University of Arizona Geosciences Fall 2018 Climate Newsletter

Hello Alumni! My name is **Rebecca Beadling** and I am a 3rd year Geosciences PhD student at the University of Arizona working with **Dr. Joellen Russell**. My work focuses on using earth system models and observations to understand large-scale ocean circulations and how these systems are projected to change in the future. Our lab has had a busy and successful year! A solicited OpEd by **Joellen Russell** titled "Ocean sensors can track progress on climate goals" was ***Nature's*** March 13 World View piece and my manuscript titled "Evaluation of subtropical North Atlantic ocean circulation in CMIP5 models against the observational array at 26.5°N and its changes under continued warming" was published in the ***Journal of Climate***! I am excited to update you on all of the exciting research by our climate groups here at the University of Arizona!

Graduate Student Spotlight. Graduate student **Connor Nolan** and **Dr. Steve Jackson** published their recent work with an international team of 42 authors in ***Science***! The paper entitled "Past and future global transformation of terrestrial ecosystems under climate change", uses 594 paleoecological records from around the globe to synthesize vegetation change since the last ice age. They found a relationship between the magnitude of temperature change and vegetation change and applied that relationship to projecting the risk of vegetation change over the next century. See media coverage of their work from The Washington Post, and NPR here!

Dr. Diane Thompson's Tropical Climate and Coral Reefs Lab finds a new home at the University of Arizona! **Dr. Diane Thompson** and graduate student **Emma Reed** conducted field work in the Marshall Islands in January 2018, returning with an exciting suite of fossil coral cores. **Emma Reed** is generating geochemical records from these cores to reconstruct Pacific climate variability. She completed the first analyses this summer at the Australian Institute of Marine Science. We also welcome 1st year PhD student **Alice Chapman** to the lab! Earlier this year, Alice completed her Divemaster certification at the Cape Eleuthera Institute in the Bahamas, where she assisted with research-related dive operations and maintained the institute's dive sites and equipment. Alice is applying a new geochemical proxy to reconstruct westerly winds from Christmas Island coral cores and investigating their impact on El Niño events.

Diane Thompson is also Biosphere 2's new Director of Marine Research, working to revitalize the Biosphere's coral reefs to test novel solutions for restoring reef structure and function in the face of climate change!

Exciting Year for Dr. Jessica Tierney's Lab Group! Our organic geochemistry lab which uses biomarker proxies to answer questions about past changes was featured in the news for our ongoing work involving North American Monsoon variability! **Dr. Jessica Tierney** served as an instructor for annual Advanced Climate Dynamics Course in remote Finse, Norway. In the course of two weeks, graduate students from around the world studied hot topics in climate science — through both fieldwork and lectures from professors from top universities in the U.S. and Europe. UA Geosciences is proud to participate in this prestigious program! PhD student **Grace Windler** spent her summer in Corvallis, Oregon working as an intern for the U.S. EPA through the NSF Graduate Research Internship Program. She used a dataset of surface water isotopes from the Snake River Basin to try to better understand how regions of source water vary across the basin over time. PhD student **Pablo Martinez Sosa** presented his results at the Organic Geochemistry Gordon Research Conference this past summer!

Big Year for the Hominin Sites and Paleolakes Drilling Project! The HSPDP directed by **Dr. Andy Cohen** recently published a paper in **PNAS** about a drill core collected from Lake Magadi, Kenya entitled "Progressive aridification in East Africa over the last half million years and implications for human evolution". The article was recently discussed at Inverse.com! HSPDP is preparing to release a special volume of Palaeogeography, Palaeoclimatology, Palaeoecology on a drill core collected from Tugen Hills, Kenya. This volume will aim to put human evolution in the context of climate and environmental changes through the Plio-Pleistocene transition (3.32-2.55 Ma). For more information about all of the HSPDP, please visit our website hspdp.asu.edu