

Paul C. Sutton

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EDUCATION

University California at Santa Barbara ■ 1999

Ph.D. in Geography

Dissertation: "Census From Heaven"

University California at Santa Barbara ■ 1997

M.A. in Applied Statistics

University California at Santa Barbara ■ 1995

M.A. in Geography

Thesis: "Public Opinion of Population Issues: A survey of voters"

Union College in Schenectady, New York ■ 1983

B.S. in Chemistry

EXPERIENCE

1999 - Present	Department of Geography at the University of Denver Professor (2012 - Present) Associate (2005-2012) Assistant (1999 – 2005)
2012 – 2013	Barbara Hardy Inst. & School of the Natural and Built Environments Senior Research Fellow (University of South Australia)
2005 – 2006	School of Geography, Population, & Environmental Management Visiting Research Fellow (Flinders University)
1995 – Present	Research Associate National Geophysical Data Center of NOAA in Boulder CO
1992-1999	Department of Geography, University of California at Santa Barbara Lecturer, Graduate Student Researcher, and Teaching Assistant
1983-1993	Physics, Chemistry, and Math Teacher with Anacapa High School
1984-1992	Process Engineer with Santa Barbara Research Center

HONORS AND AWARDS

Best Poster Award at the World Geospatial Forum Hyderabad, India (2011)
Outstanding Faculty Member Award (Gamma Theta Upsilon 2003 & 2008)
Provost's Award for Best Sabbatical Proposal (\$2,500) (2005)
John I. Davidson President's Award for Best Practical Paper (2nd Place) (2005)
Award for Best Scientific Paper in Remote Sensing (3rd Place) (2005)
Boeing ASPRS Award for best paper in Image Analysis and Interpretation (1st Place) (2004)
UCSB Geography Department Excellence in Research Award (\$1,000) (1998)
NASA Earth System Science 'Mission to Planet Earth' Fellowship (1997-99)
Honorable Mention for Excellence in Teaching Award at UCSB (1996)

FUNDED RESEARCH

Foresight Global Environmental Migration Project (\$15,000, 2010) Co-Investigator with Robert Costanza quantifying change to ecosystem services in low lying coastal zones

State of the art Ecological Footprint Theory and Applications (\$2,000, 2010) DU Internationalization Grant to support curriculum development in Ecological Economics

FRF internal DU Grant: Geo-location and Radiance Calibration of the DMSP OLS (\$2,500, 2008)
This research involves lighting up a formerly 'dark' pixel in the nighttime images obtained by the DMSP OLS to inform our understanding of geo-location and radiance measurements

Data Mining the 'Making Connections – Denver' Survey Data (\$10K Annie E. Casey Foundation (2008)) This research involved the geo-referencing and exploratory analysis of a 'Making Connections' survey conducted by the Urban Institute, Annie E. Casey Foundation, and the Colorado Children's Campaign. The objective was to answer policy relevant questions about locations of residences and their relationship to myriad aspects of service utilization such as health care, education, and day care.

Geographic Information Science: Curriculum Assessment and Revision with Outreach Workshops (\$11K; 2007) Internal grant From University of Denver's (DU) Center for Teaching & Learning

"Brownsville by Bus" (\$25 K; 2005) DU Marsico course development and implementation grant with Matthew Taylor (http://urizen-geography.nsm.du.edu/~psutton/AAA_Sutton_WebPage/Sutton/Courses/Brownsville/Brownsville_By_Bus.htm)

Using Nighttime Imagery in Guatemala (\$900; 2004) International grant from University of Denver

Tamarisk Mapping Project (\$3,000; 2003) Colorado Department of Agriculture
Provide GIS mapping and Survey services to Eric Lane (CO state weed coordinator) Dept. of Ag

E-Learning in the Geo-Sciences (\$25,000; 2002) DU's Center for Teaching & Learning This was a grant in which I participated by developing and evaluating a 'E- Learning' course for our Intro to GIS course.

Mapping Urban Sprawl in the Denver Metro Area (\$2,500; 2002) DU
This was an internal grant used to cover the costs of buying satellite imagery of the Denver Metro area for the years 1980 (MSS), 1990 (Landsat), and 2000 (Landsat). This imagery is being analyzed in conjunction with 1990 and 2000 census data to spatially and temporally characterize urban growth in Denver.

Mapping Air Quality in the National Park System (\$125,000; 2000-2001) National Park Service
This research involved assembling point data from air quality monitoring networks (NADP, Ozone, and specific NPS networks), interpolating measurements across the conterminous U.S. using simple Kriging and IDW, cross-validating results, and posting maps via ArcIMS on the web

Marsicso Visiting Scholars Obtained Marsico funds to host the following scholars: Mercedes Pascual (University of Michigan), Chris Funk (UCSB); Petra Noble (University of Minnesota); Allesandro Galli (Global Footprint Network); Dan Montello (UCSB); John Cloud (NOAA).

PUBLICATIONS

(PEER-REVIEWED)

Morse, Lauren; Powell, Rebecca; **Sutton, Paul C. (In Press)** *Scampering in the City: Examining the viability of black-tailed prairie dogs in Denver* Applied Geography JAPG-D-12-00185R1

Tuttle, Benjamin; Anderson, Sharolyn; Elvidge, Christopher; **Sutton, Paul (In Press)** *It Used To Be Dark Here: Geolocation Calibration of the Defense Meteorological Satellite Program Operational Linescan System* Photogrammetric Engineering & Remote Sensing

Elvidge, C. D., Baugh, K. E., Anderson, S. J., **Sutton, Paul C.**, and Ghosh, T.:(2012) *The Night Light Development Index (NLDI): a spatially explicit measure of human development from satellite data*, Social Geography, 7, 23-35, doi:10.5194/sg-7-23-2012, 2012.

Kristina H. Yamamoto, Sharolyn J. Anderson, Rebecca L. Powell Donald G. Sullivan, **Paul C. Sutton** (2012) *Using LiDAR to Quantify Topographic and Bathymetric Details for Sea Turtle Nesting Beaches in Florida* Remote Sensing of Environment Ref.: RSE-D-12-00070R2 Volume 125 October 2012 Pages 125-133

Kristina H. Yamamoto, Sharolyn J. Anderson, Rebecca L. Powell Donald G. Sullivan, **Paul C. Sutton**, 2011. *Identifying Similar Biophysical Characteristics among Nesting Beaches of Green Turtles of Turkey Using Remote Sensing Techniques*, International Journal of Remote Sensing Applications, pp.22-29, Pub. Date: 2011- 12-31, Download: 31, www.ijrsa.org.

Sutton, Paul; Anderson, Sharolyn; Tuttle, Benjamin; Morse, Lauren (2011) *The real wealth of nations: Mapping and monetizing the human ecological footprint* Ecological Indicators ISSN 1470-160X, DOI: 10.1016/j.ecolind.2011.03.008.

Whalley, Brian; Saunders, Angharad; Lewis, Robin; Buenemann, Michela; **Sutton, Paul** (2011) *Curriculum Development – producing geographers for the 21st Century* Journal of Geography in Higher Education 35(3)

Costanza, Robert; Kubiszewski, Ida; Roman, Joe; **Sutton, Paul** (2011) *Changes in ecosystem services and migration in low-lying coastal areas over the next fifty years* FORESIGHT Global Environmental Migration project – a report for the UK Government's Chief Scientific Advisor Sir John Beddington <http://www.bis.gov.uk/foresight>

Anderson, Sharolyn J. , Tuttle, Benjamin T. , Powell, Rebecca L. and **Sutton, Paul C.** (2010) 'Characterizing relationships between population density and nighttime imagery for Denver, Colorado: issues of scale and representation', International Journal of Remote Sensing, 31: 21, 5733 — 5746

Ghosh, Tilottama, Christopher D. Elvidge, **Paul C. Sutton**, Kimberly E. Baugh, Daniel Ziskin and Benjamin T. Tuttle (2010) *Creating a Global Grid of Distributed Fossil Fuel CO2 Emissions from Nighttime Satellite Imagery* Energies , 3(12), 1895-1913; doi:10.3390/en3121895 <http://www.mdpi.com/1996-1073/3/12/1895/pdf>

Ghosh, Tilotamma; Powell, Rebecca; Elvidge, Christopher; Baugh ,Kimberly; **Sutton, Paul**; Anderson, Sharolyn. (2010) *Shedding Light on the Global Distribution of Economic Activity* The Open Geography Journal 3 147-160

Ghosh, Tilottama., Powell, Rebecca.L., Anderson, Sharolyn. **Sutton, Paul.C.** Elvidge, Christopher.D., (2010), *Informal Economy And Remittance Estimates of India Using Nighttime Imagery*, International Journal of Ecological Economics & Statistics, 17

Sutton, Paul C.; Anderson, Sharolyn, J.; Elvidge, Christopher D.; Tuttle, Benjamin, T.; Ghosh, Tilottama (2009) *Paving the Planet: Impervious Surface as a Proxy Measure of the Human Ecological Footprint* Progress in Physical Geography 33(4) pp. 1-18

Sutton, Paul C.; Fildes, Stephen; Forster, Clive; Ghosh, Tilottama; Goetz, Andrew (2009) *Darkness on the Edge of Town: Mapping Urban and Peri-Urban Australia Using Nighttime Satellite Imagery* Professional Geographer 62(1) pp. 119-133

Ghosh, Tilottama; Anderson, Sharolyn; Powell, Rebecca L.; **Sutton, Paul C.**; Elvidge, Christopher D. (2009) *Estimation of Mexico's Informal Economy and Remittances Using Nighttime Imagery* Remote sensing 1, 418-444; doi:10.3390/rs1030418 (<http://www.mdpi.com/2072-4292/1/3/418/pdf>)

Elvidge, Christopher D.; **Sutton, Paul, C.**; Ghosh, Tilottama; Tuttle, Benjamin, T.; Baugh, Kimberly E.; Bhaduri, Budhendra; Bright, Edward (2009) *A global poverty map derived from satellite data* Computers and Geosciences 35 pp 1652-1660

Costanza, Robert; Perez-Maqueo, Octavio; Martinez, M. Luisa; **Sutton, Paul C.**; Anderson, Sharolyn J.; Mulder, Kenneth (2008) *The Value of Coastal Wetlands for Hurricane Protection* Ambio 37(4) June pp 241-248

Sutton, Paul C.; Ghosh, Tilottama; Elvidge, Christopher D. (2007) *Estimation of Gross Domestic Product at Sub-National Scales using Nighttime Satellite Imagery* International Journal of Ecological Economics & Statistics 8(S07) ISSN 0973-1385

Elvidge, Chris; Safran, Jeff; Tuttle, Benjamin; **Sutton, Paul**; Cinzano, Pierantonio; Pettit, Donald; Arvesen, John; Small, Christopher. (2007) *Potential for Global Mapping of Development Via A Nightsat Mission* GeoJournal 69(1-2) June pp 45-53 ISSN (1572-9893) online

Christopher D. Elvidge, Pierantoni Cinzano, Donald R. Pettit, John Arvesen, **Paul C. Sutton**, Christopher Small, Ramakrishna Nemani, Travis Longcore, Catherine Rich, Jeffrey Saffran, John Weeks, and Steve Ebener (2007) *NightSat: The Mission Concept* International Journal of Remote Sensing 28(12) ISSN 1366-5901 online

Martinez, M.L.; Intralawan, A.; Vasquez, G.; Perez-Maqueo, O.; **Sutton, P.**; Landgrave, R.; (2007) *The Coasts of our world: Ecological, Economic, and Social Importance*. Ecological Economics 63(2-3) pp 254-272

Christopher Elvidge; Benjamin Tuttle; **Paul C. Sutton**; Kimberly E. Baugh; Ara T. Howard; Christina Milesi; Budhendra Bhuduri, Ramakrishna Nemani (2007) *Global Distribution and density of Constructed Impervious Surfaces* Sensors 2007, 7, pp 1962-1979

Sutton, Paul C.; Cova, Tom; Elvidge, Chris; (2006) *Mapping Exurbia in the conterminous United States using Nighttime Satellite Imagery* June 20(2) Geocarto International

Tom Cova, **Paul C. Sutton**, Dave Theobald (2004) *Exurban change detection in fire-prone areas with nighttime satellite imagery* Photogrammetric Engineering and Remote Sensing 70(11) pp 1249-1257

Elvidge, Chris; Milesi, Christina; Dietz, John; Tuttle, Benjamin; **Sutton, Paul**; Nemani, Ramakrishna; Vogelmann, James; (2004) *U.S. Constructed Area Approaches the Size of Ohio* EOS 85(24) pp 233-234

Paul C. Sutton (2003) *A scale-adjusted measure of "Urban Sprawl" using nighttime satellite imagery* Remote Sensing of Environment 86 pp 353-369

Paul C. Sutton, Chris Elvidge, Tom Obremski (2003) *Building and Evaluating Models to Estimate Ambient Population Density* Photogrammetric Engineering and Remote Sensing 69(5) pp 545-553

Sutton, Paul; (2003) *An Empirical Environmental Sustainability Index derived solely from Nighttime Satellite Imagery and Ecosystem Service Values* (2003) Population and Environment 24(4)

Sutton, Paul; Costanza Robert; (2002) *Global estimates of market and non-market values derived from nighttime satellite imagery, land use, and ecosystem service valuation* Ecological Economics (41) pp 509-527

Keri M. Konarska, **Paul C. Sutton**, Michael J. Castellon (2002) *Evaluating scale dependence of ecosystem service valuation: A comparison of NOAA-AVHRR and Landsat TM datasets* Ecological Economics (41) pp 491-507

Sutton, P; Roberts, D; Elvidge, C; Baugh, K; (2001) *Census from Heaven: An estimate of the global human population using nighttime satellite imagery* International Journal of Remote Sensing Vol 22 (16) pp 3061-3076

Sutton, P; Montello, D; (2000) *Public Opinion of Population Issues: A survey of Voters* The Southwestern Geographer Vol 4 pp54-93

Elvidge, C.D.; Baugh, K.E.; Dietz, J.; Bland, T; **Sutton, P.C.**; Kroehl, H.W.; (1998) *Radiance calibration of DMSP-OLS low-light imaging data of human settlements* Remote Sensing of Environment May 6th 1998

Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, S. Naeem, K. Limburg, J. Paruelo, R.V. O'Neill, R. Raskin, **P. Sutton**, and M. van den Belt. (1998). *Auditing the earth: Costanza and his coauthors reply*. Environment 40:26-27.

Sutton, P; (1997) *"Modeling Population Density using Nighttime Satellite Imagery and GIS"* Computers, Environment and Urban Systems 21(3/4) pp 227-244

Sutton, P; Roberts, D; Elvidge, C; and Meij, H; (1997) "A comparison of Nighttime Satellite Imagery and Population Density for the Continental United States" Photogrammetric Engineering and Remote Sensing 63 (11) pp 1303-1313

Costanza, R; d'Arge, R; de Groot, R; Farber, S; Grasso, M; Hannon, B; Naeem, S; Limburg, K; Paruelo, J; O'Neill, R; Raskin, R; **Sutton, P**; van den Belt, M; (1997) *The Value of the World's Ecosystem Services and Natural Capital* Nature Vol 387 May 15

The value of the world's ecosystem services and natural capital (Reprinted from Nature, vol 387, pg 253, 1997) Costanza R, d'Arge R, de Groot R, Farber S, Grasso M, Hannon B, Limburg K, Naeem S, O'Neill RV, Paruelo J, Raskin RG, **Sutton P**, van den Belt M Source: Ecological Economics 25 (1): 3-15 APR 1998

Robert Costanza; Ralph d'Arge; Rudolf de Groot; Stephen Farber; Monica Grasso; Bruce Hannon; Karin Limburg; Shahid Naeem; Robert V. O'Neill; Jose Paruelo; Robert G. Raskin; **Paul Sutton**; Marjan van den Belt (1997) *The Value of Ecosystem Services: Putting the Issues into Perspective* Ecological Economics 25:67-72

Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, S. Naeem, K. Limburg, J. Paruelo, R.V. O'Neill, R. Raskin, **P. Sutton**, and M. van den Belt. (1997). *Valuing ecosystem services: a response*. Regulation 20:2-3

Proctor, J; **Sutton, P**, and Michaels, G (1995) *Multimedia Guided Writing Modules for Introductory Human Geography* Journal of Geography Volume 94, No. 6 pp 571-577

BOOKS

Montello, D.; **Sutton, P.C.**; An Introduction to Scientific Research Methods in Geography and Environmental Science (In Press) (2nd Edition) Sage Pubs. Ltd. London ISBN 1-4129-0286-X

Montello, D.; **Sutton, P.C.**; An Introduction to Scientific Research Methods in Geography (2006) Sage Publications Ltd. London ISBN 1-4129-0286-X

BOOK CHAPTERS

Elvidge, C.D., Baugh, K.E., **Sutton, P.C.**, Bhaduri, B., Tuttle, B.T., Ghosh, T., Ziskin, D., Erwin, E.H., (2010) "[Who's In The Dark: Satellite Based Estimates Of Electrification Rates](#)", *Urban Remote Sensing: Monitoring, Synthesis and Modeling in the Urban Environment*, Ed. Xiaojun Yang, Wiley-Blackwell, Chichester, UK

Sutton, P.C., M.J. Taylor, C.D. Elvidge (2010) "Using DMSP OLS Imagery to Characterize Urban Populations in Developed and Developing Countries", *Remote Sensing of Urban and Suburban Areas*, Ed. Rashed, Tarek; Jürgens, Carsten, Springer, 329-348 Kluwer Academic Press ISBN-10 1402043716

Elvidge, C.D., **Sutton, P.C.**, Tuttle, B.T., Ghosh, T., Baugh, K.E (2009) "[Global Urban Mapping Based on Nighttime Lights](#)", *Global Mapping of Human Settlement*, Chapter 6, 129 - 144

Paul C. Sutton, Matthew J. Taylor, Sharolyn Anderson, and Chris Elvidge (2007) Ch 14: Sociodemographic Characterization of Urban Areas Using Nighttime Imagery, Google Earth, Landsat, and "Social" Ground Truthing in Urban Remote Sensing edited by Qihao Weng and Dale A. Quattrochi CRC Press of Taylor and Francis Group ISBN 0-8493-9199-7

Elvidge, C.D., **Sutton, P.C.**, Wagner, T.W., Ryznar, R., Goetz, S.J., Smith, A.J., Jantz, C., Seto, K., Imhoff, M.L., Vogelmann, J., Wang, Y.Q., Milesi, C., and Nemani, R. (2004) *Urbanization*. Land Change Science Kluwer Academic Publishers ISBN 1-4020-2561-0

Paul C. Sutton (2003) *Estimation of Human Population Parameters Using Nighttime Satellite Imagery* (Book Chapter in *Remotely Sensed Cities*) Victor Mesev Editor Taylor & Francis ISBN 0 415 26045 0

John Ray, **Paul C. Sutton**, Andrew Bingham (2003) *Mapping Air Quality Values for the NPS Inventory and Monitoring Program* ESRI Press

Roberts, D; **Sutton, P**; Funk, C; Algona, P; Waller, E; Sundbeck, C; (2000) *Physical Geography: A laboratory manual* Kendall/Hunt Publishing Co (ISBN 0-7872-6484-9)

PUBLISHED CONFERENCE PROCEEDINGS

Sutton, P.; Anderson, S; Baugh, K; Ziskin, D; Ghosh, T; Ghosh, T.; Elvidge, C.; (2011) *Satellite Mapping of Constructed Surfaces in China for the Year 2010* Asia Pacific Action Network <http://www.apan.net/meetings/HongKong2011/Session/DMSP.php>

Liu, Q; **Sutton, P**; Elvidge, C (2010) *Relationships between Nighttime Imagery and Population Density for Hong Kong* Asia Pacific Action Network <http://www.apan.net/meetings/HongKong2011/Session/DMSP.php>

Sutton, P.; Ghosh, T.; Elvidge, C.; Baugh, K.; Ziskin, D.; (2010) *A 2010 Mapping of the Constructed Surface Area Density for Southeast Asia – Preliminary Results* Asia Pacific Action Network (APAN) <http://www.apan.net/meetings/Hanoi2010/Session/DMSP.php>

Ghosh, T.; **Sutton, P.**; Elvidge, C.; (2010) *Estimating the Information and Communication Technology Development Index (IDI) using nighttime satellite imagery* Asia Pacific Action Network (APAN) <http://www.apan.net/meetings/Hanoi2010/Session/DMSP.php>

Elvidge, C.D., B.T. Tuttle, **P.C. Sutton** (2009) *Collaborative Tool for Collecting Reference Data on the Density of Constructed Surfaces Worldwide*, Sixth International Symposium on Digital Earth: Models, Algorithms, and Virtual Reality, SPIE, Proc. of SPIE Vol. 7840 7

Elvidge, C.D.; Erwin, E.H.; Baugh, K.E.; Ziskin, D.; Tuttle, B.T.; Ghosh, T.; **Sutton, P.C.** (2009) "[Overview of DMSP nighttime lights and future possibilities](#)", *IEEE Proceedings of the 7th International Urban Remote Sensing Conference*, 5 Pages

Ghosh, T.; **Sutton, P.**; Powell, R.; Anderson, S.; Elvidge, C.D. (2009) "[Estimation of Mexico's informal economy using DMSP nighttime lights data](#)", *IEEE Proceedings of the 7th International Urban Remote Sensing Conference*, 10 Pages

Elvidge, C.D., Baugh, Kimberly E., Howard, Ara T., **Sutton, P.C.**, Tuttle, Benjamin T., Erwin, Edward H., (2007) *Change detection in satellite observed nighttime lights: 1992-2003* 2007 Urban Remote Sensing Joint Event, URS, art. no. 4234469

Elvidge, C.D., Pettit, D.R., Cinzano, P., **Sutton, P.C.**, Small, C. (2007) *Overview of the Nightsat Mission Concept* (2007) Urban Remote Sensing Joint Event, URS, art. no. 4234450

Elvidge, C.D., Baugh, Kimberly E., Howard, Ara T., **Sutton, P.C.**, Tuttle, Benjamin T., Erwin, Edward H., (2007) *Can Poverty rates be estimated using satellite data?* 2007 Urban Remote Sensing Joint Event, URS, art. no. 4234360

Anderson, S; Taylor, M.J.; **Sutton, P.C.**; Steinberg, M.K. (2005) *Assessment of Urban Land Use Cover Change in Ciudad Victoria, Tamaulipas, Mexico*. Proceedings of the 5th International Symposium, Remote Sensing of Urban Areas. The International Archives of the Photogrammetry, Remote Sensing, and Spatial Information Sciences, Vol XXXVI – 8/W27. ISSN 1682-1777.

Elvidge, C.D., Imhoff, M.L., **Sutton, P.C.** (2000) *Relation between fossil fuel trace gas emissions and satellite observations of nocturnal lighting* IAPRS Vol XXXIII Amsterdam

Sutton P; (2000) *Progress in Empirical Measurement of the Urban Environment: An exploration of the theoretical and empirical advantages of using Nighttime Satellite Imagery in Urban Studies* GIS and Environmental Modelling Conference #4 Banff, Canada September 2000

Collins EF, Roberts DA, **Sutton PC**, Funk CC, Borel CC (1999) *Temperature estimation and compositional mapping using spectral mixture analysis of thermal imaging spectrometry data* Imaging Spectrometry V Editors: Descour MR, Shen SS Proceedings of the Society Of Photo-Optical Instrumentation Engineers (SPIE), 3753 pp 286-299

Sutton, P, Roberts, D; Leskow, J; Elvidge, C; (1997) *A Preliminary Investigation of the Utility of Low-Gain DMSP OLS Nighttime Satellite Imagery for Modeling Population Density* University Consortium for Geographic Information Science conference, Bar Harbor Maine June, 1997 with paper on the web at: <http://www.spatial.maine.edu/ucgis/testproc/sutton/sutton.html>

Sutton, P; (1999) *The use of regionalized parameters for estimating the population of nations using remote sensing* at the Western Regional Science Association meeting in Ojai, California February 1999

Sutton, P; (1997) *"Light Up Your Nation: An ArcView based education module exploring Nighttime Satellite Imagery and GIS"* In proceedings of ACSM/ASPRS conference, Seattle, Washington April, 1997

Sutton, P; (1997) *A "Comparison of the low-gain and high-gain DMSP Nighttime Satellite Imagery products for use in modeling population density over the Continental United States"* In proceedings of ACSM-ASPRS Annual Conference, Seattle, Washington April, 1997

OTHER PUBLICATIONS

Elvidge, Christopher D.; **Sutton, Paul C.**; Anderson, Sharolyn; Baugh, Kimberly E.; Ziskin, Daniel. (2012) *Satellite Observation of Urban Metabolism* earthzine: fostering earth observation and global awareness (<http://www.earthzine.org/2011/09/26/satellite-observation-of-urban-metabolism/>)

Sutton Paul C., (2012) *The Real Wealth of Nations: Mapping and Monetizing Biocapacity and the Human Ecological Footprint* Prairie Fire: The progressive voice of the plains <http://www.prairiefirenewspaper.com/2012/02/the-real-wealth-of-nations>

Sutton, Paul C., (2008) Book Sections for The Encyclopedia of Global Warming (Salem Press) Megacities (1,200 words), Population Growth (1,200 words), Damages : Market & Non-Market (900 words), Limits to Growth (900 words)

Sutton, Paul C., (2008) Book Section for The Encyclopedia of Geography (a SAGE reference publication) on 'Environmental Services' (1,000 words)

Elvidge, C.D., Milesi, C., Dietz, J.B., Tuttle, B.T., **Sutton, P.C.**, Nemani, R. Vogelman, J.E. (2004) *Paving Paradise* GeoSpatial Solutions 14 (9) pp. 58

Sutton, Paul; Lopez, Mario (2003) *Ironing Out Colorado* GeoWorld March pp 58

Sutton, Paul (2002) *The Lights Come out at Night* GeoWorld September pp 30-33

Ray, John; **Sutton, Paul** (2002) The National Park Service Air Atlas (an ArcIMS site for dissemination of spatially interpolated air quality parameters)

Sutton, P. (2001) Introduction to *Overpopulation* by John Zeaman. (A Franklin Watts series of short books for young adults) Grolier Publishing

Sutton, P: (2000) *Population Growth and Distribution*, Encyclopedia of World Geography Salem Press

Sutton, P, (1998) *Unit #11 Registration and Conflation* of the NCGIA's Core Curriculum Technical Program (URL: <http://www.ncgia.ucsb.edu/education/curricula/cctp>)

Sutton, P; Van Zuyle, P; and Palladino, S; (1995) *"Color Your World: An Introduction to ArcView Education Modules"*, Technical Report 95-5, Santa Barbara, California: National Center for Geographic Information and Analysis (NCGIA)

CONFERENCE PRESENTATIONS

Sutton, Paul (2012) *The Spatial GINI Coefficient* Population Association of America, San Francisco May

Paul C. Sutton; Robert Costanza; Joe Roman; Ida Kubiszewski (2011) *Urbanization, Climate Change, and Changes to Ecosystem Services in Coastal Areas*, Abstract GC32C-02 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.

Sharolyn Anderson, Chris Elvidge, Paul Charles Sutton. (2011), *Spatial resolution and detection limit considerations for low light imaging of urban land use patterns*, Abstract GC33B-1081 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.

Ghosh, T; Elvidge, C; Sutton, P; Baugh, K; Tuttle, B; Ziskin, D (2011) *Using Nighttime Satellite Imagery to Create a Global Grid of Distributed Fossil Fuel CO2 Emissions* at The World Geospatial Forum Hyderabad, India

Sutton, Paul C. (2010) *Using Impervious Surface as a spatially explicit proxy measure of CO2 emissions* At the Annual Conference of the Association of American Geographers, Washington DC

Sutton, Paul C.; Anderson, Sharolyn J.; Tuttle, Benjamin (2010) *The Real Wealth of Nations: Mapping and Monetizing the Human Ecological Footprint* at The Footprint Forum in Siena Italy

Sutton, Paul C. (2009) *Impervious surface as a spatial proxy measure of CO2 emissions* at the 3rd EARSeL Workshop Land Use and Land Cover in Bonn Germany November 2009

Elvidge, Chris; Tuttle, Ben; Sutton, Paul (2009) *Collaborative Tool for Collecting Reference Data on the Density of Constructed Surfaces* Worldwide International Symposium of the Digital Earth (ISDE6) Beijing, China

Ghosh, Tilottama, Sutton, Paul (2009) *Estimation of Mexico's Informal Economy Using DMSP Nighttime Lights* Conference of Latin Americanist Geographers (CLAG) Managua, Nicaragua January 2009

Tuttle, Benjamin; Sutton, Paul; Anderson, Sharolyn; Elvidge, Chris (2009) *Developing a Web-Based Collaborative Mapping Tool to Map Impervious Surface Globally* the annual Association of American Geographers, Las Vegas Nevada

Sutton, Paul (2008) *Mapping the Dollar Value of Natural Production and dollar cost of human Consumption Globally* At the Annual Conference of the Association of American Geographers, Boston MA

Ghosh, Tilottama; Sutton, Paul (2008) *Estimating the GDP of developing nations using nighttime satellite imagery* At the Annual Conference of the Association of American Geographers, Boston MA

Sutton, Paul (2007) *Coastal Wetlands and Storm Protection: A spatially explicit estimate of ecosystem service value* at the annual Association of American Geographers Conference, San Francisco, California March 2007

Tuttle, B; Elvidge, C; Baugh, K; Nemani, R; Milesi, C; Sutton, P (2007) *Global Mapping of Impervious Surface Area* at the annual Association of American Geographers Conference, San Francisco, California March 2007

Elvidge, Christopher D; Pettit, Donald R.; Cinzano Pierantonio; Sutton, Paul C.; Small, Christopher (2007) *Overview of the Nightsat Mission Concept* at the 2007 Urban Remote Sensing Joint Event, Paris, France April 2007

Sutton, P (2006) *Mapping urban and exurban sprawl in Australia using nighttime satellite imagery* at the bi-annual Australian Population Associate Conference in Adelaide, South Australia December 2006

Ghosh, Tilottama, Sutton, Paul C.; Elvidge, Christopher D. (2006) *An Overview of the Use and the Potential of Nighttime Imagery for Estimation of Socio-economic Variables* at the Annual Association of American Geographers Conference, Chicago, Illinois March 2006

Tuttle, Benjamin T.; Elvidge, Christopher D.; Saffran, Jeff; Baugh, Kim; Nemani, Ramakrishna; Melisi, Christina; Sutton Paul D (2006) *Spatial Mapping of Impervious Surfaces Associated with Urban*

Development at the Annual Association of American Geographers Conference, Chicago, Illinois March 2006

Saffran, Jeff; Elvidge, Christopher D.; Sutton, Paul C.; Tuttle, Benjamin T. (2006) *Potential for Global Mapping of Development via a NightSat Mission* at the Annual Association of American Geographers Conference, Chicago, Illinois March 2006

Sutton, Paul C.; Richards, Noel; Fildes, Stephen (2006) *Mapping the Bush-Wildlands interface in Australia* (2006) at the International Geographical Union conference in Brisbane, Queensland July

Sutton, Paul C (2006) *Urban and Exurban Sprawl in Australia* at Spatial Information Day (SID 2006) conference in the Adelaide Town Hall Adelaide, South Australia August 2006

Sutton, Paul C; (2005) *Mapping Estimation of GDP at sub-national scales using nighttime satellite imagery* at the Annual Association of American Geographers Conference, Denver, Colorado March 2005

Sutton, Paul C; (2004) *Mapping "Exurbia" in the conterminous U.S. using Nighttime Satellite Imagery* at the Annual Association of American Geographers Conference, Philadelphia, Pennsylvania March 2004

Cova, Tom, Sutton, Paul C, Theobald, Dave; (2004) *Light my fire proneness: residential change detection in the urban-wildland interface with nighttime satellite imagery* at the Annual Association of American Geographers Conference, Philadelphia, Pennsylvania March 2004

Sutton, Paul C; (2004) *An exploration of nighttime satellite imagery from the DMSP OLS for use in mapping population and wealth in Guatemala* at the Congress of Latin Americanist Geographers, Antigua, Guatemala May 2004

Noonan, Jessica; Keables, Michael, Sutton, Paul (2004) *An Urban Land-use Study of Population Growth and Urban Sprawl in the Denver-metro are using MSS and Landsat TM imagery* at the ASPRS annual conference in Denver, Colorado May 2004

Elvidge, Chris; Dietz, John; Sutton, Paul (2003) *Impervious Surface Area of the Conterminous United States* at the Coastal Global Terrestrial Observing System (GTOS) meeting in Costa Rica

Sutton, Paul (2003) *Perspectives from Academia regarding NESDIS data and service* NESDIS Data User's Workshop, NIST Auditorium, NOAA Boulder, CO

Sutton, Paul (2003) *A scale-Adjusted measure of Urban Sprawl using Nighttime Satellite Imagery* at the Annual Association of American Geographers Conference, New Orleans, Louisiana March 2003

Sutton, Paul (2002) *An empirical Environmental Sustainability Index derived solely from Nighttime Satellite Imagery and Ecosystem Service Values* at the Annual Association of American Geographers Conference, Los Angeles, California March 2002

Sutton, Paul (2001) *"Do Americans Really Believe in the 'Black Helicopters'? Reflections of a Census 2000 enumerator in the Colorado Front Range"* at the Annual Association of American Geographers Conference, New York, New York March 2001

Sutton, P; (2000) *Census from Heaven: An estimate of the global human population using nighttime satellite imagery* at the Annual Association of American Geographers Conference, Pittsburgh Pennsylvania March 2000

Sutton, P; Roberts, D; (1999) *Unmixing the mixed pixel with Hyperspectral Data and Spectral Libraries* at the Annual Association of American Geographers Conference, Honolulu Hawaii, March 1999

Sutton, P (1998) *Is the nighttime the right time for city population estimation?* Association of American Geographers Annual Conference, Boston, Massachusetts March 1998

Sutton, P (1998) *Three potholes on the road to my dissertation: 1) What is Population Density? 2) What light threshold best captures city points? And 3) How do I use aggregate national figures to model the city area-city population relationship?* At the 2nd Annual Western Geography Graduate Student Conference in San Diego, California February, 1998

Sutton, P. (1997) *The Role of Population in Sustainable Economic Activities* at The 6th Annual Conference of the Greening of Industry Network, Chair of Doctoral Breakout Session titled: Green Economic and Analytic Models, Santa Barbara, California November, 1997

Sutton, P; (1997) "*A Method for Modeling Population Density using Nighttime Satellite Imagery and GIS*", Association of American Geographers Annual Conference, Dallas/Ft.Worth, Texas April 1997

Sutton, P; Van Zuyle, P (1996) "*Using ArcView-Based Learning Modules in the Classroom*" In the Program for the 81st Annual Meeting of the National Council for Geographic Education , Santa Barbara, California November 1996

Sutton, P; Palladino, S; Van Zuyle, P (1995) "*Color Your World: A K-12 GIS education module using ArcView 2*", Association of American Geographers Annual Conference, Chicago, Illinois May 1995

INVITED PRESENTATIONS

The Spatial GINI Coefficient Population Association of America, San Francisco May 2012

The Earth from Space at Night: Explorations of the Human Environment Sustainability Problematic using Nighttime Satellite Imagery University of Nebraska – Lincoln November 2011

The Real Wealth of Nations: Mapping and Monetizing the Human Ecological Footprint University of Nebraska – Lincoln November 2011

The Real Wealth of Nations: Mapping and Monetizing the Human Ecological Footprint at Benares Hindu University (BHU) in Varanasi, India December 19th, 2010

Paving the Planet: Impervious Surface as a proxy measure of the Human Ecological Footprint at Presidency College in Calcutta, India December 15th, 2010

The Earth at Night from Space: How nighttime satellite imagery informs our understanding of sustainability at Loreto College in Calcutta, India December 14th, 2010

Coastal Wetlands and Storm Protection: A spatially explicit estimate of ecosystem service value (2010) Invited by the Dept of Transportation to the 89th Annual Transportation Research Board Conference Washington DC June 10, 2010

Social Science Applications for Nocturnal Imagery of the Earth at the Population-Environment Research Network Cyber-seminar sponsored by CIESIN at the Earth Institute at Columbia University addressing the question: *What are the Remote Sensing Data Needs of the Population-Environment Research Community?* (Spring 2010)

The Earth from Space at Night: Explorations of the Human-Environment-Sustainability Problematic using Nighttime Satellite Imagery invited presentation at the United States Air Force Academy in Colorado Springs (November 2009)

Global Population Trends: implications and consequences at the Centennial Chamber of Commerce Panel Discussion on emerging trends in Green Industries in Colorado. The panel consisted of Hunter Lovins (Natural Capitalism Solutions), Paul Sutton (University of Denver), Mary Fischer (Excel Energy) (August 2010)

The value of coastal wetlands for hurricane protection (2008) Spatially Explicit Valuation of Ecosystem Services Workshop of the Environmental Protection Agency Marriot Hotel Denver, CO January 2008

Urban and Exurban Sprawl in Australia Spatial Information Day 2006 (*SID 2006*) Thursday 10 August 2006 at the Adelaide Town Hall, King William Street, Adelaide

Some applications utilizing Nighttime Satellite imagery provided by the DMSP OLS; (2006)^{1st} Semester Colloquium series; Department of Geography, Population, and Environmental Management, Flinders University Adelaide, Australia

Mapping the Urban-Bush interface in Australia using Nighttime Satellite imagery; (2006)^{2nd} Semester Colloquium series; Department of Geography, Population, and Environmental Management, Flinders University Adelaide, Australia

Using geographic tools like GIS, Remote Sensing, and Google Earth to understand the urban environments of the world; (2006) Westminster College, Adelaide, Australia

Characterizing urban and exurban sprawl in Australia using Nighttime Satellite Imagery; (2006) SPAR Branch at Planning SA at 11.00am. Level 4, Roma Mitchell House, 136 North Tce, South Australia Planning Association

The long and winding streams and memes of e-mail: collaborative research in ecosystem service valuation; (2006) 2nd Semester Colloquium series; Department of Geography, Population, and Environmental Management, Flinders University Adelaide, Australia

Development of Simple Environmental Sustainability Metrics; (2006) Guest Lecture in Environmental and Economy, Department of Geography, Population, and Environmental Management, Flinders University Adelaide, Australia

The Nighttime is the Right Time: Making Observations of Human Activity from Nighttime Imagery; Concepts in GIS Speaker Series Warner College of Natural Resources, Colorado State University

The nighttime is the right time to make satellite observations of human activity Presentation to the University Chapter of Sigma Xi

Panel Discussant at the Workshop on Systematic Population Estimation for Humanitarian Purposes sponsored by the State Department and the Census Bureau at the System Planning Corporation in Arlington Virginia May 2004

Using the NLCD land cover and Nighttime Satellite imagery to map Exurban Growth in the Western United States at Stanford's Center for the Study of the North American West workshop: "On the Edge: Metropolitan Growth and Western Environments" Palo Alto, California May 2004

Uses of DMSP OLS imagery for mapping socio-economic phenomena Remote Sensing Course at the University of Colorado at Boulder, Boulder CO April 2002

Practical Applications of GIS and Satellite Imagery University of Guadalajara, Guadalajara Mexico December 2001

Some applications and problems associated with making spatially explicit measurements of ecosystem service value Ecosystem Service Valuation Workshop University of Maryland, Baltimore MD November 2001

Potential synergy between Shuttle Radar Topography Mission (SRTM) data and DMSP OLS nighttime satellite imagery for producing semi-independent estimates of urban populations for all urban agglomerations of the globe Workshop on Global Infrastructure Mapping November 2000 Sponsored by Jet Propulsion Laboratories and CIESIN

An overview of methods for estimating urban populations using nighttime imagery, Workshop on Gridding global population data at Columbia University, May 2-3 2000 Sponsored by the National Center for Geographic Information and Analysis, CIESIN, and World Resources International

Census from Heaven: An estimate of the global human population using nighttime satellite imagery and GIS 1) Centro de investigaciones en Matematicas in Guanajuato, Mexico November 17th, 1998 2) Dept of Geography, University of Utah Salt Lake City Utah March 1999

Challenges faced when using Remote Sensing Data and Geographic Information Systems for Socioeconomic Studies at the Social Sciences and Satellites workshop sponsored by the Consortium for International Earth Science Information Network (CIESIN) held at the World Bank in Washington D.C. September, 1997

TEACHING

Graduate Student Advising (1999 – Present)

Name	Degree	Type	Year	Role	Name	Degree	Year	Role
Pete Biven	PhD	Dissertation	current	Advisor	Amanda Gierow	PhD	current	Committee
Qing Liu	PhD	Dissertation	current	Advisor	Ben Tuttle	PhD	current	Committee
Amir Siraj	PhD	Dissertation	current	Advisor	Joseph Hoover	PhD	current	Committee
Mike Finn	PhD	Dissertation	current	Advisor	Kimberly Henderson	PhD	current	Committee
Michael Dunnington	MS	course work	current	Advisor	Kristina Yamamoto	PhD	current	Committee
Brenton Wonders	MS	Thesis	2010	Advisor	Sharon Gabel	PhD	current	Committee
Tilottama Ghosh	PhD	Dissertation	2010	Advisor	Sutapa Bandvopadhav	PhD	current	Committee
Chris Rice	MS	course work	2009	Advisor	Emily Sanschagrín	MA	2010	Committee
Austin Stevens	MS	course work	2009	Advisor	Katherine Williams	MS	2010	Committee
Ryan Abeloe	MS	course work	2008	Advisor	Brett Machovina	PhD	2009	Committee
Deep Bhari	MS	course work	2008	Advisor	Kristina Yamamoto	MS	2009	Committee
Patrick Duffy	MS	course work	2008	Advisor	Lauren Morse	MA	2009	Committee
Kerry Shakarjian	MS	Thesis	2008	Advisor	Sean Tiernev	PhD	2009	Committee
William Jeffrey	MS	Thesis	2007	Advisor	Kevin Gilmore	PhD	2008	Committee
Andrew Bingham	MS	course work	2006	Advisor	Duane Holt	MS	2007	Committee
Patrick Hayward	MS	course work	2005	Advisor	Ben Tuttle	MS	2006	Committee
Yaneev Golombek	MS	course work	2005	Advisor	Megan Gall	MS	2006	Committee
Matthew Kascak	MS	course work	2005	Advisor	Migdalia Ortiz	MS	2006	Committee
Lisa Piscopo	PhD	Dissertation	2005	Advisor	Tim Vowles	PhD	2006	Committee
John Van Auken	MS	Thesis	2004	Advisor	Andrea Santoro	MS	2005	Committee
Heather Hicks	MS	course work	2003	Advisor	Frank Dong	MS	2005	Committee
Maryanne Koshak	MS	Thesis	2003	Advisor	Heidi Rolander-Peterson	MA	2005	Committee
Brenden McNeil	MS	Thesis	2003	Advisor	Jared Long	MA	2005	Committee
Thomas Murray	MS	course work	2003	Advisor	Mindy Syfert	MS	2005	Committee
Katherine O'Connor	MS	Thesis	2003	Advisor	Francine Beck	PhD	2005	Committee
Anita Olsen/Hoover	MS	Coursework	2003	Advisor	Christine Richter	MA	2003	Committee
Susan Parks	MS	Thesis	2003	Advisor	Katherine O'Connor	MS	2003	Committee
Jason Thoene	MS	course work	2003	Advisor	Michael Alonzo	MA	2003	Committee
Christopher Grubb	MS	Thesis	2002	Advisor	Joanne Stewart	MA	2002	Committee
Frank Orr	MS	Thesis	2002	Advisor	Darrick Kizlyk	MA	2000	Committee
Janice Vaughn	MS	Thesis	2002	Advisor				
Andrew Kuster	MS	Thesis	2001	Advisor				
Alex Muleh	MS	Thesis	2001	Advisor				
Jessica Noonan	MS	Thesis	2001	Advisor				
Heather Knight	MS	Thesis	2000	Advisor				
Keri Konarska	MS	Thesis	2000	Advisor				
Sarah Kane	MS	course work	terminated	Advisor				
Rebecca Rogers	MS	Thesis	terminated	Advisor				
Daniel Ruggles	MS	Thesis	terminated	Advisor				
Bob Kemp	MS	Thesis	terminated	Advisor				
					Totals		# of Students	
					PhD (advisor)		6	
					MS Thesis/Project (advisor)		16	
					MS coursework (advisor)		13	
					Total (primary advisor)		35	
					PhD (committee)		12	
					MS (committee)		10	
					MA (committee)		8	
					Total (Committee member)		30	

Selected Student Dissertations and Theses

Kristina Yamamoto (PhD): Identifying similar biophysical characteristics among nesting beaches of green turtles of Turkey using remote sensing techniques.

Tilottama Ghosh (PhD): Shedding light on the spatial distribution of economic activity using nighttime satellite imagery

Lisa Piscopo(PhD): Explanation of High Stakes Testing in Colorado Public Schools

Bill Jeffrey (MSGIS): Does Urban Sprawl Correlate with Commuting Time?

Marianne Koshak (MSGIS): Using GIS to Identify Areas in Colorado Underserved by the Vaccine for Children

John Van Auken (MSGIS): Evaluation of Spatial Analytic techniques to predict the next crime in crime series

Heather Knight (MSGIS): GIS Web Application for Air Quality Monitoring in the National Parks

Keri Konarska (MSGIS): Evaluation of the Scale Dependence of Ecosystem Service Valuation; A Comparison of NOAA-AVHRR, and Landsat TM Data Sets

Brenden McNeil (MSGIS): Implementation of a 3-D GIS Application at Timpanogos Cave NM, Utah

Andrew Kuster (MSGIS): Using GIS to Develop a Non-Ticket Shoreline Parcel Acquisition Plan for Public Access Preservation

Jason Thoene (MSGIS): Implementation of a GIS for Regional Management of Leafy Spurge (*Euphorbia Eusula*) and Yellow Starthistle (*Centauraea Solstitialis*) in the Western US

Frank Orr (MSGIS): The New Pueblo Freeway: A project website using ArcIMS

Jessica Noonan (MSGIS): Growth in Denver: Assessing the Roles of Population and Land Use Decisions in the Denver Metro Area using Landsat imagery and US Census Data

Susan Parks (MSGIS): Spatial Pattern Analysis of Landsat ETM Satellite Imagery to Determine Logging Extent and Intensity in the Eastern Amazon

Chris Grubb (MSGIS): A prototype of the Kansas City Regional Crime Analysis GIS

Alex Muleh (MSGIS): Development of Custom Microsoft .NET and ESRI Arc Objects based line of Sight tools for location suitability, Launch planning and Telemetry Tower Placement

Courses Taught

University of Denver

FSEM 1111: Utopia, Dystopia, and the End of the World

Geog 3890 Ecological Economics

Geog 4100 Research Methods

Geog 2050 Geographic Statistics

Geog 2250/3150 Intro to GIS

Geog 3530 GIS Applications to Natural Resources

Geog 3320 Human Dimensions of Global Change

Geog 3650 Spatial Statistics and Data Analysis

Geog 3170/4100 Application Design and Production I

Geog 4105 Application Design and Production II

Geog 2410 / CORE 2401 The Human Population: Patterns, Processes, and Problematics

SOCS 1103 Global Issues and Society

SOCS 1103 / 1410 Intro Human Geography: People Places & Landscapes

UDCC 1050 First Year Seminar: Ecological Economics

University of California at Santa Barbara

Geog 115-A Introduction to Remote Sensing and Aerial Photo Interpretation

Geog 5 Introduction to Human Geography

The Anacapa School (private high school in Santa Barbara, California)

Physics

Chemistry

Math

SERVICE

University Service

Academic Senate (Elected at large representative 2011–2013)
Faculty Representative to the Conduct Review Board (2009 – Present)
Administrator Evaluation Development Committee (2008)
Faculty Forum Editor (2008-2009)
Tuition Exchange Task Force (2007)
Academic Senate (Geography Department Representative 2007, 2008, 2009)
-Executive Council
-Finance Committee
-Graduate Council
-Sustainability Council
UDCC Mentoring (2000, 2001)
Dialogs and Destinations Instructor (2003, 2004, and 2007)
First Year Seminar Information Exchange Meetings
Internationalization (Mexico, Nicaragua, Guatemala, Canada, Germany, Australia, India, China)
Served for Ammi Hyde Interviews in first year test
Write letters of recommendation for numerous students

Divisional Service

NSM Promotion and Tenure Committee (2007-2008)
NSM Representative at Undergraduate Council (2004-2005)
Collaborative proposals with other DU Faculty
(Angela Forster, Art History 1999; Vi Narapareddy, DCB 2004, Sylvia Hall-Ellis Education 2008)
Graduate Student Posters at NSM Poster Sessions

Departmental Service

Director of Graduate Studies in Geography (2007 – Present)
Director of the MS GIS program (2000 – 2005)
Graduate Admissions Committee
Graduate Standards Committee
MS GIS Committee
Departmental IT Committee
Chair of Search Committee for Lecturer (Marilyn Williams)
Member of Search Committee for Lecturer (Erika Trigoso)
Member of Search Committee for Human Geographer (Boschmann)
Chair of Search Committees for Cultural Geographer (Taylor)
Chair of Search Committee for GIScientist (Anderson)
Member of Search Committee Physical Geographer/Geologist (Kerwin)
Chair of Promotion and Tenure committee (Goetz and Luchsinger)
Steering Committee work for Undergraduate and Graduate Curriculum Planning
Graduate Studies Committee (design and mailing of brochures)
Social Director Department of Geography

Community Service

Basketball coach for 5th & 6th Grade boys YMCA basketball league (“The Flying Spaghetti Monsters”)
Volunteer for Project Pride (Outdoor Environmental Education) at Red Rocks Elementary School
Judge and “Alex Trebeq guy” at National Geographic’s Geography Bee (2004 & 2005 & 2010)
Guest lectures at CU Boulder, Kendallvue Elementary, Red Rocks Elementary, and Rick’s Center
Election Judge for Jefferson County (2004)
Census Enumerator (Census 2000)

Academy Service

President and Advisory Board Member for Puerto Rico Council on Education (Invited to Puerto Rico to evaluate a GIS program at the Polytechnic University of Puerto Rico)

Program Committee of GIScience 2010 September the 14-17th in Zurich, Switzerland

Proposal Reviewer for European Science Foundation (ESF)

NSF and Resources for the Future workshop on integrating the social science into the NSF environmental observatories (January 2007)

EPA panel to review STAR (Science to Achieve Results) fellowship proposals (March 2007 & January 2008)

Curriculum and Degree Review committee for Department of Geography, Population, and Environmental Management, Flinders University, Adelaide SA, Australia (September 2006)

Member of the Editorial Board of the International Journal of Ecological Economics and Statistics

Collaboration with National Geographic Society cartographers and writers in production of 'millenium series' special issue of National Geographic Magazine titled "Population and Resources" (This issue [October 1998] has a pull out map with the earth at night on one side)

Consultation with the European Space Agency for the NYX Night-time Optical Imaging Mission Study on Requirement validations

Service as an Editor/Peer Reviewer for the following Journals and Organizations:

The Annals of the Association of American Geographers	
Political Economy	American Economic Review,
Science	Nature
Ecology and Society	Proceedings of the National Academy of Sciences,
The Professional Geographer	Remote Sensing of the Environment,
Ecological Modeling	The International Journal of Remote Sensing,
Environmental Management	Photogrammetric Engineering and Remote Sensing,
Remote Sensing	Remote Sensing of Environment
Energy Policy	Computers, Environment & Urban Systems
Urban Geography	The National Science Foundation
Energies	The United States Geological Survey
Ecological Economics	The Environmental Protection Agency

Member of following professional organizations:

- Association of American Geographers
- International Society for Ecological Economics
- American Society of Photogrammetric Engineering and Remote Sensing
- American Association of University Professors

Writing and reviewing short articles in trade journals like GeoWorld, and Junior and Senior High school textbooks

Promoting the discipline of geography and explaining my research to various journalists, media professionals, and civic organizations.

ONGOING RESEARCH INTERESTS

The NightSat Mission

I serve on the science team of a \$150 million proposal to NASA (The P.I. is Chris Elvidge of the National Geophysical Data Center at NOAA in Boulder). As an Urban Metabolism Scientist, I will be responsible to the PI for conducting research that identifies and documents how the improved spatial and spectral resolution of NightSat data products will inform our understanding of the human-environment-sustainability problematic as it pertains to the following: urban growth and land use patterns, mapping and monetizing the human ecological footprint, and characterizing the megapolitan-urban-exurban gradient and its impacts on ecosystem function, habitat fragmentation, and ecosystem services. Note: This proposal not funded fall 2012 but still being pursued.

Geo-location and Radiance Calibration of the DMSP OLS Sensor

I have been using data products derived from the Defense Meteorological Satellite Program's Operational Linescan System (DMSP OLS) for myriad applications. This work has contributed to the justification for the aforementioned NightSat mission. The coarse spatial and spectral resolution of the DMSP OLS presents many uncertainties with respect to spatial and radiometric accuracy of the sensor. I have been working with Dr. Sharolyn Anderson and her PhD student (Benjamin Tuttle) on characterizing and calibrating the DMSP OLS imagery by lighting up pixels in dark places using our own light source.

Valuation of Ecosystem Services

I began a working relationship with Robert Costanza back in my days as a graduate student at UCSB in which I participated in the writing of a paper published in Nature titled: *The value of the world's ecosystems and natural capital*. As a result of this I became interested in the development of the discipline of ecological economics. Dr. Costanza and I have worked together on several other papers involving the interesting problems associated with trying to assign dollar values to ecosystem services. I use my expertise in GIS and spatial data analysis in collaborations with economists and ecologists to make spatially explicit valuations of ecosystem services.

Development of independent and objective Sustainability Metrics

I have had a long interest in the idea of carrying capacity going back to my days as president of the Santa Barbara Chapter of Zero Population Growth and conversations with Paul Ehrlich, Garrett Hardin, Hunter Lovins, and Jared Diamond. I have developed some simple, easy to measure, and objective metrics of sustainability that correlate strongly with well-established metrics such as the Global Footprint Network's 'Ecological Footprint'. I collaborate with Alessandro Galli of the Global Footprint Network in this area.

Mapping Economic Activity using Nighttime Satellite imagery

I worked closely with one of my PhD Students, Tilottama Ghosh, in the modeling of economic activity using the DMSP OLS data products. She successfully developed methods for estimating the fraction of the national economy of India and Mexico that is in the informal sector and mapped it. She also produced the first global map of GDP/capita at 1 km² spatial resolution. This work relating the estimation and mapping of economic activity using nocturnal satellite observations is gaining traction with researchers at Yale and UCLA.

Issues of Scale and Representation in Geographic Data

Figuring out how best to represent spatially and temporally varying phenomena in a digital environment is a fascinating problem of scale, classification, and abstraction. The simple idea of representing the spatio-temporal variation of intra-urban population density is a good example of how this is not really a simple idea. In my efforts at modeling proxy measures of population density, economic activity, and ecosystem service value I have enjoyed struggling with these insurmountable problems and hope to make some contributions to methods that will inform our understanding of the roles these phenomena play in questions of sustainability.

Measuring Learning Outcomes for undergraduate Geography Students

I am becoming increasingly interested in what it is, exactly, that we believe we are teaching to undergraduate geography students. I am appalled at the simplistic ways in which we use end of course student evaluations to measure teaching effectiveness. I applaud efforts at the development of instruments such as the AP Human Geography exam that attempt to actually measure what students of Geography have presumably learned. I intend to participate in this clarification of 'Learning Outcomes' for undergraduate degrees in Geography for the rest of my career because I think it is imperative that we as faculty in this discipline can answer questions like: "*What will I learn from taking a degree in Geography that I won't learn from taking some other degree?*"