

CURRICULUM VITAE

Adrian Antal Borsa

Institute of Geophysics and Planetary Physics
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Professional Preparation

Harvard University, Cambridge, MA	Government	B.A. <i>cum laude</i> (1988)
School of International Relations and Pacific Studies, UCSD	Int'l Relations	M.P.I.A. (1991)
Scripps Institution of Oceanography, UCSD	Geophysics	Ph.D (2005)
Institute of Geophysics and Planetary Physics, UCSD	Geophysics	Postdoc (2005-2007)

Academic Appointments

Associate Professor, Scripps Institution of Oceanography, UCSD (2016-)
Research areas: remote hydrology, tectonic geodesy, satellite altimeter calibration/validation
Assistant Researcher and Lecturer, Scripps Institution of Oceanography, UCSD (2012-2016)
Visiting Scholar, Institute of Geophysics and Planetary Physics, UCSD (2007-2012)
Postdoctoral Scholar, Institute of Geophysics and Planetary Physics, UCSD (2005-2007)
Graduate Student Researcher, Institute of Geophysics and Planetary Physics, UCSD (1998-2005)

Professional Appointments

Director, Institute of Geophysics and Planetary Physics, Scripps Institution of Oceanography (2020-)
Data Products Manager, Plate Boundary Observatory, UNAVCO Inc., Boulder, CO (2008-2012)
Managed data and dataflow operations for NSF's EarthScope Plate Boundary Observatory.
Geophysicist, United States Geological Survey, Pasadena, CA (2007)
Research areas: real-time GPS, airborne laser altimeter calibration/validation
Managed the USGS-SCIGN network of 97 continuous GPS stations in Southern California.

Professional Activities

UNAVCO Board of Directors (2020-)
GNET (Greenland GNSS Network) Advisory Committee (2019-)
IAG Inter-Commission Committee on Geodesy for Climate Research (2018-)
NASA NISAR Science Team (2016-)
Alaska Satellite Facility User Working Group (2016-)
NASA Earth Surface Team Meeting Co-Chair (2019)
NSF Grand Challenges in Geodesy Workshop Committee (2018-2019)
UNAVCO GNSS User Working Group (2017-2018)
EarthScope Hydrogeodesy Synthesis Workshop Co-Convener (2017)
UNAVCO Board of Directors (2016)

Selected Peer-Reviewed Publications (*advised student/postdoc authors in italics*)

Neely, W. R., Borsa, A. A., Burney, J. A., Levy, M. C., Silverii, F., & Sneed, M. (2021). Characterization of groundwater recharge and flow in California's San Joaquin Valley from InSAR-observed surface deformation. *Water Resources Research*, 57(4). doi: 10.1029/2020WR028451

Lau, N., Borsa, A. A., & Becker, T. W. (2020). Present-day crustal vertical velocity field for the contiguous United States. *Journal of Geophysical Research: Solid Earth*, 125(10), e2020JB020066.

Levy, M. C., Neely, W. R., Borsa, A. A., & Burney, J. A. (2020). Fine-scale spatiotemporal variation in subsidence across California's San Joaquin Valley explained by groundwater demand. *Environmental Research Letters*. doi: 10.1088/1748-9326/abb55c

- Silverii, F.*, E.K. Montgomery Brown, A.A. Borsa, A.J. Barbour (2020): “Hydrologically induced deformation in Long Valley Caldera and adjacent Sierra Nevada.” Journal of Geophysical Research: Solid Earth, 125(5), 10.1029/2020JB019495
- Adusumilli, S.*, A.A. Borsa, and *F. Silverii* (2019): “A decade of terrestrial water storage changes across the contiguous United States from GPS and GRACE.” Geophysical Research Letters, 46(22).
- Borsa, A.A., H.A. Fricker, K.M. Brunt (2019): “A terrestrial validation of ICESat elevation measurements and implications for global reanalyses.” IEEE Transactions on Geoscience and Remote Sensing, 57:9, 10.1109/TGRS.2019.2909739
- Enzminger, T. L., Small, E. E., & Borsa, A. A. (2019). Subsurface water dominates Sierra Nevada seasonal hydrologic storage. Geophysical Research Letters. doi: 10.1029/2019gl084589
- Neely, W.R.*, A.A. Borsa, F. Silverii (2019): “GInSAR: A cGPS correction for enhanced InSAR time series.” IEEE Transactions on Geoscience and Remote Sensing, 10.1109/TGRS.2019.2934118
- Kraner, M.L., W.E. Holt, A.A. Borsa, (2018). "Seasonal non-tectonic loading inferred from cGPS as a potential trigger for the M6.0 South Napa Earthquake." Journal of Geophysical Research: Solid Earth, 123, 10.1029/2017JB015420
- Enzminger, T.L., E.E. Small, A.A. Borsa (2018). “Accuracy of snow water equivalent estimated from GPS vertical displacements: A synthetic loading case study for western U.S. mountains,” Water Resources Research, 54, 10.1002/2017WR021521
- Becker, T.W., A.R. Lowry, C. Faccenna, B. Schmandt, A. Borsa, C. Yu (2015). “Western U.S. intermountain seismicity caused by changes in upper mantle flow.” Nature, 524, 458–461
- Borsa, A.A., D.C. Agnew, D.R. Cayan, (2014). “Ongoing drought-induced uplift in the western United States.” Science, 345(6204), 1587–1590
- Borsa, A.A., G. Moholdt, H.A. Fricker, K.M. Brunt, (2014). “A range correction for ICESat and its potential impact on ice-sheet mass balance studies.” The Cryosphere, 8, 345–357
- Trugman, D.T., A.A. Borsa, D.T. Sandwell, (2014). “Did stresses from the Cerro Prieto geothermal field influence the El Mayor-Cucapah rupture sequence?” Geophysical Research Letters, 41(24)
- Borsa, A.A. and J.-B. Minster (2012). “Rapid determination of near-fault earthquake deformation using differential LiDAR.” Bulletin of the Seismological Society of America, 102(4)
- Borsa, A.A., B.G. Bills, H.A. Fricker, J.-B. Minster (2007). “Modeling long-period noise in kinematic GPS applications.” Journal of Geodesy, 81(2)
- Hudnut, K.W., A.A. Borsa, C. Glennie and J.-B. Minster (2002). “High-resolution topography along surface rupture of the 16 October 1999 Hector Mine, California, earthquake from airborne laser swath mapping.” Bulletin of the Seismological Society of America, 92(4)

Selected Technical Activities and Reports

- A. Borsa (PI), OpenAltimetry cyberinfrastructure platform for discovery, access, and visualization of data from NASA's ICESat and ICESat-2 missions (www.openaltimetry.org).
- J. Freymeuller, R. Bendick, A.A. Borsa, A. Newman (Eds.) (2019): “Measuring the Restless Earth: Grand Challenges in Geodesy.” Report from NSF workshop “Revisiting Our Grand Challenges in Geodesy”, Michigan State University.
- Simons, M., Amelung, F., Borsa, A., Fielding, E., Hagar, B., Lu, Z., Meyer, F., Lohman, R. and Zebker, H., (2017): “Algorithm Theoretical Basis Document: NISAR L2 Coseismic, Transient and Secular Displacement Products.” NASA Technical Report
- Chapman, B., Rosen, P., Joughin, I., Siquera, P., Saatchi, S., Meyer, V., Borsa, A., Meyer, F., Simard, M., Lohman, R., Kellendorfer, J., Pinto, N., Holt, B., Simons, M., Rignot, E., Jones, C., Hensley, S., Buckley, S., Shen, Y., Shaffer, S., Durden, S., Horst, S., Sharma, P., Veeramachaneni, C., West, R., Kumar, R., Sharma, S., Mathur, A. (2018): “NISAR Cal/Val Plan.” JPL Technical Report D-80829.
- Amelung, F., Bawden, G., Borsa, A., Buckley, S., Callery, S., Chakraborty, M., Chapman, B., Das, A., Donnellan, A., Dubayah, R., Feigl, K., Fielding, E., Forster, R., Glasscoe, M., Hager, B., Hensley, S., Holt, B., Jones, C., Joughin, I., Kellendorfer, J., Kumar, R., Lohman, R., Lu, Z., Meyer, F., Misra, T., Monaldo, F., Oza, S., Pritchard, M., Rignot, E., Rosen, P., Saatchi, S., Sharma, P.,

Simard, M., Simons, M., Siquera, P., Zebker, H. (2018): “NISAR-ISRO SAR (NISAR) Mission Science Users’ Handbook” NASA Jet Propulsion Laboratory, 261 pp.

Teaching

UCSD: SIO239, First-Year Geophysics Student Seminar (Winter 2021)

UCSD: SIO10, The Earth (undergraduate general education course) (Spring 2017-present)

UCSD: SIO229, Gravity and Geomagnetism (graduate-level core course) (Winter 2013-present)

UCSD: SIO239, Geophysical Field Methods (Spring 2015)

UCSD: SIO298, Tectonic and Volcanic Deformation (graduate-level directed study) (Winter, Spring 2015)

Mentoring

Postdoctoral Advisor – Francesca Silverii (2017-2019), Christopher Johnson, co-advised (2017-2019), Ellen Knappe (2019-), Bonnie Ludka (2020-)

Ph.D Advisor – Wesley Neeley (in progress), Nick Lau (pre-candidacy), Marnie Bryant (pre-candidacy), Zel Hurewitz (pre-candidacy)

M.S. Advisor – Amy Whetter (in progress)

Undergraduate Advisor – Karan Sunil (2019-2020), Farhood Ensan (2019-2021)

Ph.D Committee Member – Eric Lindsey (2015), Matthew Siegfried (2015), Daniel Trugman (2017), Joanna Sherman (2018), Katia Tymofeyeva (2018), Matthew Cook (2019), Maryam Asagari (2019), Thomas Enzinger (2019, CU Boulder), Emma Harrison (2019), Wei Wang (2019), Susheel Adusumilli (in progress; co-advised pre-candidacy), Maya Becker (in progress), Noah Clayton (in progress, University of Montana), Lauren Kim (in progress), Pascal Polonik (in progress), Eric Rodriguez (in progress), Sanchit Sabhlok (in progress)

MS Committee Member – Meredith Kraner (2018, University of Nevada, Reno), Sandra Slead (2019)

Scripps Undergraduate Research Fellow – Kelly Devlin (summer 2016, 2017)

NSF RESESS Program – Angel Torres, Ashley Grijalva (2011), John Braswell (2010), Isiah Corley (2008)

Expeditions and Major Fieldwork

2012 salar de Uyuni, Bolivia. Led a third 2-week kinematic GPS resurvey of a 2500 km² region of dry lakebed for surface change detection, in support of NASA's ICESat-1 and ICESat-2 missions.

2009 salar de Uyuni, Bolivia. Led a second 2-week kinematic GPS resurvey of a 2500 km² region of dry lakebed for surface change detection, in support of NASA's ICESat mission.

2006 Bonneville Salt Flats, Utah. Led a 3-day kinematic GPS resurvey of a 20 km² region of dry lakebed for surface change detection.

2005 Southern San Andreas Fault. Participated in a 1-week airborne lidar survey as part of GPS base station ground crew.

2002 salar de Uyuni, Bolivia. Co-leader of a 3-week kinematic GPS survey of a 2500 km² region of dry lakebed to characterize the surface for use as a satellite altimeter reference surface in support of NASA's ICESat mission.

2001 Bonneville Salt Flats, Utah. Led a 5-day kinematic GPS survey of a 20 km² region of dry lakebed to test procedures for a follow-on expedition to Bolivia.