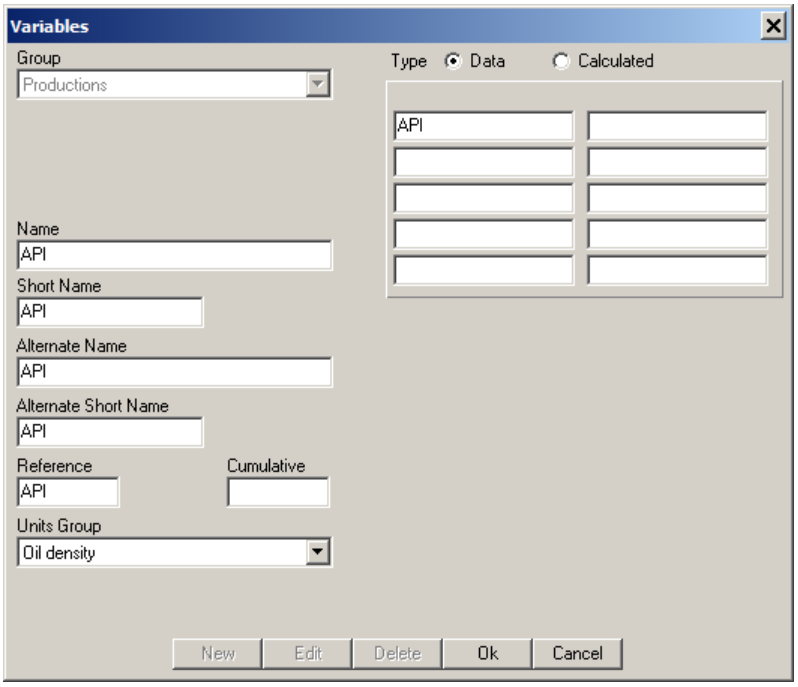
API Balance

An average API density for the production can be computed in Sahara having into account rates with different specific gravity. This function is available both for well productions, adding layer productions and group productions, adding wells production with different specific gravity. There are different ways to load the information according to data type available.
It is usual having API data in time along with the historical production. Next, we show the procedure to visualize this information in Sahara:

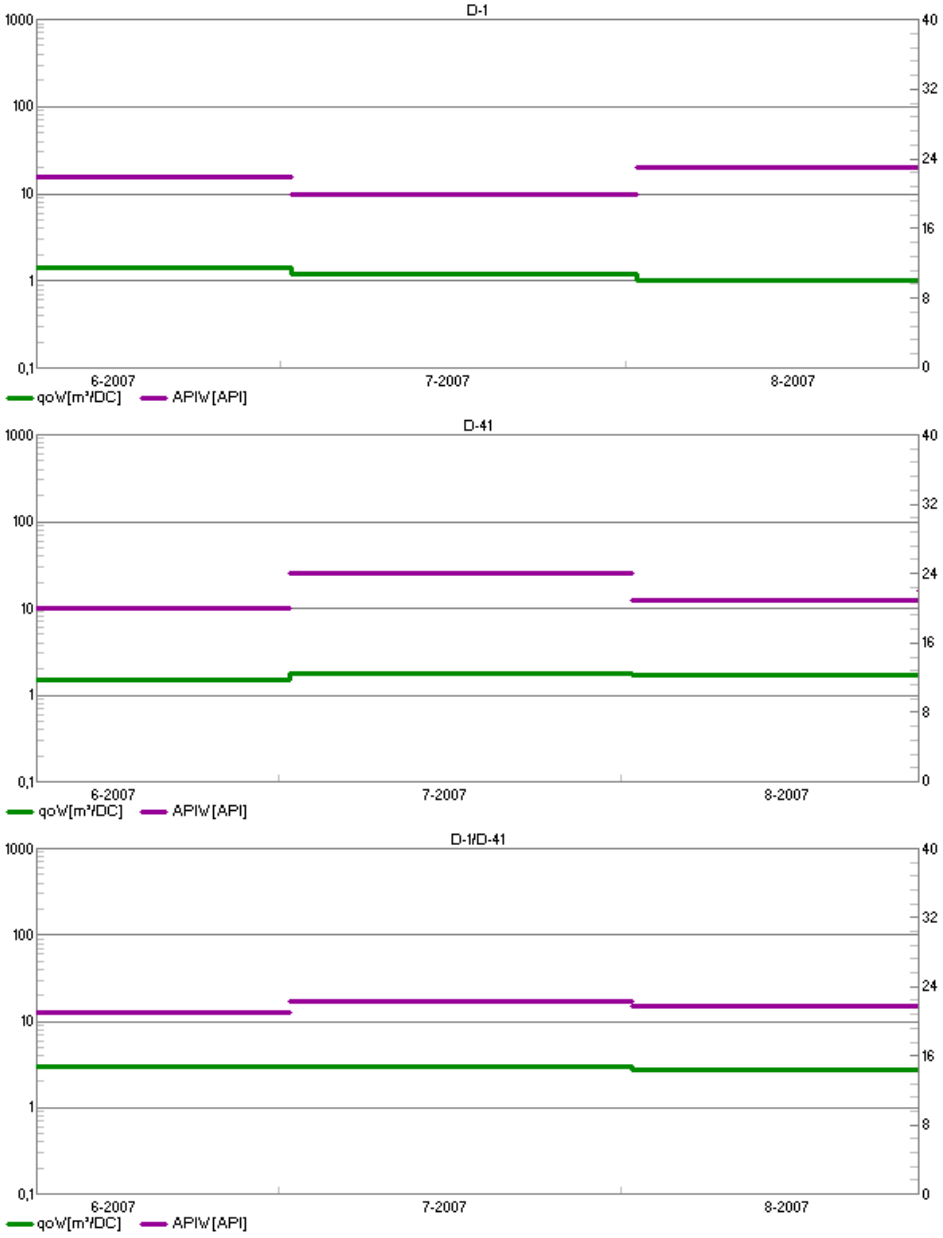
1. A variable within "**Productions**" group will be needed. It must have "**API**" as name and "**Oil density**" as units group.



2. After creating the variable, we will need to load the data in time. Project > Import > Productions > History (or select the desired scenario). It is important to associate the new "API" variable to the column with the corresponding data.
3. Lastly, in the Productions window choose the following curves from the corresponding scenario: API > Well > Total > Monthly and Oil > Well > Total > Monthly. Additionally, select a well.

Date	qoWD-1[m³/DC]	APIW D-1[API]	qoW D-41[m³/DC]	APIW D-41[API]
06/2007	1,4	22,0	1,5	20,0
07/2007	1,2	20,0	1,8	24,0
08/2007	1,0	23,0	1,7	21,0

Date	qoW[m³/DC]	APIW[API]
06/2007	3,0	21,0
07/2007	3,0	22,3
08/2007	2,7	21,7



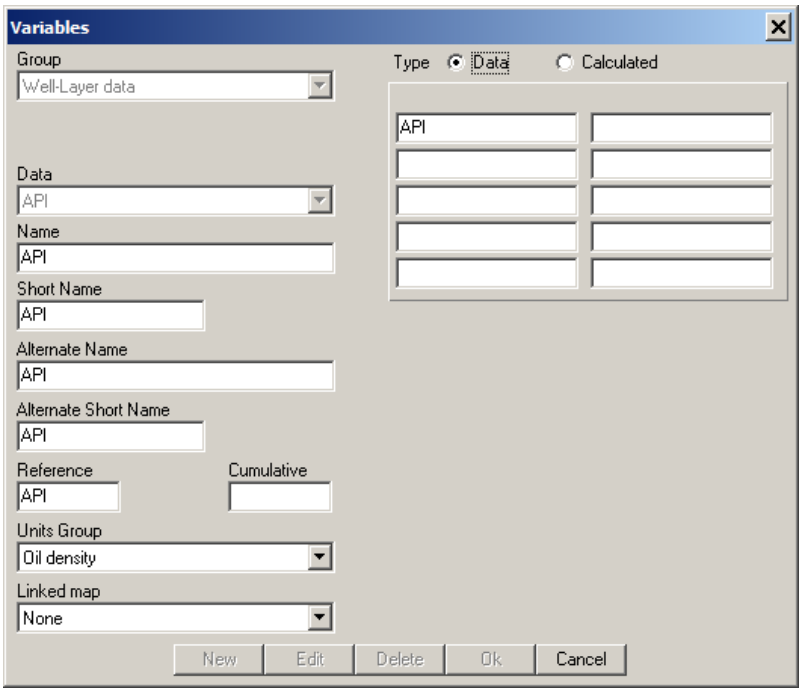
Next, the equation used to perform this balance:

$$SG_{Total} = \frac{\sum_i \left(q_{oil_{Well\ i}} * SG_{Well\ i} \right)}{\sum_i q_{oil_{Well\ i}}}$$

$$^{o}API = \frac{141.5}{SG_{@15.5^{o}C}} - 131.5$$

If a forecast is desired, the following data will be needed:

1. Layer level productions decline for each well.
2. A variable within "**Well-Layer data**" group. It must have "API" as name and "Oil density" as units group.



4. After creating the variable, we will need to load the well-layer data. Project > Import > Well-Layer data. It is important to associate the new "API" variable to the column with the corresponding data.
5. Lastly, in the Productions window, choose the following curves from the corresponding scenario: API > Layer > Total > Monthly and Oil > Layer > Total > Monthly. Additionally, select the layers and wells to visualize the forecast.

Next, the equation used to perform this balance:

$$SG_{Well} = \frac{\sum_i \left(q_{oil_{Layer\,i}} * SG_{Layer\,i} \right)}{\sum_i q_{oil_{Layer\,i}}}$$

$$^{o}API = \frac{141.5}{SG_{@15.5^{o}C}} - 131.5$$

As two different type of information can be loaded in Sahara, there is a priority when showing the data:

1. API well level data in time has the first priority. If this data exists in the project, it will be shown when asking for API variable.
2. If API data in time is not available in the project, but layer level productions and API well-layer data is, then a weighted average, using the previous equation, will be shown.
3. If none of the previous data is in the project, the API variable will show the well-layer data at Field level.

interfaces

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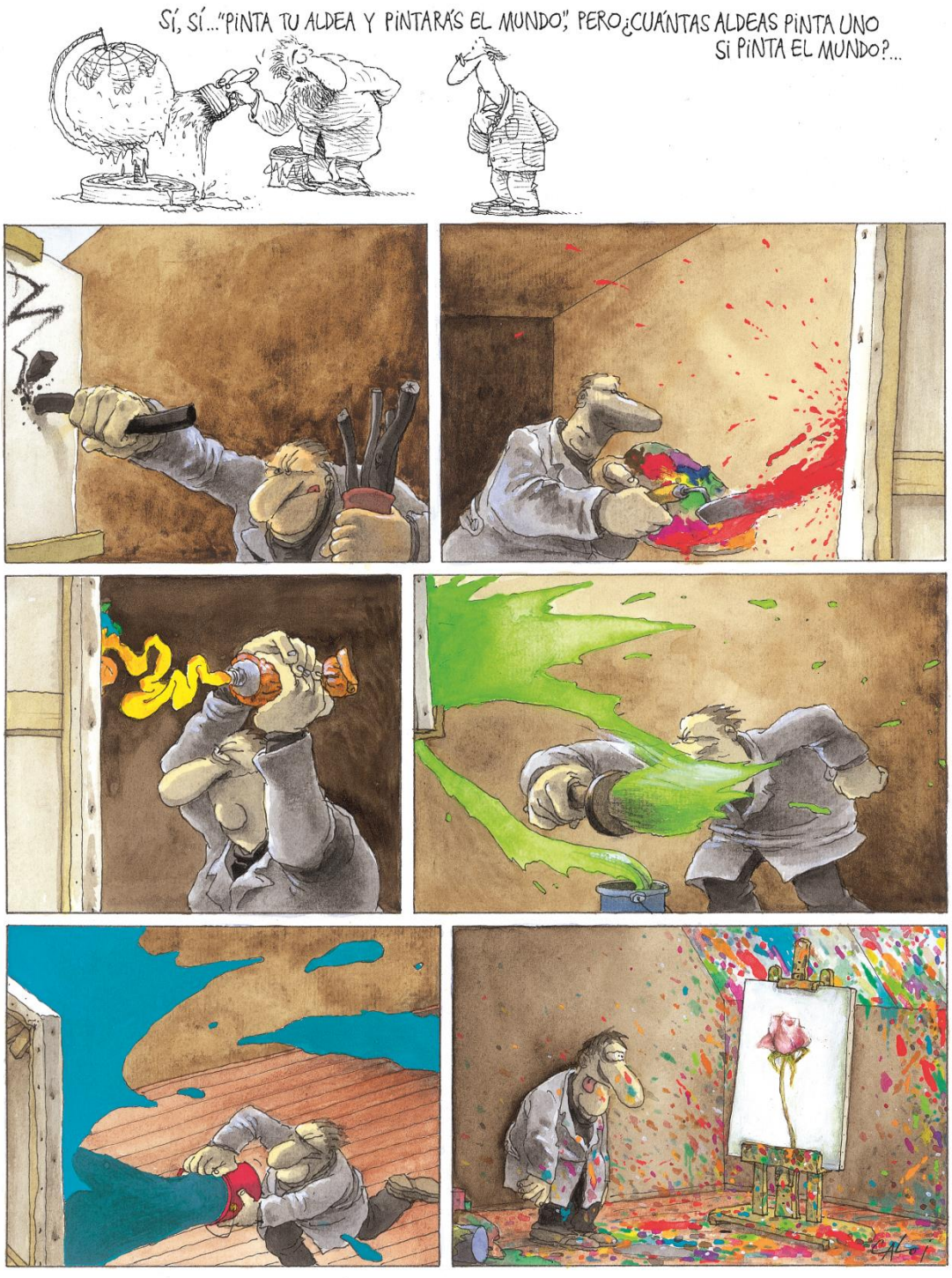

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