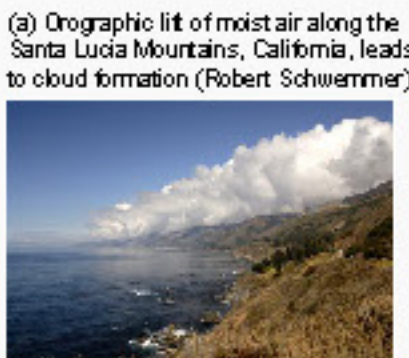


Open questions regarding the influence of topography on the terrestrial water cycle

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Motivation

- Topography affects the movement of water above, at, and below the land surface
- However, exciting puzzles remain and new discoveries continue to surprise us
- Here we discuss some **open questions** regarding the influence of topography on the terrestrial water cycle, based on a mix of literature review and data synthesis

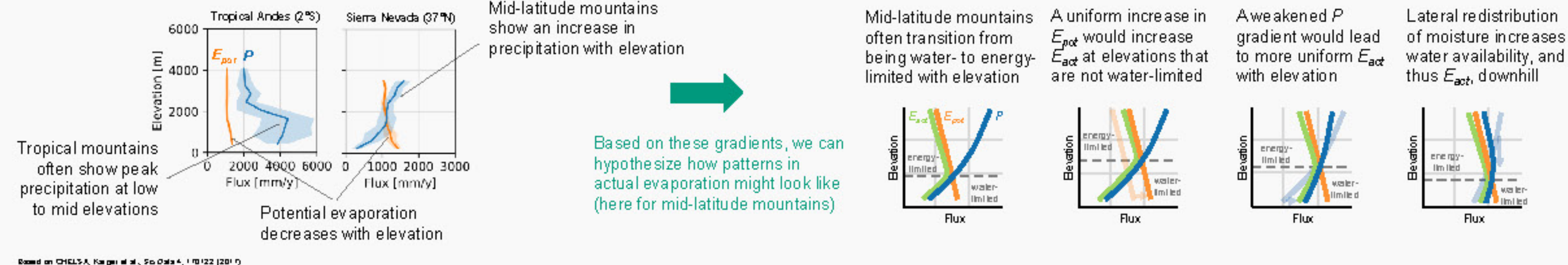


Conclusion

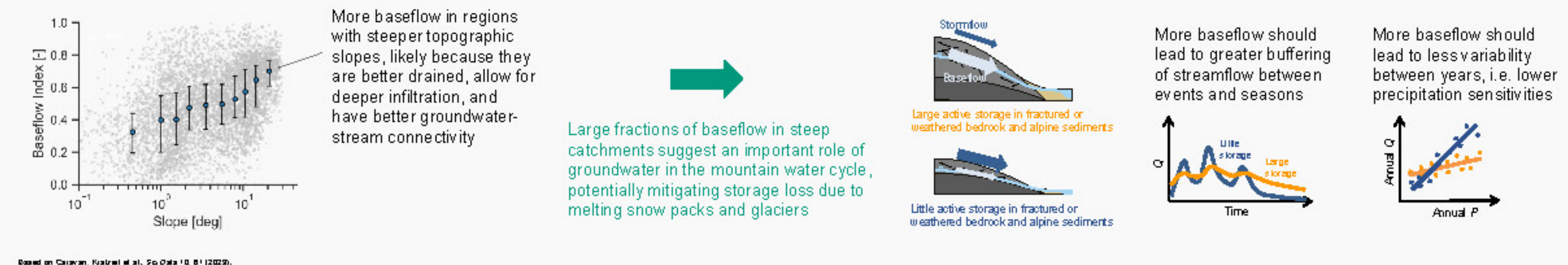
- Topographic gradients interact with other environmental gradients, making them a great playing field for studying hydro-systems
- Gradients can structure our search for new empirical patterns and allow us to test hypothesized patterns using observations
- Empirical patterns, ideally underpinned by process understanding, can then be used to evaluate, constrain and improve models



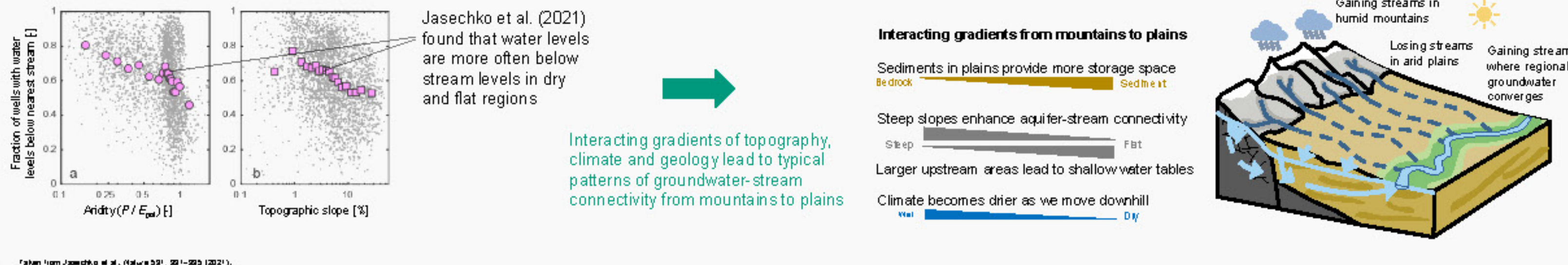
How do elevational gradients in water and energy supply translate into gradients in evaporation? How are these gradients modulated by lateral moisture redistribution?



How much baseflow is generated in complex terrain such as mountains – the world's water towers? How will this change with melting snowpacks and glaciers?



How does the interplay of topography, climate and geology influence groundwater's connection to the surface, i.e. where are streams gaining or losing?



What are your open questions? Do you have any comments?

