Application of Synthetic Floc to Evaluate Sediment transport in the Decompartmentalization Physical Model Project

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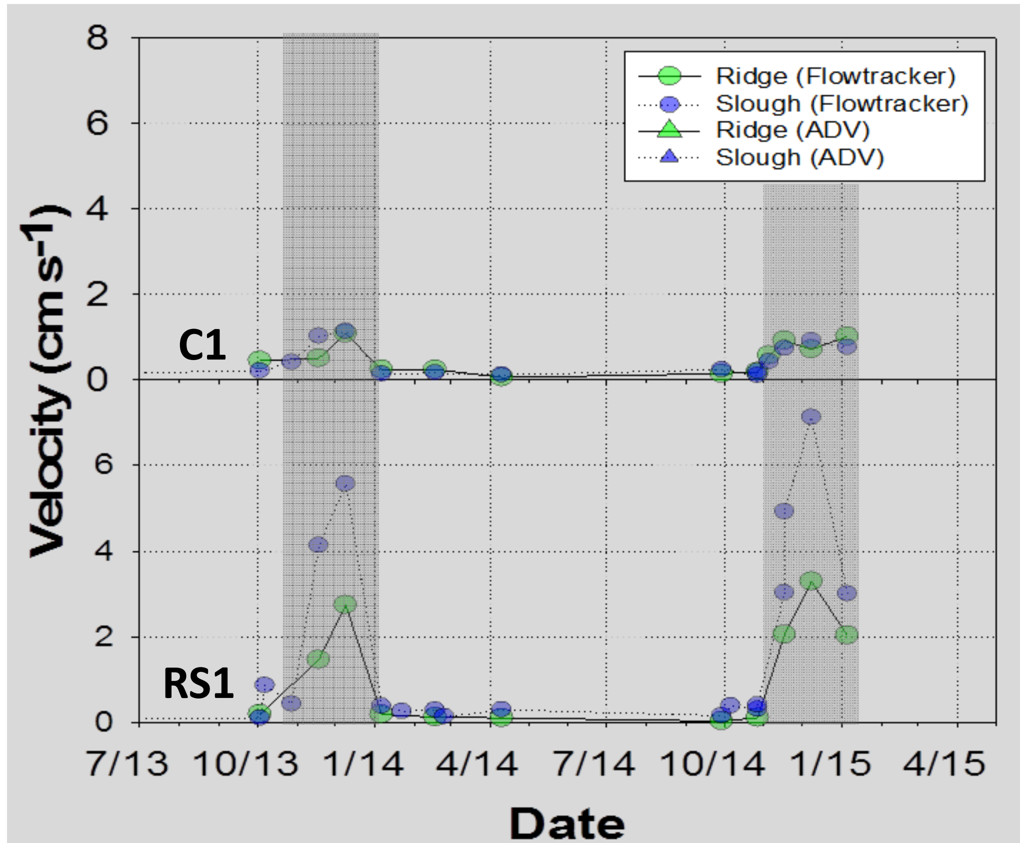
The Decompartmentalization Physical Model Project (DPM) is a landscape-level field test to reduce uncertainties associated with…

Experiments

- Sheet-flow
- Sediment
- Re-distribution

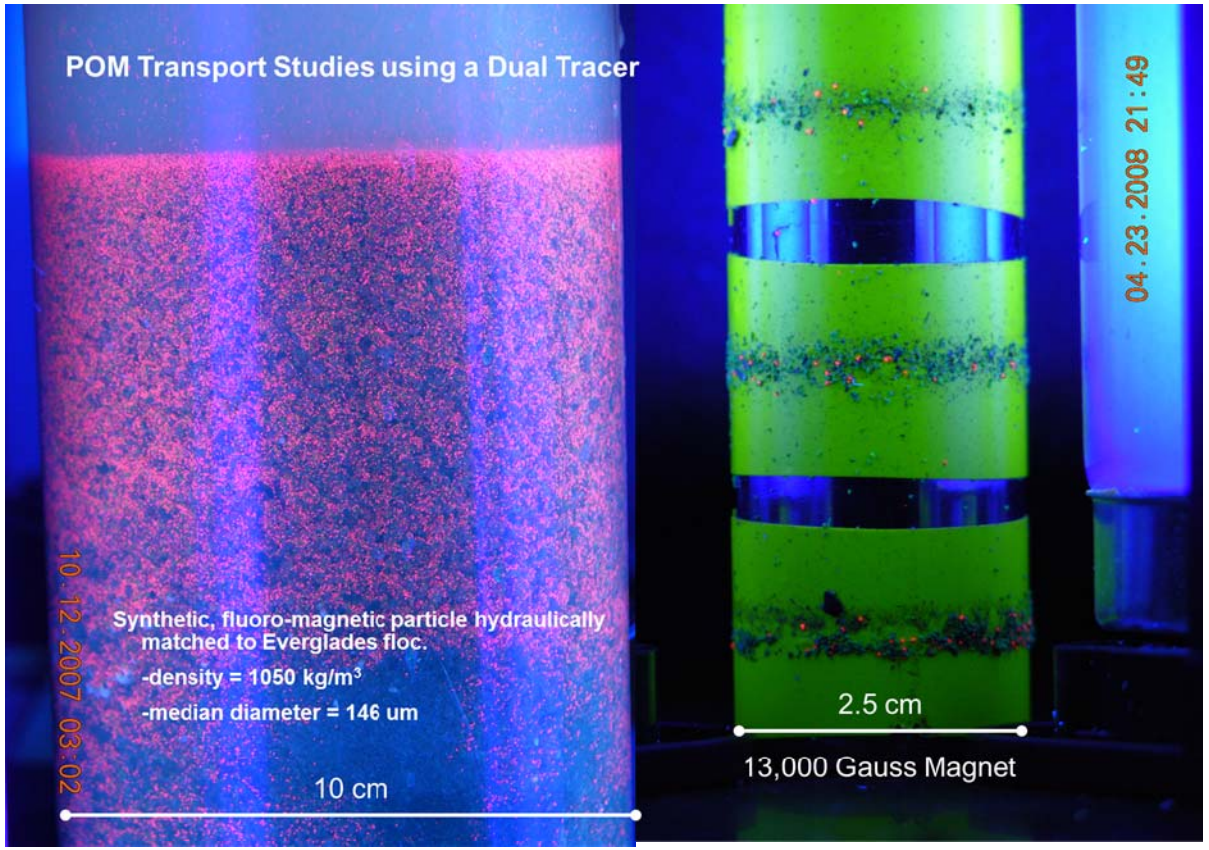
- Spatial
- Temporal
- Active-Management



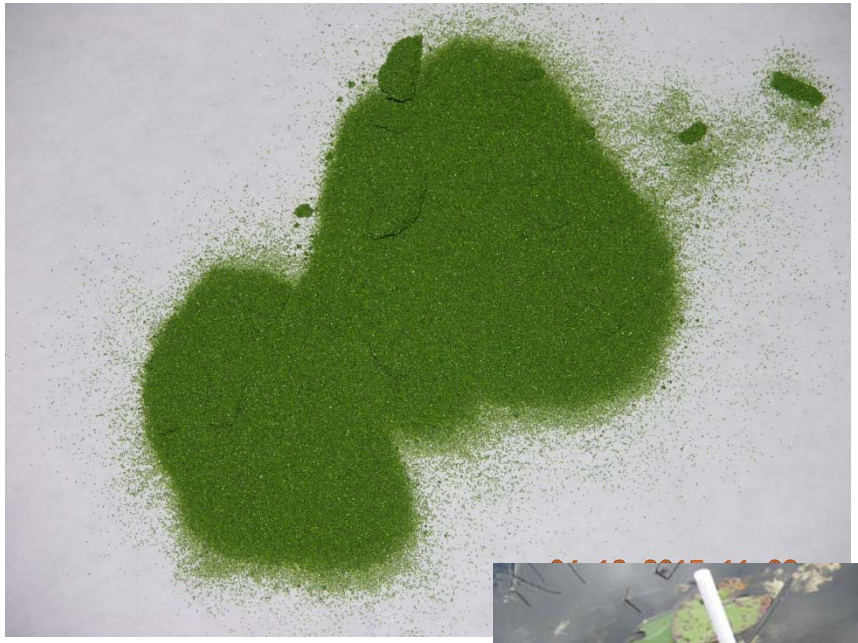
Particle transport is essential for the development and maintenance of the Everglades ridge and slough landscape by redistributing entrained sediments.

The DPM project used a Dual Signature Tracer (DST) as a synthetic floc to measure sediment movement and redistribution.

- Manufactured by Partrac, Ltd., Glasgow, UK.
- Inert magnetic and fluorescent material.
- Hydraulically matched to the mean particle size and settling velocity of study region particles.



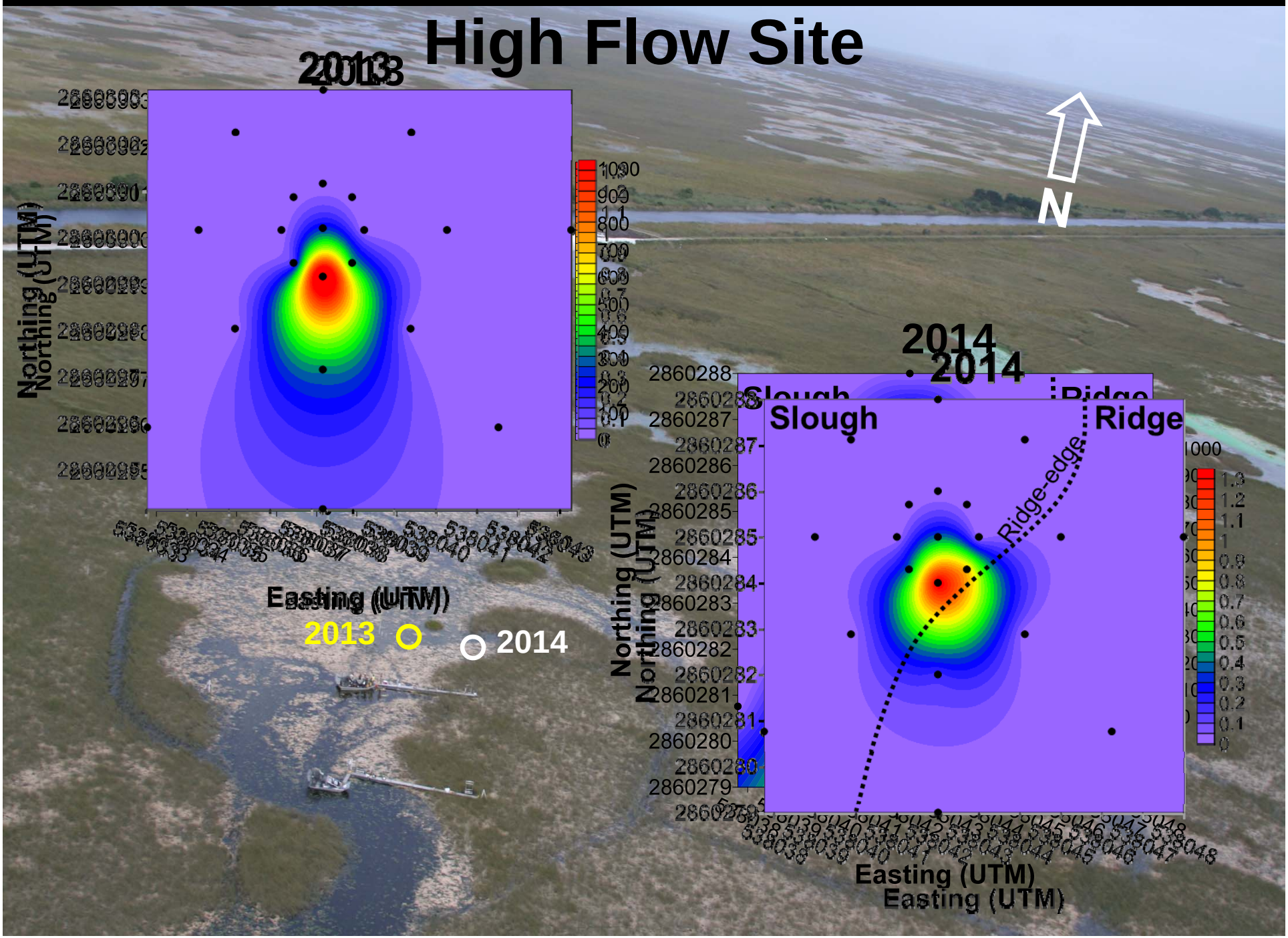
DST Preparation and Deployment



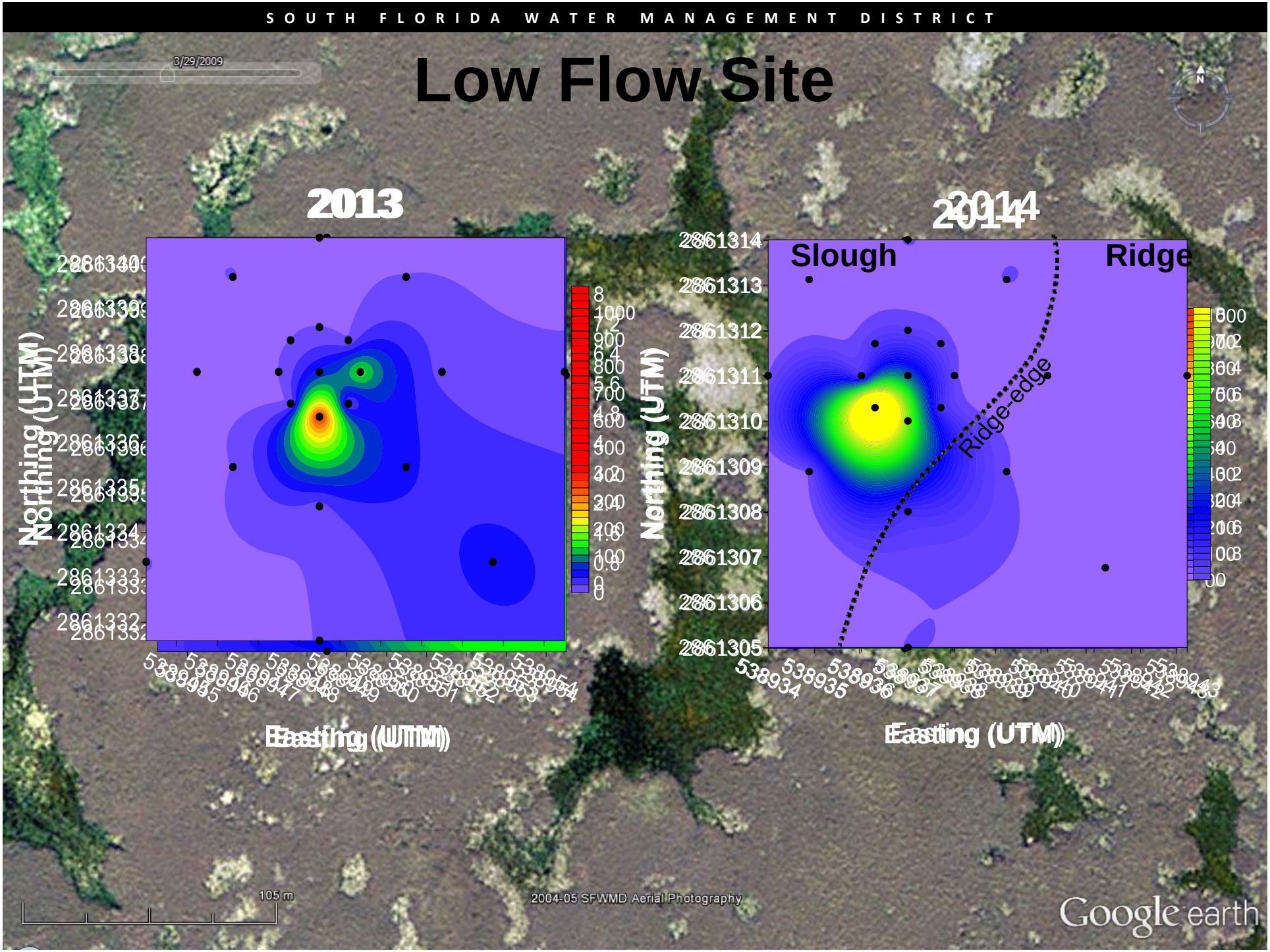
Spatial Experiments

- **To measure spatial movement, 20-24 magnets were placed radially around the deployment location and retrieved the week after the initial flow.**

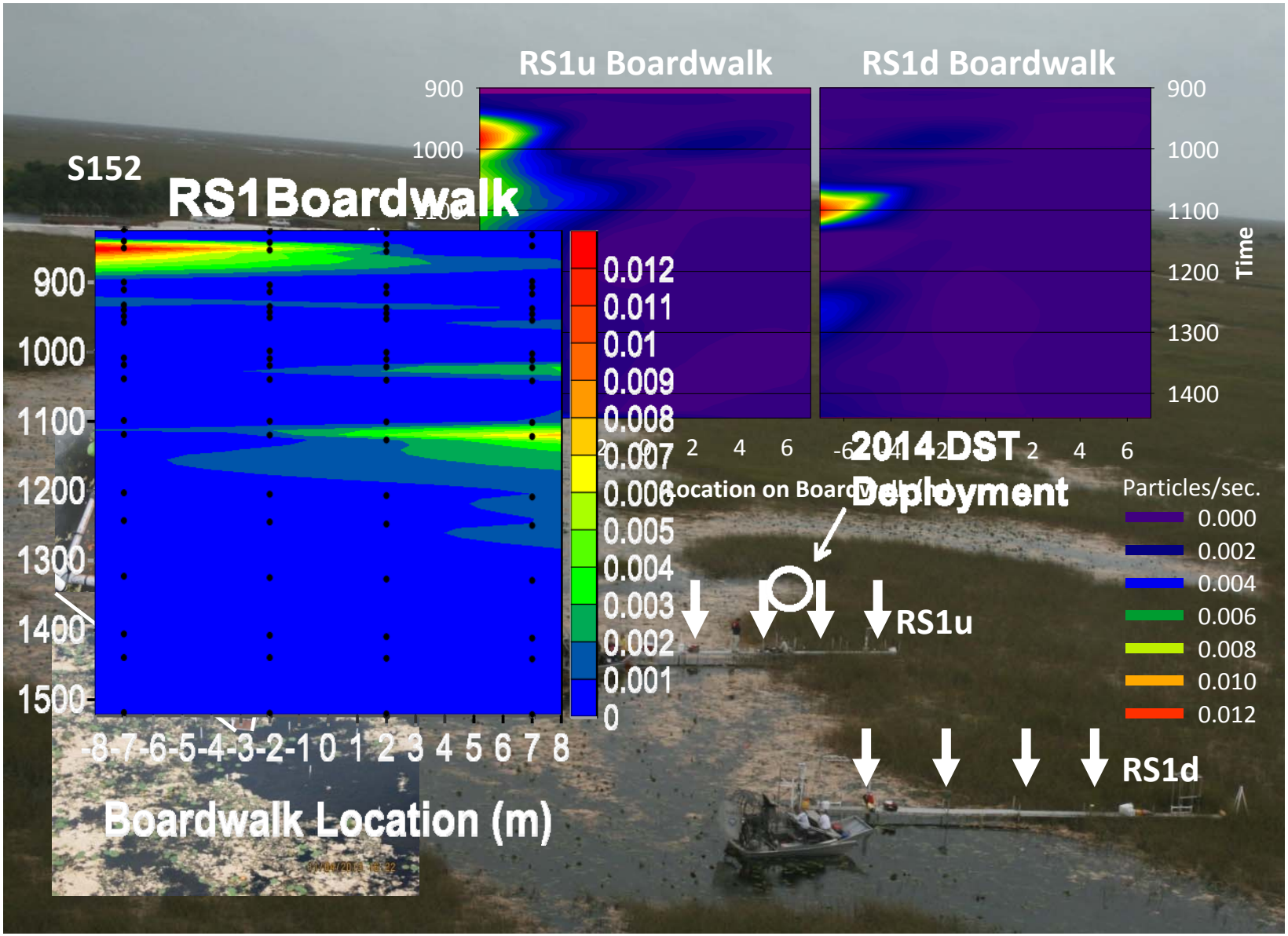
High Flow Site



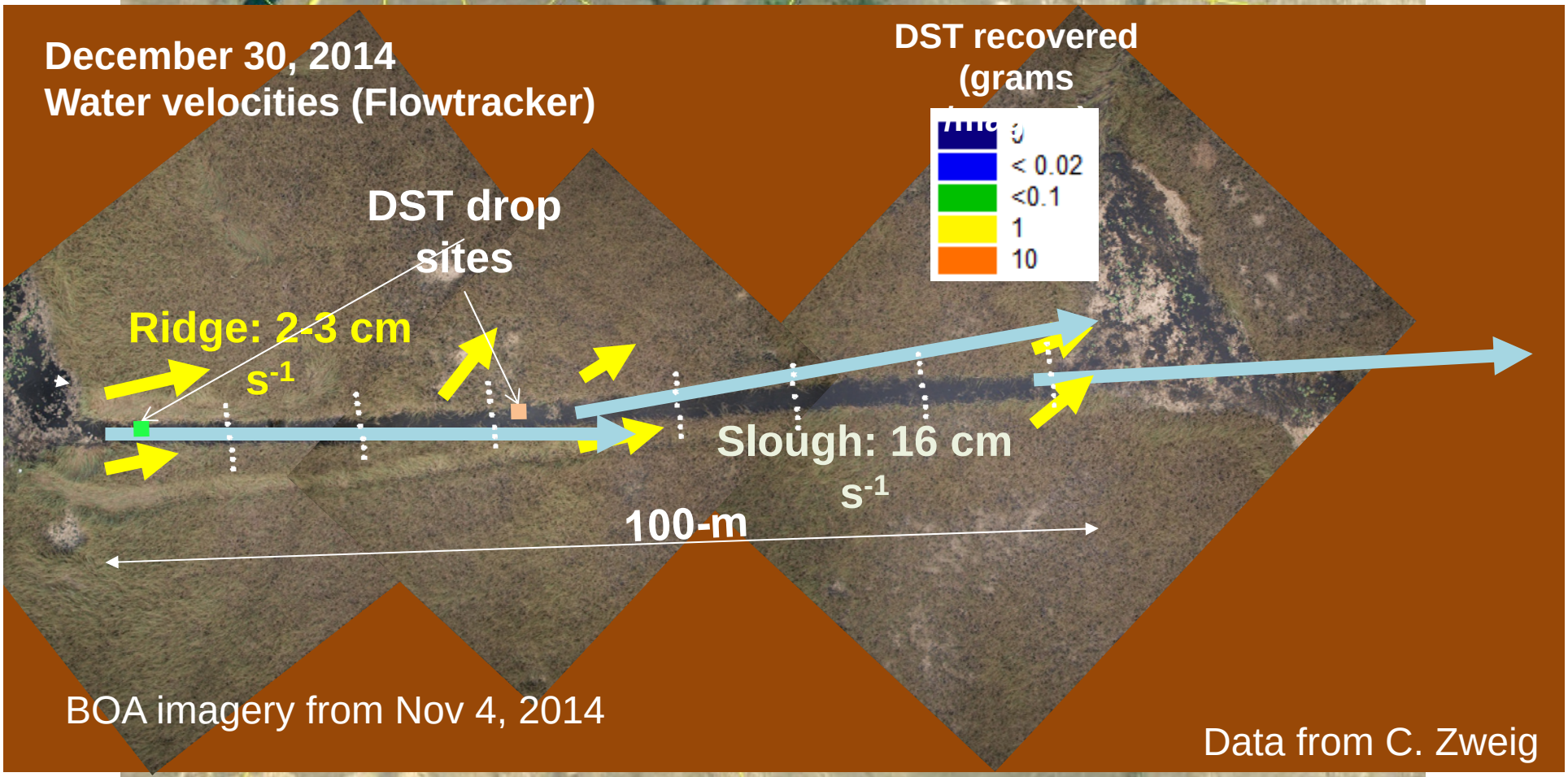
Low Flow Site



Temporal Experiment



Active Management Study



Conclusions

- **The spatial experiment demonstrated that DST was entrained under high flows created by the S152 structure.**
- **Sediment moves unimpeded through the slough while movement through the ridge is moderated by velocity.**
- **While sediment movement into the ridge does occur, it only moved up to 10 meters into the ridge.**

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