Global Context of Sediment Transport Rates from a New Mexican Ephemeral Channel

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We present an initial evaluation of sediment transport data collected from ephemeral channels in dryland regions worldwide. These data have been compiled from a wide range of channels with differing watershed size, bed material, and aridity. When these channels are activated, bedload transport rates are among the highest recorded anywhere. Their defining features - sparse vegetation cover, lack of baseflow, and unarmored nature - allows these channels to transport material highly efficiently downstream. Of these channels the Arroyo de los Pinos, an ephemeral channel in central New Mexico, ranks among the most efficient at transporting sediment. It’s unique properties (a loose, gravel bed with a significant sand content) allows individual grains to mobilize much easier.

This is a first attempt to gather publicly available data from desert channels worldwide. Ephemeral channels in these regions deliver the majority of sediment and runoff to mainstem trunk rivers and over 35\% of the earth’s landmass is classified as drylands. More than 2 billion people live in these regions. Our goal is to aggregate sediment transport data in the hope to resolve outstanding fundamental questions about how these channels behave and advance the knowledge about these under-studied fluvial systems.

pp. 63

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