

Revised: April, 2017

James A. Carton

Department of atmospheric and Oceanic Science
University of Maryland
College Park, MD 20742
(301)405-5365 carton@atmos.umd.edu

PERSONAL INFORMATION

Birth date: July 10, 1954
Place of birth: Highland Park, IL
Citizenship: USA

EDUCATION

(1979-1983) MA, PhD, Atmospheric and Oceanic Sciences Program, Princeton University.
Advisor: Professor George Philander
(1977-1979) MS, Oceanography, University of Washington, Seattle, WA.
Advisor: Dr. David Halpern
(1976-1977) Atmospheric and Oceanic Sciences Program student, Princeton University
(1972-1976) BSE, Electrical Engineering, Princeton University, Princeton, NJ

PROFESSIONAL

(2015-pres) Visiting Scientist, NASA Goddard Space Flight Center
(2007-pres) Chair, Department of Atmospheric and Oceanic Science
(2007-2009) Visiting Scientist, Geophysical Fluid Dynamics Laboratory
(2001-2007) Associate Chair, Department of Atmospheric and Oceanic Science
(1995-2000) Visiting Summer Faculty, University of Rhode Island
(1994-1997) Visiting Scientist, National Ocean Survey/NOAA
(1992) Visiting Faculty, University of Wisconsin
(1990-pres) Adjunct Professor, Horn Point Environmental Laboratory
(1991) Visiting CIMAS Fellow, University of Miami
(1991) Trieste Institute for Theoretical Physics, summer school Fellow
(1997-pres) Professor, University of Maryland, Department of Atmospheric and Oceanic Science
(1990-1997) Associate Professor, University of Maryland, Department of Meteorology
(1985-1990) Assistant Professor, University of Maryland, Department of Meteorology
Center for Ocean-Land-Atmosphere Interactions

(1983-1985) Research Fellow, Harvard University, Center for Earth and Planetary Physics

(1976-1983) Research Assistant, Princeton University and University of Washington

2.b. PUBLICATIONS

2.a.ii BOOKS EDITED

Wang, C., S.-P. Xie, and J. A. Carton, eds 2004: "Ocean-Atmosphere Interaction and Climate Variability", American Geophysical Union Press.

2.a.iii CHAPTERS IN BOOKS

Carton, J.A., 1993: "Circulation of the Tropical Atlantic", in *The Oceans: Physiochemical Dynamics and Resources*, edited by S.K. Majumdar, et al., Pennsylvania Academy of Sciences Press.

Foltz*, G., and J.A. Carton, 2002: Latent Heat, Fusion, and Evaporation, in the Encyclopedia of Oceanography and Marine Sciences, Moschovitis Group, in press.

Foltz*, G., and J.A. Carton, 2002: Sun, Radiant Energy of, in the Encyclopedia of Oceanography and Marine Scienc Moschovitis Group, in press.

Xie, S.-P., and J.A. Carton, 2004: Tropical Atlantic variability: patterns, mechanisms, and impacts, in "Ocean-Atmosphere Interaction and Climate Variability", edited by C. Wang, S.-P. Xie, and J. A. Carton, AGU Press.

2.b.b REFEREED PUBLICATIONS

1983

Carton, JA, 1983: The variation with frequency of the long-period tides. *J. Geophys. Res.*, **88**, 7563-7571.

1984

Carton, JA and SGH Philander, 1984: Coastal upwelling viewed as a stochastic phenomenon. *J. Phys. Oceanogr.*, **14**, 1499-1509.

Robinson, AR, JA Carton, CNK Mooers, LJ Walstad, EF Carter, MM Rienecker, JA Smith, and WG Leslie, 1984: A real-time dynamical forecast of the ocean synoptic mesoscale eddies. *Nature*, **309**, 781-783.

Carton, JA, 1984: Coastal circulation caused by an isolated storm. *J. Phys. Oceanogr.*, **14**, 114-124.

1986

Robinson, AR, JA Carton, N. Pinardi, and CNK Mooers, 1986: Dynamic forecasting and dynamic interpolation – an experiment in the California Current. *J. Phys. Oceanogr.*, **16**, 1561-1579.

Carton, JA and JM Wahr, 1986: Modeling the Pole tide and its effect on the earth's rotation, *Geophys. J. Roy. Astron. Soc.*, **84**, 121-137.

1987

Carton, JA, 1987: How predictable are the geostrophic currents in the recirculation zone of the North Atlantic, *J. Phys. Oceanogr.*, **17**, 751-762.

1989

Carton, JA, and EC Hackert, 1989: Application of multi-variate statistical objective analysis to the circulation in the tropical Atlantic Ocean. *Dynam. Atmos. Oceans*, **13**, 491-515.

Carton, JA, 1989: Estimates of sea level in the tropical Atlantic Ocean using GEOSAT altimetry, *J. Geophys. Res.*, **94**, 8029-8039.

1990

Carton, JA, and EC Hackert, 1990: Data assimilation applied to the temperature and circulation in the tropical Atlantic, 1983-84. *J. Phys. Oceanogr.*, **20**, 1150-1165.

Yoo*, J.-M., and JA Carton, 1990: Annual and interannual variation of the freshwater budget in the tropical Atlantic Ocean and the Caribbean Sea, *J. Phys. Oceanogr.*, **20**, 831-845.

Carton, JA, and EJ Katz, 1990: Estimates of the zonal slope and seasonal transport of the Atlantic North Equatorial CounterCurrent. *J. Geophys. Res.*, **95**, 3091-3100.

1991

Carton, J.A., 1991: Effect of seasonal surface freshwater flux on sea surface temperature in the tropical Atlantic Ocean, *J. Geophys. Res.*, **96**, 12,593-12,598.

Carton, J.A., and J. Shukla, 1991: Predictability of the tropical Atlantic Ocean, *J. Marine Sci.*, **1**, 299-313.

Steger*, J.M., and J.A. Carton, 1991: Long waves and eddies in the tropical Atlantic: 1984-1990, *J. Geophys. Res.*, **96**, 15,161-15,172.

1992

Carton, J.A., G.A. Chepurin, G.K. Korotaev, and T.Zhu*, 1992: Comparison of dynamic pressure variations in the tropical Atlantic during 1987-1989 as viewed in SECTIONS hydrography and GEOSAT altimetry, *J. Geophys. Res.*, **98**, 14369-1437.

1993

Carton J.A., G.A. Chepurin**, G.K. Korotaev, 1993: Seasonal variability of sea level in the Tropical Atlantic by altimeter data, *Issledovaniy Zemly iz Cosmosa*, **5**, 3-17.

1994

Carton, J.A., and B. Huang*, 1994: Warm events in the tropical Atlantic, *J. Phys. Oceanogr.*, **24**, 888-903.

Giese, B.S.**, and J.A. Carton, 1994: The seasonal cycle in a coupled ocean-atmosphere model, *J. Climate*, **7**, 1208-1217.

Giese, B.S.**, J.A. Carton, and L. Holl*, 1994: Variability in the eastern Pacific as viewed from TAO hydrography and TOPEX altimetry, *J. Geophys. Res. Special Volume on TOPEX Altimetry*, **99**, 24,739-24,748.

1995

Huang*, B., J.A. Carton, and J. Shukla, 1995: A numerical simulation of the variability in the tropical Atlantic Ocean, 1980-88, *J. Phys. Oceanogr.*, **25**, 835-854.

Katz, E.J., J.A. Carton, and A. Chakraborty, 1995: Dynamics of the equatorial Atlantic from altimetry, *J. Geophys. Res.*, **100**, 25061-25067.

1996

Carton, J.A., B.S. Giese, X. Cao, and L. Miller, 1996: Impact of TOPEX and thermistor data on retrospective analyses of the tropical Pacific Ocean, *J. Geophys. Res.*, **101**, 14,147-14,159.

Carton, J.A., X. Cao, B.S. Giese, and A.M. da Silva, 1996: Decadal and interannual SST variability in the tropical Atlantic Ocean, *J. Phys. Oceanogr.*, **26**, 1165-1175.

1997

Babin*, S.M., G.S. Young, and J.A. Carton, 1997: A new model of the oceanic evaporation duct, *J. Appl. Meteor.*, **36**, 193-204.

Chepurin, G., and J.A. Carton, 1997: Hydrographic data of the Soviet SECTIONS tropical Atlantic Program and the circulation of the upper 1200 meters, *J. Mar. Res.*, **55**, 633-670.

Carton, J.A., and Z. Zhou, 1997: Annual cycle of sea surface temperature in the tropical Atlantic Ocean, *J. Geophys. Res.*, **102**, 27,813-27,824.

Schneider, E.K., Z. Zhu, B.S. Giese, B. Huang, B. P. Kirtman, J. Shukla, and J.A. Carton, 1997: Annual cycle and ENSO in a coupled ocean-atmosphere general circulation model, *Mon. Wea. Rev.*, **125**, 680-702.

Carton, J.A., 1997: Climatology: See-saw sea, *Nature*, **385**, 487-488.

1998

Zhou Z.X.*, Carton J.A., 1998: Latent heat flux and interannual variability of the coupled atmosphere-ocean system, *J. Atmos. Sci.*, **55**, 494-501.

Dickey, J.O., C.R. Bentley, et al., 1998: Satellite gravity and the geosphere: contributions to hydrology, *GWEX News*, **8**(2), 4-6.

Dickey, J.O., C.R. Bentley, et al., 1998: Satellite gravity, EOS, pp.

1999

Dickey JO, Bentley CR, Bilham R, et al., 1999: Gravity and the hydrosphere: new frontier, *Hydrologic Sci. J.*, **44**, 407-415.

Chao, Y., and J.A. Carton, 1998: Caribbean Eddies, World Ocean Circulation Experiment newsletter.

Chepurin**, G., and J.A. Carton, 1999: Comparison of retrospective analyses of the global ocean heat content, *Dynam. Atmos. Oceans*, **29**, 119-145.

Carton, J.A., and Y. Chao, 1999: Caribbean Sea eddies inferred from TOPEX/POSEIDON altimetry and a 1/6 degree Atlantic Ocean model simulation, *J. Geophys. Res.*, **104**, 7743-7752.

Giese, B.S., and J.A. Carton, 1999: Interannual and decadal variability in the tropical and midlatitude Pacific Ocean, *J. Clim.*, **12**, 3402-3418.

2000

Carton, J.A., G. Chepurin**, X. Cao, and B.S. Giese, 2000a: A Simple Ocean Data Assimilation analysis of the global upper ocean 1950-1995, Part 1: methodology, *J. Phys. Oceanogr.*, **30**, 294-309.

Carton, J.A., G. Chepurin**, and X. Cao, 2000b: A Simple Ocean Data Assimilation analysis of the global upper ocean 1950-1995 Part 2: results, *J. Phys. Oceanogr.*, **30**, 311-326.

Ruiz-Barradas*, A., J.A. Carton, and S. Nigam, 2000: structure of interannual-to-decadal climate variability in the tropical Atlantic sector, *J. Clim.*, **13**, 3285-3297.

2001

- Patil*, D.J., B.R. Hunt, and J.A. Carton, 2001: Identifying low dimensional nonlinear behavior in atmospheric data, *Mon. Wea. Rev.*, **129**, 2116-2125.
- Grodsky**, S.A., and J.A. Carton, 2001: Intense surface currents in the tropical Pacific during 1996-1998, *J. Geophys. Res.*, **106**, 16673-16684.
- Grodsky**, S.A., and J.A. Carton, 2001: Coupled land/atmosphere interactions in the West African monsoon, *Geophys. Res. Letts.*, **28**, 1503-1506.
- Grodsky**, S. A., J.A., Carton, and R. Murtugudde, 2001: Anomalous surface currents in the tropical Indian Ocean, *Geophys. Res. Letts.*, **28**, 4207-4210.
- Foltz*, G., J.A. Carton, and E. Chassignet, 2001: tropical instability vortices in the Atlantic Ocean, *J. Geophys. Res.*, submitted.

2002

- Wang*, J. and J.A. Carton, 2002: Seasonal heat budgets of the North Pacific and North Atlantic Oceans: are they really different?, *J. Phys. Oceanogr., J. Phys. Oceanogr.*, **32**, 3474-3489.
- Grodsky**, S.A., and J.A. Carton, 2002: The Southern Intertropical Convergence Zone in the Atlantic, *J. Clim., Geophys. Res. Letts.*, **29**, 2147, doi:10.1029/2002GL015788.
- Chepurin, G., and J.A. Carton, 2002: Secular trend in the Near-Surface Currents of the Equatorial Pacific Ocean, *Geophys. Res. Letts.*, **29**, art. #1828.
- Chung*, C., S. Nigam, and J.A. Carton, 2002: SST-forced surface wind variability in the tropical Atlantic: an empirical tool, *J. Geophys. Res.*, in press.

2003:

- Wang*, J., and J.A. Carton, 2003: Modelling climate variability in the tropical Atlantic atmosphere, *J. Clim., J. Clim.*, **16**, 3858-3876.
- Foltz*, G., S.A. Grodsky, J.A. Carton, and M. McPhaden, 2003: Seasonal mixed layer heat budget of the tropical Atlantic, *J. Geophys. Res.*, **108**, art.#3146.
- Ruiz-Barradas*, A., J.A. Carton, and S. Nigam, 2003: Role of the atmosphere in climate variability of the tropical Atlantic, *J. Clim.*, **16**, 2052-2065.
- Grodsky S.A., and J.A. Carton, 2003, Intertropical Convergence Zone in the South Atlantic and the equatorial cold tongue, *J. Clim.*, **16**, 723-733.
- Foltz*, G., J.A. Carton, and E. Chassignet, 2003: tropical instability vortices in the Atlantic Ocean, *J. Geophys. Res.*, **109**, Art. No. C03029.

2004:

- Foltz*, G., S.A. Grodsky, J.A. Carton, and M. McPhaden, 2004: Seasonal salt budget of the northwestern tropical Atlantic Ocean along 38W, *J. Geophys. Res.*, **109** (C3): Art. No. C03052
- Babin, S., J.A. Carton, T.D. Dickey, and J.D. Wiggert, 2004: Satellite evidence of hurricane-induced plankton blooms in the ocean desert, *J. Geophys. Res.*, **109**, Art. No. C03043.
- Xie, S.-P., and J.A. Carton, 2004: Tropical Atlantic variability: patterns, mechanisms, and impacts, in “Ocean-Atmosphere Interaction and Climate Variability”, edited by C. Wang, S.-P. Xie, and J. A. Carton, AGU Press.
- Wang, C., S.-P. Xie, and J. A. Carton, ed.s 2004: “Ocean-Atmosphere Interaction and Climate Variability”, American Geophysical Union Press, 414 pp., ISBN 0-87590-412-2.

Chepurin, G., J.A. Carton, and D.P. Dee, 2004: Forecast model bias correction in ocean data assimilation, *Mon. Wea. Rev.*, **133**, 1328-.

2005:

Carton, JA, BS Giese, and S.A. Grodsky, 2005: Sea level rise and the warming of the oceans in the SODA ocean reanalysis, *J. Geophys. Res.*, **110**, doi:10.1029/2004JC002817.

Grodsky, SA, J. Carton, C. Provost, J. Servain, JA Lorenzetti, and M.J. McPhaden, 2005: Tropical Instability Waves at 0°N, 23°W in the Atlantic: A case study using PIRATA mooring data, **110**, C08010, doi:10.1029/2005JC002941.

Carton, J.A., 2005: review of Interhemispheric Water Exchange in the Atlantic Ocean, G. J. Goni and P. Malanotte-Rizzoli, Eds., *Bull. Atmos. Sci.*, October.

2006:

Carton, J.A., and B.S. Giese, 2006: SODA: A Reanalysis of Ocean Climate, *Mon. Wea. Rev.*, accepted.

Chang*, C-Y, J.A. Carton, S.A. Grodsky, and S. Nigam, 2006: Seasonal climate of the tropical Atlantic sector in the NCAR Community Climate System Model 3: Error structure and probable causes of errors, *J. Clim.*, accepted.

Collins, W.D., M. Blackmon, et al., 2006: The Community Climate System Model: CCSM3, *J. Clim.*, **19**, 2122-2143.

Katsaros, K.B., R.T. Pinker, A. Bentamy, J. Carton, W. Drennan, and A. Mestas-Nunez, 2006: Net air sea flux estimates for the tropical and subtropical Atlantic Ocean based on satellite data, *3rd MG RAO Workshop*.

Grodsky, S.A., and J.A. Carton, 2006: Influence of the tropics on the climate of the South Atlantic, *Geophys. Res. Letts.*, Art. No. L06719.

Grodsky S.A., J.A. Carton, and F.M. Bingham FM, 2006: Low frequency variation of sea surface salinity in the tropical Atlantic, *Geophys. Res. Letts.*, Art. No. L14604.

Chang, P., et al., 2006: Climate Fluctuations of Tropical Coupled System - The Role of Ocean Dynamics, *J. Clim.*, **19**, 5122–5174.

2007:

Chang, C-Y, J.A. Carton, S.A. Grodsky, and S. Nigam, 2007: Seasonal climate of the tropical Atlantic sector in the NCAR Community Climate System Model 3: Error structure and probable causes of errors, *J. Clim.*, **20**, 1053-1070.

USCLIVAR, 2007: Report of the U.S. CLIVAR Salinity Science Working Group to the U.S. CLIVAR Phenomena, Observation and Synthesis Panel, J.A. Carton and R. Schmitt (co-chairs), T. Boyer, Y. Chao, A. Gordon, G. Johnson, G. Lagerloef, W. Large, and S. Riser, 47pp.

CLIVAR Salinity Working Group (T. Boyer, J. Carton, Y. Chao, A. Gordon, G. Johnson, G. Lagerloef, B. Large, Steve Riser, and R. Schmitt), 2007: What's Next for Salinity?, *Oceanography Magazine*, **21**, 82-85.

2008

Carton, J.A., S.A. Grodsky, and H. Liu*, 2008: Variability of the oceanic mixed layer 1960-2004, *J. Clim.*, **21**, 1029-1047.

Chang*, C.-Y., S. Nigam, and J.A. Carton, 2008: Origin of the Spring-time Westerly Bias in Equatorial Atlantic Surface Winds in CAM3/CCSM3 Model Simulations, *J. Clim.*, **21**, 4766-4778.

- Carton, J.A., and B.S. Giese, 2008: A reanalysis of ocean climate using Simple Ocean Data Assimilation (SODA), *Mon. Wea. Rev.*, **136**,2999-3017.
- Carton, J.A., and A. Santorelli*, 2008: Global decadal upper ocean heat content as viewed in nine analyses, *J. Clim.*, **21**, 6015–6035. DOI: 10.1175/2008JCLI2489.1 (large file)
- Grodsky, S.A., J.A. Carton, and H. Liu*, 2008a: Comparison of bulk sea surface and Mixed Layer Temperatures, *J. Geophys. Res.*, **113**, C10026, doi:10.1029/2008JC00487
- Grodsky S.A., J.A. Carton, and C.R. McClain, 2008b: Variability of upwelling and chlorophyll in the equatorial Atlantic, *Geophys. Res. Letts.*, **35**, L03610.
- Boyer T., J.A. Carton, Y. Chao, et al., 2008: What's Next for Salinity?, *Oceanography*, **21**, 82-85.
- 2009**
- Hoffman*, M. J., E. Kalnay, J.A. Carton, and S. C. Yang, 2009: Use of breeding to detect and explain instabilities in the global ocean, *Geophys. Res. Letts.*, **36**, L12608, doi:10.1029/2009GL037729.
- Liu*, H., S. A. Grodsky, and J.A. Carton, 2009: Observed subseasonal variability of oceanic barrier and compensated layers, *J. Clim.*, **22**, 6104-6119.
- Stammer, D., et al, 2009: Ocean Variability evaluated from an Ensemble of Ocean Syntheses, Ocean Obs 2009 White Paper CWP-2A-17
- Grodsky, S.A., A. Bentamy, J.A. Carton, and R.T. Pinker, 2009: Intraseasonal latent heat flux based on satellite observations, *J. Clim.*, **22**, 4539-4556, DOI: 10.1175/2009JCLI2901.1
- Lagerloef, G., et al., 2009: Resolving the global surface salinity field and variations by blending satellite and in situ observations, Ocean Obs 2009 White Paper, CWP-4B-08.
- Heimbach, P., et al., 2009: Observational requirements for global-scale ocean climate analysis: lessons learnt from ocean state estimation, Ocean Obs 2009 White Paper, CWP-4C-07.
- Lee, T., et al., 2009: Ocean State Estimation for Climate Research, Ocean Obs 2009 White Paper CWP-4C-09
- Carton, J.A., B.S. Giese, G.A. Chepurin, and H. Seidel, 2009: Bias in the bathythermograph records and its impact on ocean climate analysis Ocean Obs 2009 AC-2B-05.
- 2010**
- Giese B.S., G.P. Compo, N.C. Slowey, P.D. Sardeshmukh, J.A. Carton, S. Ray, and J.S. Whitaker, 2010: The 1918/19 El Nino, *Bull. Atmos. Sci.*, **91**, 177-183 DOI: 10.1175/2009BAMS2903.1
- Carton, J.A., 2010: Internal review of AOSC/self-study, 50pp & 50pp appendices.
- 2011**
- Chen*, H., D.L. Zhang, J.A. Carton, and R. Atlas, 2011: The Rapid Intensification of Hurricane Wilma (2005). Part I: Model Prediction and Structural Changes, *Wea. Forecasting*, **26**, 885-901, DOI: 10.1175/WAF-D-11-00001.1

- Carton, J.A., G.A. Chepurin, J. Reagan*, and S. Hakkinen, 2011: Interannual to decadal variability of Atlantic Water in the Nordic and adjacent seas, *J. Geophys. Res.*, 116, C11035 DOI: 10.1029/2011JC007102.
- Santorelli*, A., R.T. Pinker, A. Bentamy, K. B. Katsaros, W. M. Drennan, A. M. Mestas-Núñez, and J. A. Carton, 2011: Differences between two estimates of air-sea turbulent heat fluxes over the Atlantic Ocean, *J. Geophys. Res.*, 116, C09028 DOI: 10.1029/2010JC006927.
- Carton, J.A., and S. Hakkinen, 2011: Introduction to: Atlantic Meridional Overturning Circulation (AMOC), *Deep-Sea Res. part II*, 58, 1741-1743. DOI: 10.1016/j.dsr2.2010.10.055.
- Grodsky S.A., R. Lumpkin, and J.A. Carton, 2011: Spurious trends in global surface drifter currents, *J. Geophys. Res.*, 38, L10606. DOI: 10.1029/2011GL047393.
- Solomon A., L. Goddard, A. Kumar, L. Goddard, A. Kumar et al., 2011: Distinguishing the roles of natural and anthropogenically forced decadal climate variability: Implications for Prediction, *Bull. Amer. Meteor. Soc.*, 92, 141-156. DOI: 10.1175/2010BAMS2962.1
- Ricko*, M., J.A. Carton, and C. Birkett, 2011: Climatic Effects on Lake Basins. Part I: Modeling Tropical Lake Levels, *J. Clim.*, 24, 2983-2999, DOI: 10.1175/2010JCLI3602.1.
- Giese B.S., G.A. Chepurin, J.A. Carton, and H.F. Seidel, 2011: Impact of Bathythermograph Temperature Bias Models on an Ocean Reanalysis, *J. Clim.*, 24, 84-93, DOI: 10.1175/2010JCLI3534.1.
- Rienecker, M.M., T. Awaji, M. Balmaseda, B. Barnier, D. Behringer, M. Bell, M. Bourassa, P. Brasseur, L.-A. Brevik, and J.A. Carton, 2011: Synthesis and Assimilation Systems - Essential Adjuncts to the Global Ocean Observing System, Conference Proceedings, 19pp.
- 2012**
- Carton, J.A., H.F. Seidel, and B.S. Giese, 2012: Detecting historical ocean climate variability, *J. Geophys. Res.*, 117, C02023 DOI: 10.1029/2011JC007401.
- Chepurin, G.A., and J.A. Carton, 2012: Sub-arctic and Arctic sea surface temperature and its relation to ocean heat content 1982-2010, *J. Geophys. Res.*, 117, C06019 DOI: 10.1029/2011JC007770.
- Grodsky, S.A., J.A. Carton, S. Nigam, and Y. Okumura, 2012: Tropical Atlantic biases in CCSM4, *J. Clim. Special CCSM4 issue*, 25, 3684-3701. DOI: 10.1175/JCLI-D-11-00315.1
- Bentamy, A., S.A. Grodsky, J.A. Carton, Matching ASCAT and QuikSCAT winds, *J. Geophys. Res.*, 117, C02011. DOI: 10.1029/2011JC007479
- Grodsky, S.A., N. Reul, G. Lagerloef, et al., 2012: Haline hurricane wake in the Amazon/Orinoco plume: AQUARIUS/SACD and SMOS observations, *J. Geophys. Res. Letts.*, 39, L20603 DOI: 10.1029/2012GL053335.
- Grodsky, S.A., V.N. Kudryavtsev, A. Bentamy, 2012: Does direct impact of SST on short wind waves matter for scatterometry? *Geophys. Res. Letts.*, 39, L12602 DOI: 10.1029/2012GL052091

Ricko, M., C.M. Birkett, J.A. Carton, and J.-F. Cretaux, 2012: Intercomparison and Validation of Continental Water Level Products Derived from Satellite Radar Altimetry, *J. Appl. Rem. Sensing*, 6, Article Number: 061706.

2013

Lumpkin, R., S.A. Grodsky, L. Centurioni, and J.A. Carton, 2013: Removing Spurious Low-Frequency Variability in Drifter Velocities, *J. Atmos. Ocean. Technol.*, 30, 353-360 DOI: 10.1175/JTECH-D-12-00139.1

Goddard, L., A. Kumar, A. Solomon, et al., 2013: A verification framework for interannual-to-decadal prediction experiments, *Climate Dynamics*, 40, 245-272.

Bentamy, S.A. Grodsky, B. Chapron, and J.A. Carton, 2013: Compatibility of C- and Ku-band scatterometer winds: ERS-2 and QuikSCAT, *J. Mar. Sys.*, 117, 72-80.

Penny, S. G., E. Kalnay, E., J.A. Carton, et al., 2013: The local ensemble transform Kalman filter and the running-in-place algorithm applied to a global ocean general circulation model, *Nonlin. Proc. in Geophys.*, 20, 1031-1046.

2014

Carton, J.A., S.A. Cunningham, E.E. Frajka-Williams, Y.-O. Kwon, D.P. Marshall, and R. Msadek, 2014: The Atlantic Overturning Circulation: More evidence of variability and links to climate, *Bull. Atmos. Sci.*, journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-13-00234.1

Grodsky, S.A., J.A. Carton, and F.O. Bryan, 2014: A curious local surface salinity maximum in the northwestern tropical Atlantic, *J. Geophys. Res.*, **119**, 1-12.

Chepurin, G.A., J.A. Carton, and E. Leuliette, 2014: Sea level in ocean reanalyses and tide gauges, *J. Geophys. Res.*, **119**, 147–155, DOI: 10.1002/2013JC009365.

Grodsky, S.A., G. Reverdin, J.A. Carton, and V.J. Coles, 2014: Year-to-year salinity changes in the Amazon Plume: contrasting 2011 and 2012 Aquarius/SACD and SMOS satellite data, *Remote Sensing of Environment*, **140**, 14-22. DOI: 10.1016/j.rse.2013.08.033

Ding, Y.*, J.A. Carton, G.A. Chepurin, G. Stenchikov, A. Robock, L.T. Sentiman, and J.P. Krasting, 2014: Ocean response to volcanic eruptions in Coupled Model Intercomparison Project 5 (CMIP5) Simulations, *J. Geophys. Res.*, **119**, 5622–5637, DOI: 10.1002/2013JC009780.

Grodsky, S.A., J.A. Carton, and A. Bentamy, 2014: Salty anomalies forced by Tehuantepec and Papagayo gap winds: Aquarius observations, *Remote Sens. Letts.*, 5, 568-574.

2015

Penny, S.G., D.W. Behringer, J.A. Carton, et al., 2015: A Hybrid Global Ocean Data Assimilation System at NCEP, *Mon. Wea. Rev.*, **143**, 4660-4677.

Carton, J.A., Y. Ding, and K. Arrigo, 2015: The seasonal cycle of the Arctic Ocean under climate change, *Geophys. Res. Letts.*, **42**, 7681-7686.

Schmitt, R.W., W. Asher, F. Bingham, et al., 2015: From Salty to Fresh-Salinity Processes in the Upper-ocean Regional Study-2 (SPURS-2): Diagnosing the Physics of a Rainfall-Dominated Salinity Minimum, *Oceanography*, **28**, 150-159.

Grodsky, S.A., B.K. Johnson*, J.A. Carton, and F. Bryan, 2015: Interannual Caribbean salinity in satellite data and model simulations, *J. Geophys. Res.*, **120**, 1375-1387.

2016

- Compo, G., J.A. Carton, X. Dong, A. Kumar, S. Saha, J. S. Woollen, L. Yu, and H. M. Archambault, 2016: Report from the NOAA Climate Reanalysis Task Force Technical Workshop. *NOAA Technical Report OAR CPO-4*, Silver Spring, MD. doi: 10.7289/V53J39ZZ
- Ding*, Y., J.A. Carton, G.A. Chepurin, M. Steele, and S. Hakkinen, 2016: Seasonal heat and freshwater cycles in the Arctic Ocean in CMIP5 coupled models, *J. Geophys. Res.*, in press.
- Johnson, B.K.*, F.O. Bryan, S.A. Grodsky, and J.A. Carton, 2016: Climatological Annual Cycle of the Salinity Budgets of the Subtropical Maxima, *J. Phys. Oceanogr.*, in review.

* Graduate students

** Post doctoral fellows

2.b.d OTHER ARTICLES AND NOTES (2001-)

- Jiande Wang and James A. Carton, Seasonal surface heat and freshwater flux determined from an oceanic reanalysis, WCRP/SCOR Workshop on Intercomparison and Validation of Ocean-Atmosphere Flux Fields, workshop report, 2001.
<http://www.soc.soton.ac.uk/JRD/MET/WGASF/workshop/PDF/17carton.pdf>
- Semyon A. Grodsky, and James A. Carton: Effect of the intraseasonal wind fluctuations in the West African Monsoon on air-sea fluxes. WCRP/SCOR Workshop on Intercomparison and Validation of Ocean-Atmosphere Flux Fields, workshop report, 2001
<http://www.soc.soton.ac.uk/JRD/MET/WGASF/workshop/PDF/1p2grodsky.doc.pdf>
- Jiande Wang, Alfredo Ruiz-Barradas , and James Carton (Department of Meteorology, University of Maryland: Modeled and observed air/sea fluxes in coupled modes in the tropical Atlantic, WCRP/SCOR Workshop on Intercomparison and Validation of Ocean-Atmosphere Flux Fields, workshop report, 2001
<http://www.soc.soton.ac.uk/JRD/MET/WGASF/workshop/PDF/1p3wang.pdf>
- Carton, J.A.; and S. Grodsky, Coupled land/atmosphere interactions in the West African monsoon, Geophysical Research Abstracts, 2001.

2.e.i INVITED TALKS (2001-03)

- Coupled land/atmosphere interactions in the West African monsoon, European Geophysical Society, Nice, April, 2001.
- A reanalysis of global ocean circulation, 1950-2000, Lamont-Doherty Earth Observatory, Palisades, NY, May, 2001.
- Bias in assimilation, GODAE working Group, NASA Goddard, January, 2001.
- Results from an assimilation experiment, US GODAE workshop, College Park, April, 2001.
- SODA reanalysis status, International GODAE workshop, Honolulu, July, 2001.
- Atmospheric response to SST, Climate Variability of the tropical Atlantic, Paris, August, 2001.

- Status of PIRATA, NOAA review of the moored observation program, Seattle, September, 2001.
- Air-sea interaction session of the Observational basis for air-sea interaction in the tropical Atlantic, January, James Carton and Semyon Grodsky, 2003
- FACT: a Cold tongue process study, TAV meeting, Miami, April, 2003
- Jim Carton GFDL, NCEP, & SODA Upper Ocean Assimilation Systems, Workshop on Ocean Data Assimilation, Williamsburg, VA, Jim Carton, September, 2003.

2.i FUNDING (1991-2004) total: \$5.76M

- Carton, J.A. (PI) "Monthly sea level changes using GEOSAT altimetry and primitive equation modeling.", \$147,000 to Columbia University as part of a larger (\$1,500,000) proposal to NASA TOPEX program, Eli Katz (PI), 1990-1996.
- Carton, J.A. (PI) "Modeling and assimilation study of seasonal changes in the tropical Atlantic Ocean.", (\$407,755) National Science Foundation, 1990-1993.
- Carton, J.A. (co-I) "Variability and predictability of the coupled Ocean-Atmosphere-Land System." , \$524,068, Department of Energy, 1991-1994.
- Carton, J.A. and J. Shukla co-PIs, "Prototype ocean data archive for retrospective analysis and model verification.", \$291,350, to Climate and Global Change Program, NOAA, 1991-1994.
- Kinter, J.L. and J. Shukla co-PIs, J.A. Carton, co-I, "Variability and predictability of the coupled Ocean-Atmosphere-Land, System" \$524,068, CHAMMP program of the DOE, 1991-1994.
- Carton, J.A. and W. Brown, co-PIs "Changes in mass and heat transport through the Tropical Atlantic Ocean", \$200,000, NOAA Climate and Global Change Program. 1992-3.
- Carton, J.A., PI "Sea level and pressure variations in the western tropical Atlantic.", \$30,000, to NASA, 1994.
- Carton, J.A., PI: "A diagnostic study of ocean circulation and heat flux." \$210,000, NOAA Climate and Global Change, 1992-1995.
- Carton, J.A.: "Use of altimeter sea level observations in retrospective analyses of tropical ocean circulation", PI \$215,000, to NOAA Climate and Global Change, 1992-1995.
- Carton, J.A. PI: "Global ocean data assimilation of seasonal to interannual variability", \$215,000 to NOAA Climate and Global Change GOALS, 1995-1996.
- Carton, J.A., PI, "The structure and causes of interannual fluctuations of sea surface temperature in the tropical Atlantic Ocean", \$240,000 to the National Science Foundation, 1994-1997.
- Carton, J.A., PI, "Ocean exchanges and their role in climate variability in the Atlantic", \$90,000 to NOAA Climate and Global Change ACCP, 1996-1997.
- Carton, J.A., PI, and M. Rienecker, co-PI, "Meridional heat flux and thermal anomalies in the North Atlantic Ocean: diagnosis through four-dimensional ocean data assimilation", \$568,000, to the National Science Foundation, Atlantic Climate and Circulation Experiment, 1996-2001.
- Walstad, L. PI, J.A. Carton, co-PI, "A computer and video based laboratory for environmental studies", \$360,000 to the UM system collaborative Program, 1996-

1998. Much of this represents an increase of base funding for the Center for Estuarine and Environmental Studies.

- Carton, J.A., PI, "The ocean's role in climate variability and hurricane development in the Atlantic sector", \$210,000 to the National Aeronautics and Space Administration, Mission to Planet Earth, 1996-1999.
- Carton, J.A., PI, L. Miller, co-PI, "Atmosphere/ocean interactions and decadal climate variability", NASA TOPEX/POSEIDON extended mission, \$180,000, 1996-1999.
- Carton, J.A., PI, "Global ocean data assimilation of seasonal to interannual variability", \$90,000, 1997-1998.
- Carton, J.A., PI, "Global ocean data assimilation of seasonal to interannual variability", \$180,000, 1998-2000.
- Carton, J.A., PI, "Interannual and decadal variability of the upper ocean, 1940-1999", NSF, \$499,031, 9-1-98 to 8-31-01.
- Kalnay, E., PI, J. Carton, co-PI, "Data assimilation support for NSIPP", NASA, \$120,000 (my portion), 1999-2002.
- Carton, J.A., PI, "Role of satellites in detecting decadal change in the oceans", NASA, \$451,419, 2001-2004.
- Carton, J.A., PI, "Multivariate global ocean assimilation studies", ONR, \$124,000, 2001-2003.
- Carton, J.A., PI, "Reanalysis of the Climate of the Global Ocean", NSF/ITR/AP+IM (GEO), \$493,317, 2001-2004.
- Carton, J.A., PI, "Modeling tropical Atlantic Climate", NOAA/OGP, \$64,000, 2002-2003.
- Carton, J.A., PI, "Observation-based analysis of the seasonal cycle of mixed layer temperature and salinity in the tropical Atlantic Ocean, NOAA/OGP, \$210,000, 2003-2006.
- Carton, J.A., PI; "SODA: a climate reanalysis for the oceans", NSF, \$606,907, 2003-2006.
- Carton, J.A., PI, "Improved analysis of tropical upper ocean conditions for seasonal to interannual forecasting, NOAA Joint Center for Satellite Data Assimilation (JCSDA), \$200,000., 2003-2005.
- Carton, J.A., PI, "Assimilation analysis of seasonal to interannual variability of the tropical and southern Atlantic Ocean", \$396,365, NASA, 2004-2004.
- Doney, S., PI, J.A. Carton, co-PI, "Hindcasting Seasonal to Interannual Variability in Air-sea CO₂ Flux for the North American Carbon Project, \$216,588 (my portion), 2004-2007.

2.j FELLOWSHIPS, PRIZES, AND AWARDS

- Manfred Pika physics prize, Princeton University, 1973.
- General Research Board Award, University of Maryland, 1986.
- University of Maryland Travel Award, 1988.
- College of CMPS teaching award, 2002.
- Fellow of the American Meteorological Society, 2009.

2.k EDITORSHIPS, EDITORIAL BOARDS, & REVIEWING ACTIVITIES

Associate editor, Journal of Geophysical Research, 2001-2004.
Reviews for J. Phys. Oceanogr., J. Geophys. Res., J. Clim., NSF, NASA, NOAA.

3.e.i ACADEMIC ADVISING (UNDERGRADUATE)

Brian Meyer

3.e.ii ACADEMIC ADVISING (GRADUATE MS)

Foreign Fellows:

Femke Vossepoel

MS Advisees (26):

A. Ruiz-Barradas, S. Babin, , T. Cuff (w M. Cai), S.-M. Chao, J. Chan, W. Cunningham, M. Dinneman, R. Eicher, C. Fayos, G. Foltz, J. Ghirardelli, , G.-G. Han, H. Jones, S. Knudsen, A. Li, L. Lo, A. Marshall, J. Schaffer, J. Steger, M. Taylor, J. Vukovich, Y.-P. Yao, J. Wang, Z. Zhou, T. Zhu, C-Y. Liu, J. Armbruster, A. Cohn

3.e.ii ACADEMIC ADVISING (GRADUATE PHD)

Ph.D. advisees:

- 1) Yoo, J.-M., Ph.D., 1990: "Salt and freshwater balance of the tropical Atlantic Ocean"
- 2) Huang, B., Ph.D., 1992: "Modelling the seasonal and interannual circulation of the tropical Atlantic Ocean" (with J. Shukla)
- 3) Zhou, Z., Ph.D., 1996: "Role of surface fluxes in sea surface temperature variability in the tropical Atlantic Ocean"
- 4) Babin, S., Ph.D., 1996: "A new model of the oceanic evaporation duct and its comparison with current models"
- 5) Taylor, M, Ph.D., 1999: "Origins of Caribbean rainfall" (with A. Vernekar)
- 6) Janjic, T, Ph.D., (AMSC) 2001: "Error due to unresolved scales in estimation problems for atmospheric data assimilation"
- 7) Ruiz-Barradas, A., Ph.D., 2001: "Interannual-to-decadal air-sea interactions in the tropical Atlantic region" (with S. Nigam)
- 8) Wang, J., Ph.D., 2002: "Climate variability in the oceans and tropical atmosphere"
- 9) Foltz, G., Ph.D., 2003: "Tropical Atlantic seasonal variability"
- 10) Borovikov, Anna, 2006: "Multivariate Error Covariance by Monte Carlo estimate for data assimilation studies in Pacific Ocean".
- 11) Ching-Yee Chang (2008 PhD CHPH program, co-advised with Sumant Nigam).
Dissertation title: "Seasonal and Interannual Ocean-Atmosphere Variability in the Tropical Atlantic: Observed Structure and Model Representation".
- 12) Hailong Liu (2009 PhD MEES program co-advised by Senya Grodsky). Dissertation title: "Global oceanic mixed layer properties".
- 13) Mathew Hoffman (2009 PhD AMSC program co-advised by Eugenia Kalnay).
Dissertation title: " Ensemble Data Assimilation and Breeding in the Ocean, Chesapeake Bay and Mars".

- 14) Tony Santorelli (2011, co-advised with Pinker): “Towards Understanding Key Processes Affecting Heat and Salinity Balance in the Global Ocean.”
- 15) Steve Penny (AMSC, 2011 co-advised by Kalnay): “Data Assimilation of the Global Ocean Using the 4D LETKF and MOM2”.
- 16) Martina Ricko (2012 PhD co-advised by Charon Birkett): “Modeling and Forecasting Tropical Lake Levels. Intercomparison and Validation of Continental Water Level Products Derived from Satellite Radar Altimetry”.
- 17) Linette Boisvert (2013 co-advised Throsten Marcus): “Moisture flux estimates derived from EOS Aqua data in the Arctic, postdoc at UMCP and NOAA”

Post-Doctoral advisees:

- 1) Raghu Raghunath, 1990-1991. Currently Senior Scientist at JPL
- 2) Ben Giese, 1992-1994. Currently Associate Professor at Texas A&M University
- 3) Gennady Chepurin, 1995-2000. Currently Assistant Research Scientist at UMD
- 4) Semyon Grodsky, 1999-2001. Currently Research Scientist at UMD

4. SERVICE (1991-pres)

4.a PROFESSIONAL

4.a.i. OFFICES AND COMMITTEE MEMBERSHIPS HELD IN PROFESSIONAL ORGANIZATIONS

Member NASA ESTAR (a surface salinity sensor) evaluation team, 1991
 Member TOGA/Coupled Ocean-Atmosphere Response Experiment (CORE)
 Modelling and data assimilation subworking group, 1989-1993
 Member, World Ocean Circulation Experiment, Numerical Modelling panel, 1988-1993.
 Member, NASA TOPEX Tides Committee Panel, 1989-1993.
 Member Western Tropical Atlantic Experiment (WESTRAX), 1991-3.
 Member TOPEX Science Team, 1990-1998.
 Member, NOAA Atlantic Climate Change Program (ACCP) Steering Committee, 1992-1996.
 co-Chair, NOAA Atlantic Climate Change Program (ACCP) Steering Committee, 1994-1996.
 Member NRC panel on earth gravity, 1997.
 Co-author Ocean Observations 1999 position statement on Atlantic Climate Variability
 Co-author Ocean Observations 1999 position statement on A Climate Observing System for the Tropical Atlantic
 Member, AMS STAC committee on air-sea interaction 2000-2002.
 Member, NSIPP science team 2000-2002.
 Member NOAA moored instrument program, Review Committee 2001.
 Member review committee for NASA satellite salinity proposal (Aquarius), 2001.
 Co-Chair ONR-sponsored workshop: “Progress and Prospects of Data Assimilation in Ocean Research”, Williamsburg, VA, 2003.

Member Scientific Steering Committee of the UCAR Community Climate System Model, 2003-2006.
Member, Scientific Steering Committee, US CLIVAR, 2004-2005.
Member, Steering Committee, African Monsoon Multidisciplinary Analysis (AMMA), 2004-2005.
Session Chair, Spring Meeting of the American Geophysical Union, 2004
Session Chair, Fall Meeting of the American Geophysical Union, 2004
Member, Joint Center for Satellite Data Assimilation (JCSDA), 2005-pres.
Member, NASA Jason-1 Science Working Team, 2004-pres.
Member NASA Winds Science Working Group, 2005-pres.
Member Tropical Atlantic Circulation Experiment Steering Committee, 2005-pres
Member Science Steering Committee, USCLIVAR, 2006.
Member POS panel, USCLIVAR, 2006-7.
Member Phenomena, Observations, and Synthesis panel, USCLIVAR, 2006-pres.
Co-Chair, USCLIVAR subcommittee on ocean salinity, 2005-pres.
Co-Convener, special sessions on ocean salinity, Ocean Sciences Meeting, 2006.
Co-Convener, Workshop on Ocean Salinity, WHOI, May, 2006.

4.a.ii REVIEWING ACTIVITIES FOR AGENCIES

Member NSF-oceans spring panel 2000
Member, NSF-ITR funding panel, 2001
Member CLIVAR-Atlantic program reviews, 2000
Member review committee for NASA satellite salinity proposal, 2001
Member review committee for NOAA moored instrument program, 2001
Member, NSF-oceans fall panel, 2006
DOE Ocean modeling Los Alamos review panel

4.b CAMPUS

Member of the Steering Committee that set up the MEES program in Oceanography, 1992
Graduate Director, Department of Atmospheric and Oceanic Sciences, 1996-pres.
Member, Steering Committee that set up the Applied Mathematics and Scientific Computation Program, 2000
Member of the CMPS Dean's Review Committee, 2002-3.
Member of the CMPS APT committee, twice
Chair Department Committee to Change the Department Name, 2004-5
Member, Steering Committee, Applied Mathematics and Scientific Computing (AMSC), 2005-6
Member, Steering Committee, Cooperative Institute for Climate Studies
Associate Chair, Department of Atmospheric and Oceanic Sciences, 2001-2007.
Chair, Department of Atmospheric and Oceanic Sciences, 2007-
Chair, Department of Geology Chair Search, 2016.