



# Finding a Home for Technology in a Traditional Geology Field Camp

LESSONS FROM IDAHO'S LOST RIVER FIELD STATION

Benjamin Crosby  
Idaho State University - Geosciences

**Idaho State**  
UNIVERSITY

# Our History

- ▶ Digital mapping exercises are constrained to the second week of our 5 week field course.
- ▶ In 2004, used field measurements of bedding and well data to inform GIS modeling of aquifer form.
- ▶ In 2006 we used PDA-based 'digital field books' using Quickforms in ArcPad to collect structural data.
- ▶ In 2010, largely using tablet computers running full a Windows OS and either ArcPad or ArcGIS.
  - ▶ Quickforms for collecting point data.
  - ▶ Sketching contacts and structures over base maps.
  - ▶ Field data are carefully re-digitized each night.
- ▶ **Students typically elect not to continue digital field data collection but elect to construct final maps using GIS.**

# Pros and Cons

## ▶ Pros

- ▶ Most students build upon existing GIS skills
- ▶ Learning troubleshooting skills
- ▶ Produce more professional looking maps.
- ▶ Use of aerial photo base maps
- ▶ GPS assisted positioning

## ▶ Cons

- ▶ Interface issues: weight, battery, read-ability, slow, no set scale, crashes, GPS.
- ▶ Distraction from geology-focused course content



# Our Future Options

- ▶ Option 1: Continue to Integrate Technology into our Field Course
  - ▶ Do scanning in prior year to assure quality: work with legacy data
  - ▶ Take advantage of data 'hot spots' with preexisting data/curriculum
  - ▶ If technicians help, what percentage of the work can students do and claim to have mastered (5% or 80%?)
  - ▶ Demonstrate how data complements traditional methods
  - ▶ Will map making remain a relevant skill or is it simply a good, well vetted pedagogical tool?



# Our Future Options

- ▶ Option 2: Keep Traditional and Technological Courses Distinct
  - ▶ More time spent learning fundamentals and techniques (pre and post field work)
  - ▶ Better equipment access during shoulder-seasons
  - ▶ Most time is spent doing data manipulation/analysis, not fieldwork.
  - ▶ Still doing field work, but just not the bulk of the time.
  - ▶ Students may not have sufficient disciplinary knowledge to apply the acquired data to a problem.



# Other Thoughts



- ▶ Geodesy relies on change (often slow change) thus requiring legacy data for comparison to class acquisitions.
- ▶ Instrument-supported, high throughput digital data collection and analysis is the future for most earth science jobs. Students need these skills.
- ▶ And a few lingering questions...

# Is education enhanced by or encumbered by technology?



Given the choice, do students prefer digital geologic tools to traditional tools?



How can technological skill building be a group activity if there is only one device?

If processing geodetic data is time consuming or high latency, how can it fit into a short field module?

