A time series of hydrothermal output at the Main Endeavour Field

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particle composition reflects fluid composition

fluid composition sensitive to subsurface perturbations

#### Semi-continuous deployments from 2014 to present

- ~3-week sampling intervals
- Integrated measurement of hydrothermal particles at Main Endeavour
  - Turbulent mixing
  - Tidal mixing







Modified from Lilley et al. 2003

# Time-Series Data: Hydrothermal Elements



Earthquake data from Krauss, Z. and W. Wilcock, (2021). Microseismicity earthquake catalog, Endeavour Segment, Juan de Fuca ridge, 1995-2023. MGDS. doi:<u>10.26022/IEDA/330498</u>

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#### \*\*All units ppm/ppm

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- Sediment traps provide an integrated view of the flux of elements at the Main Endeavour Field
- Continual monitoring establishes a baseline for interpreting changes in subsurface alteration conditions
- No systematic variation in elements sensitive to subsurface perturbations in pH, redox, or temperature coincident with increased seismicity



With thanks to Ocean Networks Canada for their sampling collection