Writing an Effective Plain Language Summary

A Plain Language Summary (PLS) is a way to summarize a scientific study and its results in terms that are accessible to people outside of a specific scientific circle. The example below, taken from a research article published in *AGU Advances*, is broken down to show the four key elements that make an effective PLS and how the language from an Abstract can be modified for a Plain Language Summary.

Example from Planetary Sciences

	ABSTRACT		PLAIN LANGUAGE SUMMARY
Topic overview	Although there is little doubt that rivers once flowed on Mars' surface, how sustained and frequent their flows were remains enigmatic. Understanding the hydrology of early Mars, nonetheless, is a prerequisite to resolving the planet's climate history and the astrobiological potential of various ancient putative ecosystems.	**What does a non-expert reader need to know about the topic to understand your paper?** • Interesting question to engage the reader • Explains importance of this topic • Accessible to a non-expert	Rivers once flowed on Mars, but how often, and for how long? Answering these questions will increase our understanding of Mars' habitability at a time when life was already evolving on Earth.
Paper overview	In 2021, NASA's Perseverance rover will attempt to land near ancient fluviodeltaic deposits in Jezero crater. Deltas offer enhanced organic-matter burial and preservation on Earth but translating this notion to early Martian environments remains speculative in the absence of information on flow intermittency and sedimentation rates. Here we develop a new model to infer the lateral migration rate of Martian river meanders, which, combined with orbiter-based observations of the fluviodeltaic deposits at Jezero crater, allows us to determine a minimum timescale for the formation of its delta. We then independently constrain the total duration of delta formation, including dry spells.	**What did you set out to investigate?** • Explains what the study aims to do • Describes where the data will come from	NASA's Perseverance rover will land by the remnants of an ancient river delta in Jezero crater. Here we develop a new model to calculate the pace of shifting Martian rivers, which, when applied to orbital observations of the Jezero delta, allows us to determine a minimum duration for delta formation.
Paper findings	Our best estimates suggest that delta formation spanned ~19–37 years over a total duration of ~380,000 years, i.e., that rivers flowed for a minimum ~1 sol/15–30 Martian years and conceivably more frequently, but uncertainties on total duration are large. Despite a possibly arid climate, predicted sedimentation rates are high, suggesting a rapid burial of putative organics in distal deposits.	**What was the most significant result or conclusion in your paper?** • Gives a general picture of results • Simple description of what can be inferred from the results • Minimal technical terms or scientific jargon	Combined with an independent estimate for the total duration of delta formation (including dry spells), our results suggest that the delta took a few decades to form over a total timespan of, most likely, hundreds of thousands of years. This result suggests that Mars was likely arid at the time, with rivers flowing for at least 1 Martian day every 15–30 Martian years, and possibly more often. Nonetheless, we predict that sediments would have been buried quickly in the delta, favoring the long-term preservation of possible organic matter.
Key takeaways	Altogether, our results support Jezero crater's potential as a prime target to look for ancient Martian life and acquire samples to return to Earth. Any discrepancies between our predictions of the deposits' grain-to-bedform-scale architecture and future rover observations will shed critical light onto Mars' early surface environments.	**Why should a reader care about your findings?** • Explains the significance of the results	Altogether, our results confirm that Jezero crater is a prime location to understand Mars' early climate, look for traces of ancient Martian life, and return samples from for further analysis on Earth.

Lapôtre, M. G. A., & Ielpi, A. (2020). The pace of fluvial meanders on Mars and implications for the western delta deposits of Jezero crater. *AGU Advances*, 1, e2019AV000141. https://doi.org/10.1029/2019AV000141

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