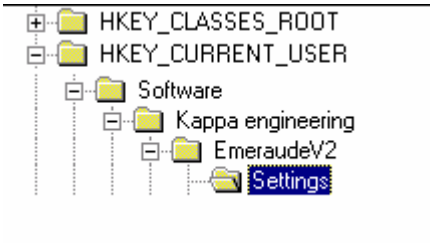
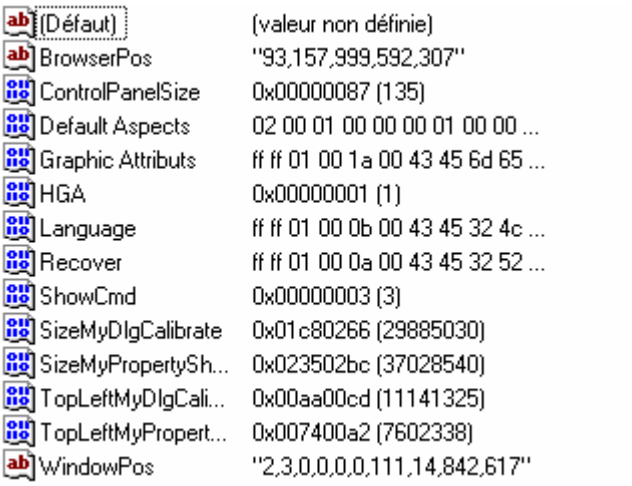
D14 • Hints & Troubleshooting

This chapter compiles the answer to some of the most frequently asked questions and problems encountered in Emeraude V2.0.

D14.1 • Data browser does not appear

The browser position is stored in the Windows Registry every time you exit Emeraude. If you drag the browser window outside the visible area, the only way to retrieve it is clear the key defining its position from the Windows Registry.
After closing Emeraude, execute **Regedit** using the **Run** command of the Windows **Start** menu. In Regedit, develop the levels as indicated in the figure below. Select **BrowserPos** in the right pane, then press the Del key. Next time you call the data browser option in Emeraude, the browser window will be back to its default position.





D14.2 • Contribution percentages do not appear in the report

Problem
After completing an interpretation with Zone Rates + Rate Logs, you print or preview the report and the following occurs:
On page 4 (Zone Contributions; S.C.) the total contribution for each phase reads “N/A”
On page 4 (Zone Contributions, Res. Cond.) and page 5 (Total Zone Rates; Res. Cond.) the column giving percentages only shows “N/A”
On page 5 you do not see the schematic rate bar chart
The problem is that some of the calculation zones could not be calculated because of missing data. This usually happens for bottom perforations that could not be logged. If those perforations were entered and the calculation zones defined from the perfos, then Emeraude has automatically set calculation zones around those perfos.

Solution

After identifying the zones with absent data, go to the Zone Rate option, select those zones in turn, and press the “Vm” button to set the value to 0. Exit the Zone Rate dialog with OK.

With this operation, the report will still incorporate the bottom perfos. If you do not even want to see those perfos in the report you can simply delete the corresponding calculation zones.

Note that whenever the zone rate calculation is re-initialised (from the Zone Rate Init dialog), Emeraude will revert back to N/A values where there is no data.

D14.3 • I cannot create a New Survey or Interpretation

Problem

You have created a first survey/interpretation and you would like to create a second one. You go to the Infos/New button of the Survey/Interpretation panel, type in all the infos, and nothing happens.

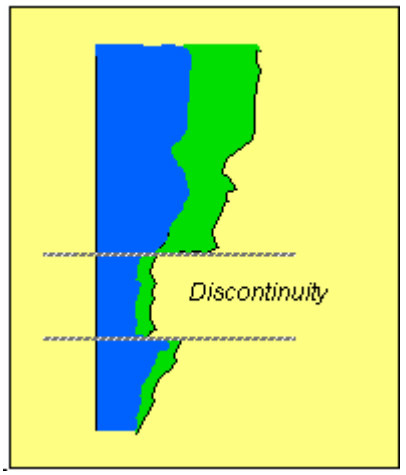
Solution

When you are in the Infos/New dialog you must first press the **New** button to create the new instance. Otherwise, you are simply editing the properties of the current survey/interpretation.

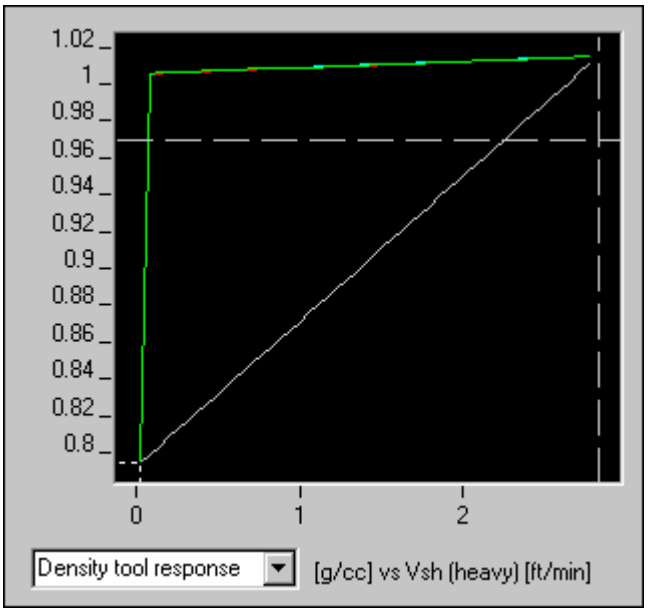
D.14 • The complete rate logs show a sharp discontinuity in one section of the well3

Problem

You have completed the interpretation up to the generation of complete logs. The complete logs exhibit a behaviour as illustrated below, and nothing would support such behavior.



This problem is most likely occurring in Liquid-Liquid situations and is due to the fact that the slippage correlations in this case predict a velocity that is independent of the mixture velocity. When the slippage is higher than the mixture velocity, the correlations exhibit a “step” when plotted for instance in terms of density versus Vsh:



The discontinuity in itself may not be a problem and having slippage velocities larger than Vm may be realistic in deviated situations. But the measurement (horizontal dashed line) falls within the step, and the non-linear regression will not converge.
If you do not have a calculation zone within the section showing the discontinuity you should add one temporarily, then, go to the Zone Rates dialog and select that zone to confirm the diagnosis.

Solution

The solution is to use the Vslip /Vm limit option to impose a limit to Vslip. Enter 1 to limit Vslip to the value of Vm. This modification applies to all calculations, not just the current zone. You need to run Improve manually on all zones, or if they are set up identically, go to the Init page and select “Set/Reset All zones”. After exiting Zone Rate generate the logs again.
You may revert the ratio to “No limit” by clicking the Vslip/Vm button and emptying the edit field.

D14.5 • Rate calculation hints

By default the regression scheme takes into account all available measurements. In some situation, say a Water-Gas situation with both density and capacitance, the problem will be over-specified and it is possible to disable, in the zonal calculations, one of the redundant measurements. This is done in the Zone Rate Results page using the “Fit” check boxes. Once the option is changed, it is necessary to manually run Improve on the modified zone.
In Liquid-Gas, the breaks occurring in the predicted holdup when flow regimes changes can “trap” the non-linear regression in a local minimum. In this case, it is always possible, at least in the Zone Rates dialog, to set a different starting point before launching another “Improve”. The rate log calculation starts from the solution found on the calculation zones, which avoids a similar problem. With the “3-Phase L-G” model, it is sometimes necessary to force the starting point for the oil rate fraction fo.
By default, the slip prediction models impose no limit on the ratio Vslip/Vm. When the mixture velocity is small this can lead to a discontinuity of the simulated holdup curves for small values of Vsheavy.

This break can be seen in Liquid-Liquid models where the holdup can almost “jump” to 1, as soon as a small heavy phase rate is added. When the tool measurement falls in the break, the non-linear regression cannot find an optimum solution. In Emeraude, this will typically be seen on the simulated holdup curves generated as part of a complete log. If the curve shows an erratic behaviour when Vapp approaches 0, then the Vslip/Vm ratio should be changed from N/A to a definite value, 1 for instance. The same problem can be revealed more drastically on the rate logs themselves.

D14.6 • Using a caliper

X-Y Calipers

When loading an X-Y Caliper, either in a pass or in General Well Data, one should assign the CaliperC1 and CaliperC2 types to the two recorded channels. After loading, Emeraude automatically constructs a CaliperC1C2 curve with:

$$\mathrm{CaliperC1C2} = \sqrt{\mathrm{CaliperC1} \times \mathrm{CaliperC2}}$$

Making the data available to the interpretation

The caliper has been run during the job, and there is a caliper channel inside each pass.
In order to use this information inside the interpretation, a single caliper curve has to be selected, or constructed and then **dropped** inside the Interpretation node in the data browser. If you have a X-Y caliper, the curve to be dropped must be of type CaliperC1C2.

A single caliper run is available in a separate file
This caliper should be loaded in the General Well Data, using the Load Well Data option of the Document panel. It is not necessary to copy the curve later on in the Interpretation.

When seeking Internal diameter information, Emeraude looks first inside the current interpretation. If nothing is present it then looks inside the General Well Data, for either a Caliper or an I.D. channel.

D14.7 • Setting up an automatic comparison between two different calculations

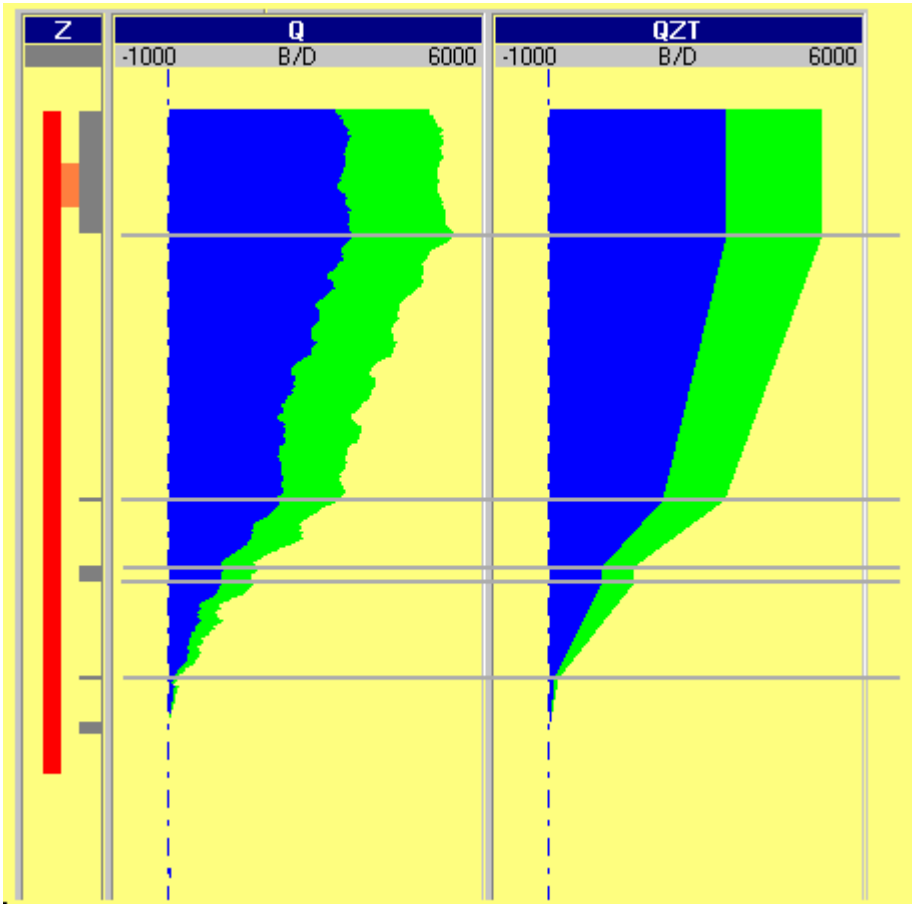
We take the example of a spinner calibration where the thresholds cannot be calculated in-situ, for instance because the well could not be logged low enough. The thresholds could be left to their default value (0) or set to some representative value for the particular spinner. The following can be made to quickly compare the effect of the different options on the end result:

- Choose one option and generate VAPP
- Copy the generated channel inside the Data Store
- Create a User View with both the original channel and its copy.

Re-generate VAPP with the new settings. The user view will show right away a comparison between the two calculations. The copy will keep its original value, while the original Vapp will be updated by the new calculation
This method can also be handy with simulated zoned channels, comparing a fit with and without global regression.

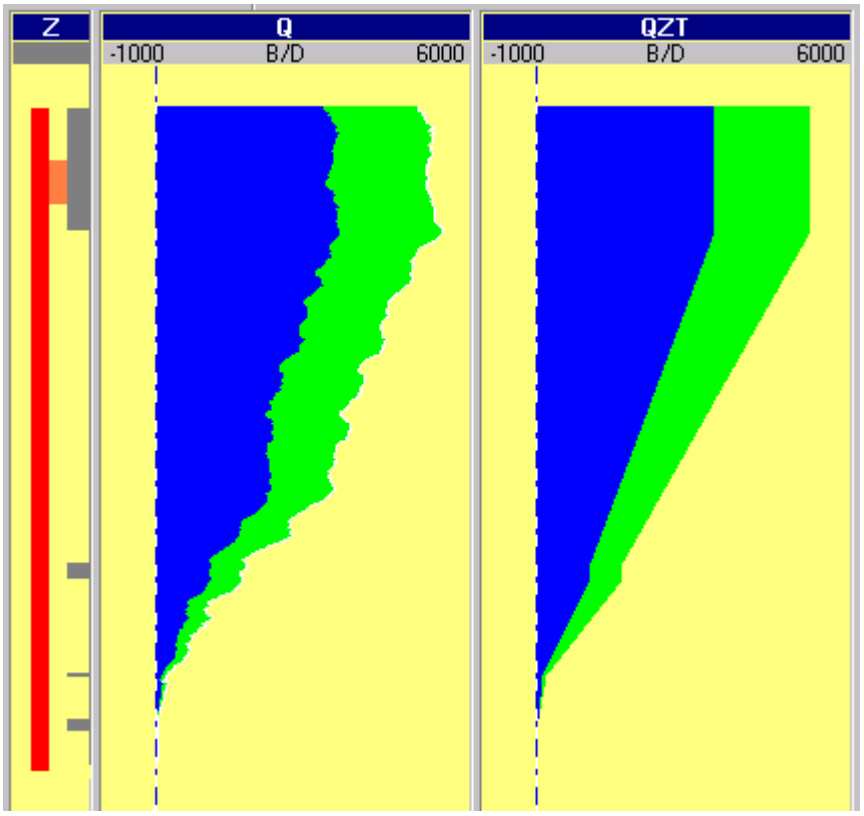
D14.8 • Open-hole interpretation

When a cased-hole interpretation is conducted it is generally simple to set-up the rate calculation zones properly. In most cases, the default settings will work with minor adjustments. Things are not as simple in an open-hole situation, especially because of hole diameter variations,.
You can define one single “perforations” interval for the entire section that is open to flow.
Create calculation zones based on the “perfos”. In this case you will get a calculation zone at the very top, one at the very bottom. The layout at that stage is not important.
Execute Zone Rates to select the flow model/correlation
Generate complete logs
Use the complete log to identify the contributing section and set the final calculation zones accordingly.
Calculation zones are defined to span sections that separate contributing intervals, as illustrated on the figure below:
Zone 1 covers the top part of the log, which is fairly stable
Zone 2 is set so that the schematic catches the trend change. It is assigned a 0 height. Setting a 0 height can be done inside the grid accessed by a double-click on any calculation zone.



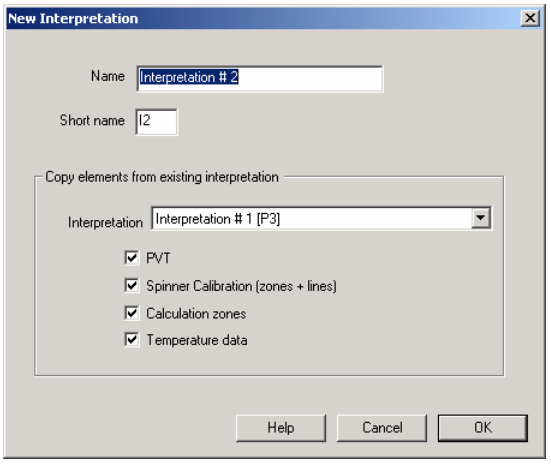
Return to Zone Rates. Simply entering the dialog executes the calculation for the newly created zones
Re-generate the logs
The position of the calculation zones is critical as it governs the aspect of the schematic logs and also determines the contributing intervals listed in the report.

For instance, if we remove the second calculation zone, the first and second contributions from the top are merged into a single one, and assigned linearly down to the next calculation zone. This is illustrated on the below.



D14.9 • Copying a spinner calibration or calibration infos

When you create a new interpretation, the creation dialog allows the retrieval of elements from an existing interpretation.



The “Interpretation” drop-list contains **ALL** the interpretations of the document. This list however shows a default selection **ONLY** if there are interpretations within the same survey. You can still pull down the list and select an interpretation from another survey. For the spinner calibration the following happens:

Source interpretation in the same survey

- The position of the calibration zones is copied
- The thresholds are copied
- The lines are copied

Source interpretation in a different survey

- The position of the calibration zones is copied
- The thresholds are copied
- The lines are set to absent values and will be recalculated

