



Undergraduate Research Symposium May 17, 2019 Mary Gates Hall

Online Proceedings

POSTER SESSION 4

Commons East, Easel 64

4:00 PM to 6:00 PM

Observing Air Quality at Manastash Ridge Observatory

Ling Yi Celeste Tsiang, Freshman, Pre-Major (Arts & Sciences)

Mentor: Oliver Fraser, Astronomy

We have built an air quality sensor to track smoke from wildfires at UW's Manastash Ridge Observatory (MRO). The increasing number of wildfires over the last few years has raised concern that smoke may contaminate the telescope optics at MRO. Our goal is to measure the amount of smoke in the air at the site in real time. Our design consists of an Adafruit micro-controller connected to two dust sensors that connect to Wi-fi. We interviewed Edmund Seto, a professor at UW, since he has much more experience with building sensors. He suggested that we use multiple of the same device so that we could average the data or have a backup sensor if one were to stop working. Using Arduino code and Adafruit.io, we were able to code the micro-controller and connect the data to a Wifi-interface so we could watch the data come in. We are currently field testing the sensor in Seattle, but we expect to permanently install at the MRO this summer.

and Mongolian Plateaus. When mountains are removed it results in changes to ocean and atmospheric circulation. This begins with warmer surface temperatures where the mountains were removed (without the elevation-induced cooling) and changes in both vertical and horizontal air motion in the vicinity of the mountains (as the topographic-induced circulations are disrupted). Consequently, rainfall is altered due to changes in temperature and air motion. Our research aims to better understand how mountain ranges affect rainfall, particularly in the tropics, and how this in turn affects local climatology in tropical regions.

POSTER SESSION 4

Commons East, Easel 59

4:00 PM to 6:00 PM

How Mountain Ranges Influence Tropical Rainfall

Rikki Leah Parent, Senior, Atmospheric Sciences: Climate

Haley Margaret Staudmyer, Sophomore, Atmospheric Sciences: Climate

UW Honors Program

Mentor: Dargan Frierson, Atmospheric Sciences

Mentor: Oliver Watt-Meyer, Atmospheric Sciences, University of Washington

This project aims to better understand the effects of removing global topography on atmospheric and oceanic circulation in numerical climate model simulations. The Community Earth System Model (CESM) was run for a hundred years under three different scenarios: the removal of all mountain ranges, the removal of the Rockies, and the removal of the Tibetan