A Hydrogeochemical Investigation of Groundwater Resources: the ‘Ike Wai Project

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ʻIke Wai Science Questions: Hualālai Aquifer

• What is the degree of connectivity between the high level & basal aquifers?
• What are the sources of water that pass through the Hualālai aquifer?
• How does the Hualālai volcano’s rift zone affect the groundwater flow and quality within the Hualālai aquifer?
• In the Keauhou aquifer, what is the nature of the geologic structures as linked to subsurface water storage?
• What is the submarine groundwater discharge (SGD) volume and distribution along the coastal boundary of the aquifer and what are the water quality metrics relevant to the coastal ecosystems?

From J. Fackrell’s Thesis:
• Does the isotopic composition of precipitation change as it infiltrates?
• Better understand flow paths from Mauna Kea & Mauna Loa towards Hualālai
Basically: All possible wells from Waimea to Honaunau-Napoʻopoʻo ʻo
Potential Outcomes

• Geochemistry
  • Better understanding of major chemistry used as groundwater tracer
  • Add to the knowledge of relationship between groundwater and precipitation
  • Is there an influence of infiltration of precipitation on its isotopic composition?
  • Better groundwater flow models
  • More data!!

• Overall ‘Ike Wai Project
  • Transformative knowledge resource
  • Modeling platform
  • Answers to our science questions

Water research & Decision support
Mahalo!

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