

SILVIA GREMES CORDERO

Physics Department
The University of New Orleans
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RESEARCH INTERESTS

Satellite data analysis; acoustic signal processing; estuarine and coastal dynamics; High Frequency radar data analysis; Numerical model validation; interdisciplinary research, Harmful Algae Blooms; Arctic environment; oceanic Boundary Layer dynamics; turbulent air-sea fluxes.

HIGHER EDUCATION

Ph.D., 2010, University of Miami, Rosenstiel School of Marine and Atmospheric Science, Applied Marine Physics Division. Subject: Air-sea turbulent fluxes, Boundary Layer dynamics.

Dissertation: "*Air-sea turbulent flux measurements and their relationship to the turbulent kinetic energy dissipation rate in the ocean*". Advisor: Dr. W. Drennan.

M.S., 2004, University of Miami, Rosenstiel School of Marine and Atmospheric Science, Applied Marine Physics Division. Subject: Coastal Oceanography.

Thesis: "*A study of the influence of fresh water discharge and winds over the outflow disjoint off Chesapeake Bay*". Advisor: Dr. H. Graber.

B.S., 1990, Buenos Aires Institute of Technology (ITBA). Oceanography. Subject: Oceanic engineering.

Thesis: "*Dragging above cavities with and without an obstacle*". Advisor: Dr. Santamarina

WORK AND RESEARCH EXPERIENCE

2013- present: Assistant Professor/Research, Physics, University of New Orleans. Resident at Naval Research Laboratory, Stennis Space Center, MS. Statistical analysis of new data assimilation ; Air-sea Heat Flux validation, SST. (PI: C.N. Barron)

May – Sep. 2012: Postdoctoral Research Associate. University of Miami, Meteorology and Physical Oceanography Division (MPO) of Rosenstiel School of Marine and Atmospheric Sciences (RSMAS). Satellite data analysis, comparison to circulation models. PI: P. Minnett.

March 2011 – March 2012. Scientific Assistant. University of Miami, RSMAS. ADCP data post processing and analysis, comparison with coastal circulation models, working for the Ocean and Human Health group. PI: L. Brand.

- Aug. 2010 – Jan. 2011. Scientific Assistant. University of Miami, RSMAS. Working for the FATE project. Climatology of South FL rivers, and study of ROMS applications for the west coast circulation. PIs: J. Browder and M. Criales.
- Sep. 2004 – Dec 2010. Graduate Research Assistant. University of Miami, RSMAS, Applied Marine Physics (AMP) Division. Miami, FL, U.S.A. Air-sea interaction, signal processing and analysis, development of new techniques for acoustic data interpretation.
- Aug. 2000 – May 2004. Graduate Research Assistant. University of Miami, RSMAS, AMP Division. Miami, FL. Remote sensing (HF radar) data interpretation, surface currents, coastal oceanography.
- Jan. – Aug. 2000. International Center for Theoretical Physics (ICTP) Research Fellow, at the National Institute of Oceanography and Experimental Geophysics (OGS), Trieste, Italy. Quality control and interpretation of HF radar data.
- July – Dec. 1999. Visiting Scholar at the Department of Oceanography Naval Postgraduate School (NPS), Monterey, California, U.S.A. Sea surface coastal velocity from HF radar (CODAR) data analysis.
- 1995 – 1999. Guest Assistant Researcher. Univ. "La Sapienza" of Rome, Department of Physics. Dynamics of Dense Shelf Waters, Entrainment, mixing, infrared satellite imagery analysis.
- June – Dec 1992. Researcher. SO.PRO.MAR (Societa Progetti Maritimi) Private Company, Physical Oceanography Division. Fiumicino, Roma, Italy. Post-processing of CTD data.

ABSTRACTS AND PUBLICATIONS (SELECTED)

- Charlie N. Barron, Jan M. Dastugue, Jackie May, Clark Rowley, Scott R. Smith, Peter L. Spence, and S. Gremes-Cordero, 2016. "*Calibration of Ocean Forcing with Satellite Flux Estimates (COFFEE)*". Accepted in Session OS1.1 Open Session on Ocean Circulation and Air-Sea Interactions for the EGU General Assembly, April 18-22.
- Gremes-Cordero S. and Drennan W., 2016. "*On the dissipation of energy beneath non-breaking waves*". Submitted.
- Gremes-Cordero S., Minnett P. and Olascoaga, M.J., 2016. "*Harmful Algal Bloom predictions using satellite imagery and Coherent Lagrangian Structures*". In preparation.
- Barron, C.N., Jan M. Dastugue, Jackie May, Clark Rowley, Scott R. Smith, Peter L. Spence, and S. Gremes-Cordero, 2015. "*Forecast of SST: Calibration of Ocean Forcing with satellite Flux Estimates (COFFEE)*". GHRSSST XVI Proceedings, I, **1**, ESA, December 2015.
- Bogucki D., Drennan W., Woods S. and Gremes Cordero S., 2013. "*Short oceanic surface waves in the Canadian Arctic in 2007 and 2008*". J. of Geophys. Res. – Oceans, **118** (7), 3721-3722
- Gremes Cordero S., Haus B.K., Graber H.C., 2009. "*Surface signature of the Chesapeake Bay outflow variability observed with coastal radar*". J. of Coastal Research, **26** (6), 1254-1263.

- Gremes-Cordero S., Haus B.K., and Graber H.C., 2003. "Determination of wind-driven coastal currents from local weather station". Geophys. Res. Abstracts, **5**, 751.
- Gremes Cordero S. and Salusti E., 2003. "On the friction and entrainment of potential vorticity in the shallow-water approximation". Il Nuovo Cimento B, Vol. **118-1**, 83-98 .
- Budillon G., Gremes Cordero S. and Salusti E., 2002. "On the dense water spreading off the Ross Sea Shelf". J. of Marine Systems, Vol. **35**, 207-227.
- Gremes Cordero S., 1999. "The use of thermal satellite data in dense water formation studies in the Mediterranean Sea". J. of Marine Systems. Special Is. "Mediterranean Sea - Circulation, Strait Exchange and Dense Water Formation Processes". Eds. M. Gacic, M. Astraldi, P. La Violette. Vol. **20**, 175-186.
- Gremes Cordero S. and Salusti E., 1998. "General characteristics of density-turbidity currents in the Ross Sea (Antarctica)". In "Oceanography of the Ross Sea - Antarctica". G. Spezie and G.M.R. Manzella Eds. Springer-Verlag, Heidelberg, 223-232.

FIELD WORK

2012. CLIVAR repetitive hydrological sections A20-A22 (03/24 – 05/16). Hydrological and carbon data sampling on N. Atlantic; in charge of monitor MAERI spectral output. On board R/V "Atlantis". Organized by Woods Hole Oceanographic Inst. and Scripps Inst. of Oceanography.
2011. Cruise "WS1115" (10/3- 10/14). Vertical and horizontal sampling in the Gulf of Mexico of water properties (CTD) and oil concentration. On board R/V "Walton Smith". Project funded by BP for the monitoring of the Oil Spill.
2010. Hydrological Cruise "WS1023" (12/02- 12/04). Oceanographic and chemical data acquisition for monitoring the Florida shelf waters. On board R/V "Walton Smith". Repetitive cruises organized by NOAA - AOML (Atlantic Oceanic and Meteorological Lab).
2008. Participation in the Circumpolar Flaw Lead System (CFL) Study around the Arctic Ocean as part of the IPY (06/26 –08/06). In charge of data acquisition and maintenance of the Flux tower, pCO₂ system and Miami LAWAS, on board the CCGS "Amundsen" Icebreaker. Project funded by NASA.
2007. "EASI deployment" (08/9-08/12). First buoy designed to obtain measurements during hurricanes. Project funded by NSF, organized by AMP Division, RSMAS, UM, on board R/V "Seward Johnson".
2004. Oceanographic Cruise "LabSeaCO₂" (09/19-09/28). CTD casts, and Asis-Buoy recovery in the Labrador Sea, as part of the SOLAS Project (NSF). Organized by the UMiami, on board R/V "Endeavor".
1999. Oceanographic Cruise "ICON-August 1999" (08/28- 09/02). CTD casts, XBT and current meter deployment on the Monterey Bay, California. Organized by the Naval Postgraduate School of Monterey, CA, on board R/V "Point Sur".

1997. Oceanographic Cruise "TALUD III" (7-19/9). Oceanographic and chemical data acquisition in the South Atlantic Ocean Organized by the Argentinean Hydrographic Naval Service (SHN) and the National Research Council of Science and Technology (CONICET), on board A.R.A. "Puerto Deseado".
1997. Oceanographic Cruise "SIMPLEX" (1-12/9) for the acquisition of physical-chemical data in the Strait of Sicily and the Ionian Sea. Directed by the Institute of Atmospheric Physics (IFA) of Rome, on board R/V "Urania".
1995. Oceanographic Cruise "GMS9501" (10-21/11) organized by Marine Geology Institute "GEOMARE SUD", on board R/V "Urania". Oceanographic and geological data acquisition in the Gulf of Sorrento (Thyrrhenian Sea).
1987. Hydrographic cruises "Monitoreo I and II". Water pollution measurements in the coastal area of Buenos Aires - Organized by ITBA students and the Marine Chemical Department of the Argentinean Hydrographic Naval Service (SHN).

CONFERENCES (SELECTED)

2016. Charlie N. Barron, Jan M. Dastugue, Jackie May, Clark Rowley, Scott R. Smith, Peter L. Spence, and Silvia Gremes-Cordero. "*Calibration of Ocean Forcing with Satellite Flux Estimates (COFFEE)*". accepted in Session OS1.1 Open Session on Ocean Circulation and Air-Sea Interactions for the **EGU General Assembly**.
2016. Smith, S. R., C. N. Barron, J. M. Dastugue, J. May, C. Rowley, H. Ngodock, M. Carrier, P. L. Spence, and S. Gremes-Cordero. "*Impact of Surface Forcing on the Forecast Skill of NCOM-4DVAR*". **Ocean Sciences Meeting TOS/ASLO/AGU**. New Orleans, LA. February 21-27.
2016. Barron, C. N., J. M. Dastugue, J. C. May, C. Rowley, S. Smith, P. L. Spence, and S. Gremes-Cordero. "*Calibration of Ocean Forcing with Satellite Flux Estimates (COFFEE)*". **Annual American Meteorological Soc Meeting**, New Orleans, LA. January 10-14.
2015. Barron, C. N., J. M. Dastugue, J. May, C. Rowley, S. R. Smith, P. L. Spence, and S. Gremes-Cordero. "*Forecast of SST: Calibration of Ocean Forcing with satellite Flux Estimates (COFFEE)*". **GHRSSST XVI, ESA-ESTEC**. Netherlands. July 20-24.
2014. Gremes-Cordero S., P. Minnett and J. Olascoaga. "*Satellite-derived data and Lagrangian Coherent Structures as tools for Blooms Studies*". Earth Observation for Ocean Atmosphere Interactions Sc. **ESA/SOLAS/EGU Conference**. ESRIN, Frascati, Italy. October 28-31.
2014. Gremes-Cordero S., Barron C.N., Spence P. and Dastugue J.M. "*On the use of new satellite data streams to improve performance of numerical models of global circulation*". **Ocean Sciences Meeting TOS/ASLO/AGU**. Honolulu, HI, USA. February 23-28.

2012. Gremes-Cordero S. and Drennan, W. “*Dopbeam measurements of turbulent kinetic energy dissipation rates near the ocean surface*”. **Ocean Sciences Meeting TOS/ASLO/AGU**. Salt Lake City, Utah, USA. February 20-24.
2003. Gremes Cordero S. “*Analysis of wind-driven coastal currents off Chesapeake Bay (VI)*”. **EGS-European Geophysical Society XXVIII Gen. Assembly (EGS/AGU/EGU)**. Nice, France, April 6-11.

INVITED TALKS (SELECTED)

2015. “*The role of ocean surface processes in global climate change*” Distinguished Speaker Series, AWG. Berry College, Mount Berry, GA.
2015. “*Improving forecast of non-periodic coastal hazards in the Eastern Gulf of Mexico*”. Physics Dept. student seminar series. Univ of New Orleans, LA.
2012. “*Revealing the secrets of the oceans*”. Summer Lecture Series, Museum of Discovery and Science. Fort Lauderdale, FL.
2012. “*Parameterization of turbulent fluxes and energy dissipation at the air-sea interface*”. Naval Research Laboratory, Stennis Space Center, MS.
2008. “*Turbulent fluxes at the ocean surface and their influence in our climate system*”. Atlantic Oceanographic and Meteorological Laboratory, National Oceanographic and Atmospheric Administration (NOAA), Miami, FL.
1999. “*Oceanographic information of the Ionian Sea from CTD data*”. Italian National Institute of Nuclear Physics (INFN) Group participating in the “Neutrino Extended Submarine Telescope with Oceanographic Research” (NESTOR) Project. Department of Physics, University “La Sapienza”, Rome, Italy.

FELLOWSHIPS AND AWARDS

- 2004-2010: U. Miami fellowship for Ms and PhD degrees. Miami, FL, USA
2006. NATO travel fellowship for Ankara Summer School, Turkey.
2003. American Geophysical Society (AGU) Travel Funds, for the XXVIII Gen. Assembly (EGS, AGU, EGU joint meeting) on Nice, France.
2000. International Center of Theoretical Physics (ICTP). One-year-Fellowship. Trieste, Italy.
1999. Visiting Scholar Fellowship, Innovative Coastal Oc. Observing Network (ICON) Project . Naval Postgraduate School, Monterey, CA, USA.
1995. European Community Award for ICTP Workshop participation. Trieste, Italy.

MEMBERSHIPS

Sigma Xi Scientific Society; American Geophysical Union (AGU); Earth Sciences Women Network (ESWN); Mentoring Physical Oceanography Women to Increase Retention (MPOWIR).

TEACHING EXPERIENCE

2010-2011. Adjunct Faculty, "Energy in the natural environment". Earth and Physics Dept., Miami Dade College, Kendall Campus.

Summer 2003. Lecturer, "Data Analysis". Patomac Group, RSMAS, University of Miami, FL.

June 2000. Lecturer, "Data Management" for the Center of Data acquisition and Control personnel of the Alghero Monitor Center. Project: "Marine environment monitoring of the coastal sea (North Sardinia)". Alghero, Sardinia, Italy.

Fall 1990. Teaching assistant for the course "Physical Oceanography: Waves". ITBA. Buenos Aires, Argentina.

Fall 1989. Substitute Professor for the courses "Physics" and "Physical and Chemical Principles", at "Pedro Poveda" High School. Buenos Aires, Argentina.

SERVICE

- Reviewer

Geophysical Research Letters; Journal of Geophysical Research; National Sc. Foundation Reviewer and Panelist; Student Poster judge AGU-ASLO meetings.

- Leadership

2014-2015: OSPA coordinator for AGU.

2007-2009: U of Miami Outreach program volunteer, RSMAS, UM.

2005-2007. Chairman, Health Insurance Concerns Committee. GSA, UM.

2004-2008. Graduate Student Association Parliamentarian for Rosenstiel School, U. of Miami.

2001-2002. Division Student Representative for Applied Marine Physics, RSMAS, UM.

SOFTWARE SKILLS

– Programming languages: Matlab, Fortran, basic Python

– Operating systems: Windows, Unix, Linux

NON-CREDIT COURSES (SELECTED)

2006. "*Climate change impact on Marine Ecosystems*" (14-26th August). NATO-ASI and Eur-Oceans sponsored Summer School. Middle East Technical University, Ankara, Turkey.

1999. "*Computations in Air-Ocean Sciences*" (code OC2020), July 9 – Sept 14. **Naval Postgraduate School**, Department of Oceanography, Monterey, California, U.S.A.

1998. "*Course on Mediterranean Sea circulation and ecosystem functioning*", November 2-7. International Center of Theoretical Physics (**ICTP**), Trieste, Italy.

1998. "*Satellite Oceanography Course*", September 7-18. Center of Scientific Research and Higher Education of Ensenada (**CICESE**), Ensenada, Mexico.

LANGUAGES

Proficient in Italian, Spanish and English. Familiar with Portuguese