

# Temperature and Relative Humidity: Cripple Creek and Chatanika River, Interior Alaska



## Chatanika River, Interior Alaska



Eli Knapp and Michelle Morris

## Introduction

- It's important for researchers and managers to take a holistic approach to understanding the natural mechanisms in these areas
- There are many factors that often dominate the conversation such as temperature, deforestation, and improper waste management
- In an attempt to conduct a more well-rounded body of research, we decided to focus on relative humidity (RH) as well as temperature to begin to gain an understanding of ice formation processes on Cripple Creek.

## Land Acknowledgement

Research conducted on traditional lands of the Lower Tanana Athabascans.

## Methods

To collect readings of temperature and Relative Humidity data, a Hobo device was placed for a period of 5 days at the Cripple Creek site. The device recorded the temperature and RH at the site every 10 minutes for the study period. Data for the Chatanika site was collected from the Chatanika Remote Automated Weather Station.



Fig 1. Cripple Creek Research Site with embedded picture of site. Map by Michelle Morris



Fig 2. Cripple Creek Research Site and Chatanika RAWs station. Map by Michelle Morris

## Findings

The Cripple Creek site displayed an apparent positive correlation between Temperature and RH. Where as the Chatanika site displayed an apparent negative correlation between the two variables.



Fig 3. Graph of average temperatures at Cripple Creek between 10/29/2023-11/03/2023



Fig 4. Graph of average RH at Cripple Creek between 10/29/2023-11/03/2023



Fig 5. Graph of average temperature at Chatanika RAWs between 10/29/2023-11/03/2023

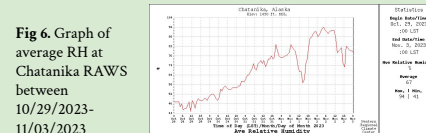


Fig 6. Graph of average RH at Chatanika RAWs between 10/29/2023-11/03/2023

## Conclusion

Although this is primarily an exploratory observational study some conclusions can still be drawn from the data. One clear conclusion is that the relationship between temperature and Relative Humidity differs between the two watersheds in this study. A variety of factors could have contributed to this but they are likely to include elevation, the presence of or lack of an inversion, and differing weather conditions between the two sites.

## Recommendation

More research is needed in this area to draw more clear conclusions. Further research projects would benefit from more data collection sites, such as Bonanza Creek LTER data. To draw more specific conclusions about temperature, RH and its effect on ice formation devices to monitor ice formation would need to be installed.