

MEREDITH LYNN REBA
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EDUCATION

AUGUST 2020 – PRESENT: YALE SCHOOL OF THE ENVIRONMENT, NEW HAVEN, CT
PhD Student: Urbanization & Global Change Lab

AUGUST 2012 - MAY 2014: YALE SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES, NEW HAVEN, CT
MESc: Specialization in Urbanization & Agriculture using satellite remote sensing and Geographic Information Systems (GIS). Advisor: Karen C. Seto

SUMMER 2010: EXPLORER'S SPANISH SCHOOL: HUARAZ, PERU
Intensive Spanish Language Course

FALL 2009: TUFTS UNIVERSITY: AGRICULTURE, FOOD AND ENVIRONMENT, BOSTON, MA
Master's Program (withdrawn) Advisor: Timothy Griffin, GPA: 4.0/4.0

AUGUST 2000 - MAY 2002: BROWN UNIVERSITY, PROVIDENCE, RI
ScB. Geological Sciences/Biology(Plant). Thesis: Why Do Glaciers Surge? Advisor: Jan Tullis. Magna Cum Laude, Elected to Sigma Xi Scientific Research Society, first-year advisor

JULY 1997 - MAY 1998: MALANGSSENTRET FOLKEHØGSKOLE (current: FOLKEHØGSKOLEN 69° NORD)
Outdoor Arctic Survival: Ski Mountaineering, Dogsledding, Mountain-based horse packing, Hunting, Fishing, and Norwegian Language & Culture; Worked on-site before and after attending year to self-finance education

AUGUST 1995 - MAY 1997: BOWDOIN COLLEGE, BRUNSWICK, ME
Visual Art/Art History (Sculpture & Architecture), Geology minor; Sarah & James Bowdoin Scholar; Outing Club and first-year orientation trip leader

TEACHING EXPERIENCE

SPRING 2014: INTERNSHIP: CHILD'S PLAY: DEVELOPING ONLINE EDUCATIONAL MATERIALS FOR MAP ALGEBRA WEBSITE: GOOGLE GRANT FUNDED, PROFESSOR DANA TOMLIN

- Developing educational material in various forms for online raster GIS course
- Designed educational material in various written & visual formats (including text, graphic/mind maps, pictures, drawings, video, and slide shows, etc.) for online geospatial graduate course

FALL 2013: TEACHING FELLOW: GIS: MODELING GEOGRAPHIC OBJECTS: YALE UNIVERSITY, PROFESSOR DANA TOMLIN

- Provided technical advising and mentorship to students as they developed course projects and throughout weekly assignments

FALL 2001- SPRING 2012: TUTOR

- Worked as a one-on-one tutor for middle, high school, and college students in the areas of chemistry, Earth science, calculus, physical science, algebra, geometry, and writing

FALL 2002 – SPRING 2006: PUBLIC HIGH SCHOOL & MIDDLE SCHOOL SCIENCE TEACHER: DUXBURY & MANSFIELD, MASSACHUSETTS

- Developed and implemented new Earth science curriculum for high school juniors & seniors
- Established partnerships with high school junior/senior environmental science students as middle school mentors while converting a school bus to run on vegetable oil
- Led high school environmental science students on a two-week field trip to a folkehøgskole (People's Higher Learning School) in northern Norway to study environmental issues, dogsledding, ski mountaineering, and Norwegian culture

FALL 2001- SPRING 2002: TEACHING ASSISTANT & FIRST-YEAR ADVISOR: INTRODUCTORY GEOLOGY: BROWN UNIVERSITY, PROFESSORS JAN TULLIS & KAREN FISCHER

- Assisted in the instruction of laboratory sessions and formal assessment of assignments

- Lead student discussion of geological concepts within the lab setting and during review sessions
- Worked as a first-year advisor connected with the course

RESEARCH & WORK EXPERIENCE

MAY 2014 – July 2020: RESEARCH ASSOCIATE: SETO LAB, YALE UNIVERSITY, NEW HAVEN, CT

- Contributed to a NASA-funded project using dense time series analysis of satellite imagery to measure and monitor urban land change of all sizes in the Himalaya region. This remote sensing analysis is paired with a multi-year fieldwork component to better understanding of the trajectory of urban development in the Himalaya and its relationship to both exposure and vulnerability to hazards—specifically landslides, floods, earthquakes and fires. Strong focus on cloud-truthing and the necessity of fieldwork and strong local partnerships for Earth observation based decision-making.
- Collaboratively developed a conceptual framework to construct new relationships between urbanization and food consumption while presenting urbanization as a multi-dimensional process. These urbanization dimensions include not only the conventionally used and well-understood demographic and economic components of urbanization, but also spatial, institutional, and cultural factors—which all significantly affect how and what we eat.
- Led a systematic review of urban remote sensing algorithms to develop a deep, comprehensive view of how we are measuring urban land change—past and present—on a global scale to glean insights into current gaps in our knowledge and outline strategic paths forward.
- Improved science communication skills through co-creating a coffee table book, *City Unseen: New Visions of an Urban Planet*. The book introduces urbanization and remote sensing science to a general audience through integrating striking satellite views of Earth from above with the urbanization science necessary to analyze our impact on the planet.
- Produced a global, geolocated, digital dataset representing 5,000+ years of urban growth. Better understanding how both the size and location of human populations shift over a long time period can help us understand the evolving characteristics of the human species, especially human interactions with the environment.

AUGUST 2010 – AUGUST 2012: FARM APPRENTICE: WHITE BARN FARM, WRENTHAM, MA

- Worked with all aspects of production from seeding (direct and transplanting), cultivation (by hand and tractor), harvesting, and sales

JUNE 2006 – MARCH 2010: GLOBAL PARTNERSHIPS FOR HEALTH & EDUCATION: CO-FOUNDER & VICE PRESIDENT, REHOBOTH, MA

- Co-founded and co-directed a non-profit organization which examined access to health care and education in the developing world while travelling by bicycle
- Responsible for all co-founding procedures including drafting articles of organization and by-laws, as well as applying for and being granted 501c3 tax exempt status
- Development and maintenance of organizational website
- Cycled over 25,000 miles by bicycle through Asia, South Asia, Central Asia, Middle East, U.S. & Europe while visiting & documenting both education and health care facilities in these countries
- Creation of GPHE documentary film highlighting our work in Asia and Central Asia in 2006/2007
- Completed a New England college, university, high school, & community center documentary speaking tour in the fall 2008

SEPTEMBER 2001 – MAY 2002: LABORATORY/RESEARCH ASSISTANT: DEPARTMENT OF GEOLOGICAL SCIENCES, BROWN UNIVERSITY

- Worked as a student researcher amongst a team of scientists studying paleo-climate cycles, using oxygen isotope analysis of foraminifera shells found in Pacific Ocean floor core sediments
- Demonstrated and developed lab investigation skills and the ability to work as a component of a larger team, identify and organize appropriate foram species, as well as the ability to wash and sift a lot of dirt

PUBLICATIONS

PANDEY, B., REBA, M., JOSHI, P.K., AND SETO, K.C. (REVISE & RESUBMIT) URBANIZATION AND FOOD CONSUMPTION IN INDIA. *NATURE SCIENTIFIC REPORTS*.

C. BREN D'AMOUR, B. PANDEY, M. REBA, S. AHMAD, F. CREUTZIG K.C. SETO (2020) URBANIZATION, PROCESSED FOODS, AND EATING OUT IN INDIA. *GLOBAL FOOD SECURITY*, 25, 100361.

GRAINER, C., TIWARI, P., JOSHI, B., REBA, M., SETO, K.C. (IN REVIEW) WHO IS VULNERABLE AND WHERE DO THEY LIVE? A CASE STUDY OF THREE INDIAN CITIES IN THE UTTARAKHAND REGION OF THE INDIA HIMALAYA. *MOUNTAIN RESEARCH*.

REBA, M. & SETO K.C. (2020) A SYSTEMATIC REVIEW AND ASSESSMENT OF ALGORITHMS TO DETECT, CHARACTERIZE, AND MONITOR URBAN LAND CHANGE. *REMOTE SENSING OF ENVIRONMENT*, 242, 111739.

GÜNERALP, B., REBA, M., HALES, B., WENTZ, E., SETO, K.C. (2020) TRENDS IN URBAN LAND EXPANSION, DENSITY, AND LAND TRANSITIONS FROM 1970-2010: A GLOBAL SYNTHESIS. *ENVIRONMENTAL RESEARCH LETTERS*, 15(4), 044015.

SETO K.C. & REBA M. *CITY UNSEEN: NEW VISIONS OF AN URBAN PLANET*. NEW HAVEN & LONDON: YALE UNIVERSITY PRESS, 2018.

REBA M, REITSMA F, SETO K.C. 2016. SPATIALIZING 6,000 YEARS OF GLOBAL URBANIZATION FROM 3700 BC TO AD 2000. *NATURE SCIENTIFIC DATA*. 2: 160034.

PRESENTATIONS

FALL 2018: CHICAGO HUMANITIES FESTIVAL, CHICAGO, ILLINOIS

FALL 2016 & FALL 2019: GIS DAY, YALE UNIVERSITY

FALL 2016: URBAN TRANSITIONS CONFERENCE, SHANGHAI, CHINA

2008-2009: GLOBAL PARTNERSHIPS FOR HEALTH & EDUCATION

Presentations related to access to healthcare and education in developing countries at North University of China, Janapriya College of Nepal, Bowdoin, Bates, Boston College, UMaine, Hampshire College, UMASS Medical School, and various high schools and community centers

PROFESSIONAL SERVICE/VOLUNTEER ACTIVITIES

FALL 2011-SPRING 2012: WILDERNESS MEDICINE COURSE INSTRUCTOR: UNIVERSITY OF MASSACHUSETTS MEDICAL SCHOOL

- Collaboratively instructed a full-year course to 1st and 2nd year medical school students in wilderness medicine

2011: GED TUTOR: WORCESTER, MASSACHUSETTS

- Worked one-on-one with students on GED testing preparation and general study/organizational/life skills

JUNE 1999 – AUGUST 2000: TEACH MAINE AMERICORPS AT WOLFE'S NECK FARM: FREEPORT, MAINE

- Organized and developed environmental/agricultural programs & worked as a farm hand at a natural meat farm consisting of 300+ animals.

GRANTS & SCHOLARSHIPS

2017: SLOAN FOUNDATION (*CITY UNSEEN*)

2012: YALE UNIVERSITY SCHOLARSHIP, HIXON CENTER FELLOWSHIP, TRI FELLOWSHIP, JUBITZ FAMILY FELLOWSHIP

2009: TUFTS UNIVERSITY SCHOLARSHIP

PROFESSIONAL CERTIFICATIONS

MASSACHUSETTS HIGHLY-QUALIFIED TEACHER: High School & Middle School Science Certification

MASTER GARDENER: University of Maine Cooperative Extension

EMT/WILDERNESS EMT: UMaine/SOLO: Rescue work: US, Norway, Mongolia, Peru (high altitude)

AVALANCHE CERTIFICATION FOR RESCUE PERSONNEL: American Avalanche Association

RELEVANT SKILLS & INTERESTS

SOFTWARE: Microsoft Office Suite, ArcGIS, ENVI, R, Python (beginner), Google Earth Engine (beginner), high performance supercomputing, Adobe Creative Suite (Photoshop, InDesign, & Illustrator)

LONG DISTANCE CYCLE TOURING: cycled over 25,000 miles around the world for 2.5 years 40+ countries

ROCK, ICE, & ALPINE CLIMBING: SIGNIFICANT ASCENTS: Himalayas (Nepal), Andes (Argentina), Cordillera Blanca (Peru), Alps (Italy & Switzerland), Squamish, Yosemite, Zion, Red Rocks, Cascades

CERAMICS/DRAWING/ARCHITECTURE/PHOTOGRAPHY/DOCUMENTARY FILMMAKING/POETRY/SCULPTURE