

R. STEVEN NEREM
CURRICULUM VITAE

EDUCATION

The University of Texas at Austin	Aerospace Engineering	Ph.D.	1989
Dissertation: <i>Determination of the General Ocean Circulation Using Satellite Altimetry from a Simultaneous Solution for the Earth's Gravity Field</i> , Advisor: Byron D. Tapley			
The University of Texas at Austin	Aerospace Engineering	M.S.	1985
Thesis: <i>The Use of Satellite Altimeter Data for Determining the Mean Sea Surface</i> , Advisors: Byron D. Tapley and George H. Born			
Colorado State University	Geology	B.S.	1982

ACADEMIC APPOINTMENTS

Professor, Dept. of Aerospace Engineering Sciences, University of Colorado at Boulder, August 2005 – present.

Associate Professor, Dept. of Aerospace Engineering Sciences, University of Colorado at Boulder, August 2000 – 2005.

Associate Director, Colorado Center for Astrodynamics Research, University of Colorado at Boulder, January 2002 – present.

Associate Professor, Dept. of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, September 1999 – August 2000.

Assistant Professor, Dept. of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, January 1996 – August 1999.

OTHER PROFESSIONAL EXPERIENCE

Visiting Scientist, National Center for Atmospheric Research, Climate and Global Dynamics, Boulder, Colorado, 2006-2007

Visiting Scientist, Groupe de Recherches en Géodésie Spatiale, Centre National d'Etudes Spatiale, Toulouse, France, March – August, 2002

Geophysicist, Space Geodesy Branch, Laboratory for Terrestrial Physics, NASA Goddard Space Flight Center, Greenbelt, MD, May 1990 - January 1996.

Member of Technical Staff, Pilot Ocean Data System, Jet Propulsion Laboratory, Pasadena, CA, May 1985 - Aug. 1985.

Physical Scientist, National Oceanic and Atmospheric Administration, assigned to the Center for Space Research, The University of Texas at Austin, Sept. 1982 - Dec. 1984.

Research Assistant, National Oceanic and Atmospheric Administration, assigned to NASA Johnson Space Center, June 1982 - Aug. 1982

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

Member, American Geophysical Union, 1982-present.

Member, International Union of Geodesy and Geophysics, 1987-present.
 Member, International Association of Geodesy, 1989-present.
 Member, American Institute of Aeronautics and Astronautics, 1990-present.
 Member, European Geophysical Union, 1991-present.
 Member, American Society of Engineering Education, 1997-present
 Member, Institute of Electrical and Electronics Engineers, 1998-present

**PROFESSIONAL SOCIETY AND MAJOR GOVERNMENTAL COMMITTEES, EDITORIAL BOARDS,
 AND CONFERENCES CHAIRED**

Member, TOPEX Precision Orbit Determination Team, 1989-present.
 Member, TOPEX Gravity Model Improvement Team, 1989-96.
 Member, International Association of Geodesy Special Study Group 2.107, Gravity Field Determination by Satellite Gravity Gradiometry, 1991-95.
 Member, International Association of Geodesy Special Study Group 2.132, Time-Varying Gravitational Effects on Satellite Orbits, 1991-95.
 Member, International Association of Geodesy Special Study Group 2.151, Altimetry: Optimal Processing for Geodesy, Geophysics, and Oceanography, 1991-95.
 Member (corresponding), International Association of Geodesy Special Study Group 2.130, Non-Gravitational Force Modeling Effects on Satellite Orbits, 1991-95.
 Member, NOAA Climate and Global Change Program Proposal Review Panel, 1992.
 Session Chairman, Planetary Geodesy, American Geophysical Union Spring Meeting, 1992.
 Session Chairman, Satellite Altimetry, American Geophysical Union Fall Meeting, 1992.
 Member, NASA/GSFC Source Evaluation Board (SEB), Geodynamics Contract, 1993.
 Geodesy Section Program Chairman, American Geophysical Union Spring Meeting, 1993.
 Session Chairman, Geodesy at the Crossroads, American Geophysical Union Spring Meeting, 1993.
 Session Chairman, Ocean Topography and Circulation, American Geophysical Union Fall Meeting, 1993
 Member, NASA Proposal Review Panel, Near Earth Asteroid Rendezvous (NEAR) Mission Facility Instrument Team, 1994.
 Geodesy Section Program Chairman, American Geophysical Union Spring Meeting, 1994.
 Session Chairman, Applications of Geodesy to Monitoring Global Change, American Geophysical Union Spring Meeting, 1994.
 Member, AIAA Committee on Astrodynamics Standards, 1992-present.
 Member, TOPEX SWT Subcommittee on Intercomparison and Merging of Geodetic Data, 1990-93.
 Member, EOS Precision Orbit Determination/Mission Design Panel, 1990-92.
 Member, Geodesy Section Executive Committee, American Geophysical Union, 1994-present.
 Member, IAG Special Study Group 4.168, Inversion of Satellite Altimetry, 1995-99.
 Member, IAG Special Study Group 3.165, Global Gravity Field Determination and Evaluation, 1995-99.
 Geodesy Section Press Officer, American Geophysical Union Spring Meeting, 1995.
 Session Chairman, Global Sea Level Change, American Geophysical Union Spring Meeting, 1995.
 Session Chairman, Satellite Altimetry, American Geophysical Union Fall Meeting, 1995.

Session Co-convenor, International Union of Geodesy and Geophysics/International Association of Geodesy General Assembly, 1995.

Session Chairman, European Geophysical Society, 1996.

Session Chairman, Planetary Geodesy, American Geophysical Union Fall Meeting, 1996.

Member, NASA Planetary Science Data Steering Group (PSDSG), 1995-96.

Session Chair, IGS/PSMSL Sea Level Workshop, 1997

Group Leader for Calibration/Validation, Jason Science Team Meeting, Baltimore, May, 1997.

U. S. Representative, International Geoid Service, International Association of Geodesy

Session Chair, Geodesy, American Geophysical Union Fall Meeting, December 1998.

Session Chair, Geodesy, American Geophysical Union Spring Meeting, May 1999.

Session Chair, Geodesy, American Geophysical Union Fall Meeting, December 2000.

Member, IAG/IAPSO Joint Working Group on Geodetic Effects of Nontidal Oceanic Processes, 1999-2003

Session Chair, Geodesy, American Geophysical Union Fall Meeting, December 2003.

Editor, Geodesy Section, *Eos Transactions*, 1999-2002.

Associate Editor, *Journal of Geophysical Research - Solid Earth*, 1995-1998.

Secretary, Geodesy Section, American Geophysical Union, 2002-2004

Member, Committee on a Strategy to Mitigate the Impact of Sensor De-Scopes and De-Manifests on the NPOESS and GOES-R Spacecraft, NRC Space Studies Board, 2007

Lead Author, Intergovernmental Panel on Climate Change (IPCC), Working Group I, 5th Assessment, Chapter 13.

Member, Surface Water Ocean Topography (SWOT) Mission Science Definition Team

Member, GRACE Follow-On Project Science Advisory Team

Team Leader, NASA Sea Level Change Team (N-SLCT), 2014-2017

Member, Committee on Earth Sciences and Applications from Space, National Academies, 2017-present.

Member, Committee on Solid Earth Geophysics, National Academies, 2020-present.

UNIVERSITY COMMITTEES/ADMINISTRATIVE ASSIGNMENTS

The University of Texas at Austin

Member, Graduate Studies Committee, 1996-97

Member, ASE/EM Computer Committee, 1997-98

Member, ASE/EM ABET Metrics Committee, 1997

Chair, Orbital Mechanics Ph.D. Qualifying Exam Committee, 1997

ASE/EM Graduate Area Coordinator (Orbital Mechanics), 1998-2000

Engineering Honors Program Committee, 1998-2000

Member, Center for Space Research Review Committee, College of Engineering, 1999

University of Colorado

Faculty Director, CU Space Minor, 2015-present

UNAVCO Member Representative, 2018-present

Member, Geophysics Program Steering Committee, 2002-present

Fellow, Cooperative Institute for Research in Environmental Sciences, 2003-present

HONORS AND AWARDS

M. J. Thompson Presidential Graduate Endowed Fellowship in Aerospace Engineering, The University of Texas at Austin, 1987-88.
NASA/Goddard Space Flight Center Outstanding Performance/Quality Increase Award, 1991.
NASA/Goddard Space Flight Center Performance Award, 1992.
NASA Group Achievement Award (Goddard Earth Model GEM-T3), 1992.
Editors' Citation for Excellence in Refereeing for Geophysical Research Letters, 1993.
NASA/GSFC Certificate of Outstanding Performance, 1993.
NASA/Goddard Space Flight Center Quality Increase Award, 1993.
NASA/GSFC Special Act Group Award, Lageos II Project Team, 1993.
NASA Group Achievement Award (TOPEX/Poseidon Mission Design), 1993.
NASA/Goddard Space Flight Center Group Achievement Award (Lageos-2 Project Team), 1993.
NASA/Goddard Space Flight Center Group Achievement Award (Joint Gravity Model 1 Team), 1993.
NASA/GSFC Performance Award (Outstanding), 1994
NASA/GSFC Certificate of Outstanding Performance, 1994
NASA Public Service Group Achievement Award (TOPEX/POSEIDON Precision Orbit Determination Team), 1994
NASA/Goddard Space Flight Center Group Achievement Award (TOPEX/Poseidon Precision Orbit Determination Team), 1994
NASA Exceptional Scientific Achievement Medal, 1995
Big XII Faculty Fellowship (1998-99)
1998 Faculty Excellence Awards Recipient, Halliburton Foundation Young Faculty Award
2005 Bowie Lecturer, American Geophysical Union
2006 Geodesy Section Award, American Geophysical Union
Fellow of the American Geophysical Union, 2008
Associate Fellow, American Institute of Aeronautics and Astronautics, 2009
American Astronautical Society Earth Science and Applications Award (2015, inaugural)
Aerospace Engineering Sciences Faculty Outstanding Research Award, 2019

CONTINUING EDUCATION

“GIPSY/OASIS Software Users Class, Jet Propulsion Laboratory,” given at the University of Colorado, Boulder, Colorado, July 1993.
"American Society of Engineering Education (ASEE) National Effective Teaching Institute (NETI)", Washington, DC, June 20-22, 1996.
Center for Teaching Effectiveness, The University of Texas at Austin, New Faculty Workshop, August, 1996.

RESEARCH INTERESTS

Satellite altimetry, global sea level determination, Earth gravity field determination, time variations of the Earth's gravity field, planetary geodesy, precision orbit determination.

PUBLICATIONS**R. Steven Nerem****Refereed Journal Publications**

1. Lundberg, J., V. Szebehely, R. S. Nerem, B. Beal, "Surfaces of Zero Velocity in the Restricted Problem of Three Bodies," *Celestial Mechanics*, Vol. 36, pp. 191-205, 1985.
2. Nerem, R. S., R. K. Holz, M. R. Helfert and B. D. Tapley, "Vegetation Change Detection from NOAA Polar Orbiting Satellites," *GeoJournal*, Vol. 11, No. 4, pp. 313-320, 1985.
3. Ludeke, A. K., R. K. Holz, P. L. Phillips and R. S. Nerem, "Seasonal/Cultural Change in Central America: an Analysis Application of NOAA-AVHRR Imagery," *Revista Geografica*, No. 103, June, 1986.
4. Tapley, B. D., R. S. Nerem, C. K. Shum, J. C. Ries, and D. N. Yuan, "Determination of the General Circulation of the Oceans from a Joint Gravity Field Solution," *Geophysical Research Letters*, Vol. 15, No. 10, pp. 1109-1112, September, 1988.
5. Nerem, R. S., B. D. Tapley, and C. K. Shum, "Determination of the Ocean Circulation Using GEOSAT Altimetry," *Journal of Geophysical Research (Geosat Special Issue I)*, Vol. 95, No. C3, pp. 3163-3179, March 15, 1990.
6. Shum, C. K., R. A. Werner, D. T. Sandwell, B. H. Zhang, R. S. Nerem, and B. D. Tapley, "Variations of Global Mesoscale Eddy Energy Observed From Geosat," *Journal of Geophysical Research (Geosat Special Issue II)*, Vol. 95, No. C10, pp. 17865-17876, October 15, 1990.
7. Lerch, F. J., R. S. Nerem, D. S. Chinn, J. C. Chan, G. B. Patel, and S. M. Klosko, "New Error Calibration Tests for Gravity Models Using Subset Solutions with Independent Data: Applied to GEM-T3," *Geophysical Research Letters*, Vol. 20, No. 2, pp. 249-252, February 5, 1993.
8. Nerem, R. S., B. F. Chao, A. Y. Au, J. C. Chan, S. M. Klosko, N. K. Pavlis, and R. G. Williamson, "Time Variations of the Earth's Gravitational Field From Satellite Laser Ranging to LAGEOS," *Geophysical Research Letters*, Vol. 20, No. 7, pp. 595-598, April 9, 1993.
9. Nerem, R. S., B. G. Bills, and J. B. McNamee, "A High Resolution Gravity Model for Venus: GVM-1," *Geophysical Research Letters*, Vol. 20, No. 7, pp. 599-602, April 9, 1993.
10. Nerem, R. S., B. H. Putney, J. A. Marshall, F. J. Lerch, E. C. Pavlis, S. M. Klosko, S. B. Luthcke, G. B. Patel, R. G. Williamson, and N. P. Zelensky, "Expected Orbit Determination Performance for the TOPEX/Poseidon Mission," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 31, No. 2, pp. 333-354, March 1993.
11. Smith, D. E., F. J. Lerch, R. S. Nerem, M. T. Zuber, G. B. Patel, S. K. Fricke, and F. G. Lemoine, "An Improved Gravity Model for Mars: Goddard Mars Model-1," *Journal of Geophysical Research*, Vol. 98, No. E11, pp. 20871-20889, November 25, 1993.
12. Lerch, F. J., R. S. Nerem, B. H. Putney, T. L. Felsentreger, B. V. Sanchez, S. M. Klosko, G. B. Patel, R. G. Williamson, D. S. Chinn, J. C. Chan, K. E. Rachlin, N. L. Chandler, J. J.

- McCarthy, J. A. Marshall, S. B. Luthcke, D. E. Pavlis, J. W. Robbins, S. Kapoor, and E. C. Pavlis, "Geopotential Models from Satellite Tracking, Altimeter, and Surface Gravity Data: GEM-T3 and GEM-T3S," *Journal of Geophysical Research*, Vol. 99, No. B2, pp. 2815-2839, February 10, 1994.
13. Nerem, R. S., F. J. Lerch, R. G. Williamson, S. M. Klosko, J. W. Robbins, and G. B. Patel, "Gravity Model Improvement Using the DORIS Tracking System on the SPOT-2 Satellite," *Journal of Geophysical Research*, Vol. 99, No. B2, pp. 2791-2813, February 10, 1994.
 14. Christensen, E. J., B. J. Haines, K. C. McColl, and R. S. Nerem, "Observations of Geographically Correlated Orbit Errors for TOPEX/Poseidon Using the Global Positioning System," *Geophysical Research Letters*, Vol. 21, No. 19, pp. 2175-2178, September 15, 1994.
 15. Nerem, R. S., F. J. Lerch, S. M. Klosko, G. B. Patel, R. G. Williamson, and C. J. Koblinsky, "Ocean Dynamic Topography from Satellite Altimetry Based on the GEM-T3 Gravity Model," *Manuscripta Geodaetica*, Vol. 19, pp. 346-366, September, 1994.
 16. Smith, D. E., R. Kolenkiewicz, R. S. Nerem, P. J. Dunn, M. H. Torrence, J. W. Robbins, S. M. Klosko, R. G. Williamson, and E. C. Pavlis, "Contemporary Global Horizontal Crustal Motion", *Geophysical Journal International*, Vol. 119, pp. 511-520, 1994.
 17. Nerem, R. S., F. J. Lerch, J. A. Marshall, E. C. Pavlis, B. H. Putney, B. D. Tapley, R. J. Eanes, J. C. Ries, B. E. Schutz, C. K. Shum, M. M. Watkins, J. C. Chan, S. M. Klosko, S. B. Luthcke, G. B. Patel, N. K. Pavlis, R. G. Williamson, R. H. Rapp, R. Biancale, and F. Nouel, "Gravity Model Development for TOPEX/POSEIDON: Joint Gravity Models 1 and 2," *Journal of Geophysical Research*, Vol. 99, No. C12, pp. 24,421-24,447, December 15, 1994.
 18. Tapley, B. D., J. C. Ries, G. W. Davis, R. J. Eanes, B. E. Schutz, C. K. Shum, M. M. Watkins, J. A. Marshall, R. S. Nerem, B. H. Putney, S. M. Klosko, S. B. Luthcke, D. E. Pavlis, R. G. Williamson, and N. P. Zelensky, "Precision Orbit Determination for TOPEX/POSEIDON," *Journal of Geophysical Research*, Vol. 99, No. C12, pp. 24,383-24,404, December 15, 1994.
 19. Nerem, R. S., E. J. Schrama, C. J. Koblinsky, and B. D. Beckley, "A Preliminary Evaluation of Ocean Topography from the TOPEX/Poseidon Mission," *Journal of Geophysical Research*, Vol. 99, No. C12, pp. 24,656-24,583, December 15, 1994.
 20. Christensen, E. J., B. J. Haines, S. J. Keihm, C. S. Morris, R. S. Norman, G. H. Purcell, B. G. Williams, B. C. Wilson, G. H. Born, M. E. Parke, S. K. Gill, C. K. Shum, B. D. Tapley, R. Kolenkiewicz, R. S. Nerem, "Calibration of TOPEX/POSEIDON at Platform Harvest," *Journal of Geophysical Research*, Vol. 99, No. C12, pp. 24,465-24,485, December 15, 1994.
 21. Nerem, R. S., "Global Mean Sea Level Variations from TOPEX/POSEIDON Altimeter Data," *Science*, Vol. 268, pp. 708-710, May 5, 1995.
 22. Nerem, R. S., C. Jekeli, and W. M. Kaula, "Gravity Field Determination and Characteristics: Retrospective and Prospective," *Journal of Geophysical Research*, Vol. 100, No. B8, pp. 15053-15074, August 10, 1995.

23. Nerem, R. S., "Terrestrial and Planetary Gravity Fields," *Reviews of Geophysics*, Supplement, U.S. National Report to International Union of Geodesy and Geophysics 1991-1994, pp. 469-476, July, 1995.
24. Nerem, R. S., "Measuring Global Mean Sea Level Variations Using TOPEX/POSEIDON Altimeter Data," *Journal of Geophysical Research*, Vol. 100, No. C12, pp. 25,135-25,151, December 15, 1995.
25. Bills, B. G., and R. S. Nerem, "A Harmonic Analysis of Martian Topography," *Journal of Geophysical Research*, Vol. 100, No. E12, pp. 26,317-26,326, 1995.
26. Kiefer, W. S., B. G. Bills, and R. S. Nerem, "An Inversion of Gravity and Topography for Mantle and Crustal Structure on Mars," *Journal of Geophysical Research - Planets*, Vol. 101, No. E4, pp. 9239-9252, April 15, 1996.
27. Frey, H. V., B. G. Bills, R. S. Nerem, and J. H. Roark, "The Isostatic State of Martian Topography Revisited," *Geophysical Research Letters*, Vol. 23, No. 7, pp. 721-724, April 1, 1996.
28. Tapley, B. D., M. M. Watkins, J. C. Ries, G. W. Davis, R. J. Eanes, S. R. Poole, H. J. Rim, B. E. Schutz, C. K. Shum, R. S. Nerem, F. J. Lerch, J. A. Marshall, S. M. Klosko, N. K. Pavis, and R. G. Williamson, "The JGM-3 Gravity Model," *J. Geophys. Res.*, Vol. 101, No. B12, pp. 28029-28049, 1996.
29. Nerem, R. S., K. E. Rachlin, and B. D. Beckley, "Characterization of Global Mean Sea Level Variations Observed by TOPEX/POSEIDON Using Empirical Orthogonal Functions," *Surveys in Geophysics*, Vol. 18, pp. 293-302, 1997.
30. Nerem, R. S., B. J. Haines, J. Hendricks, J. F. Minster, G. T. Mitchum, and W. B. White, "Improved determination of global mean sea level variations using TOPEX/POSEIDON altimeter data," *Geophysical Research Letters*, Vol. 24, No. 11, pp. 1331-1334, June 1, 1997.
31. Schenewerk, M. S., T. M. vanDam, and R. S. Nerem, "Seasonal motion of the Annapolis, MD GPS Monument," *GPS Solutions*, Vol. 2, No. 3, pp. 41-49, 1999.
32. Chen, J. L., C. R. Wilson, D. P. Chambers, R. S. Nerem, and B. D. Tapley, "Global water mass balance and mean sea level variations", *Geophysical Research Letters*, Vol. 25, No. 19, pp. 3555-3558, 1998.
33. Chen, J. L., C. R. Wilson, R. J. Eanes, and R. S. Nerem, "Geophysical Interpretation of Observed Geocenter Motions", *Journal of Geophysical Research* Vol. 104, No. B2, pp. 2683-2690, 1999.
34. Nerem, R. S., "Measuring Very Low Frequency Sea Level Variations Using Satellite Altimeter Data," *Global and Planetary Change*, Vol. 20, No. 2-3, pp. 157-171, 1999.
35. Nerem, R. S., D. P. Chambers, E. W. Leuliette, G. T. Mitchum, and B. S. Giese, "Variations in Global Mean Sea Level Associated with the 1997-1998 ENSO Event: Implications for Measuring Long Term Sea Level Change", *Geophysical Research Letters*, Vol. 26, No. 19, pp. 3005-3008, 1999.

36. Goldstein, D. B., R. S. Nerem, E. S. Barker, J. V. Austin, A. B. Binder, W. C. Feldman, "Using the Impact of the Lunar Prospector Orbiter in a Polar Cold Trap to Detect Water Ice", *Geophysical Research Letters*, Vol. 26, No. 12, pp. 1653-1656, 1999.
37. Nerem, R. S., R. J. Eanes, P. Thompson, and J. L. Chen, "Observations of Seasonal Variations of the Earth's Gravity Field Using Satellite Laser Ranging and Geophysical Models", *Geophysical Research Letters*, Vol. 27, No. 12, pp. 1783-1786, 2000.
38. Chambers, D. P., J. L. Chen, R. S. Nerem, and B. D. Tapley, "Global Mean Sea Level Change and the Earth's Water Mass Budget", *Geophysical Research Letters*, Vol. 27, No. 19, p. 3073-3076, 2000.
39. Bills, B. G., and R. S. Nerem, "Mars Topography: Lessons Learned from Spatial and Spectral Domain Comparisons of MOLA and USGS Data", *J. Geophys. Res.*, Vol. 106, No. E12, pp. 32915-32926, 2001.
40. Goldstein, D. B., J. V. Austin, E. S. Barker, and R. S. Nerem, "Short-time Exosphere Evolution Following an Impulsive Vapor Release on the Moon", *J. Geophys. Res.*, Vol. 106, No. E12, pp. 32841-32846, 2001.
41. Park, K.-D., R. Nerem, J. L. Davis, M. S. Schenewerk, G. A. Milne, and J. X. Mitrovica, "Investigation of glacial isostatic adjustment in the northeast U.S. using GPS measurements", *Geophys. Res. Lett.*, 29(11), 1509, doi:10.1029/2001GL013782, 2002.
42. Leuliette, E. W., R. S. Nerem, and G. L. Russell, "Detecting Time Variations in Gravity Associated with Climate Change", *J. Geophys. Res.*, Vol. 107, No. B6, doi:10.1029/2001JB000404, 2002.
43. Chambers, D. P., T. J. Urban, D. Fujii, C. A. Mehlhaff, and R. S. Nerem, Low Frequency Variations in Global Mean Sea Level: 1950-2000, *J. Geophys. Res.*, Vol. 107, No. C4, pp. 1-10, 2002.
44. Nerem, R. S., and G. T. Mitchum, "Estimates of vertical crustal motion derived from differences of TOPEX/POSEIDON and tide gauge sea level measurements", *Geophys. Res. Lett.*, 29(19), 1934, doi:10.1029/2002GL015037, 2002.
45. Chambers, D. P., C. A. Mehlhaff, T. J. Urban, and R. S. Nerem, Analysis of interannual and low-frequency variability in global mean sea level from altimetry and tide gauges, *Phys. Chem. Earth*, Vol. 27, pp.1407-1411, 2002.
46. Gabor, M. J., and R. S. Nerem, "Satellite-Satellite Single Difference Phase Bias Calibration As Applied to Ambiguity Resolution", *Navigation*, Vol. 49, No. 4, pp. 223-242, 2003.
47. Bender, P. L., R. S. Nerem, and J. M. Wahr, Possible Future Use of Laser Gravity Gradiometers, *Space Sci. Rev.*, Vol. 108, No. 1, pp. 385-392, 2003.
48. Nerem, R. S., J. M. Wahr, and E. W. Leuliette, Measuring the Distribution of Ocean Mass Using GRACE, *Space Sci. Rev.*, Vol. 108, No. 1, pp. 331-344, 2003.
49. Gabor, M. J., and R. S. Nerem, Characteristics of Satellite-Satellite Single Difference Widelane Fractional Carrier Phase Biases, *Navigation*, Vol. 51, No. 1, pp. 77-92, 2004.

50. Park, K. D., R. S. Nerem, M. S. Schenewerk, and J. L. Davis, Site-Specific Multipath Characteristics of Global IGS and CORS GPS Sites, *J. Geodesy*, Vol. 77, No. 12, pp. 799-803, DOI 10.1007/s00190-003-0359-9, 2004.
51. Cazenave, A., and R. S. Nerem, Present-Day Sea Level Change: Observations and Causes, *Rev. Geophys.*, 42, RG3001, doi:10.1029/2003RG000139, 2004.
52. Leuliette, E. W., R. S. Nerem, and G. T. Mitchum, Results of TOPEX/Poseidon and Jason calibration to Construct a Continuous Record of Mean Sea Level, *Marine Geodesy*, Vol. 27, No. 1-2, pp. 79-94, 2004.
53. Chambers, D. P., J. Wahr, and R. S. Nerem, Preliminary observations of global ocean mass variations with GRACE, *Geophys. Res. Lett.*, 31, L13310, doi:10.1029/2004GL020461, 2004.
54. Yoon, Y. T., R. S. Nerem, M. M. Watkins, B. J. Haines, and G. L. Kruizinga, The Effects of GPS Carrier Phase Ambiguity Resolution on Jason-1, *Marine Geodesy*, Vol. 27, No. 3-4, 2004.
55. Lombard, A., A. Cazenave, K. DoMinh, C. Cabanes, and R. S. Nerem, Thermosteric sea level rise for the past 50 years: comparison with tide gauges and inference on water mass contribution, *Global and Planetary Change*, Vol. 48, No. 4, pp. 303-312, 2005.
56. Sutton, E. K., J. M. Forbes, and R. S. Nerem, Global thermospheric neutral density and wind response to the severe 2003 geomagnetic storms from CHAMP accelerometer data, *J. Geophys. Res.*, 110, A09S40, doi:10.1029/2004JA010985, 2005.
57. Forbes, J. M., G. Lu, S. Bruinsma, R. S. Nerem, and X. Zhang, Thermosphere density variations due to the 15-24 April 2002 solar events from CHAMP/STAR accelerometer measurements, *J. Geophys. Res.*, 110, A12S27, doi:10.1029/2004JA010856, 2005.
58. Luthcke, S. B., H. J. Zwally, W. Abdalati, D. D. Rowlands, R. D. Ray, R. S. Nerem, F. G. Lemoine, J. J. McCarthy, and D. S. Chinn, Recent Greenland Ice-Sheet Mass Loss Derived from High-Resolution Analysis of Gravity Observations, *Science*, 314, 1286-1289, 2006.
59. Bruinsma S., J. M. Forbes, R. S. Nerem, X. Zhang, Thermosphere density response to the 20–21 November 2003 solar and geomagnetic storm from CHAMP and GRACE accelerometer data, *J. Geophys. Res.*, 111, A06303, doi:10.1029/2005JA011284, 2006.
60. Nerem R. S., A. Cazenave, D. P. Chambers, L. Fu, E. W. Leuliette, G. T. Mitchum, Comment on “Estimating future sea level change from past records” by Nils-Axel Mörner, *Global and Planetary Change*, 55, 358-360, 2006.
61. Sutton E. K., J. M. Forbes, R. S. Nerem, T. N. Woods, Neutral density response to the solar flares of October and November, 2003, *Geophys. Res. Lett.*, 33, L22101, doi:10.1029/2006GL027737, 2006.
62. Nerem, R. S., E. Leuliette, and A. Cazenave, Present-day sea-level change: A review. *Comptes Rendus Geoscience*, 338, 1077-1083, 2006.
63. Chambers, D. P., M. Tamisiea, R. S. Nerem, and J. C. Ries, Effects of Ice Melting on GRACE Observations of Ocean Mass Trends, *Geophys. Res. Lett.*, 34, L05610, doi:10.1029/2006GL029171., 2007.

64. Sutton, E.K., R.S. Nerem, and J.M. Forbes, Density and Winds in the Thermosphere from Accelerometer Data, *J. Spacecraft and Rockets*, Vol. 44, No. 6, pp. 1210-1219, 2007.
65. Guo J., W. Wan, J. M. Forbes, E. Sutton, R. S. Nerem, T. N. Woods, S. Bruinsma, L. Liu, Effects of solar variability on thermosphere density from CHAMP accelerometer data, *J. Geophys. Res.*, 112, A10308, doi:10.1029/2007JA012409, 2007.
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20. What's Happening in the Bathtub?: An Overview of Present-Day Sea Level Change, Nov. 14, 2007.
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323. Nerem, R. S., L. Bell, D. Masters, L. Lestak, C. Meertens, K. Williams, Using Geodesy to Evaluate the Impact of Sea Level Rise on NASA Centers and Facilities, NASA CASI Investigators Meeting, NASA Headquarters, Washington D.C., Feb., 2015.
324. R. S. Nerem, B. D. Hamlington, F. Landerer, R. Leben, J. Willis, G. Blewitt, and W. Hammond, Global and Regional Sea Level Change Over the 20th Century: How Can it Inform Us About the 21st Century?, Workshop on Global and Regional Sea Level Variability and Change, Mallorca, Spain, June, 2015.
325. Nerem, R. S., What have we learned about global and regional sea level change in the satellite era?, presented at the 26th IUGG General Assembly, IUGG-4166, Prague, June 25, 2015.
326. Bar-Sever, Y., B. Haines, M. Heflin, D. Kuang, A. Sibois, and R. S. Nerem, GRASP 2015 – revised design and data analysis for a mission to improve the terrestrial reference frame, presented at the 26th IUGG General Assembly, IUGG-4145, Prague, June 25, 2015.
327. Nerem, R. S., B. Hamlington, M. Merrifield, P. Thompson, The impacts of ENSO/PDO on regional sea level change: After 20 years, are we finally seeing a change in the pattern of Pacific sea level change?, Ocean Surface Topography Science Team Meeting, Reston, Virginia, Oct., 2015.
328. Nerem, R. S., An Overview of the Activities of the NASA Sea Level Change Team, Ocean Surface Topography Science Team Meeting, Reston, Virginia, Oct., 2015.

329. Talpe, M., F. G. Lemoine, and R. S. Nerem, Bridging the Potential Gap in Polar Ice Sheet Melt Estimates between GRACE and GRACE Follow-On Using SLR/DORIS Data, Abstract G31B-1117, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec, 2015.
330. Murray, K., M. Murray, A. Sheehan, R. S. Nerem, J. van Wijk, and G. Axen, GPS measurements of deformation near the Rio Grande rift: Evidence for variations in the rate of extension, Abstract G13A-1015, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec, 2015.
331. Hardy, R. A., R. S. Nerem, and D. N. Wiese, The Influence of Atmospheric Modeling Errors on GRACE Estimates of Mass Loss in Greenland and Antarctica, Abstract G31A-1099, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec, 2015.
332. Nerem, R. S., and R. A. Hardy, The Time Evolution of the Earth's Gravity Field Since 2002: Do we need to rethink geopotential-based reference systems in the GRACE era?, Abstract G34A-01, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec, 2015.
333. Jorda, G., G. P. Compo, and R. S. Nerem, Sea Level Variability in the Coastal Ocean Induced by Atmospheric Forcing for the Period 1871-2012, Abstract G43B-1041, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec, 2015.
334. Nerem, R. S., Y. Bar-Sever, B. J. Haines, S. Desai, and M. B. Heflin, The Influence of the Terrestrial Reference Frame on Studies of Sea Level Change, Abstract G52A-01, presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec, 2015.
335. Talpe, M. J., R. S. Nerem, F. G. Lemoine, and M. Blossfeld, Influence of SLR Solutions on Reconstructions of Polar Ice Sheet Melt from Time-Variable Gravity using GRACE, Poster EART-118, presented at 2016 ESA Living Planet Symposium, Prague, Czech Republic, 9-13 May, 2016.
336. Nerem, R. S., Global Mean Sea Level Change Observed from 23-Years of Satellite Altimetry: What is it telling us?, Jason-3 Launch Science Team Meeting, January 17, 2016.
337. Nerem, R. S., An Overview of the NASA Sea Level Change Team (N-SLCT), AAAS 2016 Annual Meeting, February 11-15, Washington, D. C., 2016.
338. Nerem, R. S., Challenges for Detecting an Acceleration of Sea Level Rise in the 23-Year Satellite Altimeter Record, NOAA Climate Observation Steering Committee, Silver Spring, MD, July, 2016.
339. Nerem, R. S., An Overview of the NASA Sea Level Change Team (N-SLCT), NASA Sea Level Change Team Meeting, Norfolk, VA, Sept. 7-9, 2016.
340. Hardy, R. A., R. S. Nerem, D. N. Wiese, Atmospheric Errors in GRACE Estimates of Ice Sheet Mass Loss, Abstract B.2, presented at 2016 GRACE Science Team Meeting, Potsdam, Germany, 5-7 Oct 2016.
341. Nerem, R. S., J. Fasullo, B. Hamlington, D. S. Masters, M. A. Merrifield, G. T. Mitchum, and P. R. Thompson, Has the rate of sea level change accelerated during the altimeter era?, Ocean Surface Topography Science Team Meeting, La Rochelle, France, October, 2016.

342. Nerem, R. S., AGU 2016 Town Hall: An Overview of the Activities of the NASA Sea Level Change Team (N-SLCT), 2016 Fall Meeting, AGU, San Francisco, CA, Dec 13, 2016.
343. Chandanpurkar, H. A., J. T. Reager, J. S. Famiglietti, and R. S. Nerem, Analyzing mass balance estimates of global continental discharge from remote sensing and reanalysis, Abstract A41E-0090, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec, 2016.
344. Croteau, M. J., B. Loomis, S. B. Luthcke, and R. S. Nerem, Development of a daily GRACE water storage estimate for hydrology, Abstract G13A-1088, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec, 2016.
345. Talpe, M. J., R. S. Nerem, F. G. Lemoine, E. Forootan, M. Blossfeld, and M. G. Schmidt, Extending the record of terrestrial water storage (TWS) in major continental basins from time-variable gravity, Abstract G13B-1101, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec, 2016.
346. Hardy, R. A., R. S. Nerem, and D. N. Wiese, Exploring data combination of GRACE, altimetry, and GNSS vertical motion for improved estimates of Antarctic mass balance, Abstract G13B-1103, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec, 2016.
347. Nerem, R. S., J. Fasullo, B. Hamlington, D. S. Masters, M. A. Merrifield, G. T. Mitchum, P. R. Thompson, and B. D. Beckley, Has the rate of sea level rise accelerated during the altimeter era?, Abstract G24A-04, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec, 2016.
348. Cheon, S., B. Hamlington, P. R. Thompson, M. A. Merrifield, R. S. Nerem, R. R. Leben, and K. Kim, An ongoing shift in Pacific ocean sea level, Abstract OS13A-1792, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec, 2016.
349. Larson, J., R. S. Nerem, F. W. Landerer, and B. Hamlington, Towards data-driven regional sea level projections, Abstract OS31B-2023, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 12-16 Dec, 2016.
350. Nerem, R. S., J. Fasullo, B. D. Hamlington, D. Masters, K. McMenamin, G. T. Mitchum, and B. D. Beckley, Understanding the Acceleration of Sea Level Rise During the Altimeter Era, University of Bologna, Bologna, Italy, Feb. 20, 2017.
351. Larson, J., D. Masters, J. Willis, and R. S. Nerem, Coastal Altimetry in Support of NASA's Oceans Melting Greenland (OMG) Project, 10th Coastal Altimetry Workshop, Florence, Italy, Feb. 21-24, 2017.
352. Grgic, M., R. S. Nerem, and T. Bašić, The Estimation of Sea Level Rise Impact on Coastal Zones of the Eastern Adriatic Sea, 10th Coastal Altimetry Workshop, Florence, Italy, Feb. 21-24, 2017.
353. Jorda, G., R. S. Nerem, M. J. Croteau, and D. N. Wiese, Direct and Indirect Estimates of Mediterranean Mass Variability, Abstract EGU2017-17775, European Geosciences Union General Assembly, Vienna Austria, April 23-28, 2017.

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355. Larson, J., M. J. Croteau, D. Masters, and R. S. Nerem, A Web Platform for Understanding Global and Regional Sea Level Projections , WCRP Meeting on Regional Sea Level Changes and Coastal Impacts, New York, NY, July 10-14, 2017.
356. Jorda, G., R. S. Nerem, M. J. Croteau, and D. N. Wiese, Direct and Indirect Estimates of Mediterranean Mass Variability, WCRP Meeting on Regional Sea Level Changes and Coastal Impacts, New York, NY, July 10-14, 2017.
357. Nerem, R. S., TOPEX/Poseidon: The Opening Chapter in a 25-year Story on Sea Level Change, TOPEX/Poseidon Anniversary, Jet Propulsion Laboratory, August 10, 2017.
358. Hardy, R. A., R. S. Nerem, and D. N. Wiese, Constraining the Mass Budget of Antarctica Using a Combination of Satellite Geodetic Data, International Glaciological Society, Boulder, CO, Aug. 14-19, 2017.
359. Nerem, R. S., B. D. Beckley, J. Fasullo, B. D. Hamlington, D. Masters, and G. T. Mitchum, Detecting the Acceleration of Sea Level Change in the Satellite Record and its Validation with GRACE, Ball Aerospace Co., Boulder, CO, Sept. 29, 2017.
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361. Nerem, R. S., B. D. Beckley, J. Fasullo, B. D. Hamlington, D. Masters, and G. T. Mitchum, Detecting the Acceleration of Sea Level Change in the Satellite Record and its Validation with GRACE, GRACE Science Team Meeting, Austin, TX, Oct. 11, 2017.
362. Hardy, R. A., R. S. Nerem, and D. N. Wiese, Exploration of Combination of GRACE, ICESat, and GPS Data over Antarctica, GRACE Science Team Meeting, Austin, TX, Oct. 11, 2017.
363. Croteau, M. J., B. D. Loomis, R. S. Nerem, Recovering sub-monthly terrestrial water storage variations with a new daily GRACE mascon estimate, GRACE Science Team Meeting, Austin, TX, Oct. 11, 2017.
364. Hardy, R. A., R. S. Nerem, and D. N. Wiese, Evaluation of AOD1B RL06 over Greenland and Antarctica, GRACE Science Team Meeting, Austin, TX, Oct. 11, 2017.
365. Croteau, M. J., B. D. Loomis, D. N. Wiese, and R. S. Nerem, Introduction of the web-based Mascon Visualization Tool, GRACE Science Team Meeting, Austin, TX, Oct. 11, 2017.
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367. Fenty, I., R. S. Nerem, D. Masters, and D. Menemenlis, Linking Sea Surface Height Variations with Hydrographic Variability around the Greenland Ice Sheet to Improve

- Understanding of Sea Level Rise, Ocean Surface Topography Science Team Meeting, Miami, FL, Oct. 22, 2017.
368. Haines, B. J., and 8 others including R. S. Nerem, Connecting Jason-3 to the Long-term Sea Level Record: Results from Harvest and Regional Campaigns, Ocean Surface Topography Science Team Meeting, Miami, FL, Oct. 22, 2017.
 369. Deccia, C. M. A., R. S. Nerem, and T. P. Yunck, A SmallSat constellation mission architecture for a GRACE-type mission design, Abstract G31B-0918, presented at 2017 Fall Meeting, AGU, New Orleans, Louisiana, 11-15 Dec, 2017.
 370. Chandanpurkar, H., J. Fasullo, and R. S. Nerem, Nonlinearity in ENSO-Precipitation-Terrestrial Water Storage Relationships, Abstract H53J-1614, presented at 2017 Fall Meeting, AGU, New Orleans, Louisiana, 11-15 Dec, 2017.
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 372. Yunck, T., A. Saltman, S. Bettadpur, R. S. Nerem, and J. Abel, The Earth Gravitational Observatory (EGO): Nanosat Constellations for Advanced Gravity Mapping, Abstract G21C-05, presented at 2017 Fall Meeting, AGU, New Orleans, Louisiana, 11-15 Dec, 2017.
 373. Hardy, R. A., R. S. Nerem, and D. N. Wiese, Methods for Combination of GRACE Gravimetry and ICESat Altimetry over Antarctica on Monthly Timescales, Abstract G31C-0925, presented at 2017 Fall Meeting, AGU, New Orleans, Louisiana, 11-15 Dec, 2017.
 374. Croteau, M. J., B. D. Loomis, and R. S. Nerem, Recovering Sub-Monthly Hydrological Signals with a New Daily Iterated GRACE Mascon Solution, Abstract G31B-0910, presented at 2017 Fall Meeting, AGU, New Orleans, Louisiana, 11-15 Dec, 2017.
 375. Nerem, R. S., B. D. Beckley, J. Fasullo, B. D. Hamlington, D. Masters, G. T. Mitchum, Understanding the Acceleration of Sea Level Rise During the Altimeter Era, CESM Land Ice Working Group Meeting, National Center for Atmospheric Research, January 10-11, 2018.
 376. Nerem, R. S., J. Fasullo, J. Lenaerts, M. J. Willis, G. Blewitt, and W. Hammond, Using Satellite Measurements to Improve Regional Estimates of the Impacts of Sea Level Change, NASA Sea Level Change Team Meeting, March, 2018.
 377. Grgić, M., R. S. Nerem, and T. Bašić, Sea Level Rise Projections in East Mid-Adriatic Sea Area, Abstract EGU2018-16271, presented at 2018 EGU General Assembly, European Geosciences Union, Vienna, Austria, April 8-13, 2018.
 378. Nerem, R. S., Using Satellite Gravity Measurements to Unravel the Causes of Sea Level Change, GRACE Follow-On Science Team Meeting, May, 2018.
 379. Nerem, R. S., B. D. Beckley, A. Cazenave, J. Church, J. Fasullo, B. Hamlington, B. Meyssignac, G. T. Mitchum, and J. Willis, A 25-Year Record of Global Mean Sea Level Change: What Have We Learned?, COSPAR 42nd Assembly, July, 2018.

380. Nerem, R. S., M. Croteau, B. D. Hamlington, and J. Fasullo, Using Satellite Gravity Measurements to Unravel the Satellite Altimeter Record of Sea Level Change, Copenhagen, 2nd joint meeting of the International Gravity Field Service and Commission 2 of the International Association of Geodesy, Sept. 2018.
381. Cazenave, A., and R. S. Nerem, A 25-Year Record of Global Mean Sea Level Change: What have we learned? What are the new challenges?, 25 Years of Progress in Radar Altimetry Symposium, Azores, Portugal, September, 2018.
382. Nerem, R. S., and J. Fasullo, An Emergent Pattern of Forced Sea Level Rise in the Satellite Altimeter Record and Implications for the Future, Abstract GC13D-1042, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
383. Heijkoop, E. R., R. S. Nerem, W. C. Hammond, G. Blewitt and K. F. Tiampo, Using Satellite Measurements to Improve Regional Estimates of the Impacts of Sea Level Change, Abstract OS51E-1304, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
384. Hardy, R. A. , R. S. Nerem, D. N. Wiese and A. S. Gardner, Enhancing the Spatial Resolution of Monthly GRACE Solutions in Antarctica with ICESat and other Geodetic Observations, Abstract C22A-03, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
385. Croteau, M. J., B. D. Loomis and R. S. Nerem, Daily GRACE terrestrial water storage estimation and uncertainty for informing hydrology models, Abstract H44A-02, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
386. Chandanpurkar H. A., J. Famiglietti, J. T. Reager, R. S. Nerem, D. P. Chambers, D. N. Wiese and M.-H. Lo, Seasonality of global land and ocean mass as a metric of global water cycle variability, Abstract H33K-2232, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
387. Deccia, C., R. S. Nerem, and D. N. Wiese, Designing a GRACE-type satellite constellation for hydrologic science, Abstract G13C-0557, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
388. Hardy, R. A. , R. S. Nerem, D. N. Wiese and A. S. Gardner, Combination of ICESat and GRACE to Obtain High Resolution Mass Variation in the Antarctic Ice Sheet at Monthly Timescales, Abstract U13B-05, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
389. Hamlington, B. D., J. Fasullo, and R. S. Nerem, Uncovering Long-term Regional Trends in the Satellite Altimeter Record, Abstract OS43B-08, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
390. Yunck, T., A. Saltman, S. V. Bettadpur, R. S. Nerem, M. V. Widner, C. M. A. Deccia, and A. Veneziano, Design For A Permanent Earth Gravitational Observatory, Abstract G13C-0556, presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec, 2018.
391. Nerem, R. S., J. Ries, and M. Tamisiea, Satellite Measurements and Geodetic Infrastructure, National Academy Workshop of the Evolving Geodetic Infrastructure, La Jolla, CA, February, 2019.

392. Fasullo, J. T., and R. S. Nerem, An Emergent Pattern of Forced Sea Level Rise in the Satellite Altimeter Record and Implications for the Future, NASA Sea Level Change Team Meeting, Annapolis, MD, March, 2019.
393. Heijkoop, E. R., Nerem, R. S. and Willis, M. J., Using High Resolution Digital Elevation Models for Small Scale Inundation Studies of Coastal Megacities, NASA Sea Level Change Team Meeting, Annapolis, MD, March, 2019.
394. Hammond, W. C., Heijkoop, E. R., Nerem, R. S., Willis, M. J. and Blewitt, G., Estimating Global Vertical Land Motion from GPS for Relative Sea Level Change Studies, NASA Sea Level Change Team Meeting, Annapolis, MD, March, 2019.
395. Nerem, R. S., B. Hamlington, J. T. Fasullo, T. C. Harvey, and S. Adhikari, A Data-Driven Path Toward Regional Sea Level Projections, NASA Sea Level Change Team Meeting, Annapolis, MD, March, 2019.
396. Nerem, R. S., J. Fasullo, and B. D. Hamlington, How Satellite Altimetry Informs Us About Future Sea Level Change, Abstract EGU2019-10513, *Geophys. Res. Abs.*, Vol. 21, presented at 2019 EGU General Assembly, European Geosciences Union, Vienna, Austria, April 7-12, 2019.
397. Nerem, R. S., J. T. Fasullo, and B. D. Hamlington, How Satellite Altimetry Informs Us About Future Sea Level Change, 27th General Assembly, International Union of Geodesists and Geophysicists, Montreal, Canada, July, 2019.
398. Nerem, R. S., J. T. Fasullo, T. Harvey, B. D. Hamlington, and S. Adhikari, Extrapolating Satellite Data Records for Short-Term Sea Level Projections, Ocean Surface Topography Science Team Meeting, Chicago, October, 2019.
399. Nerem, R. S., J. Fasullo, B. D. Hamlington, and S. Adhikari, and T. C. Harvey, Extrapolating Satellite Data Records for Short-Term Regional Sea Level Projections: Understanding the contributions of forcing agents, Abstract GC11M-1180, presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec, 2019.
400. Fasullo, J., and R. S. Nerem, Drivers of the Altimeter-Era Forced Response in Regional Sea Level and Consequences for the Coming Decades, Abstract OS13A-01, presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec, 2019.
401. Willis, M. J., E. R. Heijkoop, R. S. Nerem, and K. F. Tiampo, Very High Resolution Topography of Coastal Megacities for Testing Inundation Scenarios, Abstract OS22A-05, presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec, 2019.
402. Heijkoop, E. R., R. S. Nerem, and M. J. Willis, Comparison of Remote Sensing Techniques for Determining Mean Sea Level near Coastal Megacities and its Impact on the Effects of Sea Level Change, Abstract OS31D-1762, presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec, 2019.
403. Boening, C., J. Fasullo, F. W. Landerer, R. S. Nerem, D. N. Wiese, and J. K. Willis, Land/Ocean Water Exchange – Impacts on the Global Hydrologic and Sea Level Budget, Abstract GC41A-02, presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec, 2019.

404. Morton, Y., Y. Wang, C. Roesler, and R. S. Nerem, Coherent GNSS-R signal processing to retrieve water level in coastal and in-land water areas, Abstract OS23B-1786, presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec, 2019.
405. Nerem, R. S., Planet Ocean: Taking the Pulse of our World, Symposium on Earth Science and Applications from Space with Special Guest Michael Freilich, National Academies, January 2020.
406. Nerem, R. S., Satellite Altimeter and Gravity Measurements: What they are telling us about how the Earth is changing, Aerospace Engineering Sciences department seminar, Feb., 2020.
407. Tiampo, K., Willis, M., Nerem, R. S., Heijkoop, E., and Johnson, J., Combining Sentinel-1A/B InSAR and high-resolution topography in the study of coastal megacities, Abstract EGU2020-4267, *Geophys. Res. Abs.*, Vol. 22, presented at 2020 EGU General Assembly, European Geosciences Union, May 4-8, 2020.
408. Nerem, R. S., and J. Fasullo, Observed Regional Sea Level Trends: Climate Drivers and Implications for Projecting Future Change, Abstract EGU2020-10513, *Geophys. Res. Abs.*, Vol. 22, presented at 2020 EGU General Assembly, European Geosciences Union, May 4-8, 2020.
409. Nerem, R. S., Fasullo, J., and Hamlington, B., The Emergence of the Forced Response of Climate Change in the Altimeter Sea Level Record, Ocean Surface Topography Science Team Meeting, October, 2020.
410. Putnam, A., Desai, S., and Nerem, R. S., Estimating the Sea State Bias for TOPEX, Ocean Surface Topography Science Team Meeting, October, 2020.
411. Nerem, R. S., CU Boulder Grand Challenge and the Space Minor, AIAA ASCENDx Summit on Space Policy and Education, University Space Exploration session, October 21, 2020.
412. Putnam, A., S. Desai, and R. S. Nerem, Error Analysis of Empirical Sea State Bias Models for Pulse-limited and SAR Altimetry, Abstract A088-0006, presented at the 2020 Fall Meeting, American Geophysical Union, Dec. 2020.
413. Deccia, C. M. A., Wiese, D. N., Loomis, B. D., & Nerem, R. S. (2020). Design of future Earth observing mass change constellations using small satellites, Abstract G001-13, presented at the *American Geophysical Union Fall Meeting 2020*.
414. Harvey, T. C., Hamlington, B., Frederikse, T., & Nerem, R. S. (2020). Drivers of Coastal United States Relative Sea-Level Trends During the Satellite Altimeter-Era, Abstract OS007-04, presented at the *American Geophysical Union Fall Meeting 2020*.
415. Nerem, R. S., Fasullo, J., & Hamlington, B. (2020). The Emergence of the Forced Response of Climate Change in the Altimeter Sea Level Record, Abstract OS006-07, presented at the *American Geophysical Union Fall Meeting 2020*.
416. Willis, M. J., Tiampo, K. F., Heijkoop, E. R. R., & Nerem, R. S. (2020). Combining Geodetic Techniques to Predict Tidal Inundation at Coastal Megacities, Abstract OS007-01, presented at the *American Geophysical Union Fall Meeting 2020*.

417. Heijkoop, E. R., Nerem, R. S., and Willis, M. J.,(2020), A Coastal Mean Sea Level and Sea Level Rise Product Derived from ICESat-2 Laser Altimetry, Abstract OS006-03, presented at the *American Geophysical Union Fall Meeting 2020*.
418. Roesler, C., Wang, Y., Morton, J., Nerem, R. S., Coherent GPS Reflections over Ocean Surface, paper WE1.R13.10, IEEE IGARSS Meeting, 2020.
419. Deccia, C. M. A., Wiese, D. N., Loomis, B. D., & Nerem, R. S. (2020), Design of GRACE-like Small Satellite Constellations for Improved Temporal Gravity Measurements, GRACE Science Team Meeting, 2020.