



1.1 Measured data module

The *Measured data module* is used to capture/archive time series data from flow measuring stations into the WAS database. There is no limitation on the number of measuring stations that can be captured. The time series record includes the station id, date & time, flow depth and flow rate.



Figure 1.1: Measuring station

The data sources can be from mechanical chart recorders, electronic data loggers and measuring plate readings. Measured water levels are automatically converted to flow rates by means of a discharge table for the specific measuring station. The module has the following functionality:

- Integrated discharge tables that are used to convert water levels to discharges and vice versa.
- Importing of data with various formats.
- Use flexible units for water levels and flow rates which include mm, m, m^3/s and m^3/hour .
- Export data to Microsoft Excel.

- Calculation of volumes between user-specified dates.
- Capture inflows and outflows for river systems.
- Generate daily, weekly, monthly and annually abstraction data.
- Generate discharges for stations that are linked to an indicator site.
- Generate recession curves.
- Tools to add/subtract time series data.
- Integrates with the *Reporting module* including the *Water Use Efficiency Accounting Reports (WUEAR)*.
- Display graphs for user-defined date and time ranges. The data of up to five measuring stations can be displayed on a single graph.
- Digitize water levels from chart recorders.

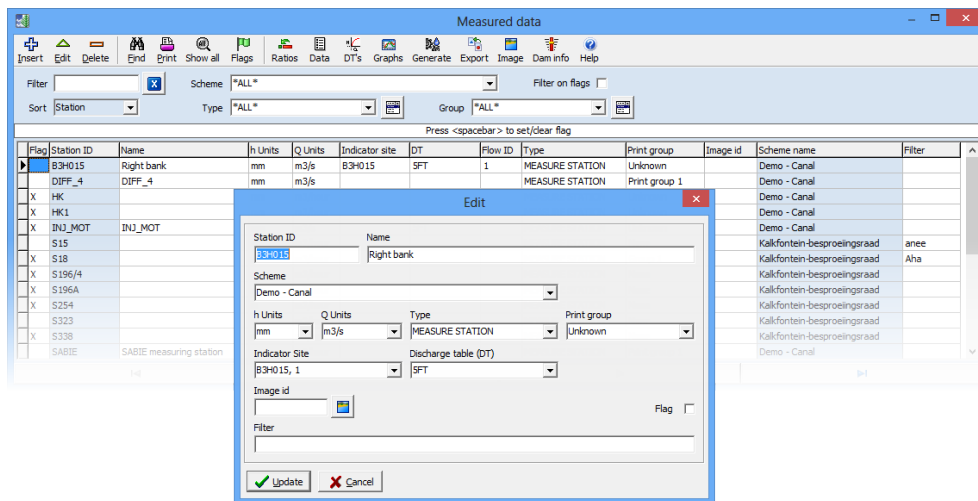


Figure 1.2: Measured data capturing form

The WAS program has a *Data copy toolbox* which is used to manipulate measuring station (time series) data in the following ways:

- Copy data from one measuring station to another. Stations concerned must be specified as well as the date and time range for the data to be copied. A multiplier can be used to multiply the data by a constant value while copying. A constant can also be added or subtracted while copying.

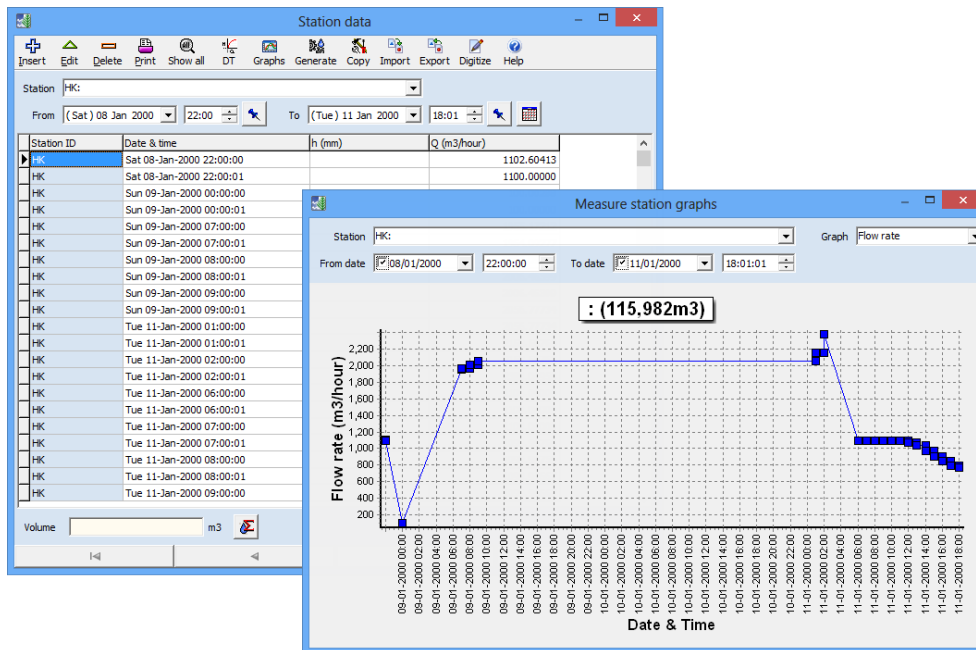


Figure 1.3: Measuring station data and graph forms

- Add the discharges of one measuring station to another. In this case a third measuring station is used to save the result.
- Subtract the discharges of one measuring station from another. In this case a third measuring station is used to save the result.

This data copying utility is very useful when there is a need to split a hydrograph into two separate hydrographs at the confluence of two rivers. The release calculation in the WAS starts at the end of a canal network or river system and will migrate from reach to reach up to the source or confluence of two rivers or channels. The resulting hydrograph can then be divided with the copying utility. The resulting hydrographs can be used as input for the release calculation of the two upstream legs which is done separately.

The image shows a software dialog box titled "Data copy toolbox". It contains the following fields and controls:

- From station:** A dropdown menu with the value "+K".
- To station:** An empty dropdown menu.
- None:** An empty dropdown menu.
- Q Conversion:** A section with three sub-panels: "Multiplier" (empty input), "+/- Constant" (empty input), and "Add/subtract" (dropdown menu set to "None").
- Range:** A section with two sub-panels: "From date/time" (08/01/2000, 22:00:00) and "To date/time" (11/01/2000, 18:01:01).
- Date/time offset starting at:** A section with a date/time input (17/01/2018, 06:00:01).
- Buttons:** "OK", "Cancel", and "Help" buttons at the bottom.

Figure 1.4: Data copy toolbox form use to add/subtract time series data