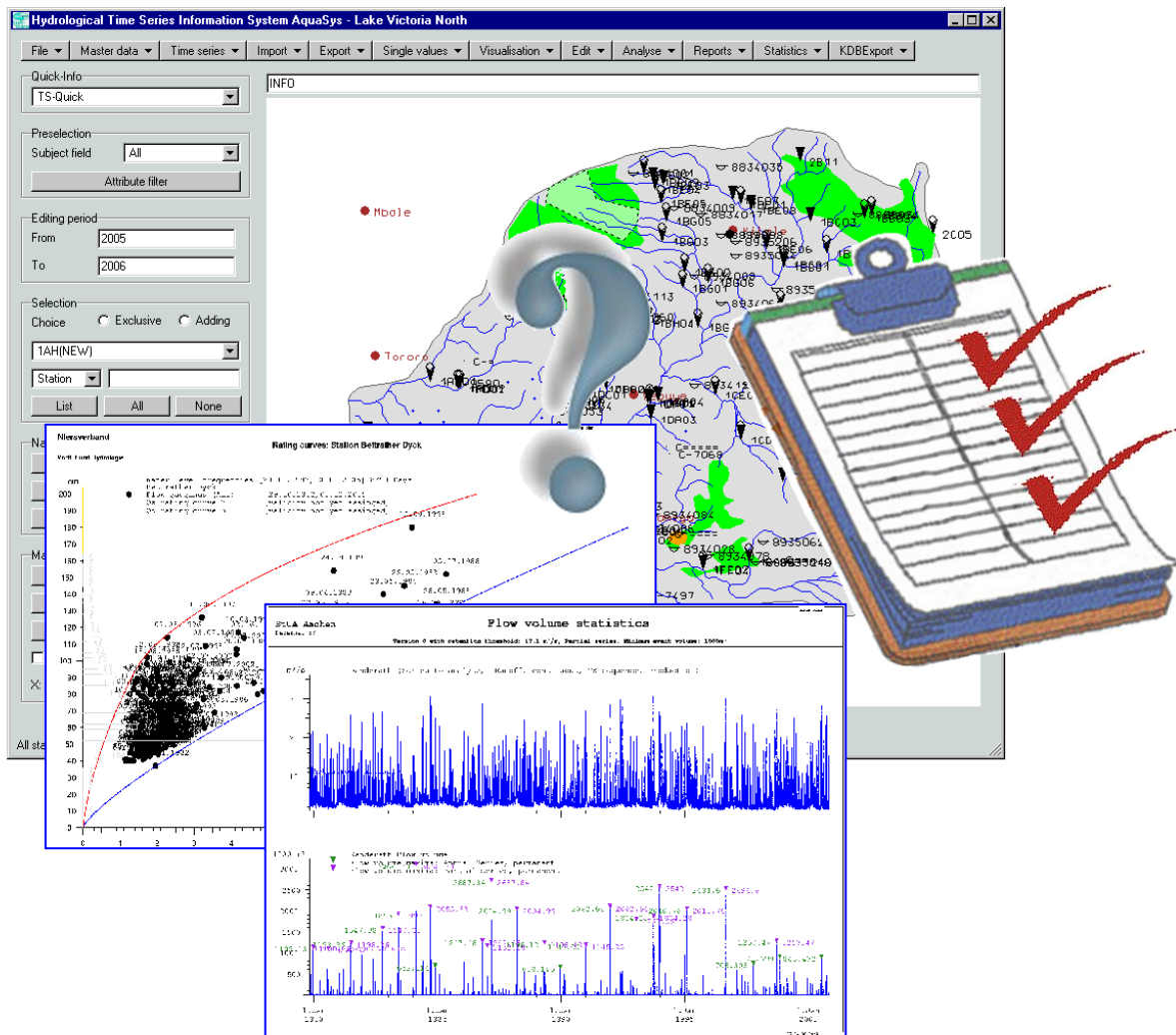


· Step by Step ·
Navigating the
Time Series Information System
AQUAZIS

Aachen · October 2013



aqua.plan

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Contents

1	Functions for all Subject Fields	1
1.1	Main window	1
1.2	Map	2
1.3	Station groups for selection	3
1.4	Personal stations	3
1.5	Quick-Info	4
1.6	Attribute filter	4
1.7	Master data	5
1.8	Create and edit sensors	6
1.9	Master data filter	7
1.10	Export master data	8
1.11	Import master data	8
1.12	Export master data attributes	9
1.13	Time series availability	9
1.14	Create time series sequences	10
1.15	Import time series	11
1.16	Export time series	12
1.17	Manual input of single values	13
1.18	VisuQuick	14
1.19	Check/Correct Hydrographs	16
1.20	Correlation and Regression	18
1.21	Reports	19
1.22	Filter time series for further processing	20
2	Functions for Hydrometry	21
2.1	Construction of rating curves	21
2.2	Flows and reduction values	23








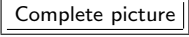


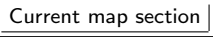
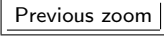
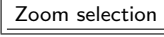
1 Functions for all Subject Fields

1.1 Main window

- Start AQUAZIS → log in → main window will be opened
- What to do next?
 1. Start subroutines:
By means of the menu bar above
→ click the desired menu and select an entry → subroutine will be started
 2. Use basic tools:
→ left area
 - (a) Quick-Info ↔ get information quickly
 - (b) Attribute filter ↔ systematic, rapid access to the desired time series
 - (c) Editing period
→ pre-allocation of the period for all subprograms
→ enter beginning and end of the editing period in the input fields
 - (d) Selection ↔ section 1.2
 - (e) Navigation ↔ section 1.2
 - (f) Map ↔ section 1.2
 3. Handle the map:
↔ section 1.2
- How to adjust the window to my requirements?
 - → System settings
 - tab
 1. Adjust basic tools
 - frame **Basic tools**
 - select desired elements by (de-)activating the checkboxes
 - click
 - this selection will be implemented immediately in the main window
 2. Adjust menus
 - frame **Menu**
 - left click on one entry in the list **Visible menus** or **Invisible menus**
 - move the clicked entry with or
 - repeat this action until all menus are placed in the desired list
 - click the button
 - this selection will be implemented immediately in the main window







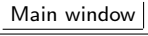




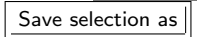
1.2 Map

1. Navigation

- (a) By (**right click** on the mouse :
- Create a rubberband (page 3) → zoom in
 - Create a rubberband while holding down the **shift**-key → zoom out
- (b) Via the basic tools for the  **Navigation** — :
-  and  → scroll to the left or right
 -  and  → scroll up or down
 -  and  → zoom in or out
 -  → restores the complete picture
- Default:
Calculated from geometry → includes all existing geographic elements in the map
- Define complete picture:
- I.  **File** → System settings
→ tab 
→ frame Define complete picture for navigation
→ zoom map section as desired and click 
-  → previous map section (back)
 -  → focuses on all selected elements

2. Selection

⇒ Preselection of the stations for further processing

- (a) By (**left click** on the mouse):
- Click on single measuring site symbols → select and deselect
 - Create a rubberband (page 3) → select extensively
 - Create a rubberband while holding down the **shift**-key → deselect extensively
- (b) Via of the basic tools for the  **Selection** — :
-  **exclusive**  **adding** → discard or maintain and extend the existing selection (when selecting in several steps)
 - Type** → preselection for extensive selection (by rubberband, , , station list)
 - Station list** → select single stations
(List can be removed →  **File** → System settings → , contained stations refer to **Type**)
 - Input field** → direct entry of the name or search via the wild cards “*” und “?” (then press **Return**)
 -  → opens a table which provides all currently selected stations
 -   → selects or deselects all stations for the chosen **Type**
 - Groups** → selects a previously defined station group
- Create groups:
Select desired stations →  **File** → Station groups → Enter a name for the group in the input field →  → the new group will now be available in the group list in the main window
- (c) Via the master data filter

What is a rubberband?

A rubberband is a rectangle created by the mouse. It helps selecting objects or zooming within the map or the axes of coordinates.

To draw a rubberband click on one spot in the map or in the axes of coordinates. Hold down the mouse and drag it across the screen so that a rectangle (rubberband) appears. When the rubberband surrounds the desired portion of the screen, release the mouse.

To reverse the action of the rubberband (e.g. **deselect** or **zoom out**) hold down the **shift**-key while creating a rubberband.

1.3 Station groups for selection

1. Select stations to be pooled in one group
2. → Station groups → window Station groups will be opened
3. Enter name for the group to the input field
4. Click button
5. New group available in
 - the list Available groups in this window
 - the frame Selection in the main window
 - the frame Preselection of the stations in other windows
 - your user directory (file in the subdirectory selection)
6. Use station groups for selection:
 - window Station groups: Select group from the list and click button
 - main window: Select group from the list Groups (frame Selection)
(radiobuttons **exklusiv** **adding** will be considered)
7. → removes the group chosen in the list Available groups

1.4 Personal stations

1. Station groups → window Station groups will be opened
2. Create a new group if necessary (↔ section 1.3)
3. Select station group from the list Available groups
4.
 - only these personal stations are now visible in the map
 - if you want to display **all** stations again, click button on the main window in the frame Map (→ button is now labelled)

1.5 Quick-Info

1. Choose quick-info routine in the list on the main window (Quick-Info)
2. Click a symbol of a measuring site with the middle mouse button (or **Strg** + left mouse button)
3. The desired routine will be executed:
 - Info
→ about the clicked measuring site → output on the info line above the map
 - Lists
→ detailed information → output in a table
 - Modules
→ will be opened with the data of the clicked measuring site
 - Map
→ modifies the presentation of the clicked measuring site in the map

HINT:

In File → System settings → Main window you can choose whether the quick-info will be executed as well when searching for stations by means of the input field in the basic tools for the Selection .

1.6 Attribute filter

1. Attribute filter on the main window → attribute filter will be opened
2. Choose subject field
3. Choose parameter
4. Define attributes for the chosen parameter (Source, Interpretation, Origin, Version, Type of series, Time reference, Time step)
5. Free resets the attributes mentioned in item 4 to the entry *All*
6. Allocation of the attributes will be saved user-specifically for every subject field and will be applied for all filterings

HELPFUL FEATURES:

- ⇒ Basic parameters
→ when the checkbox is activated the parameter list only shows the basic parameters (↔ System settings → (Subject fields and) Parameters) → only for user root
- ⇒ Parameter standard profile
→ saves the chosen attributes for the selected parameter as a standard profile
saves the chosen list → beside the parameter list restores the attributes defined as standard profile when choosing a parameter

1.7 Master data

1. Select station(s) (optional)
2. → Selected stations or All stations → window Master data will be opened
3. List of stations on the left contains either the selected or all stations (according to the way of starting the window)
HINT: The list above determines the designation of the stations in the list (display key). Add or edit display key: → System settings → .
4. Mark station in the list → master data of this station will be presented:
 - (a) Basic data (left frame):
 - general information about the station
 - choose desired page → selective list |
 - (b) Data referring to the subject field (right frame):
 - choose subject field → selective list | (only necessary when more than one subject field per station)
 - upper area of the frame: entries referring to the chosen subject field
 - lower area of the frame: sensors
 - i. Create a new sensor: → insert sensor number + → sensor will appear in the table
 - ii. Edit sensor: select sensor in the table (click desired line with left mouse button → red marking) → → window Sensor details will be opened → → edit desired fields →
 - iii. Delete sensor: in the area Sensor of the window Master data (first announce , see below)
5. Edit master data:
 - (a) → all fields are now unblocked for you to edit; for all other users this station remains blocked
 - (b) Editing
 - i. directly by means of input fields or lists
 - ii. click → open a table and edit there
 - mouse click in one field → edit
 - a new line if necessary
 - the marked line if necessary
 - +
 - iii. click → open a relation and edit to extend the list or table nearby
 - (c) changings
6. Create new master data:
 → make entries in window Create a new station → → new station appears in list of stations → continue with point 5 if necessary
7. Delete station:
→ (→ 2 interposed questions due to momentous decision)

1.8 Create and edit sensors

Note: The main task of the sensor is to allocate the contents of an import data set to the correct time series via the sensor number (\leftrightarrow chapt. 1.15).

1. Open the master data window (\leftrightarrow chapt 1.7)
2. Create sensors:
Area **Sensor** in the master data window \rightarrow \rightarrow Enter sensor number for new sensor in the dialogue box (automatic allocation of the parameter according to enclosure F of the German hydrographic regulations) \rightarrow the new sensor appears in the sensor table of the master data window
3. Edit sensors:
 - Submit your in the top part of the master data window \rightarrow Select the sensor in the table by mouse click \rightarrow \rightarrow the window **Sensor details** opens
 - Submit your in the window **Sensor details** \rightarrow change and complete entries \rightarrow \rightarrow close the window with

HINTS FOR THE IMPORT

In order to be able to allocate the contents of the data set to be imported to the proper time series the following entries must be made correctly:

- \Rightarrow **Unit of data memory** \rightarrow In which unit do the data set values arrive?
- \Rightarrow **Time series attributes** \rightarrow Here's an example of both continuous water level and rainfall each:

Attribut	Water level	Rainfall
Sub-designation	<i>optional</i>	<i>optional</i>
Parameter	Water level	Rainfall
Time reference	Continuous	Continuous
Version	0	0
Interpretation	None	None
Origin	Original	Original
XDistance	Continuous	Continuous
Unit TS	cm	mm/h
Fault tolerance	0.4000	0.0100
Data source	<i>blank</i>	<i>blank</i>

1.9 Master data filter

1. Select stations to use for filtering if desired
2. → Master data filter → window Master data filter will be opened
Structure:
left area: display of the existing selection
right area: functions for filtering
3. Fill in the fields of the relevant of the filter according to your search
HINT:
→ wild cards possible in character fields
→ “>“ (greater than or equal) and “<“ (less than or equal) possible in character- and date fields
→ when inverse is activated the filtering will be executed applying data not matching with the search entries
4.
 - (a) New selection → use all available stations for filtering, already existing selection will be “overwritten“
 - (b) Extend selection → use all available stations for filtering, already existing selection will be kept and complemented
 - (c) Reduce selection → use currently selected stations for filtering, selection will be reduced⇒ Repeat filter process using new entries until your desired result is achieved

EXAMPLE:

Filtering of all stations belonging to the subject field rainfall which have been mounted before November 1st, 1985

→ select Subject field in

→ New Selection → all stations of the subject field rainfall appear in the list on the left

→ enter <1.11.85 in field Mounted

→ Reduce selection → now the list only contains the rainfall stations which were mounted before 1.11.85

5. opens the window Master Data with the filtered stations specified in the station list
 opens the window Station groups (↔ see section 1.3) to save the filtered selection

1.10 Export master data

1. Select stations if necessary
2. → Master data exchange → window Master data exchange–Packing will be opened
3. Define station(s) in Preselection of the stations—
HINT:
Alternatively to the selection you can choose a single station, station groups or stations according to their rivershed here.
→ opens a table which lists the chosen stations
4. Enter File name in the input field
5. writes the file under the given name into your user directory (subdirectory **export**) → the path will be displayed on the status line

HINT:

Master data exchange is only possible from AQUAZIS to AQUAZIS.

1.11 Import master data

1. → Master data exchange → window Master data exchange–Unpacking will be opened
2. opens the file selector → select the desired directory and open import file (double click on the file or mark +)
3. Window Master data exchange–Unpacking extends
4. List Available: contains all data sets of the import file
List Import: will contain the data sets to be imported
 moves the marked station from the left to the right
 moves all stations to the right
 moves the marked station from the right to the left
 moves all stations to the left
5. In the list below all existing relations are registered → displays the selected relation
6. generates an Import protocol for the stations registered in the list Import
RECOMMENDATION: Have the protocol made in any case! The protocol lists all changings, addings and matches.
7. displays the stations chosen for the import in the map
8. imports the stations gathered in the list Import (to update the map you have to agree to regenerate the station layer)

1.12 Export master data attributes

1. → Master data attributes → window Export of master data attributes will be opened
2. Define station(s) in
HINT:
Alternatively to the selection you can choose a single station, station groups or stations according to their rivershed here.
→ opens a table which lists the chosen stations
3. Collect attributes (by means of the two lists Available attributes and Attributes to export):
 moves the marked attribute from the left to the right
 moves the marked attribute from the right to the left
 moves the marked attribute within the right list one position up
 moves the marked attribute within the right list one position down
4. initiates the export of the gathered attributes to export:
⇒ file selector:
→ select the directory for the export file (proposal: directory export in your user directory)
→ input field Choice: add file name to the path (without ending, .dbf will be added automatically)
→ click button
5. The export file will be written to the chosen directory

HINT:

The exported master data attributes are qualified for further processing in other programs, e.g. Excel.

1.13 Time series availability

1. Select stations for the query of time series availability
2. Make preselections for the subject field(s) in the (↔ see section 1.6) or select the desired from the parameter list.
3. Choose the subject field for which the series should be searched (may also be)
4. If desired, activate the checkbox Maximum gap quota [%] and enter the appropriate percentage (only if you want to set a limit for the gap quota → in this case, a period must be entered)
→ when the checkbox remains deactivated the general existence of series will be retrieved
5. Click the button
→ only those stations which fulfil the given conditions will remain selected
→ lists the selection in a table

1.14 Create time series sequences

1. Select station(s)
2. Menu → Time series sequences (selected stations) → window Edit TS sequences will be opened
3. Choose a station from the list → already existing time series sequences of this station will be listed in the table TS sequence or else the table will remain blank
4. Click → the window Create TS sequence will be opened
5. Define Type and – if applicable (see below) – Parameter, Unit and Time step of the TS sequence and click → the new TS sequence will be inserted in the table
6. Assign time series:
 - click below the list Assigned series
 - Time series selector will be opened
 - filter time series by means of the lists above (↔ section 1.22)
 - selected time series will be entered automatically in the table Assigned series
7. Define formulas and their beginning of validity period:
 - click below the list Formulas
 - the next line of the table will become editable
 - enter the beginning of the validity period of the formula in column From (the validity period of a formula ends when the next formula begins)
 - enter the formula in the column Formula
 - repeat procedure if TS sequence should be divided into sections with different formulas
8. → saves the TS sequence

Ad point 5:

Two options for choosing the Type of the TS sequence:

1. Standard modes of calculation:
 - will be defined automatically → all further fields are initialised with default values but can be edited as desired, e.g. *Interval values*, *Fixed term values*, *Runoff* etc.
2. *continuous (free)*:
 - doesn't automatically receive assigned series and formulas after creating;
 - selectable as Source: *n/a*, *free sequence* or *constructed*; Parameter and Unit are not initialised

1.15 Import time series

ANNOTATION: The correct allocation of the data sets to be imported occurs via the station ID and the sensor number (\leftrightarrow chapt. 1.8).

1. → Time series → window **Import series** will be opened
2. to be imported (File selector)
3. lists all series contained in the file
4. Mouse click on one line in the list shows the covered period; double click selects or deselects it for the import
HINT:
in front of a line in the list means: This series doesn't match the existing data in the system. The station or the parameter could probably not be identified. This way, the series cannot be imported.
PROCEDURE:
Complete with missing information or create sensor(s) in the master data.
5. → provides the possibility to export the series list
6. visualises the marked series in the graphic
7. → allocates a comment to a chosen period for later editing
8. → gives the possibility to check and, if necessary, modify time series infos and attributes before the import
9. sets the complete data set back one hour
10. → before the import, the quality in which you want to write the data must be determined → usually **Original**
HINT:
The **aqua_plan** pack format can contain series with different qualities. The import will be carried out for the chosen and all higher qualities.
11. Select the import mode:
 - → existing data will be overwritten
 - → existing data will be overwritten by the imported series, but the gap periods are not included
 - → existing data will remain and only additional data will be imported
 - → existing data will remain and only additional data lying outside the MaxFocus of the series will be imported
 - → the series will be imported to the chosen quality and all existing series will remain
12. Import range:
 - → marked with “*“
 - → selected with a blue bar
 - → defined by two mouse clicks in the graphic
13. starts the import (first define , if necessary)
HINT:
Continuous series with origin **Original** will be blocked automatically on the import as raw data. This behaviour can be deactivated in the system settings (→ **Other windows**).

1.16 Export time series

1. RECOMMENDATION: Select station(s) (\leftrightarrow see section 1.2, point 2) and define period in the main window

2. \rightarrow Time series \rightarrow window Export series will be opened

3. Select station(s) in and if not yet done

HINT:

Alternatively to the selection you can choose a single station, station groups or stations according to their rivershed here.

\rightarrow opens a table which lists the chosen stations

4. \rightarrow change filter criteria to find the desired series, if necessary

5. Means to check whether you have chosen the right time series:

- \rightarrow table Series selection: Export
- \rightarrow VisuQuick

\Rightarrow If you want to export a certain choice of the selected series: leave table Series selection: Export open (see below)

6. To convert continuous series to interval series activate Conversion

7. Select export format

HINT:

- Consider format restrictions
- For data exchange with another AQUAZIS user apply

8. Select export quality, normally

9. Enter name of the (optional)

HINT: Only applicable when the export results in **one** file.

10. Export time series

- To export a certain choice of the selected series (see above) select these series by right mouse click in the table Series selection: Export and .
- Otherwise click .

RECOMMENDATION:

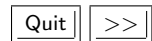
Always Generate a record to get an overview. Use the preview, you needn't print the record.

1.17 Manual input of single values

1. ADVICE: select station(s) to edit
2. → select subject field (e.g. Precipitation) → Single values entry will be opened
3. Choose station from the list → not necessary if just one station is selected
(the list provides either the **selected stations** of the chosen subject field or **all stations** of the subject field when no selection existing while opening the window)
→ a list of the available series appears below
4. Predefine series to edit:
→ choose from the list
→ create and edit a new series:
 → window **Create series** will be opened → specify attributes for the new series →
 → new series will be saved → window **Create series**
5. Enter editing period using the fields **from** and **to** and choose **quality** to be edited, usually *Original*
HINT:
leaving **from** and **to** empty → period from the last two existing values until today will be opened
6. or Return with cursor in one of the fields for the period → time series will be opened in tabular form
7. Procession scheme:
 - (a) you always enter date, time, value and (optional) a comment
 - (b) when pressing Return the cursor skips to the next position;
thus the fields **Date** and **Time** and also the field(s) marked with **active** will be reached
 - (c) **Initialise Line and time step:**
after finishing a line and pressing Return a new line will be added and initialized with the assigned date
 - (d) **Assign time**
→ for unchanging measuring times
→ if you want to enter more than one value per day, click to open a window to fix points in time
 - (e) define plausibility limits with **Minimum** und **Maximum** → you will be alerted when entering a value beyond this limits → then adjust limits or correct the value
 - (f) adds a new line beneath the marked line
→ date will be sorted automatically to the chronological correct place
 - (g) removes the line marked with a red first cellHINT:
→ you can edit all fields of the table as desired
→ use the **tab** key or the cursor keys ← ↑ ↓ → for navigation in the table
8. opens the window **Single values graphic check**
→ it shows the edited series in the defined period with minimum and maximum (when defined)
→ potential objections will be displayed in the status line
→ + click into the graphic marks the point in time in the table
→ a click in the table marks the point in time in the graphic
9. Having finished the entries:
HINT:
During the data entry you have the possibility to have saved your entries **autom.atically**
(activate checkbox and select interval from the list)

1.18 VisuQuick

VisuQuick Basic:



I. Display time series

1. Make preselections in the attribute filter as desired
2. Enter a period in the main window and select the station(s)
3. Visualisation VisuQuick → start VisuQuick
Alternatives:
→ select Visualisation: VisuQuick in Quick-Info and choose station with middle mouse button or shift + left mouse button
4. Series selection for VisuQuick will be opened before the start of VisuQuick if the number of the series exceeds the declared limit (↔ System settings)
→ start VisuQuick from here with the desired series (↔ section 1.22)
5. Adjust period if desired
→ buttons for zooming and scrolling
→ mouse
6. prints the graphic as displayed

VisuQuick with control options:



II. Adjust presentation and display several time series

1. opens control options
 - station list
 - display options
 - functions for precise entry of the period
2. opens display options
3. Display of several time series...
 - (a) ...separated in their own axboxes
 - Axes: Arrangement → Per time series
 - Axes: Position → Separated
 - (b) ...in one axbox (for quantitative comparison)
 - Axes: Arrangement → All together
 - Axes: Position → Upon each other or Separated
 - (c) ...each in its own axbox but upon each other (for quantitative comparison); each y-axis scaled as necessary
 - Axes: Arrangement → Per time series
 - Axes: Position → Upon each other

HINT:

Blocked periods can cover other axboxes!

III. Presentation as registration paper

HINT:

The presentation as registration paper only works in the report, not in the VisuQuick-window.

1. ↔ see item II.
2. ↔ see item II.
3. Registration paper —
→ Aktivatē
→ choose format (1:2, 1:5, 1:10, 1:20)
→ select With inversion if desired
⇒ The of the displayed hydrograph will be generated in the chosen format.

IV. Displayed period after opening VisuQuick

⇒ behaviour dependent on the display options in frame From/To —.

→ define here how to supplement open entries in the input fields and on the main window:

No entry in from and to → period will be extended from the end of the time series

Example:

No specification of the period and preselection | displays the last 7 days of the time series.

V. Display options Rainfall —

1. | rules the presentation of the rainfall intensities and daily sums

HINT:

Will be completed with the entry | before long to make possible to display rainfall mass curve only.

2. | displays rainfall mass curve in the chosen form.

HINT:

Daily and monthly mass curves always start to the standard day change and beginning of a month.

1.19 Check/Correct Hydrographs

I. Preselections

1. Select station(s) (↔ section 1.2, item 2)
2. ▾ → Check/correct hydrograph → window Check and correct continuous time series will be opened
3. Choose station for editing from the station list in frame Series in process—
HINT:
 + entry of a search key extends the list.
4. Choose comparative station from the station list in frame Comparative series—
HINT:
Define comparative station in the master data. It will be opposed automatically.
5. Determine series in process
HINT:
The suggested series obeys the preselections in the attribute filter resp. the choice of the parameter.
6. The editing period will be inherited from the main window or can be defined here .
7. loads the chosen series.

II. Search for distinctive features and gaps

1. In frame Search method— you select the method for the search for the next distinctive feature. Available are:
 - ▾ ,
 - ▾ ,
 - ▾ ,
 - ▾ and
 - ▾
2. To define some of the methods in detail click .
3. limits the search to the period defined in from und to .

III. Global functions:

- → delete periods irrevocably in all qualities
- → block periods for editing
- → release blocked periods
- Comments—

IV. (modifications in quality 1, Purged, colour: orange)

1. Delete points (inflexion points) or Delete quants (the area between 2 inflexion points) by clicking with the left mouse button.
2. or (for small gaps, only linearly) by clicking.
3. , and the value in the suitable input field.

HINT:

By means of the options (beside) you can show the inflexion points of the series.

1.20 Correlation and Regression

- I. RECOMMENDATION: Select 1 or 2 stations (1 e. g. if you intend to compare a continuous rainfall series with its own daily sums/2 e. g. if you want to compare two gauging stations)
- II. → Correlation and regression → window Correlation- and double mass analysis will be opened (more than one station selected → you will be asked for the station you want to use → x-component)
- III. Choose tab or to determine the kind of analysis you want to perform

Correlation- and double mass analysis

1. Enter period
2. Change presettings if necessary (options for presettings, see below)
3. Start calculation by and
4. The result will be displayed, output of a possible

Regression analysis and calculation

1. Enter period
2. Change presettings if necessary (options for presettings, see below)
3. Start calculation by
4. The result will be displayed tabularly
5. At the same time the functions for the calculation of one series using the other station appear on the bottom of the window
 - (a) Substitute Gaps only or all values in the result series by means of regression?
 - (b) Enter period (input fields beside calculate from)
 - (c) Enter Comment (when empty, the regression equation will be inserted in the new time series)
 - (d) Modify regression equation if necessary (using the given syntax)
 - (e) creates a new series for station X with origin „simulated“. For that series Y will be converted by means of the regression equation nearby. If checkbox Gaps only is activated, all existing values of the original series will be copied. Only the gaps will be filled with sections of series Y which have been converted by means of the equation.
 - (f) creates a new series for station Y with origin „simulated“. For that series X will be converted by means of the regression equation nearby. If checkbox Gaps only is activated, all existing values of the original series will be copied. Only the gaps will be filled with sections of series X which have been converted by means of the equation.

Options for presettings

1. Choose stations (if not selected) and series (X- and Y-Components)
 - Conversion to Gauge datum or Sea level possible for parameter water level
 - opens VisuQuick (↔ see section 1.18) initialised with the original and the discretised series
2. Define type of Analysis
3. Adjust beginning of intervals if necessary (proposal as defined in system settings)
4. Change Discretisation interval if necessary
5. Enter Lag in case there is an offset between the two series to examine

HINT:

Estimate the lag: → Check and correct continuous time series (↔ Kap. 1.19)

6. Boundary conditions → opens the display options
7. Max. Gap quota [%] → no calculation when percentage of gaps higher than this value
8. (0,0)-pairs of variates → use pairs of variates with values 0 for calculation? → hydrometry: (0,0)-pairs of variates should be included, rainfall: they should not
9. Axis intercept to 0 sets the axis intercept, i.e. the absolute term of the regression equation, to 0 (often reasonable for rainfall)
10. Regression lines will be drawn in the graphic alongside the pairs of variates (only for correlation- and double mass analysis)

1.21 Reports

1. RECOMMENDATION: Select stations (↔ section 1.2, point 2) and enter period in the main window
2. Reports → Start → window Reports will be opened
3. If necessary: select station(s) and enter period in frame Preselection of the stations —
HINT:
Alternatively to the selection you can choose a single station, station groups or stations according to their rivershed here.
4. Tabs in frame Reports — → select type of the report
5. Adjust presettings of the Attribute filter if necessary
6. Change presettings for the output in the Printing control if necessary
7. opens the Series selection including all series of the preselected station(s) (↔ section 1.22, point II.) → you can start the output of a report for the preselected series directly from here
8. *Name of the report* beside starts the output of the report on the medium selected in the printing control

HINT:

- Options —————
- allows preselections for the chosen report field.

1.22 Filter time series for further processing

I. Time series selector

→ e. g. for time series sequences

1. Select a station from the station list on the left
→ all available series of this stations appear in the table (number of series is displayed below)
2. Filter time series (optional):
 - (a) Narrow down the attributes of the demanded series by the lists for **Parameter**, **Interpretation**, **Origin** and **Version** → starts the process of filtering
 - (b) resets all lists to their original state
3. Mouse click on one line → availability of the series will be displayed in the columns **From** and **To**
4. Select time series:
 - (a) Double click on one line → start of the program with this time series
 - (b) Right mouse button → select several lines
→ click button to start the program or
→ double click on one line
 - (c) Mouse click on the cell in the top left-hand corner of the table → selection will be inverted (e. g. selects all when afore nothing was selected)
HINT:
Whether you can use several series depends on the program you have started.
5. Program will be started

II. Series selection

→ e. g. for **VisuQuick**, **Export**, **Reports**

→ opens before program starts

→ attribute filter: control which series of which parameter will be offered

1. Select station(s)
2. Access program (e. g. **VisuQuick**) → series selection will be opened
3. ↔ see point 3 Time series selector
4. ↔ see point 4 Time series selector
5. ↔ see point 5 Time series selector

2 Functions for Hydrometry

2.1 Construction of rating curves

HINT:

For rating curves there is no discrimination between test version and production.

Variant A, Construction of rating curves basing on the results of flow gaugings

1. Select station (\leftrightarrow section 1.2, point 2) and enter period on the main window
2. → Rating curve editor
3. Select station when differing from preselection
4. Enter or correct period of the flow gaugings
5. the results of the Flow gaugings
HINT: Limitation possible (winter/summer/per month)
6. → select method in the list → → semiautomatic creation of an adjusted rating curve

Available methods:

- Exponential function (regression method)
 - Power function (regression method)
 - Akima spline → set obligatory points first
 - Velocity * Flow section → $v \cdot A$ → display relevant auxiliary curves first
 - $C \cdot \text{Root}(I) \cdot \text{Profile coefficient}$ → $c \cdot \sqrt{I} \cdot \text{Profile coefficient}$ → display relevant auxiliary curves first
 - Manning-Strickler → define calculation base first → :
 - → display relevant auxiliary curves → select slope and roughness
 - → select transverse profile in the rating curve editor, slope and roughness are specified in the transverse profile (\leftrightarrow) , can as well get defined in
 - Poleni (display by means of)
 - Weisbach (display by means of)
7. Check the proposed rating curve
 - if ok: define limits, save, finished!
 - if not: continue with point 8
 8. Proposal not suitable: choose other method
Proposal suitable, but revision necessary:
 - Block some flow gaugings to keep them out of the calculation
 - Create or revise the classification of the flow section (\leftrightarrow W0 W1)
 - Regression method: set or delete auxiliary points for manipulation
 - Akima spline: set or delete obligatory pointsHINT: switch on the graphical editing of the test curve
 \leftrightarrow → Rating curves → Test curve graphical

continue as described in point 7.

Save (in):

- Select type of (Q_o = lower envelope, Q_z = upper envelope)
- Enter Version
- Enter W min and W max
- All graphically edited curves are spline functions and have to be saved as Akima spline
- Save all other curves according to the applied method

9. → Rating curve validity → define periods of validity of the rating curves

HINT:

Choose source of rating curve validity first ↔ .

10. Enter header data for rating curve if necessary ↔ → Rating curves → Header data

11. Display curve in a table ↔ → Rating curves → tabular

12. Print rating curve ↔ → Rating curve or Stage discharge relation

Variant B, Construction of rating curves by table

1. see variant A

2. see variant A

3. see variant A

4. Edit curve

(a) New curve:

→ Rating curves → Create curve

- Select type of the (Q_o = lower envelope, Q_z = upper envelope)
- Enter Version
- Enter W min and W max

→ window for tabular editing will be opened

(b) Existing curve:

→ Rating curves → tabular

5. Save rating curve and check in graphic

6. Round inflexion points by means of akima spline if necessary

- Display rating curve
- → Rating curves → graphical
- Modulation by means of further obligatory points and graphical editing if necessary
- Save rating curve ↔ → Akima spline →

7. Print rating curve → see variant A, point 12

2.2 Flows and reduction values

1. Advice: Select station and enter period in the main window
2. → Flows and reduction values → window Flows and reduction values will open
3. If necessary: select station and enter period
4. | → select source of curve validities, reduction values and runoff series
5. | → select method for calculation and comparison of the reduction values
6. → all participating series and the runoff
7. Display options —
 - (a) Test and Production: Display runoff and reduction values in the test and also in the production version (as far as existent)
 - (b) Add flow gaugings to the display
 - (c) Add comments to the display
 - (d) Add weedage to the display
8. → temporarily recalculates water level from runoff without reduction values (Eta method: calculates with upper as well as with lower envelope curve) → displays the range of water levels
9. By means of the functions in Edit reduction values — you can edit the reduction values manually:
 - (a) from gaug. → graphical display of reduction values as resulting from the flow gaugings; Curve validities are quoted from the selected version (Test or production)
 - (b) → calculates permanent reduction values from the flow gaugings for the selected method, the selected version and the displayed period
 - (c) → fixes the reduction value of the clicked point in time to the hydrograph level
 - (d) → inserts the clicked point in time together with time and value
 - (e) → deletes an existing or a set point in the series
 - (f) → calculates the reduction value for the second clicked point in the water level series so that the respective runoff accords to the one of the first clicked point
 - (g) → opens the window for tabular editing → graphical editing is inaccessible as long as the table is open
10. → Output of the editing result on the selected output medium
 - (a) the Displayed graphic on the canvas or
 - (b) the „Visualisation Lippstadt“ (Reduction values at the current editing level and how they are calculated from the flow gaugings in the context of water level series, flow gaugings and curve validities) → for any time intervals, for test and production data and for any paper formats (also accessible via the rating curve editor ↔ chapt. 2.1)