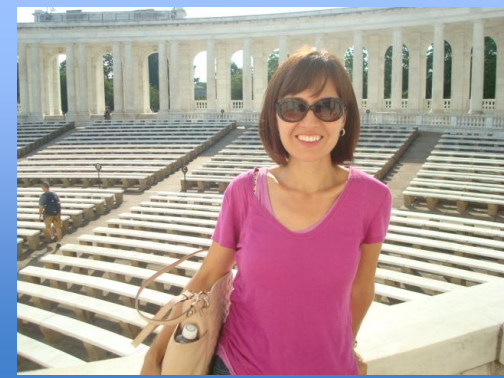


Adriana Zuniga

PhD Major: Arid Lands Resource Science

PhD Minor: Global Change

Research Topic: ***From urban neighborhoods to wilderness:
optimizing connectivity and human wellbeing through design***



What do I do?

I study the impacts of neighborhood design on wildlife movement, on human usage of natural open spaces and wellbeing



Perspective drawing of playground
(Stephanie Bower Architectural Illustration)

Why is it important?

Designing neighborhoods that preserve natural open spaces within cities, maximize ecological connectivity and encourage human utilization of natural open spaces that may enhance physical health and wellbeing.

Sarah Trueebe

PhD candidate, Geosciences, Global Change minor

RESEARCH GOALS:

1. Reconstruct past climate (rainfall) in Southern Arizona from cave records
2. Improve understanding of cave-climate relationship through monitoring
3. Develop “best practice” for sampling speleothems for paleoclimate research

IMPORTANCE: Understanding how and why rainfall varied in the past when climate was warmer/cooler will help us prepare for future global change in the arid Southwest.

RECENT DATA SHOW MONSOON WEAKENING OVER LAST 7000 YEARS:

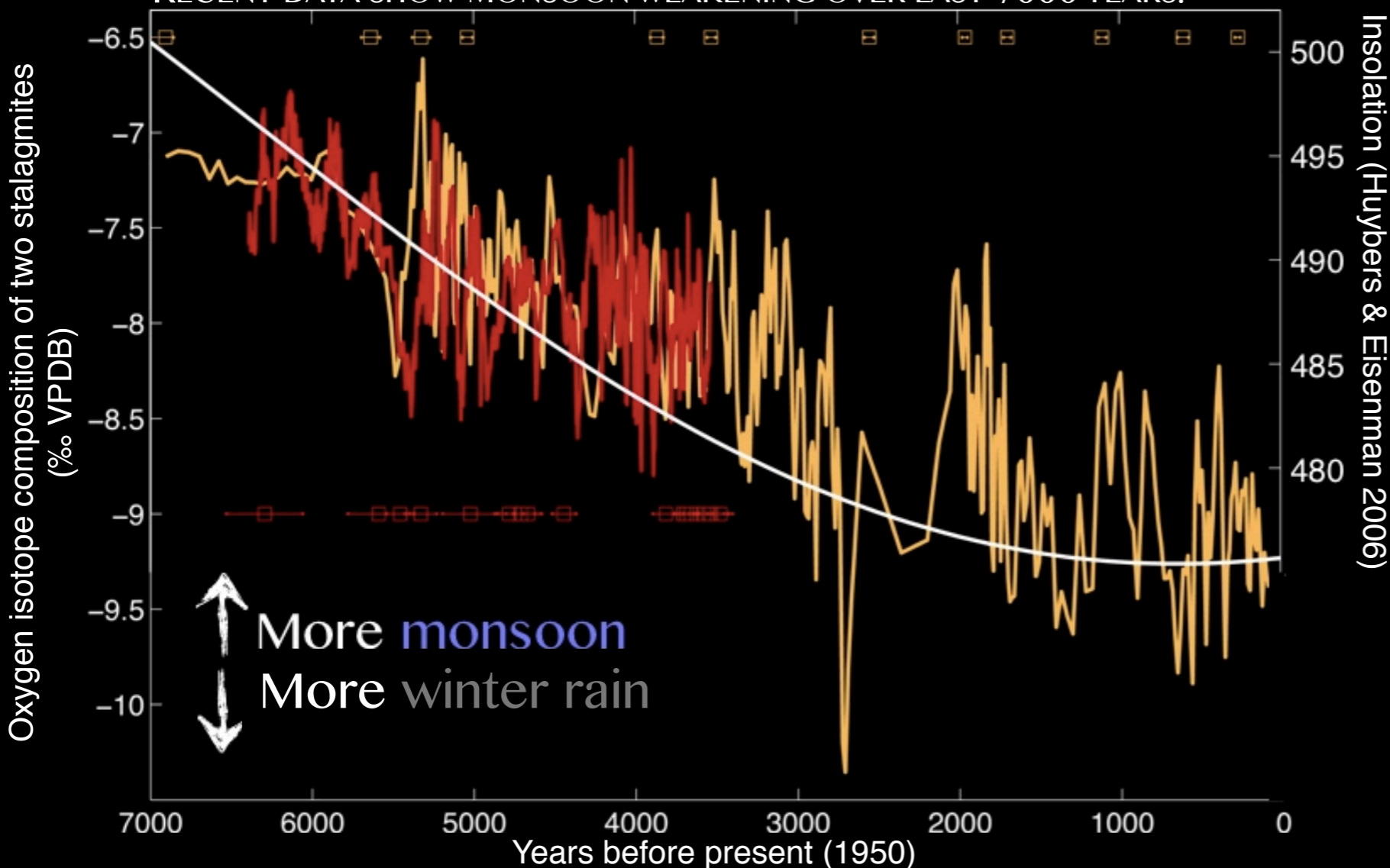


Photo: Jansen Cardy

GOURI PRABHAKAR

Major: Atmospheric Sciences

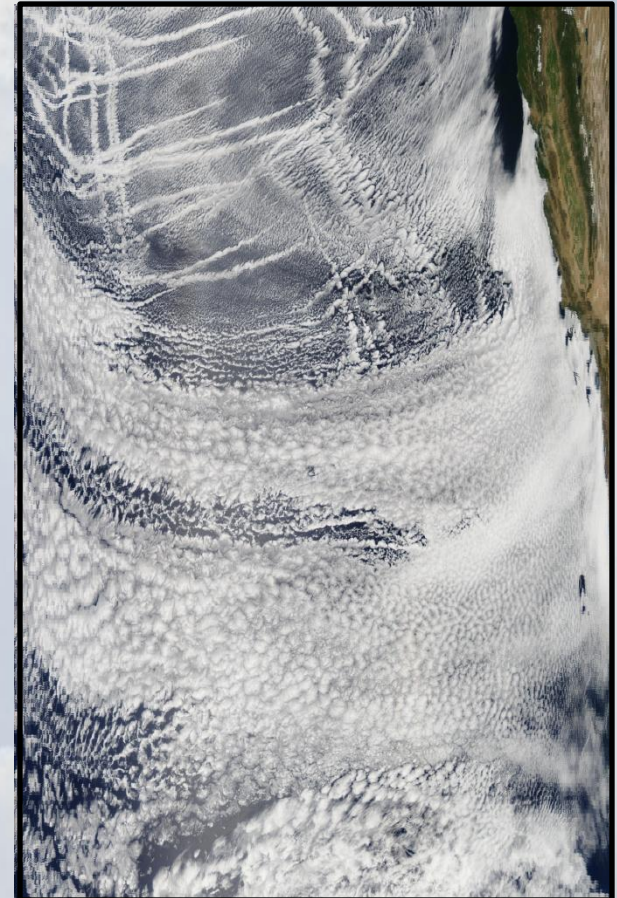
Minor: Global Change



Research interests:

1. Transport of atmospheric aerosols containing toxic metals and metalloids.
2. Interaction of aerosols with clouds.

Importance: Aerosols affect climate both directly by scattering and absorbing radiation, and indirectly by changing the reflectivity of clouds. Additionally, aerosols have an adverse impact on human health.



Luke Parsons

Geosciences Major, Global Change Minor



What do I do?

I study past and future drought in Amazonia and South Asia.

What do I want to know?

How frequent and long were past droughts, and what caused these gaps in precipitation?

Can climate models accurately reproduce the duration of these droughts?

Why do I do it?

I want to help government officials and local land managers make better-informed decisions about development and conservation



How do I do it?

I use lake sediments to reconstruct past drought and use climate models to study the potential for future drought.



Laura Marshall

School of Natural Resources and the Environment
Global Change Minor

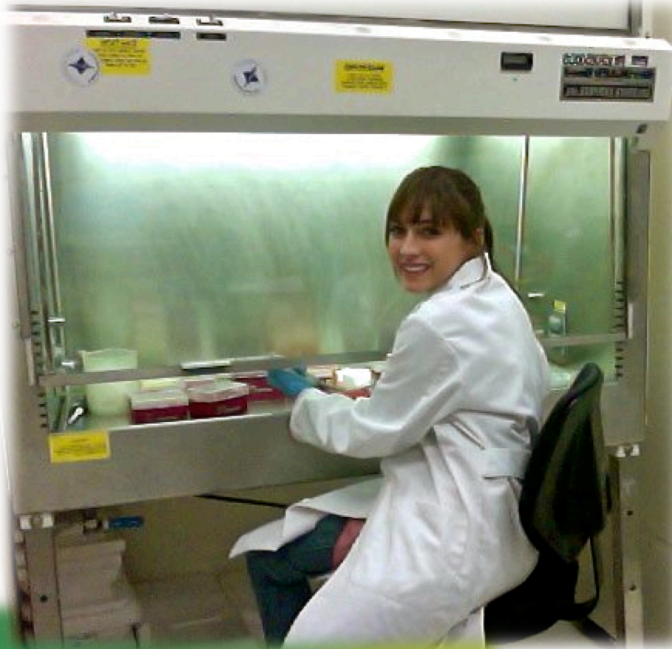
Research focus: Tree growth response to biophysical gradients (climate and topography) and past disturbance (fire)

Importance:
Tracking variability in growth response in recent centuries gives a basis for predictions of future forest impacts like mortality and species range shifts resulting from global change.



What do I do?

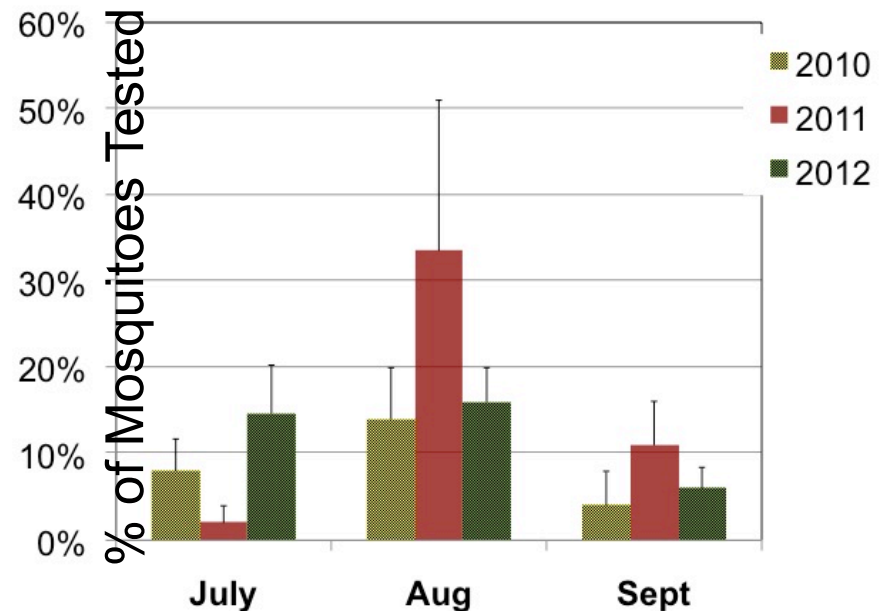
I study mosquito ecology and survival in the lab and field.



Aedes aegypti

Why is it important?

Female mosquitoes must survive long enough to outlive a viruses' incubation period in order to transmit disease.



Eileen Jeffrey Gutierrez

Major: Entomology

Minor: Global Change

What I do: Investigate the migration of ocean currents in the North Atlantic and their effects on regional sea level rise

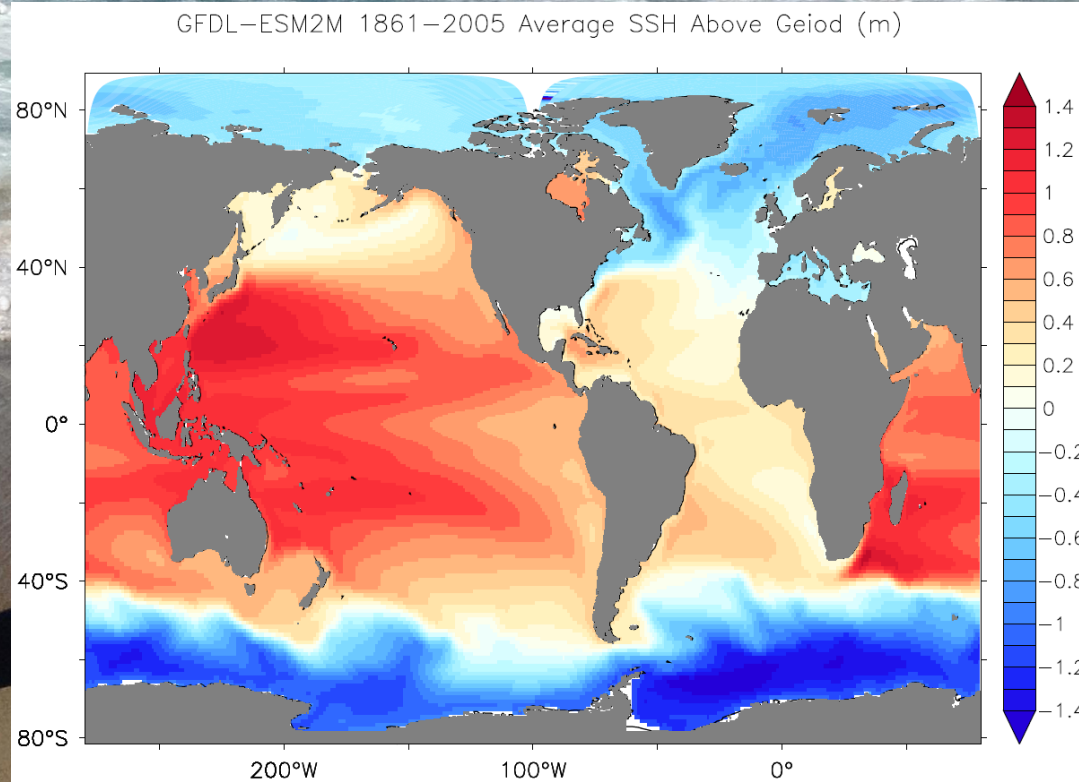
Why it's important: The impacts of global climate change are well represented in the oceans. For example, thermal expansion, melting of ice, and changing wind and precipitation patterns, all impact sea levels and dynamically affect currents. It is important to explore the consequences of projected sea levels for the welfare of society.



Paul Goddard

PhD Major: Geosciences

PhD Minor: Global Change



Lisa Felix

Major: Teaching, Learning and Sociocultural Studies (focus on Environmental Learning)

Minor: Global Change

The potential of education in the creation responsible environmental behavior is a very important aspect of global change mitigation that often goes overlooked. Unfortunately, new teachers are not being prepared for this, and young students are lacking in the understandings and feelings that support environmentally friendly behaviors and choices.



Research question #1: How can university teacher education programs better prepare students to teach about, for, and in the environment?

Research question #2: How do earth education programs (and classroom follow-through) impact student environmental understandings, attitudes, and behaviors?





Annika Ericksen

Major in Cultural Anthropology

Minor in Global Change

Research support from the American Center for Mongolian Studies, Fulbright-Hays, and the American Philosophical Society



“Responsible” Herding in Mongolia: Strategies and Politics of Managing Winter Risk

Investigating:

Herders' strategies for
mitigating winter risk



Increasing summer drought and
winter snowfall → increasing winter
disasters and livestock mortality

Discourses of responsibility (e.g. anti-welfare /relief arguments) in relation to the outcomes of winter disasters on herding livelihoods

This research aims to help disaster response and resilience building initiatives move past faulty assumptions concerning how Mongolian herders perceive and manage risk.

Sandra Bernal

MAYOR: ARID LANDS RESOURCE SCIENCE

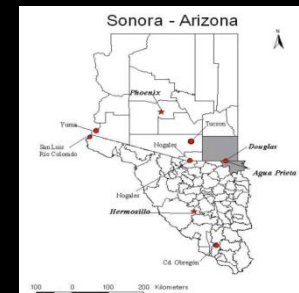
MINOR: GLOBAL CHANGE



HOW A PARTICIPATORY HOUSING ADAPTIVE DESIGN CAN CONTRIBUTE TO A SOLUTION TO THE HARMFUL EFFECTS OF DUST INDOORS?

An ethnographic research is proposed to drive the clarification of the research question by comparing different process of adaptation in two different realities that happen in the same region as a way to find a more efficient way to confront dust harmful effects and with it, impulse participatory design of architecture as way to adapt housing to Global Change.

WHY DOUGLAS-AGUA PRIETA



WHY DUST



<http://yourgreatestmoms.com/files/2011/01/dust.jpg>
http://coimages.gsfc.nasa.gov/images/imagerecords/40000/40378/AustraliaDust_TMO_2009269.jpg

- You can not choose to stop using air
- Dust carries particles from everywhere
- Human health as well as efficiency of electronics and other mechanism suffer detriment in presence of dust .

Indoor dust sources :

- Dust Fall
- Organic Matter
- Resuspension

(LAYTON AND BEAMER, 2009)

HOW HOUSING REACT TO DIFFERENT FORCES

Douglas 2013 Agua Prieta

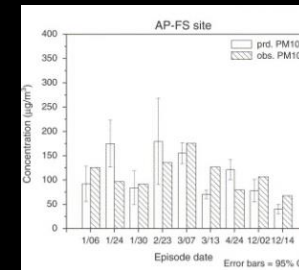
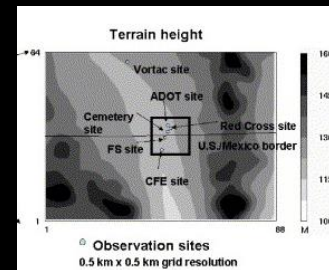


<http://douglasdispatch.com/article/s/2008/12/03/news/doc4935b1b5d3c28989736846.txt>

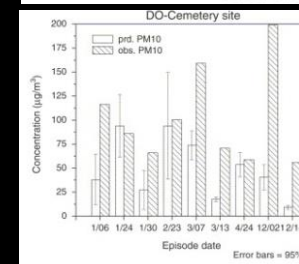
http://www.realtor.com/real-estate-and-homes-detail/1414-E-9Th-St-Douglas-AZ_85607_M15512-22449

<http://www.blessednuno.org/AguaPrieta.html>

<http://www.flickrriver.com/places/Mexico/Sonora/Agua+Prieta/Nueva/>



Comparison of predicted versus observed 24-h averaged PM_{10} . DO represents Douglas in the US and AP represents Agua Prieta in Mexico. (Choi et. al, 2006)



PM_{10} : A standard for measuring a major air pollutant - consisting of tiny solid or liquid particles of soot, dust, aerosols, fumes, and mists suspended in the atmosphere over 10 micrometers in diameter.



Viviana Barquero-Diaz Barriga

Ph.D. Candidate

Arid Lands Resource Sciences

Global Change Minor

Is distributed generation of solar energy likely to improve livelihood conditions as well as the environment?

SIGNIFICANCE

- By proposing a socio-economic model based in the local generation of solar energy, it is likely to reduce vulnerability produced by climate variability in Mexican arid regions
- By adopting this model, the generation of solar energy will impact directly in the energy portfolio, reducing carbon emissions produced by fossil-fuel electricity

