

User manual for REPA program (REsidual Plotting and Ambiguity resolution)

Leonid Petrov

Abstract:

This document describes how to use program REPA, the graphics tool for visualization of observables, residuals, manual ambiguity resolution and toggle observation suppression status.

Table of contents:

- 1 [Scenario 1: Look at residuals](#)
 - 2 [Scenario 2: Adjust suppression status of one or several points](#)
 - 3 [Scenario 2: Change ambiguity of one or several points](#)
 - 4 [Scenario 3: Change ambiguity of a group points](#)
 - 5 [Scenario 4: Change Suppression status of a group of points](#)
 - 6 [Scenario 5: Show dependence of Cable calibration versus air temperature](#)
-

1 Scenario 1: Look at residuals

Invoke REPA by hitting "P" at the OPTIN menu. REPA creates the window with small plots for each baseline. If the total number of baselines exceeds 25, then REPA will show only one page. There are two ways of looking at residuals: a) look at small plots; b) look at big plots. All baselines are sorted in alphabet order. Keys [PageUp], [PageDown] serve for navigation. For looking at big plots, position the cursor on a small plot and hit the Left Mouse Button. REPA will enter DiaGi mode. Use [PageUp], [PageDown] for plotting the next or prior baseline.

2 Scenario 2: Adjust suppression status of one or several points

Invoke REPA by hitting "P" at the OPTIN menu. REPA creates the window with small plots for each baseline. If the total number of baselines exceeds 25, then REPA will show only one page. All baselines are sorted in alphabet order. If you do not see the baseline you are interested in at the current plot use keys [PageUp], [PageDown] for scrolling to the next or prior page. Select the baseline: position the cursor on a small plot and hit the Left Mouse Button. REPA will enter DiaGi mode. Hit [F1]

key. Now mouse buttons are bound to SngAmb mode (Single point suppression status toggle and ambiguity shift). Position the cursor to the point of interest and hit the Central Mouse Button. Suppression status will be flipped: if the point was good (green color) it becomes bad (red). If the point was bad (red color), it becomes good (green). Keep in mind: you cannot change suppression status of unrecoverable observations (black circles). If the points lay too dense and you have difficulties in selecting the right point, you may resize the plot. First hit <ESC> for entering DiaGi mode, then use Central Mouse Button for window resizing, then fit <F1> for entering SngAmb mode.

REPA updates the plot as soon as you hit the Central Mouse Button, but it delays updating scratch file. It stores all entered commands in stack. Any time you can hit <BackSpace> it undoes the latest command and decrement the stack counter. If you hit <F10> key, REPA will discard the latest command in the stack without writing scratch files, leaves REPA and returns to OPTIN. If you hit <HOME> REPA writes the scratch files, leaves REPA and returns to OPTIN. If you hit <X> or <Q> REPA writes the scratch files and comes back to the Multi_DiaGi level of REPA.

3 Scenario 2: Change ambiguity of one or several points

Invoke REPA by hitting "P" at the OPTIN menu. REPA creates the window with small plots for each baseline. If the total number of baselines exceeds 25, then REPA will show only one page. All baselines are sorted in alphabet order. If you do not see the baseline you are interested in at the current plot use keys [PageUp], [PageDown] for scrolling to the next or prior page. Select the baseline: position the cursor on a small plot and hit the Left Mouse Button. REPA will enter DiaGi mode. Hit [F1] key. Now mouse buttons are bound to SngAmb mode (Single point suppression status toggle and ambiguity shift). Position the cursor to the point of interest and hit the Left Mouse Button if you would like to decrease the ambiguity or Right Mouse Button if you would like to increase the ambiguity counter. The point will be shifted to the down (Left Mouse Button) or up (Right Mouse Button) one ambiguity spacing. The amount of ambiguity spacing is shown at the upper right corner of the plot.

It may occur that the point is shifted away from the plotting area. In that case the point will be shown just beyond the upper or lower border. Command <M> sets the plotting area around only good points, command <Alt/M> sets the plotting area around good and bad points, command <Ctrl/M> sets the plotting area around all points: good, bad

and unrecoverable. In addition to that the plotting area may be adjusted manually. Hit <ESC> to enter DiaGi mode, then hit the Central Mouse Button for adjusting the plotting area, then hit <F1> to come back to SngAmb mode/

REPA updates the plot as soon as you hit the Central Mouse Button, but it delays updating scratch file. It stores all entered commands in stack. Any time you can hit <BackSpace> it undoes the latest command and decrement the stack counter. If you hit <F10> key, REPA will discard the latest command in the stack without writing scratch files, leaves REPA and returns to OPTIN. If you hit <HOME> REPA writes the scratch files, leaves REPA and returns to OPTIN. If you hit <X> or <Q> REPA writes the scratch files and comes back to the Multi_DiaGi level of REPA.

You can intermix ambiguity shift and suppression status toggle (Central Mouse Button) commands.

4 Scenario 3: Change ambiguity of a group points

Invoke REPA by hitting "P" at the OPTIN menu. REPA creates the window with small plots for each baseline. If the total number of baselines exceeds 25, then REPA will show only one page. All baselines are sorted in alphabet order. If you do not see the baseline you are interested in at the current plot use keys [PageUp], [PageDown] for scrolling to the next or prior page. Select the baseline: position the cursor on a small plot and hit the Left Mouse Button. REPA will enter DiaGi mode. Hit [F2] key. Now mouse buttons are bound to GrpAmb mode (Group ambiguity shift). Position the cursor to the point with respect of which you would like to resolve ambiguities and hit the Center Mouse Button. Ambiguities of all points will be resolved with respect to the current cursor position.

You may want to change all points at N ambiguities. There are several ways to achieve it. One of the ways: enter SngAmb mode by hitting <F1>, select any point shift it repeatedly at the desired number of ambiguities. If the point goes beyond the plotting area you need to toe adjust the plotting area by hitting either <M> (box around all points), <Alt/M> (box around good and bad points), <Ctrl/M> (box around good points only). Then hit <F2> for entering GrpAmb mode, position the cursor to that point and hit Central Mouse Button.

REPA updates the plot as soon as you hit the Central Mouse Button, but it delays updating scratch file. It stores all entered commands in stack.

Any time you can hit <BackSpace> it undoes the latest command and decrement the stack counter. If you hit <F10> key, REPA will discard the latest command in the stack without writing scratch files, leaves REPA and returns to OPTIN. If you hit <HOME> REPA writes the scratch files, leaves REPA and returns to OPTIN. If you hit <X> or <Q> REPA writes the scratch files and comes back to the Multi_DiaGi level of REPA.

5 Scenario 4: Change Suppression status of a group of points

Invoke REPA by hitting "P" at the OPTIN menu. REPA creates the window with small plots for each baseline. If the total number of baselines exceeds 25, then REPA will show only one page. All baselines are sorted in alphabet order. If you do not see the baseline you are interested in at the current plot use keys [PageUp], [PageDown] for scrolling to the next or prior page. Select the baseline: position the cursor on a small plot and hit the Left Mouse Button. REPA will enter DiaGi mode. Hit [F3] key. Now mouse buttons are bound to GrpTgl mode (Group suppression status toggle).

If you want to suppress all observations with residuals by modulo greater than some value, position the cursor to the points with that value (does not matter +value or -value) and hit the Left Mouse Button.

If you want to restore all observations with residuals by modulo less than some value, position the cursor to the points with that value (does not matter +value or -value) and hit the Right Mouse Button.

Keep in mind: these two operations are not reciprocal.

REPA updates the plot as soon as you hit the Central Mouse Button, but it delays updating scratch file. It stores all entered commands in stack. Any time you can hit <BackSpace> it undoes the latest command and decrement the stack counter. If you hit <F10> key, REPA will discard the latest command in the stack without writing scratch files, leaves REPA and returns to OPTIN. If you hit <HOME> REPA writes the scratch files, leaves REPA and returns to OPTIN. If you hit <X> or <Q> REPA writes the scratch files and comes back to the Multi_DiaGi level of REPA.

6 Scenario 5: Show dependence of Cable calibration versus air temperature

guide repa_02

Invoke REPA by hitting "P" at the OPTIN menu. REPA creates the window with small plots for each baseline. If the total number of baselines exceeds 25, then REPA will show only one page. All baselines are sorted in alphabet order. Position the cursor away from the small plot and hit the button <T>, or position the cursor on the box "Change argument" and hit the Left Mouse Button. You will see the menu of supported argument types. The current argument type is displayed in the box with darker color. Position the cursor to the box with desired argument -- "Air temperature at station 1" in our case and hit first Left Mouse Button and then Right Mouse Button. You will return back to the Multi_DiaGi window. Position the cursor away from the small plot and hit the button <V>, or position the cursor on the box "Change value" and hit the Left Mouse Button. You will see the menu of supported value types. The current value type is displayed in the box with darker color. Position the cursor to the box with desired argument -- "CABLE station 1" in our case and hit first Left Mouse Button and then Right Mouse Button.

Questions and comments about this guide should be sent to:

Leonid Petrov (sgdass@lists.nasa.gov)

Last update: 2004.12.17