine resources on the Northeast U.S. Shelf Ecosystem (PIs: Y.-O. Kwon, K. Chen, G. Gawarkiewicz, T.M. Joyce, J. Nye (Stony Brook Univ.), J. Hare (NFMS), P. Fratantoni (NFMS), V. Saba (NFMS), T. Miller (NFMS)): NOAA MAPP, \$510K for FY17-19. [*Pending*]

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#### REFEREED PUBLICATIONS (\*: Student or post-doc)

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Kwon, Y.-O., K. Kim, Y.-G. Kim, and K.-R. Kim, 2004: Diagnosing long-term trends of the water mass properties in the East Sea (Sea of Japan). *Geophys. Res. Lett.*, **31**, L20306, doi:10.1029/2004GL020881.

Kwon, Y.-O., and S.C. Riser, 2004: North Atlantic Subtropical Mode Water: A history of ocean-atmosphere interaction 1961–2000. *Geophys. Res. Lett.*, **31**, L19307, doi:10.1029/2004GL021116.

Kwon, Y.-O., and S.C. Riser, 2005: The general circulation of the western subtropical North Atlantic observed using profiling floats. *J. Geophys. Res.*, **110** (C10), C10012, doi:10.1029/2005JC002909.

Alexander, M.A., J. Yin, G. Branstator, A. Capotondi, C. Cassou, R. Cullather, Y.-O. Kwon, J. Norris, J. Scott, and I. Wainer, 2006: Extratropical atmosphere-ocean variability in the CCSM3. *J. Climate*, **19**, 2482–2495.

Peng, G., E.P. Chassignet, Y.-O. Kwon, and S.C. Riser, 2006: Investigation of variability of the North Atlantic Subtropical Mode Water using profiling float data and numerical model outputs. *Ocean Modelling*, **13**, 65-85.

Kwon, Y.-O., and C. Deser, 2007: North Pacific decadal variability in Community Climate System Model Version 2. *J. Climate*, **20**, 2416–2433.

Jochum, M., G. Danabasoglu, M. Holland, Y.-O. Kwon, and W.G. Large, 2008: Ocean viscosity and climate, *J. Geophys. Res.*, **113**, C06017, doi:10.1029/2007JC004515.

- Joyce, T.M., Y.-O. Kwon, and L. Yu, 2009: On the relationship between synoptic wintertime atmospheric variability and path shifts in the Gulf Stream and Kuroshio Extension. *J. Climate*, **22**, 3177-3192.
- Trossman, D.S.\*, L. Thompson, K.A. Kelly, and Y.-O. Kwon, 2009: Estimates of North Atlantic ventilation and mode water formation for winters 2002-2006. *J. Phys. Oceanogr.*, **39**, 2600-2617.
- Kwon, Y.-O., M.A. Alexander, N.A. Bond, C. Frankignoul, H. Nakamura, B. Qiu, L. Thompson, 2010: Role of Gulf Stream and Kuroshio-Oyashio Systems in Large-Scale Atmosphere-Ocean Interaction: A Review. *J. Climate*, **23**, 3249–3281.
- Kelly, K.A., R.J. Small, R.M. Samelson, B. Qiu, T.M. Joyce, Y.-O. Kwon, and M. Cronin, 2010: Western Boundary Currents and Frontal Air-Sea Interaction: Gulf Stream and Kuroshio Extension. *J. Climate*, **23**, 5644-5667.
- Thompson, L., and Y.-O. Kwon, 2010: An enhancement of a coupled mode of variability in CCSM3 in the North Pacific owing to ocean model biases. *J. Climate*, **23**, 6221-6233.
- Kwon, Y.-O., C. Deser, and C. Cassou, 2011: Coupled Atmosphere – Mixed Layer Ocean Response to Ocean Heat Flux Convergence along the Kuroshio Current Extension. *Climate Dyn.*, **36**, 2295-2312, doi:10.1007/s00382-010-0764-8.
- Frankignoul, C., N. Sennéchaël, Y.-O. Kwon, and M.A. Alexander, 2011: Atmosphere-ocean variability associated with Kuroshio and Oyashio Extension fluctuations. *J. Climate*, **24**, 762-777, doi: 10.1175/2010JCLI3731.1.
- Andres, M.\*, Y.-O. Kwon, and J. Yang., 2011: Observations of the Kuroshio's barotropic and baroclinic responses to basin-wide wind forcing, *J. Geophys. Res.*, **116**, C04011, doi:10.1029/2010JC006863.
- Nye, J.A.\*, T.M. Joyce, Y.-O. Kwon, and J.S. Link, 2011: Gulf Stream position determines spatial distribution of silver hake. *Nature Commun.*, **2**:412, doi:10.1038/ncomms1420.
- Park, J.-J.\*, Y.-O. Kwon, and J.F. Price, 2011: Argo Array Observation of Ocean Heat Content Changes induced by Tropical Cyclones in the North Pacific. *J. Geophys. Res.*, **116**, C12025, doi:10.1029/2011JC007165.
- Kwon, Y.-O., and C. Frankignoul, 2012: Stochastically-Driven multi-decadal variability of the Atlantic meridional overturning circulation in CCSM3. *Climate Dyn.*, **38**, 895-876, doi:10.1007/s00382-011-1040-2.
- Deser, C., A. S. Phillips, R. A. Tomas, Y. Okumura, M. A. Alexander, A. Capotondi, J. D. Scott, Y. -O. Kwon, and M. Ohba, 2012: ENSO and Pacific Decadal Variability in Community Climate System Model Version 4. *J. Climate*, **25**, 2609-2621, doi: 10.1175/JCLI-D-11-00301.1.
- Danabasoglu, G., S.G. Yeager, Y.-O. Kwon, J.J. Tribbia, A.S. Phillips, and J. Hurrell, 2012: Variability of the Atlantic Meridional Overturning Circulation in CCSM4. *J. Climate*, **25**, 5153-5172, doi:10.1175/JCLI-D-11-00595.1.
- Andres, M.\*, J. Yang, and Y.-O. Kwon: 2012: Adjustment of a wind-driven two-layer system with mid-basin topography. *J. Mar. Res.*, **70**, 851-882.
- Douglass, E.M.\*, Y.-O. Kwon, and S.R. Jayne, 2013: A Comparison of Subtropical Mode Waters in a Climatologically-Forced Model. *Deep-Sea Res II*, **91**, 139-151, doi:10.1016/j.dsr2.2013.02.023.
- Davis, X.J.\*, F. Straneo, Y.-O. Kwon, K.A. Kelly, and J.M. Toole, 2013: Evolution and Formation of North Atlantic Eighteen Degree Water in the Sargasso Sea from Moored Data. *Deep-Sea Res. II*, **91**, 11-24, doi:10.1016/j.dsr2.2013.02.024.

- Fratantoni, D.M., Y.-O. Kwon, B.A. Hodges, 2013: Direct Observation of Subtropical Mode Water Circulation in the Western North Atlantic Ocean. *Deep-Sea Res. II*, **91**, 35-56, doi: 10.1016/j.dsr2.2013.02.027.
- Kwon, Y.-O., and T.M. Joyce, 2013: Northern Hemisphere Winter Atmospheric Transient Eddy Heat Fluxes and the Gulf Stream and Kuroshio-Oyashio Extension Variability. *J. Climate*, **26**, 9839-9859, doi:10.1175/JCLI-D-12-00647.1.
- Frankignoul, C., G. Gastineau, and Y.-O. Kwon, 2013: The influence of the AMOC variability on the atmosphere in CCSM3. *J. Climate*, **26**, 9774-9790, doi: 10.1175/JCLI-D-12-00862.1.
- Seo, H., Y.-O. Kwon, and J.-J. Park, 2014: On the effect of marginal sea SST variability on the North Pacific atmospheric circulation. *J. Geophys. Res. Atmos.*, **119**, doi: 10.1002/2013JD020523.
- Grist, J., S.A. Josey, R. Marsh, Y.-O. Kwon, R.J. Bingham, A.T. Blaker, 2014: The Surface-Forced Overturning of the North Atlantic: Estimates from Modern Era Atmospheric Reanalysis Datasets. *J. Climate*, **27**, 3596-3618, doi: http://dx.doi.org/10.1175/JCLI-D-13-00070.1.
- Gary, S.F.\*, M.S. Lozier, Y.-O. Kwon, and J.J. Park, 2014: The fate of North Atlantic Subtropical Mode Water in the FLAME model. *J. Phys. Oceanogr.*, **44**, 1354-1371. doi: http://dx.doi.org/10.1175/JPO-D-13-0202.1.
- Pak, G.\*, Y.-H. Park, F. Vivier, Y.-O. Kwon, and K.-I. Chang, 2014: Non-stationary relationship between the East Asian winter monsoon and North Pacific Oscillation. *J. Climate*, **27**, 8185-8204. doi: http://dx.doi.org/10.1175/JCLI-D-13-00500.1.
- Kwon, Y.-O., and C. Frankignoul, 2014: Mechanisms of Multidecadal Atlantic Meridional Overturning Circulation Variability Diagnosed in Depth versus Density Space. *J. Climate*, **27**, 9359-9376. doi: http://dx.doi.org/10.1175/JCLI-D-14-00228.1.
- Smirnov, D.\*, M. Newman, M.A. Alexander, Y.-O. Kwon, and C. Frankignoul, 2015: Investigating the local atmospheric response to a realistic shift in the Oyashio sea surface temperature front. *J. Climate*, **28**, 1126-1147. doi: http://dx.doi.org/10.1175/JCLI-D-14-00285.1.
- Kwon, Y.-O., J.J. Park, S.F. Gary\*, and M.S. Lozier, 2015: Year-to-year re-outcropping of Eighteen Degree Water in an eddy-resolving ocean simulation. *J. Phys. Oceanogr.*, **45**, 1189-1204. doi: http://dx.doi.org/10.1175/JPO-D-14-0122.1
- Chen, K.\*, G. Gawarkiewicz, Y.-O. Kwon, and W. G. Zhang, 2015: Role of atmospheric forcing versus ocean advection during the anomalous warming on the Northeast U.S. shelf in 2012. *J. Geophys. Res.*, **120**, 4324-4339, doi:10.1002/2014JC010547.
- Frankignoul, C., G. Gastineau, and Y.-O. Kwon, 2015: Wintertime atmospheric response to North Atlantic ocean circulation variability in a climate model. *J. Climate*, **28**, 7659-7677, doi: http://dx.doi.org/10.1175/JCLI-D-15-0007.1
- Révelard, A.\*, C. Frankignoul, N. Sennéchal, Y.-O. Kwon, and B. Qiu: Influence of the decadal variability of the Kuroshio Extension on the atmospheric circulation in the cold season. *J. Climate*, **29**, 2123-2144, doi: http://dx.doi.org/10.1175/JCLI-D-15-0511.1.
- Richaud, B.\*, Y.-O. Kwon, T.M. Joyce, P.S. Fratantoni, and S.J. Lentz: Surface and bottom temperature and salinity climatology along the continental shelf off the Canadian and U.S. East Coasts. *Cont. Shelf Res.*, **124**, 165-181, doi:10.1016/j.csr.2016.06.005.
- Chen, K.\*, Y.-O. Kwon, and G. Gawarkiewicz: Interannual Variability of Winter-Spring Temperature in the Middle Atlantic Bight: Relative Contributions of Atmospheric and Oceanic Processes. *J. Geophys. Res.*, **121**, 4209-4227. doi: 10.1002/2016JC011646.

## PAPERS SUBMITTED

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- Davis, X. J.\*, T.M. Joyce, and Y.-O. Kwon: Prediction of silver hake distribution on the Northeast U.S. shelf based on the Gulf Stream path index. *Cont. Shelf Res.*, Submitted.
- Booth, J.F., Y.-O. Kwon, S. Ko, R.J. Small, and R. Msadek: Spatial Patterns and Intensity of the Winter Surface Storm Tracks in the CESM, GFDL and GISS CMIP5 Models, *J. Climate*, Submitted.
- Ummenhofer, C., H. Seo, Y.-O. Kwon, S. Brands, and T.M. Joyce: Links between North Atlantic atmospheric blocking and trends in European winter precipitation. *Geophys. Res. Lett.*, Submitted.
- Lee, H.J., M.O. Kwon\*, S.-W. Yeh, Y.-O. Kwon, W. Park, J.-H. Park, Y.H. Kim, and M.A. Alexander: Impact of Pacific Decadal Oscillation on Arctic Sea Ice Loss. *J. Climate*, Submitted.
- Seo, H., Y.-O. Kwon, T.M. Joyce, and C.C. Ummenhofer: Predominant nonlinear response of the extratropical atmosphere to meridional shift of the Gulf Stream. *J. Climate*, Submitted.
- Parfitt, R., A. Czaja, and Y.-O. Kwon: The impact of SST resolution change on frontal air-sea interaction in the ERA-Interim dataset. *Geophys. Res. Lett.*, Submitted.
- Frankignoul, C., G. Gastineau, and Y.-O. Kwon: Estimation of the SST response to anthropogenic and external forcing, and its impact on the Atlantic Multidecadal Oscillation and the Pacific Decadal Oscillation, *J. Climate*, Submitted.

## OTHER PUBLICATIONS

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- Kwon, Y.-O., 1996: Secular changes of potential temperature, salinity and dissolved oxygen in the East Sea. M.Sc. Thesis, Seoul National Univ., pp. 140. (Advisor: K. Kim)
- Kwon, Y.-O., 2003: Observation of general circulation and water mass variability in the North Atlantic subtropical mode water region. Ph.D. Thesis. Univ. Washington, pp.161. (Advisor: S. C. Riser)
- Kwon, Y.-O., 2007: Argo -Global Ocean Observing Array-. Korean Atmospheric Scientist in America Monthly Newsletter. 2007.
- Park, J.-J., H.-Y. You, Y.-O. Kwon, H.-T. Oh, 2009: Matlab Recipes for Earth Sciences (Korean translation). Ajin Publ. pp.286.
- Johns, W., P. Chang, G. Danabasoglu, P. Heimbach, Y. Kushnir, Y.-O. Kwon, D. Legler, S. Lozier, C. Stephens, J. Willis, and R. Zhang, 2011: Third Annual Progress Report for a JSOST Near-term Priority Assessing Meridional Overturning Circulation Variability: Implications for Rapid Climate Change. Report 2011-1, U.S. CLIVAR Office, Washington, DC 20006, 66 pp.
- Johns, W., P. Chang, G. Danabasoglu, P. Heimbach, Y. Kushnir, Y.-O. Kwon, S. Lozier, M. Patterson, J. Willis, and R. Zhang, 2012: Fourth Annual Progress Report for a JSOST Near-Term Priority Assessing Meridional Overturning Circulation Variability: Implications for Rapid Climate Change, Report 2012-1, U.S. CLIVAR Office, Washington, DC 20006, 100 pp.
- Johns, W., P. Chang, G. Danabasoglu, P. Heimbach, Y. Kushnir, Y.-O. Kwon, S. Lozier, M. Patterson, J. Willis, and R. Zhang, 2013: Fifth Annual Progress Report for a SOST Near-Term Priority Assessing Meridional Overturning Circulation Variability: Implications for Rapid Climate Change, Report 2013-2, U.S. CLIVAR Office, Washington, DC 20006, 102 pp.
- Carton, J., S. A. Cunningham, E. E. Frajka-Williams, Y.-O. Kwon, D. P. Marshall, R. Msadek, 2014: The Atlantic Overturning Circulation: More evidence of variability and links to

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## TEACHING AND ADVISING ACTIVITIES

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*Postdoctoral supervisor:* for Jong-Jin Park (July-October 2009), Magdalena Andres (co-supervised with Jiayan Yang, September 2009-July 2011), Xujing Davis (co-supervised with Fiamma Straneo, March 2010-Feb 2011 / co-supervised with Terry Joyce, March 2011-May 2011)

*Advisor/Sponsor:*

MIT-WHOI Joint Program: Laura Fleming (July 2015- present).

WHOI Summer/Winter Student Fellows: Marley Bice (June-August 2007), Sasha Glanville (June-August 2011), Genevieve Brett (Jan 2012; Also incoming Joint Program student summer project, June-August 2012), Teddy Amdur (January-May 2014).

WHOI Guest Students: Hanna Na (March-April 2008), Sang-Shin Byun (December 2008-January 2009), Charlene Feucher (April-August 2013), Benjamin Richaud (September 2014-May 2015).

NCAR SOARS Student: Carlos Martinez (May-July 2014), Alicia Camacho (May-July 2015).

*Teaching:*

'Introduction to the Observational Physical Oceanography' (Graduate level, MIT-WHOI Joint Program / Fall Semester 2010, co-taught with Fiamma Straneo / Fall Semester 2011, co-taught with Steve Jayne / Fall Semester 2012, co-taught with Anthony Kirincich);

'Climate Change Science: Facts, Questions, Controversies and Communication' (Graduate level, MIT-WHOI Joint Program / Spring Semester 2014, co-taught with Fiamma Straneo and Sarah Das);

'Classic Papers in Physical Oceanography' (Graduate level, MIT-WHOI Joint Program / Spring Semester 2015)

*Additional lectures:* Extra-tropical climate variability –seeking for the role of ocean – (WHOI Summer Student Fellow Lecture, August 2009); Decadal climate variability (Guest lecture for MIT-WHOI JP 12.860 Climate Variability and Diagnostics, April 2014); Several lectures as part of the teaching assistant duties (see below).

*Teaching assistant:* Physical Processes in the Ocean (Undergraduate Senior level, LuAnne Thompson, University of Washington, Fall Quarter, 2002). Duties: Developing Matlab-based in-class computer demonstrations; Physics of Ocean Circulation (Graduate level, Stephen C. Riser, University of Washington, Fall Quarter, 2001). Duties: Lectures on basic math and physics for out-of-option students, climate variability (e.g. NAO and PDO), thermocline theory, continuity, and beta-plane approximation. Office hours for problem solving; Introduction to GFD (Undergraduate Junior level, Kuh Kim, Seoul National University, Spring Semester, 1997). Duties: Running problem solving sessions. Grading homework and exams.

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## OTHER PROFESSIONAL ACTIVITIES

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*Society Memberships:* American Geophysical Union (2000-present); American Meteorological

Society (2008-present); Korean Oceanography Society (1998-present).

*Journal Reviewer:* Journal of Physical Oceanography, Journal of Climate, Journal of Geophysical Research – Ocean, Journal of Geophysical Research – Atmosphere, Deep-Sea Research, Geophysical Research Letters, Journal of Marine Research, Journal of Oceanography, Asia-Pacific Journal of Atmospheric Sciences, Theoretical and Applied Climatology, Climate Dynamics, AGU-monologue, Nature Climate Change, Nature Communication, Ocean Science, Proceedings of National Academy of Science, Progress in Oceanography, Geophysical Model Development.

*Proposal Reviewer:* NSF-OCN-PO, NSF-ATM-CLD, NSF-CRI\_EaSM, WHOI OCCI Panel, Netherlands Organization for Scientific Research, UK NERC, WHOI Ocean Institutes Catalyst Proposal Panel

*Associate Editor:* Journal of Climate (Aug 2016- ).

*Guest Editor:* Deep-Sea Research II Special Issue on the North Atlantic Subtropical Mode Water (Sep 2010-Oct 2013, with D. Fratantoni and L. Thomas).

*WHOI Committees:* Physical Oceanography Department Postdoc Coordinator / Postdoctoral Scholarship Selection Committee (2010-2013); Summer Student / Minority Student Fellow Admission Committee (2009-2010); Physical Oceanography Department Postdoc Mentoring Committee (2009); Climate Research Initiative Committee (2009-2011); Physical Oceanography Department Scientific Staff Recruitment Committee (2010, 2014-present); Physical Oceanography Department Administrative Associate Hiring Interview Panel (2010); *Ad hoc* CMIP-5 storage server committee (2012-present); UCAR member representative for WHOI

*Community Activities:* Member: International CLIVAR Atlantic Implementation Panel (2013-present); AMS Air-Sea Interaction Committee (2013-present); U.S.-CLIVAR Atlantic Meridional Overturning Circulation Science Team Executive Committee (2010-2013); U.S.-CLIVAR Western Boundary Current Ocean-Atmosphere Interaction Working Group (2007-2009); Community Climate System Model (CCSM) Climate Variability Working Group (2004-present); Community Climate System Model (CCSM) Ocean Model Working Group (2004-present); Meeting Organizing Committee Member: U.S. CLIVAR Western Boundary Current Workshop (Phoenix, AZ, January 2009); CLIMODE Annual PI Workshop (WHOI, August 2010, July 2011, July 2012); 2012 U.S. AMOC Annual PI Meeting (Boulder, CO, August 2012); U.S. AMOC-U.K. RAPID International Science Meeting (Baltimore, MD, July 2013); Frontal Scale Air-Sea Interaction Workshop (Boulder, CO, August 2013); AMS 19<sup>th</sup> conference on Air-Sea Interaction (Phoenix, AZ, January 3-6, 2014)

*Outreach:* Classroom visit: North Falmouth Elementary School Kindergarten (April 2007), North Falmouth Elementary School 1<sup>st</sup> Grade (June 2008); Hosting Class to WHOI and USGS: North Falmouth Elementary School 3<sup>rd</sup> Grade (February, March 2010); Falmouth Public School Science Fair: Judge (Feb 2015, Feb 2016).

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## FIELD EXPERIENCE



1996.4 SNU-KORDI (Chief Scientist: Sang-Kyung Byun, KORDI) in the Ulleung Basin, East Sea (R/V Eardo). Duties: Current Meter Mooring (RCM-8), CTD survey (SBE19)

1996.5 PRIMER II (Chief Scientist: Ken Brink, WHOI) at the Georges Bank, North Atlantic (R/V Endeavor). Duties: Observing the SeaSoar test

1996.6 SNU RIO-KNRL (Chief Scientist: Keun-Sik Lim, Korean Naval Academy) in the Ulleung Basin, East Sea. Duties: CTD survey (SBE19), ADCP survey (RDI BB-ADCP)

1996.8 CREAMS (Chief Scientist: Kuh Kim, SNU) in the East Sea (R/V Professor Khromov). Duties: CTD survey (SBE9/11), ADCP survey (RD BB-ADCP), PALACE floats deployment

1996.10 SNU-KORDI-WHOI (Chief Scientist: Sang-Kyung Byun, KORDI) in the Ulleung Basin, East Sea (R/V Eardo). Duties: Current Meter (VACM) mooring, CTD survey (SBE19)

1997.3 CREAMS (Chief Scientist: Kyung-Ryul Kim, SNU) in the East Sea (R/V Gordienko). Duties: CTD survey (SBE9/11), Surface Drifters deployment.

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#### SEMINAR PRESENTATIONS / LECTURES

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*Observations of the Eighteen Degree Water*, University of Washington, Sep 2003

*Observations of the Eighteen Degree Water using Profiling Floats*, Seoul National Univ., Oct 2003

*Observations of the Eighteen Degree Water using Profiling Floats*, KORDI, Oct 2003

*Observations of the North Atlantic Subtropical Mode Water*, NCAR, April 2004

*North Pacific Decadal Variability in CCSM2 Control Integration*, Seoul National Univ., Dec 2004

*Observations of the Eighteen Degree Water*, WHOI-PO, Feb 2005

*North Pacific Decadal Variability in CCSM2 Control Integration*, NCAR, Nov 2005

*North Pacific Decadal Variability in CCSM2 Control Integration*, WHOI-PO, Feb 2006

*North Pacific Decadal Variability in CCSM2 Control Integration*, MIT, Feb 2007

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*Multi-decadal Variability of Atlantic Meridional Overturning Circulation in the Community Climate System Model Version 3: Depth vs. Density spaces*, MPI-M, September 2012

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- Kwon, Y.-O., J.F. Booth, R.J. Small, and R. Msadek: The Surface Storm Tracks in the Three CMIP5 Global Climate Models, AGU Fall Meeting, San Francisco, CA, Dec 14-18, 2014.
- Camacho, A., Y.-O. Kwon, and H. Seo: North Atlantic Oscillation, Jet and Blocking in CESM1 Large Ensemble Simulations, AMS 96th Annual Meeting, 28th Conference on Climate Variability and Change, New Orleans, LA., Jan 10-14, 2016.
- Kwon, Y.-O., B. Taguchi, C. Frankignoul, and A. Revelard: Low-frequency Variability of Kuroshio and Oyashio Extensions and Associated Ocean-Atmosphere Coupling. 2016 Ocean Sciences Meeting, New Orleans, LA., Feb 21-26, 2016
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