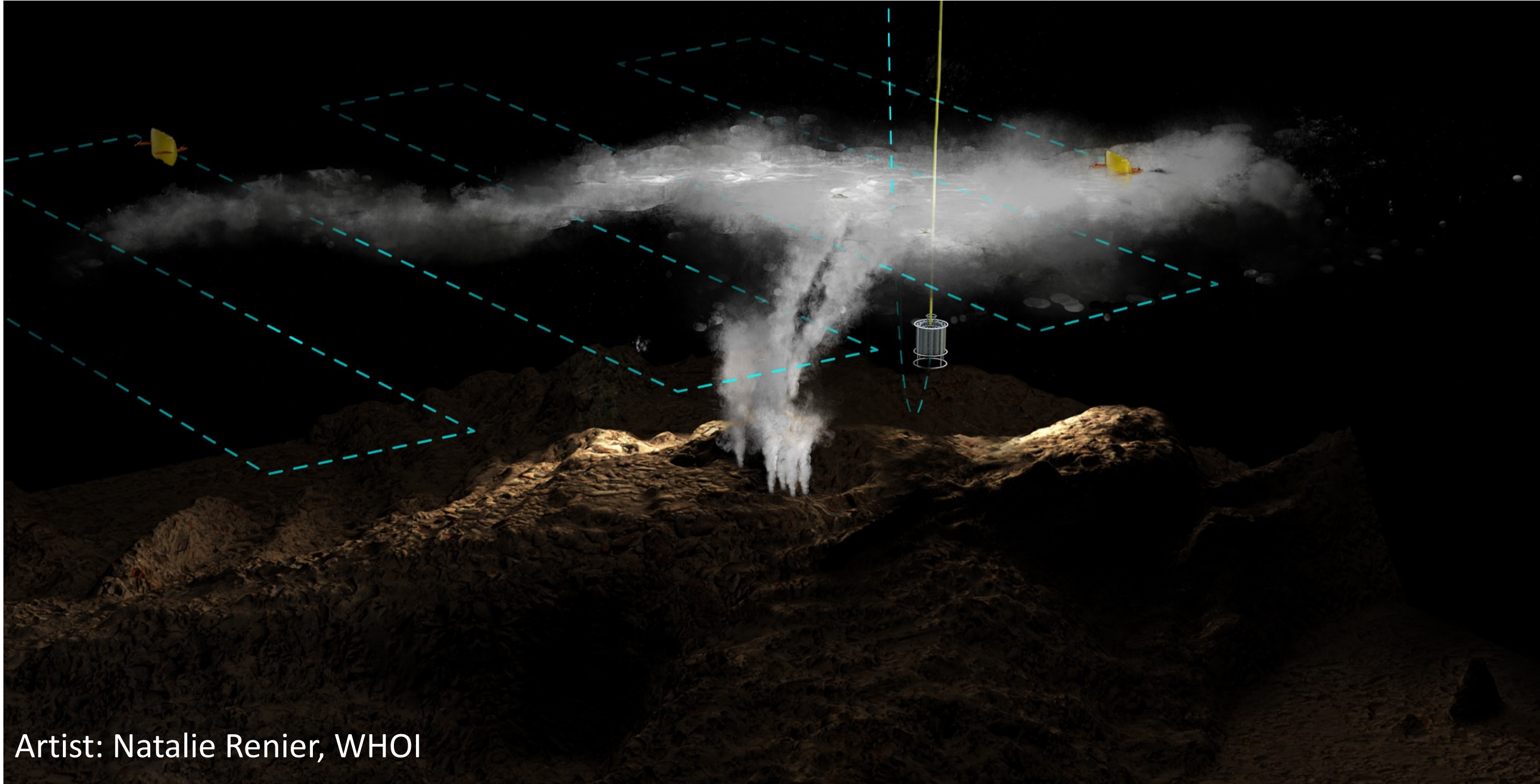
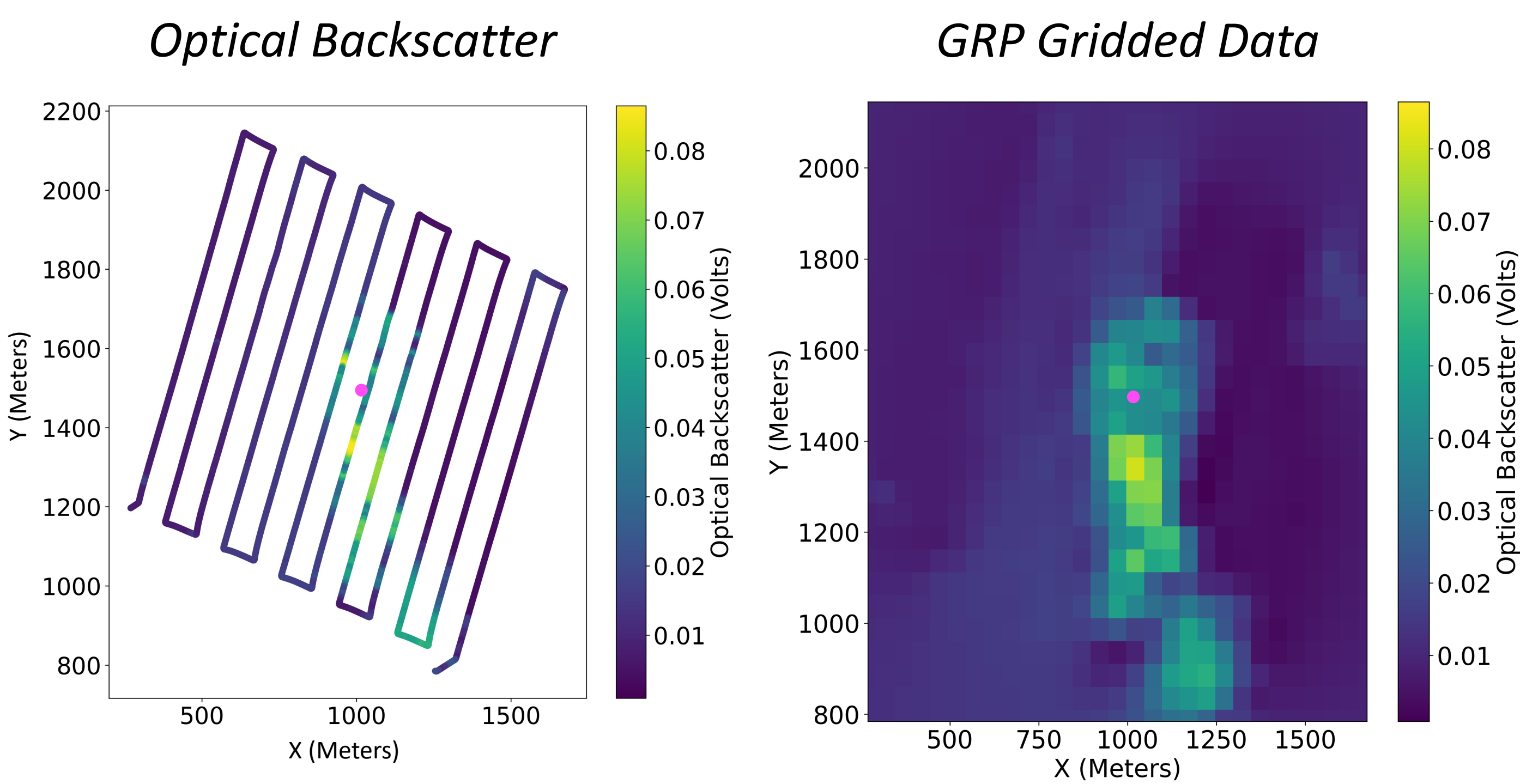


Evaluating In-Situ Measurements of Hydrothermal Plume Tracers for Autonomous Exploration and Sampling

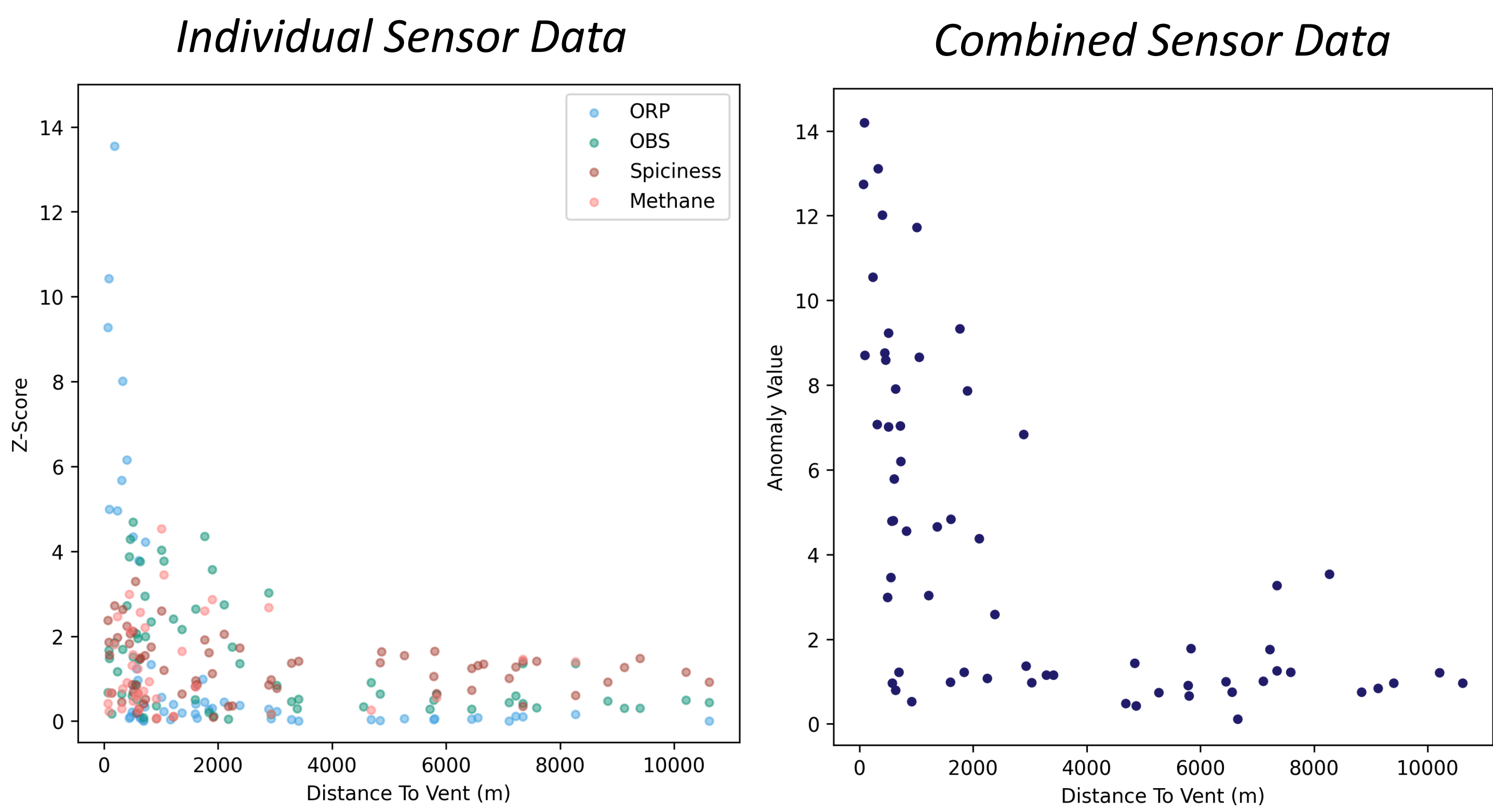
Background: A better understanding of in-situ sensor response to hydrothermally altered seawater can improve models critical for the development of fully autonomous robotic decision-making algorithms for exploring hydrothermal systems.



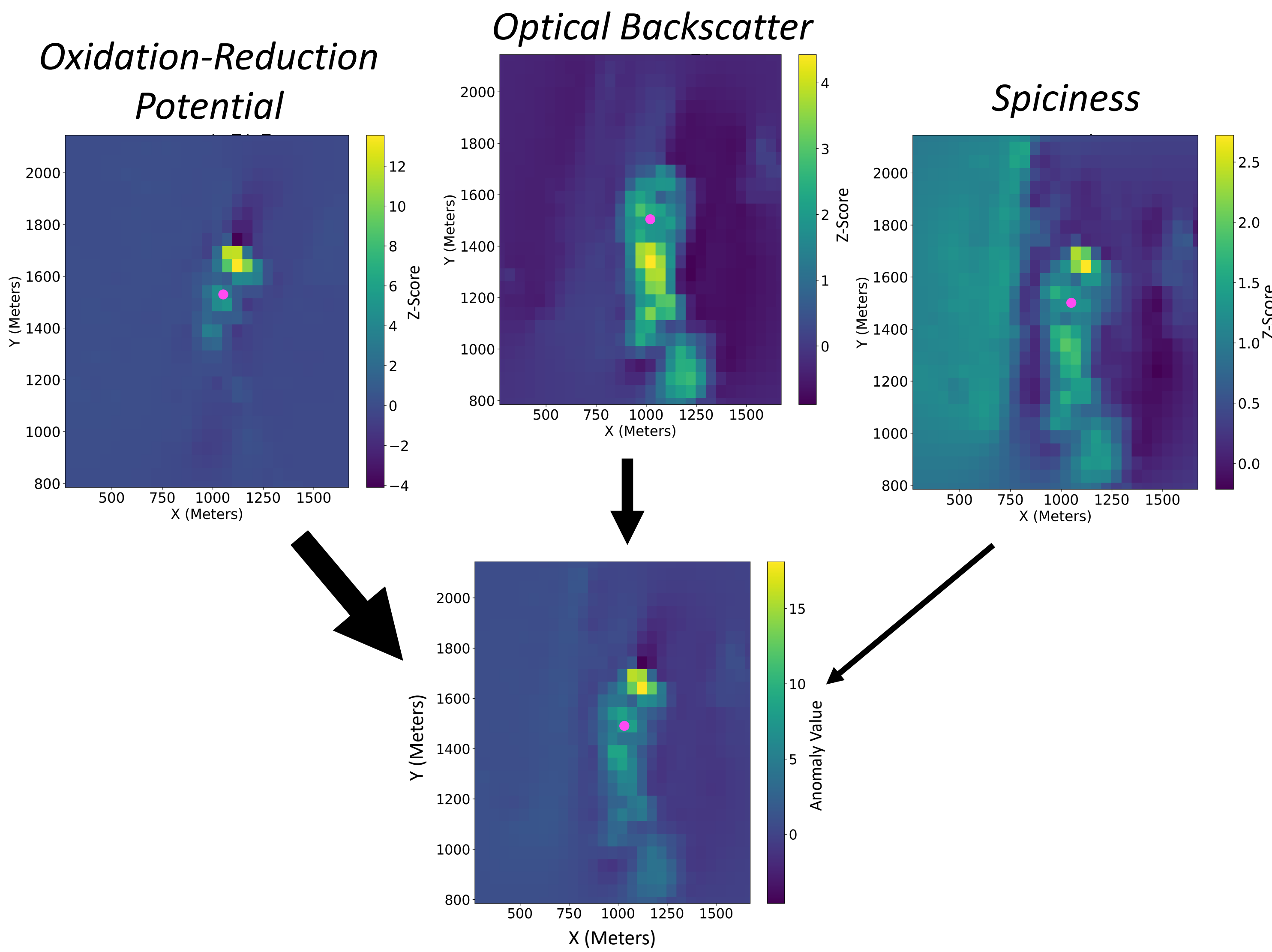
Gaussian Process Regression (GPR) produces gridded data from sensors that can be used for autonomous planning



Sensors respond to plume fluid at different length scales



Combining GPR models of each measurement based on relative length scales produces a unified plume model



Lagrangian particle tracking using a moored current sensor can predict plume observations.

