The Redcoats and Rednecks Expedition to Mountain Eye Journal

# Background

# Aims

# Method

# Trips

# Fun?

# Results

# SexyTopo

**SexyTopo on the Tennessee Caving Expedition 2019**  
  
Digital, or paperless, cave surveying has become the dominant surveying approach. This has come about due to its measurable improvements in accuracy and speed, and convenience in being able to swiftly combine and back up data.  
  
The (aptly-named) SexyTopo is a computer program (app) written by me that runs on the Android platform. It is partly inspired in design and name by the earlier PocketTopo written by Beat Heeb. It works in conjunction with a DistoX measuring device to build up a computed skeleton of the cave, and provides sketching tools to draw the cave in around it.  
  
I have been working on it for a few years and have used it to survey shorter caves in the UK, the Philippines and elsewhere. I have also had a number of other testers across the world during this time whilst I have been gradually adding features to bring it up to functional parity with PocketTopo and other surveying programs.  
  
It was not until this year that I felt it had enough functionality and stability to be able to recommend it for use on longer trips where losing data would be very annoying.  
  
Consequently, the Tennessee "Redcoats and Rednecks" expedition 2019 was the first time SexyTopo was used comprehensively for days with multiple teams on an expedition. (Or at least as far as I know!)  
  
I had put some effort in before the trip on features that I thought would be useful for the expedition. I improved the Therion export since I expected us to be using that frequently. I had just finished the calibration routine (thanks to Beat Heeb for sharing his code). And, conscious of the fact I was within complaining distance if things didn't work, I added error recovery and reporting tools so I could quickly figure out problems if things didn't go as planned.  
  
Thanks to the brave individuals who were happy to use cutting-edge software, I quickly got lots of good feedback. Being on expedition, discussing results over beers, and using SexyTopo myself daily, was much more useful in terms of testing compared to the occasional trip and isolated bug report.  
  
It became apparent that on longer trips the performance of the app was poor on longer surveys. There were also quite a few crashes on longer surveys (happily the data recovery worked each time). I was able to spend several evenings fixing bugs and improving performance before giving people updated versions in the morning for more surveying.  
  
As the expedition progressed, I believe SexyTopo improved a lot. I had thought at the start of the expedition it was ready for serious use, but by the end it was a lot more suitable. Later on in the exped I managed to spend a couple of full days adding features that were requested or that I decided I wanted while I was surveying.  
  
Lots of people got to use SexyTopo but Gareth Davies and Olly Legg were particularly keen users. Chris Jones also managed to perform the first successful Disto calibration with SexyTopo in Blue Spring Cave.  
  
Thanks to everyone who was brave enough to test SexyTopo, give me bug reports, suggest feature ideas, or just had the patience to help out with surveying.  
  
SexyTopo is Free Software, made freely available for use or modification. Help with coding, testing, and so on is greatly welcomed. Please consider making your survey data freely accessible like the 2019 Tennessee Expedition has.  
  
<https://github.com/richsmith/sexytopo>  
  
  
**SexyTopo Tennessee Changelog**  
  
These are the official releases I pushed out during the expedition (there were several more unofficial builds used during the expedition when there was no Internet access and got ninja-installed on people's devices).  
  
1.2.7  
Fix calibration bug  
Lots of stability improvements  
Allow more memory to avoid out of memory errors  
Only autosave when required  
Optional vibrate on new station  
  
  
1.2.8  
Fix some crashiness  
Add hot corners option - ability to move sketch around by dragging from corners in draw mode  
Significant performance improvements on larger files  
Some reordering of icons into hopefully a better layout  
  
1.2.9  
Fix problem with uploading calibration readings and improve calibration experience  
Minor performance improvements  
Better error handling in a few places

# Reflections and Thanks