

SHERI NEELAM WHITE

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY/WOODS HOLE OCEANOGRAPHIC CAMBRIDGE, MA
INSTITUTION JOINT PROGRAM IN OCEANOGRAPHY WOODS HOLE, MA
Ph. D. in Marine Geology & Geophysics *June 2000*
Emphasis on light emission mechanisms and ocean optics

PURDUE UNIVERSITY WEST LAFAYETTE, IN
B. S. in Aeronautical and Astronautical Engineering *December 1993*
Emphasis on structures and dynamics

DISSERTATION

AN INVESTIGATION INTO THE CHARACTERISTICS AND SOURCES OF (Dr. Alan Chave, Advisor)
LIGHT EMISSION AT DEEP-SEA HYDROTHERMAL VENTS

Thesis research consisted of using a uniquely adapted CCD camera to image ambient light at deep-sea vents. Analysis of both images and spectral data show that the dominant source of light is thermal radiation due to the high temperature of the exiting fluid (~350°C). Other non-thermal sources (e.g., chemiluminescence and triboluminescence) are also present.

PROFESSIONAL EXPERIENCE

ASSISTANT SCIENTIST *January 2005–present*
Woods Hole Oceanographic Institution, Dept. of Applied Ocean Physics & Engineering
POST-DOCTORAL FELLOW *January 2002–December 2004*
Monterey Bay Aquarium Research Institute, Dept. of Research and Development
POST-DOCTORAL INVESTIGATOR *January 2001–December 2001*
Woods Hole Oceanographic Institution, Dept. of Applied Ocean Physics & Engineering
GUEST INVESTIGATOR *August 2000–January 2001*
Woods Hole Oceanographic Institution, Dept. of Applied Ocean Physics & Engineering
POST-DOCTORAL INVESTIGATOR *May 2000–July 2000*
Woods Hole Oceanographic Institution, Dept. of Geology & Geophysics
GRADUATE RESEARCH ASSISTANT *June 1994–April 2000*
Woods Hole Oceanographic Institution, Dept. of Geology & Geophysics

ENGINEERING WORK EXPERIENCE

Monterey Bay Aquarium Research Institute, Moss Landing, CA
Project Manager for the Precision Underwater Positioner *July 2002–December 2003*
— directing a team of eight (including MEs, EEs, SEs, and an external consultant) in developing a precision underwater positioner to be used on ROVs in the deep ocean.

NASA-JSC, Houston, TX, Co-operative education program:

<i>Spring 1991</i>	Safety Division, Mechanical Systems Safety Branch — analyzed shuttle landing and ferry-flight hazards
<i>Fall 1991 & Summer 1993</i>	Mission Operations Directorate, Remote Manipulator Section — developed software tool for Mission Control
<i>Summer 1992</i>	Engineering Directorate, Extra-Vehicular Activity Branch — investigated advanced life support systems

RESEARCH CRUISE EXPERIENCE

Shipboard scientist on multiple ROV research cruises to investigate processes related to CO₂ sequestration and gas hydrates, and to develop a laser Raman spectrometer and precision underwater positioner for making *in situ* measurements in the deep sea.

November 17-21, 2005	<i>R/V Western Flyer (ROV Tiburon)</i>	Monterey Bay
October 5/6, 2005	<i>R/V Point Lobos (ROV Ventana)</i>	Monterey Bay
September 27/28, 2004	<i>R/V Point Lobos (ROV Ventana) – Chief Sci.</i>	Monterey Bay
July 15-25, 2004	<i>R/V Western Flyer (ROV Tiburon)</i>	Gorda, Hydrate Ridges
December 16-18, 2003	<i>R/V Western Flyer (ROV Tiburon) – Chief Sci.</i>	Monterey Bay
November 5/7/10, 2003	<i>R/V Point Lobos (ROV Ventana) – Chief Sci.</i>	Monterey Bay
August 20-22/25, 2003	<i>R/V Point Lobos (ROV Ventana)</i>	Monterey Bay
April 21-May 11, 2003	<i>R/V Western Flyer (ROV Tiburon)</i>	Gulf of California
December 11-13, 2002	<i>R/V Western Flyer (ROV Tiburon)</i>	Monterey Bay
October 16, 2002	<i>R/V Point Lobos (ROV Ventana)</i>	Monterey Bay
August 22/23, 2002	<i>R/V Point Lobos (ROV Ventana)</i>	Monterey Bay
June 12/13, 2002	<i>R/V Point Lobos (ROV Ventana)</i>	Monterey Bay
April 29-May 2, 2002	<i>R/V Western Flyer (ROV Tiburon)</i>	Monterey Bay
April 16-20, 2002	<i>R/V Western Flyer (ROV Tiburon)</i>	Monterey Bay
April 1-5, 2002	<i>R/V Western Flyer (ROV Tiburon)</i>	Monterey Bay
March 4, 2002	<i>R/V Point Lobos (ROV Ventana)</i>	Monterey Bay
February 19/20, 2002	<i>R/V Point Lobos (ROV Ventana)</i>	Monterey Bay

Shipboard scientist on six research cruises to investigate mid-ocean ridge hydrothermal systems using manned submersibles and an unmanned tethered vehicle. Maintained instruments to measure ambient light at vents; interfaced instruments with the submarine; trained science observers in use of instruments; collected and analyzed water samples; collected and sorted biological specimens; participated as a scientific observer on eight *DSV Alvin* dives.

July 2001	<i>R/V Atlantis (DSV Alvin)</i>	Mid-Atlantic Ridge
June 2000	<i>R/V Atlantis (DSV Alvin)</i>	Juan de Fuca Ridge
June/July 1998	<i>R/V Atlantis (DSV Alvin)</i>	Juan de Fuca Ridge
November/December 1997	<i>R/V Atlantis (DSV Alvin)</i>	9°N East Pacific Rise
April 1996	<i>R/V Atlantis II (DSV Alvin)</i>	9°N East Pacific Rise
August/September 1995	<i>DSVSS Laney Chouest (DSV Sea Cliff)</i>	Juan de Fuca Ridge

PUBLICATIONS

- White, S. N., R. M. Dunk, P. G. Brewer, E. T. Peltzer, and J. J. Freeman, *In situ* Raman analyses of deep-sea hydrothermal and cold seep systems (Gorda Ridge & Hydrate Ridge), *Geochem. Geophys. Geosys.*, 7, doi:10.1029/2005GC001204, 2006.
- Hester, K. C., S. N. White, R. M. Dunk, P. G. Brewer, E. T. Peltzer, and E. D. Sloan, *In situ* gas hydrate measurements at Hydrate Ridge using Raman spectroscopy, *Geochem. Cosmochem. Acta*, Submitted.
- White, S. N., P. G. Brewer, and E. T. Peltzer, Determination of gas bubble fractionation in the deep ocean by laser Raman spectroscopy, *Mar. Chem.*, 99, 12-23, 2006.
- Hester, K. C., S. N. White, E. T. Peltzer, P. G. Brewer, and E. D. Sloan, Raman spectroscopic measurements of synthetic gas hydrates in the ocean, *Mar. Chem.*, 98, 304-314, 2006.
- White, S. N., W. J. Kirkwood, A. D. Sherman, M. O. Brown, R. Henthorn, K. Salamy, P. Walz, E. T. Peltzer, and P. G. Brewer, Development and deployment of a precision underwater positioning system for *in situ* laser Raman spectroscopy in the deep ocean, *Deep Sea Res.*, 52: 2376-2389, 2005.
- Pasteris, J. D., B. Wopenka, J. Freeman, P. G. Brewer, S. N. White, E. T. Peltzer, G.E. Malby, Raman spectroscopy in the deep ocean: successes and challenges, *Appl. Spectrosc.*, 58 (7), 195A-208A, 2004.
- Brewer, P. G., G. Malby, J. D. Pasteris, S. N. White, E. T. Peltzer, B. Wopenka, J. Freeman, and M. O. Brown, Development of a laser Raman spectrometer for deep-ocean science, *Deep Sea Res. I*, 51, 10.1016/j.dsr.2003.11.005, 2004.
- White, S. N., A. D. Chave, G. T. Reynolds, and C. L. Van Dover, Ambient light emission from hydrothermal vents on the Mid-Atlantic Ridge, *Geophys. Res. Lett.*, 29 (15), 10/1029.2002GL014977, 2002.
- White, S. N., A. D. Chave, G. T. Reynolds, Investigations of ambient light emission at deep-sea hydrothermal vents, *J. Geophys. Res.*, 107 (B1), 10.1029/2000JB000015, 2002.
- White, S. N., A. D. Chave, G. T. Reynolds, E. J. Gaidos, J. A. Tyson, and C. L. Van Dover, Variations in ambient light emission from black smokers and flange pools on the Juan de Fuca Ridge, *Geophys. Res. Lett.*, 27: 1151-1154, 2000.
- White, S. N., S. E. Humphris, and M. C. Kleinrock, New observations on the distribution of past and present hydrothermal activity in the TAG area of the Mid-Atlantic Ridge (26°08' N), *Mar. Geophys. Res.*, 20:41-56 (and Erratum 20;139), 1998.
- White, S. N., A. D. Chave, and J. H. Filloux, A look at galvanic distortion in the Tasman Sea and the Juan de Fuca Plate, *J. Geomag. Geoelectr.*, 49:1373-1386, 1997.

ADDITIONAL ARTICLES/REPORTS

- White, S. N., P. G. Brewer, and W. J. Kirkwood, Raman instrumentation for deep sea *in-situ* analyses: design and implementation of the Deep Ocean Raman *In Situ* Spectrometer with the Precision Underwater Positioner, *Sea Technology*, vol. 47, no. 2, 17-26, 2006.
- White, S. N., R. M. Dunk, P. G. Brewer, E. T. Peltzer, A. D. Sherman, M. O. Brown, and J. J. Freeman, First In Situ Raman Spectroscopic Measurements at Hydrothermal Vents – Sea Cliff Hydrothermal Field, Gorda Ridge, *RIDGE Events*, vol. 3, 31-34, 2005.
- Brewer, P. G., J. D. Pasteris, G. E. Malby, E. T. Peltzer, S. N. White, J. Freeman, B. Wopenka, M. Brown, D. Cline, Laser Raman spectroscopy used to study the ocean at 3600 m depth, *EOS*, vol. 83: 469-470, 2002.
- White, S. N., NEPTUNE dry test-bed modeling, Internal report (Ref # 10083), Dec. 4, 2001.
- White, S. N., and A. D. Chave, ALISS in Wonderland, *Oceanus*, 41:14-17, 1998.
- White, S. N., J. W. Bailey, C. L. Van Dover, and A. D. Chave, Measurements of Light at Hydrothermal Vents, *RIDGE Events*, vol. 7, no. 2, July 1996.

CONFERENCE PAPERS/ABSTRACTS

- White, S. N., R. Camilli, A. P. M. Michel, and J. Whelan, Spectroscopic sensor technology for *in situ* seafloor analyses, IEEE 4th International Workshop on Scientific Uses of Submarine Cables & Related Technologies, Dublin, Ireland, 2006.
- Farr, N., A. D. Chave, L. Freitag, J. Preisig, S. N. White, D. Yoerger, F. Sonnichsen, P. Titterton, J. Bolstad, and D. Leonard, Optical modem technology for seafloor observatories, IEEE 4th International Workshop on Scientific Uses of Submarine Cables & Related Technologies, Dublin, Ireland, 2006.
- Farr, N., A. Chave, L. Freitag, J. Preisig, S. White, D. Yoerger, and P. Titterton, Optical modem technology for seafloor observatories, IEEE/MTS Oceans 2005, IEEE Press, Washington, D.C., September 2005.
- White, S. N., R. M. Dunk, P. G. Brewer, E. T. Peltzer, A. D. Sherman, and J. J. Freeman, *In situ* Raman spectra from the Sea Cliff Hydrothermal Field (Gorda Ridge), *Eos Trans. AGU*, Fall Meet. Suppl., Abstract OS43B-558, 2004.
- Brewer, P. G., R. M. Dunk, S. N. White, E. T. Peltzer, B. Bowie, and P. Walz, First attempts at direct Raman detection of the oceanic carbonate system, *Eos Trans. AGU*, Fall Meet. Suppl., Abstract OS43B-557, 2004.
- Peltzer, E. T., S. N. White, R. M. Dunk, P. G. Brewer, A. D. Sherman, K. Schmidt, K. C. Hester, and E. D. Sloan, *In situ* Raman analyses of natural gas and gas hydrates at Hydrate Ridge, Oregon, *Eos Trans. AGU*, Fall Meet. Suppl., Abstract OS34B-01, 2004.
- White, S. N., W. J. Kirkwood, A. D. Sherman, M. O. Brown, R. Henthorn, K. A. Salamy, E. T. Peltzer, P. Walz, and P. G. Brewer, Laser Raman spectroscopic instrumentation for *in situ* geochemical analyses in the deep ocean, IEEE/MTS Oceans 2004, IEEE Press, Kobe, Japan, November 2004.

- White, S. N., P. G. Brewer, E. T. Peltzer, W. J. Kirkwood, J. D. Pasteris, and N. Nakayama, First expeditionary deployments of the Deep Ocean Raman In Situ Spectrometer, *Eos Trans. AGU*, Fall Meet. Suppl., Abstract OS32A-0235, 2003.
- Kirkwood, W. J., S. N. White, M. O. Brown, S. Jensen, R. Henthorn, K. A. Salamy, P. G. Brewer, and E. T. Peltzer, Development of a precision underwater positioner for *in situ* spectrographic applications, *Eos Trans. AGU*, Fall Meet. Suppl., Abstract OS32A-0236, 2003.
- Pasteris, J. D., P. G. Brewer, S. N. White, E. T. Peltzer, B. Wopenka, J. Freeman, Development of *in situ*, real-time Raman analysis of clathrate hydrates on the seafloor, *Geol. Soc. Amer. Abstracts with Programs*, 35, 534, 2003.
- Kirkwood, W. J., S. N. White, M. Brown, R. Henthorn, S. Jensen, K. A. Salamy, E. T. Peltzer, P. G. Brewer, Precision underwater positioning for *in situ* laser Raman spectrographic applications, *IEEE/MTS Oceans 2003*, IEEE Press, San Diego, CA, September 2003.
- White, S. N., P. G. Brewer, E. T. Peltzer III, G. E. Malby, and J. D. Pasteris, Development of a Laser Raman Spectrometer for *In Situ* Measurements in the Deep Ocean, *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract OS21B-205, 2002.
- Peltzer, E. T., P. G. Brewer, P. M. Walz, S.N. White, Progress in small-scale studies of direct ocean sequestration of carbon dioxide, *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract U22A-03, 2002.
- Maffei, A. R., A. D. Chave, G. Massion, S. N. White, J. Bailey, S. Lerner, A. Bradley, D. Yoerger, H. Frazier, R. Buddenberg, NEPTUNE Gigabit Ethernet Submarine Cable System, *Proceedings of Oceans 2001 Conference*, Honolulu, HI, November 2001.
- White, S. N., A. D. Chave, J. W. Bailey, C. L. Van Dover, G. T. Reynolds, E. Gaidos, and J. A. Tyson, Images of ambient light at high-temperature black smokers and flange pools, Endeavour Segment, Juan de Fuca Ridge, *Eos Trans. AGU*, 79, F858, 1998.
- White, S. N., A. D. Chave, J. W. Bailey, C. L. Van Dover, G. T. Reynolds, and E. Gaidos, Images of ambient light at deep-sea hydrothermal vents, 9° N East Pacific Rise, *Eos Trans. AGU*, 79, S166, 1998.
- White, S. N., A. D. Chave, J. W. Bailey, C. L. Van Dover, and G. T. Reynolds, Measurements of light at hydrothermal vents, 9° N East Pacific Rise, *Eos Trans., AGU*, 77, F404, 1996.
- W. K. Stewart, White, S. N., S. E. Humphris, and M. C. Kleinrock, Geotectonic setting of past and present hydrothermal activity in the TAG area of the Mid-Atlantic Ridge (26° 08' N), *Eos Trans., AGU*, 77, F767-768, 1996.
- White, S. N., A. D. Chave, and J. H. Filloux, Large scale MT distortion: a comparison of the Tasman Sea and the Juan de Fuca Plate, *Eos Trans. AGU*, 76, F168, 1995.

AWARDS/HONORS

MBARI Post-doctoral Fellowship, 2002-2004

Tau Beta Pi – National Engineering Honor Society, 1993

INVITED TALKS

- UNIVERSITY OF CONNECTICUT, AVERY POINT, CT *July 17, 2003*
Laser Raman Spectroscopy in the Deep Ocean
- WOODS HOLE OCEANOGRAPHIC INSTITUTION, WOODS HOLE, MA *June 12, 2003*
A Laser Raman Spectrometer for the Deep Ocean
- CARNEGIE INSTITUTION OF WASHINGTON, WASHINGTON, DC *June 26, 2000*
Light Emission at Deep-Sea Hydrothermal Vents

WORKSHOPS/SYMPOSIA ATTENDED

- THERMO ELECTRON RAMAN SEMINAR *June 22, 2006*
Bedford, MA
- ORION DESIGN & IMPLEMENTATION WORKSHOP *March 27-31, 2006*
Salt Lake City, UT
- IEEE 4TH INTERNATIONAL WORKSHOP ON SCIENTIFIC USES OF SUBMARINE CABLES AND RELATED TECHNOLOGIES *February 8-10, 2005*
Dublin, Ireland
- SPECTROSCOPY, NANOTECH & BIOTECH SEMINAR SERIES *March 22, 2005*
Horiba-Jobin Yvon, Norwood, MA
- FRONTIERS IN RAMAN SPECTROSCOPY *October 28, 2004*
ACS Western Regional Meeting, Sacramento, CA
- THE NEXT GENERATION OF IN SITU BIOLOGICAL AND CHEMICAL SENSORS *July 13-16, 2003*
Woods Hole Oceanographic Institution, Woods Hole, MA
- JUAN DE FUCA RESULTS SYMPOSIUM *November 7-9, 1999*
RIDGE, Seattle, WA

COURSES TAUGHT

- 12.097 – *Environmental Chemistry and Sensors in Cape Cod Bay* *January, 2006*
MIT undergraduate IAP course, co-taught with Liz Kujawinski (WHOI), Franz Hover (MIT)

SHORT COURSES

- PROJECT MANAGEMENT PRINCIPLES AND PRACTICE *June 7-10, 2005*
UCLA Extension Short Course, Dr. Arnold Ruskin *Woods Hole, MA*

PROFESSIONAL MEMBERSHIPS

- Society for Applied Spectroscopy 2006–present
- IEEE 2005–present
- American Geophysical Union 1994–present
- American Institute of Aeronautics and Astronautics 1990–1996

PROFESSIONAL ACTIVITIES

ORION SENSORS COMMITTEE 2006–present

WHOI COMMITTEES

Women’s Committee 2005–present

AOP&E Safety Committee 2006–present