A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light green. They are positioned diagonally, with the blue one partially covering the green one.

Arctic Water Tracks & Machine Learning

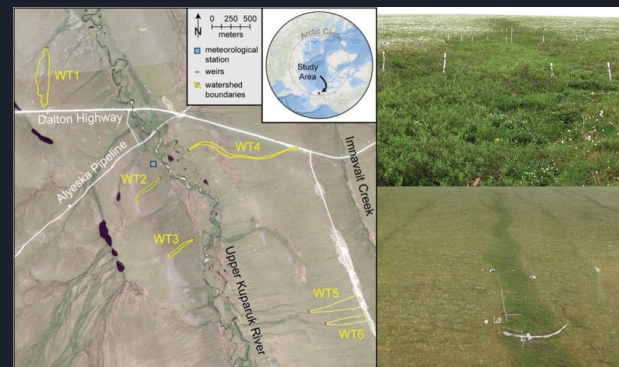
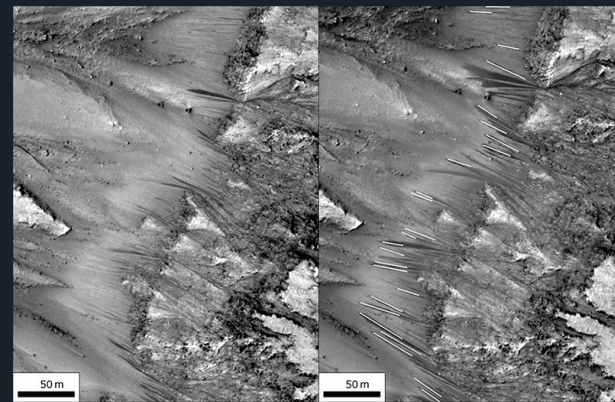
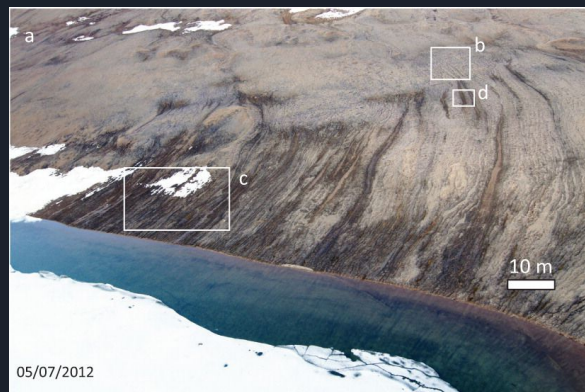
Rebecca Risch '25

Q&A:

- What are water tracks?
 - Low-order curvilinear streams that run parallelly off hillslopes, stemming from snowmelt
- Where are water tracks?
 - Found in the Arctic Tundra and Boreal Forest
- How can I include water tracks in my climate research?
 - You can't yet

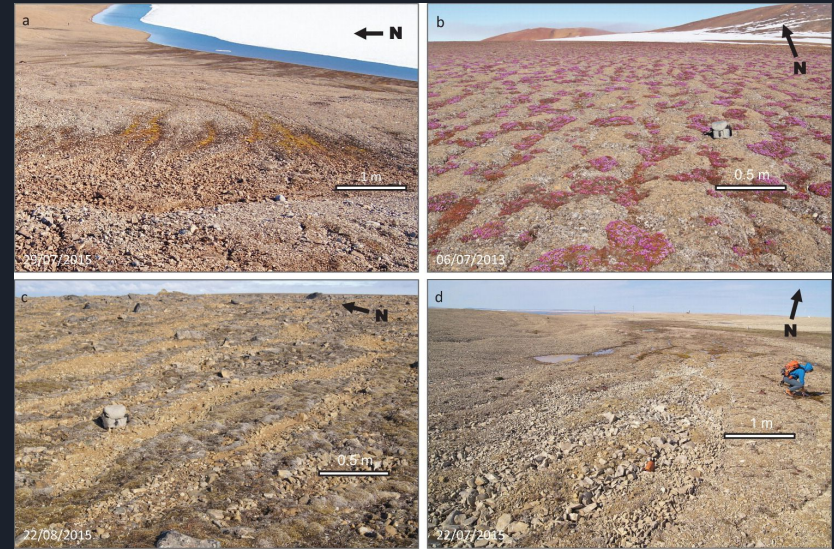


On the Specifics of Water Tracks

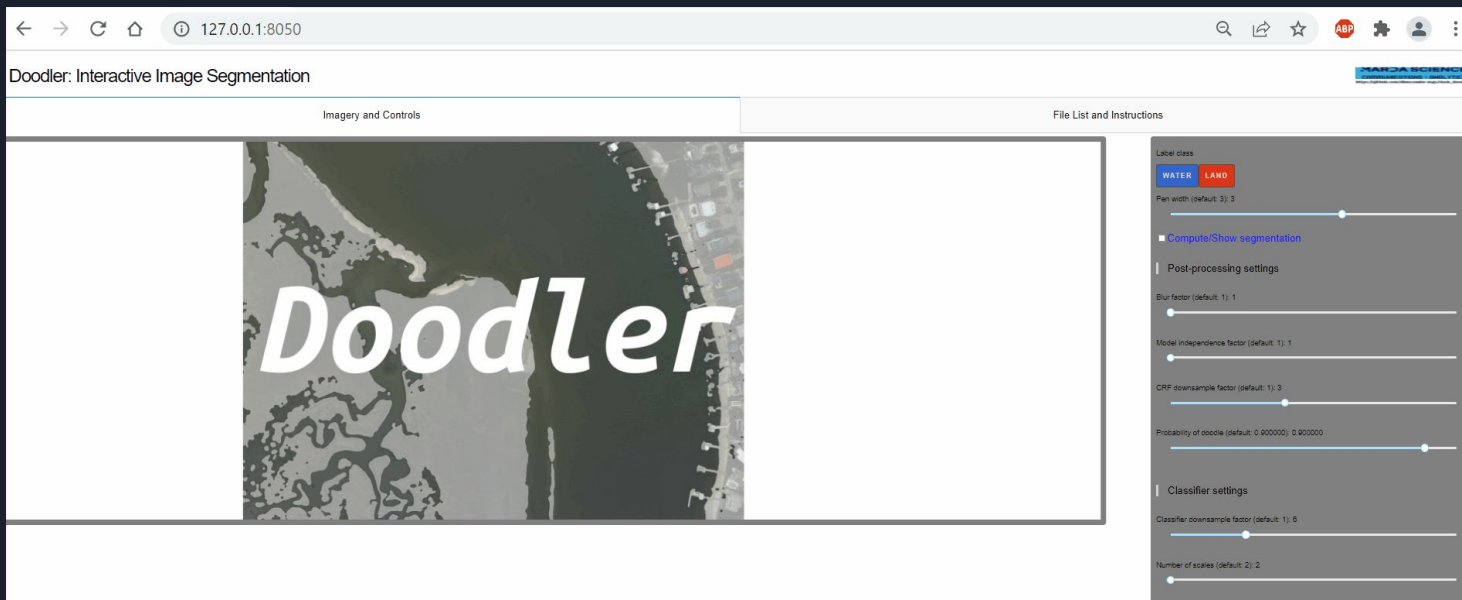


The Problem

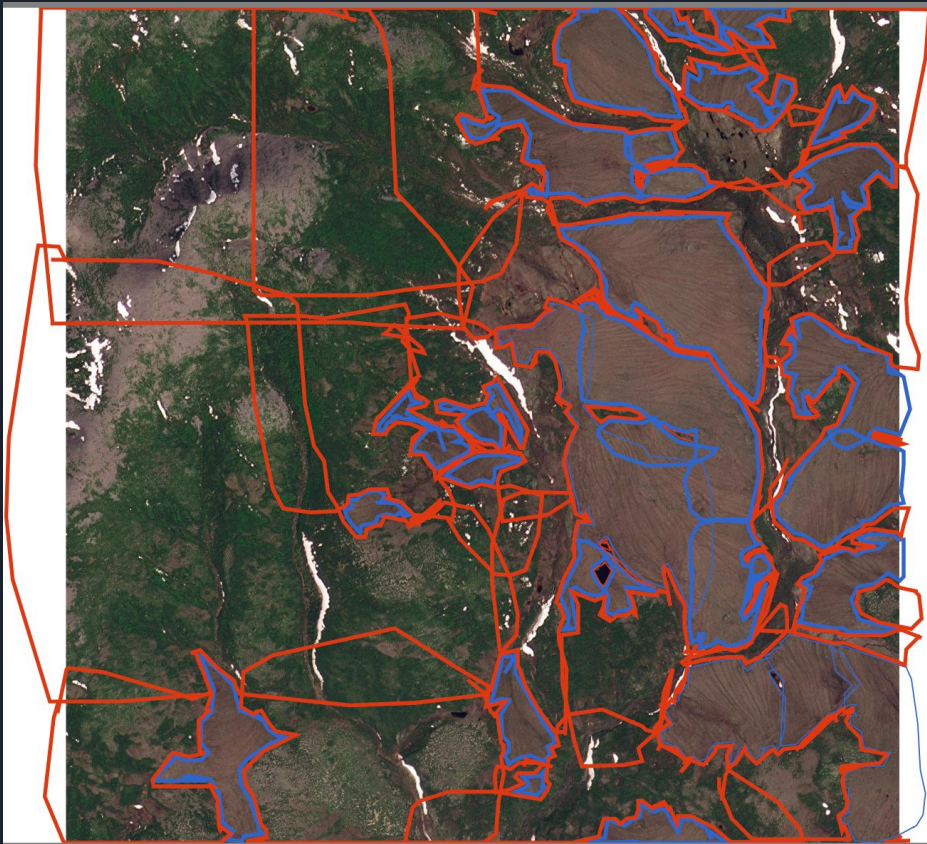
- Because water tracks are small and difficult to distinguish, we have no database of their locations, like we do for rivers, lakes, and other hydrologic geomorphic features.
- Because we have no water track database, they are not included in climate research, but still hold an important role in water runoff and solute transport, and the permafrost melting.



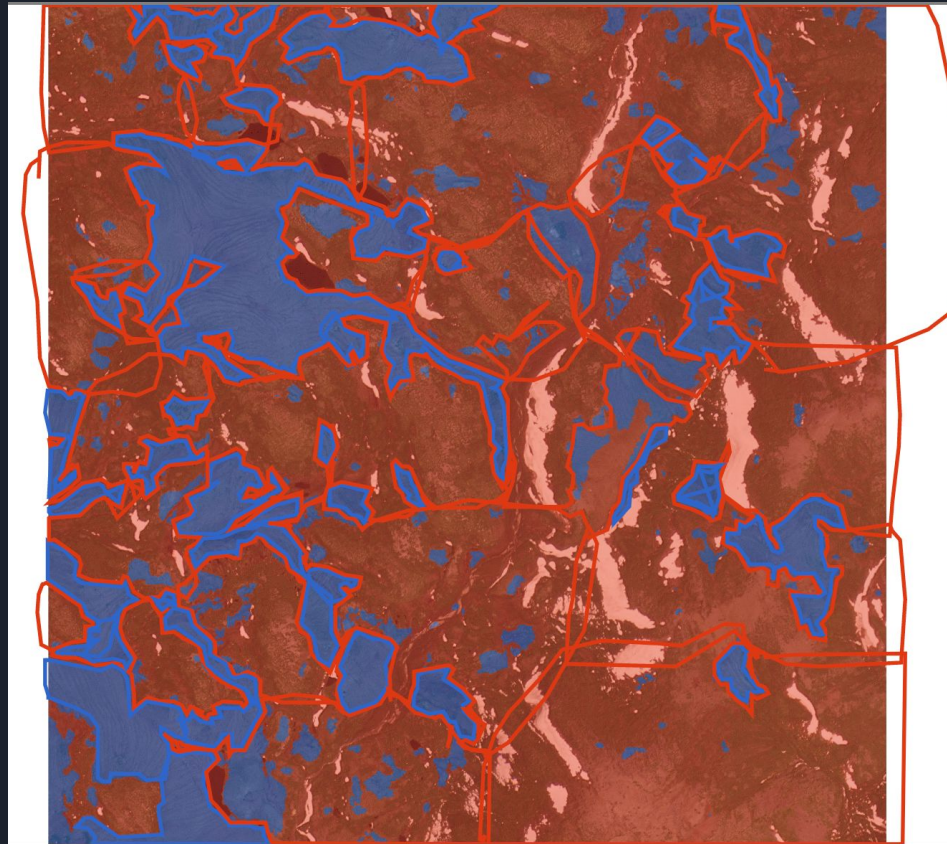
Our Solution



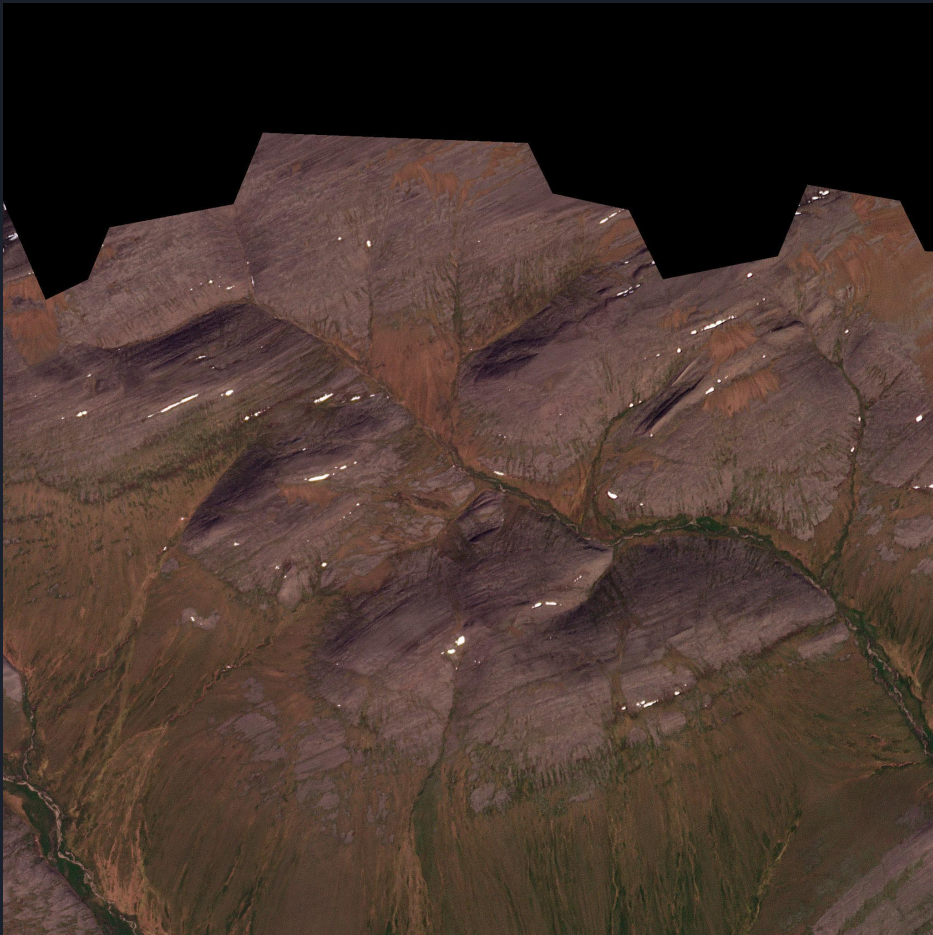
Doodler, examples



Post doodling, pre segmentation



Different image, post segmentation

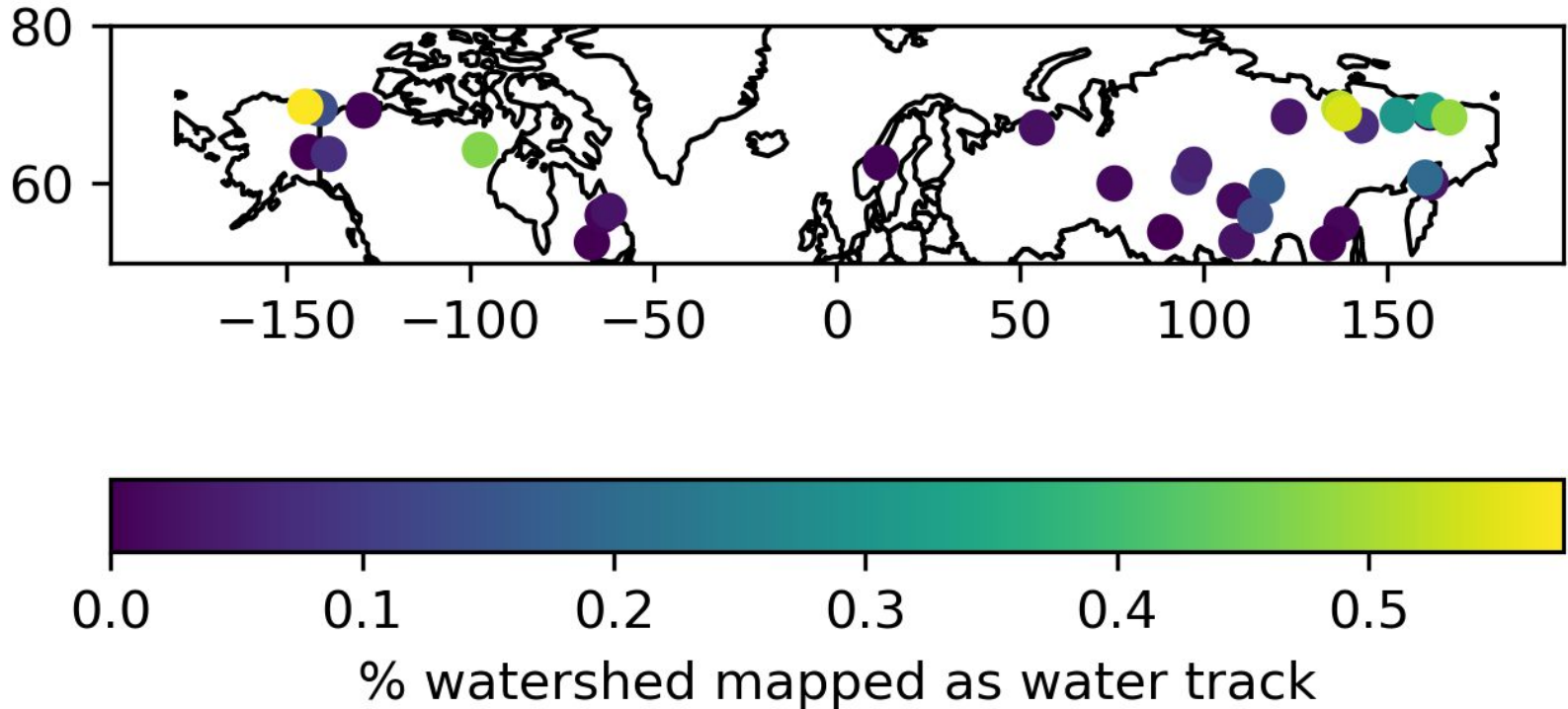


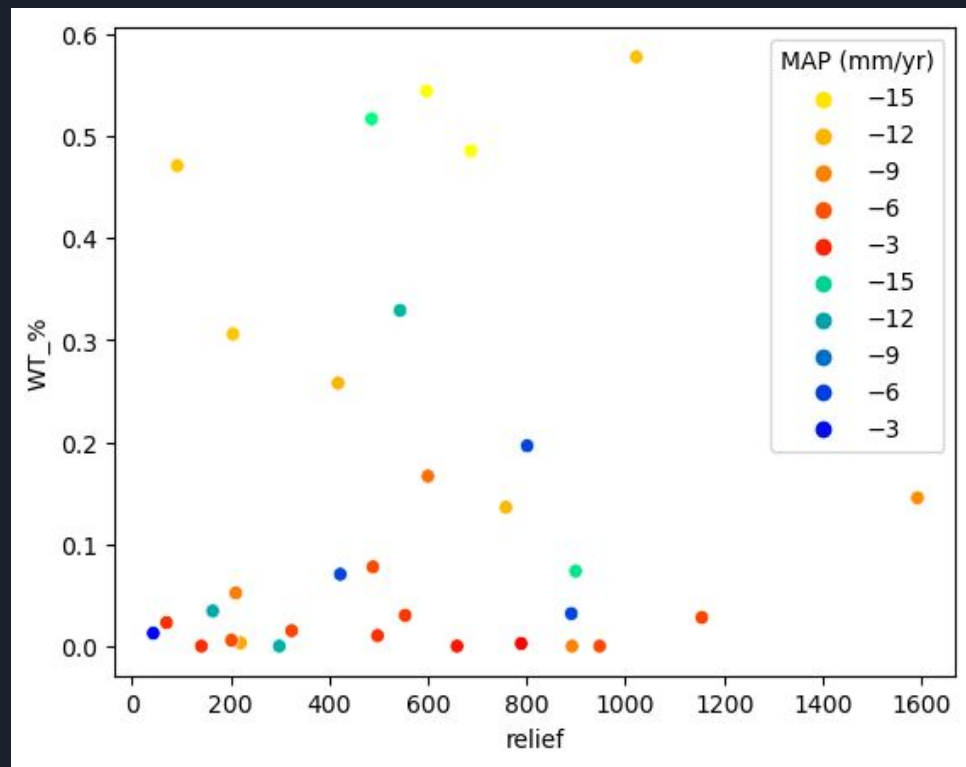
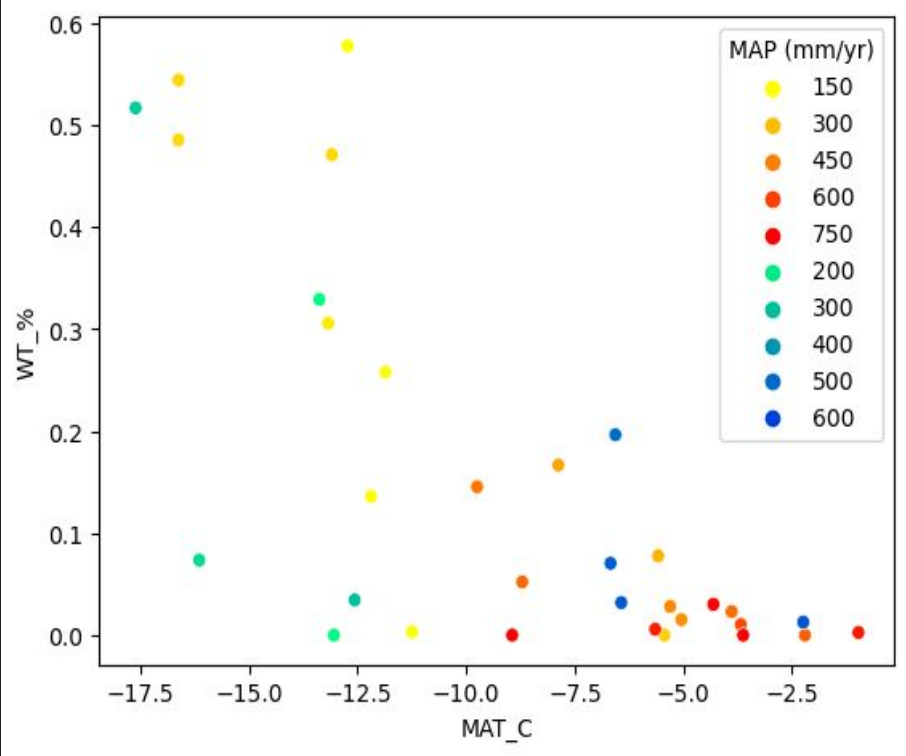


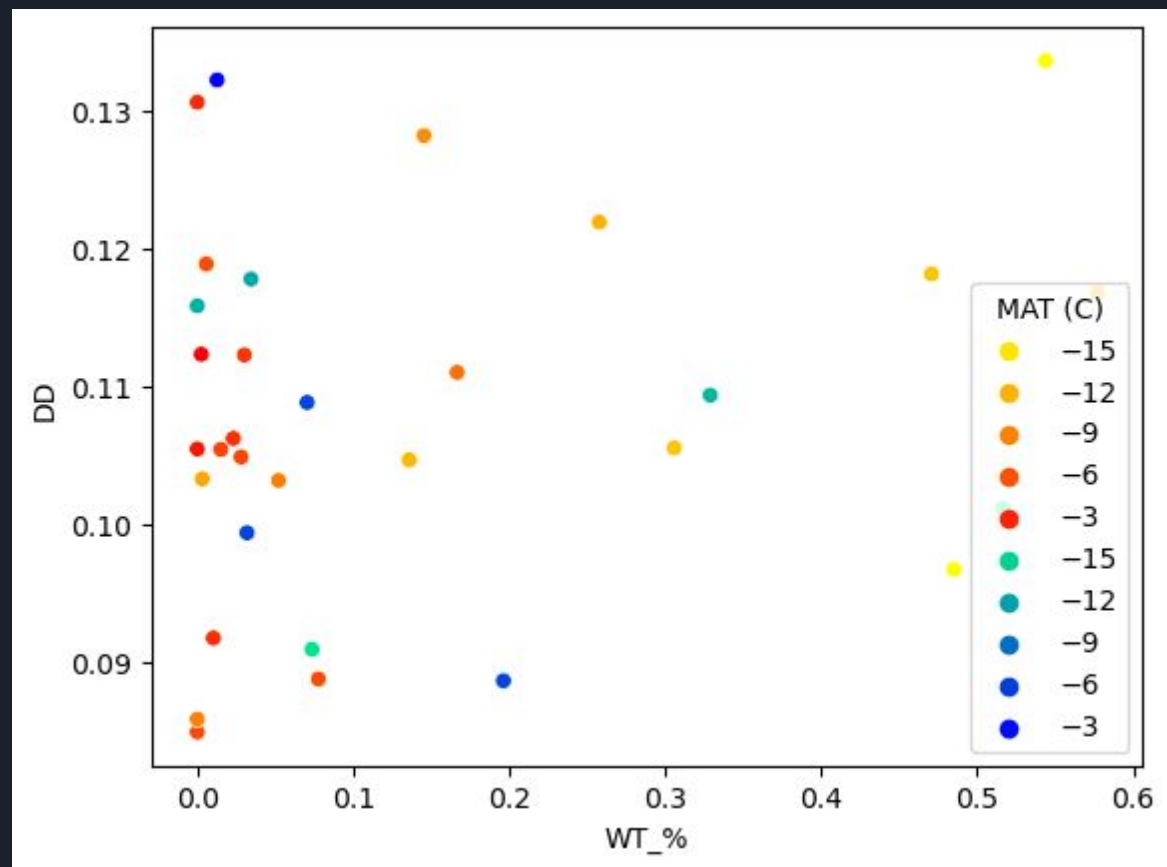
Planet vs Sentinel Imagery



What makes a water track? What can we learn from our data?







Ultimate goals after Doodler

