



Isis 3 “qnet” Demo

June 27th, 2012

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Create and Edit Control Networks

Objective

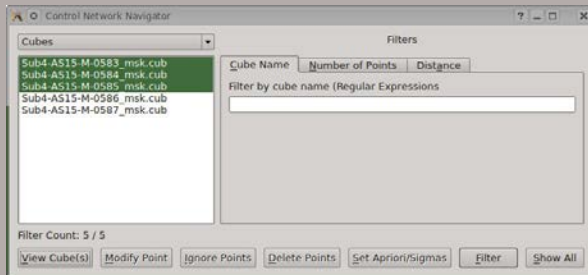
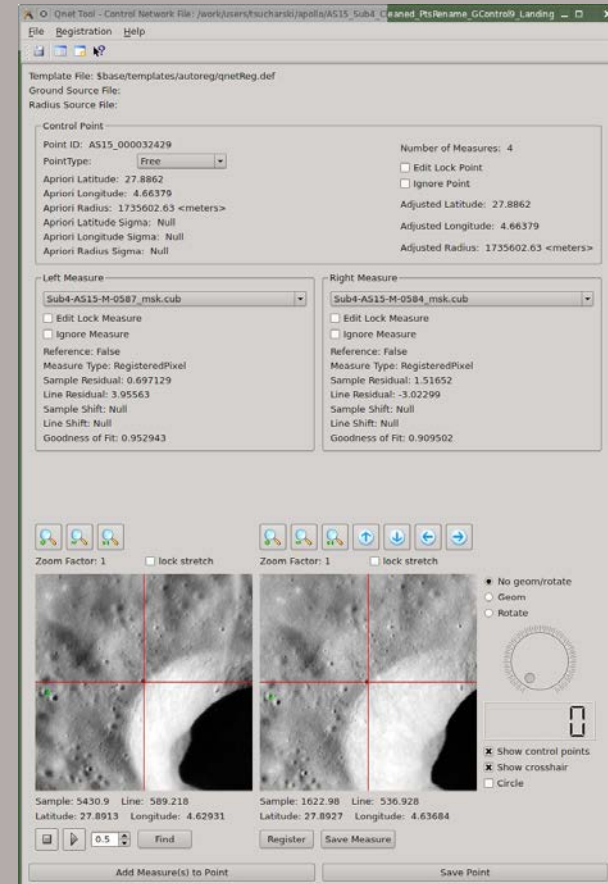
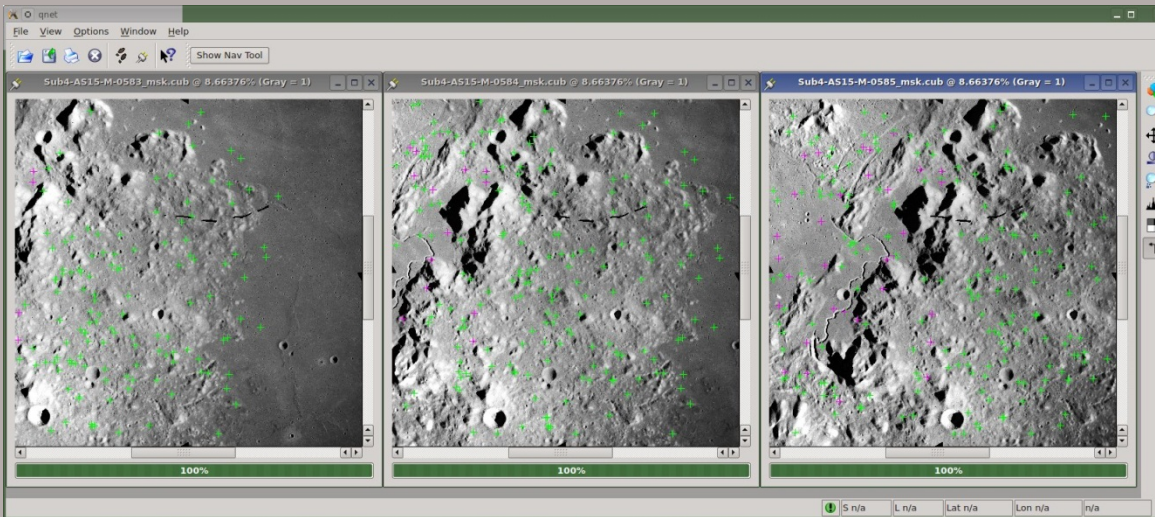
- Learn about the ISIS control network editor "*qnet*"
- Introduction/Demo of editing functionality
 - Creating, modifying, deleting control points
 - Filtering cubes and control points
 - Creating ground control points
 - Ground source file vs. radius source file



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Three core windows

Qnet main window similar to qview with most of the same tools

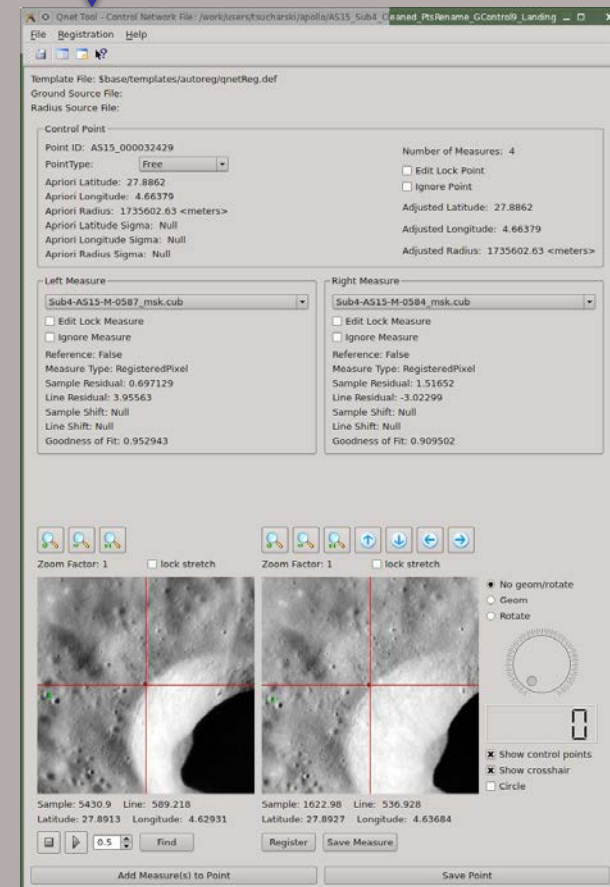
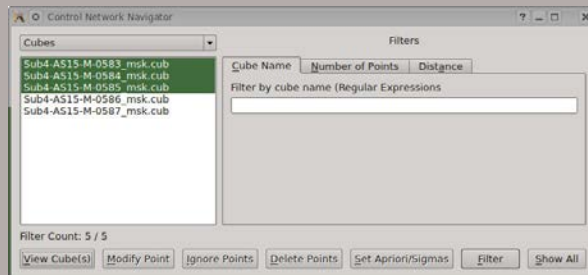
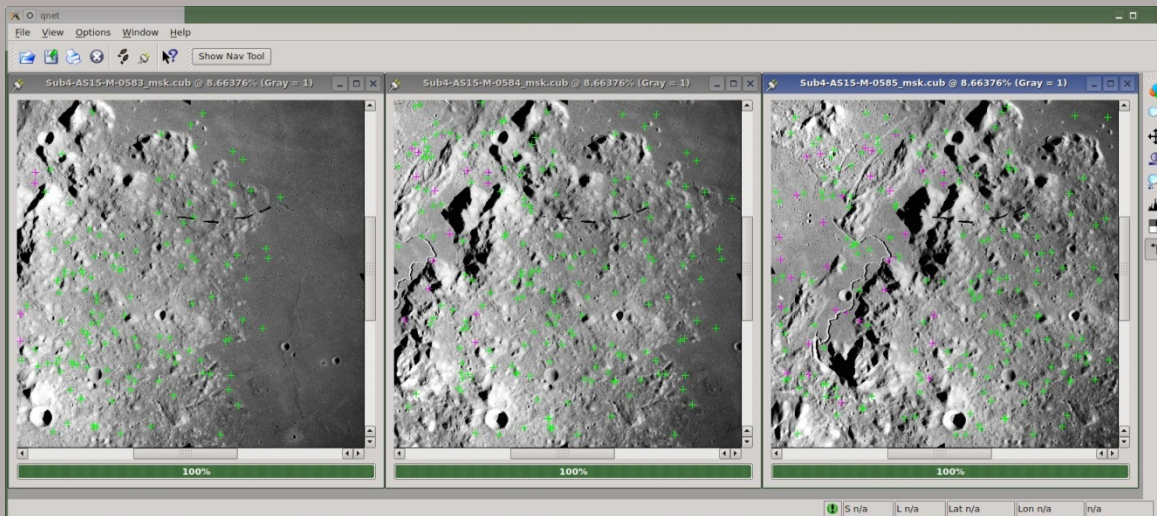




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Qnet tool window – control point editing

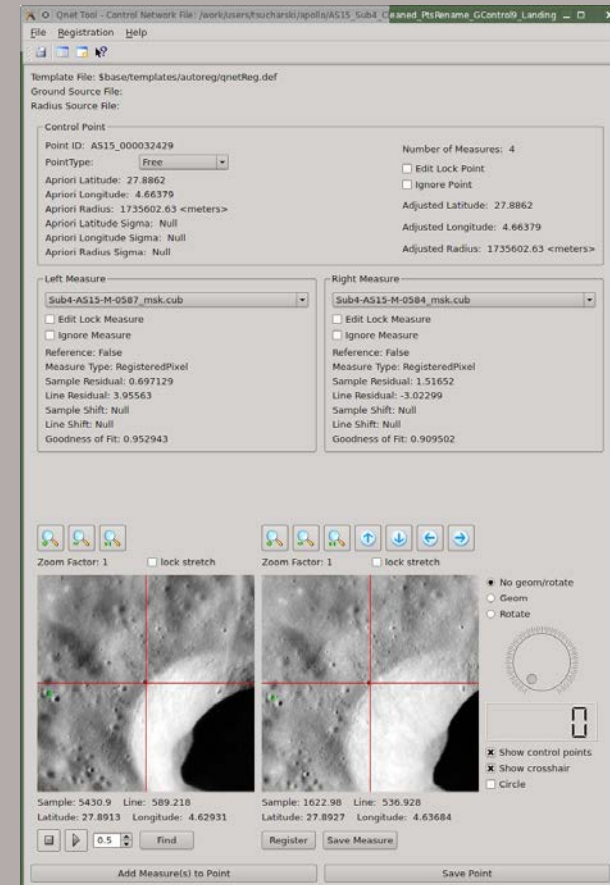
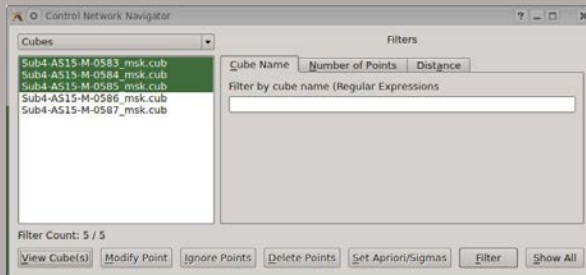
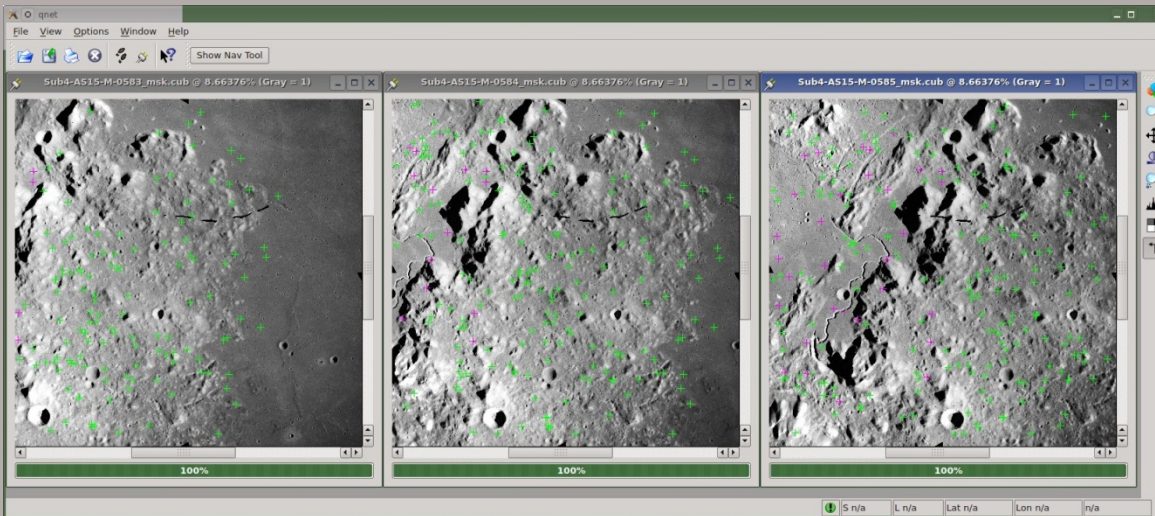




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Control Network Navigator Window - Filtering





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Three core windows +

Measure Table



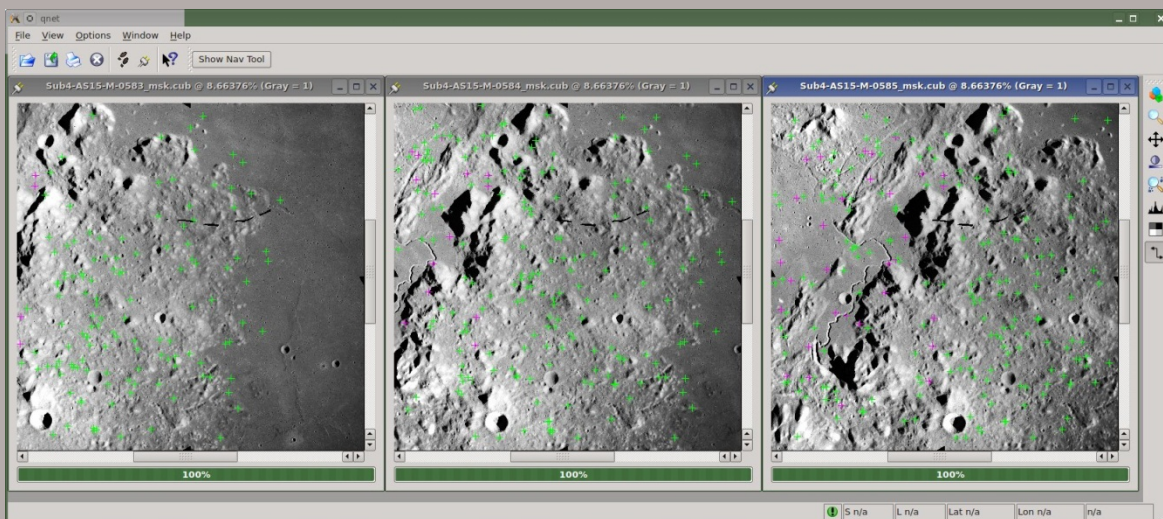
	FileName	Serial #	Sample	Line	Apriori Sample	Apriori Line	Sample Residual	Line Residual	Residual Magnitude	Sample Shift	Line Shift	Pixel Shift	Goodness of Fit	Ignored	Edit Lock	Measure Type
1	/work/users/tsucharski/apollo/Sub4-AS15-M-0585_msk.cub	APOLLO15/METRIC/1971-07-31T14:01:40.346	589.512	939.075	Null	Null	0.204557	-0.180888	0.273064	Null	Null	Null	Null	False	False	Manual
2	/work/users/tsucharski/apollo/Sub4-AS15-M-0587_msk.cub	APOLLO15/METRIC/1971-07-31T14:02:27.179	3157.68	934.802	Null	Null	0.199747	0.0973928	0.222226	Null	Null	Null	0.923167	False	False	RegisteredPixel
3	/work/users/tsucharski/apollo/Sub4-AS15-M-0586_msk.cub	APOLLO15/METRIC/1971-07-31T14:02:03.751	1861.06	929.814	Null	Null	-0.402641	0.0816931	0.410845	Null	Null	Null	0.947498	False	False	RegisteredPixel
4	/work/users/tsucharski/apollo/lroWacSub.cub	lroWacSub.cub	1056.91	330.781	Null	Null	Null	Null	Null	Null	Null	Null	Null	False	False	Candidate

Simply a table of control measures for the current edit point. It is sortable by clicking on column headings.



Three core windows

Qnet main window similar to qview with most of the same tools, ie. Zoom, stretch, pan



Mouse button functions:

- **Left:** Modify the closest control point
- **Middle:** Delete the closest control point
- **Right:** Create new control point

Cubes displayed through two methods.

- Select a Point Id from Control Network Navigator window, then select “View Cube(s)”
- Select Cubes from the combo-box at top of Control Network Navigator window, then double-click on cube filename

Control Points drawn on cubes with the following colors:

- Green “+” tie point
- Magenta “+” ground point
- Yellow “+” ignored point
- Red “+” point currently being edited (i.e. in Qnet Tool window)



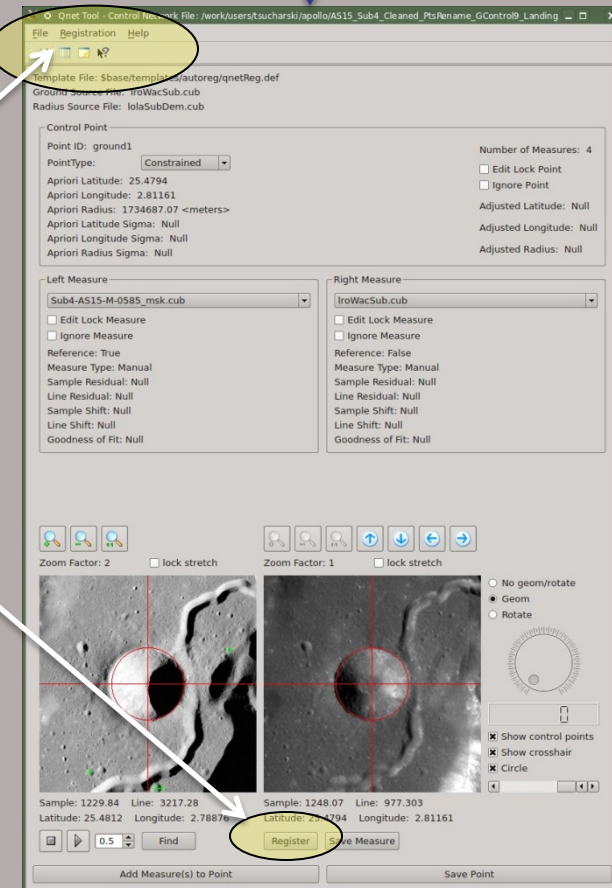
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Qnet tool window – control point editing

Menus / Toolbar:

- File
 - Open ground source
 - Open radius source
 - Save control network
- Registration – Applicable to sub-pixel registering measures
 - Open registration template
 - View/edit registration template
 - Save registration chips
- Help





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Three core windows

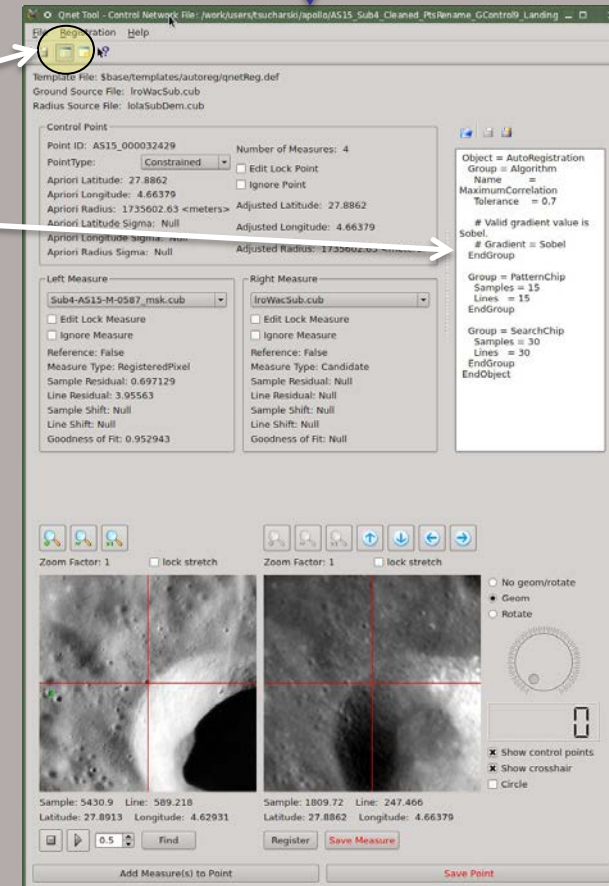
Qnet tool window – control point editing

Registration Template:

- View and/or edit the registration template

The registration template is shown in an editable window.

These parameters can be changed and saved for sub-pixel registering the right measure to the left measure.



The screenshot shows the Qnet tool window with the following details:

- Control Point:**
 - Point ID: AS15_000032429
 - Point Type: Constrained
 - Apriori Latitude: 27.8862
 - Apriori Longitude: 4.66379
 - Apriori Radius: 1735602.63 <meters>
 - Apriori Latitude Sigma: Null
 - Apriori Longitude Sigma: Null
 - Apriori Radius Sigma: Null
 - Number of Measures: 4
 - Adjusted Latitude: 27.8862
 - Adjusted Longitude: 4.66379
 - Adjusted Radius: 1735602.63
- Left Measure:**
 - Sub4-AS15-M-0587_msk.cub
 - Reference: False
 - Measure Type: RegisteredPixel
 - Sample Residual: 0.697129
 - Line Residual: 3.95563
 - Sample Shift: Null
 - Line Shift: Null
 - Goodness of Fit: 0.952943
- Right Measure:**
 - IroWacSub.cub
 - Reference: False
 - Measure Type: Candidate
 - Sample Residual: Null
 - Line Residual: Null
 - Sample Shift: Null
 - Line Shift: Null
 - Goodness of Fit: Null
- Object Properties:**
 - Object = AutoRegistration
 - Group = Algorithms
 - Name =
 - Maximum Correlation
 - Tolerance = 0.7
 - # Valid gradient value is Sobel
 - # Gradient = Sobel
 - EndGroup
 - Group = PatternChip
 - Samples = 15
 - Lines = 15
 - EndGroup
 - Group = SearchChip
 - Samples = 30
 - Lines = 30
 - EndGroup
 - EndObject
- Image Windows:** Two side-by-side grayscale images of a lunar surface with red crosshairs indicating control points.
- Zoom Factor:** 1, with a lock stretch checkbox.
- Options:**
 - No geom/rotate
 - Geom
 - Rotate
 - Show control points
 - Show crosshair
 - Circle
- Buttons:** Register, Save Measure, Save Point.



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Qnet tool window – control point editing

Control Point Information

The screenshot displays the Qnet tool interface. At the top, the menu bar includes 'File', 'Registration', and 'Help'. Below the menu, the 'Control Point' section is highlighted with a yellow oval. It shows the following data for a specific point:

- Point ID: AS15_000032429
- Point Type: Constrained
- Number of Measures: 4
- Apriori Latitude: 27.8862
- Apriori Longitude: 4.66379
- Apriori Radius: 1735602.63 <meters>
- Adjusted Latitude: 27.8862
- Adjusted Longitude: 4.66379
- Adjusted Radius: 1735602.63 <meters>

Below this, there are sections for 'Left Measure' and 'Right Measure', each with options to 'Edit Lock Measure', 'Ignore Measure', and 'Reference: False'. The 'Right Measure' section also includes 'Measure Type: Candidate' and 'Goodness of Fit: Null'. To the right, a 'Control' panel lists various registration options like 'Object = AutoRegistration', 'Group = Algorithms', and 'Tolerance = 0.7'. At the bottom, there are two side-by-side zoomed-in views of a lunar surface image with a red crosshair. The left view shows coordinates: Sample: 5430.9, Line: 589.218, Latitude: 27.8913, Longitude: 4.62931. The right view shows: Sample: 1809.72, Line: 247.466, Latitude: 27.8862, Longitude: 4.66379. At the very bottom, there are buttons for 'Add Measure(s) to Point', 'Register', 'Save Measure', and 'Save Point'.

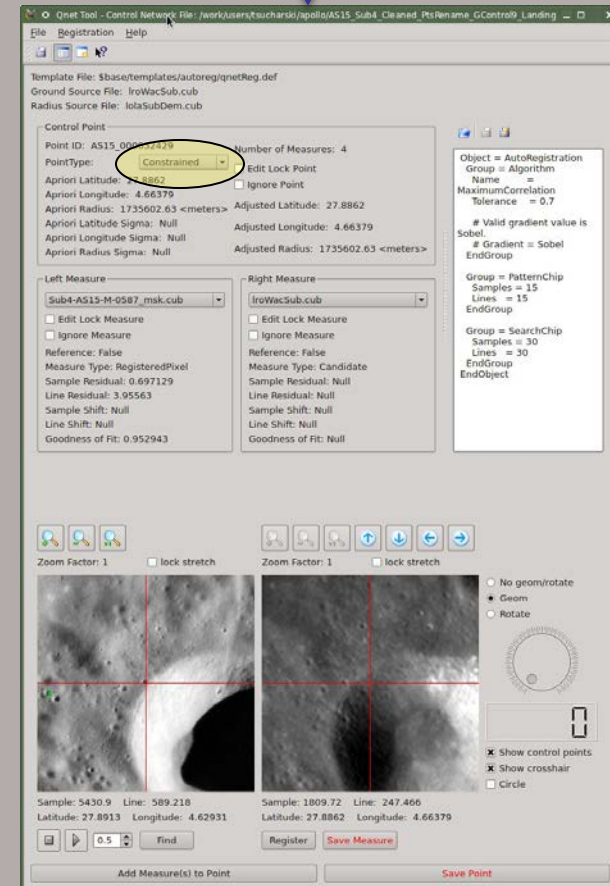


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Qnet tool window – control point editing

Control Point Information
Change point type





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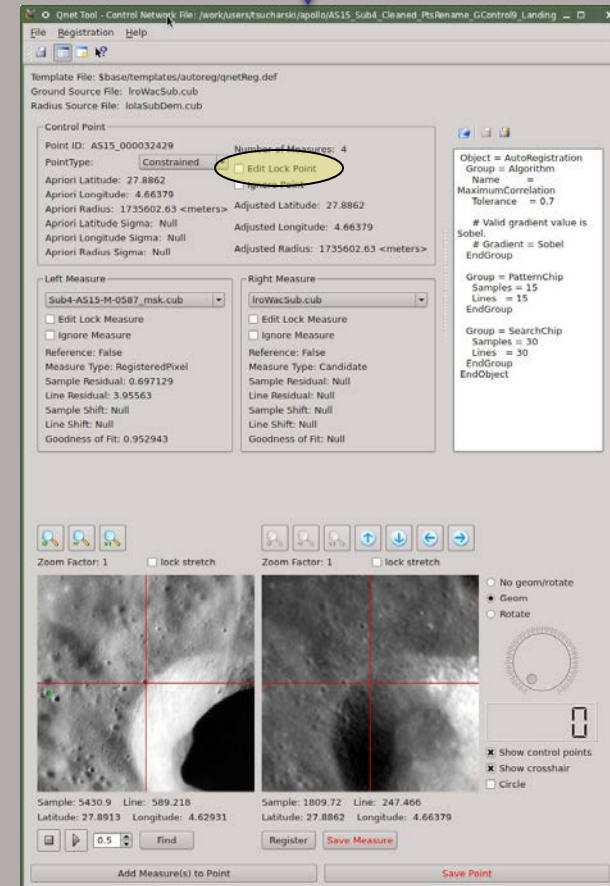
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Qnet tool window – control point editing

Control Point Information

Change point type

Change edit lock status





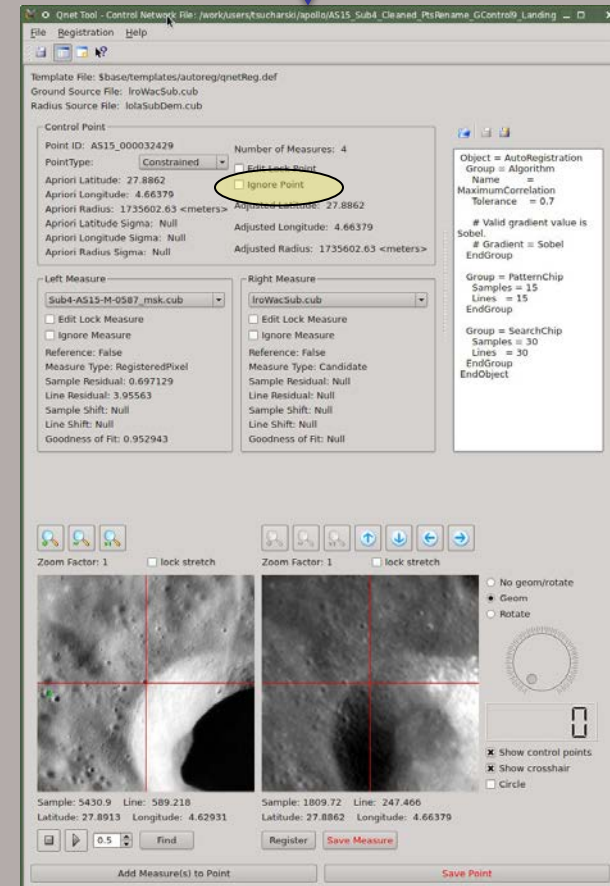
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Qnet tool window – control point editing

Control Point Information

- Change point type
- Change edit lock status
- Change ignore status





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Qnet tool window – control point editing



Measure Information

Qnet Tool - Control Network File: /work/users/tsucharski/apollo/AS15_Sub4_Cleaned_PsfName_GControlr_Landing ...

File Registration Help

Template File: \$base/templates/autoreg/qnetreg.def
Ground Source File: IroWacSub.cub
Radius Source File: IolaSubDem.cub

Control Point

Point ID: AS15_000032429 Number of Measures: 4
Point Type: **Constrained** Edit Lock Point
Apriori Latitude: 27.8862 Ignore Point
Apriori Longitude: 4.66379
Apriori Radius: 1735602.63 <meters> Adjusted Latitude: 27.8862
Apriori Latitude Sigma: Null Adjusted Longitude: 4.66379
Apriori Longitude Sigma: Null Adjusted Radius: 1735602.63 <meters>
Apriori Radius Sigma: Null

Left Measure

sub4-AS15-M-0587_msk.cub
 Edit Lock Measure
 Ignore Measure
Reference: False
Measure Type: RegisteredPixel
Sample Residual: 0.697129
Line Residual: 3.95563
Sample Shift: Null
Line Shift: Null
Goodness of Fit: 0.952943

Right Measure

IroWacSub.cub
 Edit Lock Measure
 Ignore Measure
Reference: False
Measure Type: Candidate
Sample Residual: Null
Line Residual: Null
Sample Shift: Null
Line Shift: Null
Goodness of Fit: Null

Object = AutoRegistration
Group = Algorithms
Name =
MaximumCorrelation
Tolerance = 0.7
Valid gradient value is
Sobel
Gradient = Sobel
EndGroup

Group = PatternChip
Samples = 15
Lines = 15
EndGroup

Group = SearchChip
Samples = 30
Lines = 30
EndGroup
EndObject

Zoom Factor: 1 lock stretch Zoom Factor: 1 lock stretch

Sample: 5430.9 Line: 589.218
Latitude: 27.8913 Longitude: 4.62931

Sample: 1809.72 Line: 247.466
Latitude: 27.8862 Longitude: 4.66379

Add Measure(s) to Point Register Save Measure Save Point



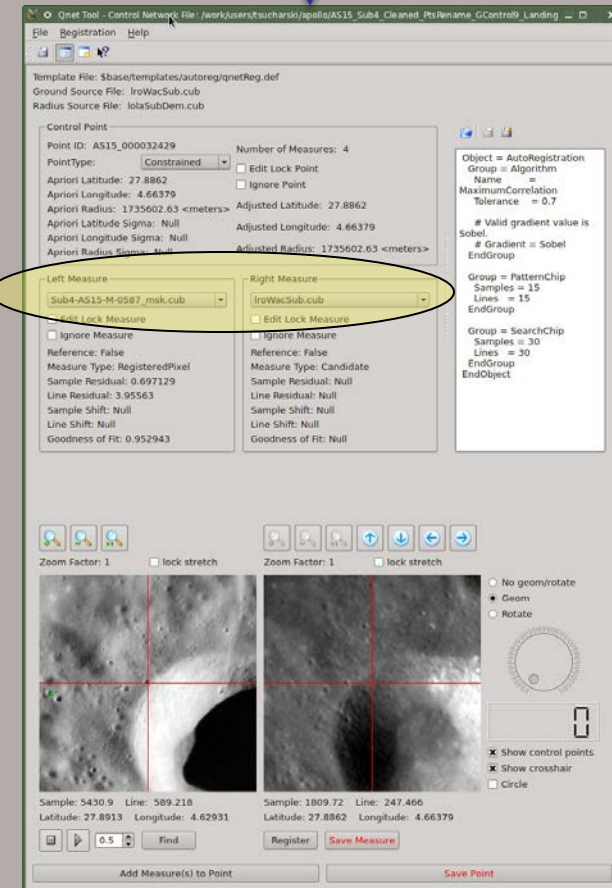
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Three core windows

Qnet tool window – control point editing

Measure Information

Change which measures are displayed





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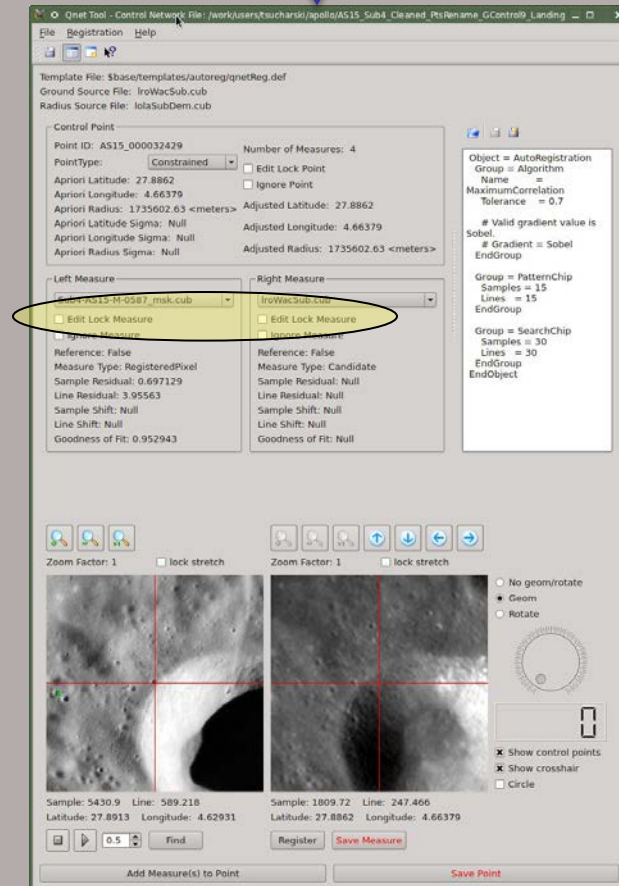
Three core windows

Qnet tool window – control point editing

Measure Information

Change which measures are displayed

Change edit lock status





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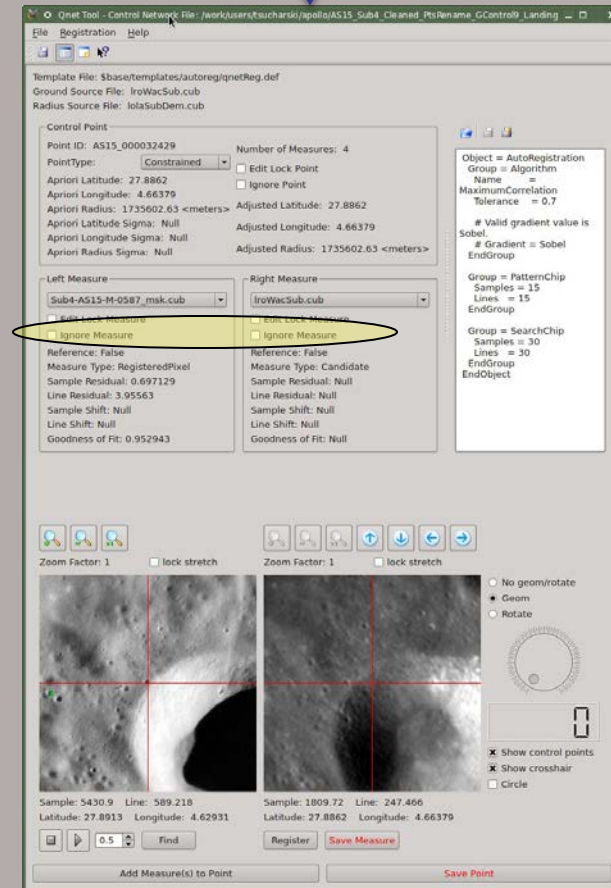
Qnet tool window – control point editing

Measure Information

Change which measures are displayed

Change edit lock status

Change ignore status



The screenshot shows the 'Qnet Tool - Control Network' software interface. The main window displays control point information for a point with ID 'AS15_000032429'. The 'Point Type' is set to 'Constrained'. The 'Number of Measures' is 4. The 'Left Measure' is 'Sub4-AS15-M-0587_msk.cub' and the 'Right Measure' is 'IroWacSub.cub'. The 'Ignore Measure' checkbox is highlighted with a yellow oval. The 'Reference' is 'False'. The 'Measure Type' is 'RegisteredPixel'. The 'Sample Residual' is 0.697129, the 'Line Residual' is 3.95563, and the 'Goodness of Fit' is 0.952943. The 'Zoom Factor' is 1. The 'lock stretch' checkbox is unchecked. The 'Show control points' checkbox is checked. The 'Show crosshair' checkbox is checked. The 'Circle' checkbox is unchecked. The 'Register' and 'Save Measure' buttons are visible at the bottom.



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Qnet tool window – control point editing



Zooming Measure Views

The left and right measure views can be zoomed using the zoom buttons above each view.

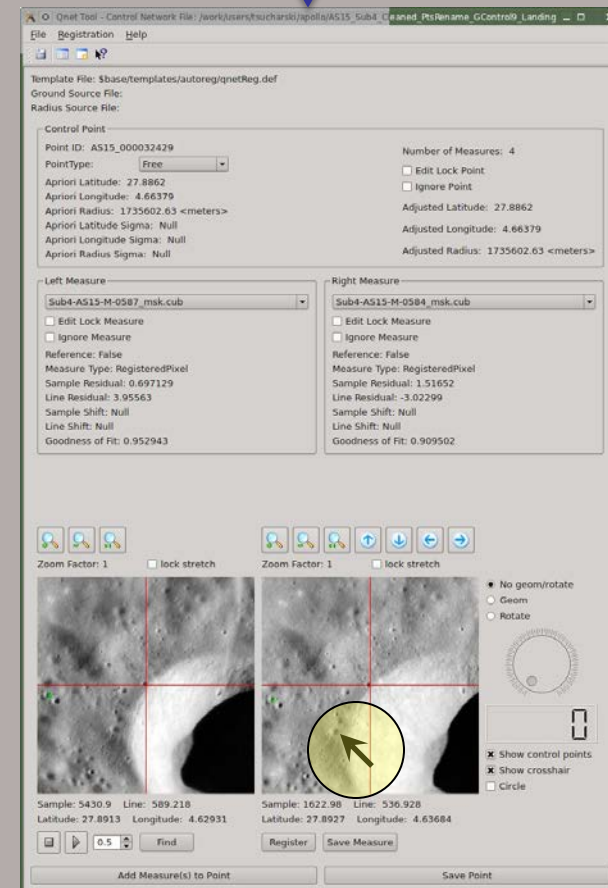
Note: If the Geom button is selected, the right zoom buttons are inactive since the right measure will be scaled to match the left measure.



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Qnet tool window – control point editing



Changing Measure Locations (right view only)

The measure location can be adjusted by:

- Move cursor location under the crosshair by clicking left mouse button in the right measure view.



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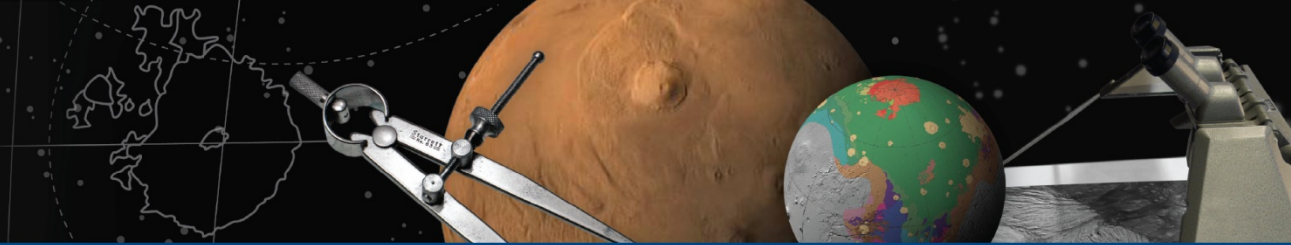
Qnet tool window – control point editing



Changing Measure Locations (right view only)

The measure location can be adjusted by:

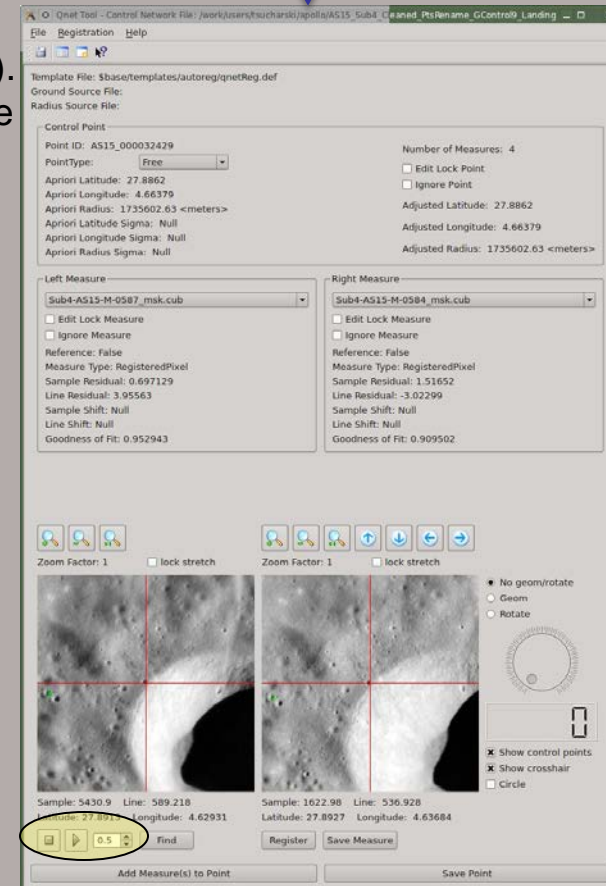
- Move cursor location under the crosshair by clicking left mouse button
- Move 1 pixel at a time by using arrow keys on the keyboard
- Move 1 pixel at a time by using arrow buttons above the right view



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Qnet tool window – control point editing



Below the left view:

- **Blink controls:** Blink left and right view in left view window using the "Blink Start" button (with play icon) and "Blink Stop" button (with stop icon). Both arrow keys above the right view and the keyboard arrow keys may be used to move the right view while blinking.

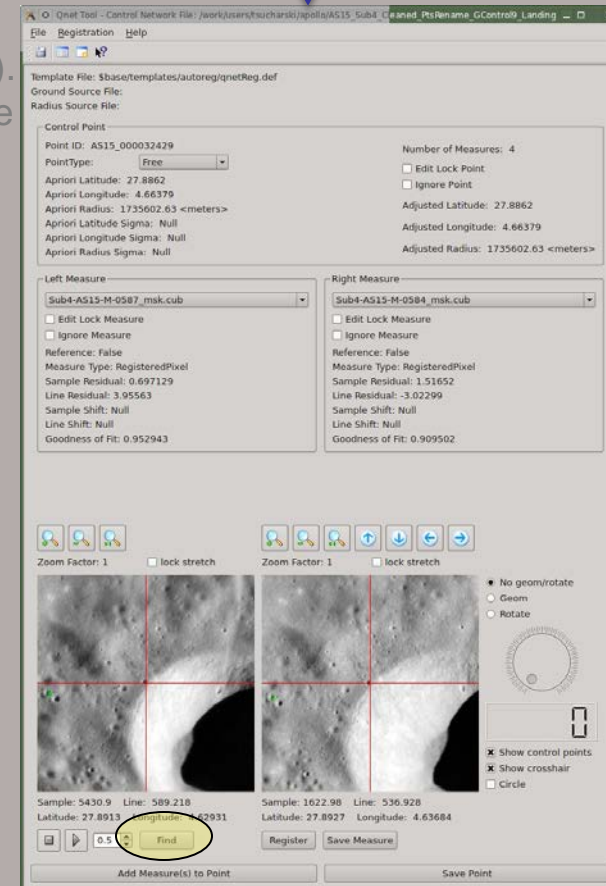
Note: The left view is the reference measure and cannot be moved.



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Qnet tool window – control point editing



Below the left view:

- **Blink controls:** Blink left and right view in left view window using the "Blink Start" button (with play icon) and "Blink Stop" button (with stop icon). Both arrow keys above the right view and the keyboard arrow keys may be used to move the right view while blinking.
- **Note:** The left view is the reference measure and cannot be moved.
- **Find:** Center right view so that the same latitude / longitude is under crosshair as the left view.



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Qnet tool window – control point editing



The screenshot displays the Qnet Tool interface with the following sections:

- File Registration Help** menu bar.
- Template File:** \$base/templates/autoreg/qnetReg.def
- Ground Source File:**
- Radius Source File:**
- Control Point:**
 - Point ID: AS15_000032429
 - Point Type: Free
 - Apriori Latitude: 27.8862
 - Apriori Longitude: 4.66379
 - Apriori Radius: 1735602.63 <meters>
 - Apriori Latitude Sigma: Null
 - Apriori Longitude Sigma: Null
 - Apriori Radius Sigma: Null
 - Number of Measures: 4
 - Edit Lock Point
 - Ignore Point
 - Adjusted Latitude: 27.8862
 - Adjusted Longitude: 4.66379
 - Adjusted Radius: 1735602.63 <meters>
- Left Measure:** Sub4-AS15-M-0587_msk.cub
 - Edit Lock Measure
 - Ignore Measure
 - Reference: False
 - Measure Type: RegisteredPixel
 - Sample Residual: 0.697129
 - Line Residual: 3.95563
 - Sample Shift: Null
 - Line Shift: Null
 - Goodness of Fit: 0.952943
- Right Measure:** Sub4-AS15-M-0584_msk.cub
 - Edit Lock Measure
 - Ignore Measure
 - Reference: False
 - Measure Type: RegisteredPixel
 - Sample Residual: 1.511652
 - Line Residual: -3.02299
 - Sample Shift: Null
 - Line Shift: Null
 - Goodness of Fit: 0.909502
- Image Viewers:** Two side-by-side grayscale images of the Moon with red crosshairs indicating control points.
- Zoom Factor:** 1, with a lock stretch option.
- Options:** No geom/rotate, Geom, Rotate.
- Display Options:** Show control points, Show crosshair, Circle.
- Coordinates:** Sample: 5430.9 Line: 589.218 Latitude: 27.8913 Longitude: 4.62931 (Left); Sample: 1622.98 Line: 536.928 Latitude: 27.8927 Longitude: 4.63684 (Right).
- Buttons:** Register (highlighted in yellow), Show Measure, Add Measure(s) to Point, Save Point.

Below the right view:

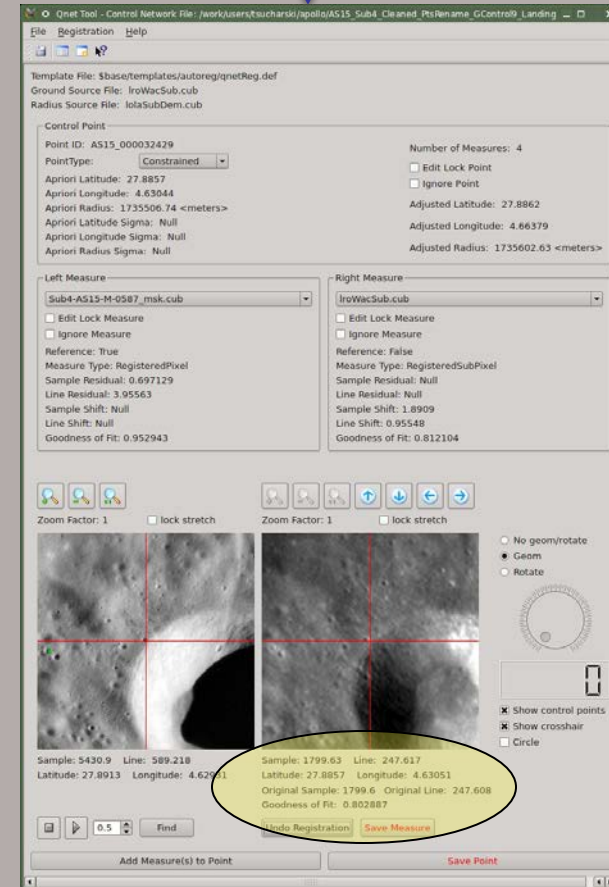
- **Register:** Sub-pixel register the the right view to the left view.



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Three core windows

Qnet tool window – control point editing

Qnet Tool - Control Network File: /work/users/tsucharski/apollo/AS15_Sub4_Cleaned_PtsName_GControlr_Landing ...

File Registration Help

Template File: \$base/templates/autoreg/qnetReg.def
Ground Source File: IroWacSub.cub
Radius Source File: IolaSubDem.cub

Control Point

Point ID: AS15_000032429
Point Type: Constrained
Apriori Latitude: 27.8857
Apriori Longitude: 4.63044
Apriori Radius: 1735506.74 <meters>
Apriori Latitude Sigma: Null
Apriori Longitude Sigma: Null
Apriori Radius Sigma: Null

Number of Measures: 4
 Edit Lock Point
 Ignore Point
Adjusted Latitude: 27.8862
Adjusted Longitude: 4.66379
Adjusted Radius: 1735602.63 <meters>

Left Measure: Sub4-AS15-M-0587_msk.cub
 Edit Lock Measure
 Ignore Measure
Reference: True
Measure Type: RegisteredPixel
Sample Residual: 0.697129
Line Residual: 3.95563
Sample Shift: Null
Line Shift: Null
Goodness of Fit: 0.952943

Right Measure: IroWacSub.cub
 Edit Lock Measure
 Ignore Measure
Reference: False
Measure Type: RegisteredSubPixel
Sample Residual: Null
Line Residual: Null
Sample Shift: 1.8909
Line Shift: 0.95548
Goodness of Fit: 0.812104

Zoom Factor: 1 lock stretch

Sample: 5430.9 Line: 589.218
Latitude: 27.8913 Longitude: 4.62911

Sample: 1799.63 Line: 247.617
Latitude: 27.8857 Longitude: 4.63051
Original Sample: 1799.6 Original Line: 247.608
Goodness of Fit: 0.802887

Undo Registration Save Measure

Add Measure(s) to Point Save Point

Below the right view:

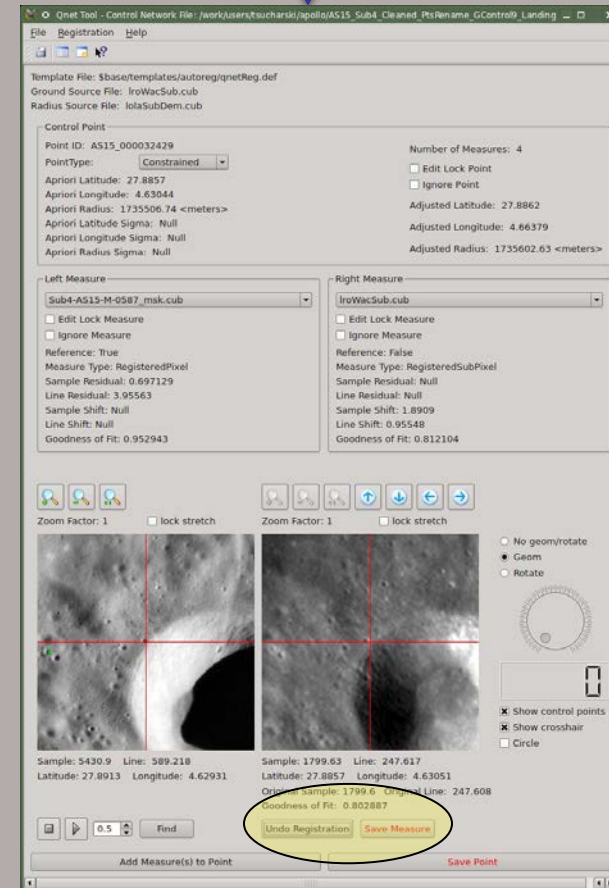
- **Register:** Sub-pixel register the the right view to the left view.
If sub-pixel registration is successful, statistics are displayed.



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Qnet tool window – control point editing

Qnet Tool - Control Network File: /work/users/tsucharski/apollo/AS15_Sub4_Cleaned_PtsName_GControlr_Landing ...

File Registration Help

Template File: \$base/templates/autoreg/qnetReg.def
Ground Source File: IroWacSub.cub
Radius Source File: IolaSubDem.cub

Control Point

Point ID: AS15_000032429
Point Type: **Constrained**
Apriori Latitude: 27.8857
Apriori Longitude: 4.63044
Apriori Radius: 1735506.74 <meters>
Apriori Latitude Sigma: Null
Apriori Longitude Sigma: Null
Apriori Radius Sigma: Null

Number of Measures: 4
 Edit Lock Point
 Ignore Point
Adjusted Latitude: 27.8862
Adjusted Longitude: 4.66379
Adjusted Radius: 1735602.63 <meters>

Left Measure: Sub4-AS15-M-0587_msk.cub
 Edit Lock Measure
 Ignore Measure
Reference: True
Measure Type: RegisteredPixel
Sample Residual: 0.697129
Line Residual: 3.95563
Sample Shift: Null
Line Shift: Null
Goodness of Fit: 0.952943

Right Measure: IroWacSub.cub
 Edit Lock Measure
 Ignore Measure
Reference: False
Measure Type: RegisteredSubPixel
Sample Residual: Null
Line Residual: Null
Sample Shift: 1.8909
Line Shift: 0.95548
Goodness of Fit: 0.812104

Zoom Factor: 1 lock stretch

Sample: 5430.9 Line: 589.218
Latitude: 27.8913 Longitude: 4.62931

Sample: 1799.63 Line: 247.617
Latitude: 27.8857 Longitude: 4.63051
Original Sample: 1799.6 Original Line: 247.608
Goodness of Fit: 0.802887

Undo Registration **Save Measure**

Add Measure(s) to Point **Save Point**

Below the right view:

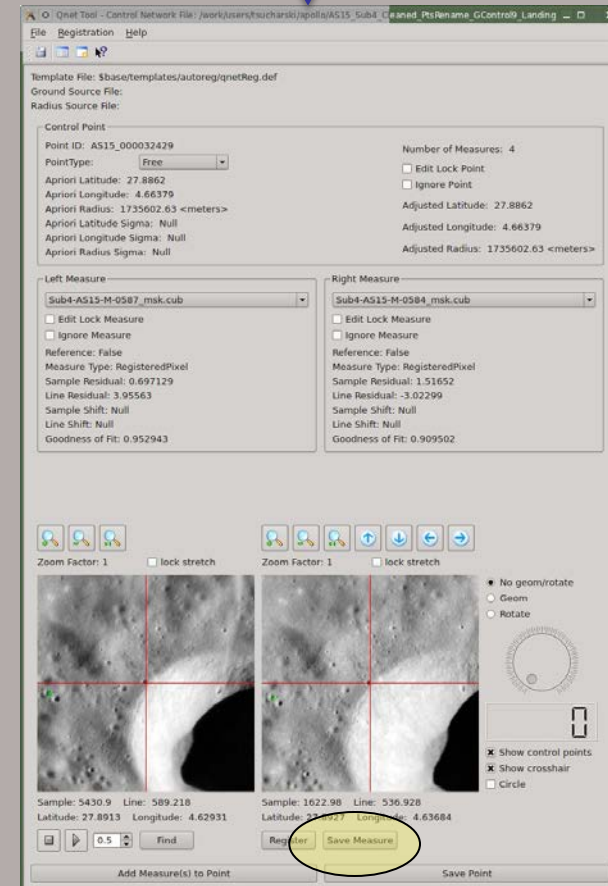
- **Register:** Sub-pixel register the the right view to the left view.
If sub-pixel registration is successful, statistics are displayed.
You can then choose to “Save Measure” or “Undo Registration”.



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Qnet tool window – control point editing



Below the right view:

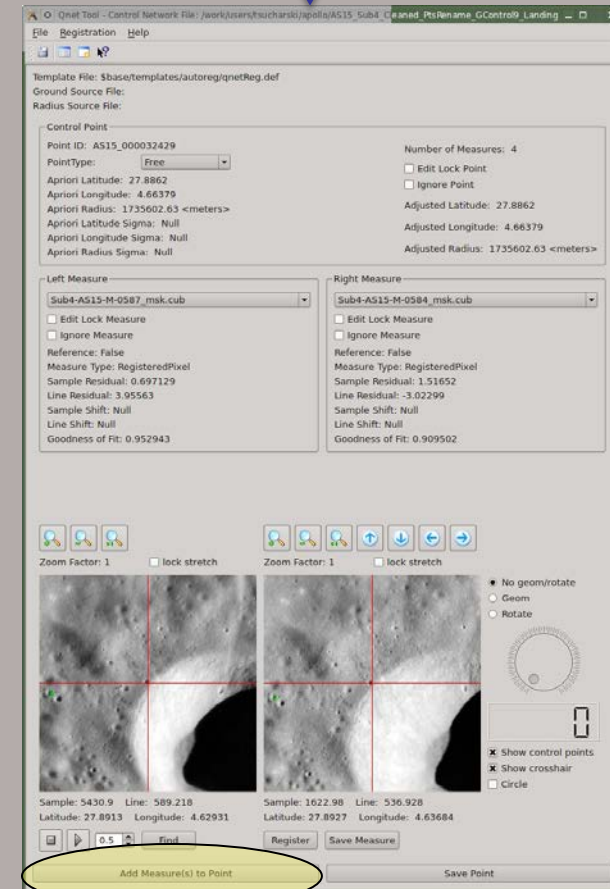
- **Save Measure:** Save the control measure under the right view to the edit control point.



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Three core windows

Qnet tool window – control point editing



Along the bottom:

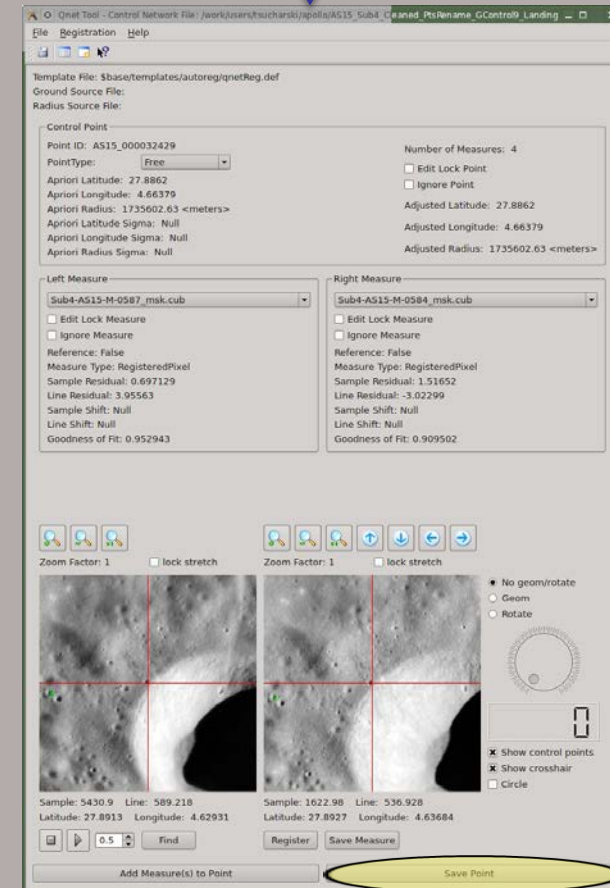
- **Add Measure(s) to Point:** Add control measure(s) to the current control point. A dialog will show all cubes in the network with those that fall at this control point's latitude and longitude highlighted. All cubes chosen will be added as control measures to this control point.



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Three core windows

Qnet tool window – control point editing



Along the bottom:

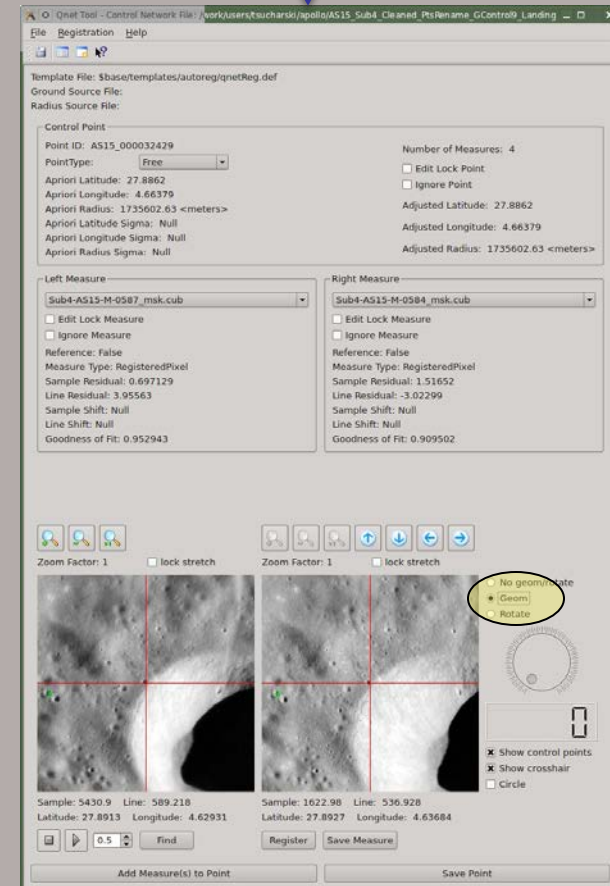
- **Add Measure(s) to Point:** Add control measure(s) to the current control point. A dialog will show all cubes in the network with those that fall at this control point's latitude and longitude highlighted. All cubes chosen will be added as control measures to this control point.
- **Save Point:** Save the edit control point to the control network.



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Three core windows

Qnet tool window – control point editing



Other Point Editor Functions

Along the right border of the window:

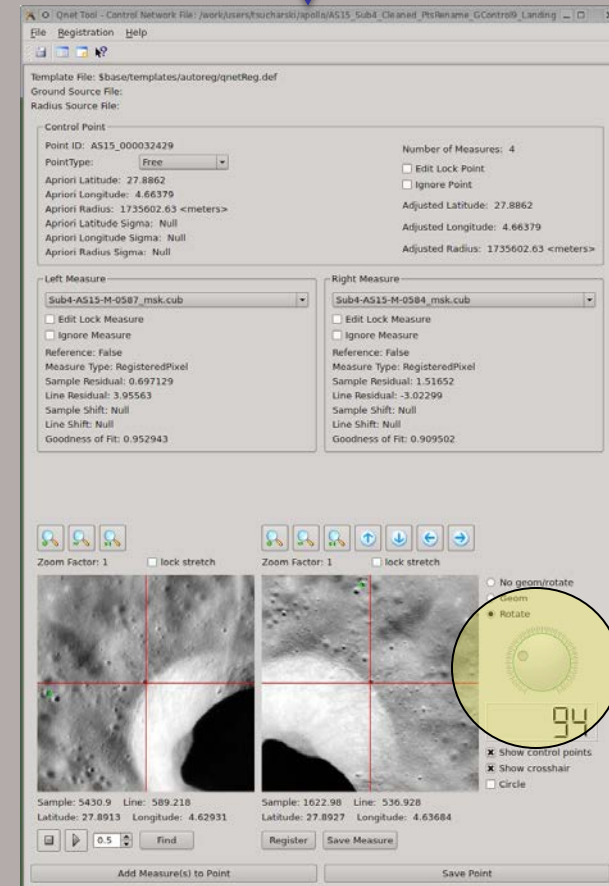
- **Geom:** Geometrically match right view to the left view



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Three core windows

Qnet tool window – control point editing

Qnet Tool - Control Network File: /work/users/rsucharski/apollo/AS15_Sub4_Cleaned_PstName_GControl9_Landing ...

File Registration Help

Template File: \$base/templates/autoreg/qnetReg.def
Ground Source File:
Radius Source File:

Control Point

Point ID: AS15_000032429
Point Type: Free
Apriori Latitude: 27.8862
Apriori Longitude: 4.66379
Apriori Radius: 1735602.63 <meters>
Apriori Latitude Sigma: Null
Apriori Longitude Sigma: Null
Apriori Radius Sigma: Null

Number of Measures: 4
 Edit Lock Point
 Ignore Point
Adjusted Latitude: 27.8862
Adjusted Longitude: 4.66379
Adjusted Radius: 1735602.63 <meters>

Left Measure
Sub4-AS15-M-0587_msk.cub
 Edit Lock Measure
 Ignore Measure
Reference: False
Measure Type: RegisteredPixel
Sample Residual: 0.697129
Line Residual: 3.95563
Sample Shift: Null
Line Shift: Null
Goodness of Fit: 0.952943

Right Measure
Sub4-AS15-M-0584_msk.cub
 Edit Lock Measure
 Ignore Measure
Reference: False
Measure Type: RegisteredPixel
Sample Residual: 1.51652
Line Residual: -3.02299
Sample Shift: Null
Line Shift: Null
Goodness of Fit: 0.909502

Zoom Factor: 1 lock stretch

Sample: 5430.9 Line: 589.218
Latitude: 27.8913 Longitude: 4.62931

Sample: 1622.98 Line: 536.928
Latitude: 27.8927 Longitude: 4.63684

Register Save Measure

Add Measure(s) to Point Save Point

94

No geom/rotate
 Rotate

Show control points
 Show crosshair
 Circle

Other Point Editor Functions

Along the right border of the window:

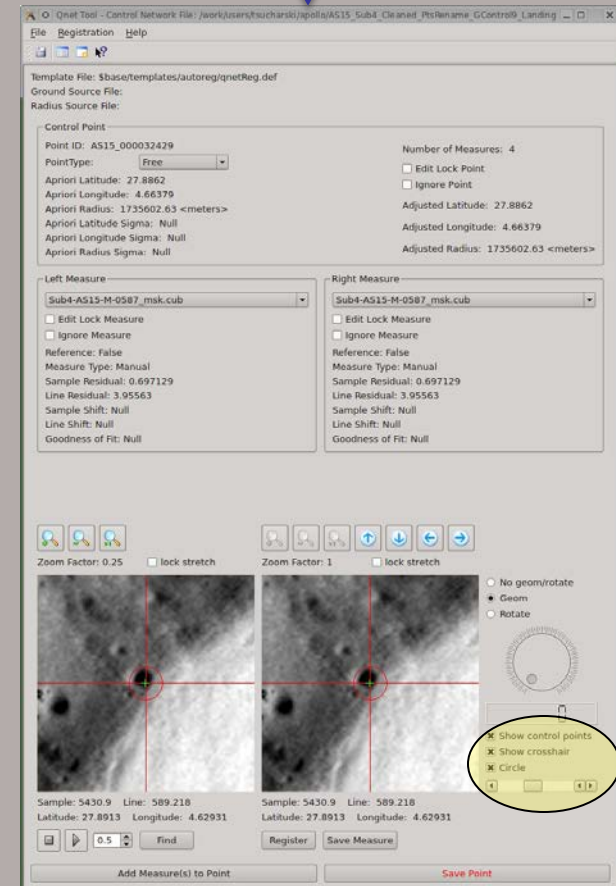
- **Geom:** Geometrically match right view to the left view
- **Rotate:** Rotate right view using either the dial or entering degrees



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Three core windows

Qnet tool window – control point editing



Other Point Editor Functions

Along the right border of the window:

- **Geom:** Geometrically match right view to the left view
- **Rotate:** Rotate right view using either the dial or entering degrees
- **Show control points:** Draw crosshairs at all control point locations visible within the view
- **Show crosshair:** Show a red crosshair across the entire view
- **Circle:** Draw circle which may help center measure on a crater



Three core windows

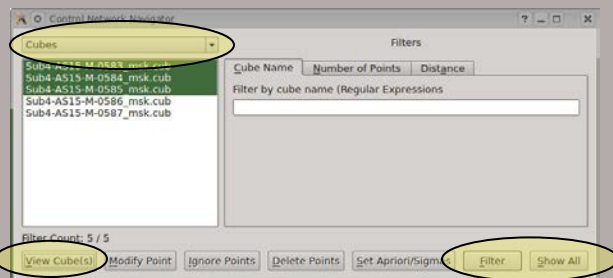
Control Network Navigator Window - Filtering

Cubes When this is selected, the user may click any of the following buttons:

- **"View Cube(s)"** to open all selected cubes
- **"Filter"** to list all cubes from the currently displayed list that meet the new filtering criteria selected.
Note If the currently displayed list is already filtered, the new list will only display cubes that meet the criteria of all filters previously chosen until the user resets the list by selecting "Show All".
- **"Show All"** to reset the list to all images in the network

There are 3 filters for the cubes list which display the following:

- **Cube Name:** cubes whose file name contains the user specified string
- **Number of Points:** cubes containing (at least or no more than) the user specified number of points
- **Distance:** cubes that contain at least one pair of points that are within the user specified distance from each other

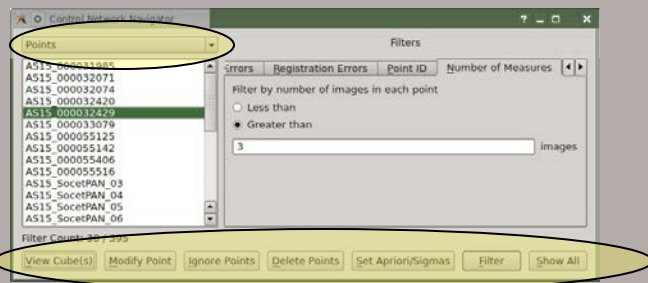


Three core windows

Control Network Navigator Window - Filtering

Points When "points" is selected, the user may click any of the following buttons:

- **"View Cube(s)"** to open all cubes containing the selected point(s)
- **"Modify Point"** (or **double click** list item) to edit the point using the Qnet Tool
- **"Ignore Point(s)"** to set selected points to "Ignore"
- **"Delete Point(s)"** to remove selected points from the control network
- **"Filter"** to list all points from the currently displayed list that meet the new filtering criteria selected.
Note If the currently displayed list is already filtered, the new list will only display points that meet the criteria of all filters previously chosen until the user resets the list by selecting "Show All".
- **"Show All"** to reset the displayed list to all points in the network

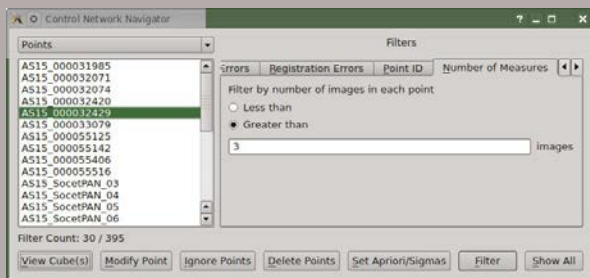


Three core windows

Control Network Navigator Window - Filtering

There are 9 filters for the points list which display the following:

- **Jigsaw Errors:** points with bundle adjustment errors within the user specified range
- **Registration Errors:** points with sub-pixel registration errors within the user specified range
- **Point ID:** points whose Point Id contains the user specified string
- **Number of Measures:** points that are contained in (at least or no more than) the user specified number of images. The control point will contain at least the given number of **control measures**.
- **Point Properties:** points that have the user specified property. There are 3 options and any combination may be chosen.
 - Filter by Point Type(s)
 - Filter by Ignore Status
Note: If all of the measures in a point are ignored, then this point will be returned in the ignored point filter.
 - Filter by Edit Lock Status



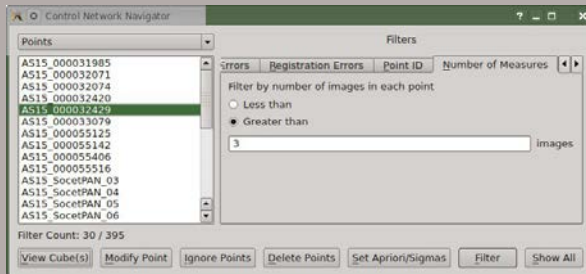


Three core windows

Control Network Navigator Window - Filtering

...Control Point filtering continued

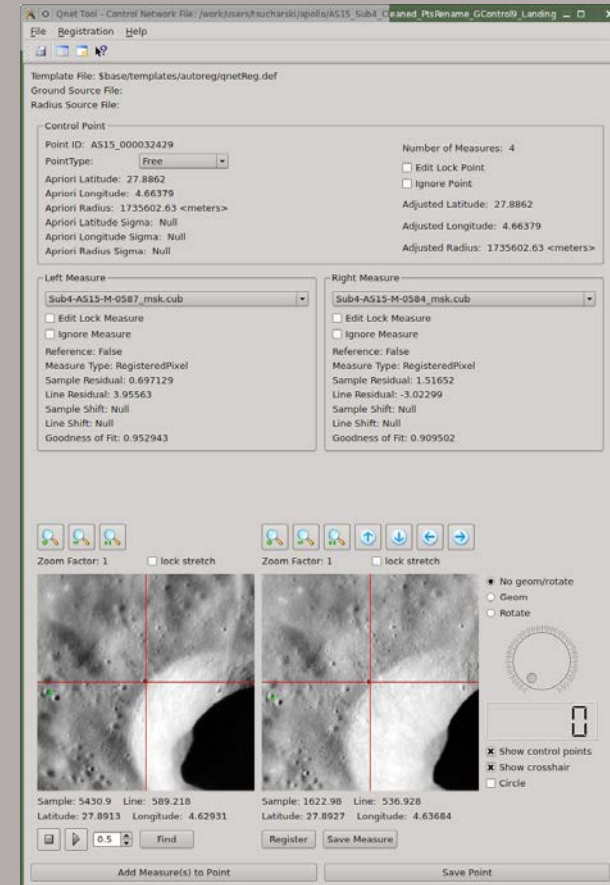
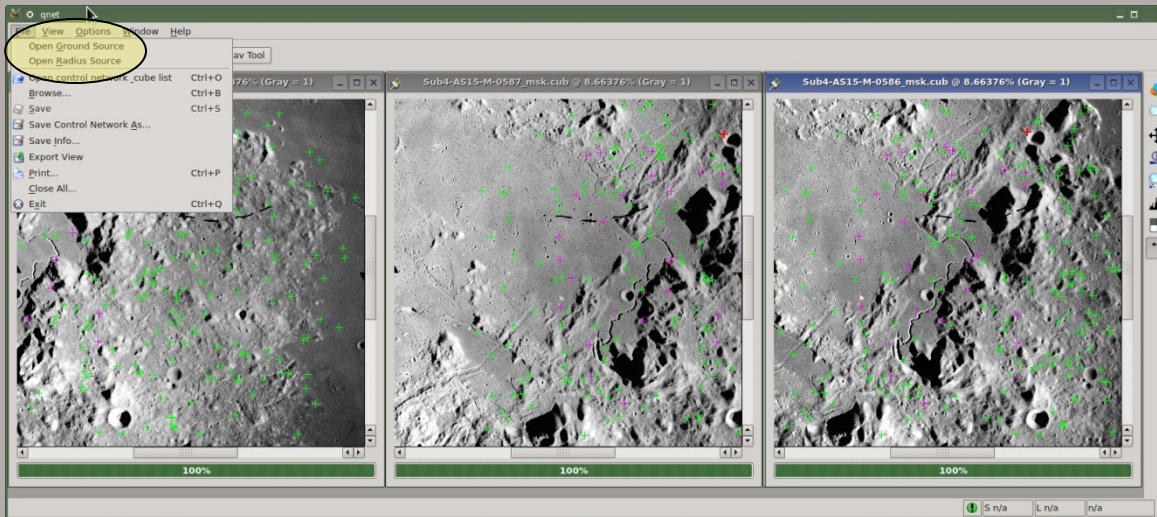
- **Range:** points that lie within the user specified latitudinal and longitudinal ranges
- **Distance:** points that are within the user specified distance of some other point in the control network
- **Measure Properties:** points that contain at least one control measure that matches the selected criteria





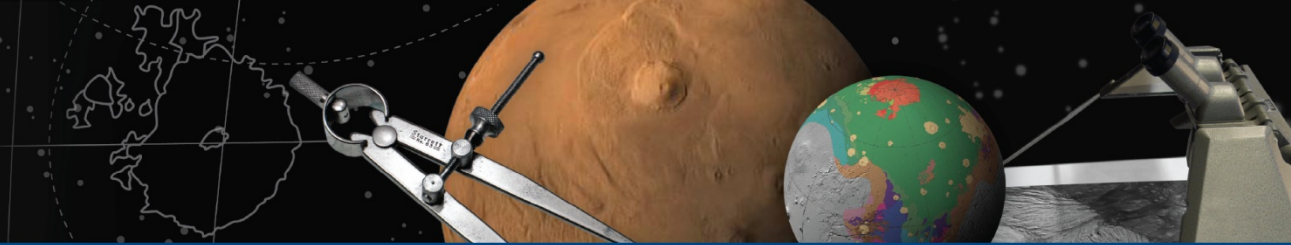
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Tying to Ground



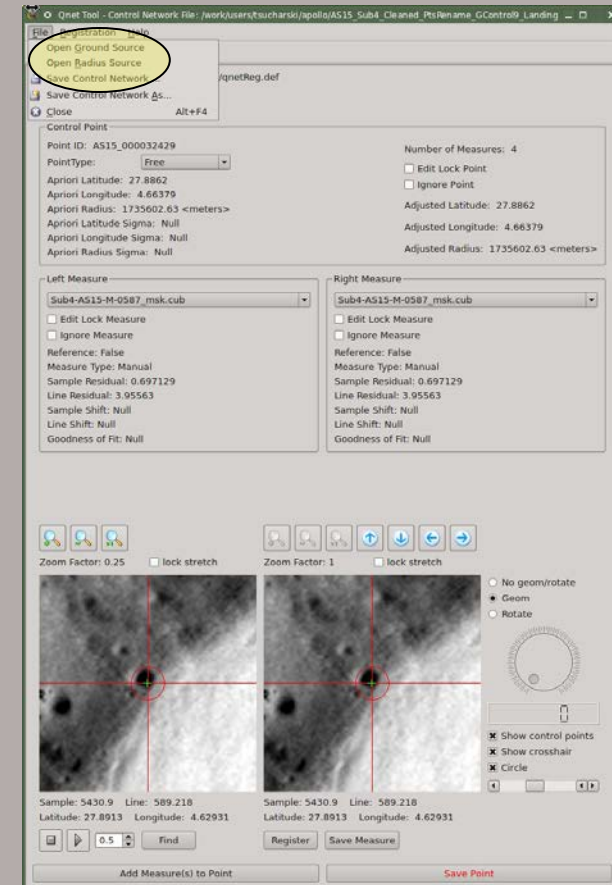
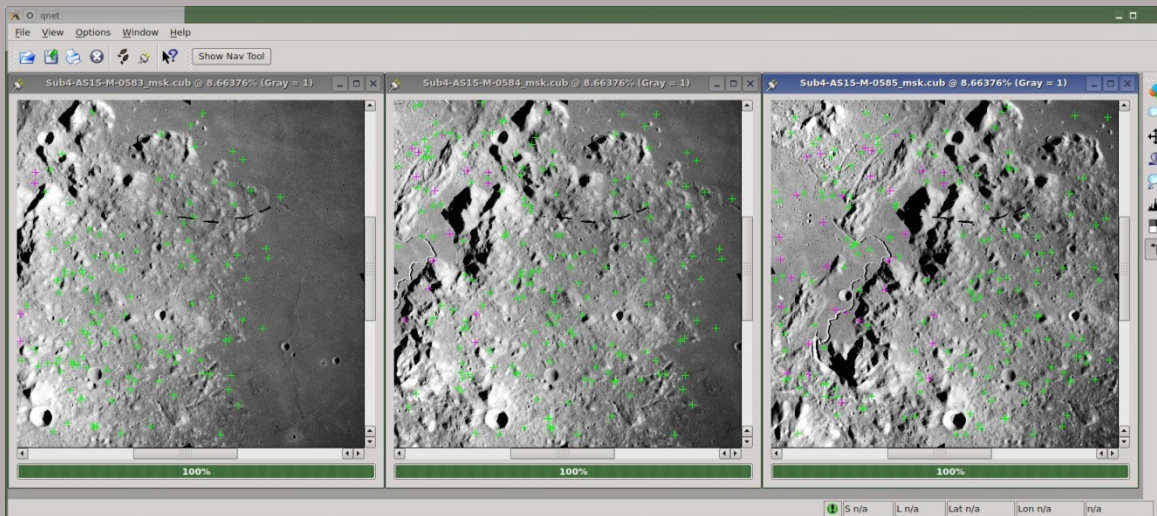
Two ways to open a ground source and a radius source:

- File menu of the Qnet main window



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Tying to Ground



Two ways to open a ground source and a radius source:

- File menu of the Qnet main window
- File menu of the Qnet tool window



Tying to Ground

Reason for Ground Source vs Radius Source

- Easier to visually select points on a basemap or shaded relief of dem than a dem.
- Want to use a dem that is not in the Isis data area.

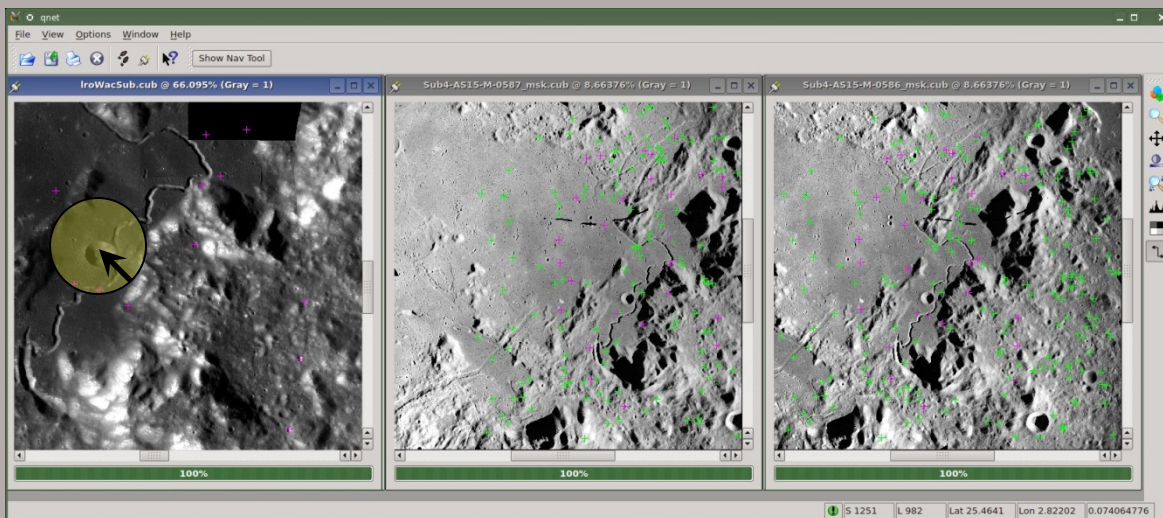
Where does the radius come from if you do not enter a radius source?

From the reference measure. If the reference measure was *spiceinit* 'ed with a shape model, the radius will come from the shape model, otherwise it will default to the ellipsoid.



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Tying to Ground



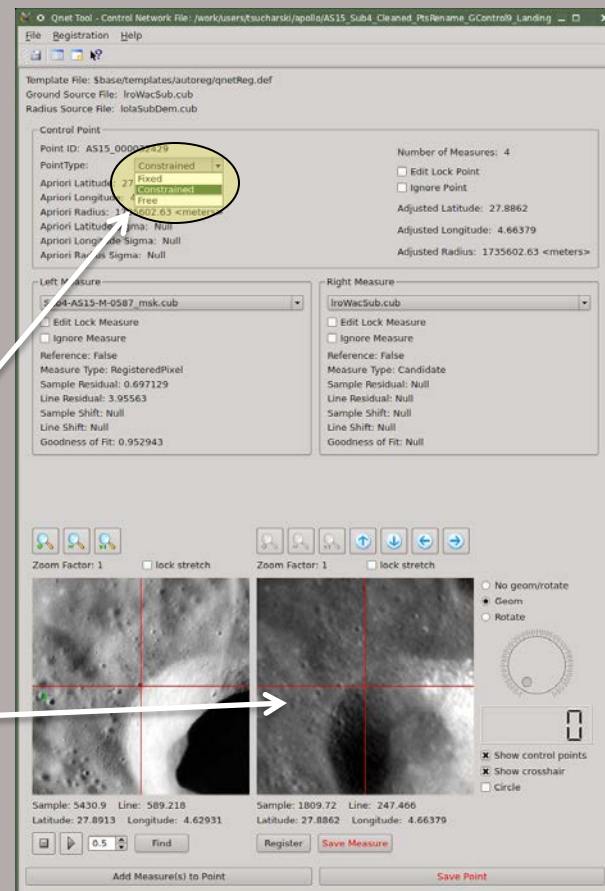
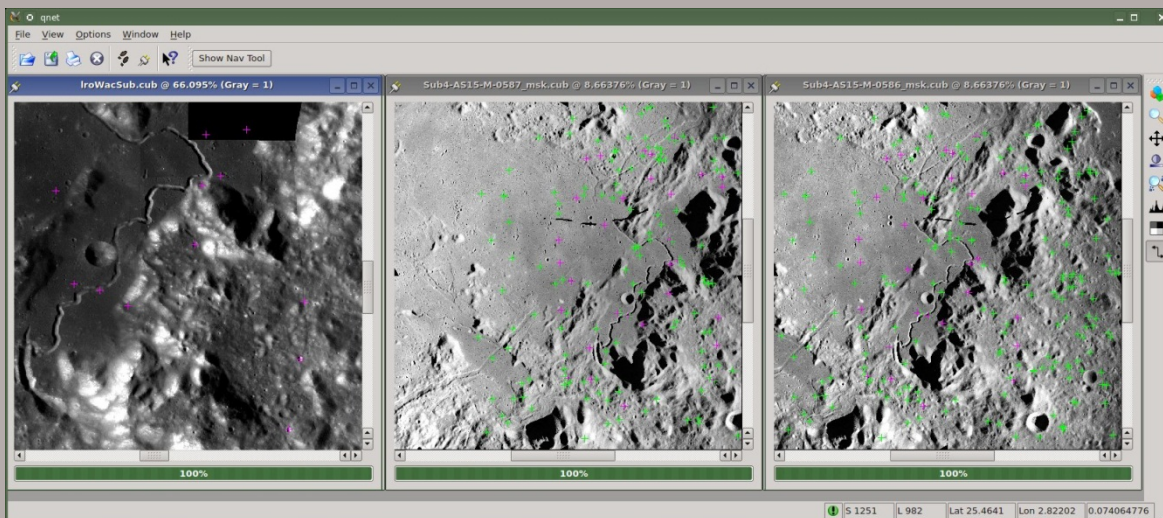
Methods for creating new ground point:

- Right click on ground source viewport



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Tying to Ground



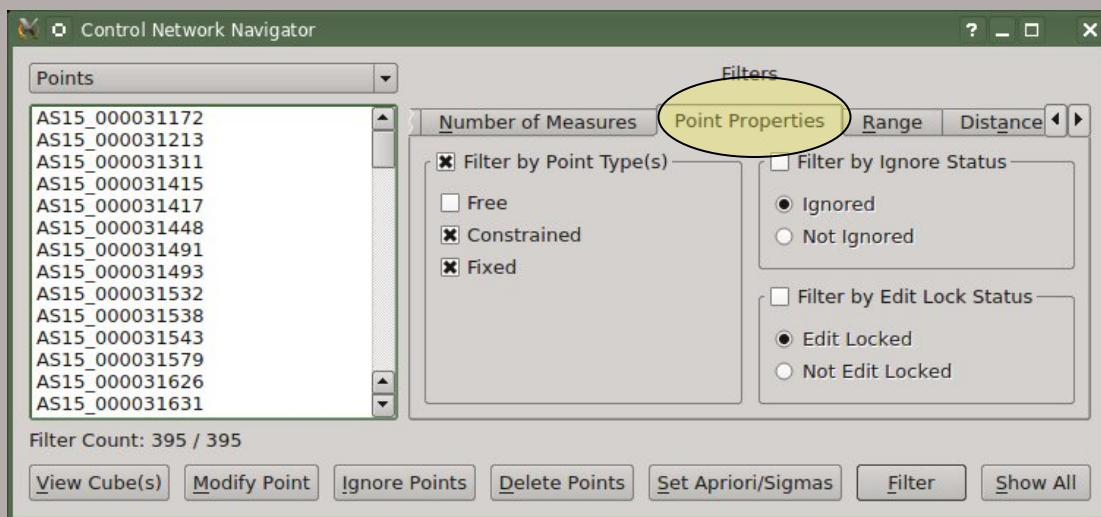
Methods for creating new ground point:

- Right click on ground source viewport
- Change current edit point to Fixed or Constrained
 - ground source loaded in right view

Three core windows

Control Network Navigator Window – Set Apriori Sigmas

1. Filter points using “Point Properties” tab, selecting “Constrained” and “Fixed”



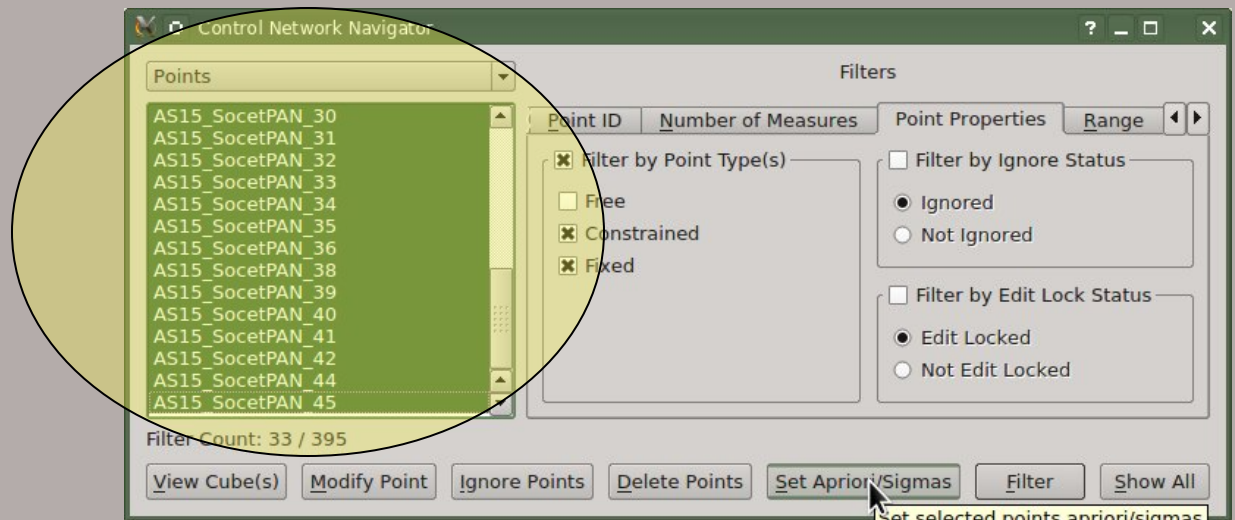


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Three core windows

Control Network Navigator Window – Set Apriori Sigmas

1. Filter points using “Point Properties” tab
2. Select points you want to set sigmas on



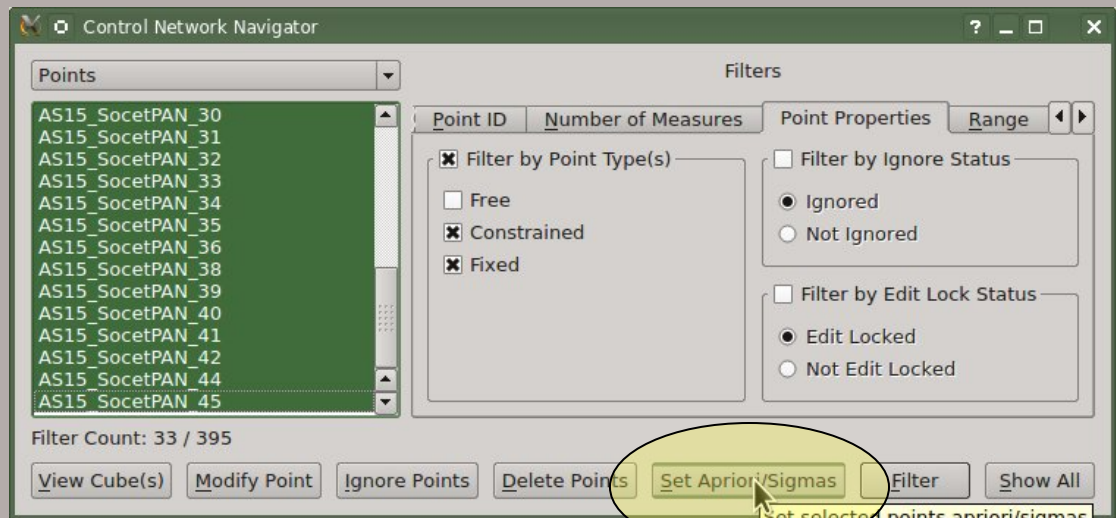


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Three core windows

Control Network Navigator Window – Set Apriori Sigmas

1. Filter points using “Point Properties” tab
2. Select points you want to set sigmas on
3. Select “Set Apriori/Sigmas”



Three core windows

Control Network Navigator Window – Set Apriori Sigmas

1. Filter points using “Point Properties” tab
2. Select points you want to set sigmas on
3. Select “Set Apriori/Sigmas”
4. Enter Latitude, Longitude and Radius sigmas

Set Apriori Point and Constraints

Set Apriori Point (lat,lon,radius)

User Entered
 Reference Measure
 Average Measures

Latitude Constraints

Apriori Latitude: Degrees

Latitude Sigma: Meters

Longitude Constraints

Apriori Longitude: Degrees

Longitude Sigma: Meters

Radius Constraints

Apriori Radius: Meters

Radius Sigma: Meters

EditLocked Points

Buttons: Set Apriori, Close