

Dr. Chelle L. Gentemann

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Experience:

1998 - Remote Sensing Systems, Scientist. Calibration, algorithm development, and retrieval validation for microwave and infrared radiometers. Research into upper ocean thermal structure and variability, air-sea interactions, multi-sensor SST fusion, high-resolution sea ice algorithms, and sea ice climate variability.

2003 - 2007 University of Miami, Graduate Research Assistant. Research on error characterization, SST data fusion methodologies, and upper ocean thermal structure. Development of a physical model of diurnal warming with Dr. Peter J. Minnett.

1995 - 1998 Scripps Institute of Oceanography, Graduate Research Assistant. Investigation of baroclinic instabilities. Numerical modeling of surface quasi-geostrophic flow over topography with Dr. Rick Salmon and Dr. Myrl Hendershott.

1991 - 1995 Massachusetts Institute of Technology Undergraduate Research Assistant. Investigated the effect of traveling atmospheric storms on TOPEX SSH with Dr. Carl Wunsch and Dr. Detlef Stammer.

Education:

2003 - 2007 Ph.D. Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami

1995 - 1997 M.S. Physical Oceanography, Scripps Institution of Oceanography

1991 - 1995 B.S. Massachusetts Institute of Technology

Science Teams and Working Groups:

National Research Council - Space Studies Board's Committee on Earth Science and Applications from Space (CESAS) (2012 – present)

JAXA GCOM-W AMSR2 Science Team (2009 – present)

Group for high resolution SST (GHRSSST) Science Team and Advisory Council (2001 - present)

GHRSSST Working Groups: Diurnal Warming

GHRSSST Technical Advisory Groups: Sea Ice, Multi-Product Ensemble, and Data Management

NASA PO.DAAC User Working Group (2006-present; Chair (2011-2013))

NASA Sea Surface Temperature Science Team (2010-present)

MIT Educational Council (1998-present)

NASA Satellite Ocean Atlas Team (1998-2001)

Organizing Committee for the 44th International Liege Colloquium on Ocean Dynamics (2011-2012)

Awards:

American Geophysical Union 2013 Charles S. Falkenberg Award. *The award is for a “scientist under 45 years of age who has contributed to the quality of life, economic opportunities, and stewardship of the planet through the use of Earth science information and to the public awareness of the importance of understanding our planet.”*

National Oceanographic Partnership Program 2008 Excellence in Partnering Award. C. Gentemann was the PI on this project. The award is, “presented annually to research teams that best demonstrate the partnerships objectives of NOPP, recognizing the project’s commitment to partnering, the success of the partnership effort, and the impact of the partnership on oceanography.”

NASA Group Achievement Award 2001 to the Satellite Ocean Atlas Team, for outstanding achievement in utilization of multiple observations from space for the study of the global oceans. C. Gentemann was a member of the team.

American Geophysical Union 2007 Joint Assembly, Acapulco, Mexico. Outstanding student presentation award.

American Geophysical Union 2006 Joint Assembly, Baltimore, MD. Outstanding student paper award.

IGARSS 2006 IEEE International Geoscience and Remote Sensing Symposium & 27th Canadian Symposium on Remote Sensing, Denver, CO. Student paper competition finalist.

American Meteorological Society 2005 13th Conference on Satellite Meteorology and Oceanography, Norfolk, VA. Student poster competition: 3rd prize.

Publications (in prep or submitted):

Barron, C.N., Kara, A.B., Gentemann, C.L. and Loh, W.-Y., "Time scales for SST over the global ocean", *submitted J. Climate*.

Woods, S., P.J. Minnett, C.L. Gentemann, "Influence of the cool skin layer on global air-sea CO₂ flux estimates", *submitted Deep Sea Res.*

Gentemann, C.L., "Validation of microwave SSTs", *in prep*.

Publications (34 total peer reviewed):

Dash, P., et al., "Group for High Resolution Sea Surface Temperature (GHRSSST) analysis fields inter-comparisons-Part 2: Near real time web-based level 4 SST Quality Monitor (L4-SQUAM)" (2012), *Deep-Sea Res II*, ISSN 0967-0645, 10.1016/j.dsr2.2012.04.002

Martin, M., et al., "Group for High Resolution SST (GHRSSST) analysis fields inter-comparisons: Part 1. A GHRSSST multi-product ensemble" (2012), *Deep-Sea Res II*. ISSN 0967-0645, 10.1016/j.dsr2.2012.04.013

Becker, E.A., D.G. Foley, K.A. Forney, J. Barlow, J.V. Redfern, C.L. Gentemann, "Forecasting cetacean abundance patterns to enhance management decisions" (2012), *Endangered Species Research*, 16, 97-112, doi: 10.3354/esr00390.

Monier, A., R. M. Welsh, C. L. Gentemann, G. Weinstock, E. Sodergren, E. V. Armbrust, J. A. Eisen and A. Z. Worden, "Phytoplankton phosphate uptake and cross domain commonalities in viral-host gene exchanges" (2012), *Environmental Microbiology*, 14, 162-176, doi: 10.1111/j.1462-2920.2011.02576.x.

Demir, E., S. Sudek, M. Cuvelier, C.L. Gentemann, J. Zehr, A.Z. Worden, "Global distribution patterns of distinct clades of the photosynthetic picoeukaryote *Ostreococcus*" (2011), *ISME Journal*, 5(7), 1095-1107, doi: 10.1038/ismej.2010.209.

Gentemann, C. L., F. J. Wentz, M. Brewer, K. A. Hilburn and D. K. Smith. "Passive microwave remote sensing of the ocean: an overview", in *Oceanography from Space, revisited* (2010), edited by V. Barale, J. Gower and L. Alberotanza, Springer, Heidelberg.

- Gentemann, C.L., T. Meissner, and F. J. Wentz, "Accuracy of satellite sea surface temperatures at 7 and 11 GHz" (2010), *Trans. Geosci. Rem. Sens.*, 48(3), 1009-1018, doi: 10.1109/TGRS.20092030322.
- Reynolds, R.W., C.L. Gentemann, G.K. Corlett, "Evaluation of AATSR and TMI satellite SST data" (2010), *J. Clim.*, 21(1), DOI: 10.1175/2009JCLI3252.1.
- Donlon, C. J., K. S. Casey, I. S. Robinson, C. L. Gentemann, R. W. Reynolds, I. Barton, O. Arino, J. Stark, N. Rayner, P. LeBorgne, D. Poulter, J. Vazquez, H. Beggs, D. Llewellyn Jones, P. Minnett, "The GODAE High Resolution Sea Surface Temperature Pilot Project (GHRSSST-PP)" (2009), *Oceanography*, 22(3), 34-45.
- Donlon, C.J., K.S. Casey, C.L. Gentemann, et al., "Successes and Challenges for the Modern Sea Surface Temperature Observing System" (2009), *OceanObs 09 community white paper*.
- Gentemann, C.L., P.J. Minnett, and B. Ward, "Profiles of Surface Heating (POSH): a new model of upper ocean diurnal warming" (2009), *J. Geophys. Res.*, 114, C07017, doi:10.1029/2008JC004825.
- Gentemann, C.L., P.J. Minnett, J. Sienkiewicz, M. DeMaria, J. Cummings, Y. Jin, J.D. Doyle, L. Gramer, C.N. Barron, K. Casey, and C. Donlon, "The Multi-sensor Improved Sea Surface Temperature (MISST) project" (2009), *Oceanography*, 22(2), 76-87.
- Worden, A.Z., et al., "The genomes of *Micromonas*: global reporters in marine environments" (2009), *Science*, 324(5924), 268-272, DOI: 10.1126/science.1167222.
- Gentemann, C.L., P.J. Minnett, P. LeBorgne, and C.J. Merchant (2008), "Multi-satellite measurement of large diurnal SST warming events", *Geophys. Res. Lett.*, 35, L22602, doi: 10.1029/2008GL035730.
- Kettle, H., C. J. Merchant, M. Filipiak, C. D. Jeffery and C. L. Gentemann (2008), "The impact of diurnal variability in sea surface temperature on the Atlantic sea-air CO₂ flux", *Atmos. Chem. Phys. Discuss.*, 8, 15825-15853.
- Gentemann, C.L. and P.J. Minnett (2008), "Radiometric measurements of ocean surface thermal variability", *J. Geophys. Res.*, 113, C08017, doi:10.1029/2007JC004540.
- Gentemann, C.L. (2007), "Diurnal warming at the ocean surface", Meteorology and Physical Oceanography, Miami, FL, University of Miami, Doctor of Philosophy: 163 pp.
- Donlon, C. J., et al. (2007), The Global Ocean Data Assimilation Experiment (GODAE) High Resolution Sea Surface Temperature Pilot Project (GHRSSST-PP), *Bulletin of the American Meteorological Society*, 88(8), 1197-1213.
- Horváth, Á. and C. L. Gentemann (2007), Cloud-fraction-dependent bias in satellite liquid water path retrievals of shallow, non-precipitating marine clouds, *Geophysical Research Letters*, 34, doi:10.1029/2007GL030625.
- Dong, S., S. T. Gille, J. Sprintall and C. L. Gentemann (2006), Validation of the Advanced Microwave Scanning Radiometer for the Earth Observing System (AMSR-E) sea surface temperature in the Southern Ocean, *Journal of Geophysical Research*, 111, doi:10.1029/2005JC002934.
- Gentemann, C.L, F.J. Wentz, C.M. Mears, and D.K. Smith (2004), "In-situ validation of TRMM microwave sea surface temperatures", *J. Geophys. Res.*, 109, C04021.
- Donlon, C. J., L. Nykjaer and C. L. Gentemann (2004), Using sea surface temperature measurements from microwave and infrared satellite measurements, *International Journal of Remote Sensing*, 25(7-8), 1331-1336.
- Reynolds, R. W., C. L. Gentemann and F. J. Wentz (2004), Impact of TRMM SSTs on a climate-scale SST analysis, *Journal of Climate*, 17(8), 2938-2952.

- Gentemann, C.L., C.J. Donlon, A. Stuart-Menteth, F.J. Wentz (2003), "Diurnal signals in satellite sea surface temperature measurements", *Geophysical Research Letters*, 30(3), 1140-1143.
- Stammer, D., F. J. Wentz and C. L. Gentemann (2003), Validation of microwave sea surface temperature measurements for climate purposes, *Journal of Climate*, 16(1), 73-87.
- Donlon, C. J., P. J. Minnett, C. L. Gentemann, T. J. Nightingale, I. J. Barton, B. Ward and M. J. Murray (2002), Towards improved validation of satellite sea surface skin temperature measurements for climate research, *Journal of Climate*, 15(4), 353-369.
- Chelton, D. B., S. K. Esbensen, M. G. Schlax, N. Thum, M. H. Freilich, F. J. Wentz, C. L. Gentemann, M. J. McPhaden and P. S. Schopf (2001), Observations of coupling between surface wind stress and sea surface temperature in the eastern tropical Pacific, *Journal of Climate*, 14(7), 1479-1498.
- Chelton, D. B., F. J. Wentz, C. L. Gentemann, R. A. D. Szoeké and M. G. Schlax (2000), Satellite microwave SST observations of transequatorial tropical instability waves, *Geophysical Research Letters*, 27(9), 1239-1242.
- Donlon, C. J., C. L. Gentemann and F. J. Wentz (2001), Measuring surface temperature with microwave sensors, *Backscatter*, 12, 37-39.
- Donlon, C. J., P. J. Minnett, I. J. Barton, T. J. Nightingale and C. L. Gentemann, (2001) The character of skin and subsurface sea surface temperature, paper presented at WCRP/SCOR Workshop on Intercomparison and Validation of Ocean-Atmosphere Flux Fields.
- Donlon, C. J., Minnett, P. J., Barton, I. J., Nightingale, T. J., and Gentemann, C. L. (2001), *The character of skin and subsurface sea surface temperature*, World Meteorological Organization, Geneva, Switzerland.
- Wentz, F. J., P. D. Ashcroft and C. L. Gentemann (2001), Post-launch calibration of the TMI microwave radiometer, *IEEE Transactions on Geoscience and Remote Sensing*, 39(2), 415-422.
- Wentz, F. J., C. L. Gentemann, D. K. Smith and D. B. Chelton (2000), Satellite measurements of sea surface temperature through clouds, *Science*, 288(5467), 847-850.
- Halpern, D., V. Zlotnicki, P. M. Woiceshyn, O. B. Brown, G. C. Feldman, M. H. Freilich, F. J. Wentz, and C. Gentemann. 2000. "An atlas of monthly mean distributions of SSM/I surface wind speed, AVHRR sea surface temperature, TMI sea surface temperature, AMI surface wind velocity, SeaWiFS chlorophyll-a, and TOPEX/POSEIDON sea surface topography during 1998". Jet Propulsion Laboratory Publication 00-08, 102 p. National Aeronautics and Space Administration, Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91109.

Provided images and/or text for books:

- Earle, S. and L. Glover, *Oceans: An illustrated atlas*, National Geographic, 320p.
- King, M.D., C.L. Parkinson, K.C. Partington, R.G. Williams, *Our changing planet, the view from space*, Cambridge University Press, 400p.

Invited Talks:

- AGU 2011 Fall Meeting, "AQUA AMSR-E Sea Surface Temperature"
- Oceans from Space 2010, "A review of Passive Microwave Retrievals from Space"
- Yale 2008 Department of Geology & Geophysics Colloquium, "Satellite sea surface temperatures"

AGU 2006 Joint Assembly, “Optimally interpolated infrared and microwave sea surface temperatures: the Multi-sensor Improved SST (MISST) Project”
IGARSS 2006 IEEE International Geoscience and Remote Sensing Symposium & 27th Canadian Symposium on Remote Sensing, “Multi-satellite, multi-sensor data fusion: global daily 10 km SSTs from MODIS, AMSR-E, and TMI”
IGARSS 2006 IEEE International Geoscience and Remote Sensing Symposium & 27th Canadian Symposium on Remote Sensing, “In situ observations of diurnal warming in the skin layer”
AMS 14th Conference on Satellite Meteorology, “Multi-sensor Improved Sea Surface Temperatures (MISST) for GODAE”
AGU Ocean Sciences, 2004, “Diurnal warming in satellite sea-surface temperatures”
JCOMM Workshop on Advances in Marine Climatology, 2003, “Diurnal Warming and Climate SST records”
CEOS Meeting, Ocean Sciences, 2003, “Accurate microwave SST retrieval and microwave/infrared blending”
GCOS Workshop on Advances in the Use of Historical Marine Climate Data, 2002, “Advances in Microwave Sea Surface Temperature” and “Towards Improved Validation of Satellite Sea Surface Skin Temperature Measurements for Climate Research”
GODAE Science Team Meeting, 2001, “Microwave SST retrievals from TRMM”
IGARSS, 2001, “Satellite Microwave SST: Accuracy, Comparisons to AVHRR and Reynolds SST, and Measurement of Diurnal Thermocline Variability”

Memberships:

American Geophysical Union (AGU)
American Meteorological Society (AMS)
Institute of Electrical and Electronics Engineers (IEEE)
IEEE Geoscience and Remote Sensing Society