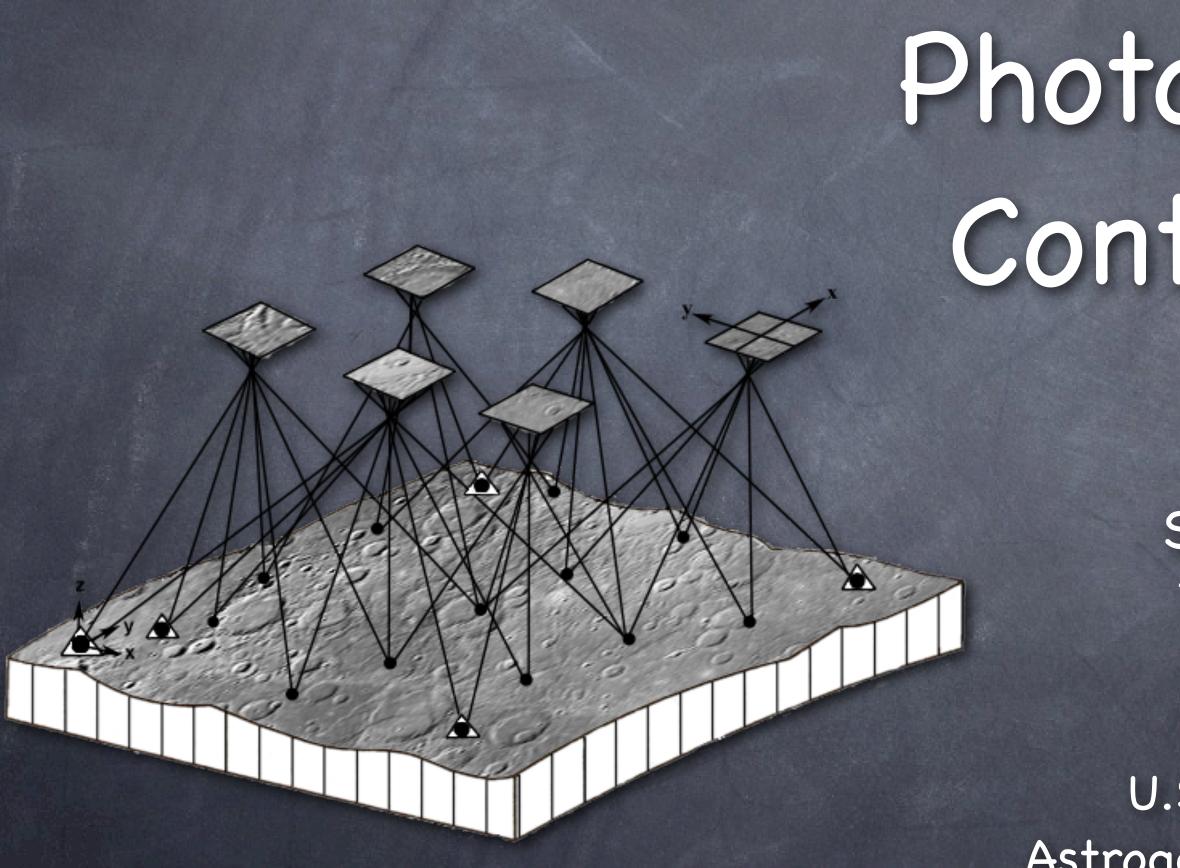


ASTROGEOLOGY SCIENCE CENTER

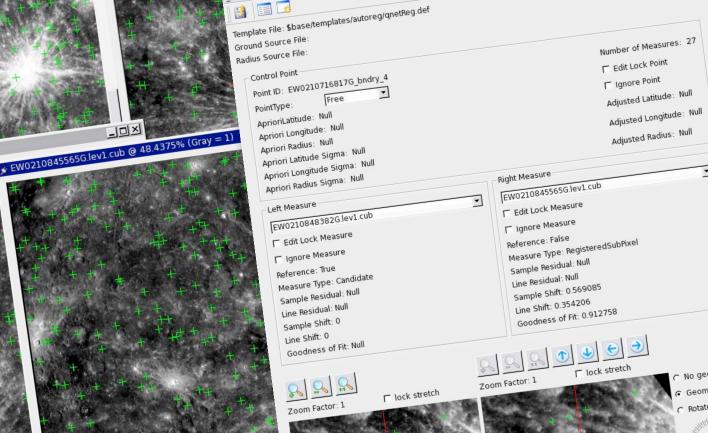


Photogrammetric Control in ISIS

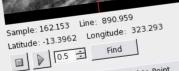
Tammy Becker Ken Edmundson Steven Lambright Tracie Sucharski Orrin Thomas

U.S. Geological Survey Astrogeology / Geomatics Team

Photogrammetric Control in ISIS







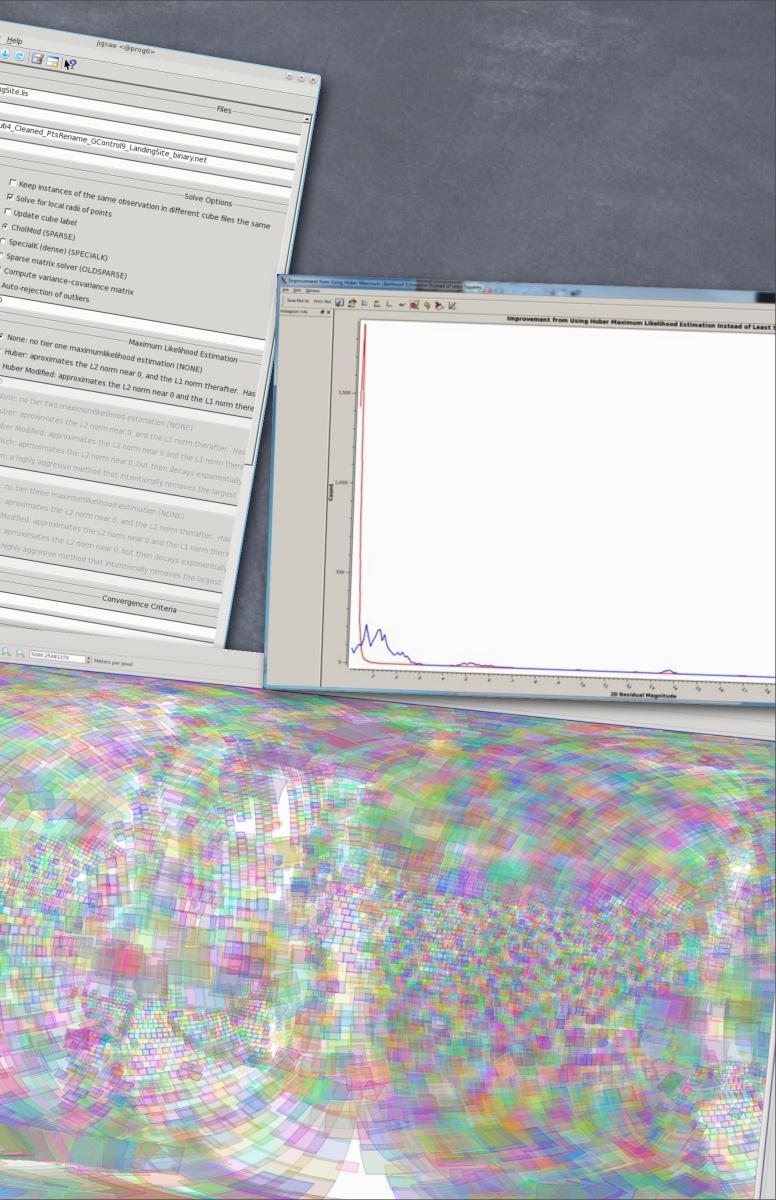
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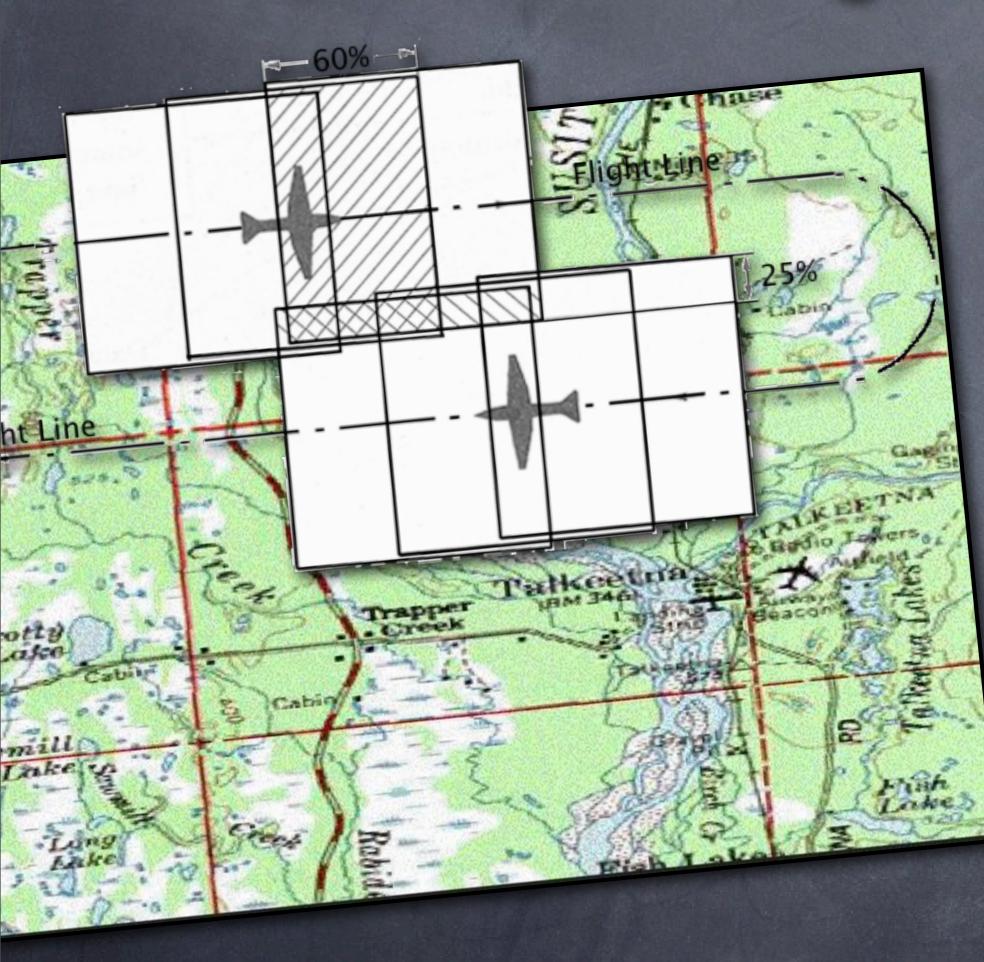
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Photogrammetry



the science of making reliable measurements by the use of photographs and especially aerial or satellite photographs (as in surveying)

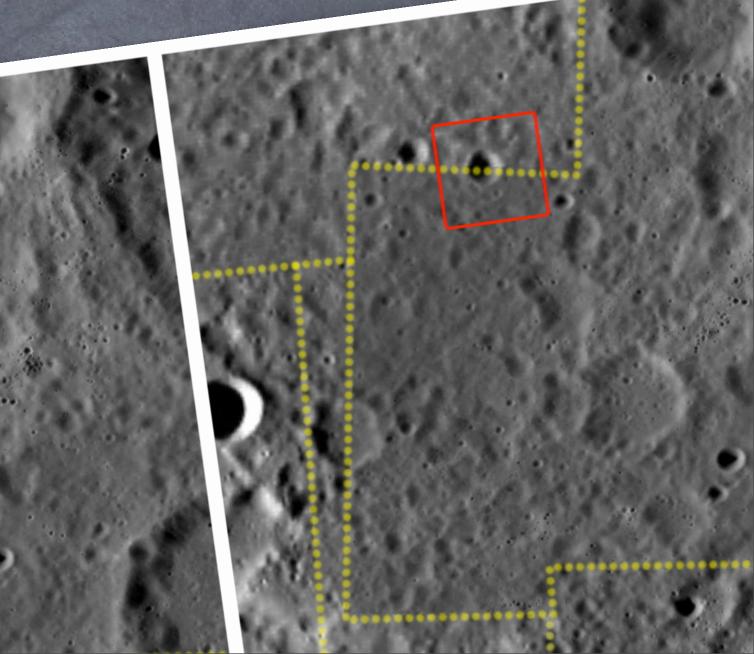




Why Photogrammetric Control?

Errors in image position and pointing parameters propagate to final mapping products (e.g., Digital Image Maps, Digital Elevation Models)





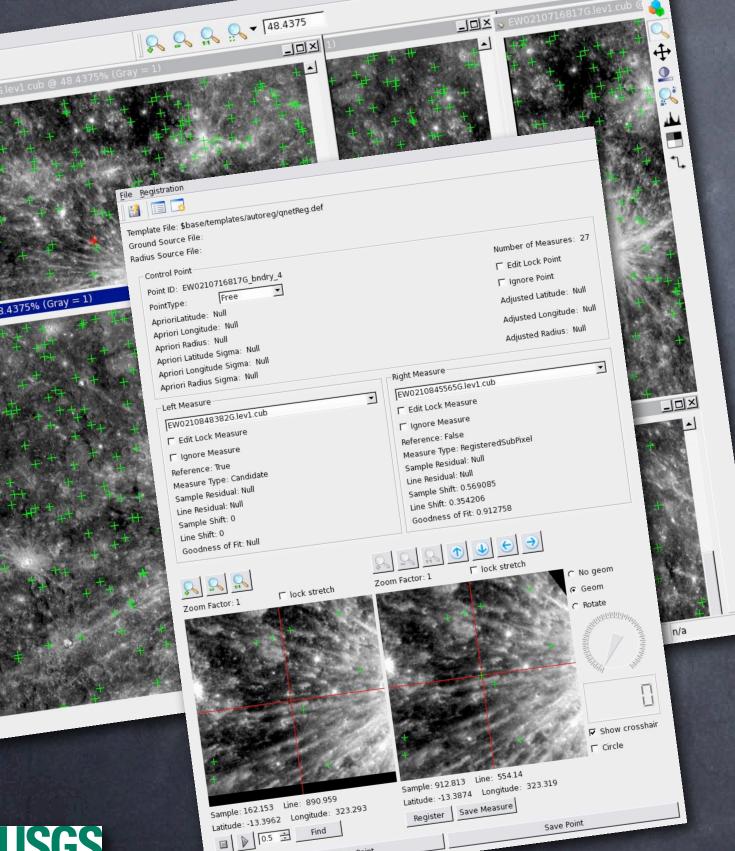
What is Photogrammetric Control?

Image Measurement

Images are registered to each other and/ or the ground through the measurement of common features.

overlapping images.

• control points: features common between images and base maps, DEMs, or human artifacts such as landers, rovers, or retroreflectors.



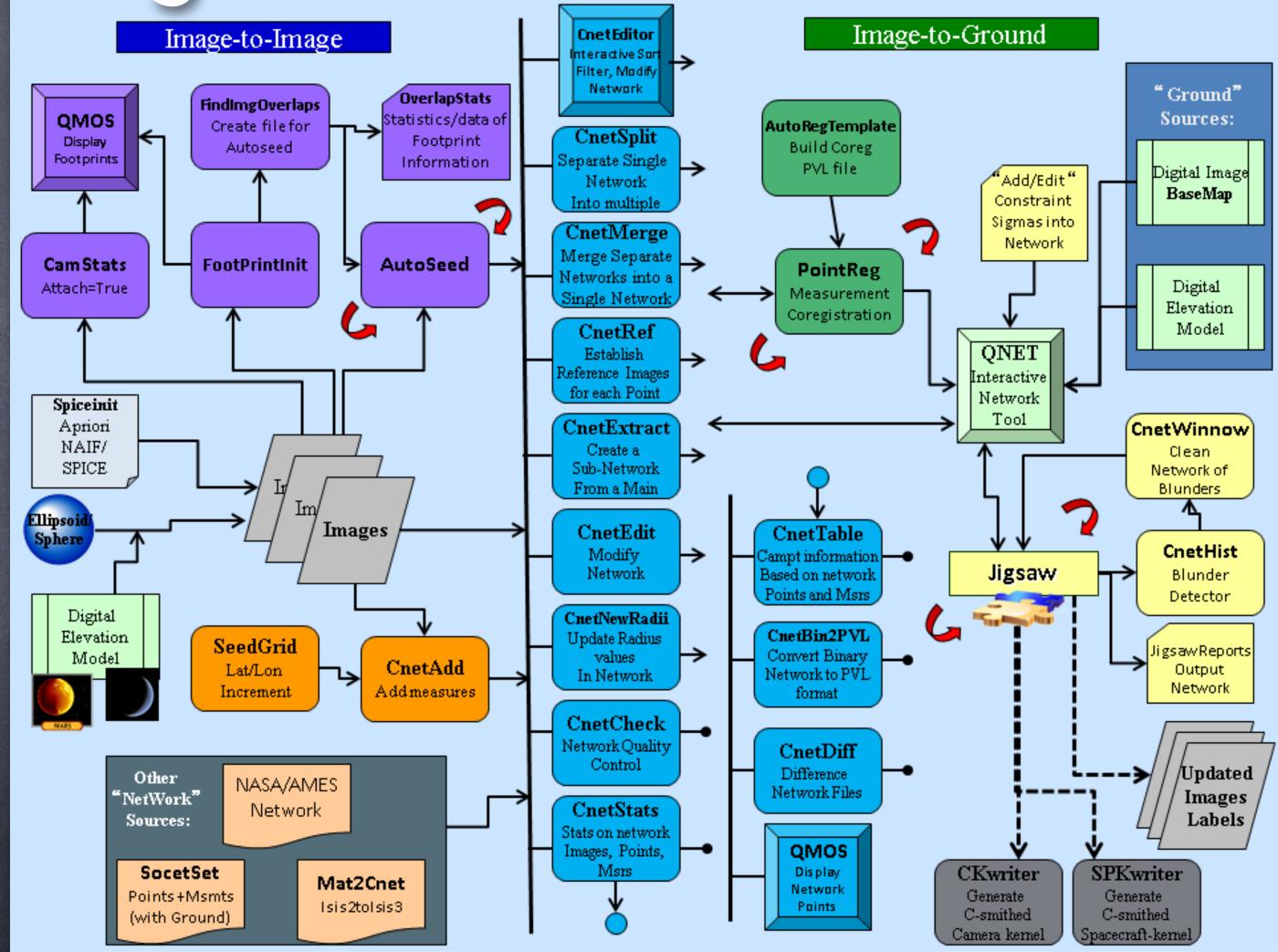
• tie points: features common between

What is Photogrammetric Control?

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Least Squares Bundle Adjustment Input • Image Measurements. Initial values for image pointing/ position and ground point coordinates. • `a priori' precisions for above parameters if available. Output Refined image pointing/position and ground point coordinates. • Their uncertainties. • Solution statistics.

Photogrammetric Control in ISIS





ISIS Control Application Demos				
Topic	Description	Presenter		
qnet	create and edit control networks	Tammy Becker/Tracie Sucharski		
jigsaw	bundle adjustment	Ken Edmundson		
robust blunder detection	bundle adjustment, con't	Orrin Thomas		
qtie	update pointing on a single cube	Tammy Becker/Tracie Sucharski		
qview	display/analysis of cubes	Steven Lambright/ Tammy Becker		
qmos Sience for a changing world	display/analysis of cube footprints	Steven Lambright/ Tammy Becker		