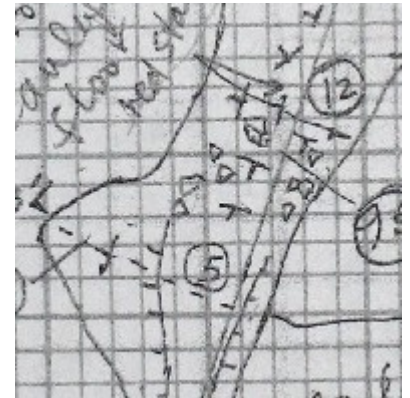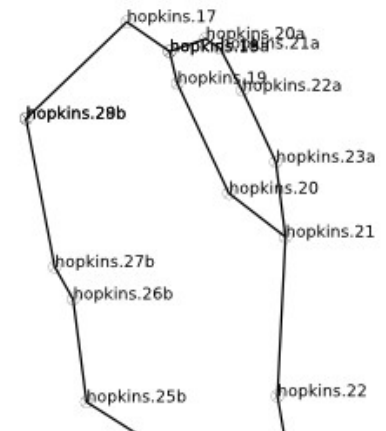# Digital Cave Cartography

Survey Review

Exact distance and direction from station to station is recorded

Sketcher draws cave wall shapes, features, and other details around the survey line

Cave "wireframe" can be constructed from the station-to-station survey data

Map Drafting Overview

Gather station data

Check for grotesque errors

Produce wireframe

Stretch sketches over wireframe and stitch together

Generating Wireframes and Detecting Errors

Input tape, compass, and clinometer data

Outputs wireframe map, error report

COMPASS is the "classic software" for Windows (seems to run under WINE)

Survex is the "shiny new open source software" for everything

Drafting the Map with Adobe Illustrator

Bring in the wireframe

Bring in the scans of the sketches

Stretch the sketches to match the wireframe

…

Profit!

Illustrator Pros and Cons

Ultimate flexibility in final result

Easy to set up

You might already know how to use it

Potentially huge amount of work to modify map if survey is corrected or changes ("The notes say 23 degrees, but someone fed 32 degrees into Survex.")
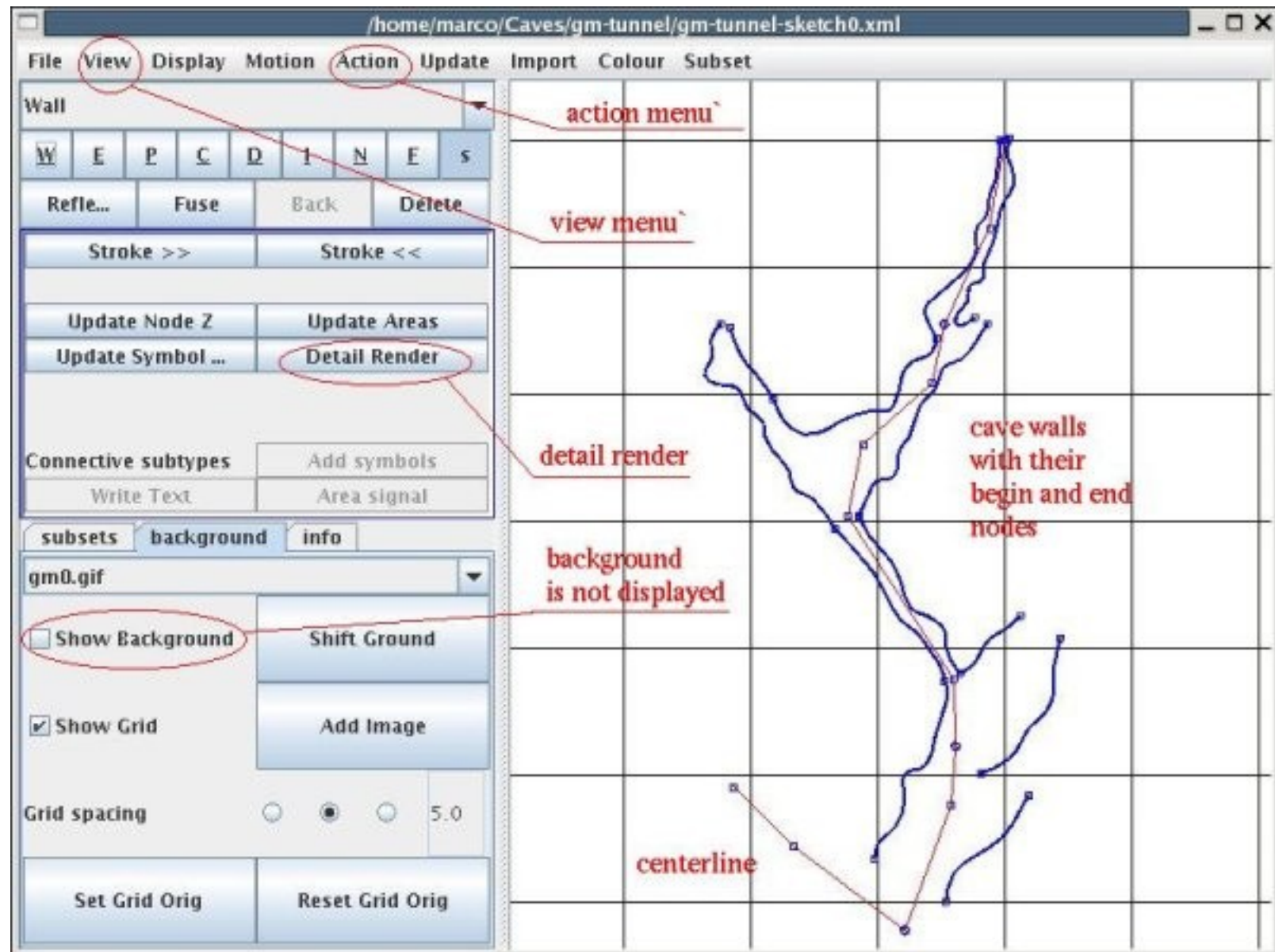
Tunnel

Input Survex data and sketch scans

Outputs final map image

Generates wireframes internally

Tunnel Screenshot

Tunnel Pros and Cons

Linux, Windows, and Mac support

Cave-specific functionality for stretching scans to wireframes

Cave-specific symbols and drawing tools

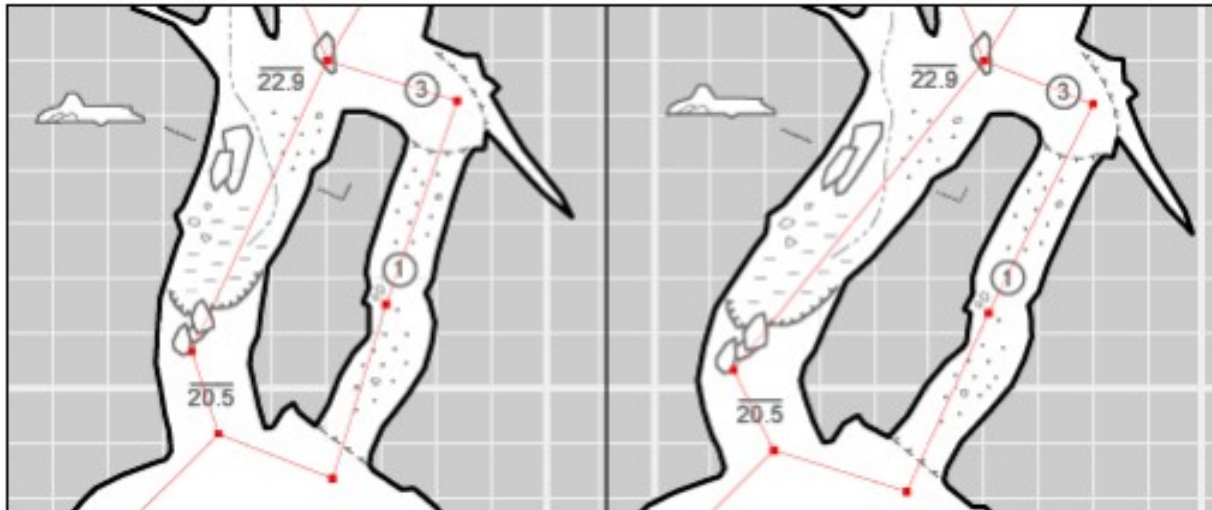All the cave-specific drawing stuff you wish Illustrator had

Still work to change things if the survey data changes

Walls

Input cave survey data

Input specially-tagged SVG cave map from Illustrator

Outputs corrected SVG map

Walls Pros and Cons

Easy to reexport map if survey data changes or is corrected

Self-contained UI for entering cave survey data
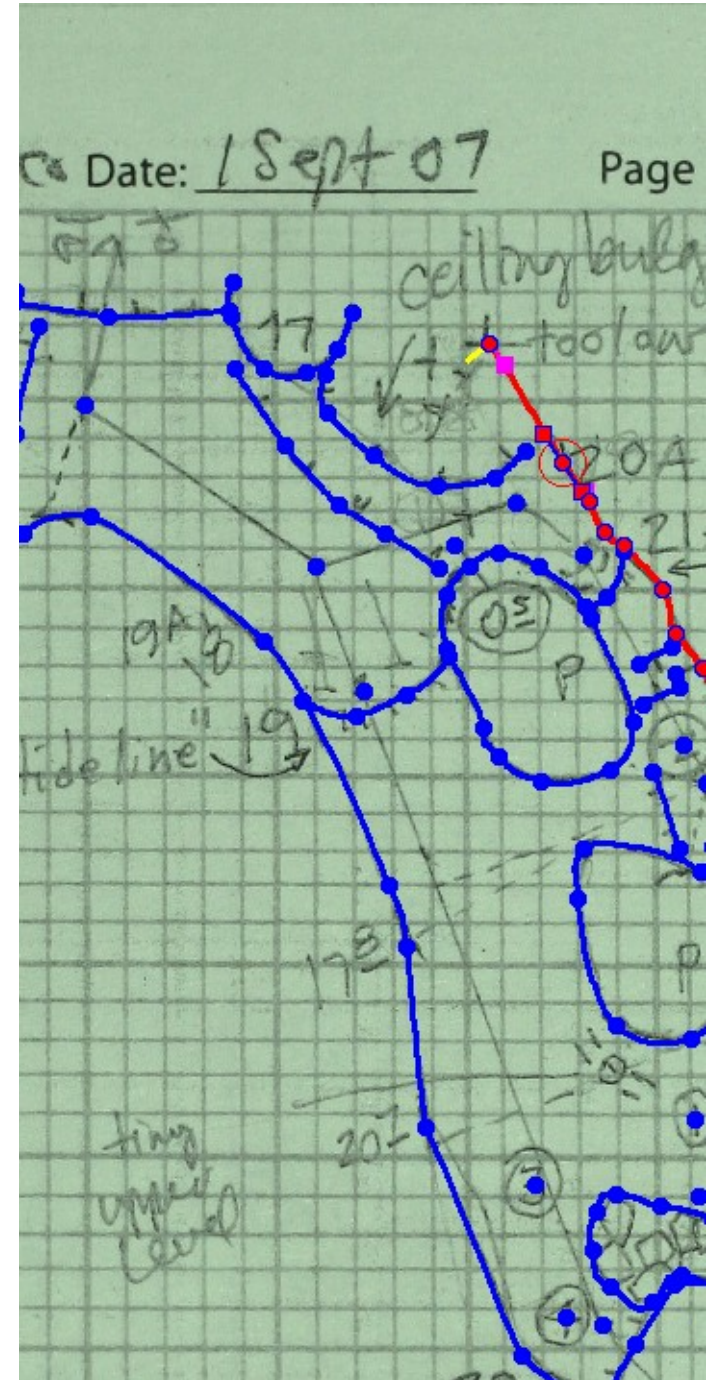
Windows only

Therion

Input Survex data

Input traces of individual sketches

Outputs PDF map

Usage is quite technical

Therion Pros and Cons

Difficult and technical setup

Even more difficult and technical customization

Sketch tracing software UI is unfriendly

Effortless map export, even after survey data change or correction

Linux, Mac, and Windows

Choosing Software

Ease of use (easiest first):
Illustrator, Tunnel, Walls, Therion

Ease of map export when survey data changes:
Therion, Walls, Tunnel, Illustrator

If you want daily working maps and have a techie
to make them, use Therion or Walls

If you only want one final map, use Tunnel or
Illustrator