

Using temperature to determine groundwater versus surface water dominance in streams

- Daisy Contreras Martinez, Jim Wang, Jonathan Herring, Olabisi Olaitan

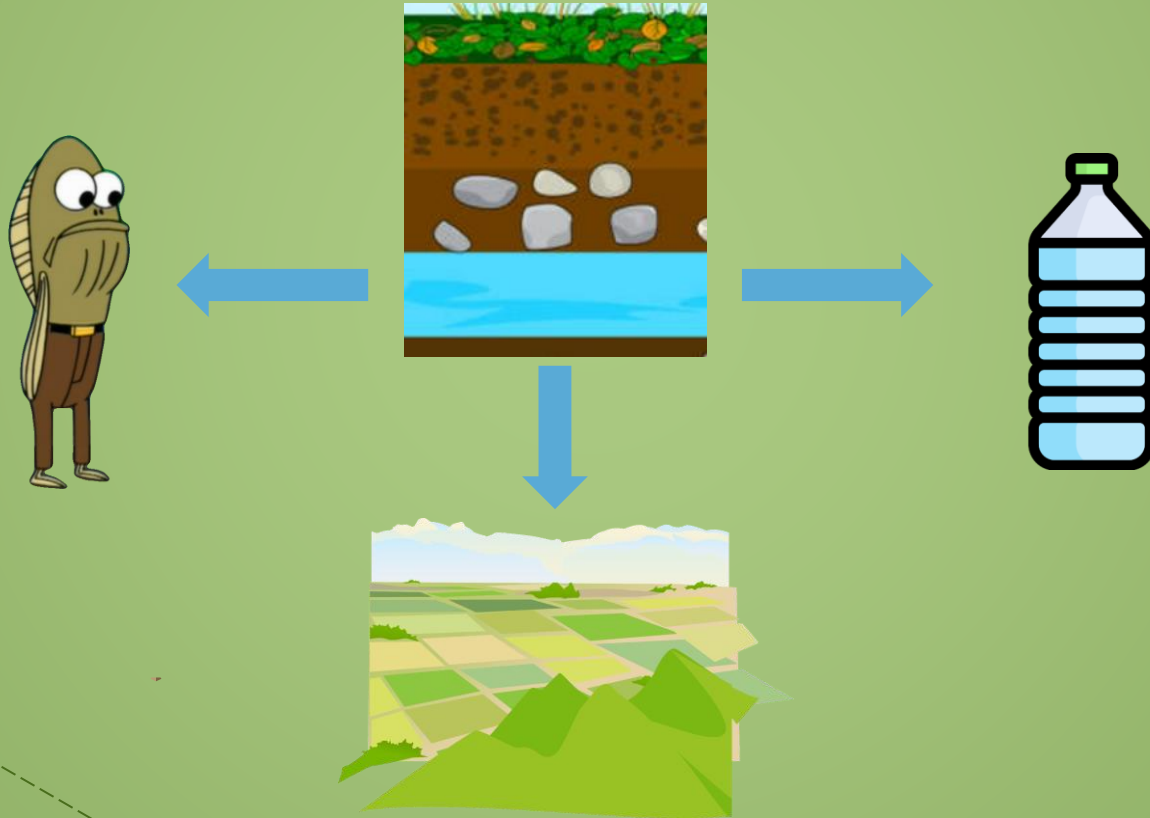
- Annette Hilton

- Dr. Scott Jasechko

University of California, Santa Barbara

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Groundwater affects both humanity and natural ecosystems



Groundwater globally is depleting due to human consumption

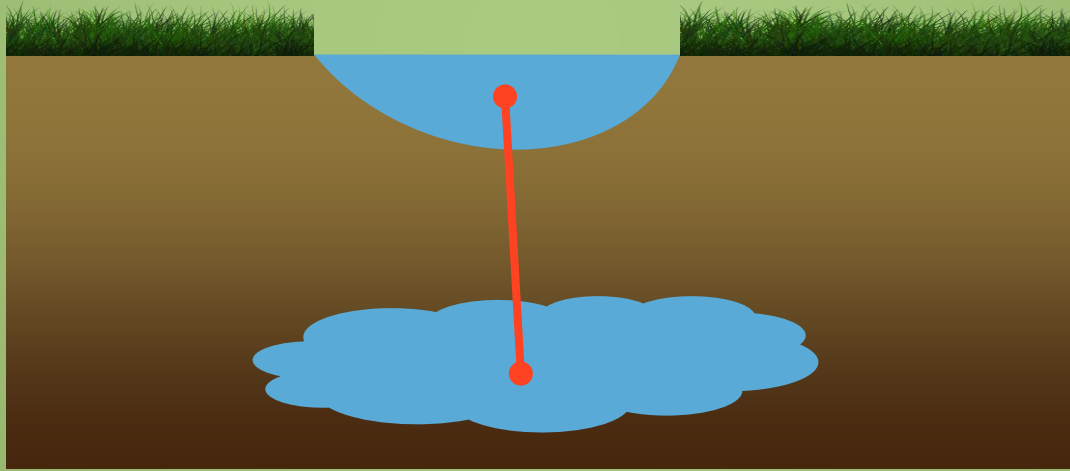


(Stanford)



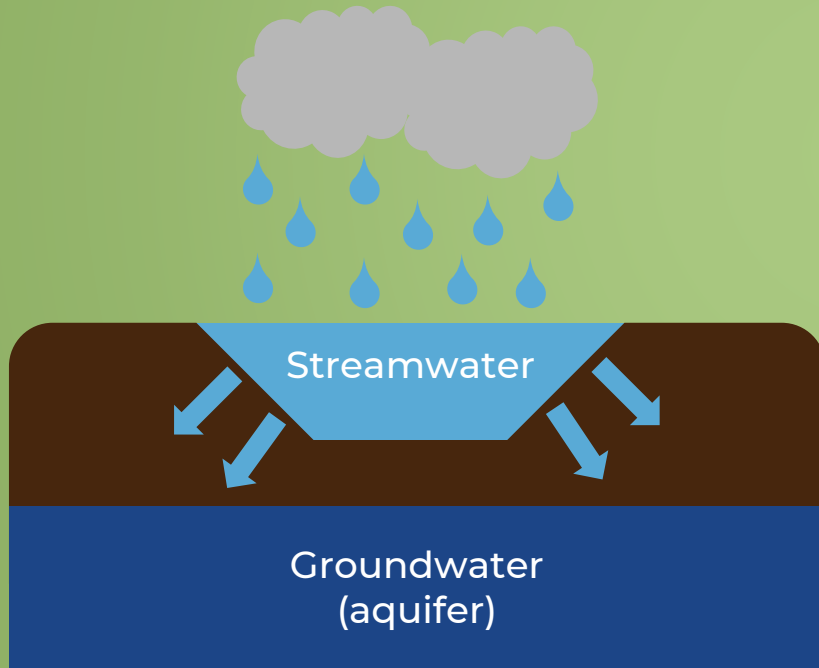
(Business Insider)

Groundwater directly affects associated surface water

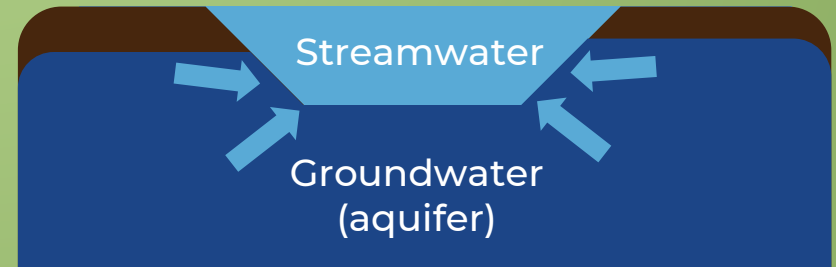


Streams can be surface water or groundwater dominated

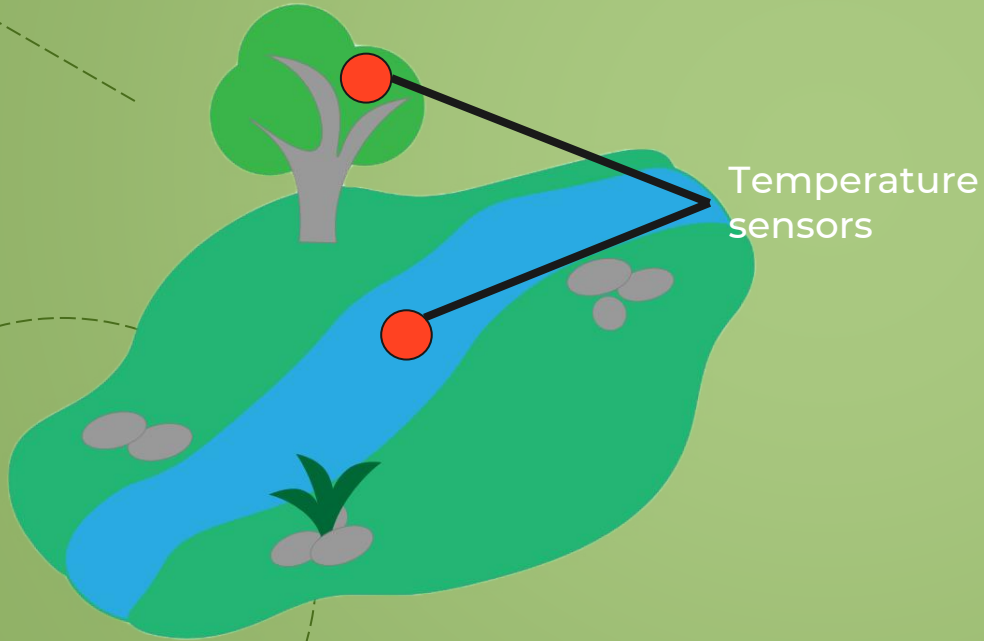
Surface Water Dominated Stream



Ground Water Dominated Stream

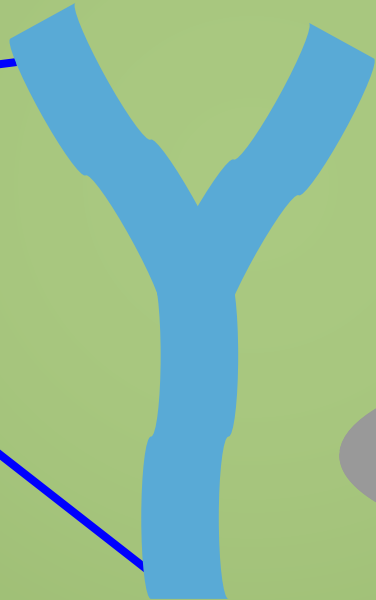
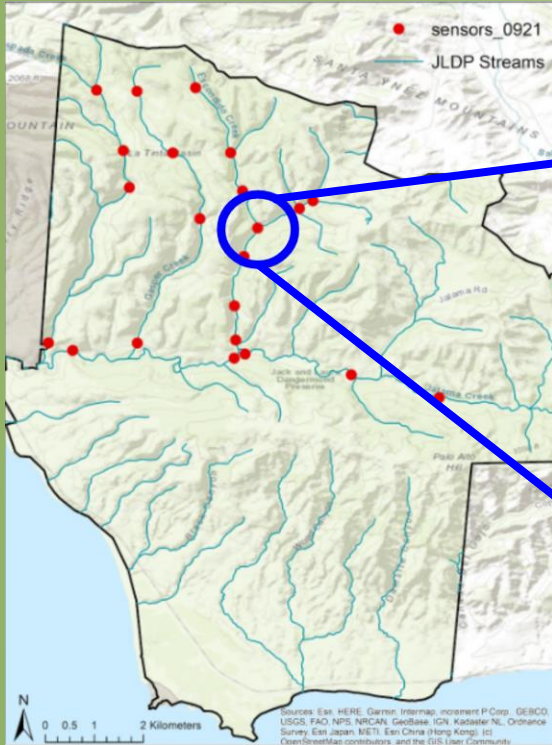


Temperature measurements show the link between the stream and air



(Annette Hilton)

Artesian wells allow us to easily monitor the temperature of groundwater



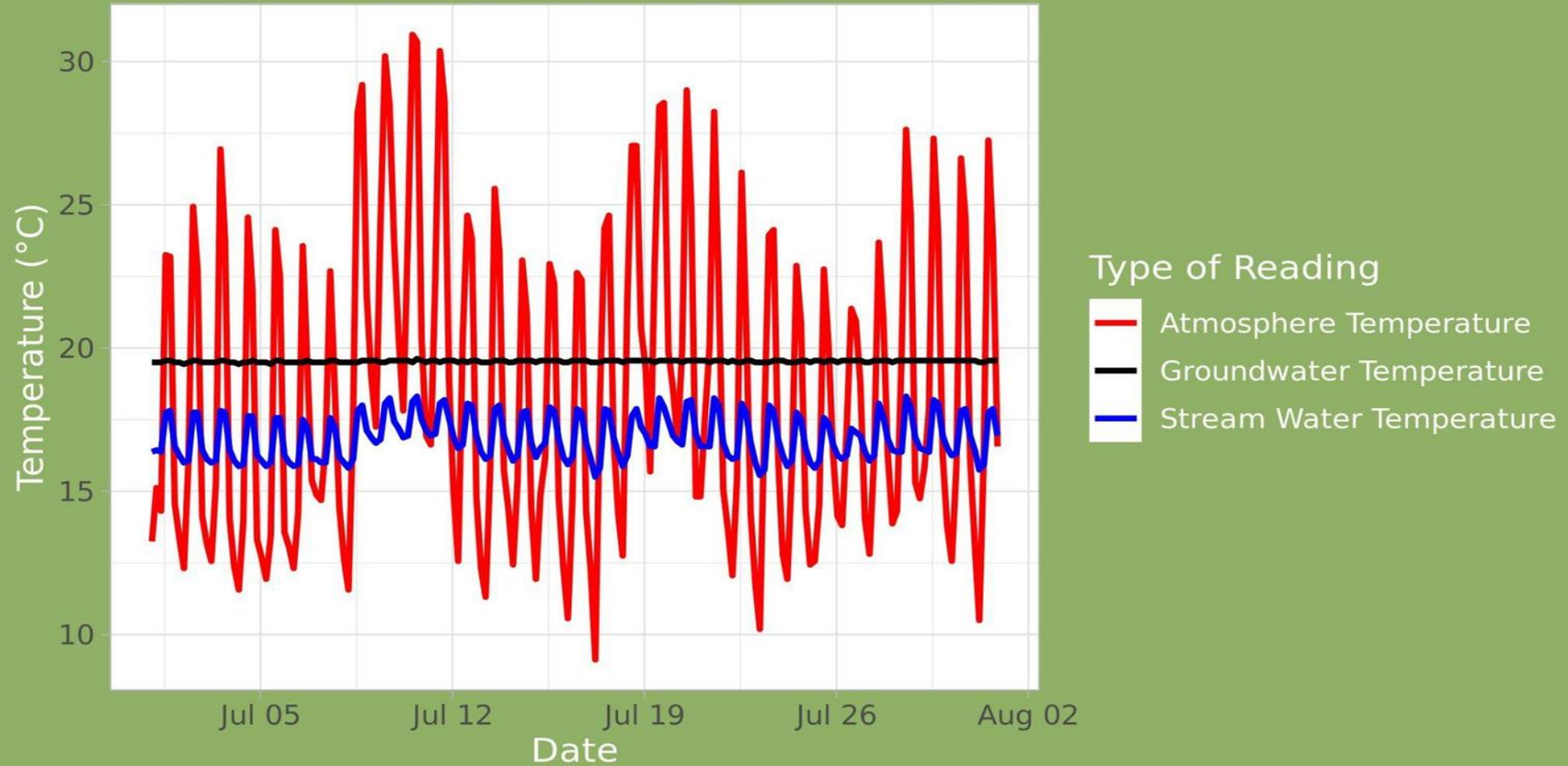
Artesian Well



(Annette Hilton)

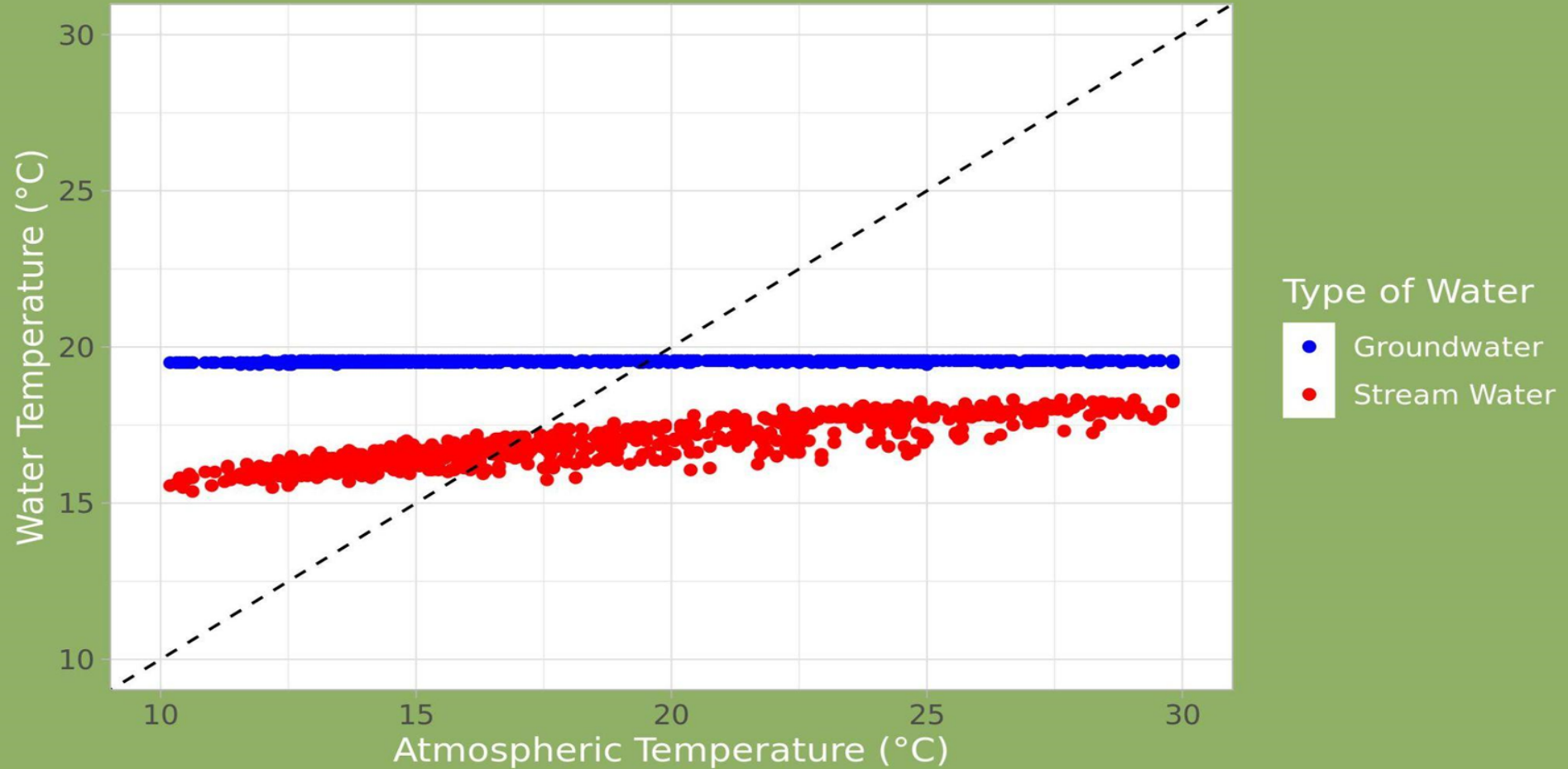
Stream water is weakly affected by atmosphere temperatures

Readings taken from the Jack and Laura Dangermond Preserve



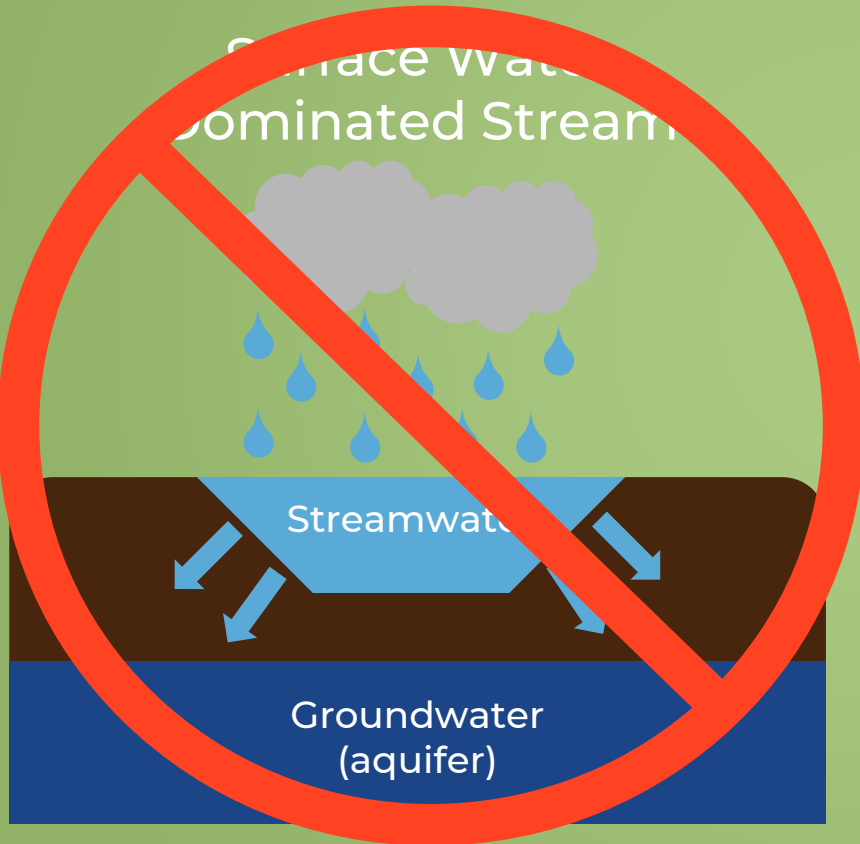
Stream water is weakly correlated with atmosphere temperatures

Readings taken from the Jack and Laura Dangermond Preserve

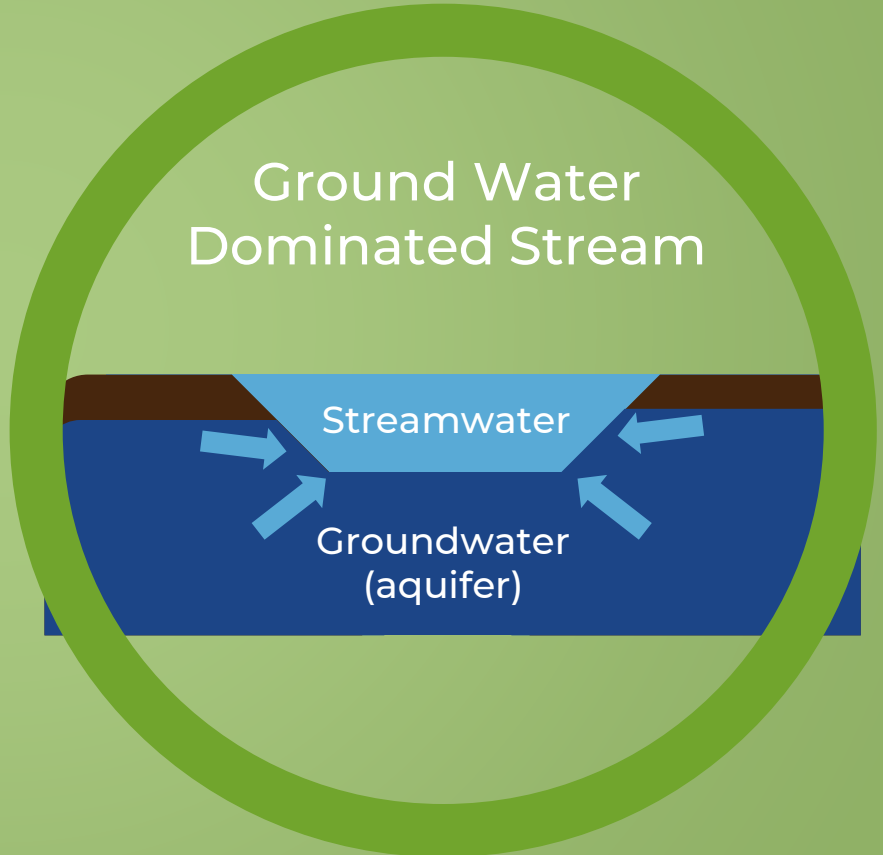


This stream is groundwater dominated

~~Surface water dominated Stream~~



Ground Water Dominated Stream



Understanding connections between groundwater and streams is critical for sustainability



(Ausable River Association)



(The Nature Conservancy)

Groundwater management reduces the scarcity and pollution



(Conserve energy future)



(Toppr)

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