

# Isis 3 “qview” Demo

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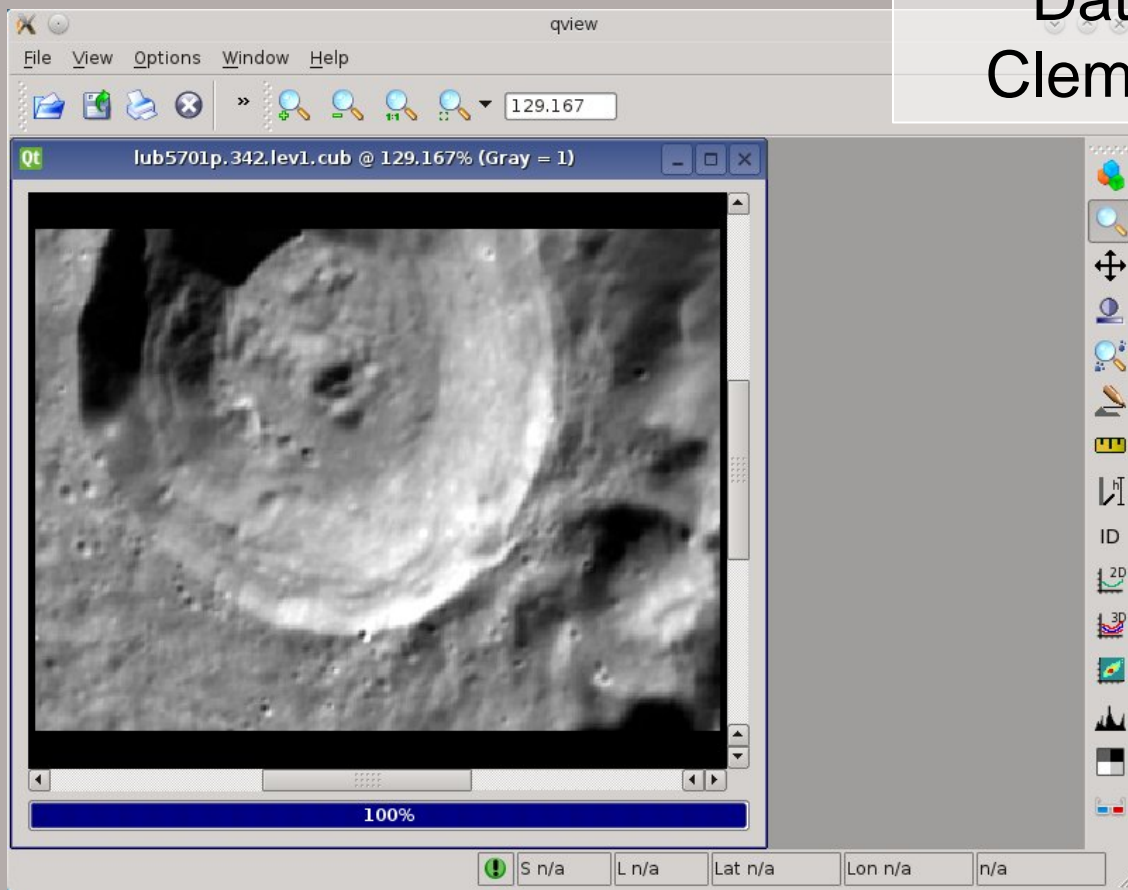
## Visualization

- Objective
  - Learn about the ISIS visualization tool “qview”
  - Introduction/Demo of most available tools
    - Tracking, Zooming, Panning
    - Stretch
    - Linking
    - Help (“What’s This?”)
    - Measure
    - Blink
    - Find
    - Spatial, Spectral, Scatter Plot
    - Histogram
    - Nomenclature
    - Statistics
    - Stereo



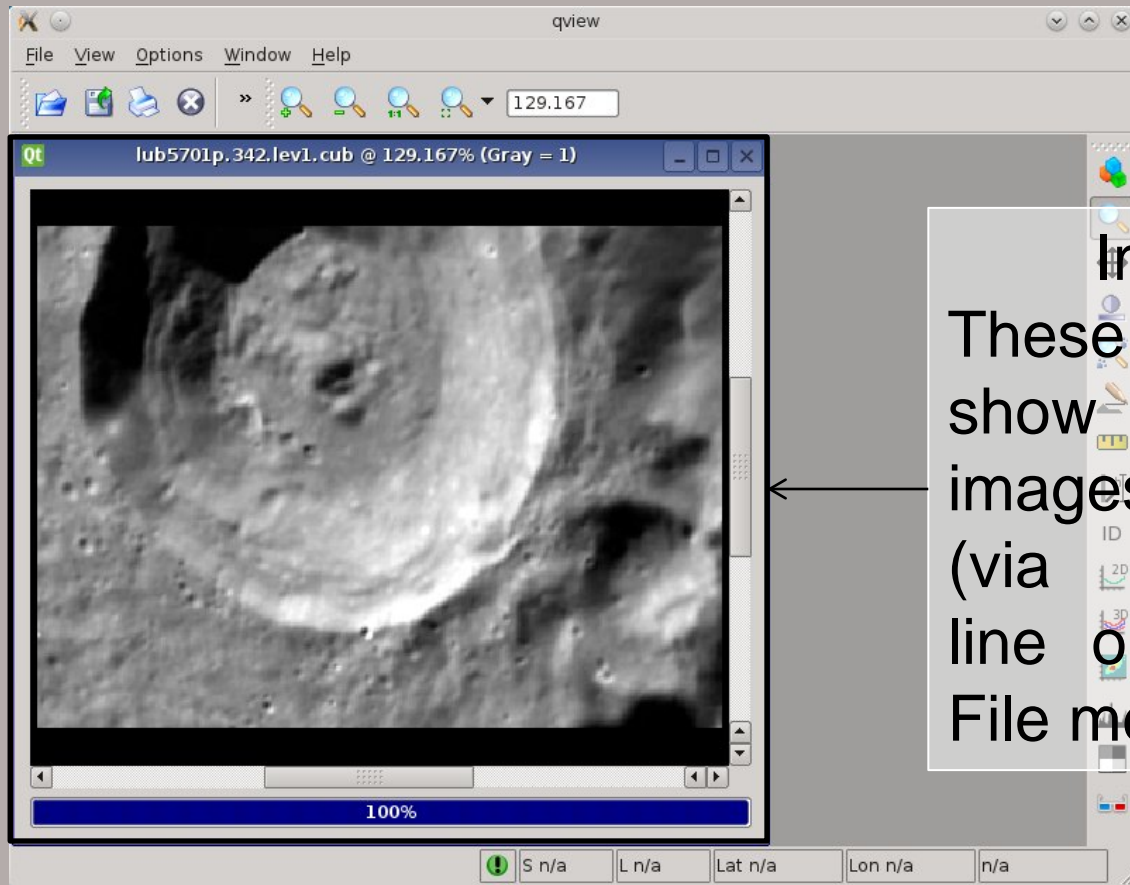
## Interface Basics

Data Set:  
Clementine1





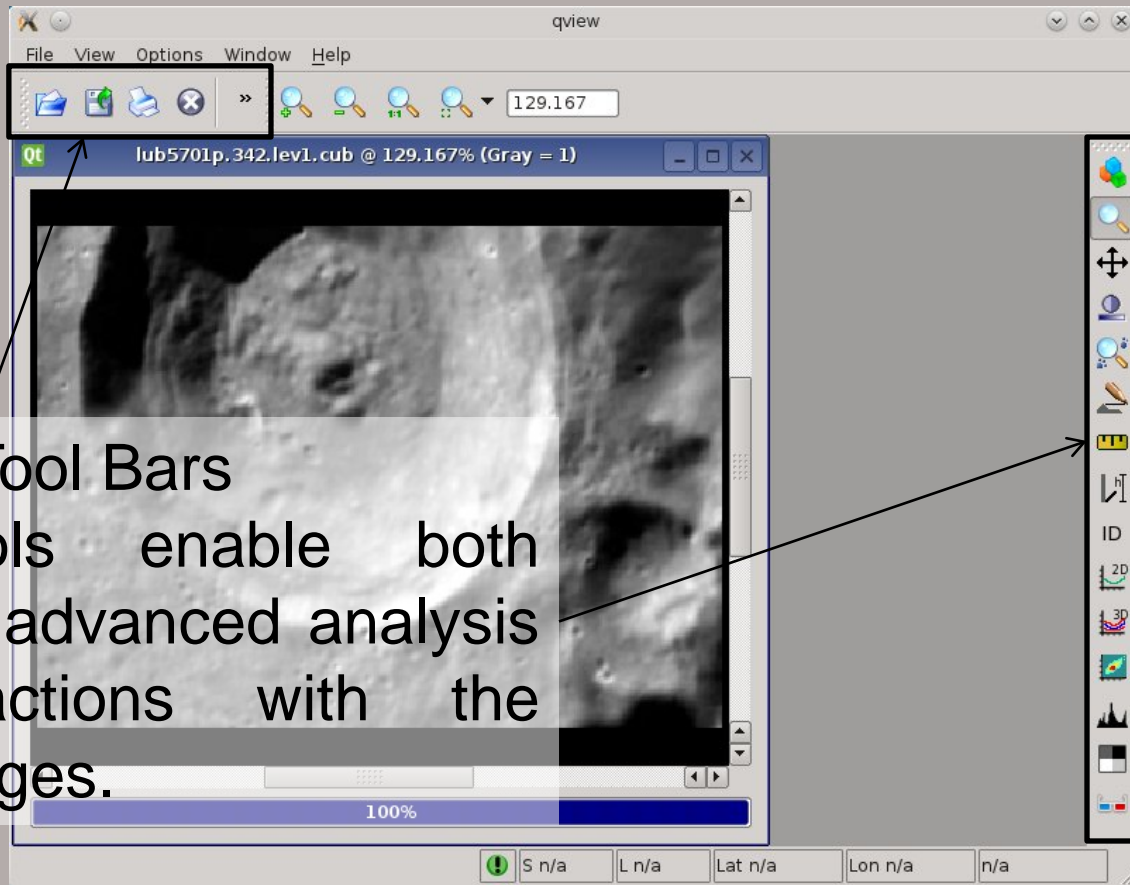
## Interface Basics – Images



**Images**  
These windows show you the images you open (via command line or from the File menu)



## Interface Basics - Tools



### Tool Bars

These tools enable both simple and advanced analysis and interactions with the opened images.

## Interface Basics - Tracking

**Tracking**

As you move your mouse over images, the status bar will reflect important information about your mouse's current position (location on the target, location in the image, DN value)

129.16

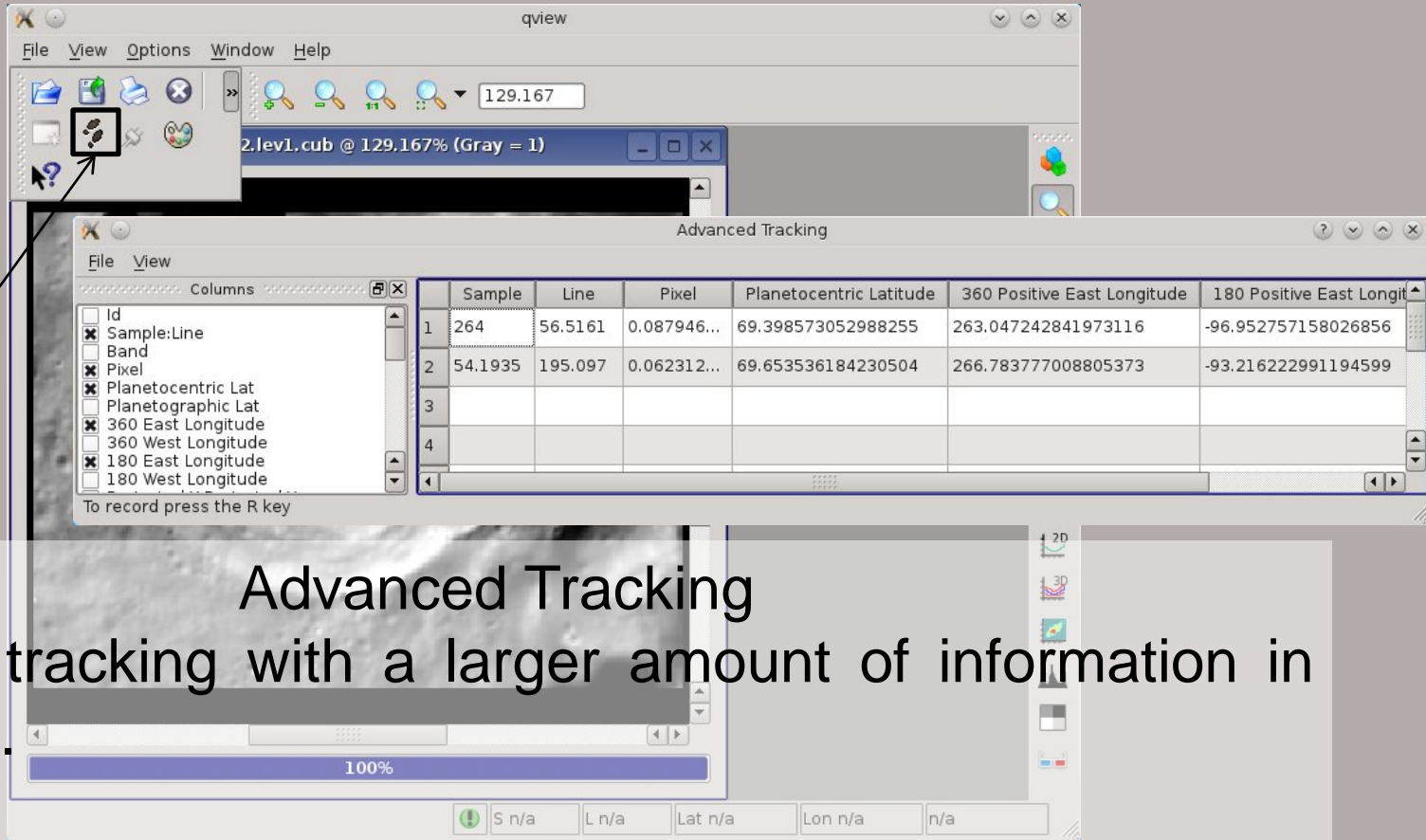
lub5701p.342.lev1.cub @ 129.167% (Gray = 1)

100%

S n/a L n/a Lat n/a Lon n/a n/a



# Interface Basics – Advanced Tracking

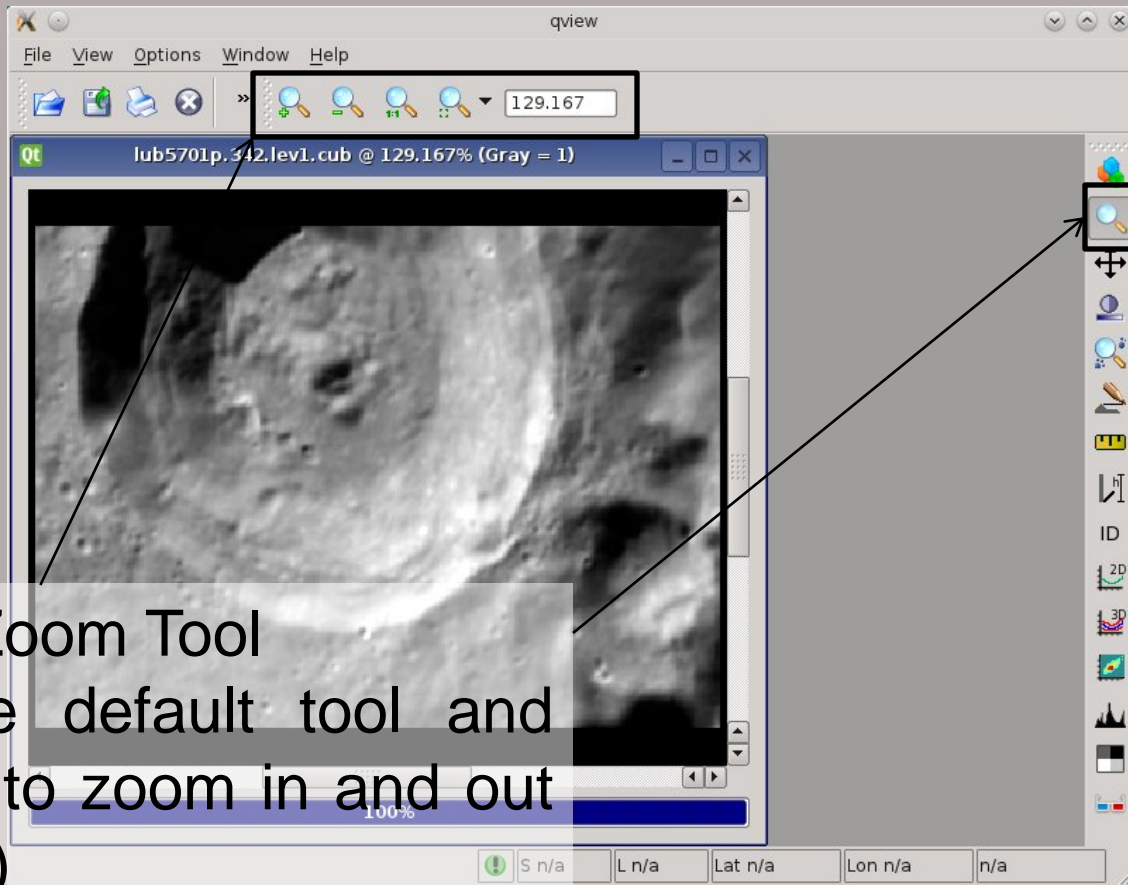


The screenshot shows the 'qview' application window with a menu bar (File, View, Options, Window, Help) and a toolbar. A secondary window titled 'Advanced Tracking' is open, displaying a table of tracking data. The table has columns for Sample, Line, Pixel, Planetocentric Latitude, 360 Positive East Longitude, and 180 Positive East Longitude. The 'Advanced Tracking' window also includes a 'Columns' list on the left with checkboxes for various data fields. A text box at the bottom of the screenshot reads 'Advanced Tracking This is the tracking with a larger amount of information in table format.'

Sample	Line	Pixel	Planetocentric Latitude	360 Positive East Longitude	180 Positive East Longitude
1 264	56.5161	0.087946...	69.398573052988255	263.047242841973116	-96.952757158026856
2 54.1935	195.097	0.062312...	69.653536184230504	266.783777008805373	-93.216222991194599
3					
4					



## Interface Basics – Zoom Tool



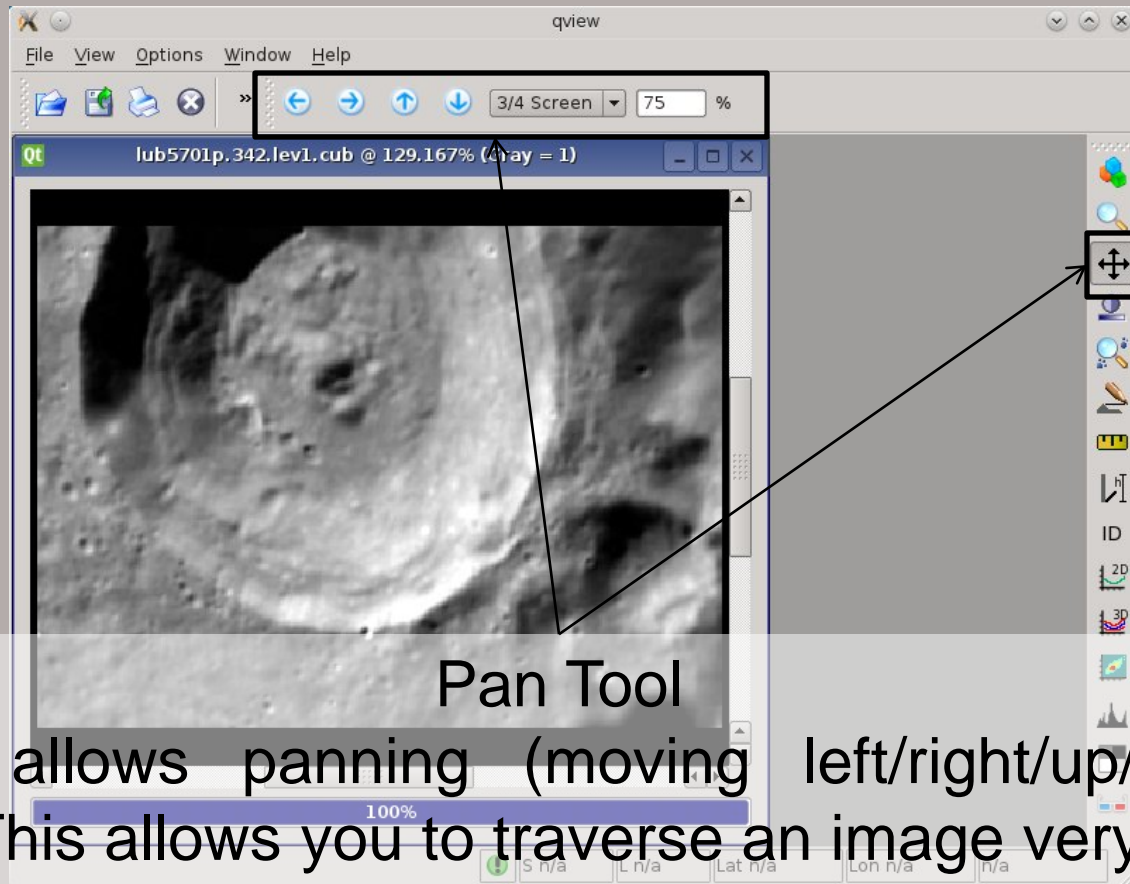
### Zoom Tool

This is the default tool and allows you to zoom in and out on image(s)





## Interface Basics – Pan Tool



This tool allows panning (moving left/right/up/down) on image(s). This allows you to traverse an image very precisely.



## Interface Basics – Linking

qview

File View Options Window Help

- Cascade
- Tile
- Resize
- Change cursor to arrow.
- Next F5
- Prev F6
- Close F3
- Close All Ctrl+F3
- Link Ctrl+L**
- Link All Ctrl+Shift+L
- Unlink All Ctrl+Shift+U

ev1.cub @ 129.167% (Gray = 1)

100%

5 n/a 1 n/a Lat n/a Lon n/a n/a

**Linking**

Actions performed on one linked image occur on all linked images. For example, if you link two images and then zoom in, both will zoom in. This applies to most tools.



## Interface Basics – Stretch

qview

File View Options Window Help

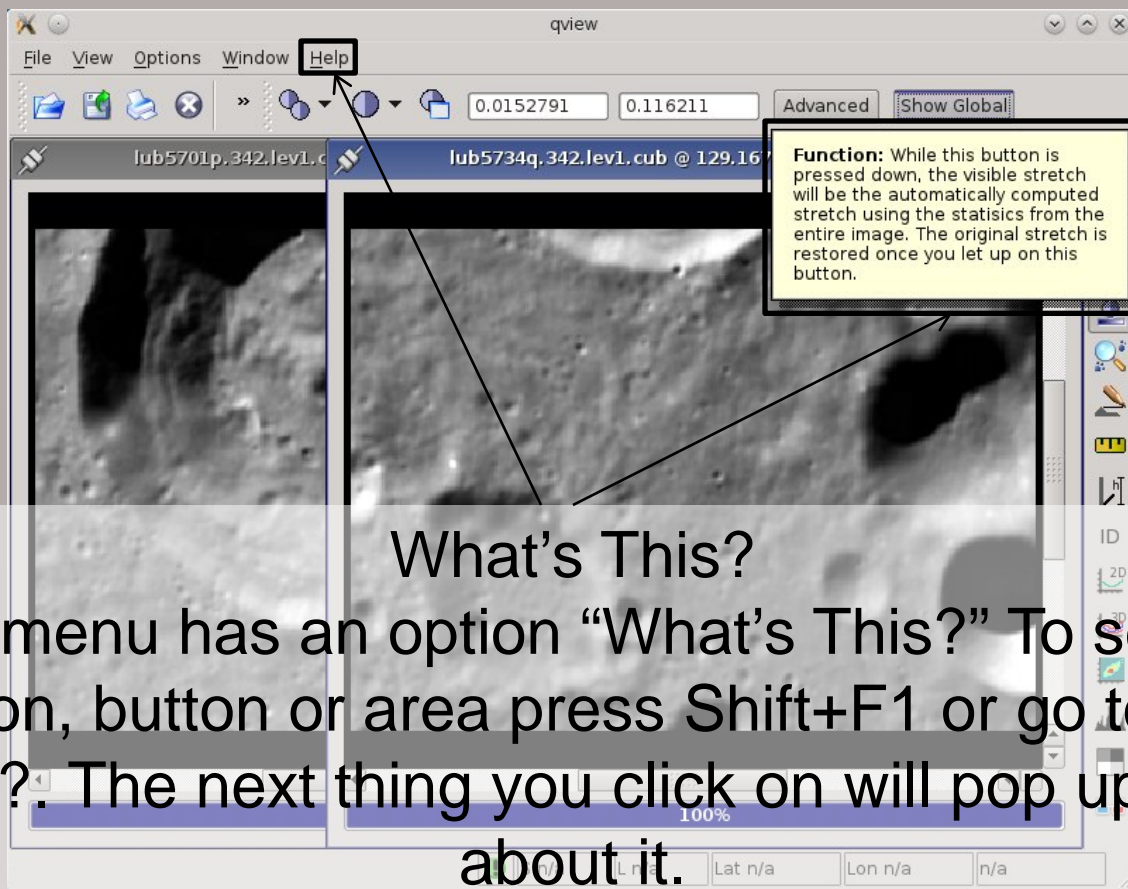
0.0152791 0.116211 Advanced Show Global

lub5701p.342.lev1.cub lub5734q.342.lev1.cub @ 129.167% (Gray = 1)

Stretch Tool

The stretch is the conversion from file DN (intensity) values to screen brightness. In this case, if the image contains '0.116211' on disk then it will be solid white on the screen.

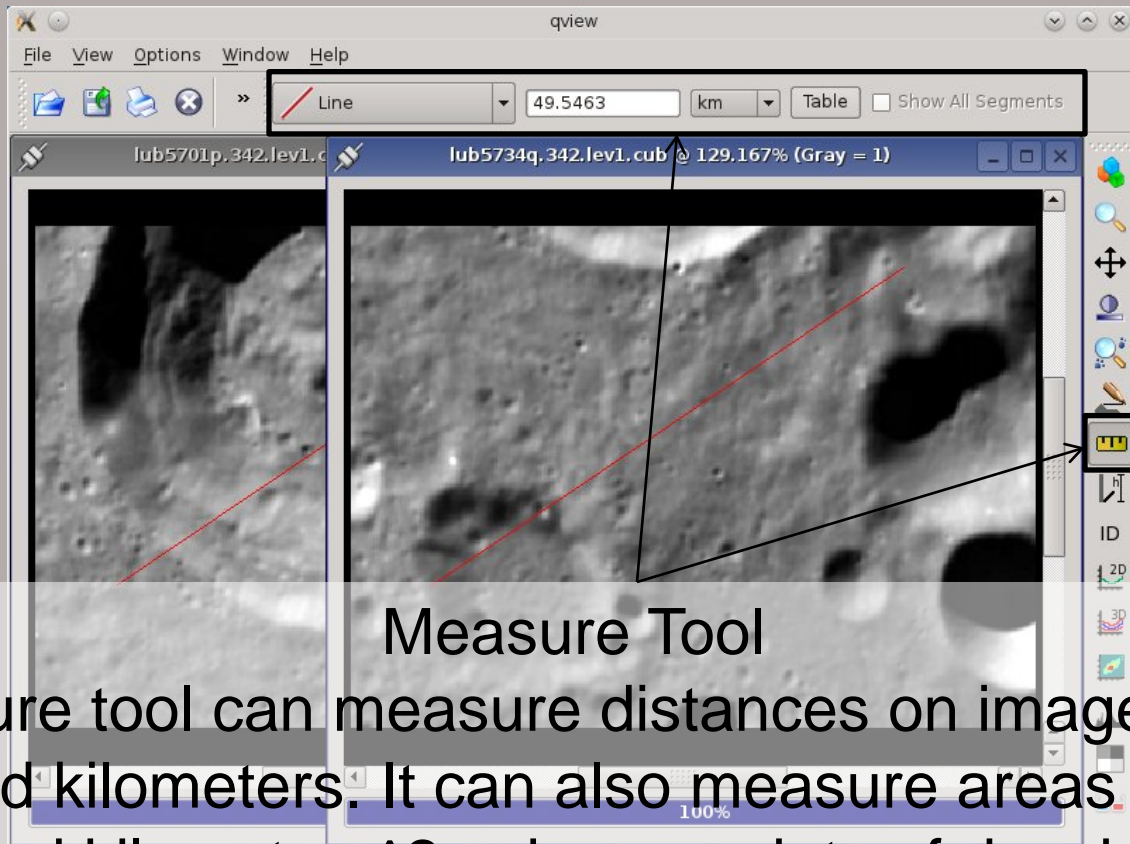
## Interface Basics – What's This?



What's This?  
The Help menu has an option "What's This?" To see help on any option, button or area press Shift+F1 or go to Help -> What's This?. The next thing you click on will pop up information about it.



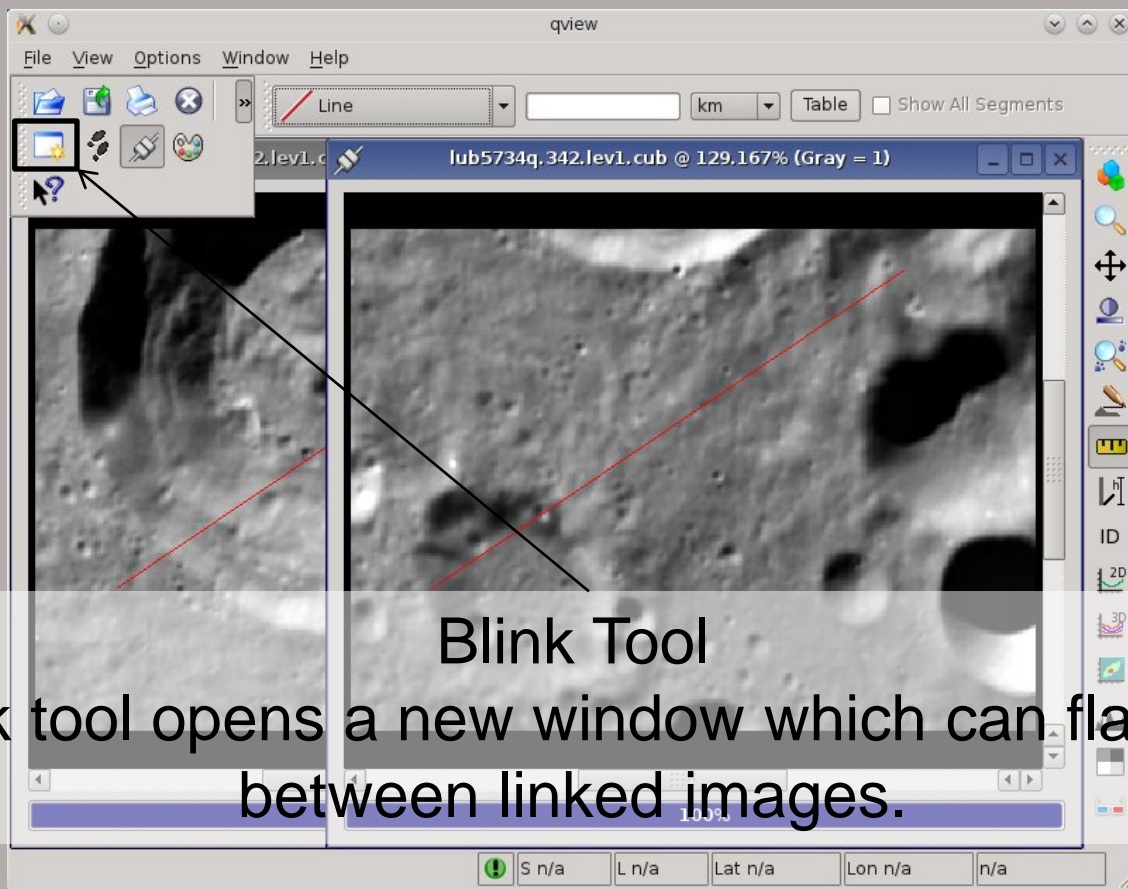
## Tools - Measure



### Measure Tool

The measure tool can measure distances on images in pixels, meters, and kilometers. It can also measure areas in pixels<sup>2</sup>, meters<sup>2</sup> and kilometers<sup>2</sup> using a variety of drawing methods.

## Tools - Blink

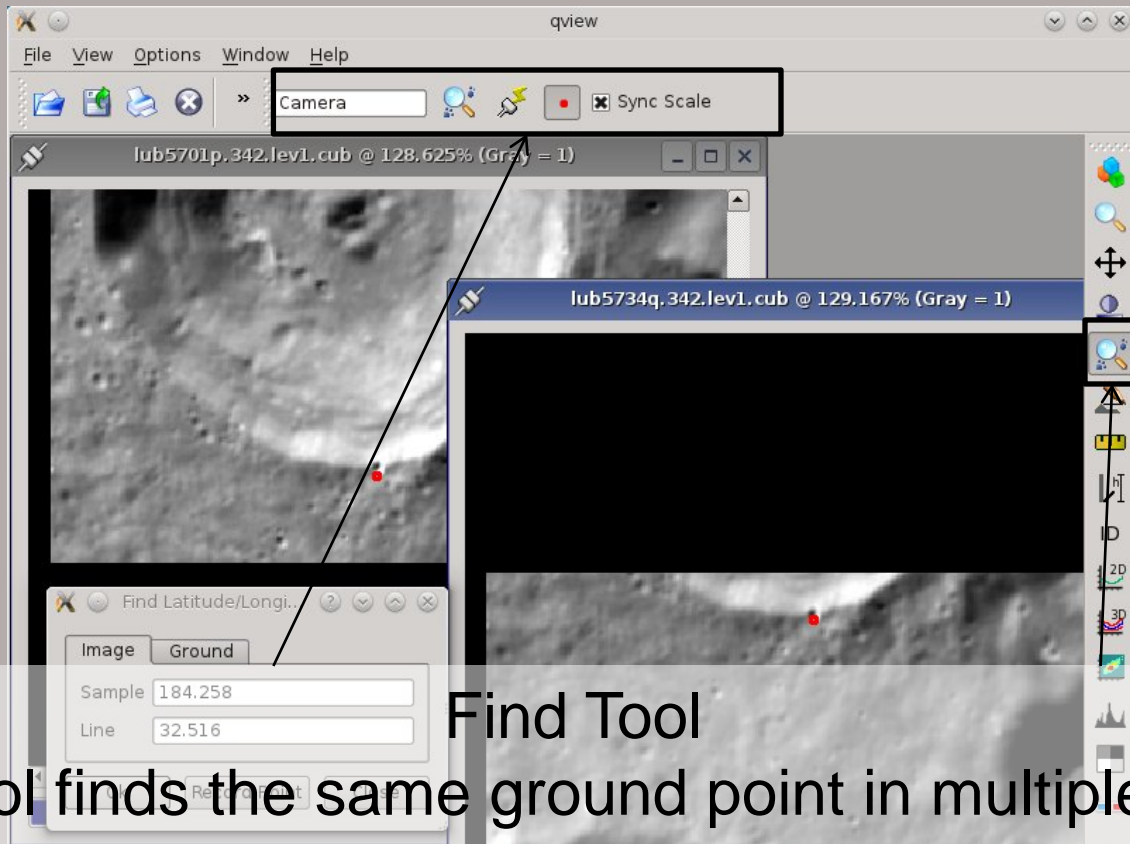


Blink Tool

The blink tool opens a new window which can flash (blink) between linked images.



## Tools - Find

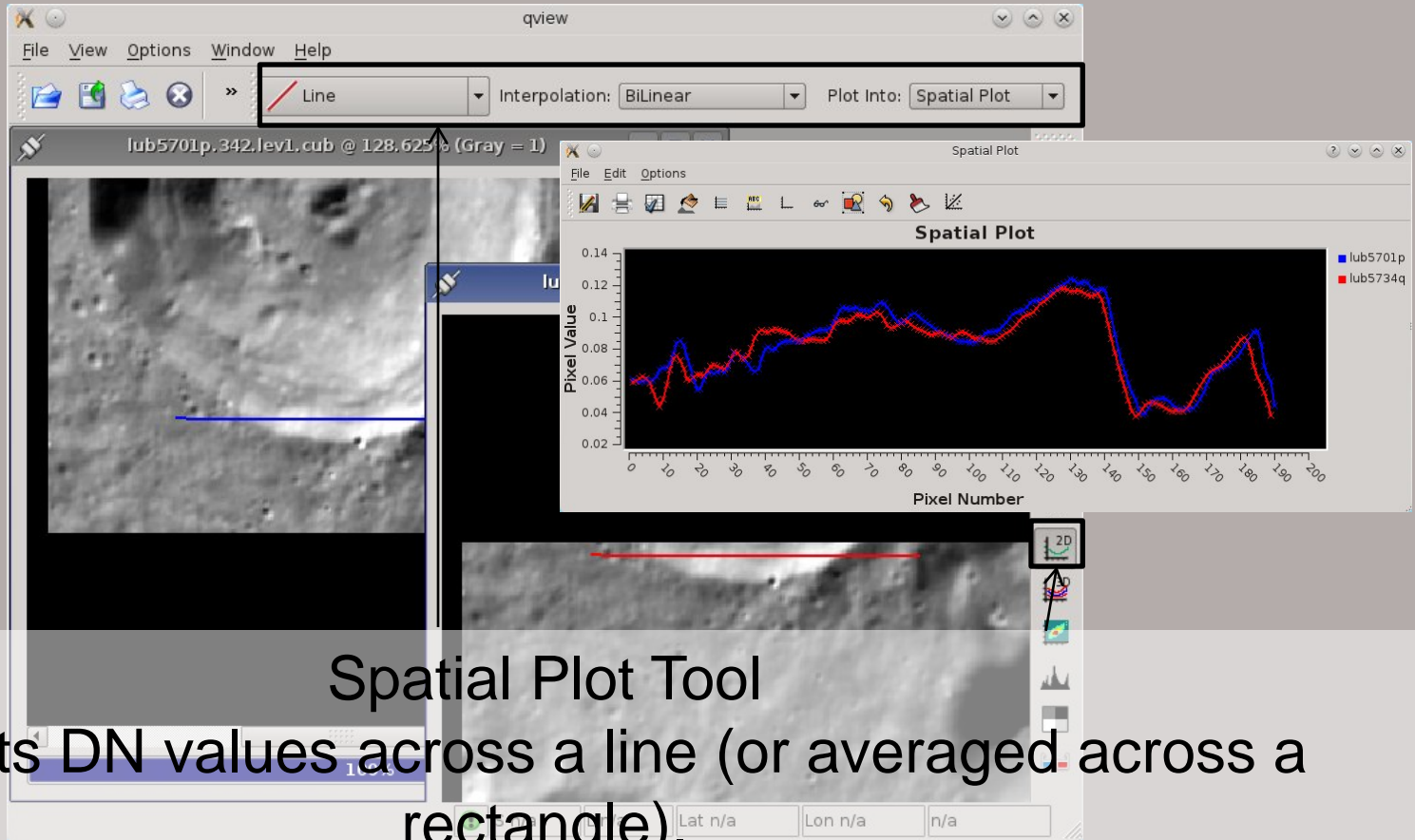


### Find Tool

The find tool finds the same ground point in multiple images by clicking on one image or entering the location for one image.



## Tools – Spatial Plot

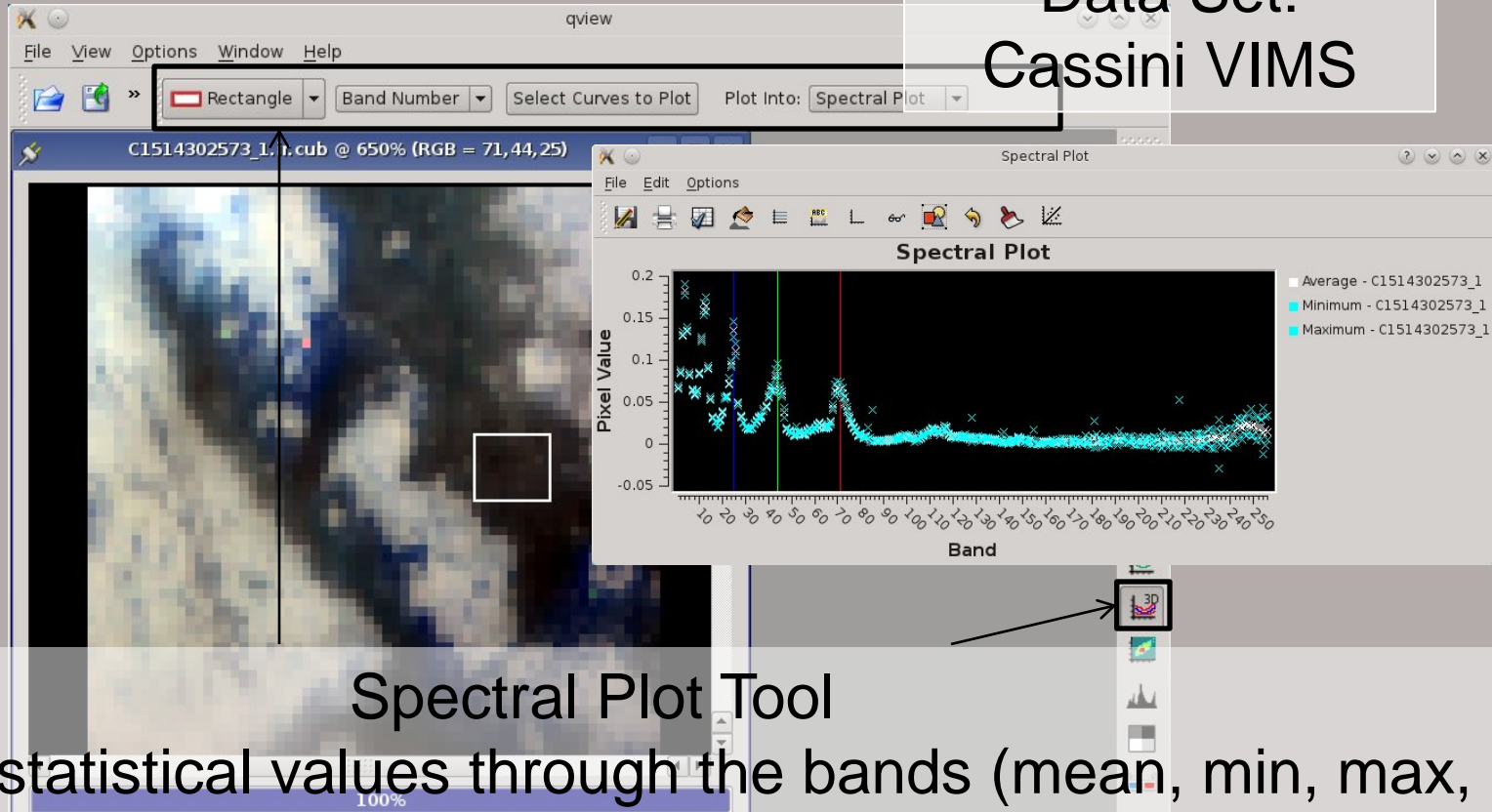






## Tools – Spectral Plot

Data Set:  
Cassini VIMS



### Spectral Plot Tool

This plots statistical values through the bands (mean, min, max, mean +/- standard deviation, mean +/- standard error)

# Tools – Scatter Plot

**Create Scatter Plot**  
Choose where to gather the scatter plot data from. The X and Y axes are a single band of a cube and must have the same dimensions

Choose X Input Data  
Cube: lub5734q  
Cube Band: 1  
Bin Count (resolution): 512  
Use Viewport Visible Range:

Choose Y Input Data  
Cube: lub5701p  
Cube Band: 1  
Bin Count (resolution): 512

**Scatter Plot**

lub5701p Band 1 Pixel Value

lub5734q Band 1 Pixel Value

Counts

2D  
3D

## Scatter Plot Tool

This plots two images (or bands) against each other – they must have the same sample/line dimensions.



# Tools – Histogram

**qview**

File View Options Window Help

Rectangle Plot Into: Histogram Plot

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**Histogram Tool**  
This plots a histogram of the selected area

**Histogram Plot**

File Edit Options

Histogram Info

Average = 0.0633519  
Minimum = 0.01405  
Maximum = 0.129042  
Stand. Dev. = 0.02048  
Variance = 0.000419428  
Median = 0.065409  
Mode = 0.0154415  
Skew = -0.301328

**Histogram Plot**

Percentage

Pixel Value

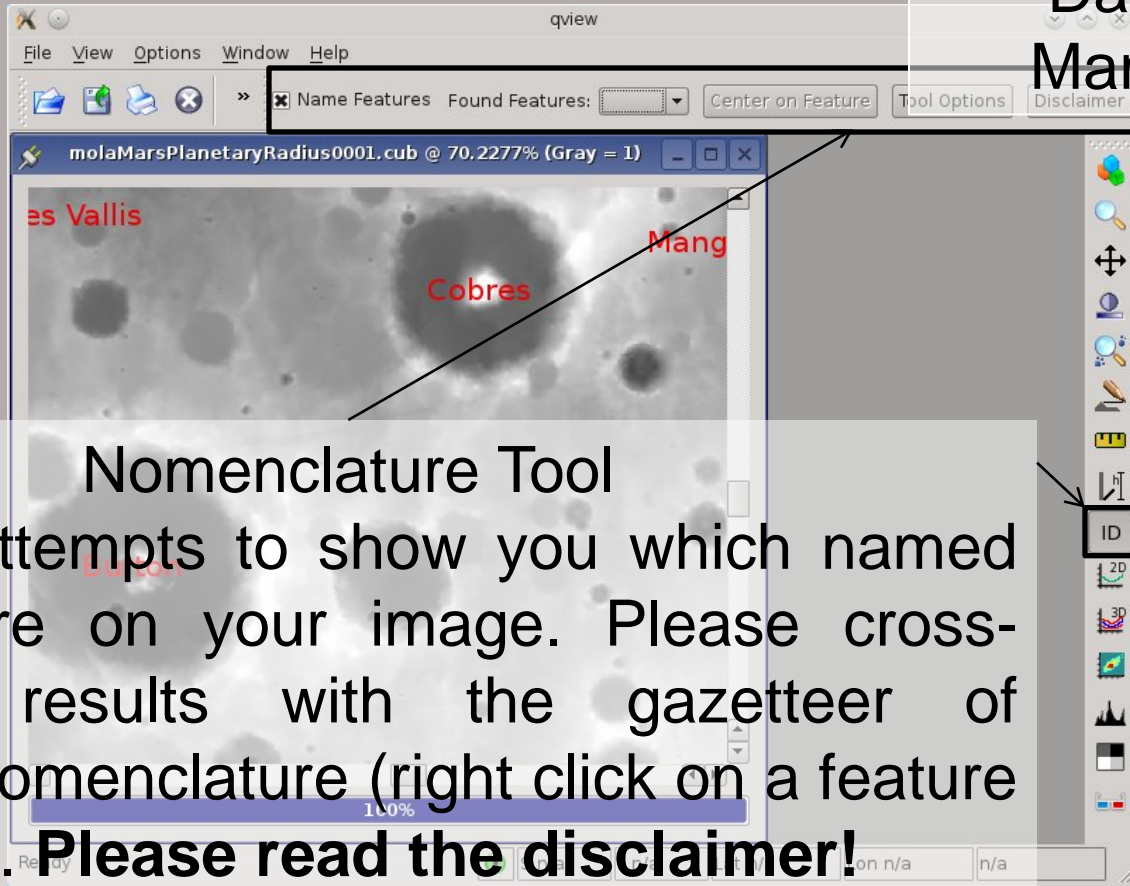
Frequency

Percentage - lub5701p

Lon n/a n/a



## Tools – Nomenclature



Data Set:  
Mars DEM

### Nomenclature Tool

This tool attempts to show you which named features are on your image. Please cross-reference results with the gazetteer of planetary nomenclature (right click on a feature for options). **Please read the disclaimer!**



# Tools – Statistics

qview

File View Options Window Help

Box Samples: 15 Box Lines: 15 Show

Statistics

Hide Display

Visual Display

Box Size: 15x15

lub5701p.342.lev1.cub @ 129.167% (Gray = 1)

Statistics Tool

This calculates the statistics of a small area of an image. It has many very useful views of a fixed area of an image, including built-in tracking with it's views.

Minimum: 0.0314558 Average: 0.0506845

Maximum: 0.0860846 Standard Dev: 0.012208

Sample: n/a Line: n/a DN: n/a

100%

Ready

S n/a L n/a Lat n/a Lon n/a n/a

## Tools – Stereo

Data Set:  
Mars Global Surveyor (Narrow Angle)

The screenshot displays the Stereo Tool software interface. At the top, a menu bar includes 'File', 'View', 'Options', 'Window', and 'Help'. Below the menu, there are icons for file operations and a toolbar. The main window shows a stereo pair of Mars surface images with a red crosshair. To the right of the stereo images, there are radio buttons for 'No geom/rotate', 'Geom', and 'Rotate', and checkboxes for 'Show control points', 'Show crosshair', and 'Circle'. Below the stereo images is an 'Elevation Profile' window showing a line graph of elevation in meters versus pixel number. The graph shows a sharp peak at pixel 120. At the bottom, there are status bars for 'Elevations (Meters)' and 'Pixel Number'.

Stereo Tool

This calculates elevations at single points and along a line, given correctly registered points. **Please read the warnings carefully!**