

# OBSERVING A DIMINISHING SNOWMELT PERIOD IN THE HEADWATERS OF THE RIO GRANDE AND THE CORRELATIONS TO RISING GLOBAL AIR TEMPERATURES

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Climate models continue to illustrate a future with lesser water flux in the Southwestern United States. Along with diminishing reservoirs of water and anomalous fluxes in precipitation, the southwest is experiencing sooner than expected peak snowmelt runoff on the order of days. With the sooner snowmelt runoff peak, the less time the snowpack has to accumulate over the cold winter months. Hence we seek to demonstrate the relationship between global air temperature and receding peak runoff values. The data used are from the Rio Grande Headwaters stream flux provided by NOAA. Through the research we seek to present numerically modelled recessions in peak snowmelt runoff; moreover, we find that peak runoff timing is getting earlier in the year and it's not clear that there is a direct relationship with global air temperature models. Thus, there is currently research in progress on the principle causes of the shifting peak snow runoff date. The methods of research are nonlinear algorithm writing and k-clustering machine learning using Python and its accompanying libraries.

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