

Iowa slides

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Professor

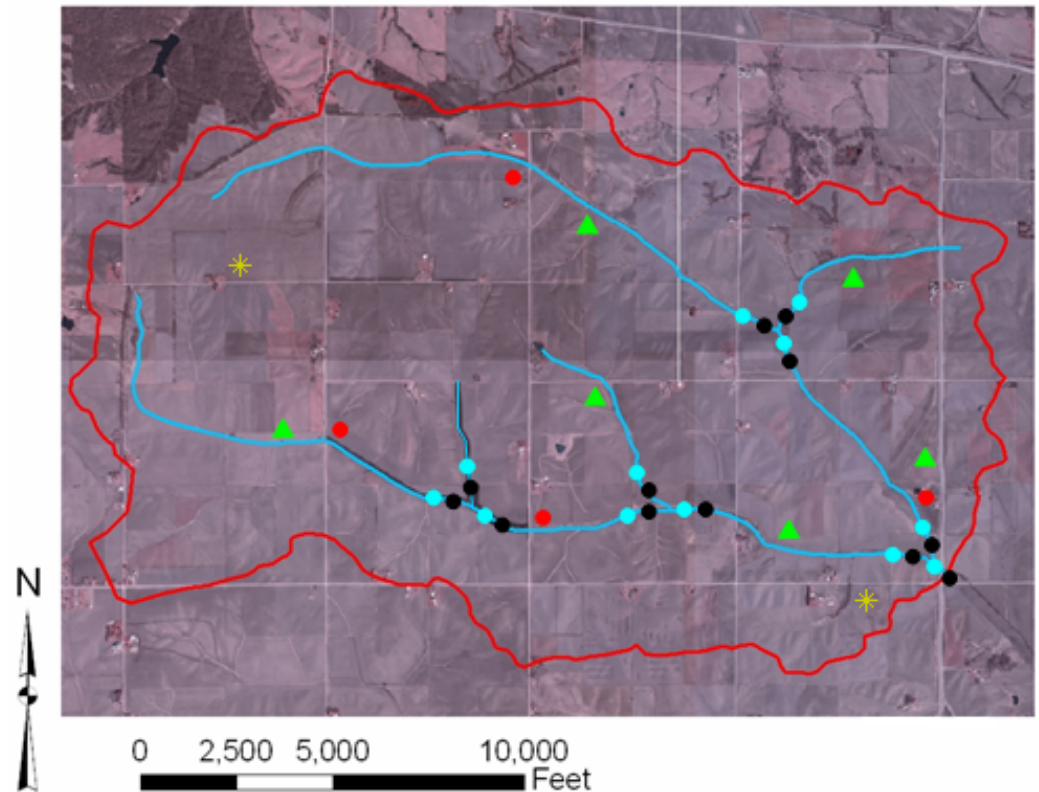
IHR-Hydroscience and Engineering, The University of Iowa



Prototype Site to Address Needs

- South Amana catchment of Clear Creek watershed, IA

•Hydropedological Investigations and Training on a Benchmark Catena Formed in Complex Pleistocene Stratigraphy and Having Intensive Agriculture



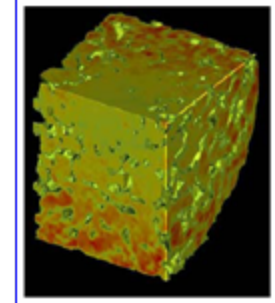
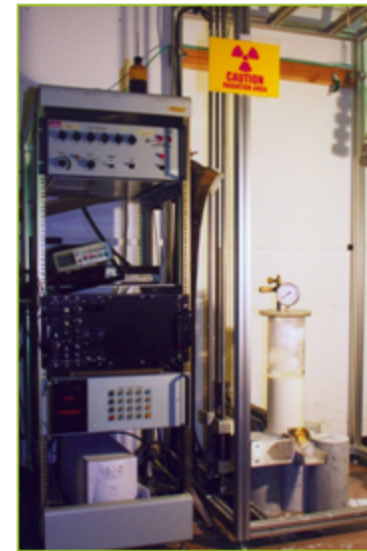
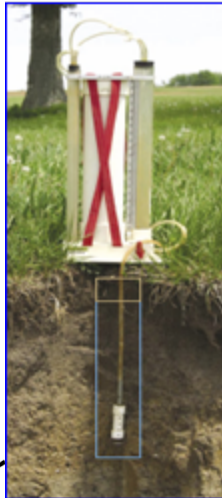
- Clear Creek
- Catchment boundary
- Stream gage (water logger)
- SIGMA & Bed load trapper
- ▲ Tipping bucket
- * Anemometer
- Wells



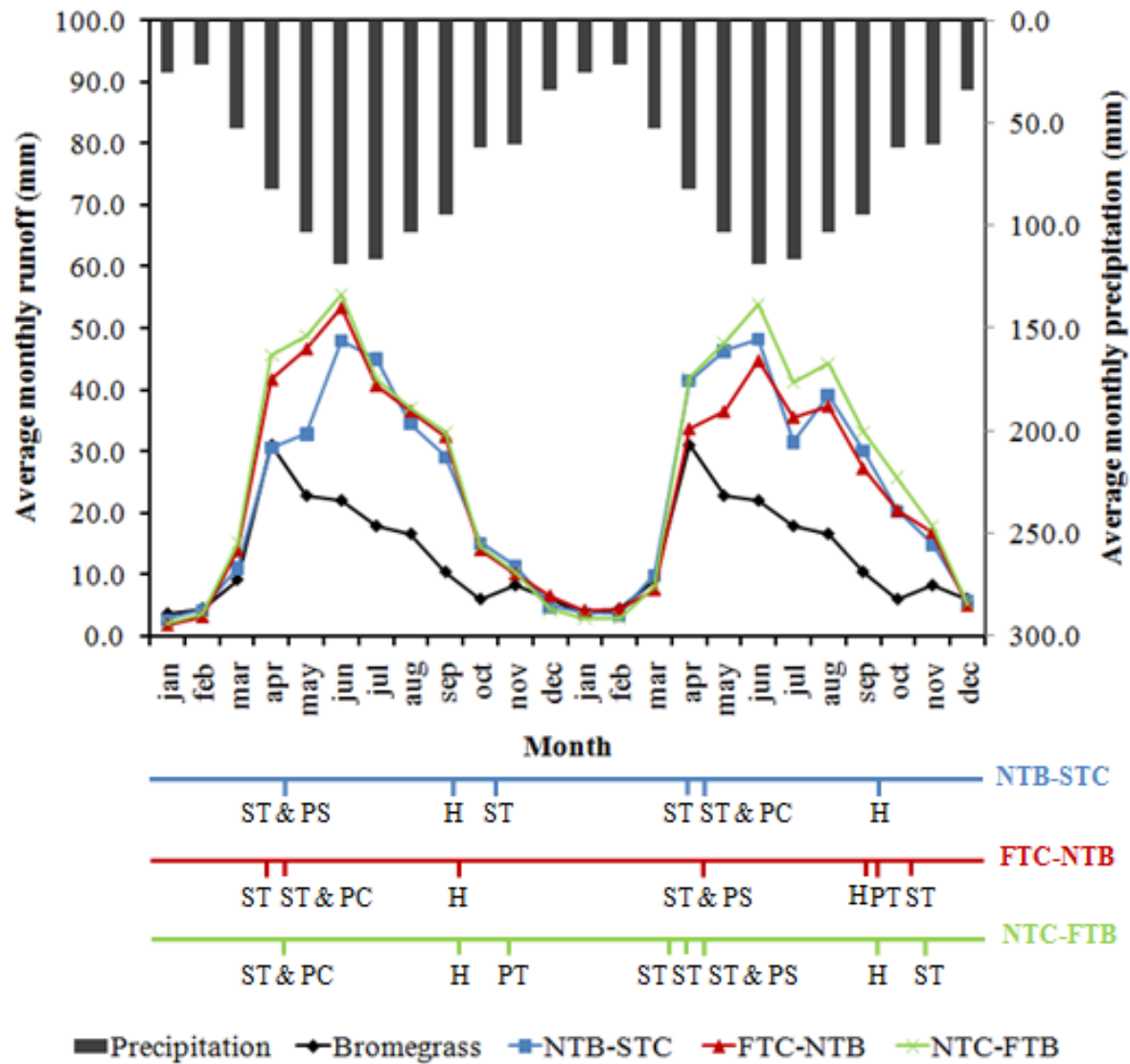
IIHR's mobile Sensor Unit

In-situ data collected with conventional and custom-built instruments & laboratory analysis (selection):

- Wireless sensor network for moisture and water quality data (Nitrates)
- Non-intrusive stream flow monitoring techniques (ADCP and LSPIV)
- Sources of sediment & pathways (stable isotope tracers & radionuclides)
- Rainfall (disdrometers, rain gages)
- Bed load and suspended sediment (ISCO, sedimenters)
- Permeability
- Hydraulic conductivity (via in-situ instrumentation and lab-based CT)
- Enrichment ratio
- Phosphorus (particulate and dissolved)







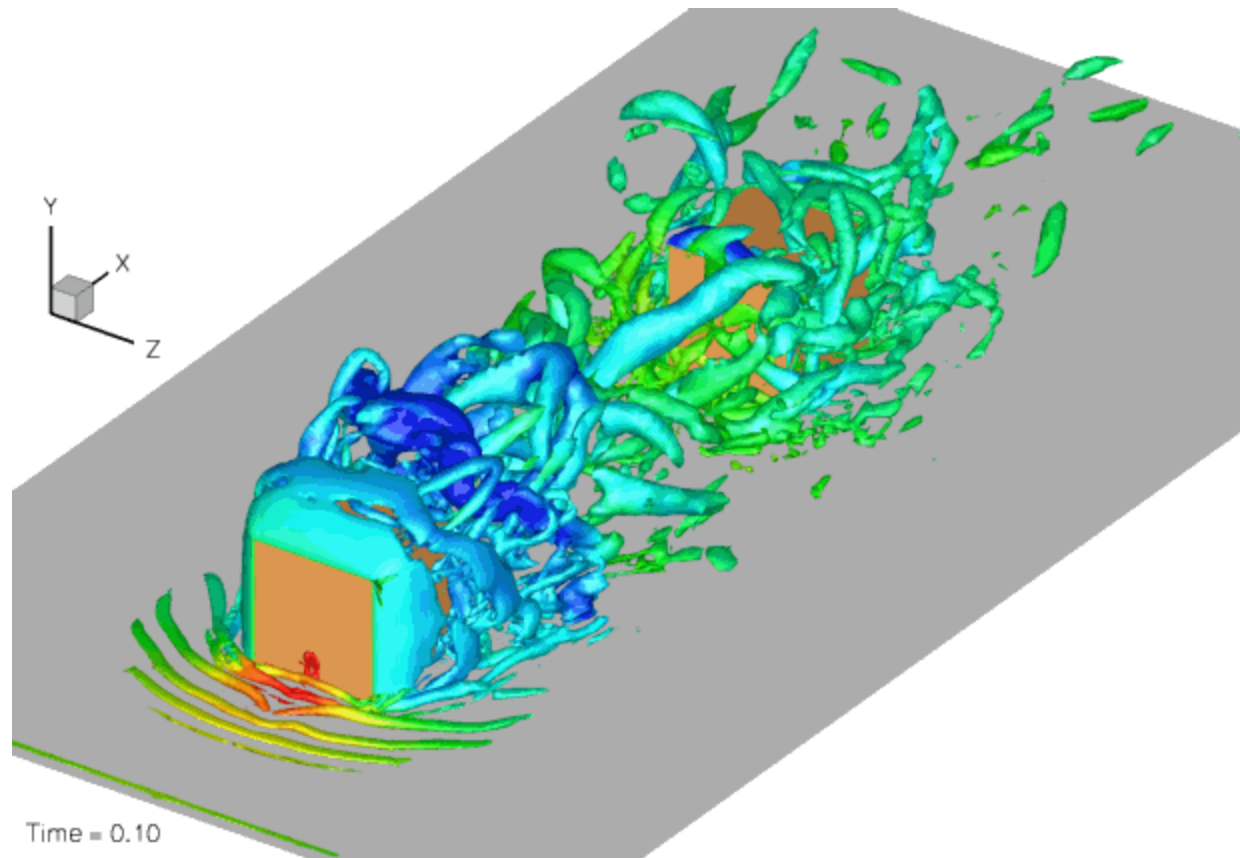
ST for secondary tillage, PT for primary tillage
 PS for plant soybean, PC for plant corn, H for harvest

Observations



Plan view of a clast

Coherent Structures



For thin boundary layer, the structure of upstream separation is characterized by the horseshoe vortex system with multiple vortices

RFID

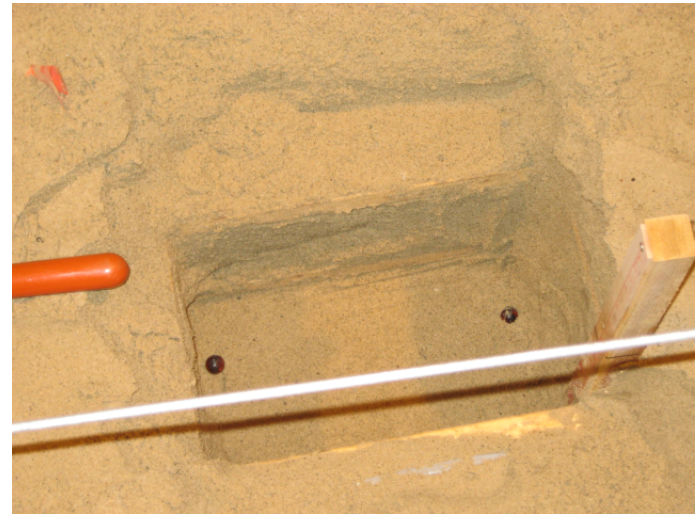


Figure 8. Wand antenna assembly

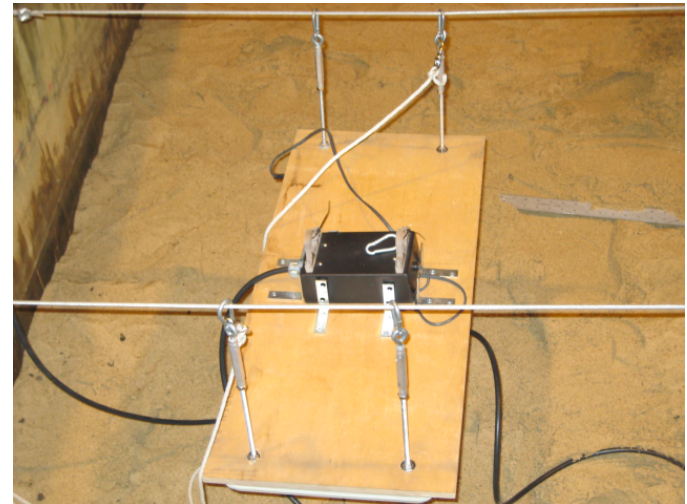
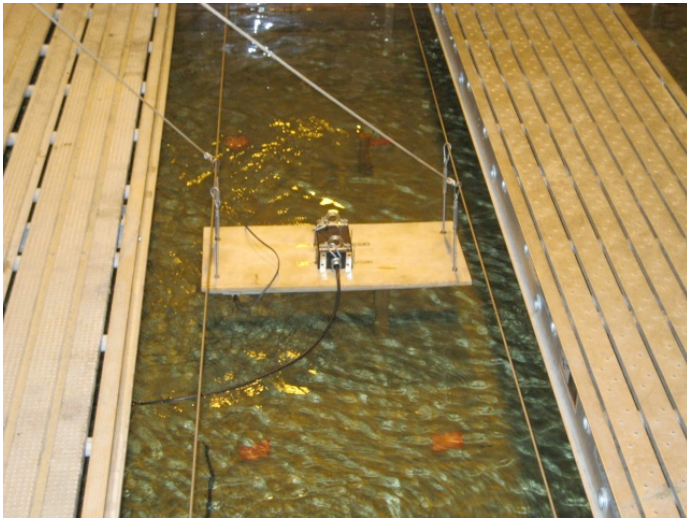


Figure 9. Suspension antenna assembly