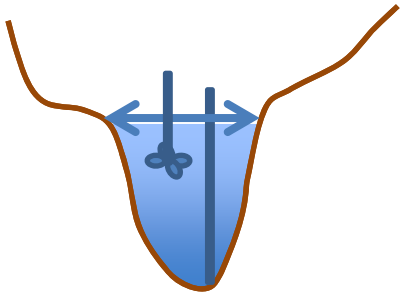
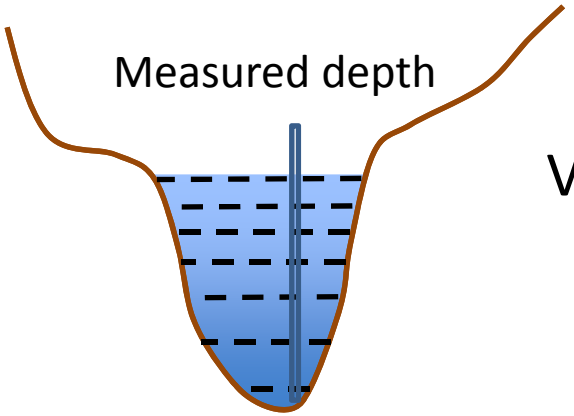
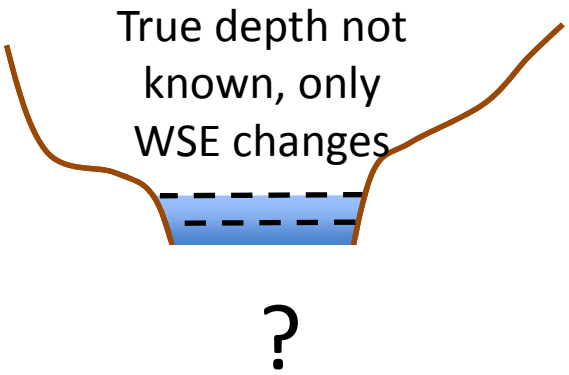
SWOT river discharge retrieval (Laurence C. Smith, UCLA)

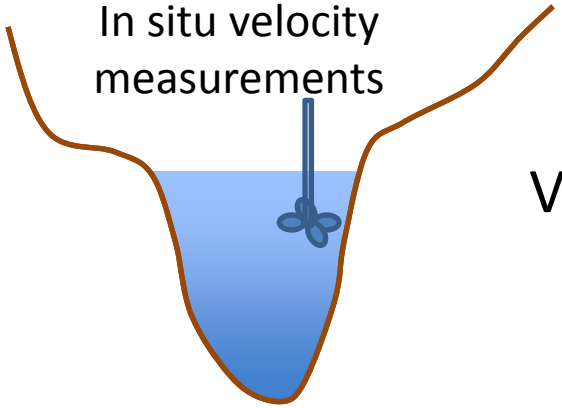
SLIDE 1: Big-Picture problem – *conventional vs. SWOT discharge retrieval*



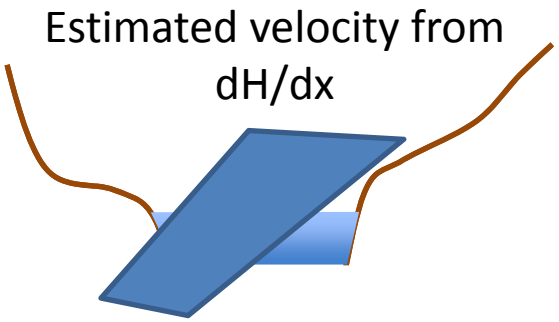


Vs.





Vs.



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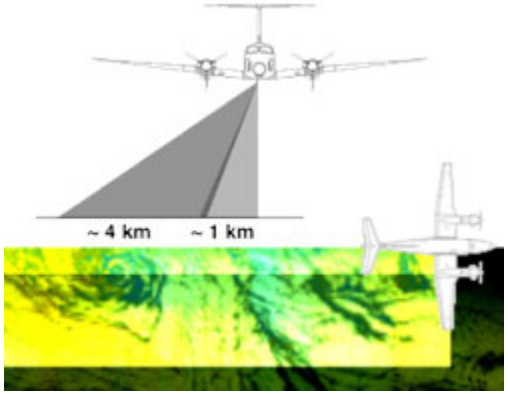
SLIDE 2: Specific objectives and approach – *develop and test new approaches for estimating discharge from SWOT observables*

- Data assimilation and continuity (e.g. Durand, Andreadis)
- Empirical correlations from SWOT observables, e.g. hydraulic geometry relationships
- These ideas currently can only be tested using sporadic field surveyed cross-sections to drive hydrodynamic models.

For validation/testing of these ideas, real-world 3-D observations and longitudinal REACH-AVERAGING are required

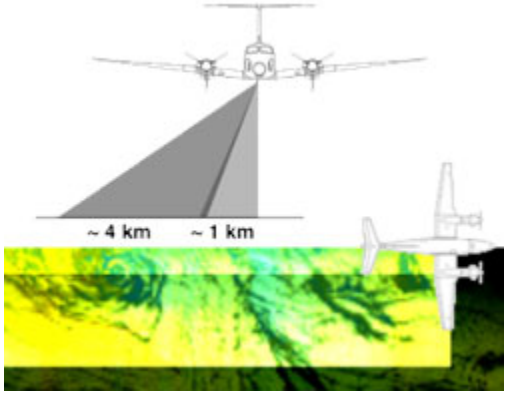
- AirSWOT campaigns
- Sacramento River (2013), France (2014), Alaska (2015)



SWOT river discharge retrieval (Laurence C. Smith, UCLA)

SLIDE 3: How this research addresses Phase-A SWOT issues – *will provide quantification of*:

- Spatial resolution requirements for discharge estimation
- Height/slope accuracy requirements for discharge estimation
- Flow width (or inundation area/reach length) accuracy requirement for discharge estimation
- Impact(s) of riparian trees/vegetation/sediment bars on discharge estimate quality

AND

- Develop new field validation protocols and long-term validation basins for SWOT