

Curriculum Vitae
DAVID W. CARESS

Education:

1984 B.S., Physics, Harvey Mudd College, Claremont, CA
1989 Ph.D., Geophysics, Scripps Institution of Oceanography, La Jolla, CA
 Graduate Advisors: John A. Orcutt and Richard N. Hey

Professional Experience:

2018-Present Principal Engineer III, MBARI, Moss Landing, CA
2017-2018 Software Engineer V, MBARI, Moss Landing, CA
2011-2017 Software Engineer IV, MBARI, Moss Landing, CA
2009-2011 Software Engineer III, MBARI, Moss Landing, CA
1998-2009 Senior Research Specialist, MBARI, Moss Landing, CA
1997-1998 Geophysicist, SAIC, Newport, RI
1994-1997 Geophysicist, SeaBeam Instruments, East Walpole, MA
1994-2006 Adjunct Associate Research Scientist
 Lamont-Doherty Earth Observatory (L-DEO), Palisades, NY
1989-1994 Associate Research Scientist, L-DEO
1985-1989 Graduate Research Assistant
 Scripps Institution of Oceanography (SIO), La Jolla, CA
1984-1985 Regents Fellow, SIO
1983 Undergraduate Research Fellow, L-DEO

Major Software Projects:

1993-Present: Responsible for development, and maintenance of MB-System, an open source Unix package for the processing and display of swath sonar data. Funded by NSF 1993-2018 & Packard Foundation 1998-present. With D. N. Chayes of UNH/CCOM and C. Ferreira of MARUM.
1995-1997: Responsible for conception, design, and development of SeaView realtime display and post-processing software for SeaBeam Instruments, including advanced 3D displays of sonar data and data analysis and editing tools.

Major Platform Projects:

2001-2007: Conceived and led development team for the MBARI Mapping AUV, an autonomous vehicle equipped with multibeam, sidescan and subbottom profiler sonars to achieve high-resolution seafloor mapping in the deep ocean. Now lead scientist for MBARI seafloor mapping operations.
2011-present: Conceived and leading development team for the Low Altitude Survey System, which seeks to develop a low altitude, ~1 cm scale autonomous survey system combining multibeam sonar, lidar, and stereo photographic imagery.

Research Cruises and Field Work:

- 1984 *R/V Thomas Washington* MRTN04; SeaBeam and magnetics survey in NE Pacific.
- 1986 *R/V Thomas Washington* PPTU04; SeaBeam, magnetics, dredging in Lau Basin.
- 1986 *R/V Thomas Washington* PPTU05; SeaBeam, hydrocast, dredging in Lau Basin.
- 1986 *R/V Gordon Sproul* Chovy Expedition; OBS seismic noise experiment.
- 1987 *R/V Thomas Washington* TUGA01; OBS microseismicity near Galapagos.
- 1987 *R/V Thomas Washington* TUGA02; Sea Beam, gravity, magnetics near Galapagos.
- 1988 *RRS Charles Darwin* 33B; GLORIA sidescan, magnetics, SCS in Havre Trough.
- 1991 *R/V Maurice Ewing* EW9103; MCS reflection survey of Society and Marquesas Is.
- 1992 *R/V Maurice Ewing* EW9204; OBS tomographic imaging of the Marquesas Is.
- 1993 *R/V Maurice Ewing* EW9301; Software/hardware installation.* #
- 1993 *R/V Maurice Ewing* EW9302; Coring, SCS, Hydrosweep in N. Atlantic.
- 1993 *R/V Maurice Ewing* EW9305; Hydrosweep, SCS, dredging, deep-tow, etc at Vema FZ.
- 1994 BARGE, Lake Mead, Nevada; Seismic reflection/refraction work in Lake Mead #
- 1996 *R/V Maurice Ewing* EW9602; Dredging, MCS, Hydrosweep survey of Austral Is.*#
- 1997 *R/V Seis Surveyor*; commercial SeaBeam survey in Gulf of Mexico
- 1998 *R/V Ocean Alert*, EM300 survey in Monterey Bay.
- 2000 *R/V Point Lobos* & *ROV Ventana*, Monterey Bay OBS deployment/benthic surveys.
- 2001 *R/V Western Flyer* and *ROV Tiburon*; Submarine canyons and coral reefs around Hawaii.
- 2002 RVIB Nathaniel B. Palmer, Seatrials of EM120 multibeam sonar offshore Chile.
- 2002 RVIB Nathaniel B. Palmer, Seatrials of EM120 multibeam sonar offshore Los Angeles
- 2003 *R/V Point Lobos* and *ROV Ventana*, Submarine canyon surveys in Monterey Bay.
- 2003 *R/V Western Flyer* and *ROV Tiburon*; Submarine canyons in the Gulf of California.
- 2004-2007 *R/V Point Lobos*; *ROV Ventana* Mapping surveys in Monterey Canyon*
- 2004-2008 *R/V Zephyr*; Mapping AUV surveys in and near Monterey Bay*
- 2006 *R/V Western Flyer*; Mapping AUV surveys in and near Barkley Canyon
- 2006 *R/V Thompson*; Mapping AUV surveys of Axial Seamount
- 2006 *R/V Zephyr*; Mapping AUV Surveys of Davidson Seamount*
- 2006 *R/V Zephyr*; Mapping AUV survey off Point Conception for US Navy*
- 2007 *R/V Zephyr*; Mapping AUV surveys of faults and canyons offshore Orange County, CA*
- 2007 *R/V Atlantis*; Mapping AUV surveys of Axial Seamount
- 2008 *R/V Zephyr*; Mapping AUV surveys of canyons and faults offshore Southern California*
- 2008 *R/V Atlantis*; Mapping AUV surveys of Axial Seamount and Endeavour Ridge
- 2009 *R/V Thompson*; Mapping AUV surveys in the Lau Basin #
- 2009 *R/V Zephyr*; Mapping AUV surveys of gas hydrate deposits and the Juan de Fuca Ridge*
- 2009 *R/V Point Lobos*; *ROV Ventana* Shallow chirp refraction tests in Monterey Bay*#
- 2010 *R/V Zephyr*; Mapping AUV survey of the SS Montebello Wreck *#
- 2010 *R/V Zephyr*; Mapping AUV surveys of Rodriguez and Davidson Seamounts*
- 2010 *R/V Zephyr*; Mapping AUV surveys of faults offshore Southern California*
- 2011 *R/V Zephyr*; Mapping AUV surveys of canyons and hydrates offshore Eel River*
- 2011 *R/V Zephyr*; Mapping AUV surveys along the Juan de Fuca Ridge*
- 2012 *R/V Point Lobos*; Multibeam and stereo camera mapping with *ROV Ventana**#
- 2012 *R/V Zephyr*; Mapping AUV surveys in the Gulf of California*
- 2012 *R/V Western Flyer*; Multibeam and stereo camera mapping with *ROV Doc Ricketts**#
- 2012 *R/V Rachel Carson*; Iceberg AUV development and testing
- 2013 *R/V Falkor*; Multibeam mapping of the Campeche Escarpment, Gulf of Mexico
- 2013 *R/V Western Flyer*; Multibeam and stereo camera mapping with *ROV Doc Ricketts**#

2013 *R/V Rachel Carson*; Iceberg AUV development and testing
 2013 *CCGS Sir Wilfrid Laurier*; AUV surveys, ROV dives, coring in the Beaufort Sea
 2014 *R/V Rachel Carson*; Mapping AUV surveys across the San Gregorio Fault*
 2014 *R/V Rachel Carson*; Mapping AUV surveys in Santa Monica Basin*
 2014 *R/V Western Flyer*; Lidar, multibeam and stereo camera mapping on *ROV Doc Ricketts**#
 2014 *R/V Western Flyer*; Mapping AUV surveys in Santa Cruz Basin
 2014 *R/V Rachel Carson*; Iceberg AUV development and testing
 2014 *R/V Rachel Carson*; Mapping AUV surveys on Axial Seamount and Escanaba Trough*
 2015 *R/V Rachel Carson*; Mapping AUV surveys in Gulf of California and offshore Ensenada*
 2015 *R/V Rachel Carson*; Iceberg AUV development and testing
 2015 *R/V Rachel Carson*; Mapping AUV surveys on Sur Ridge*#
 2015 *R/V Rachel Carson*; Mapping AUV surveys in Monterey Canyon as part of the Coordinated Canyon Experiment (CCE)*
 2015 *R/V Western Flyer*; Lidar, multibeam and stereo camera mapping on *ROV Doc Ricketts**#
 2016 *R/V Rachel Carson*; Mapping AUV surveys in Monterey Canyon as part of the CCE*
 2016 *R/V Western Flyer*; Lidar, multibeam and stereo camera mapping on *ROV Doc Ricketts**#
 2016 *R/V Rachel Carson*; Mapping AUV surveys on Axial Seamount and Escanaba Trough*
 2016 *CCGS Sir Wilfrid Laurier*; AUV surveys, ROV dives, coring in the Beaufort Sea
 2017 *R/V Rachel Carson*; Mapping AUV surveys in Monterey Canyon as part of the CCE*
 2017 *R/V OR1*; Mapping AUV surveys and MiniROV dives southwest of Taiwan
 2017 *R/V Western Flyer*; Lidar, multibeam and stereo camera mapping on *ROV Doc Ricketts**#
 2017 *R/V Adolf Jensen*; AUV mapping of icebergs, Petersen Fjord, East Greenland
 2017 *Icebreaker Araon*; AUV surveys, ROV dives, MCS, coring in the Beaufort Sea
 2018 *R/V Rachel Carson*; Mapping AUV testing in Monterey Bay*#
 2018 *R/V Rachel Carson*; Low altitude survey testing in Monterey Bay*#
 2018 *R/V Rachel Carson*; Mapping AUV surveys offshore Morro Bay and Southern California*#
 2018 *R/V Rachel Carson*; Low altitude surveys offshore Southern California*#
 2018 *R/V Kilo Moana*; Mapping AUV surveys on Axial Seamount*#
 2018 *R/V Rachel Carson*; Mapping AUV and low altitude surveys on Sur Ridge*#
 2018 *R/V Falkor*; Mapping AUV, low altitude surveys, and ROV sampling of hydrothermal vent fields in Pescadero Basin, Gulf of California*#
 2019 *R/V Rachel Carson*; Mapping AUV surveys offshore Morro Bay*
 2019 *R/V Rachel Carson*; Mapping AUV surveys Axial Seamount*#
 2019 *R/V Rachel Carson*; Mapping AUV Terrain Relative Navigation testing in Monterey Bay
 2019 *R/V Western Flyer*; Low altitude survey testing in Monterey Bay*#
 2019 *R/V Atlantis*; AUV Sentry multibeam sea trials
 2020 *R/V Rachel Carson*; Mapping AUV surveys in Monterey Canyon and on Smooth Ridge*
 2020 *R/V Western Flyer*; Low altitude surveys in Monterey Canyon and on Sur Ridge*#
 2021 *R/V Western Flyer*; Low altitude surveys at Octopus Garden near Davidson Seamount*#
 2021 *R/V Rachel Carson*; Mapping AUV surveys along the Cascadia Margin*
 2021 *R/V Western Flyer*; Low altitude surveys of hydrothermal vents on Axial Seamount*#
 2021 *R/V Falkor*; Ship multibeam mapping in the southern Gulf of California, ROV heat flow and hydrothermal vent sampling in Pescadero Basin, Gulf of California*#
 2022 *R/V Rachel Carson*; Mapping AUV surveys at Octopus Garden & Davidson Seamount*#
 2022 *R/V Thomas Thompson*; AUV Sentry and ROV Jason operations on Axial Seamount#
 2022 *Icebreaker Araon*; AUV surveys, ROV dives, MCS, coring in the Beaufort Sea

2023 R/V Falkor (too); Mapping AUV and ROV SuBastian operation on the equatorial Mid-Atlantic Ridge#
 2023 R/V Rachel Carson; Mapping AUV surveys on the Cascadia Margin and Axial Seamount*#
 2023 R/V Rachel Carson; Low Altitude surveys on Sponge Ridge*#
 2024 R/V David Packard; Multibeam Sea Acceptance Testing*#

* Chief or Co-Chief Scientist # Principal or Co-Principal Investigator

Professional Activities:

1984-Present Member, American Geophysical Union (AGU)
 1984-1985 University of California Regents Fellow
 1992 L-DGO award for best AGU abstract by MG&G Junior Staff
 1993-1996 Ocean Drilling Program Lithosphere Panel
 1994 NSF OCE Proposal Review Panel, January and July Panels
 1994 Lecturer, Multibeam Course, US/Canada Hydrographic Commission
 1999-2009 Chair, MBARI Data User's Committee
 1994 NSF SBIR Remote Sensing Proposal Review Panel, September Panel
 1994 Swath Mapping Sonar Short Course for AAPG meeting (w/G. Greene)
 1999-2000 Consultant to SeaBeam Instruments, software development.
 1999-2002 Ocean Drilling Program Site Survey Panel
 2002 Consultant to Raytheon Polar Services Co., MB-System training and RVIB Palmer multibeam sonar acceptance trials.
 2002-2003 Integrated Ocean Drilling Program Site Survey Panel
 2005-2006 Consultant to Raytheon Polar Services Co., MB-System training.
 2009 NSF OCE Proposal Review Panel, November Panel
 2010 NSF OCE EM122 Multibeam Workshop & Panel
 2011-2012 Consultant to Ocean Floor Geophysics, MB-System training.
 2014 Covener, MB-System Developers' Workshop
 2014 NSF OCE Proposal Review Panel, November Panel
 2016-Present Member of GMT Steering Committee
 2019-Present Member of DESSC (Deep Submergence Science Committee)

Mentoring:

2014-2016: Giancarlo Troni, MBARI Postdoctoral Scholar
 2016-2019: Monica Wolfson-Schwehr, MBARI Postdoctoral Scholar
 2023-Present: Mauro Candeloro, MBARI Postdoctoral Scholar