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SeisComP3 - Tutorial

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Outline

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1 Load Event

2 Confirm automatic location

3 Revise automatic origin

4 Manual Picking

5 Manual Picking

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1 Open scolv

2 Click on Events tab

3 Click on Read to load events from the database

4 Double click on event of interest

1. Check residual plot
   - ▶ Residuals should be equal distributed
   - ▶ Trends indicate wrong depth (bottom to top with distance => hypocenter to deep, top to bottom => hypocenter to shallow)

2. Check hypocenter information
   - ▶ Hypocenter should have reasonable location and depth
   - ▶ RMS should be
     - ⋆ less then 1 second for local earthquakes (up to 8°)
     - ⋆ less then 1.5 seconds for regional earthquakes (up to 30°)
     - ⋆ less then 2.5 seconds for teleseismic earthquakes

3. Check phases
   - ▶ Number of phases should be more than 25

1. Exclude outliers through residual plot (draw box)
   - More than 2 seconds for local/regional earthquakes
   - More than 4 seconds for teleseismic earthquakes
2. Press Relocate
3. Check depth, fix in case depth is not reasonable
4. Press Relocate again

1. Click on magnitude tab
2. Click on magnitude type (MLv, mb, mB etc)
3. Check station magnitude residual plot
   ▶ Scattering of active station magnitudes (green circles) should be less than +-1 magnitude
4. Repeat for all magnitude types
5. Draw box on residual plot and exclude outliers and recalculate in case difference is more than +-1 magnitude

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- Click on Confirm/Commit if above steps are done
- Origin information (Hypocenter + Magnitudes) is stored in the database and publisehd to the rest of the system

Start manual P-picking

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1 Click on Picker

2 Change size of zoom window through slider if necessary

3 Check trace overview (bottom) if it is really and earthquake

4 Align by theoretical P-arrival (light green button with P or $\boxed{\text{Ctrl}}$ + $\boxed{\text{Shift} \Uparrow}$ + $\boxed{1}$)

5 Select P-picking mode (dark blue button with P or $\boxed{1}$

6 Check that Z-Component is active

7 Use $\boxed{\text{Ctrl}}$ + $\boxed{\leftarrow}$ or $\boxed{\rightarrow}$ to zoom in time

8 Use $\boxed{\text{Ctrl}}$ + $\boxed{\uparrow}$ or $\boxed{\downarrow}$ to zoom in amplitude

9 Press $\boxed{r}$ to activate post picker (AIC)

10 Correct cursor position if necessary ($\boxed{\leftarrow}$ or $\boxed{\rightarrow}$ for small steps or $\boxed{\text{Shift} \Uparrow}$ + $\boxed{\leftarrow}$ or $\boxed{\rightarrow}$ for major steps)

11 Change filter to improve signal quality if necessary

12 Press $\boxed{\leftarrow}$ to set Pick (Next trace will be automatically activated)

13 Repeat these steps for all traces

14 Update residuals (red button or $\boxed{F5}$

1 Follow steps of Confirm automatic origin, revise automatic origin and check magnitude quality

2 Press commit if solution is ok

3 Click on outliers in residual plot

4 Switch to manual picker and try to correct these

5 Repeat the above steps

Start manual S-picking

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1 Align by theoretical S-arrival (light green button with S or `Ctrl` + `Shift ⇑` + `5`)

2 Select S-picking mode (dark blue button with S or `5`

3 Check that N-Component or E-Component is active

4 Use `Ctrl` + `←` or `→` to zoom in time

5 Use `Ctrl` + `↑` or `↓` to zoom in amplitude

6 Press `r` to activate post picker (AIC)

7 Correct cursor position if necessary (`←` or `→` for small steps or `Shift ⇑` + `←` or `→` for major steps)

8 Change filter to improve signal quality if necessary

9 Change to E-component to improve signal quality if necessary

10 Press `←` to set Pick (Next trace will be automatically activated)

11 Repeat these steps for 3-4 traces (only the best one)

12 Update residuals (red button or `F5`

Check manual solution

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1. Press relocate to get final solution
2. Follow steps of Confirm automatic origin, revise automatic origin and check magnitude quality
3. Press commit if solution is ok
4. Click on outliers in residual plot
5. Switch to manual picker and try to correct these
6. Repeat the above steps

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1. Click F3 and check if "Compute missing take-off angles" is activated

2. Open Picker

3. Align by theoretical P-arrival (light green button with P or $\boxed{\text{Ctrl}}$ + $\boxed{\text{Shift} \Uparrow}$ + $\boxed{1}$)

4. Select P-picking mode (dark blue button with P or $\boxed{1}$

5. Check that Z-Component is active

6. Set the filter to no filter

7. Select first trace

8. Pick the polarities only on the very clear onsets

9. Press to set the pick

10. Press $\boxed{\text{Shift} \Uparrow}$ + $\boxed{\uparrow}$ or $\boxed{\text{Shift} \Uparrow}$ + $\boxed{\downarrow}$ to set the polarity.

11. Afterwards go with $\boxed{\downarrow}$ to the next trace.

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1. Update residuals (red button or ⟦F5⟧)
2. Press Relocate
3. Goto the Location tab and select the first motion plot
4. Click on the beachball, hold the left mouse button and move the mouse
5. Move the mouse as long as all filled circles are within the dark area (indicated by the filled triangle) and all empty circles are in the light area (indicated by the empty triangle)
6. If the origin is not commited press commit in the location tab
7. press the small "C" next to the beachball to commit the focal mechanism
8. In case of several focal mechanisms you can select the prefered in the event tab