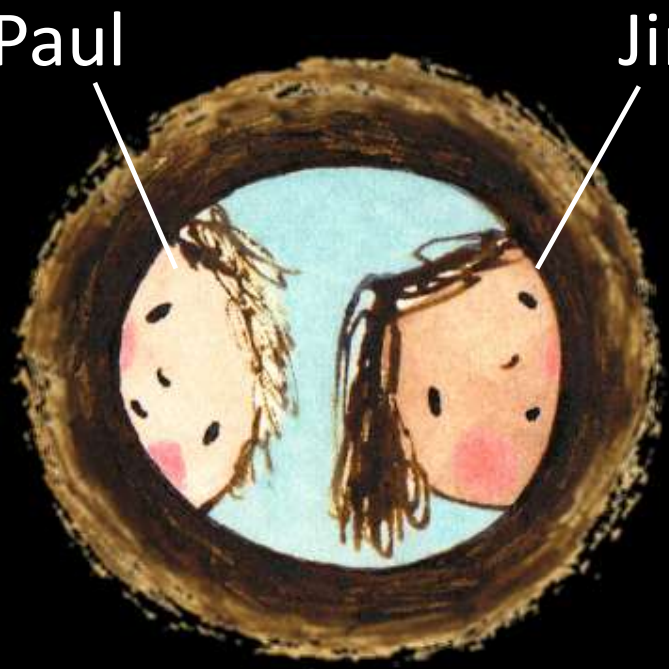
Further down the rabbit hole…



- Project started trying to identify bright spot in young Moon image
- Led to 3D imaging of the Moon (Paul) & lunar surface modeling (Jim)

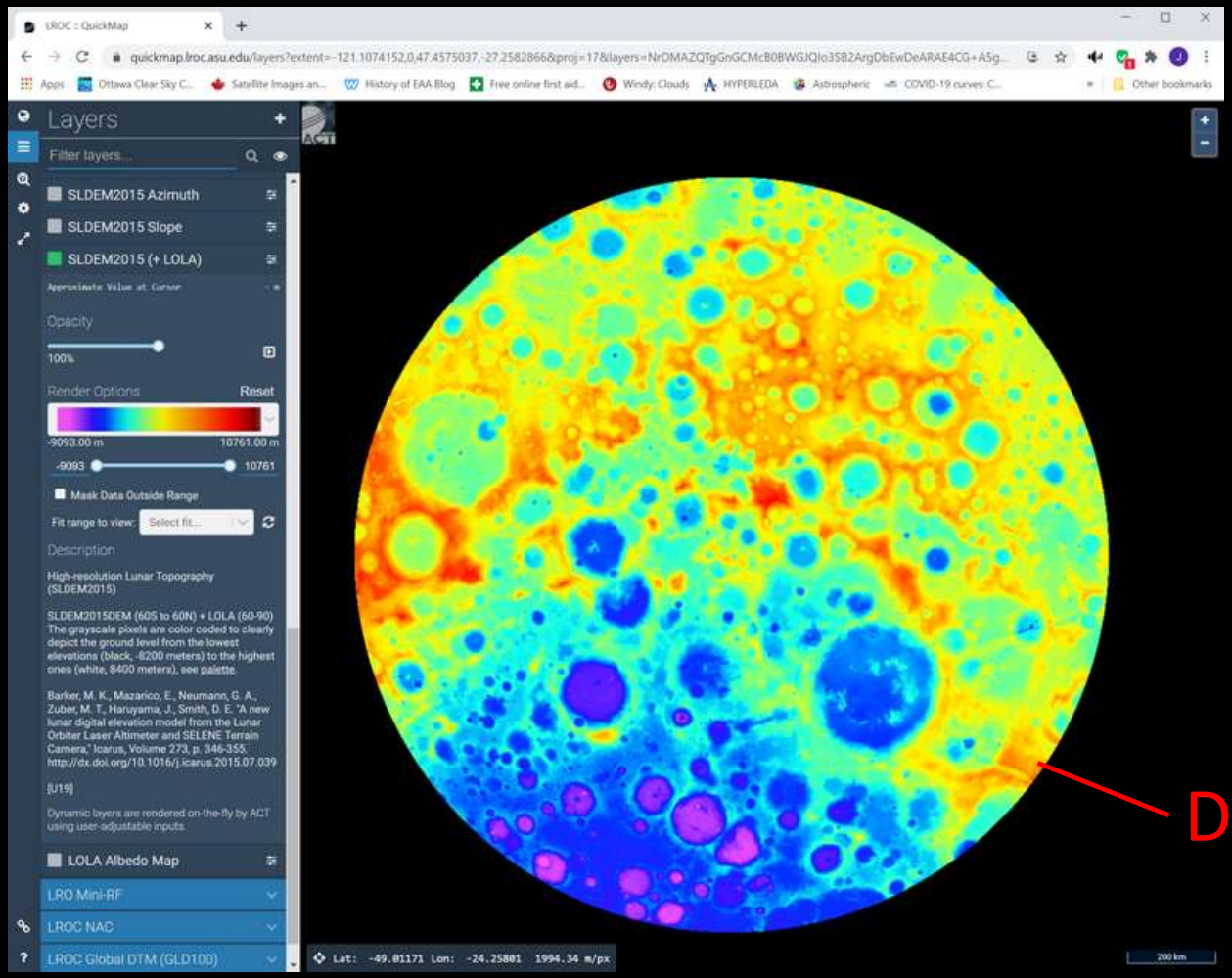
Rabbit hole image courtesy http://dtrhradio.com/
Moon image courtesy Andrew Brown

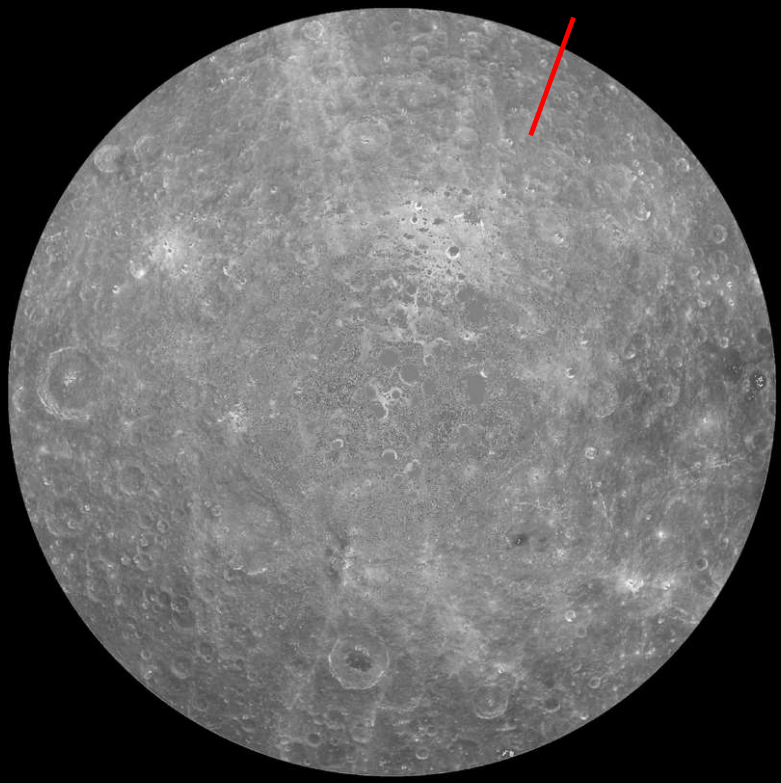
Simulating Lunar Phases

- Capturing same view of Moon again will be a challenge
  - Need same libration + clear sky to horizon
- What if I create 3D model of Moon and simulate view instead?
  - Total control of libration, lighting, image scale (zoom), camera position, etc.
- Already familiar with 3D modeling (Caligari trueSpace)
- Model inputs readily available on LROC website:

https://quickmap.lroc.asu.edu/

Sample Inputs From LROC Website

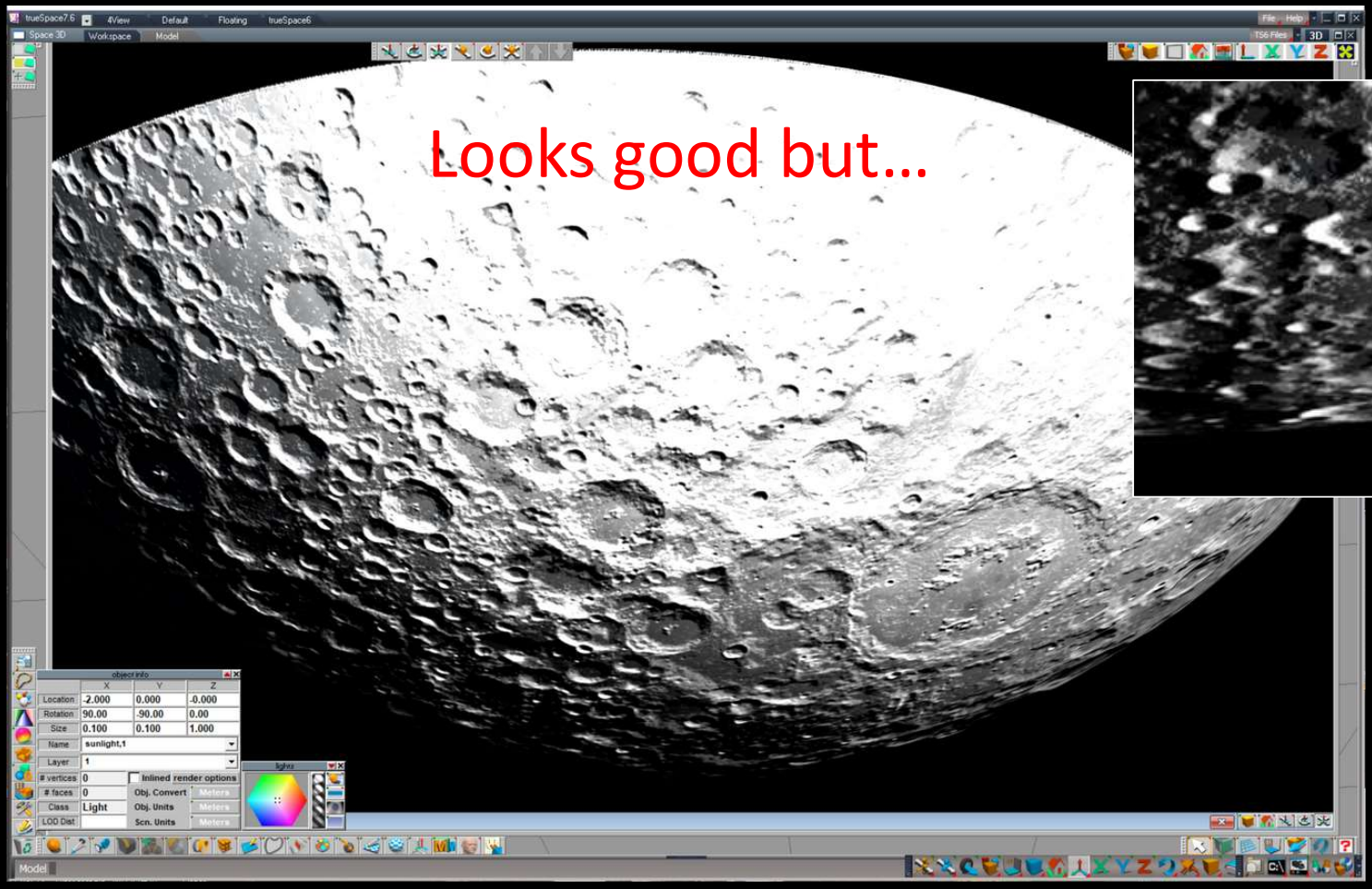


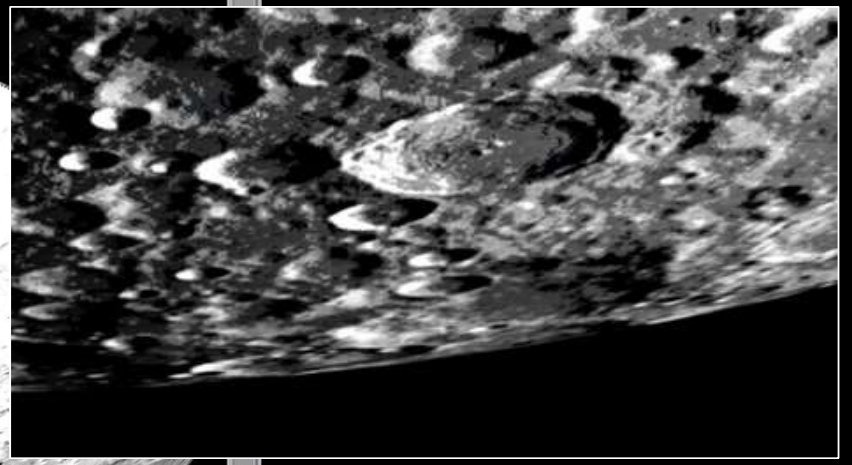


Digital Elevation Model

(save as monochrome images)

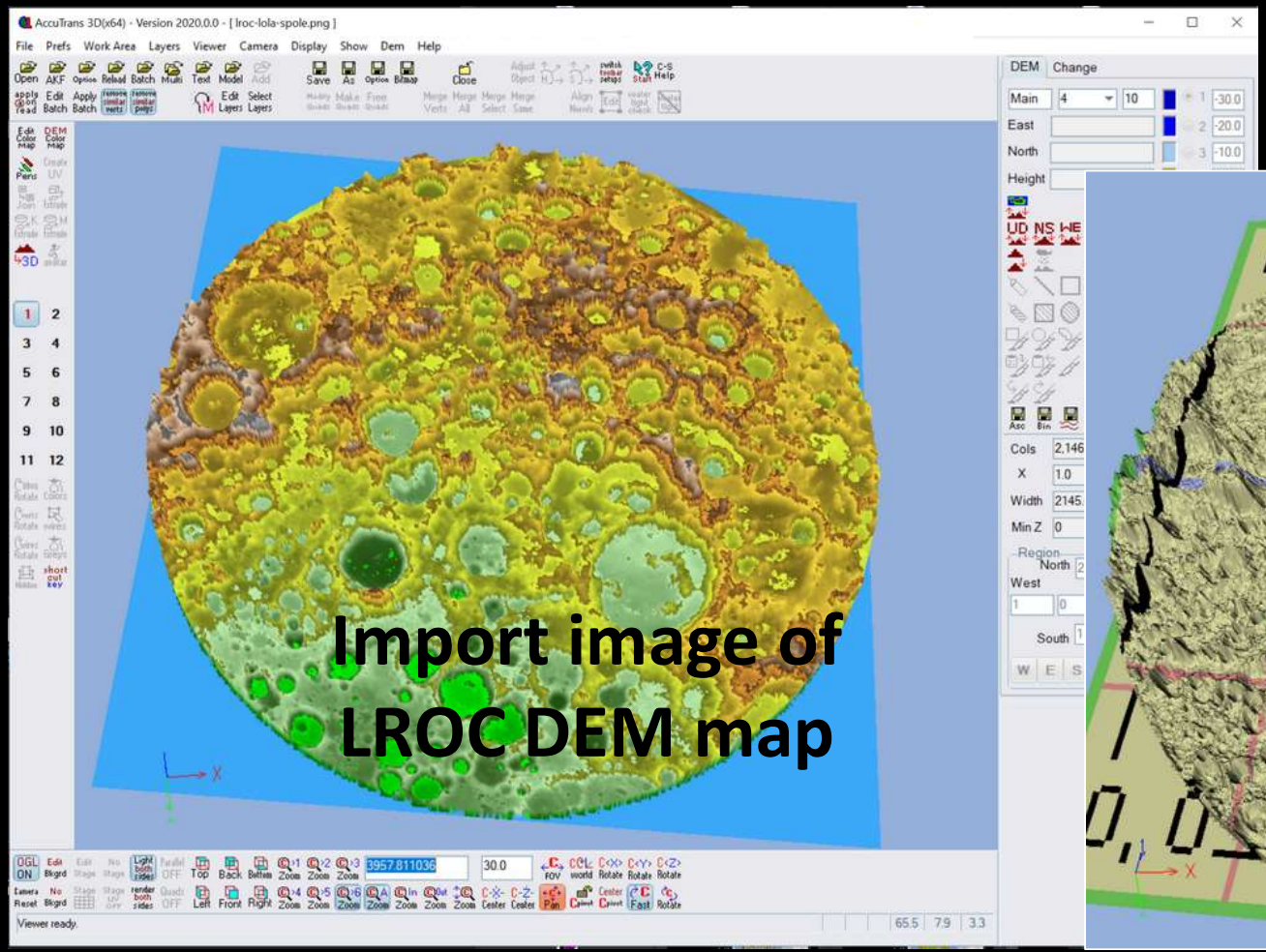
Attempt #1 – Quick & Dirty (Bump Map)



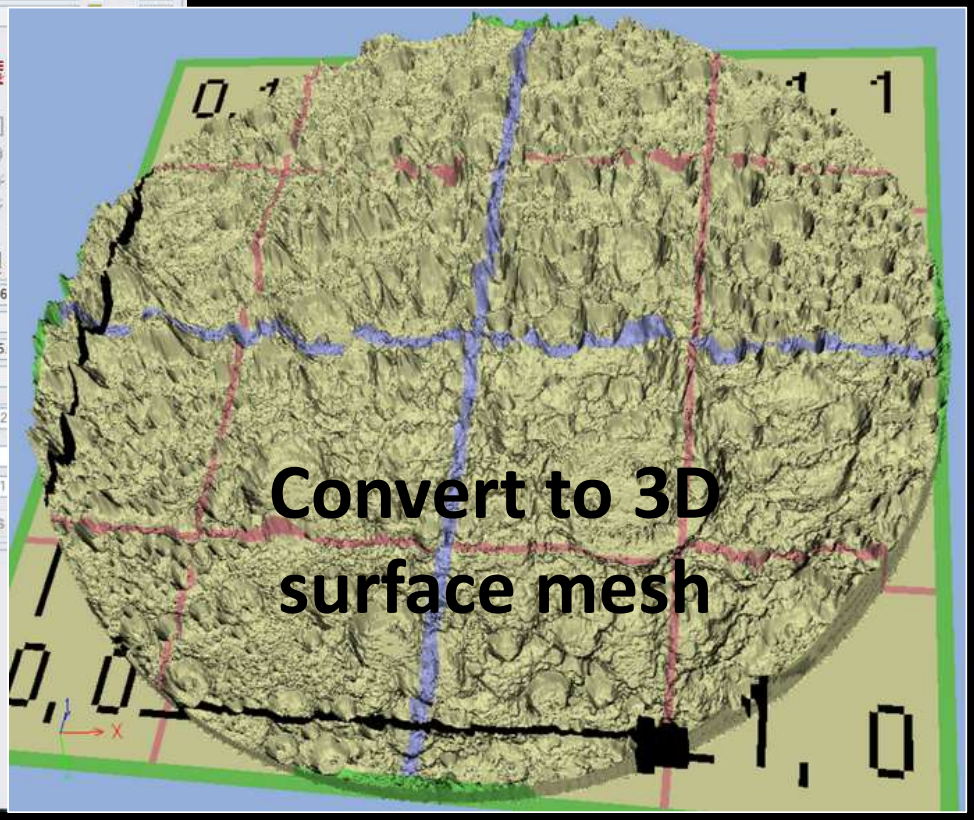


…bumps not rendered at edge of object

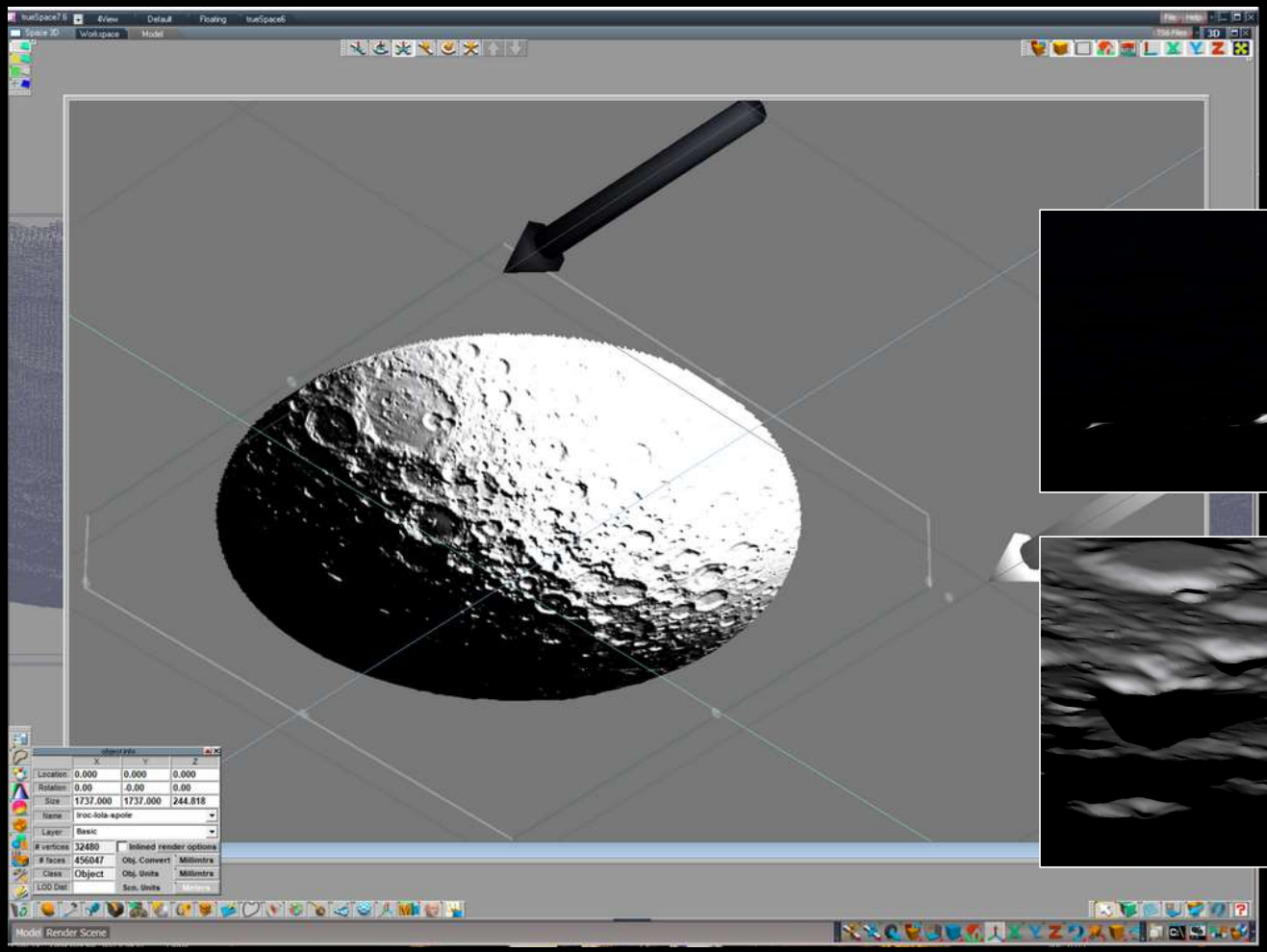
Attempt #2 – Long Way (3D Surface Model)



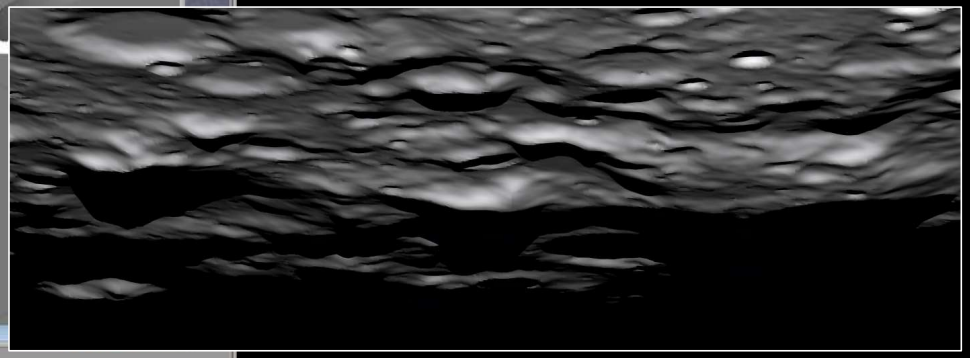
Used trial version of Accutrans 3D



Attempt #2 – cont'd

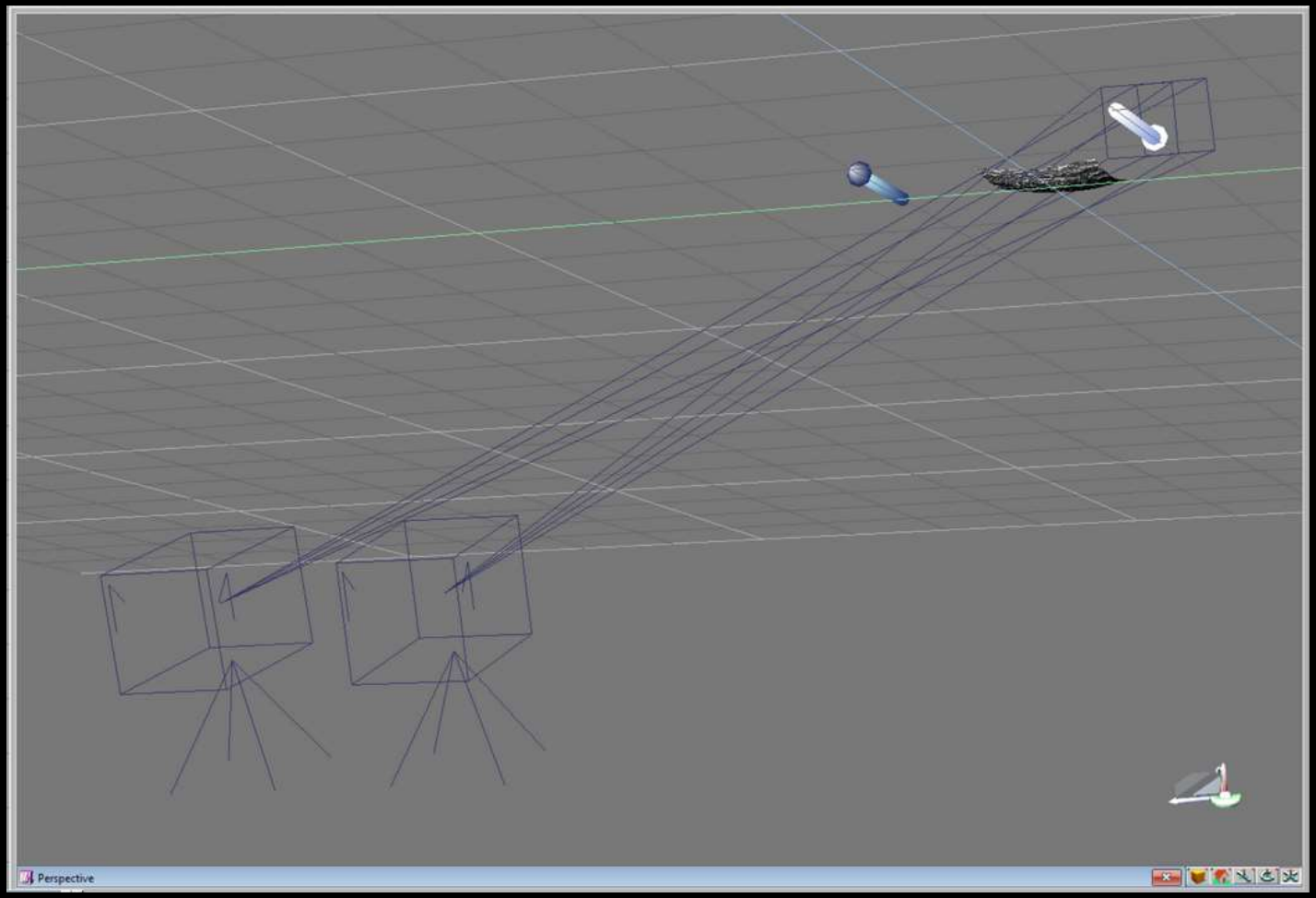


- Import 3D mesh
- Add curvature
- Add lights & camera

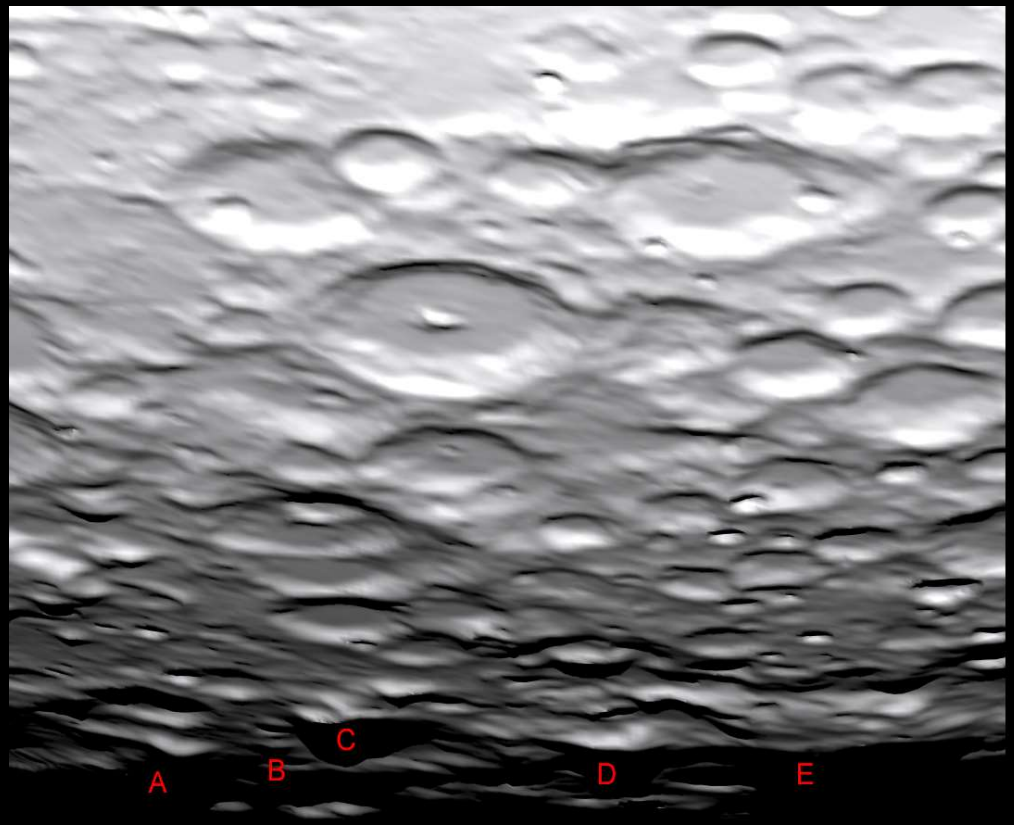


Success!

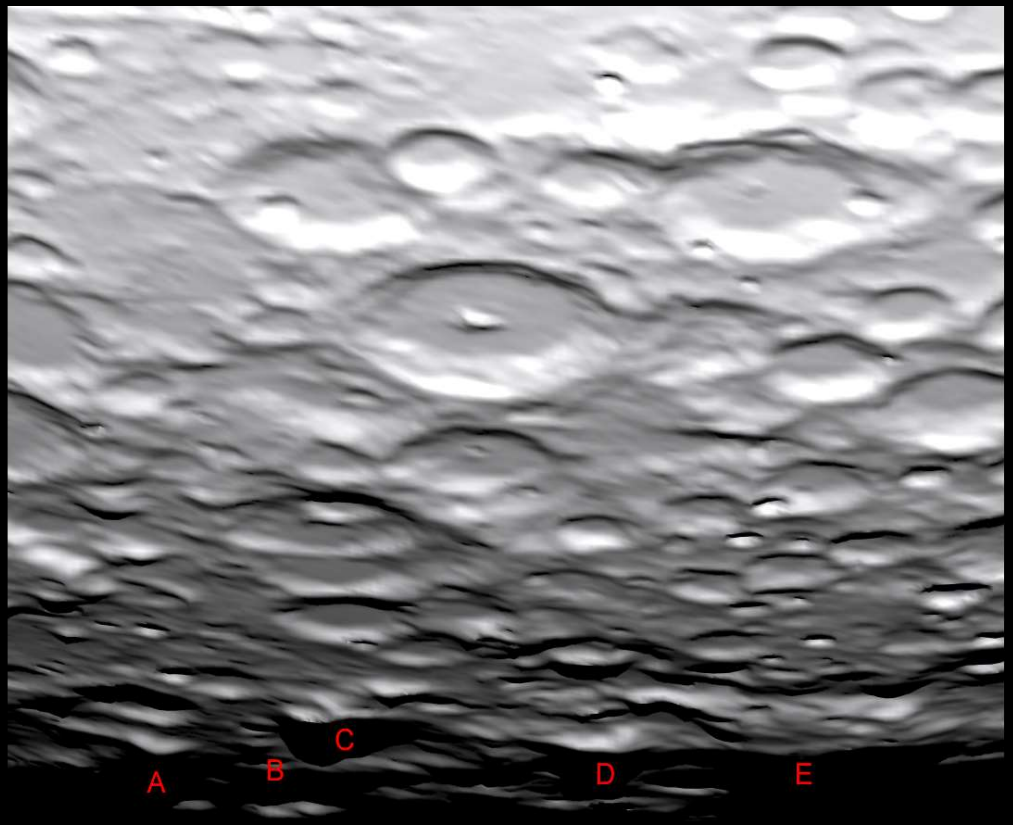
Stereo Pairs



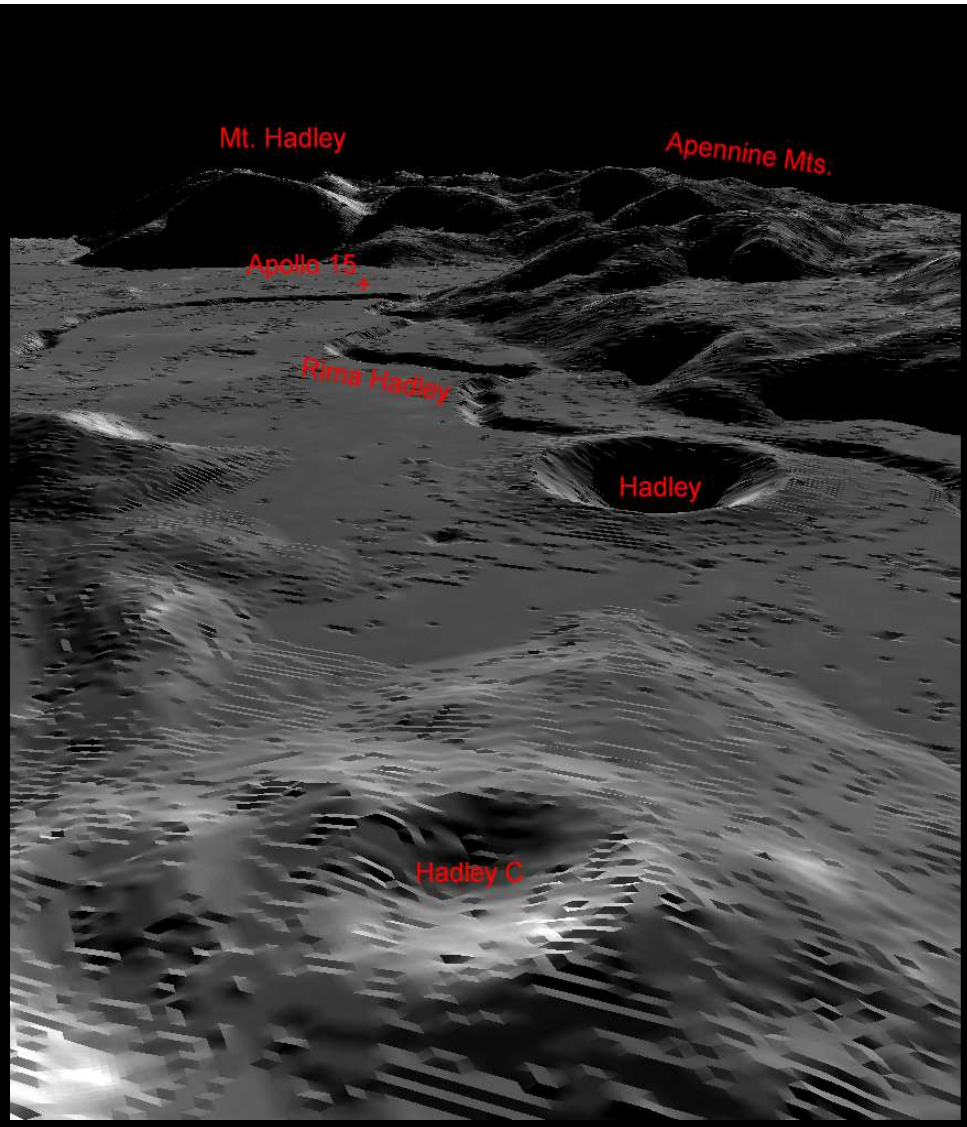
- Same principal as Paul's cross-eyed method
- Instead of Moon at two different libration angles, use two cameras
- Distance between cameras sets depth of field

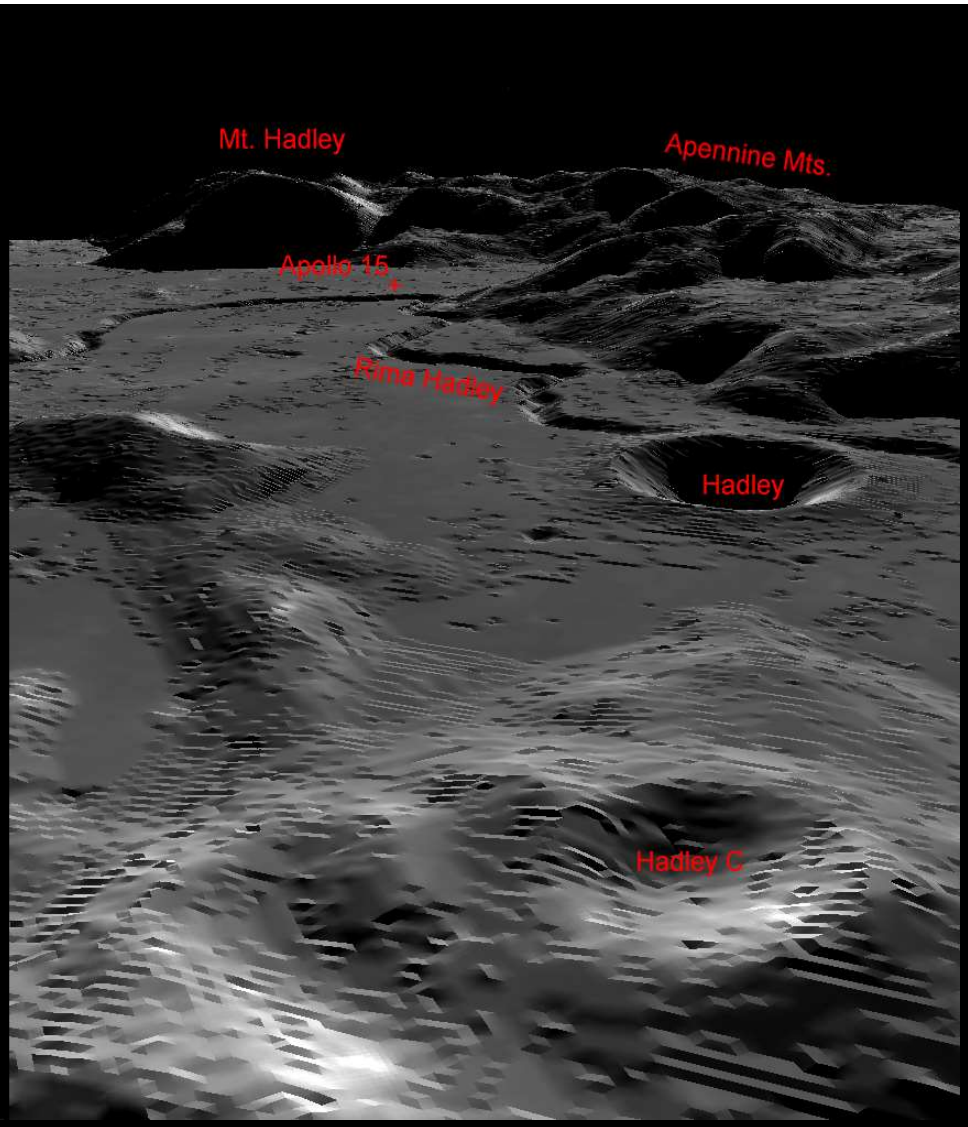
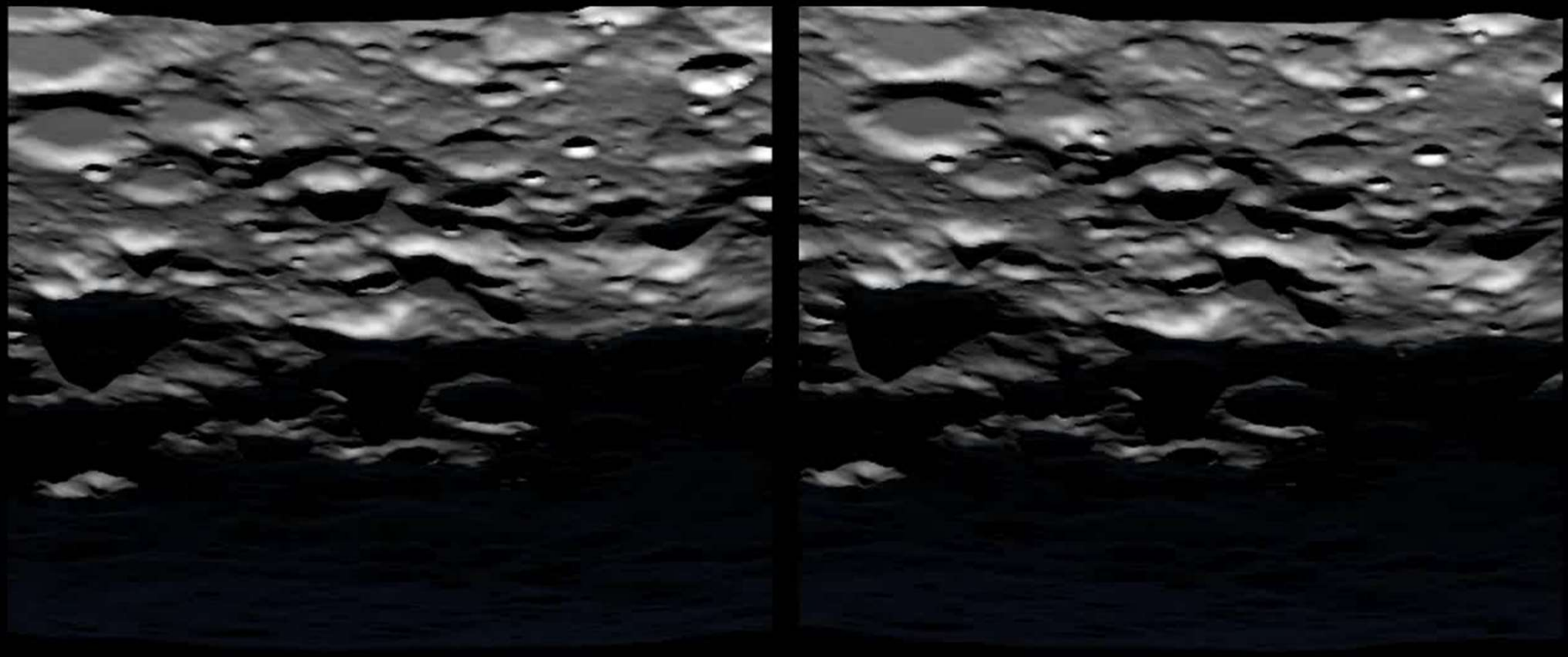


Liebnitz Mountains



Liebnitz Mountains


Mt. Hadley
Apennine Mts.
Apollo 15
Rima Hadley
Hadley
Hadley C


Mt. Hadley
Apennine Mts.
Apollo 15
Rima Hadley
Hadley
Hadley C