

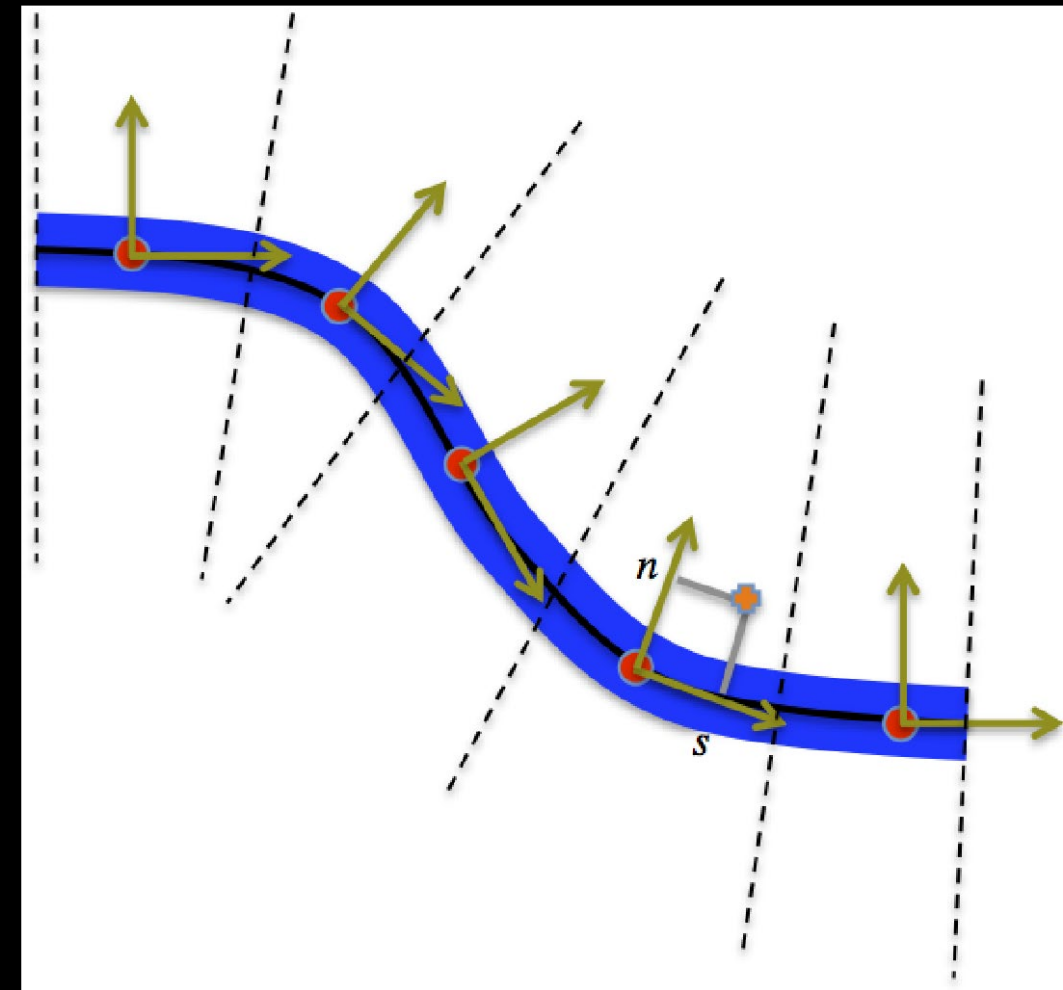


RiverObs Status

SWOT Science Team Meeting
Ernesto Rodriguez
Jet Propulsion Laboratory
California Institute of Technology

tl;dr RiverObs now

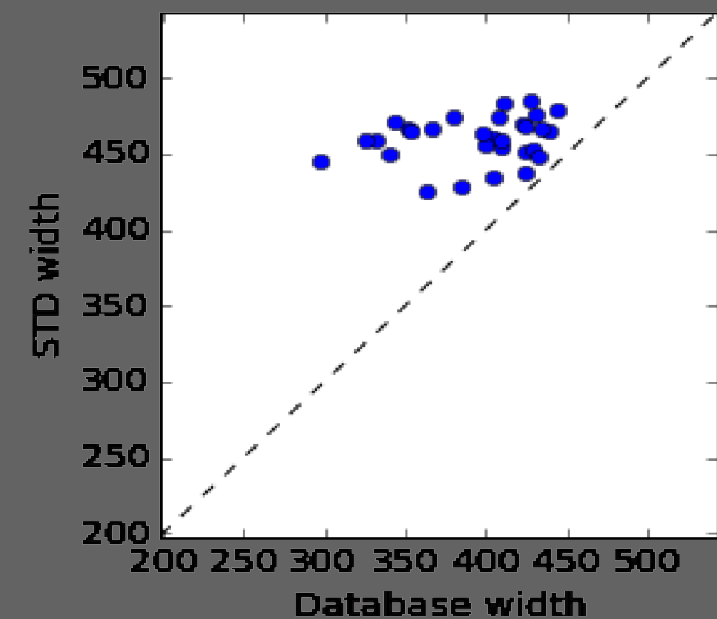
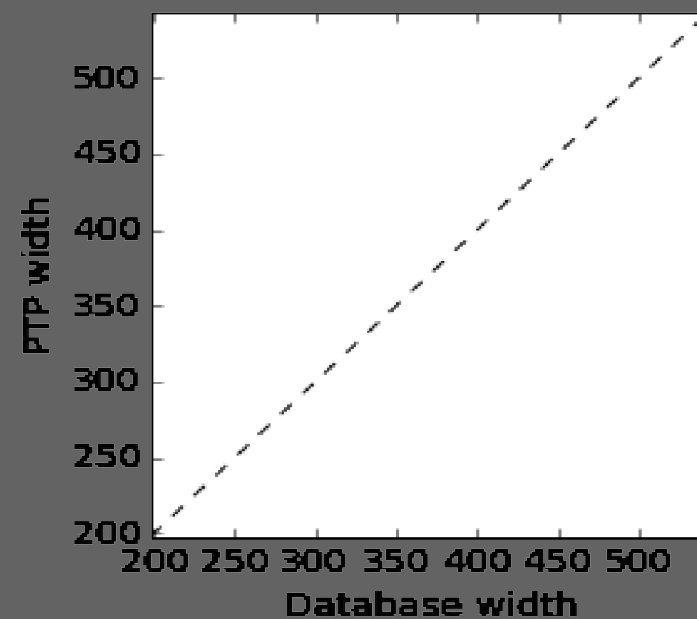
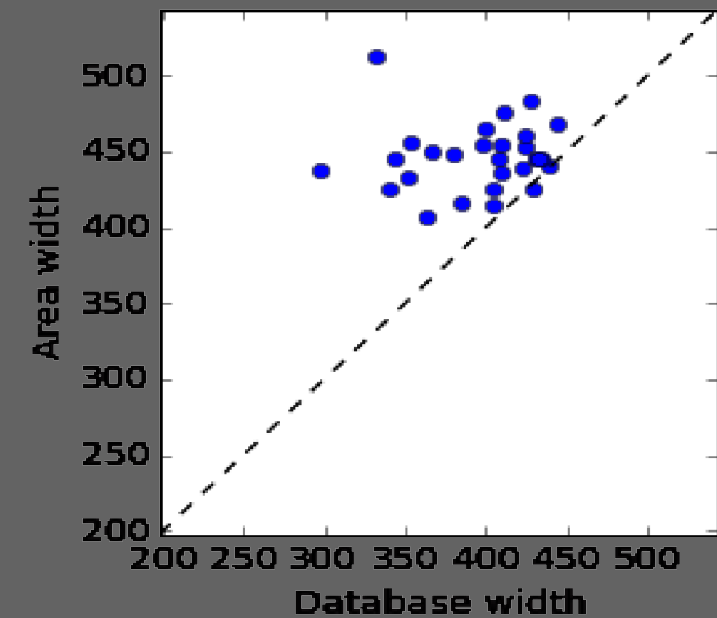
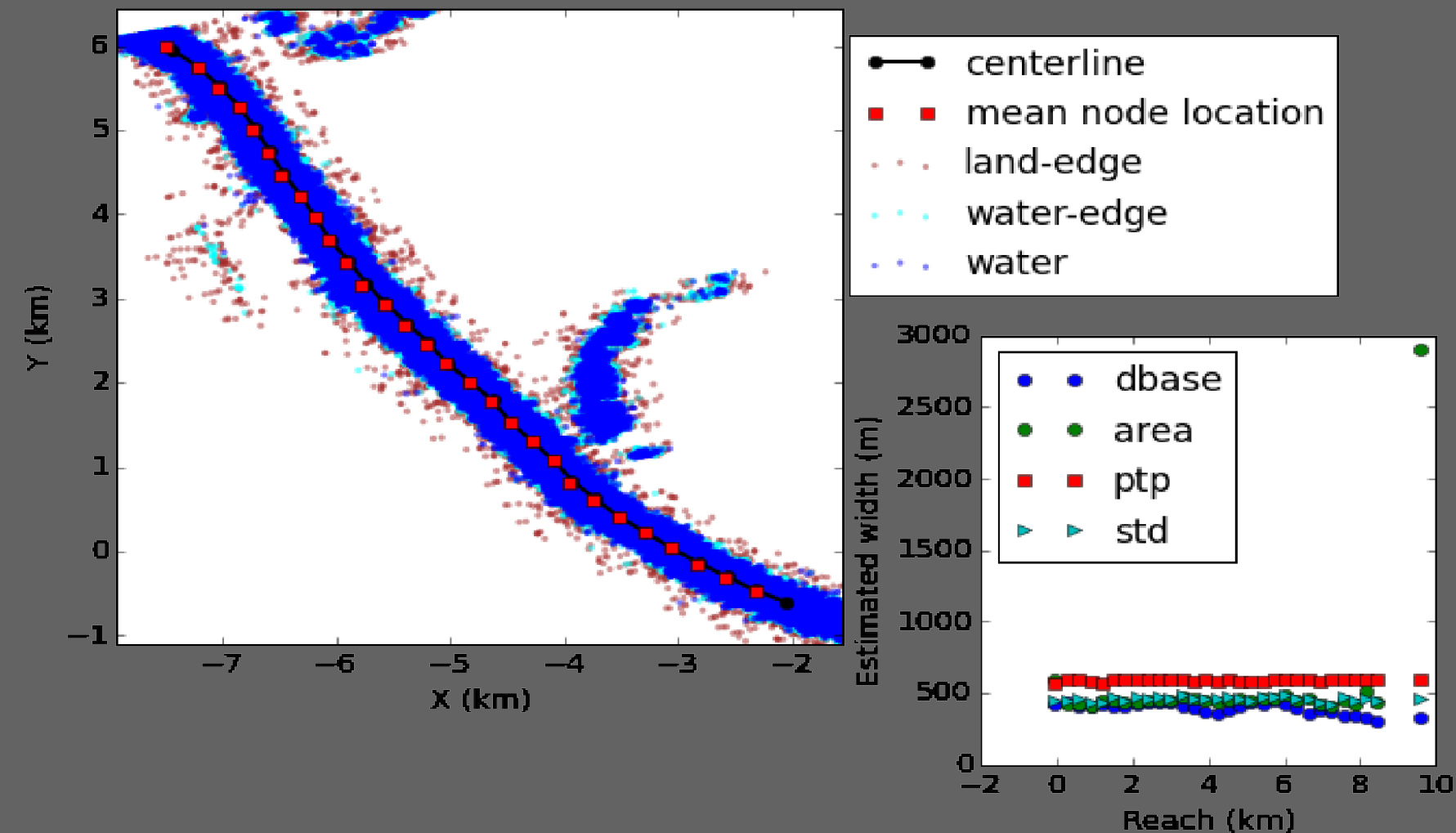
- Given a **centerline** for a river reach, associate (arbitrary) measurements at:
- “**Node**” level (nodes are points along the centerline). Data are associated with nodes using proximity metric.
- **Reach** level (e.g., stage, slope, width). Reach values are aggregated from node values.





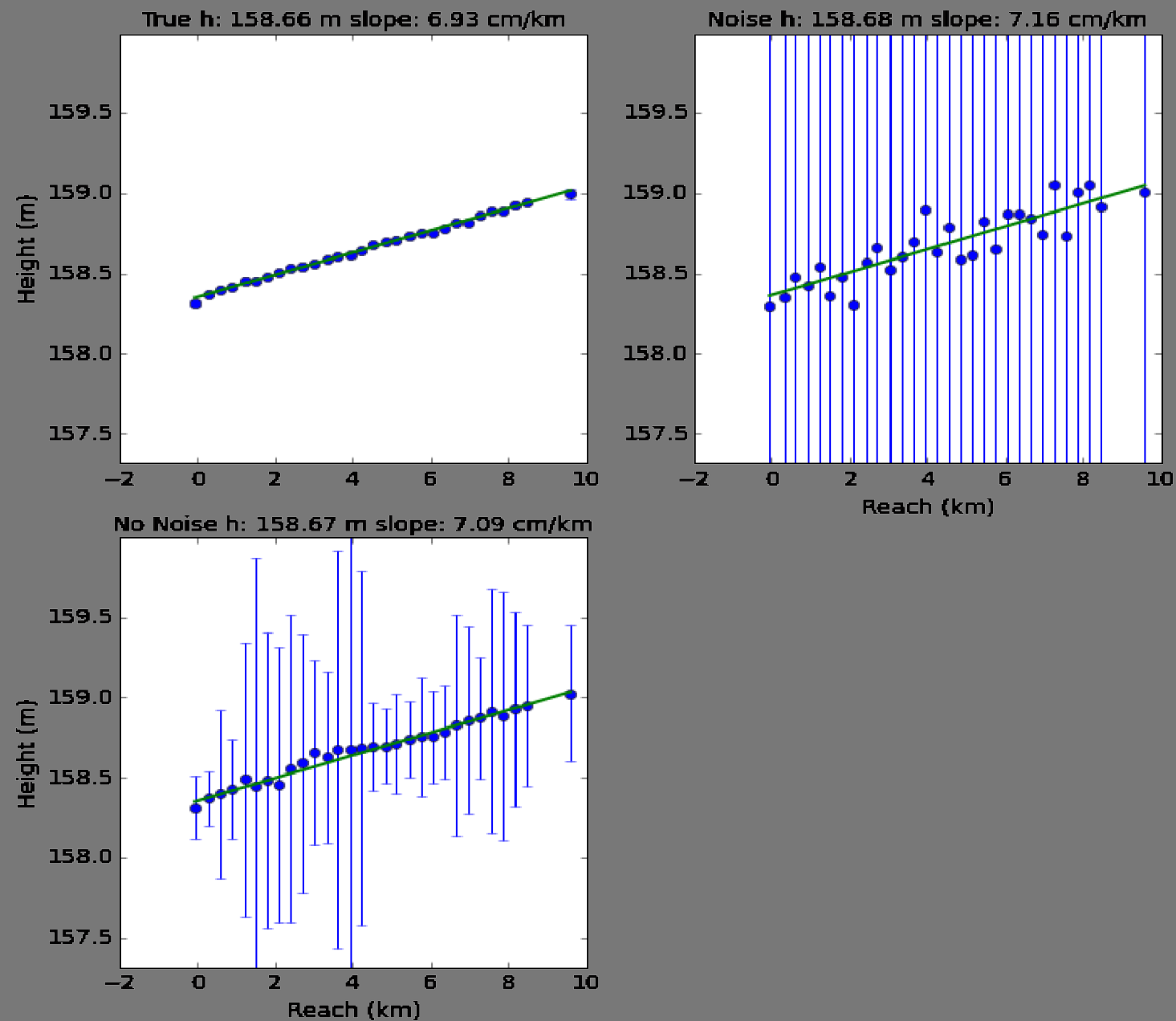
Evaluation of Width Algorithms

Reach ID: 0



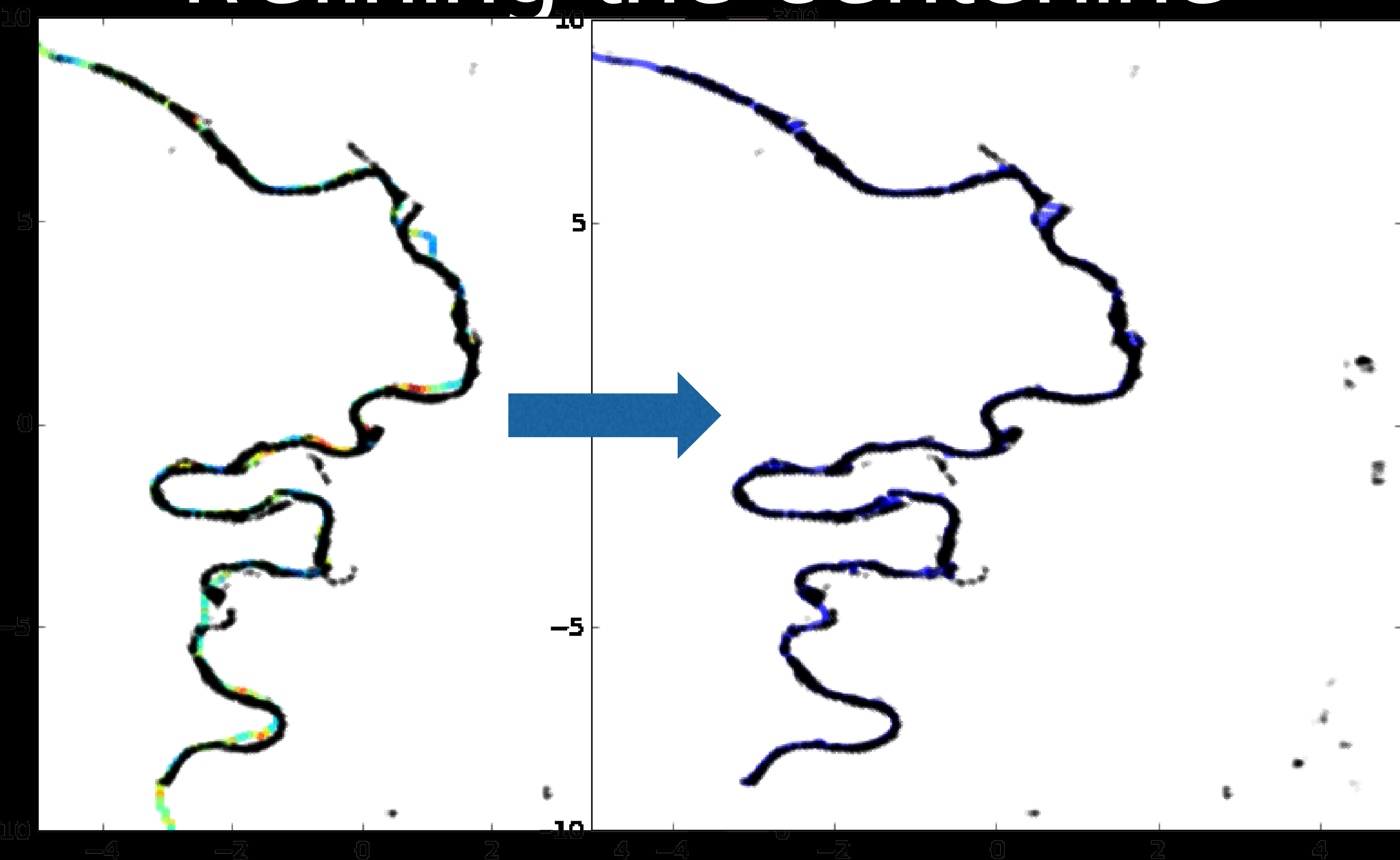


Slope and Height Estimates





Refining the centerline





Updates since 2015

- RiverObs is Python code.
- The SWOT project limited RiverObs release to a binary distribution. Although at first this appeared possible, the binary code could not run end-to-end.
- **RiverObs is now Open Source software!** Still negotiating with JPL how it will be deployed.
 - Should be available for by end of July.
- Future development will follow github model:
 - Central git repository
 - New branches can be started and merged after **steering group** concurrence



Code changes since 2015

- Code ported from Python 2.7 to 2.7 & 3.5+
- Security changes made to avoid damage from malicious inputs
- Changes to bring code up to speed with ADT decisions (B. Williams)
 - Reads latest Point Cloud format
 - Can read GDEM “truth” files
 - Can fix centerline and deal with topology constraints in range domain



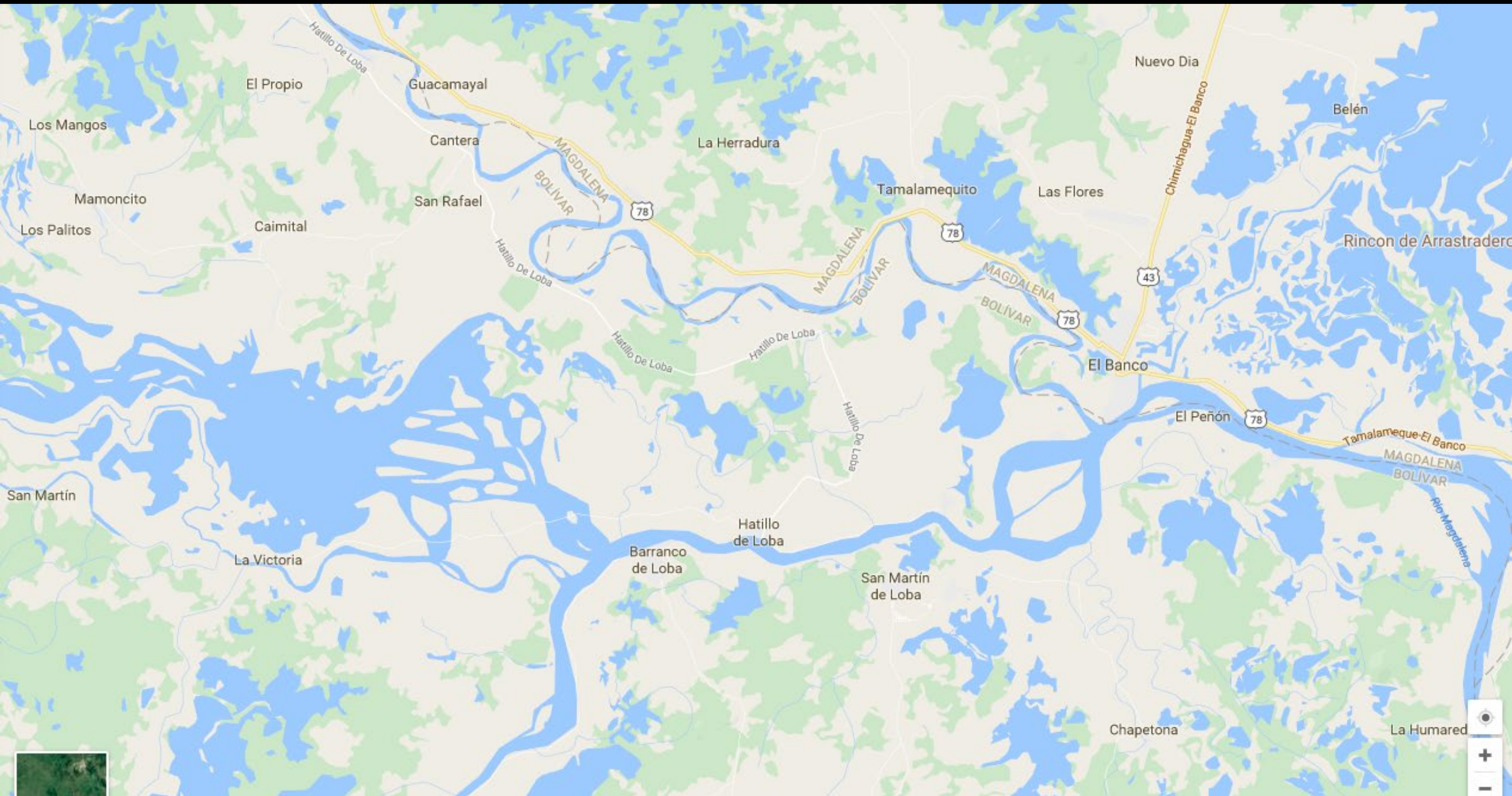
Where should RiverObs
go now?

What should RiverObs do?





What should RiverObs do?





My suggestions

- RiverObs should be a paradigm for:
 - Storing all data (not just SWOT) associated with a river network.
 - A new database paradigm beyond shapefiles, which do not treat point/line/network information coherently
- Operating on stored data within the RiverObs structure.
 - A plugin architecture that allows operations on data contained within a RiverObs structure
- Open, documented, and standardized software that is easy to use by the science and applications community



Three possible directions

- From many channels to a simplified channel
 - Handles islands, anastomosing rivers, etc.
 - How to do this is still at the research stage. Is it possible?
- From many reaches to a single river & river network
 - Add network topology information to RiverObs data structure so that users can operate on river networks coherently.
 - Right now, the structure only handles one reach at a time
- From one time to multiple times
 - RiverObs should be able to handle multi-temporal data



RiverObs Working Group Charter

- Guide and prioritize future developments of RiverObs to serve the **science and applications community** and the **SWOT project**.
- Serve as interfaces to the science community and the SWOT project to represent the needs of those communities.
- Provide the core vision and initial user and development base