

# RAINFALL-RUNOFF RELATIONSHIPS COMPLEMENTING PREVIOUS SEDIMENT TRANSPORT STUDIES AT THE ARROYO DE LOS PIÑOS, SOCORRO, NEW MEXICO

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In semi-arid climates, sediment influx to large rivers such as the Rio Grande from ephemeral streams is challenging to quantify. These streams are not studied as often as perennial streams because of their erratic nature and the fact that they are usually located in hard to access, remote deserts. The Arroyo de los Piños is currently one of very few study sites collecting data on water velocity and discharge, bedload and suspended sediment, as well as other measurements that may be relevant during a flood event. This study site is located close to the confluence of the arroyo and the Rio Grande, yet data on the contributing watershed are lacking. Gaining a clearer picture of stream connectivity and rainfall-runoff relationships in this channel will be useful for quantifying flow generation as well as aquifer recharge and transmission loss through the stream bed.

Over the past monsoon season seventeen pressure transducers were installed in the Piños watershed (Figure 1). One recording rain gauge was added to the two existing gauges. The placement of the loggers and rain gauges aims to capture geologic heterogeneities within the watershed. Being able to determine the geology that experiences overland flow during an event has implications for the composition of the sediment transported to the monitoring site.

Several floods have been recorded in the arroyo tributaries since the loggers have been installed. Through pressure transducer and rain gauge data we can infer the pathway the storm took, and to some degree the intensity of the storm. We can also document which lithologic units produced flow most readily. We have limited rainfall and runoff data from 2018, but now that pressure transducers and rain gauges are installed, our instrument coverage for the 2019 monsoon season will allow us to better describe rainfall-runoff in the Piños.

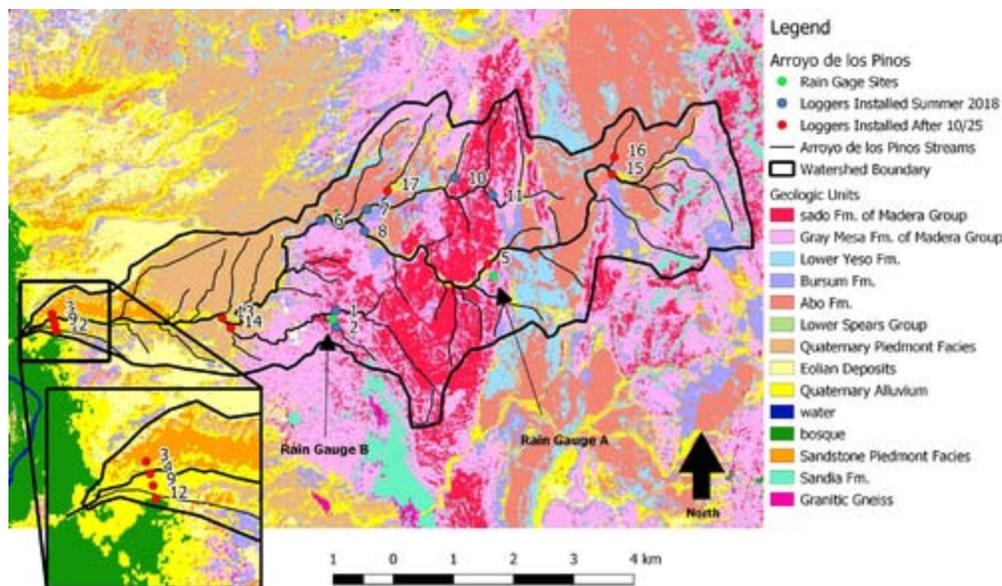


Figure 1: Arroyo de los Piños pressure transducer and rain gauge sites, inset of closely placed pressure transducers in the lower braided reach. Underlying geologic map is from Cather 2005.

**Keywords:**

Rainfall, Runoff, Aquifer Recharge, Flood

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