

EMpower Data Management



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Creating or Opening a Project

1. Start **EMpower**
2. Click **Manage**
3. **Open or Create a New Project**

To Open an Existing Project

- Click **Find Existing Project** or select from the list (*previously used*)
- Select the Project

To create a New Project

- Click **New**
- Type the Project Name

4. Click **Choose**

Open Project - EMpower

Kimberley BC Aug 2017
D.C. Nevada 2017 Test

Open Find Existing Project New Remove Cancel

Open Project - EMpower

Open Find Existing Project New Remove Cancel

Create New Project - EMpower

Look in: C:\Users\

Name

PNT - 10125 - S-5 5C - E2-H1.csv

Videos

test 1

Test

Searches

Saved Games

Roaming

Pictures

Enter a project name

Choose Cancel

EMpower Geophysical Software by Phoenix Geophysics

1

Prepare Create instrument configuration files
View and edit instrument configuration files

Evaluate Check data quality
View time series and spectra
View noise test results
View quick-estimate apparent resistivity

Manage Manage surveys
Import data and prepare for processing
View recording sites on a map and a time line
View time series and spectra
Process data with local or remote references
Edit processed data and export for interpretation

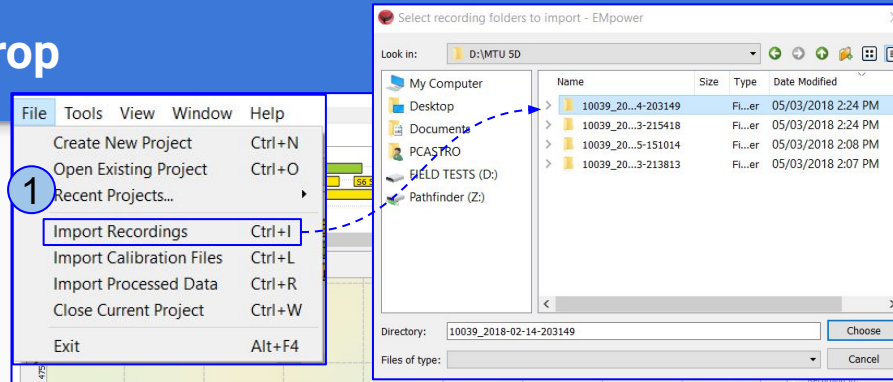
Exit Quit EMpower

Importing Data / Drag and Drop

Importing Data

1. Select **Importing Recordings** from **File** menu

- Select the recording and click **Choose**

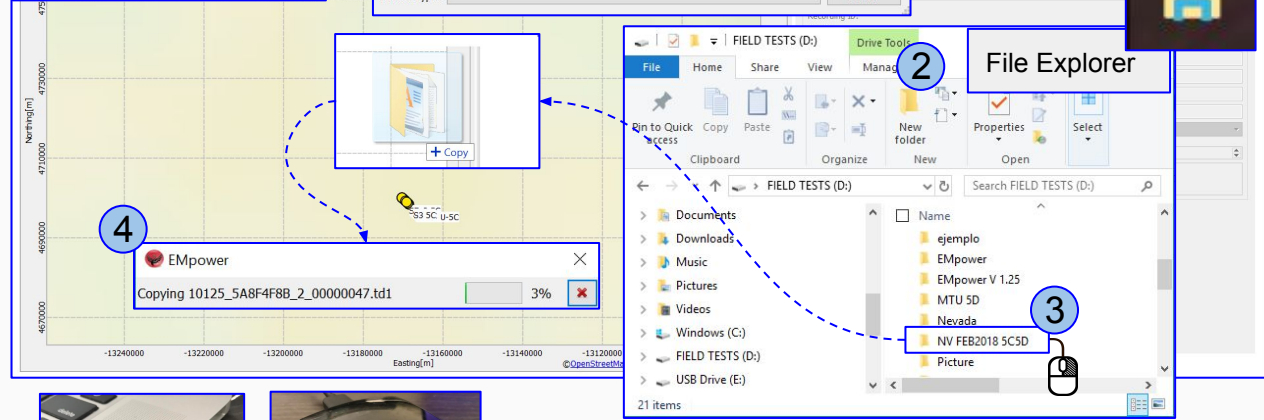


Drag and drop

2. Select the **recording file** in the **File Explorer** window

3. Drag and drop the **Recording data** to the Timeline or Map

4. Wait until charging is completed



To add a recording from the **SD Card**

- Insert **SD card** in the computer SD Card slot or use an external USB memory card reader

Visual Representation of Sites

- Imported recordings are shown in three synchronized views

- Timeline
- Map
- Recording list

- Visual tracking

Green	Approved
Yellow	Unapproved
Red	Rejected

The screenshot displays a software interface with three main views: Timeline, Map, and Recording list.

- Timeline:** Shows a list of recordings for stations MTU-SC-10116, MTU-SC-10125, MTU-SC-10127, and MTU-SC-10128. Recordings are color-coded: green for approved, yellow for unapproved, and red for rejected. The timeline is for Dec 05 2017.
- Map:** Shows a map with a projection of Web Mercator. A yellow dot labeled 'Remote' and a larger yellow dot labeled 'Rem 5C B30' are visible. The map axes are North (m) and East (m).
- Recording list:** Shows details for recording 'Rem 5C B30 (13 h 18 m 27 s)'. The status is 'Approved'. The recording information includes: Recording ID: 10116_2017-11-30-181344, Start time: Nov 30 2017 10:13:45 (Local) Pacific Standard Time (GMT -08:00), Duration: 13 h 18 m 27 s, Survey name: Don Campbell, Station name: Rem 5C B30, Operator(s): Caro George B Murat, Company name: (empty), Layout Geometry: Orthogonal, Declination: 13.00°, Notes: Stopped recording @ 23h32 local time.


The Recording list also shows Electric Channels and Magnetic Channels with various parameters like Distance (m) to GND, Resistance (Ω), Gain, LPF [Hz], DC [V], and Azimuth.

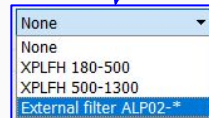


Selecting a recording in any of the views will automatically update the recording information in the other views

Verifying/Editing Recording Information

Data management (*Recording Library*)

1. Review the Recording Information
 - Edit the enabled fields, if required
 - Verify that there was not a warning icon  on the left of the channels or next to the Recording ID
2. Review the following information:
 - Dipole length
 - The **Azimuth** at which the E and H sensors were laid out
 - Use the External filter selector to indicate if an accessory was used during the recording. For details about each specific accessory, consult the manual of such accessory.
 - The correct **Calibration** sensor will show a green mark
3. Review the information on **View Recording Details** (see next page)
4. To add more information (such as pictures, documents etc.) click the **Attachments** button



The screenshot shows the 'Recording Information' and 'Electric Channels' sections of a software interface. The 'Recording Information' section includes fields for Recording ID, Start time, Duration, Survey name, Station name, Operator(s), Layout Geometry, Declination, and Notes. The 'Electric Channels' section contains two tables: 'Electric Channels' and 'Magnetic Channels'. The 'Electric Channels' table has columns for Channel, Distance (m) to GND, Polarity, Resistance (Ω), Gain, LPF [Hz], and DC [V]. The 'Magnetic Channels' table has columns for Channel, Sensor, Detected, Serial #, Cal, Polarity, Gain, LPF [Hz], and DC [V].

Numbered callouts are present:

- 1: Points to the 'Recording Information' section.
- 2: Points to the 'Electric Channels' table.
- 3: Points to the 'View Recording Details' button.
- 4: Points to the 'Attachments' button.

Channel	(+) N / E	(-) S / W	Polarity	(+) N / E	(-) S / W	Gain	LPF [Hz]	DC [V]
E1	50.00	34.50	<input type="checkbox"/> Inverted	5335	3894.07	4 x 1 = x4	10000	-0.021
E2	50.00	49.00	<input type="checkbox"/> Inverted	3623.18	4096.92	4 x 1 = x4	10000	-0.021

Channel	Sensor	Detected	Serial #	Cal	Polarity	Gain	LPF [Hz]	DC [V]
H1	MTC-150	<input checked="" type="checkbox"/>	53731	<input checked="" type="checkbox"/>	<input type="checkbox"/> Inverted	x4	10000	-0.011
H2	MTC-150	<input checked="" type="checkbox"/>	53880	<input checked="" type="checkbox"/>	<input type="checkbox"/> Inverted	x4	10000	-0.029
H3		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/> Inverted	N/A	N/A	N/A

View Recording Details

Review that the following levels are within valid limits for quality control:

1. Battery Voltage
2. Internal Temperature
3. Number of Satellites
4. Saturated Frames

- If saturation is not close to ~0%, review the channel configuration (see pages 4 - 6), the gain might be too high and/or there is artificial noise on your site

5. Time Series Level

The screenshot shows the 'Recording Details' page for recording ID 10155_2019-04-24-085903. The interface is divided into several sections: Recording Details, Timing Details, Instrument Info, Decimation, GPS Timing Card, and Channels Details. Five callout windows are overlaid on the interface, each highlighting a specific metric:

- 1. Battery Voltage - EMpower:** A line graph showing voltage (V) over time, ranging from approximately 12.44V to 12.869V.
- 2. Internal Temperature - EMpower:** A line graph showing temperature (°C) over time, ranging from approximately 20°C to 38°C.
- 3. Number of Satellites - EMpower:** A bar chart showing the number of satellites over time, ranging from 7 to 12.
- 4. Saturated Frames - E2 - EMpower:** A bar chart showing the number of saturated frames over time, with most values at 0 and a few spikes at 1.
- 5. Time Series Level - E1 - EMpower:** A scatter plot showing signal (V) over time, with a legend for Maximum (red), Average (green), and Minimum (blue).

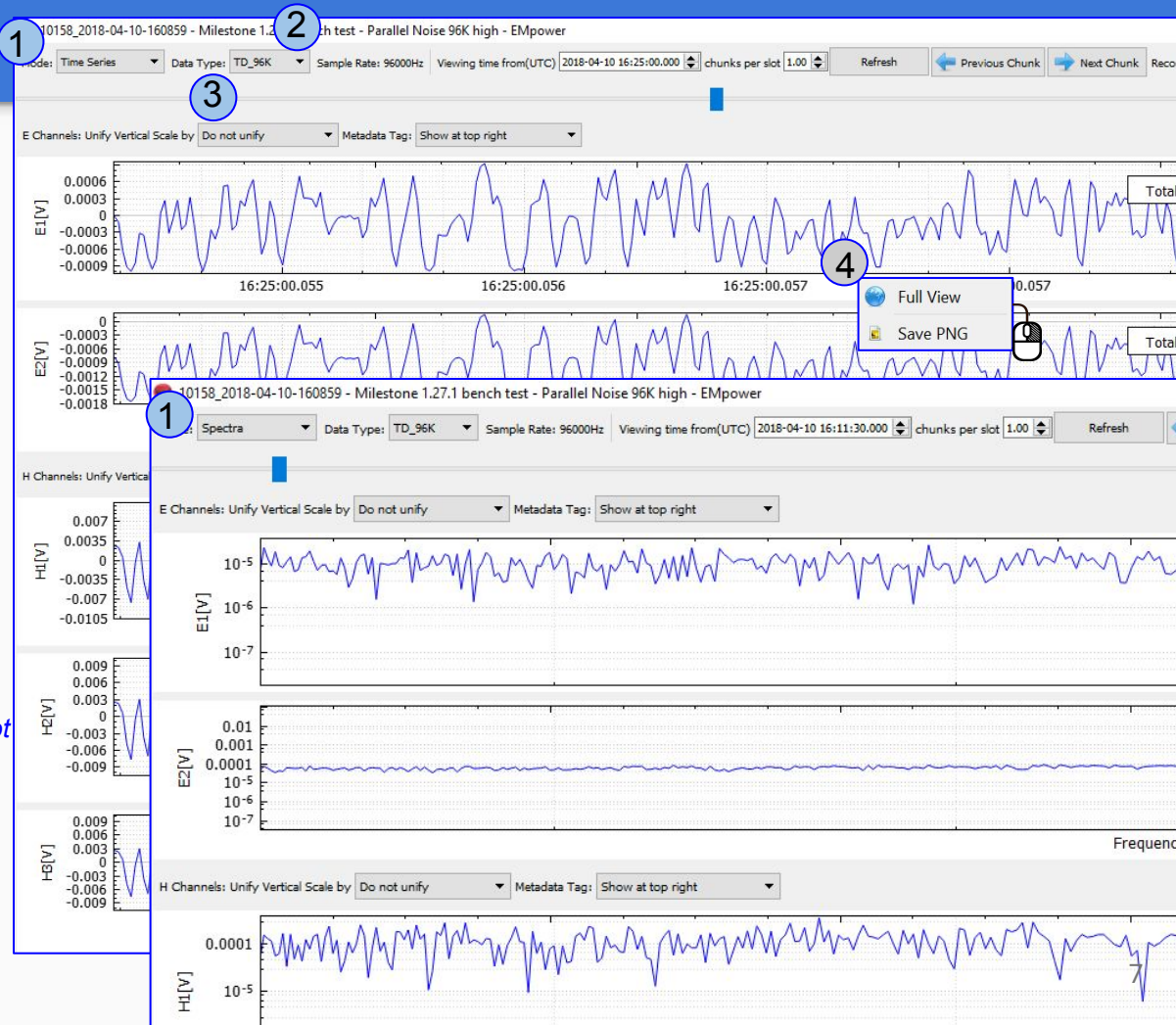
The Channels Details table is as follows:

Tag	Board S/N	Model	Firmware	Sat	Signal Ranges	
1	E1	201462	BCM03-B	1001a	0 %	View Levels
2	E2	201427	BCM03-B	1001a	~0 % - Yellow	View Levels
3	H1	201423	BCM03-B	1001a	0 %	View Levels
4				1001a	0 %	View Levels

Recording Details and QC

1. The **Time Series** and **Spectra** shows the data available for QC
2. **Data Type** allow to switch between different data sampling rates (96K / 24K / 150 Hz)
3. The **Unify Vertical Scale by**, allows to visualize by Channel scale
4. **Exporting**
 - Right-click on the plot
 - Save PNG

**This feature applies to the Time Series and Spectra plot*



Processing MT Data

From the Recording Library tab:

1. Choose a recording to process
2. Review the Layout Geometry
3. Process Site Creation Wizard*:
 - Electric Components
 - Magnetic Components
 - Reference Channels
 - Processing Timeframe
 - Processing Parameters

**These steps will be explained in the Following pages*

Station name: Groups: None Filters: None

Recording Library Processed MT Data Processed PNT Data

Dec 05 2017

MTU-5C - 10116 ✓ Rem SC B30 Rem SC Dec01 Rem SC Dec04 Rem SC Dec05 - 2017-12-05 12:56:59 Rem SC Dec06

MTU-5C - 10125 ✓ S1 MTU-5C S5 5C S6 5C S7 1 5C S7 2 5C

MTU-5C - 10127 ✓ Continuous Rem MTU-5C 10127 - 2017-11-30 10:37:08

MTU-5C - 10128 ✓ S2 5C - 2017-12-06 15:49

Projection: Web Mercator

WorldMap

1000000m

7000000

6000000

5000000

4000000

Northing [m]

Calgary

Remote

Un Stat Am

10000

S1 MTU-5C

San José

Los Angeles

Phoenix

San Diego

Ciudad Juárez

S1 MTU-5C (19 h 22 m 5 s)

Status: Approved Unapproved Rejected

Tools: Time Series Spectra Process (Parallel)

Recording Information

Recording ID: 10125_2017-12-01-001137

Start time: Nov 30 2017 16:11:38 (Local) Pacific Standard Time (GMT -08:00)

Duration: 19 h 22 m 5 s

Survey name: Don Campbell

Station name: S1 MTU-5C

Operator(s): CF GB MU

Company name:

Layout Geometry: Parallel

Declination: 0.00°

Notes:

Electric Channels

Channel	(+) N / E	(-) S / W	Polarity	(+) N / E	(-) S / W	Gain	LPF [Hz]	DC [V]
E1	50.00	50.00	<input type="checkbox"/> Inverted	759.165	607.465	4 x 1 = x4	10000	0
E2	50.00	50.00	<input type="checkbox"/> Inverted	546.820	510.804	4 x 1 = x4	10000	0

E Azimuth: 0.00 External Filter: None

Magnetic Channels

Channel	Sensor	Detected	Serial #	Cal	Polarity	Gain	LPF [Hz]	DC [V]
H1	MTC-150	MTC-150	53917	✓	<input type="checkbox"/> Inverted	x4	10000	0
H2	MTC-150	MTC-150	53918	✓	<input type="checkbox"/> Inverted	x4	10000	0
H3	MTC-150	MTC-150	53191	✗	<input type="checkbox"/> Inverted	x4	10000	0

H1-H3 Azimuth: 0.00 °

View Recording Details Attachments Export Time Series

Verify that there is not a warning icon on the left of the channels or next to the Recording ID

Process Site Creation wizard

Electric components

1. Select a recording from the Map, Timeline or Drop-down list
2. **Review / Edit** the E-Channel details
 - Use the **Select Manually** button to change the Channel Selection (Ex/Ey)
 - To change or add details use the **Edit** button
3. **Navigation bar** display the components of the processed site being created
4. Click Next to continue



When a recording is selected, the letter **P (Primary)** will appear next to the channel name



Process site is not available in network projects



The recording is good to process



The recording does not have an available calibration file

Process Site Creation wizard

Magnetic Channels

Same recording

1. Keep the option **Use magnetic channels from the same recording as electric channels**
2. Use **Select Manually** to modify as needed and click **Next**

Different recording

3. Select **Use magnetic channels from a different recording**
 - Select a valid recording/magnetic sensors from the Map / Timeline or using the Drop-down and click **Next**
4. Use **Select Manually / Edit**
5. Click **Next**



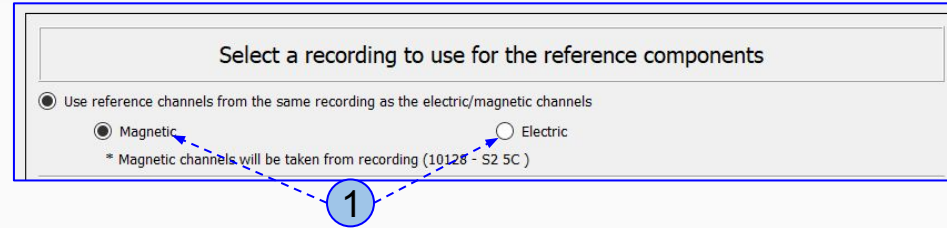
When a magnetic channel is selected from a different recording, an arrow will be pointing to that recording on the map and the letter **M (Magnetic)** will appear next to that recording

Process Site Creation wizard

Reference Channels

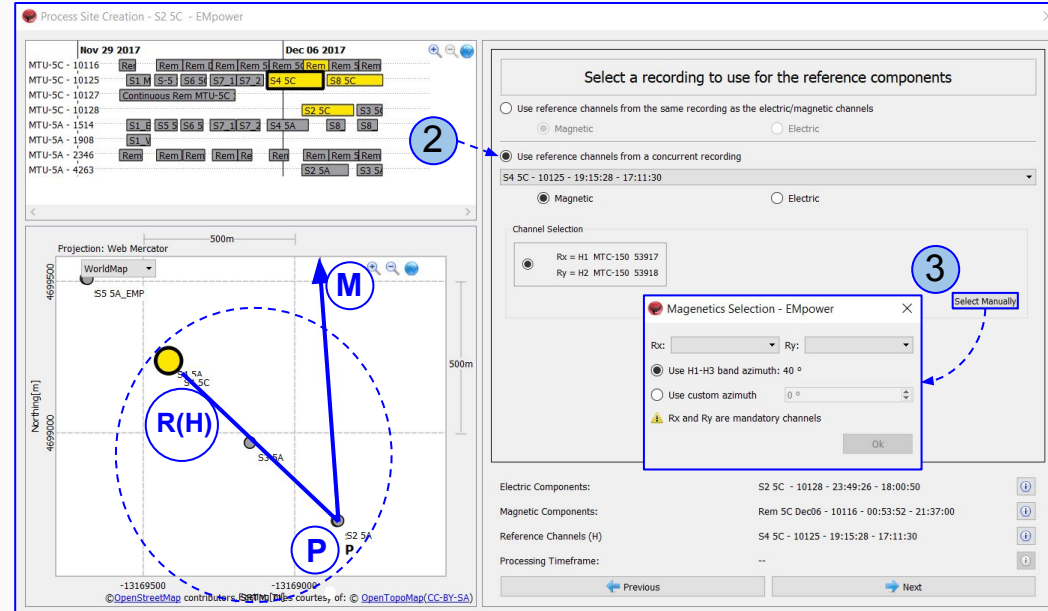
Same recording

1. To use reference channels from the same recording as the electric/magnetic channels
 - Select either the Magnetic Channels or Electric Channels
 - Click **Next**



Remote reference

2. To use Reference channels from a concurrent recording select **“Use reference channels from concurrent a recording”**
 - A concurrent recording with valid magnetic or electric channels will appear as non-gray in the Map / Timeline and in the drop-down list
3. Use **Select Manually** as needed
 - Click **Next**



When a channel (**H** magnetic or **E** electric) is selected from a concurrent recording the letters **R(H)** or **R(E)** appears next to the Reference channel name

Processing Queue

1. The **Select Processing Timeframe**, allows to select the time segment of the recording that will be processed
 - Use the **Start - End** fields or move the blue indicators in the **Duration** selectors
 - Click Next
2. In the **Processing Parameters** window
 - Robust **outlier rejection** is used to reject outliers in the Processed data at high granularity
3. To reduce the effect of power line noise
 - Select the frequency of the **Electric power grid filter** that corresponds to the frequency carried by the power lines in the region
4. Type the **Process site name**
5. Click the **Process** button
6. The **Processing Queue** shows the processing of the site(s) selected

1. Select Processing Timeframe

2. Processing Parameters

3. Processing Parameters

4. Processing Queue - E-Mpower

5. Processing Queue - E-Mpower

6. Processing Queue - E-Mpower

Prefer to use robust in the editor instead of this first-pass robust, it will normally yield better results

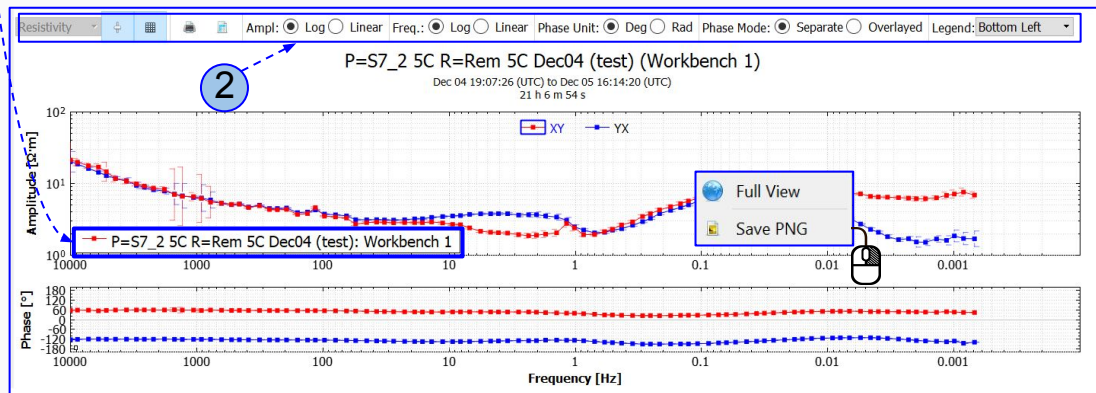
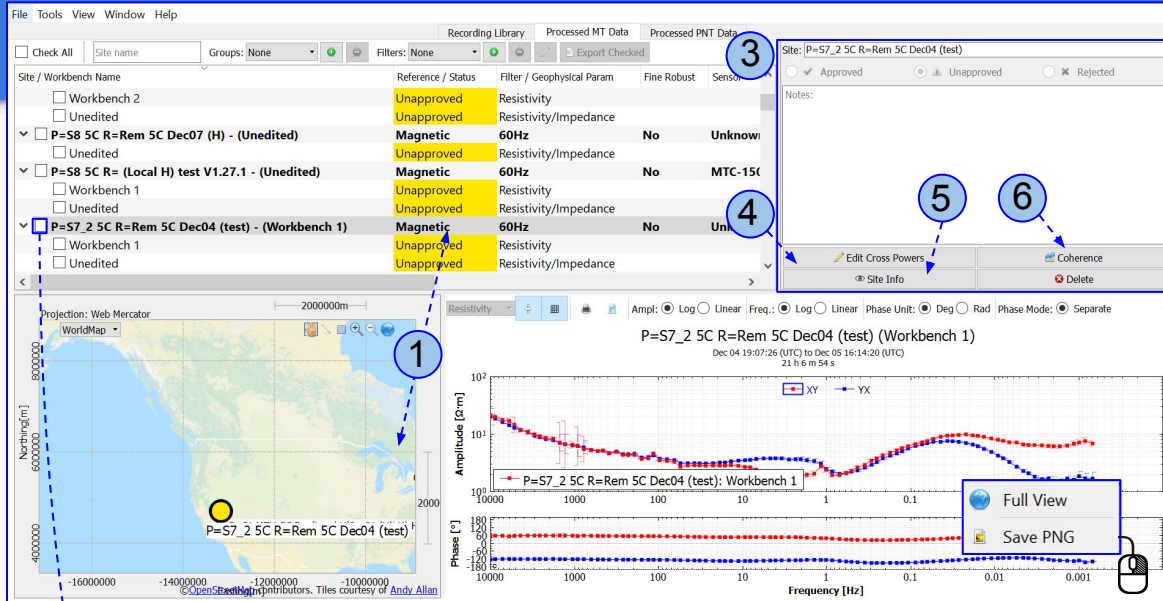
Processed Site Name	Reference	Status	Progress	Elapsed Time	Estimated Remaining Time
P=S7_2 SC R= (Local H)	Magnetic	Done	100%	19 m 58 s	0 s

Amplitude [C/m]

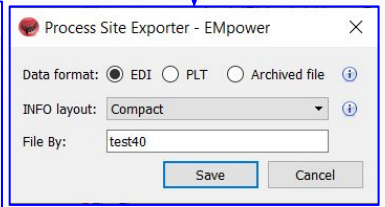
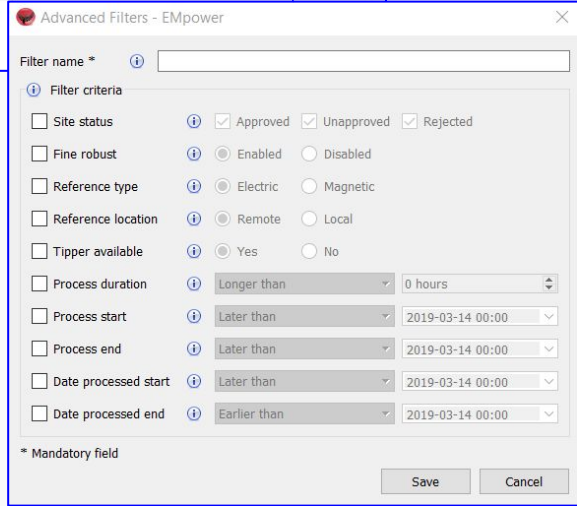
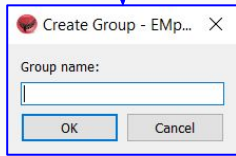
Phase [°]

Visualizing Processed Data

1. Select the **Processed Site** from the Workbench list or Map
2. The **Plot** shows the Amplitude and Phase of the selected Processed Site
 - Use the **Plot toolbar** to access additional plot features
 - Add Processed Site(s) by selecting the checkbox beside the site in the Workbench list
3. **Edit** the Processed Site (Name, Status and Notes)
4. The **Edit Cross Powers** feature removes outlying cross powers from the calculation of resistivity, phase, and other geophysical parameters (see pages 19-21)
5. Site Info (see pages 18)
6. Coherence (see pages 18)




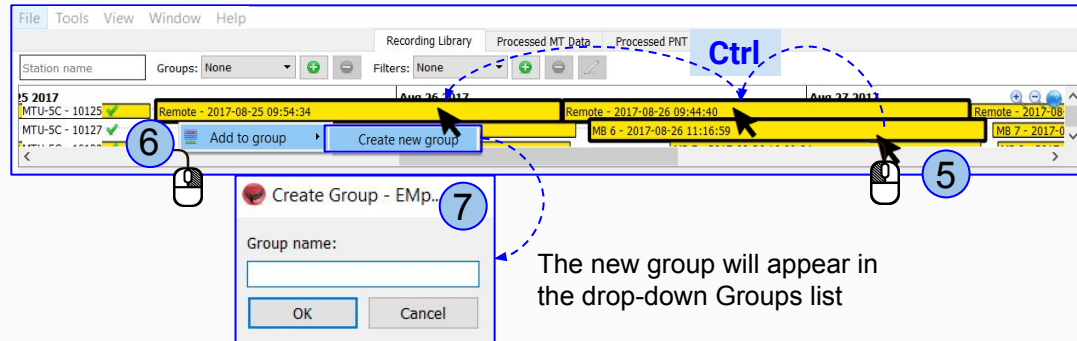
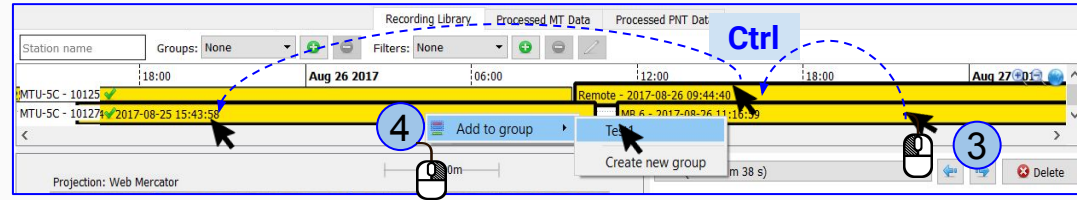
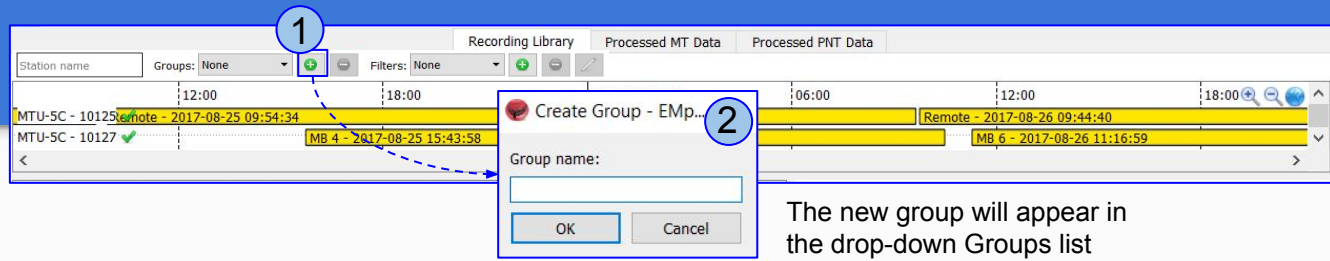
Toolbar (Sites list)



1. **Check All** the Sites
2. Quick search by **Site name**
3. **Groups** (Slide 15-16)
4. **Filters** (Slide 17)
5. **Export Checked**, export the site(s) selected in the Workbench list to EDI/PLT or to an archive compressed file

Groups (Timeline)

1. Create new group 
 2. Type the **Group Name**
 3. Select the sites
 - Use left-click to select the site and hold down the "Ctrl" key to select multiple sites (release the buttons)
 4. Use the Right-click menu
 - **Add to group**
 - Select the group
- OR
5. Select the sites
 - Use left-click to select the site and hold down the "Ctrl" key to select multiple sites (release the buttons)
 6. Use the Right-click menu
 - **Add to group**
 - **Create new group**
 7. Type the **Group Name**



Groups (Map)

Select the sites using one of two options:

1. Use the **Line Selection** tool for specific sites
 - Hold down the left-click and draw the line over the sites on the map
2. Use the **Rubberband** for large ranges
 - Hold down the left-click and drag over the sites on the map (*ensure to cover entirely all the sites needed*)

Create a group


3. Create a Group
 - Use the Right-click menu on the Map
 - **Add to group**
 - **Create new group**
 - Type the **Group name**

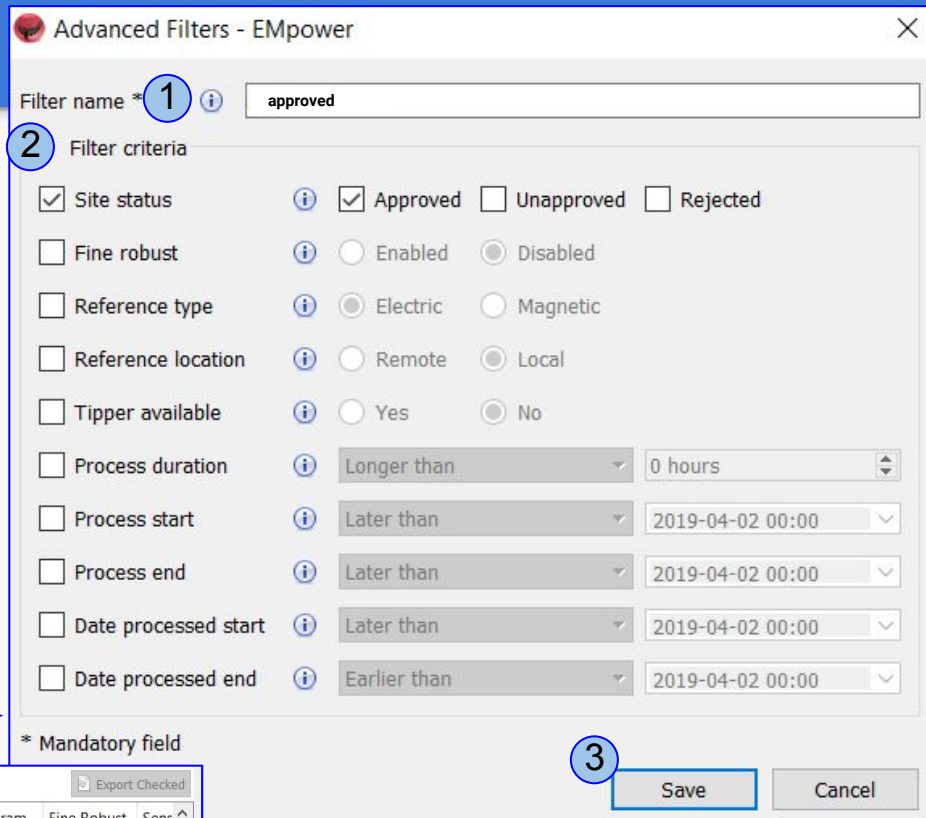
The image contains three numbered screenshots of a map application interface:

- 1 Line Selection:** Shows a map with a blue line drawn across several yellow circular site markers. A callout box labeled 'Line Selection' points to the line. The map shows topographic contours and a river labeled 'Meagher Creek'. A scale bar indicates 5000m.
- 2 Rubberband:** Shows a map with a blue dashed rectangular selection box (rubberband) covering several yellow circular site markers. A callout box labeled 'Rubberband' points to the selection box. The map shows topographic contours and a river labeled 'Meagher Creek'. A scale bar indicates 1000m.
- 3 Map:** Shows a map with a right-click context menu open over a yellow circular site marker. The menu includes options: 'Add to group', 'Full View', 'Show grid', 'Show Site Names', 'Export to...', 'Fetch Background Map', and 'Re-fetch Background'. A callout box labeled 'Map' points to the menu. A sub-callout box labeled 'Create new group' points to the 'Create new group' option in the menu. To the right, a dialog box titled 'Create Group - EMP...' is shown with a 'Group name:' input field and 'OK' and 'Cancel' buttons.


Filters

The Advanced Filter can work with individual sites or with Groups











1. Name the **Filter** (**mandatory field*)
2. Select the **Filter criteria**
3. Save the **Filter**
4. The new **Filter** will be added to the drop down list
5. Use the Edit  button to add or change **Filter criteria**



Advanced Filters - EMpower

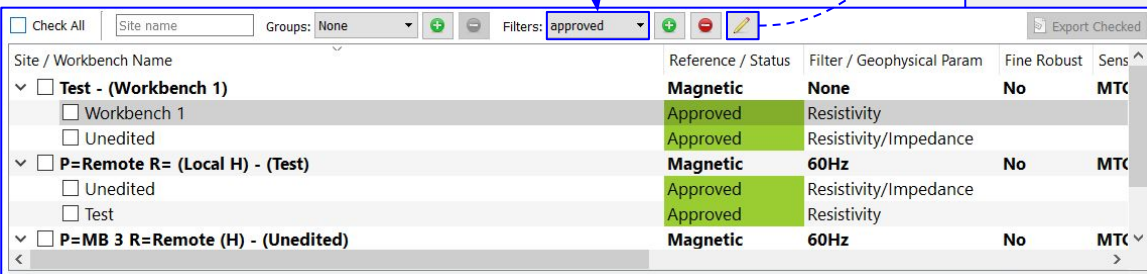
Filter name ¹  approved







² Filter criteria

- Site status  Approved Unapproved Rejected
- Fine robust  Enabled Disabled
- Reference type  Electric Magnetic
- Reference location  Remote Local
- Tipper available  Yes No
- Process duration  Longer than 0 hours
- Process start  Later than 2019-04-02 00:00
- Process end  Later than 2019-04-02 00:00
- Date processed start  Later than 2019-04-02 00:00
- Date processed end  Earlier than 2019-04-02 00:00

* Mandatory field

³



Check All Site name Groups: None   Filters: approved     Export Checked

Site / Workbench Name	Reference / Status	Filter / Geophysical Param	Fine Robust	Sens
<input type="checkbox"/> Test - (Workbench 1)	Magnetic	None	No	MTC
<input type="checkbox"/> Workbench 1	Approved	Resistivity		
<input type="checkbox"/> Unedited	Approved	Resistivity/Impedance		
<input type="checkbox"/> P=Remote R= (Local H) - (Test)	Magnetic	60Hz	No	MTC
<input type="checkbox"/> Unedited	Approved	Resistivity/Impedance		
<input type="checkbox"/> Test	Approved	Resistivity		
<input type="checkbox"/> P=MB 3 R=Remote (H) - (Unedited)	Magnetic	60Hz	No	MTC

Site Info - Coherence

1. General Processing Metadata information
2. Robust (Fine Rejection) Parameters
3. Recording Metadata
 - Primary Station
 - Local Magnetics
 - Local Reference (H)
4. Channel Details
5. Coherence

Metadata Viewer: P=S1 MTU-5C R= (Local H) - EMpower

1 General Processing Metadata

Process Site ID: (8b13f3e9-1134-4990-ad8a-f96e0631aa12)
 Process Site Name: P=S1 MTU-5C R= (Local H)
 Survey Name: Don Campbell
 Company Name:
 Processing Version: v1.35.4.3
 Processing Date: Fri Sep 13 18:59:02 2019 GMT
 Process Site Status: **Unapproved**
 Processing Type: Orthogonal
 Tipper Source: From Local Magnetics
 Reference Type: Magnetic
 Power Grid: None
 Has Remote: No
 Start Time: Fri Dec 1 00:11:38 2017 GMT
 Stop Time: Fri Dec 1 19:33:43 2017 GMT
 Duration: 19 h 22 m 5 s
 Frequency Range Displayed: 0.00001 Hz to 10000 Hz

2 Robust (Fine Rejection) Parameters

Robust Enabled: No
 Robust Quality: Not available
 Robust Rejection Ratio: Not available
 Robust Algorithm: Not available

Notes

3

Primary Station Local Magnetics Local Reference (H)

Recording Metadata

Recording ID: 10125_2017-12-01-001137
 Site Name: S1 MTU-5C
 Survey Name: Don Campbell
 Operator(s): CF GB MU
 Start Time: Fri Dec 1 00:11:38 2017 GMT
 Stop Time: Fri Dec 1 19:33:43 2017 GMT
 Duration: 19 h 22 m 5 s
 Latitude: 38.8374 °
 Longitude: -118.295 °
 Altitude: 1261 m
 Azimuth: 40 °
 Declination: 13 °
 External Electric Filter: None

Receiver Metadata

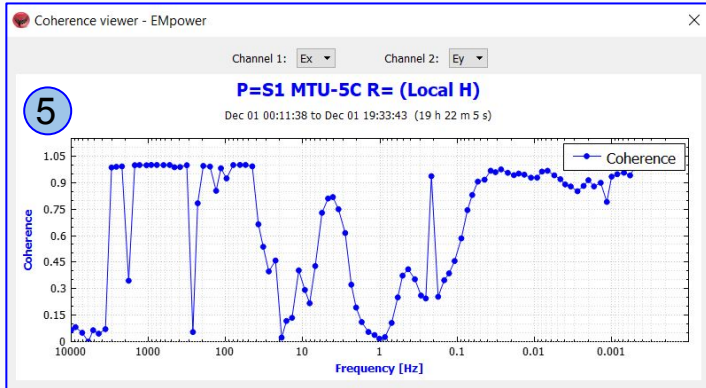
Receiver Type: MTU-5C
 Receiver ID: 10125
 Receiver Firmware: v1.22.0.1
 Receiver Calibration: [View](#)

Notes

4 Channel Details

Tag	Polarity Inverted	Gain	LPF	DC	Saturated Frames	Dropped Frames	Sensor Range	Sensor Type	Sensor Serial	View Calibration
Hx	H1	No	x4	10000 Hz	0 v	0	0.00001 Hz to 10500 Hz	MTC-150	53917	View
Hy	H2	No	x4	10000 Hz	0 v	0	0.00001 Hz to 10500 Hz	MTC-150	53918	View
Hz	H3	No	x4	10000 Hz	0 v	0	0.00001 Hz to 10500 Hz	MTC-150	53191	Not Available


[Close](#)



Editing Cross Powers

Edit Cross Powers, is a tool to create multiple edition masks without changing the original (Unedited) data. Masks can be used to clean noisy sites

1. To create a new **Workbench**

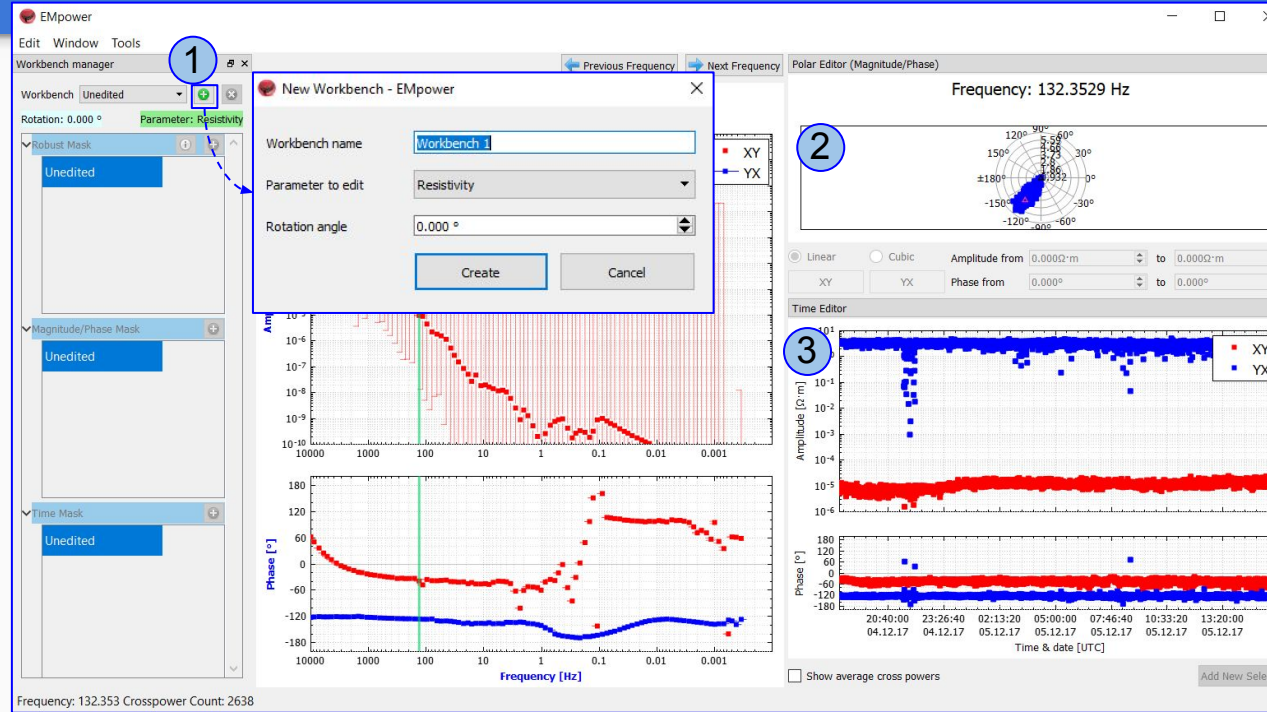
- Click the icon 
- Type the **Workbench name**
- Complete the information as needed
- Click the **Create** button

2. **Polar Editor**

- Create a **Polar Editor Mask**(see page 16)

3. **Time Editor**

- Create a **Time Editor Mask**(see page 17)

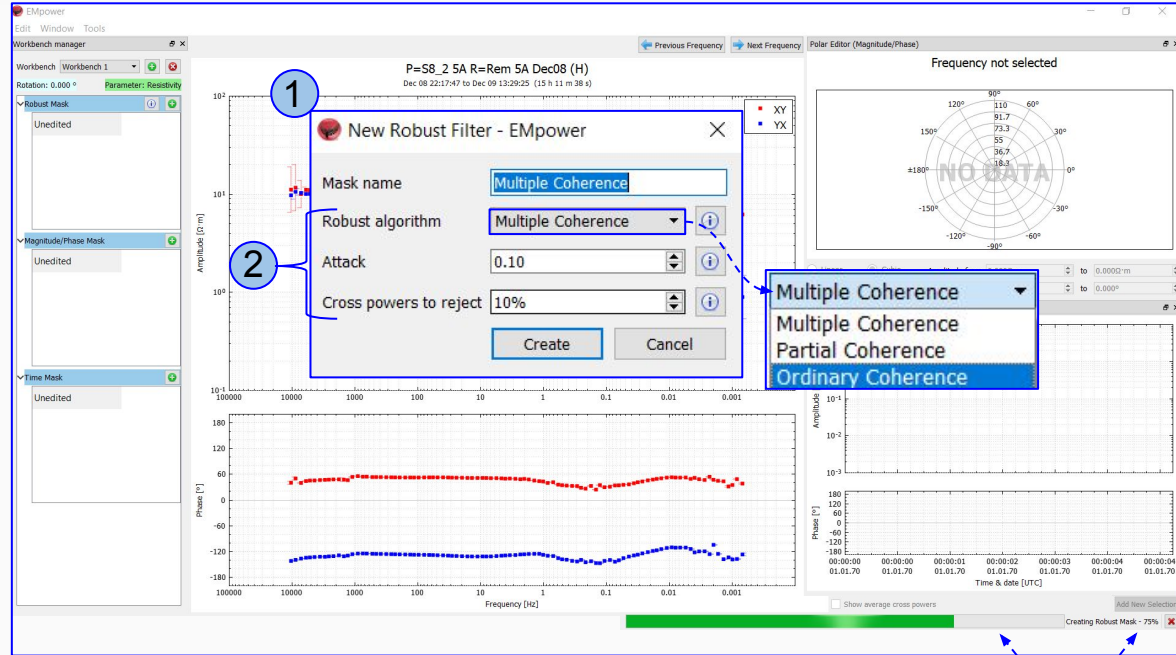


**For more details see the [Crosspower Editor manual](#)*

Robust Mask

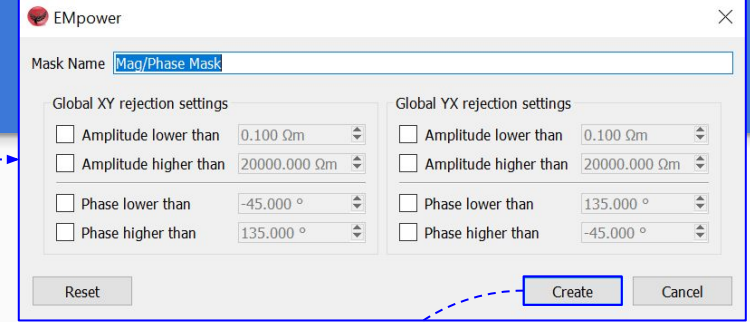
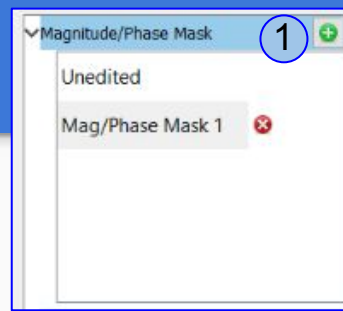
The Robust Mask algorithm fixes the most common problems

1. Create a **Robust Mask**
 - Type the **Mask Name**
2. Use the different options to obtain the desired information
 - Select the **Robust algorithm**
 - Define the **Attack**
 - Select the percent of **Cross powers to reject**
3. Wait until the process is completed



**For more details see the [Crosspower Editor manual](#)*

Polar Editor



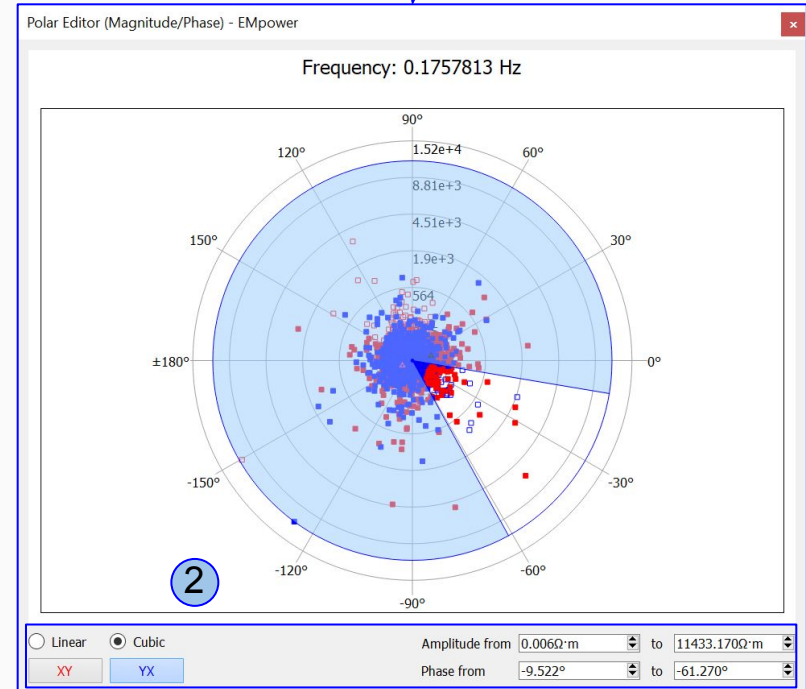
1. Create a New Magnitude/ Phase Editor Polar Masks

- Type the **Mask Name**
- Edit the **Global XY rejection settings** as needed
- Click the **Create** button

2. Use the different tools to obtain the desired information

- Linear / Cubic
- XY / YX
- Amplitude range
- Phase range

**For more details see the [Crosspower Editor manual](#)*



Time Editor

1. Create a New **Time Editor Mask**

1.1. The Mask Name can be edited by right-clicking on it

2. To add a new rejection area

2.1. Click the **Add New Selection** button

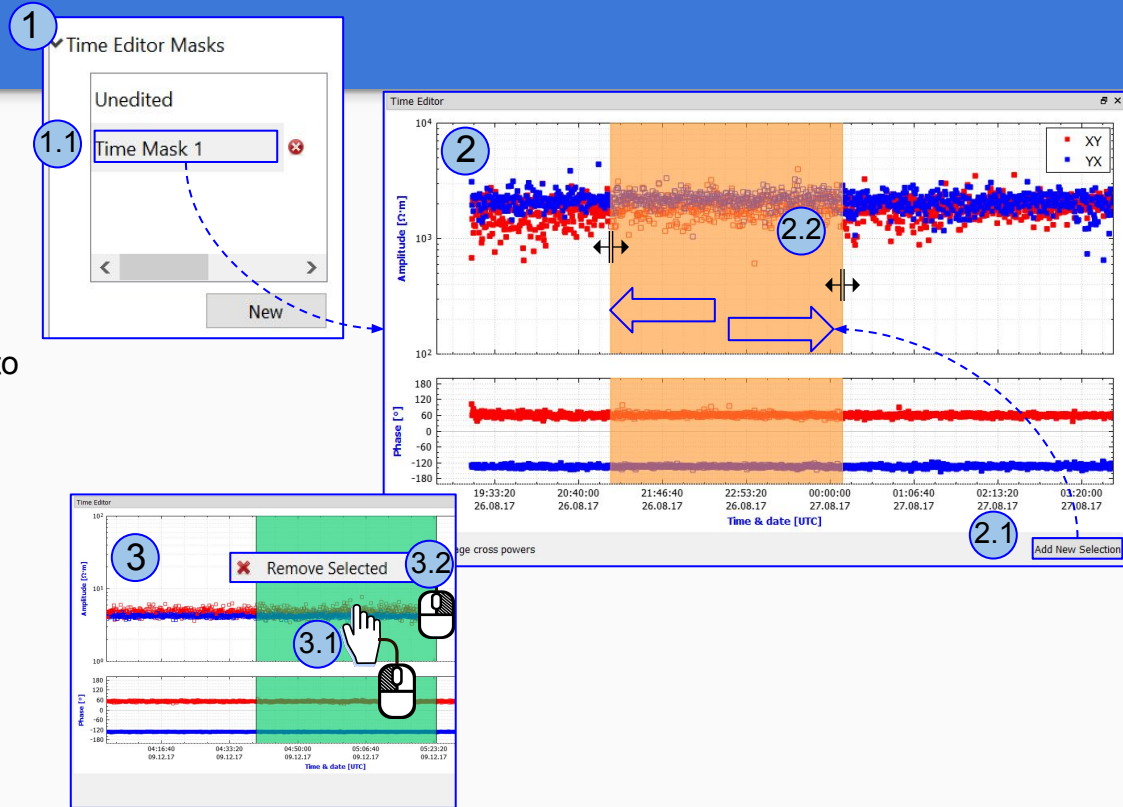
2.2. Left-click and hold, and start dragging to the left or right to select the area of crosspower rejection

3. To remove an existing rejection area:

3.1. Left-click on the area to be deleted

3.2. Then right-click the option **Remove Selected** that appears on the screen

** The crosspowers rejected in the polar editor will be shown in the time editor and vice versa.*

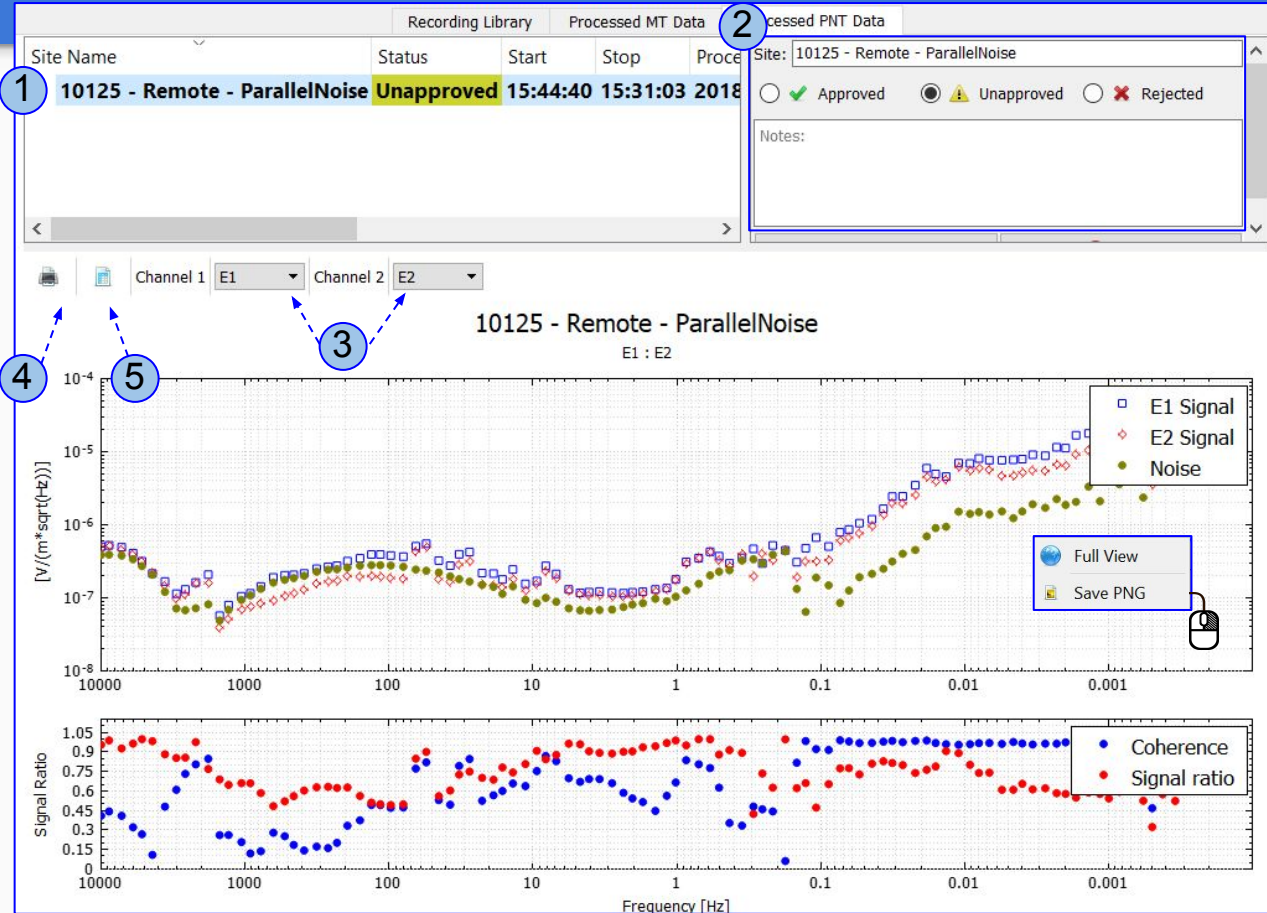


**For more details see the [Crosspower Editor manual](#)*

Processed PNT Data

This tab shows processed Parallel Noise data

1. Area to Select the Site of interest and view its metadata
2. Area to edit information of the selected Processed **Site**
 - Site Name
 - Mark the site as Approved, Unapproved or Rejected
 - Relevant Notes for the processing
3. Selectors to choose the **Channels** to be analysed and displayed
4. **Print** tool
5. CSV (excel) **Export** tool



Multi-Site PNT

1. Use the **Multi-Site PNT (Ctrl+T)** tool to process Parallel Noise data using specific channels from different sites
2. Select the recording(s)
 - 2.1. Select the first Recording and define the channels
 - 2.2. Select for another recording(s) the channels that will be used (no more than 7)
3. **Apply calibration to magnetic channels**
 - 3.1. When the selected sensor does not have associated calibration available in the project **EMpower** will apply a generic calibration
 - 3.2. Click **Next**
4. Define the Name and Duration, the time available depends on the overlapped time between all the recordings selected
5. To begin processing click the **Process** button

The screenshot shows the 'Multi Site PNT Setup - EMpower' application. At the top, a menu bar includes 'File', 'Tools', 'View', 'Window', and 'Help'. The 'Tools' menu is open, showing 'Calibration Viewer' (Ctrl+M), 'EDI Merger' (Ctrl+G), and 'Multi-Site PNT' (Ctrl+T), with the latter highlighted by a blue circle labeled '1'. Below the menu, a grid of recordings is displayed with columns for dates from Nov 07 2018 to Dec 01 2018. A recording '10181 - E59-066U - 10181_2018-11-11-074327' is selected. A dialog box (callout 2.1) shows 'Selected Channels' for this recording: E1 - [100 m], E2 - [100 m], H1 - (MTC-150 - 54269) (checked), H2 - (MTC-150 - 54305), and H3 - (MTC-150 - 54308). Another dialog box (callout 2.2) shows 'Selected Channels' for recording '10175 - E59-067U - 10175_2018-11-11-081029': E1 - [100 m], E2 - [100 m], H1 - (MTC-150 - 54216), H2 - (MTC-150 - 54215), and H3 - (MTC-150 - 54214). A 'Selected Channels (Maximum of 7)' list on the right includes: 10181 - E59-066U - E1, 10181 - E59-066U - E2, 10181 - E59-066U - H1, 10175 - E59-067U - H1, 10175 - E59-067U - H2, 10175 - E59-067U - H3, and 10175 - E59-067U - E2. The 'Apply calibration to magnetic channels' checkbox is checked (callout 3). The 'Next' button is visible. The bottom dialog box (callout 4) shows 'Name: Multi Site PNT(test2)', 'Processing Timeframe' with 'Time zone' set to 'Site time zone: America/Los_Angeles (UTC-08:00)', 'Start: 2017-11-30 16:11:38', 'End: 2017-12-01 11:33:43', 'Sunrise: 06:51', 'Sunset: 16:32', and 'Duration: 19 h 22 m 5 s'. The 'Process' button is highlighted by a blue circle labeled '5'.

EDI Merger <Create>

1. **EDI Merger (Ctrl+G)** tool is used to combine two EDI files into one.
2. Select the EDI files by using the **Browse for EDI** button
3. Choose one of the Geophysical Mode
4. The **Merged Results** plot shows the highlighted area on the EDI plots

The screenshot displays the 'EDI Merger - EMpower' application. At the top, a menu bar includes 'Tools', 'View', 'Window', and 'Help'. Below it, a toolbar contains 'Calibration Viewer' (Ctrl+M), 'EDI Merger' (Ctrl+G), and 'Multi-Site PNT' (Ctrl+T). The main window shows two plots: 'Amplitude [Ω·m]' and 'Phase [°]' versus 'Frequency [Hz]' on a log-log scale. A 'Browse for EDI' button is visible. A file selection dialog is open, showing the file 'P_MB_4_R_Remote_H_Workbench_1.edi' selected. A dropdown menu is open, showing 'Resistivity' selected. A 'Merged Result' plot is highlighted in the background.

1. **EDI Merger** (Ctrl+G) tool is used to combine two EDI files into one.

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EDI Merger <Edit and Save>

1. To exclude a frequency, select it by using the Left-Click, (review the information on the top plot) and click **Remove Frequency** or use the Delete key
2. To recover the frequency, select the frequency and click **Restore Frequency**
3. Click **Save** button and fill out the metadata of the merged EDI in each tab
 - 3.1. Use the blue arrows to select the information from respective EDI file. This information can be manually edited in the merger EDI file.
 - 3.2. To clear the selection use the **Reset** button
4. Once the all the Metadata has been filled click **OK** button to save the merged EDI

