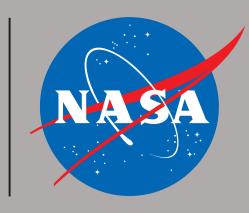
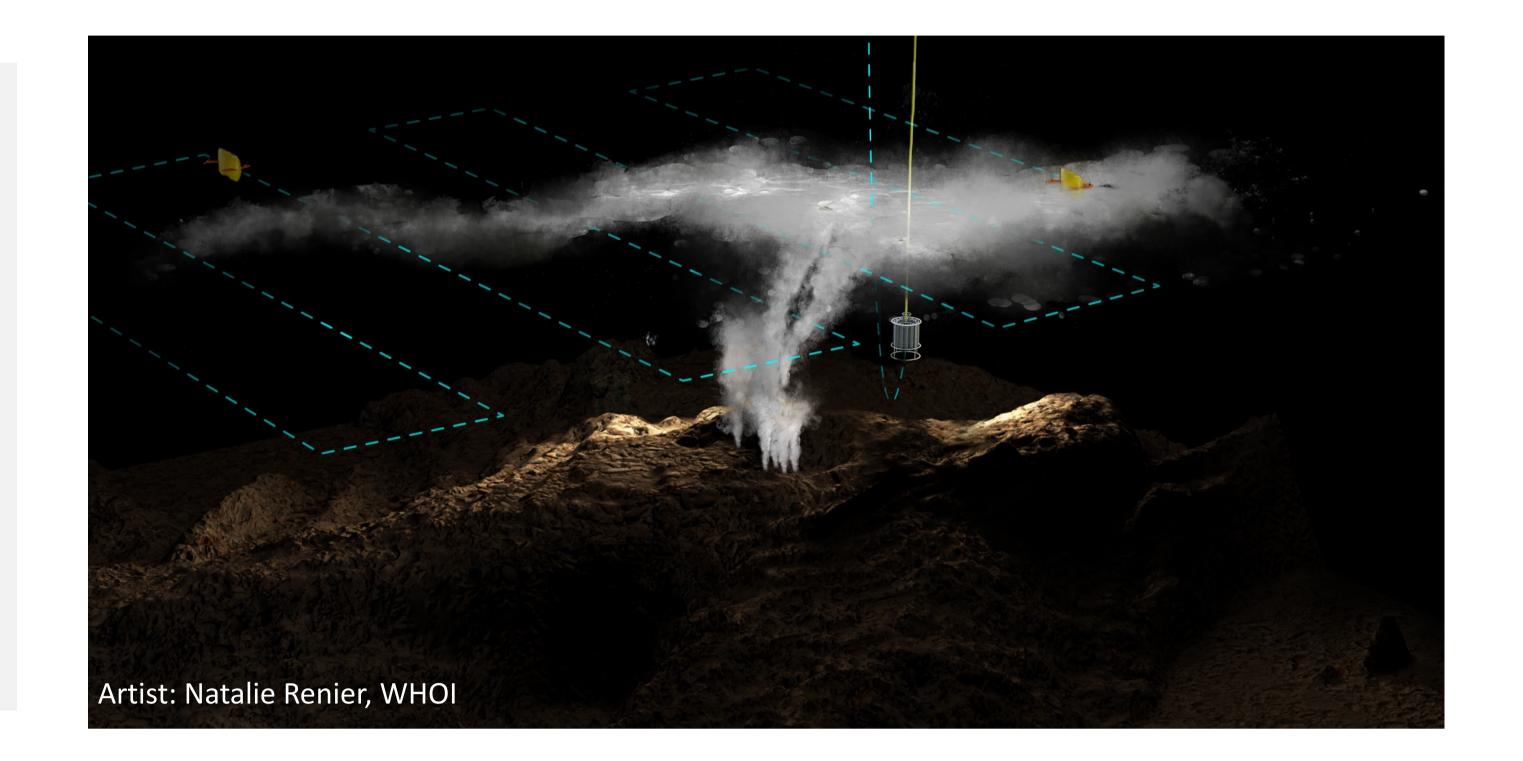
Abstract #: 1486860

National Aeronautics and **Space Administration**



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

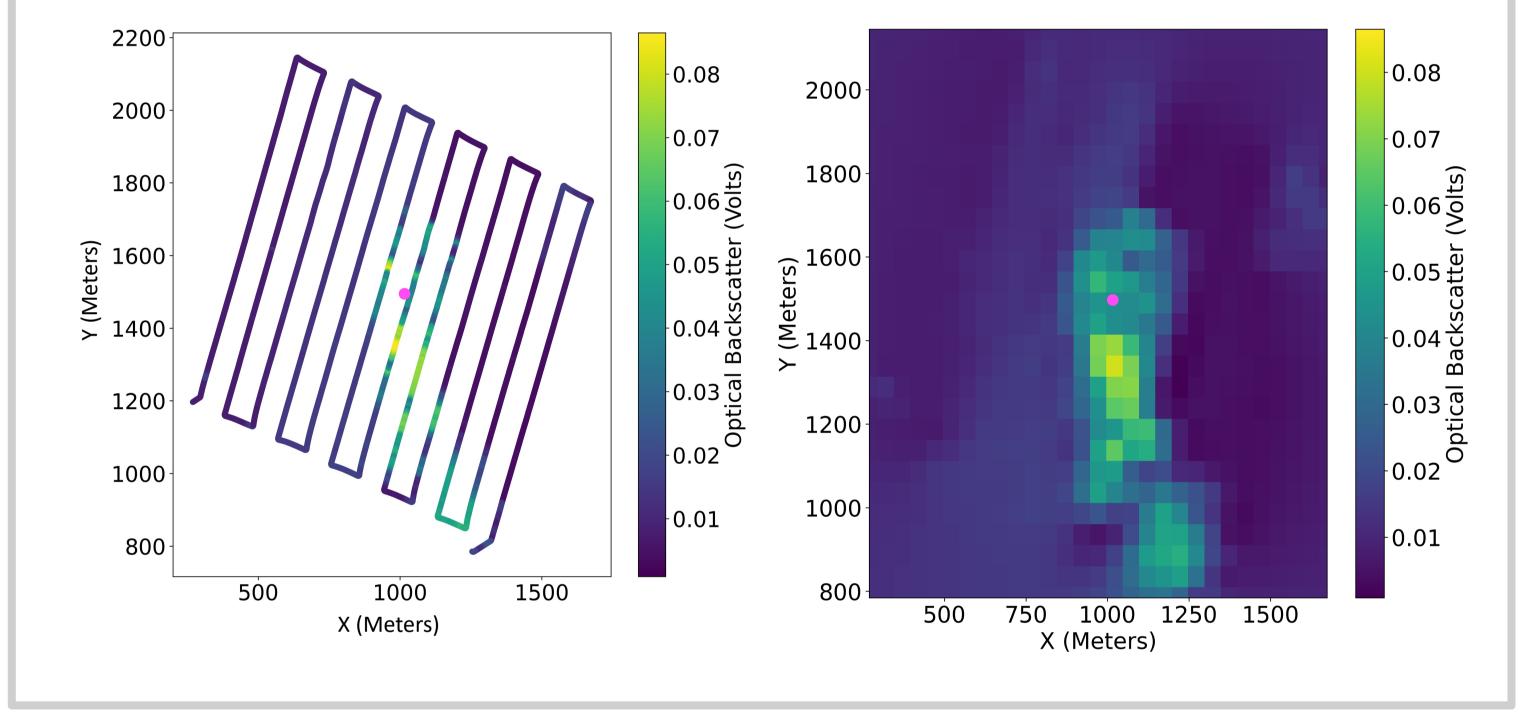
fully autonomous robotic decision-making

algorithms for exploring hydrothermal systems.

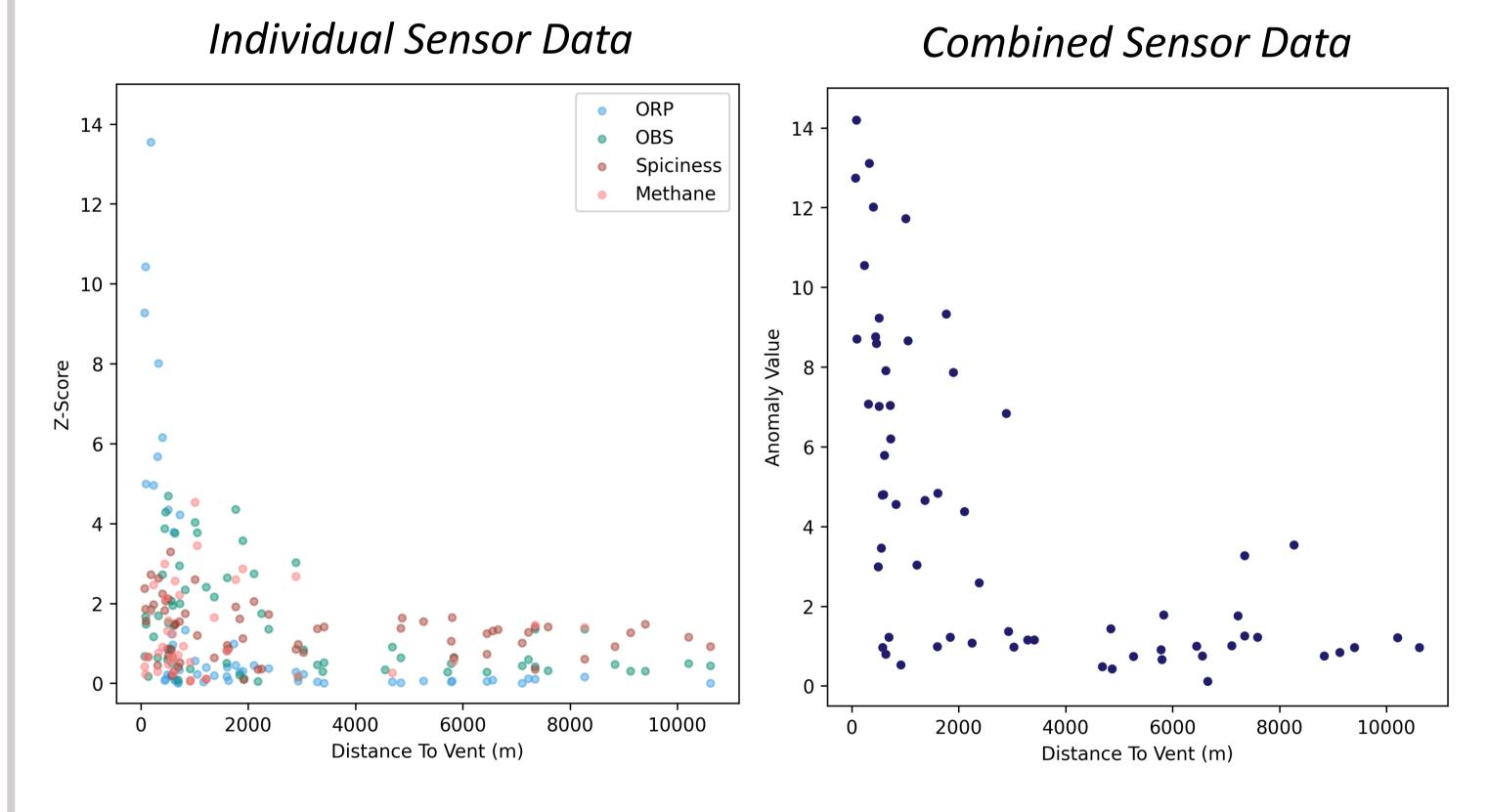
Gaussian Process Regression (GPR) produces gridded data from sensors that can be used for autonomous planning

GRP Gridded Data

Optical Backscatter

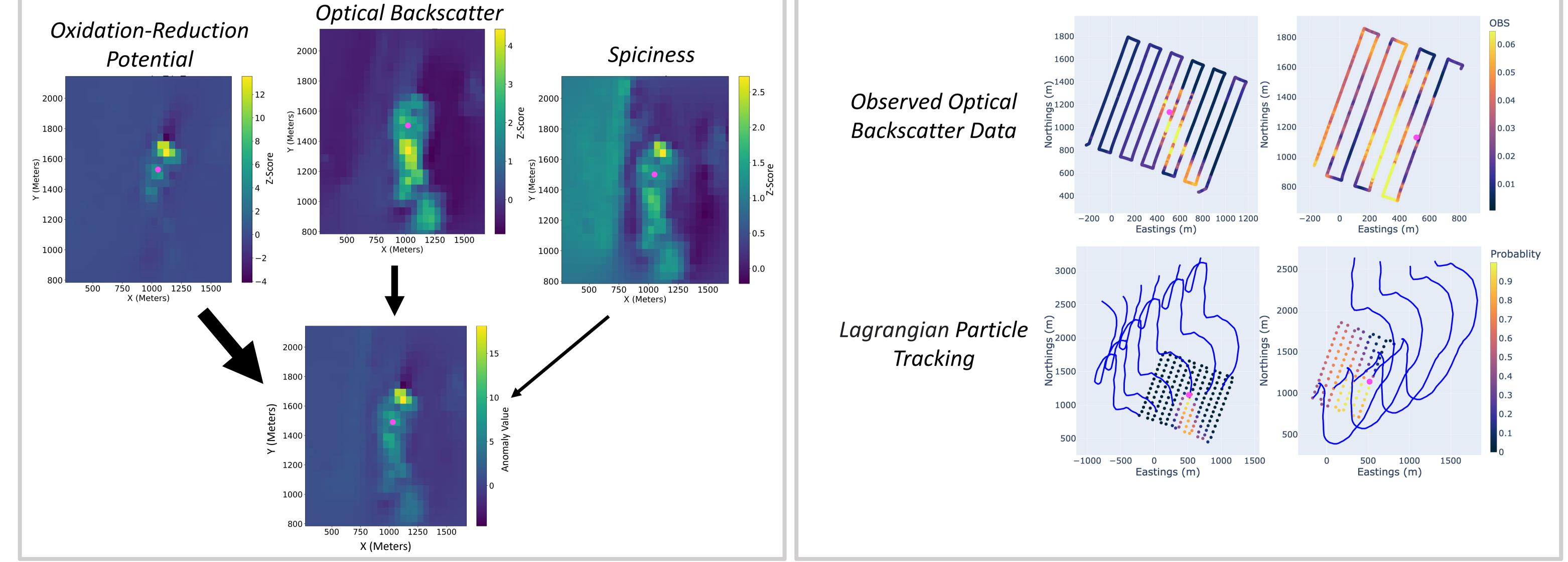


Sensors respond to plume fluid at different length scales



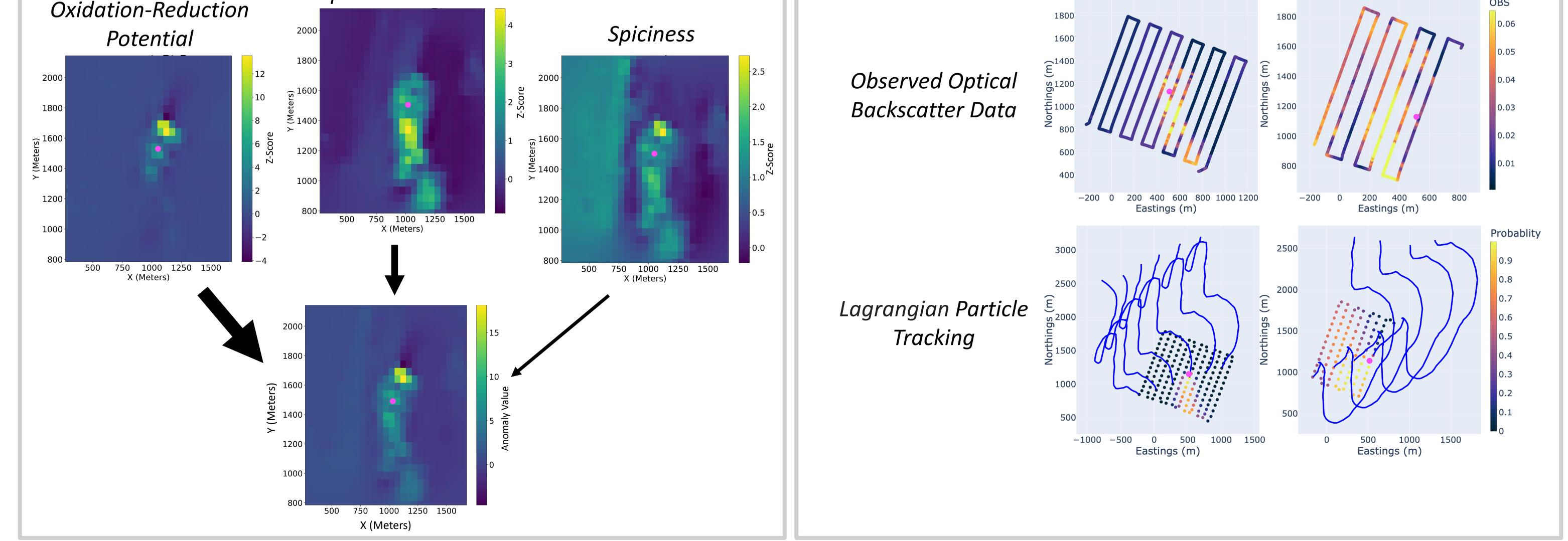
Combining GPR models of each measurement based on

relative length scales produces a unified plume model



Lagrangian particle tracking using a moored current

sensor can predict plume observations.



National Aeronautics and Space Administration

Jet Propulsion Laboratory California Institute of Technology Pasadena, California www.nasa.gov

The research was carried out at the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration (80NM0018D0004).

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Andrew Branch¹, Victoria Preston², Rudi Lien³, Guangyu Xu⁴, Mary Burkitt-Gray⁵, Christopher R. German⁵ Jet Propulsion Laboratory, California Institute of Technology¹ Electrical and Computer Engineering, Northeastern University² Department of Earth Sciences, University of Oregon³ Applied Physics Laboratory, University of Washington⁴ Woods Hole Oceanographic Institution⁵

Corresponding Author: andrew.branch@jpl.nasa.gov