

Stereoscope Viewing

Components:

- F-71 Mirror Stereoscope widely used in forestry (~ US\$800)
- Single 23" flat-panel monitor with a resolution of 1920 x 1200 (~ US\$2000)
(very similar models available from Apple, HP, and Sony)
- Dual-processor Apple G5 PowerMac or your current TNT computer and display board



Configurations:

The horizontal air photo configuration shown to the left is how a stereoscope is traditionally used with a pair of stereophoto prints. The prints must be moved around on the table surface to get stereo fusion and to view different areas. In the electronic

application with the TNT products illustrated to the right, the stereoscope does not need to move since the paired stereo images are automatically displayed at the proper position for stereo fusion and can be moved about in tandem on the monitor under the fixed stereoscope using the mouse.

The sample TNT configuration shows the monitor with its stand removed and inclined on a plastic shelf that is longer than the monitor. While not obvious from the photo, the shelf is propped up at an angle (for example, 30 degrees). You may find this to be a convenient way to work with your TNT map and image materials on large monitors, especially if you wear corrective bifocal lenses. At any time you can set the stereoscope on this shelf and lean forward to view a stereo pair through the stereoscope, then lean back to use the monitor for normal activities. This setup is easier on your back than the normal horizontal stereoscope orientation typically used for stereo viewing of prints.

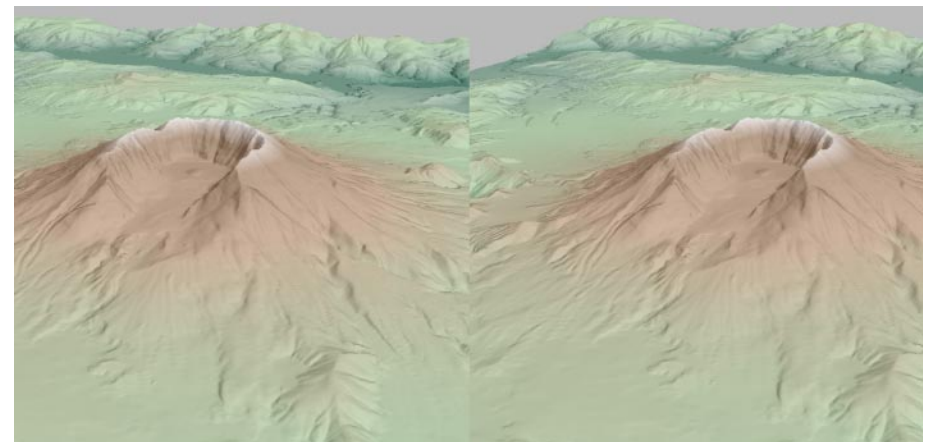
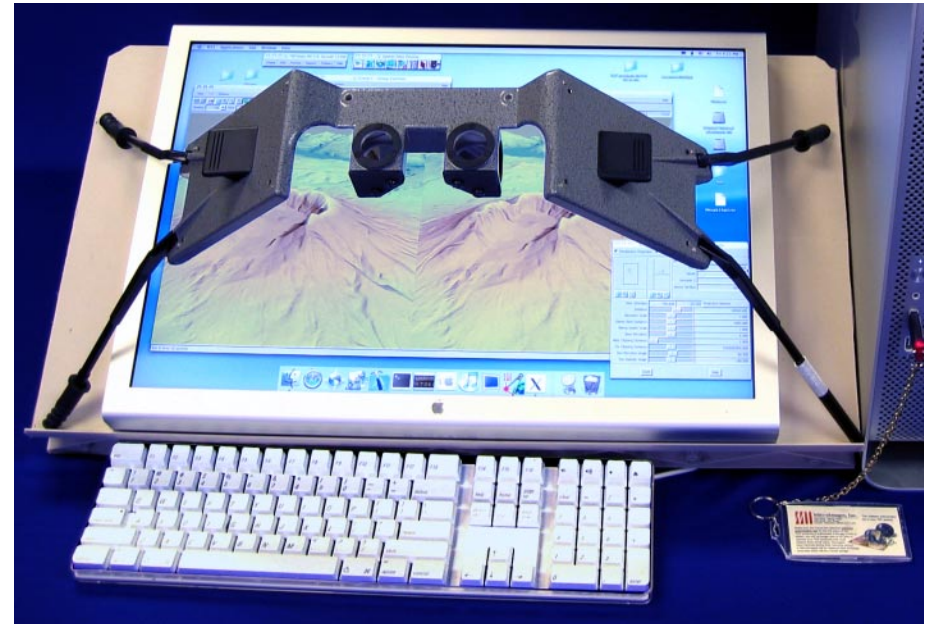
The shelf has a raised lip along its lower edge to keep the monitor and stereoscope from sliding off. Note the handles on the outside or tops of the mirrors; these make it very easy to grasp the stereoscope to set it on the shelf or off to the side without touching its high quality first surface mirrors. The monitor's connector and cable are in the middle of the back side, so a hole has been cut in this shelf to allow them to pass through.

Pros:

- solid stable stereo fusion
- almost all the area of 1024 x 768 pixels is viewable in stereo without moving anything
- uses the best single monitor available for general use with the TNT products
- unaltered brightness and colors—even better than using prints since not reflected light (other stereo viewing devices filter, shutter, or somehow alter the images for stereo)
- less eye strain; eye fatigue is about the same as using photo prints (other stereo viewing devices quickly cause eye strain and fatigue)

Cons:

- high cost (~ US\$3000)
- one user at a time (a mirrored dual stereo display system can be set up using the dual outputs of your display board)



High-resolution orthoimages and digital elevation models are now becoming widely available. High-quality stereo views can be rendered from this geodata in TNTmips, TNTedit, and TNTview to augment 2D and 3D perspective viewing. Stereo viewing is effective in helping identify and map ground conditions and features where direct work in the field is too expensive, time-consuming, or hazardous. Stereo can also be used effectively to explore the 3D spatial relationships between land surfaces and multiple subsurface manifolds. Stereo views can be opened in the Spatial Data Editor in TNTmips and TNTedit to assist in editing geodata in the companion 2D view.