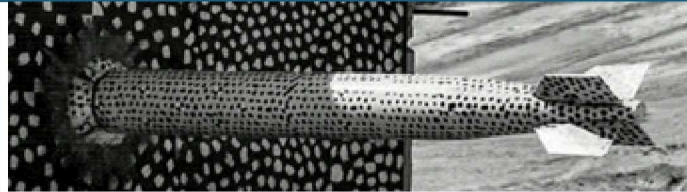
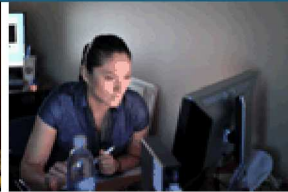




SAND2020-8116PE

# Changes in Background Infrasound Noise in Albuquerque, New Mexico Due to COVID-19



*Presented By:*  
Sarah Albert



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

SAND 2020-XXXX

# Introduction

## University of Alaska Fairbanks

- B.S. Geosciences
- M.S. Geophysics – Volcano Infrasound

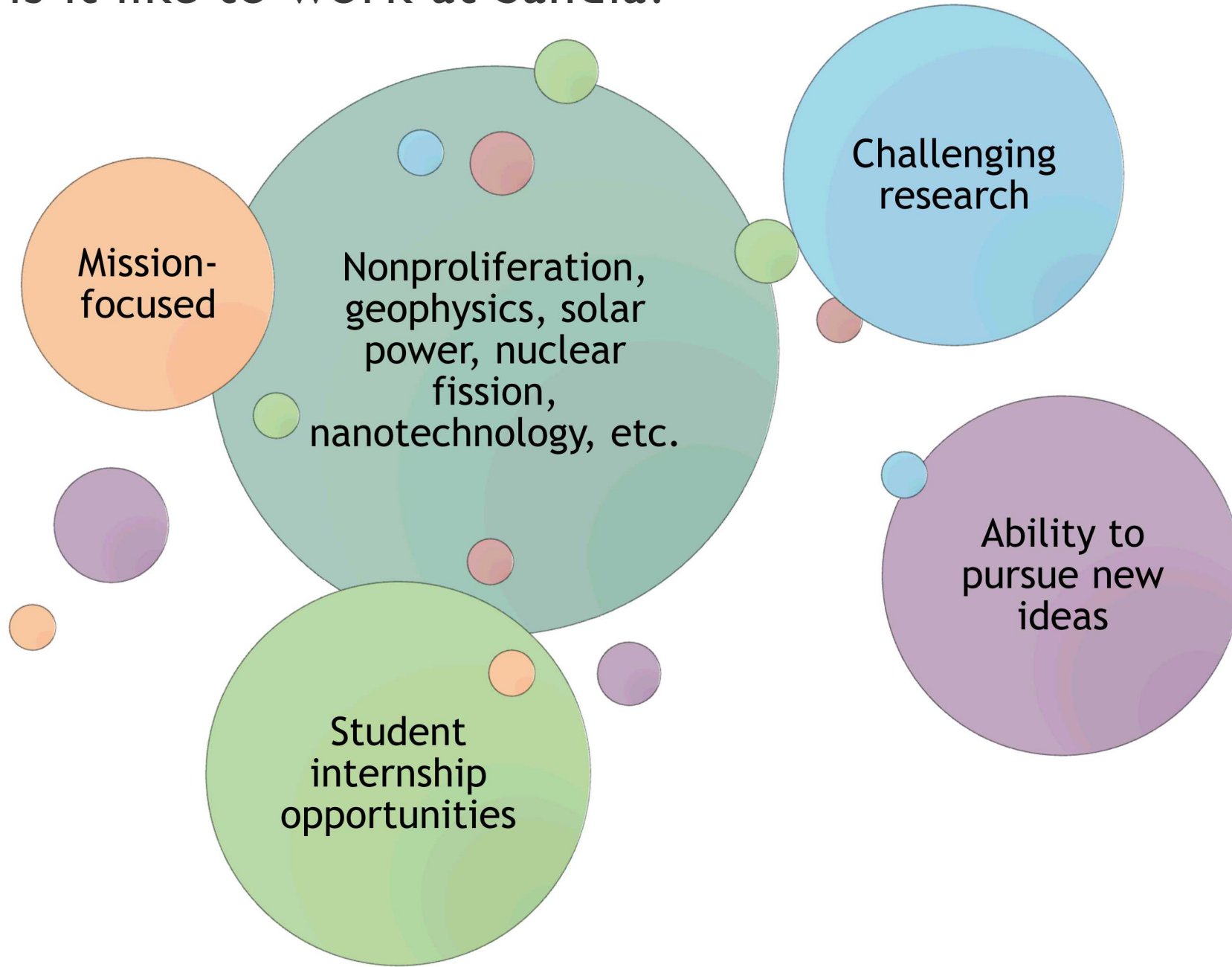


## Sandia National Laboratories

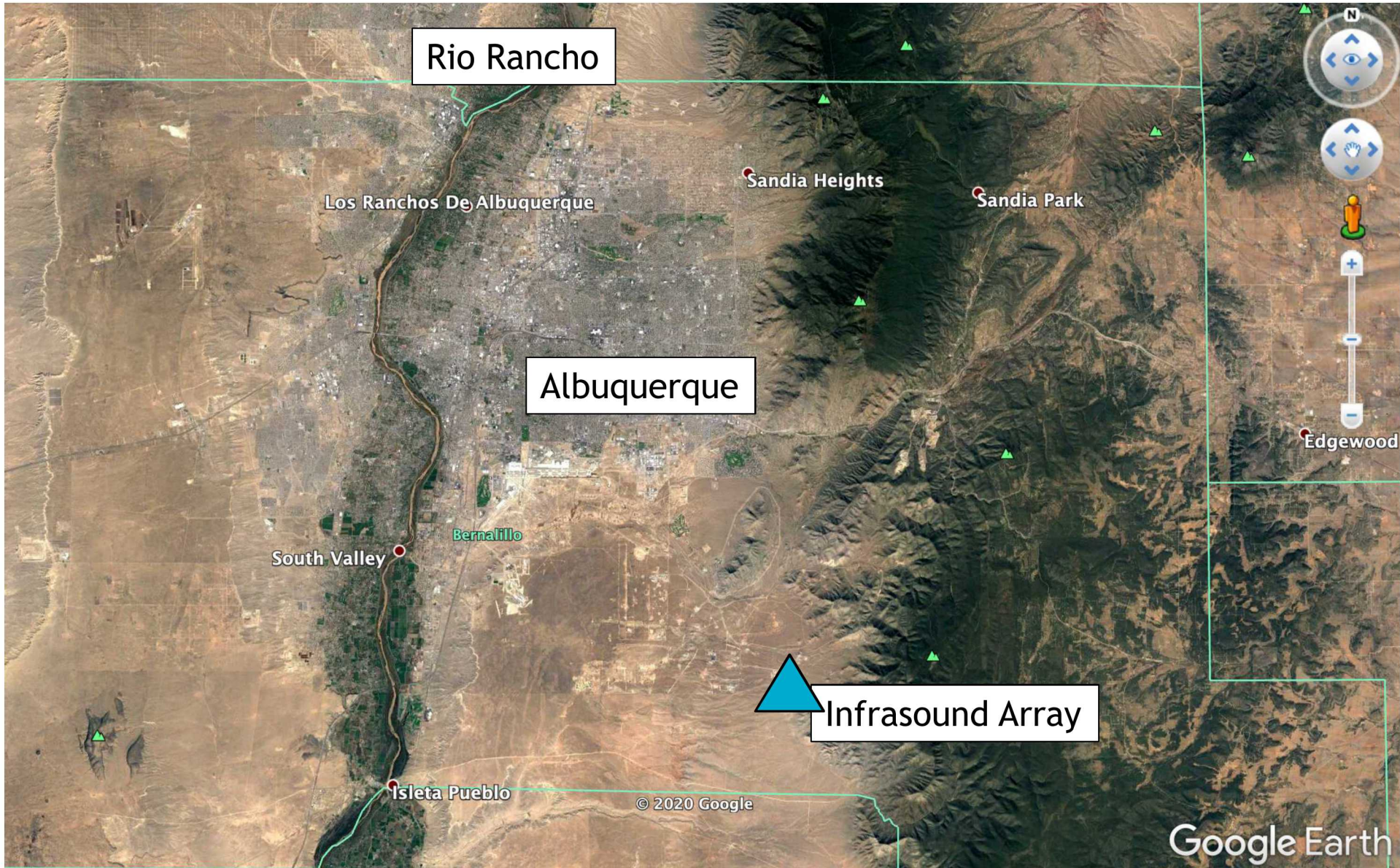
- Since 2016
- Infrasound geophysicist – National security (monitoring for nuclear explosions)



# What is it like to work at Sandia?









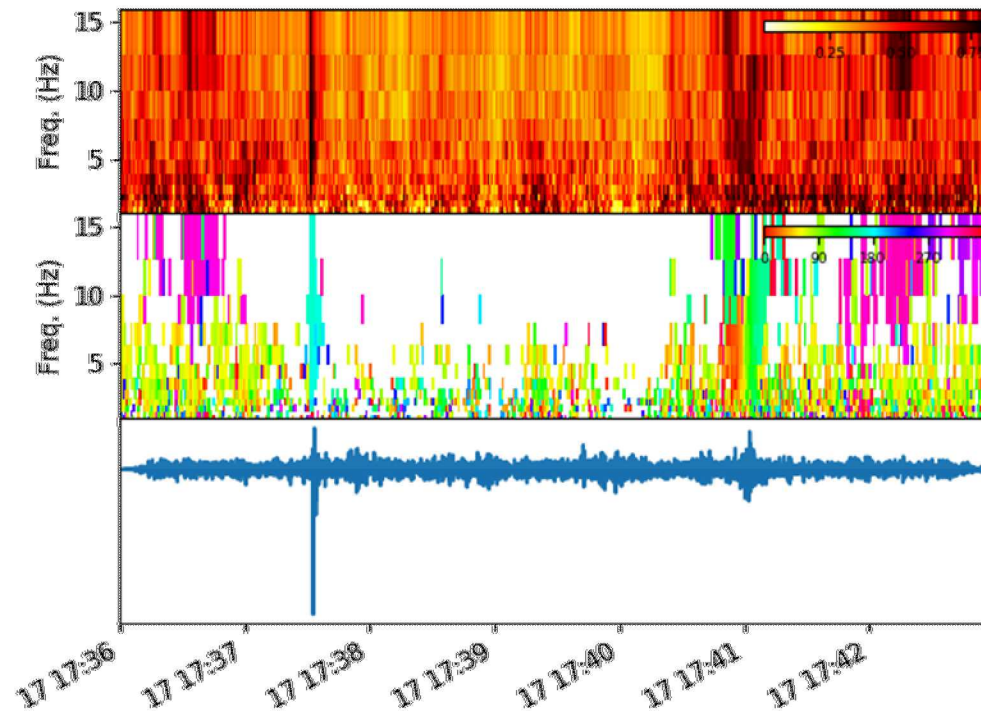
# Methods

PSDs calculated using 60 minute windows with 50% overlap

Mean PSD taken for each time period (before restrictions, during stay-at-home order, and during phased re-opening)

Data was processed using SNL-developed infrasound processing software

- Frequency-wavenumber analysis for arrays



Example of infrasound processing (not from this study)

# Timeline of COVID Restrictions in New Mexico



Governor warns against  
large gatherings

Statewide stay-at-home  
order issued

Phased re-opening begins

Restrictions  
reinstated

January

February

March

April

May

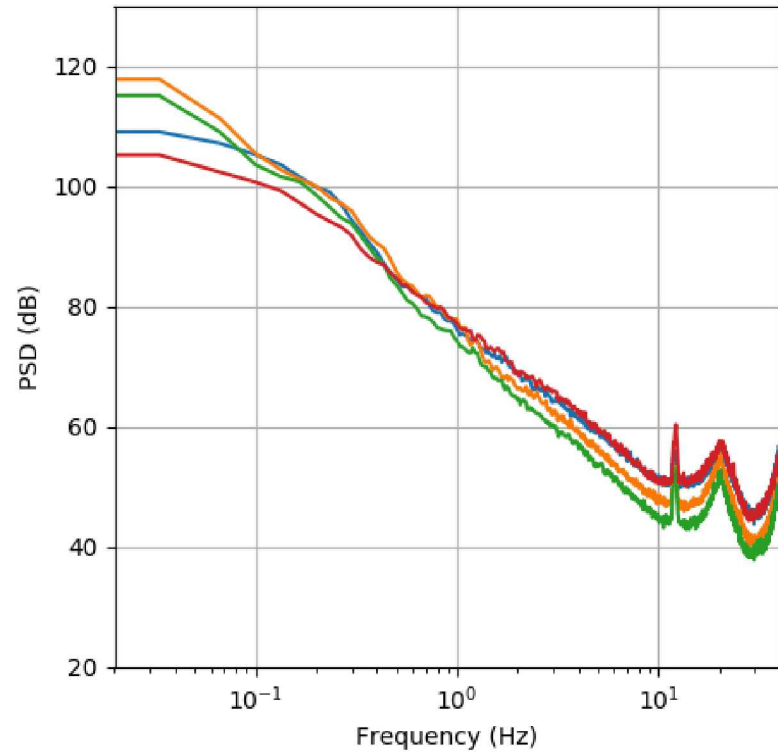
June

July

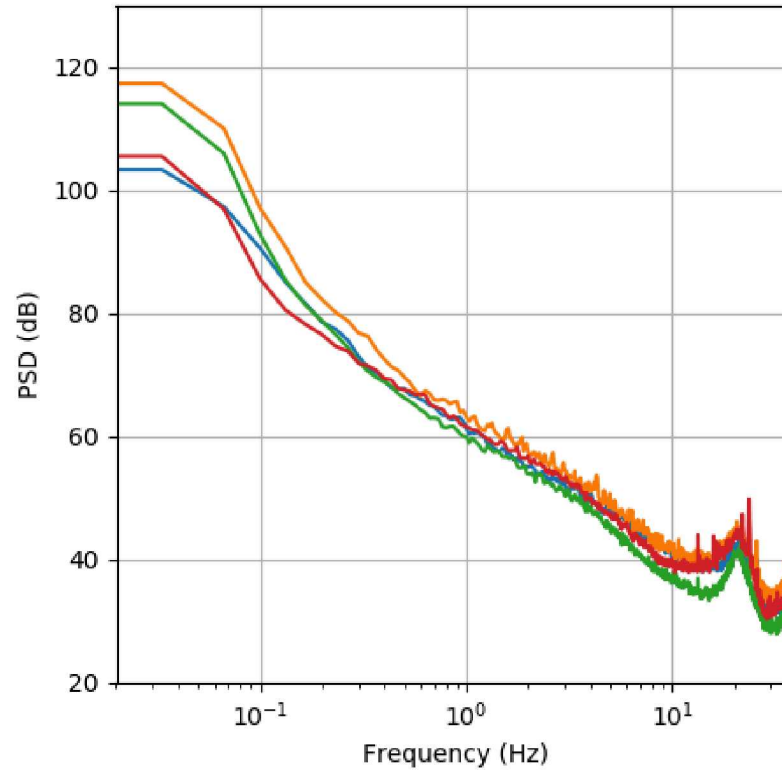
# Background Infrasound Noise 08:00 UTC (02:00 Local)



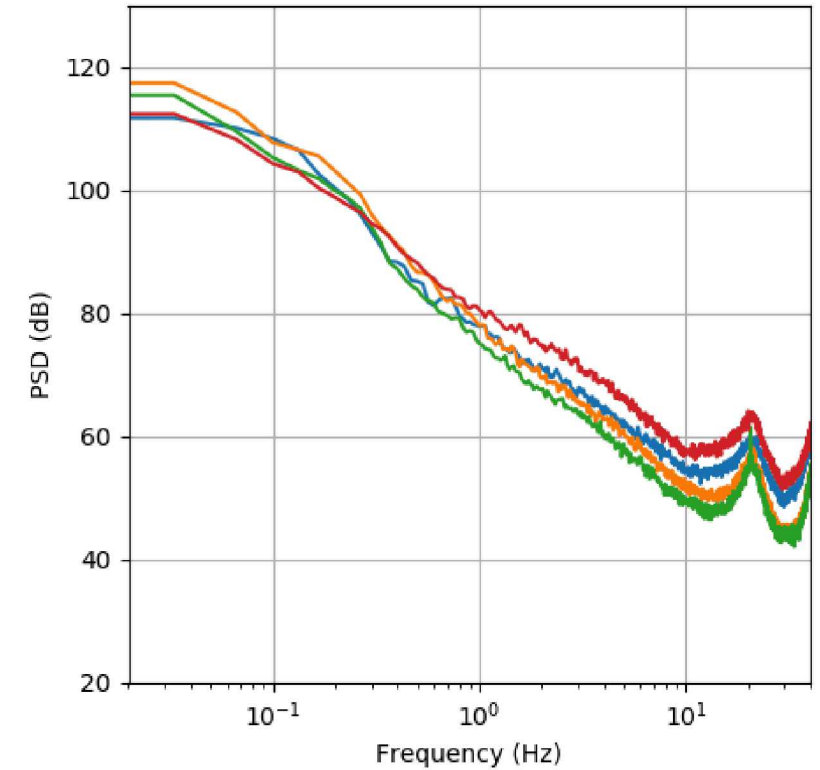
## Before Restrictions



## Stay-at-home Order



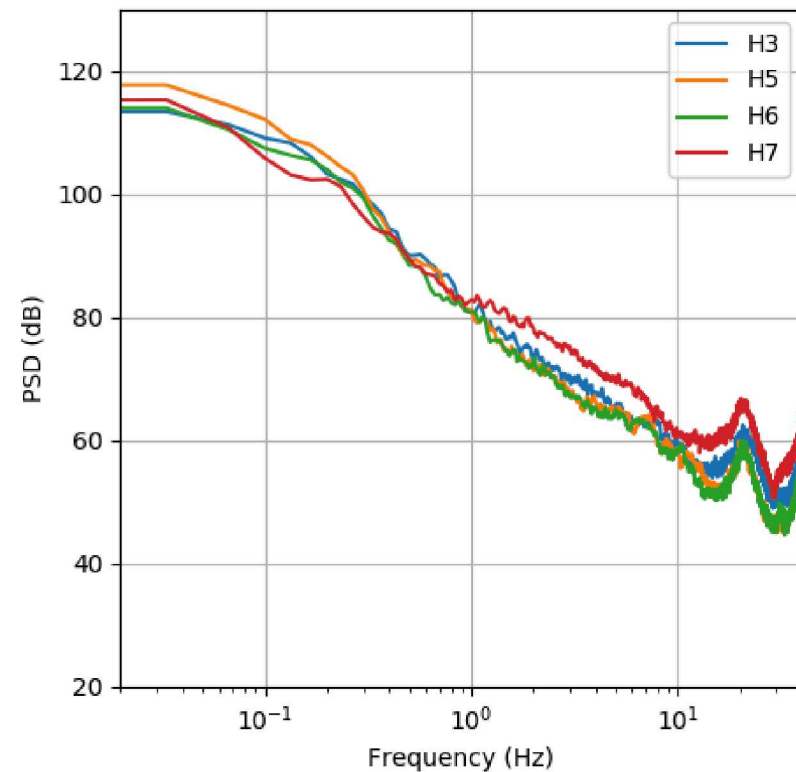
## Phased Re-opening



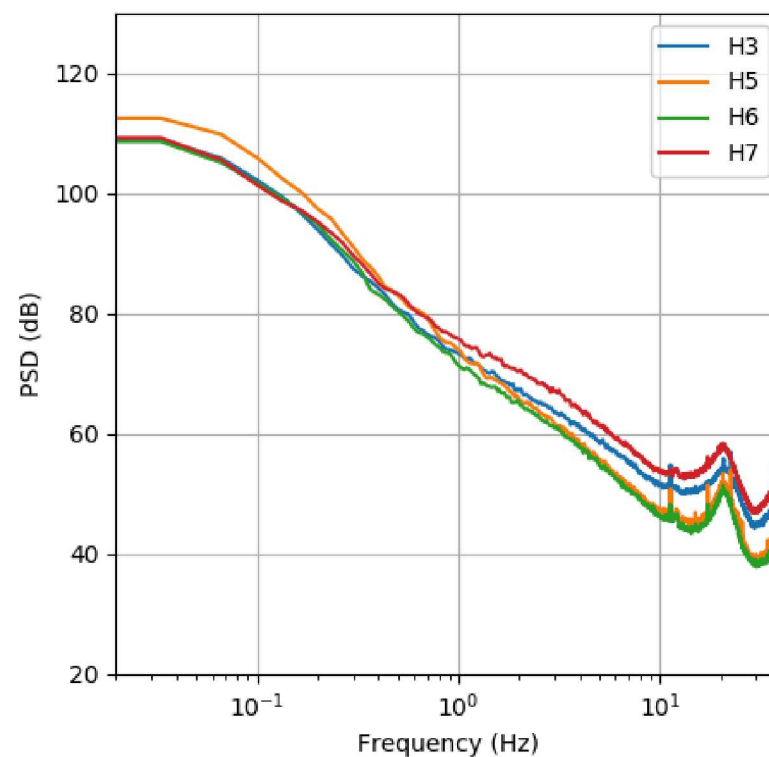
# Background Infrasound Noise 20:00 UTC (14:00 Local)



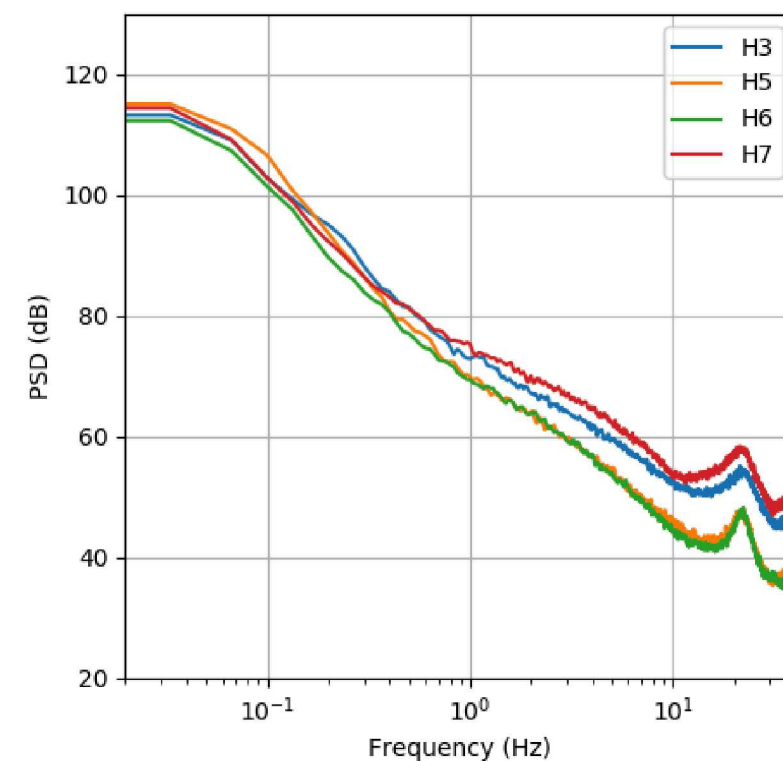
## Before Restrictions



## Stay-at-home Order

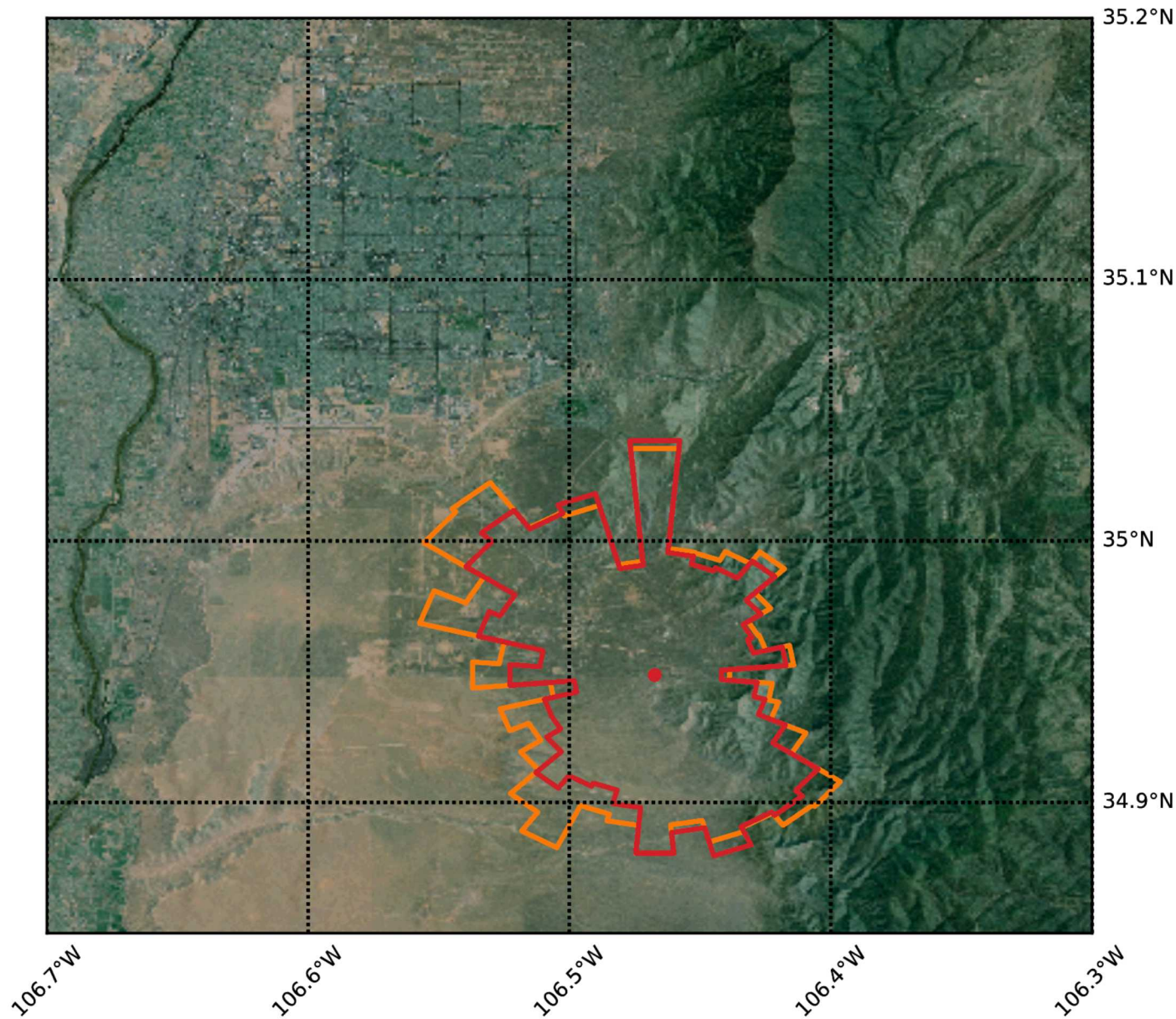


## Phased Re-opening





# Backazimuth Distribution



Decrease in distribution of  
backazimuths to the NW-SW

Due to fewer commercial flights?

- Before restrictions
- Stay-at-home order

# Next Steps

Compare daily PSD amplitudes with mobility data

Obtain flight data and compare backazimuth distribution

Collaboration with others?

