

Integrated Water Resources Management in the Lower Jordan Rift Valley

Sustainable Management of Available Water Resources with Innovative Technologies



Work package 2

Handbooks

SMART- Daisy

and

SMART-Webgis

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<http://www.iwrm-smart2.org/>

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1 Handbook 2.0 for the Data and Information-System DAISY

Daisy is intended to provide partners and the public with data from and for the Middle East. In general, there are 3 different sources of data in DAISY integrated:

- (1) alphanumerical data,
- (2) raster data
- (3) vector data

To allow you to choose the correct query machine and to know, what is expectable, the following table of content may give you necessary information.

alpha-numerical data

- geology from wells elevation of base/top of formations, ...
- wells: location, country code, local name, diameter, casing, ...
- hydrogeology from wells : initial water level, hydraulic conductivity, transmissivity,
- groundwater:water table fluctuation, abstraction...
- springs: location, country code, local name, aquifer, discharge rates,...
- runoff: amount, time of runoff, ...

- hydrogeochemistry: parameter analyses for organics/anorganics in water samples from wells, springs, river, lakes, treatment plants, ...
- microbiology: water samples from wells and springs for e.g. *E. coli*, *total Col.*

- climate: rainfall, temp., humidity, wind, evaporation, ...

raster data

- geological maps 1:200,000; 1:50,000
- structural maps 1:50,000
- base map of Judea Group aquifer 1:200,000
- satellite images Landsat (1980ies->today)*,
- digital elevation model: combined DEM from SRTM (90m) and GSI (25m)
 ASTER L1 DEM (30m)
 new ASTER L2 DEM (30m)*
- topographical maps 1:50,000; 1:250,000; 1:500,000

vector data

- soil
- geology
- important tectonical features
- springs
- wells
- streams and surface water bodies
- drainage basins
- urban and rural areas
- environmental hazard sites
- administrative features

Help

Whatever you are looking for, to get access to the respective datasets and informations, please visit:

<http://www.ufz.de/daisy>

Once you will be there, you may chose, what you are interested in:

- (1) having alphanumerical data on your search list: DAISY-Harvester
- (2) looking for raster/vector-information in combination with alphanumerical data from the database: DAISY-WebGIS
- (3) the need to download raster-/vectorfiles to your hard-disc: DataLog-Portal

Harvester 2.0

https://www.ufz.de/daisy_harvester

After entering the site, you find the following picture with the additional options, which are described below.

Login for partners:

Please enter your username and password as requested from the administrator at the UFZ

If you have forgotten or lost your password, please request a new one from administrator

The screenshot shows the Harvester 2.0 interface. At the top right, there is a 'Current View: PUBLIC' label and a 'Log In' button. Below this, there is a 'Download' button. In the center, there is a login form with fields for 'Username' (containing 'siebert') and 'Password', and a 'Log In' button. Below the login form, there is a main content area with a progress bar at the top showing five steps: 1 Start, 2 Subject selection, 3 Spatial selection, 4 Check data, and 5 Download. The '1 Start' step is currently selected. Below the progress bar, there is a section titled 'Data selection first via...' with two radio button options: 'Spatial selection' and 'Data Items (Subject Selection)'. The 'Data Items (Subject Selection)' option is selected. Below these options, there is a list of bullet points: 'Google Maps with bounding box', 'list of types of monitoring points', 'list of monitoring points', and 'list of study areas'. At the bottom right of the main content area, there are 'Previous' and 'Next' buttons.

Data selection

The next step is to choose your way of data selection.

Option 1: spatial selection

When you know your study area and want to find out what data are available for that region

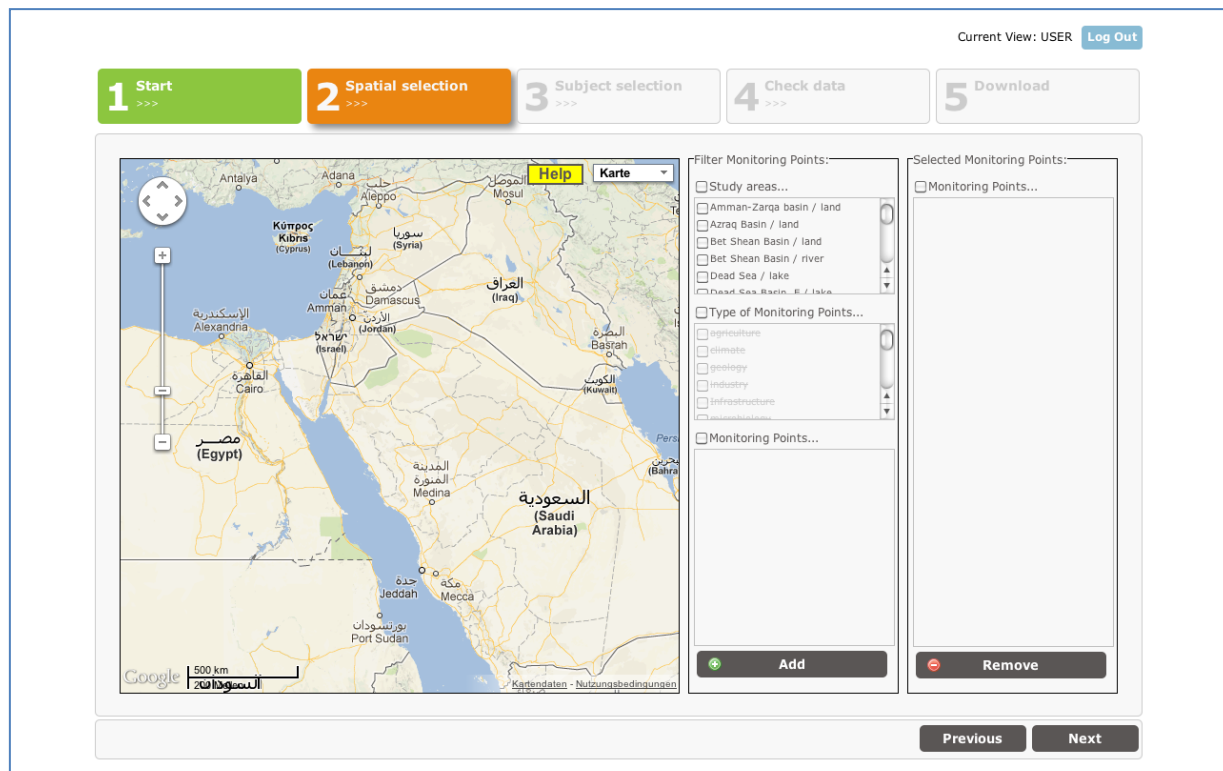
Option 2: Data Item /Subject selection

When you know your type of data you are looking for

This screenshot shows the 'Data selection' step of the Harvester 2.0 interface. The progress bar at the top shows '1 Start' and '2 Spatial selection', with '2 Spatial selection' being the active step. The main content area is titled 'Data selection first via...' and contains two radio button options: 'Spatial selection' (which is selected) and 'Data Items (Subject Selection)'. Below these options, there is a list of bullet points: 'Google Maps with bounding box', 'list of types of monitoring points', 'list of monitoring points', and 'list of study areas'.

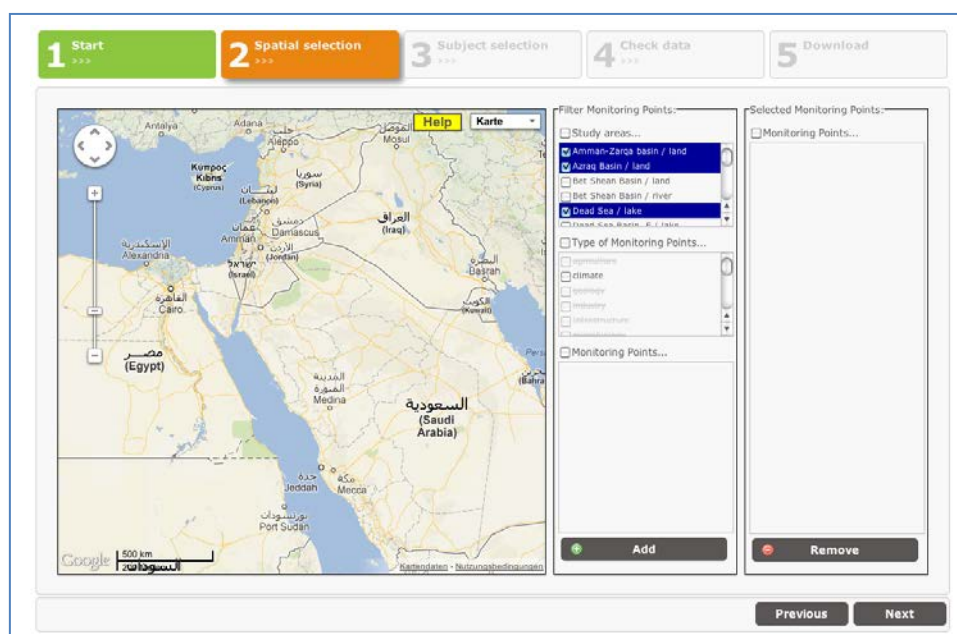
and area is not specified yet

Option 1: spatial selection



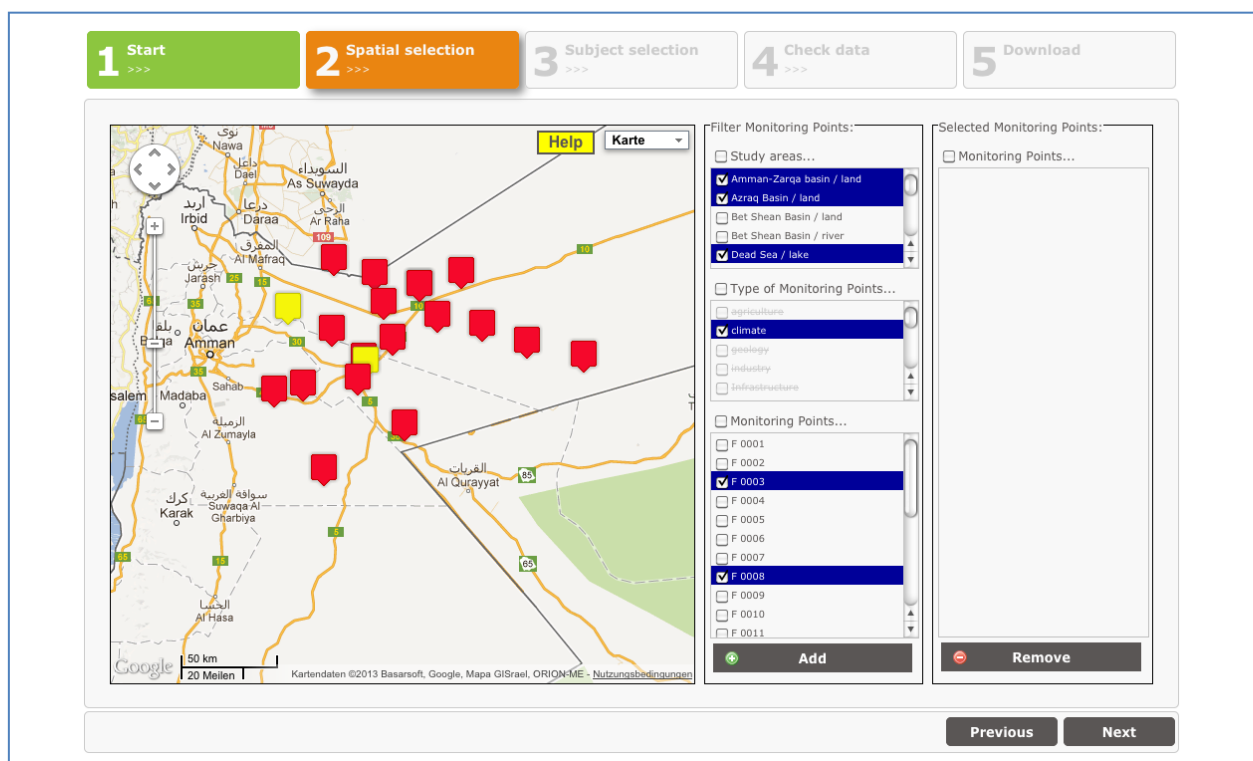
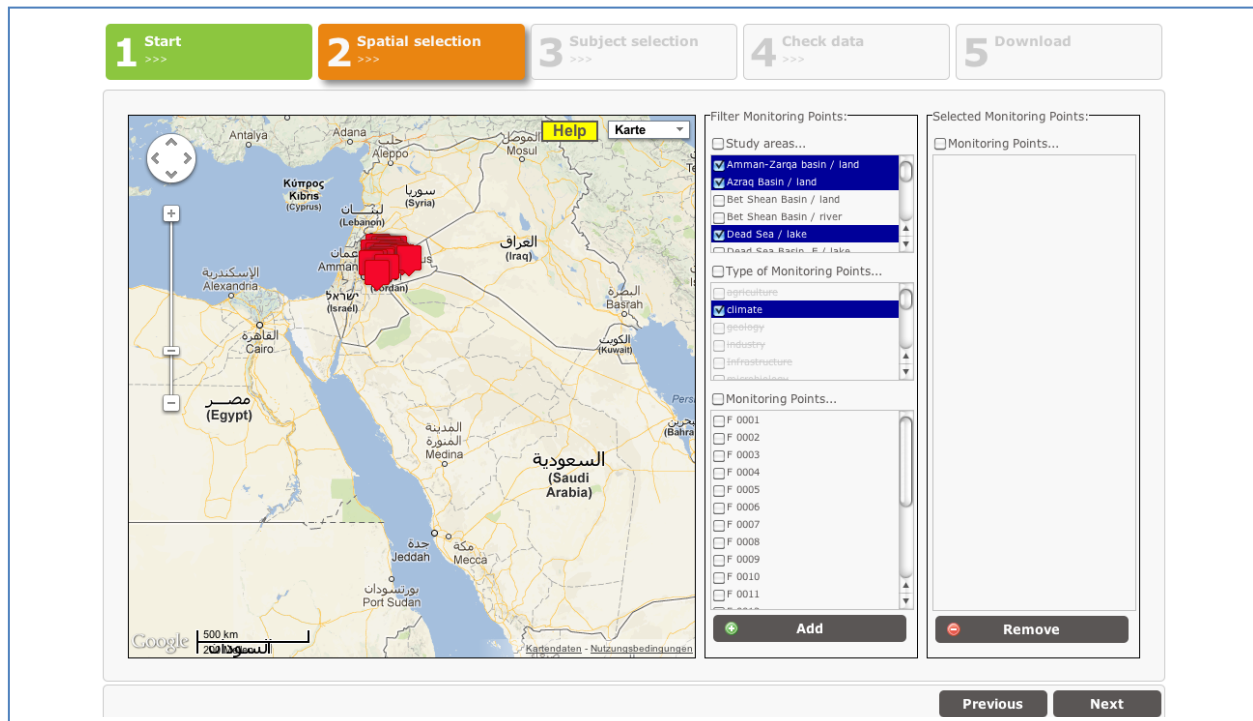
The screen is subdivided into 3 columns: left map, middle Filter options, right selection

Please choose in the middle column, what your study area is, by ticking the respective areas (multiple selections are possible)



After you decided your study area (in our case: Amman-Zarka Basin, Azraq Basin and Dead Sea), you see the therein available type of monitoring points (in black), while those data, which are not available are crossed out and grey.

When you tick now for the given example sites the monitoring point “climate”, all climate stations appear (a) as red marker in the map and (b) in the field “monitoring points”:
You may browse the map-window as you are used to do it in Google-Maps by navigating and zooming via the scrollbar on the left hand side.

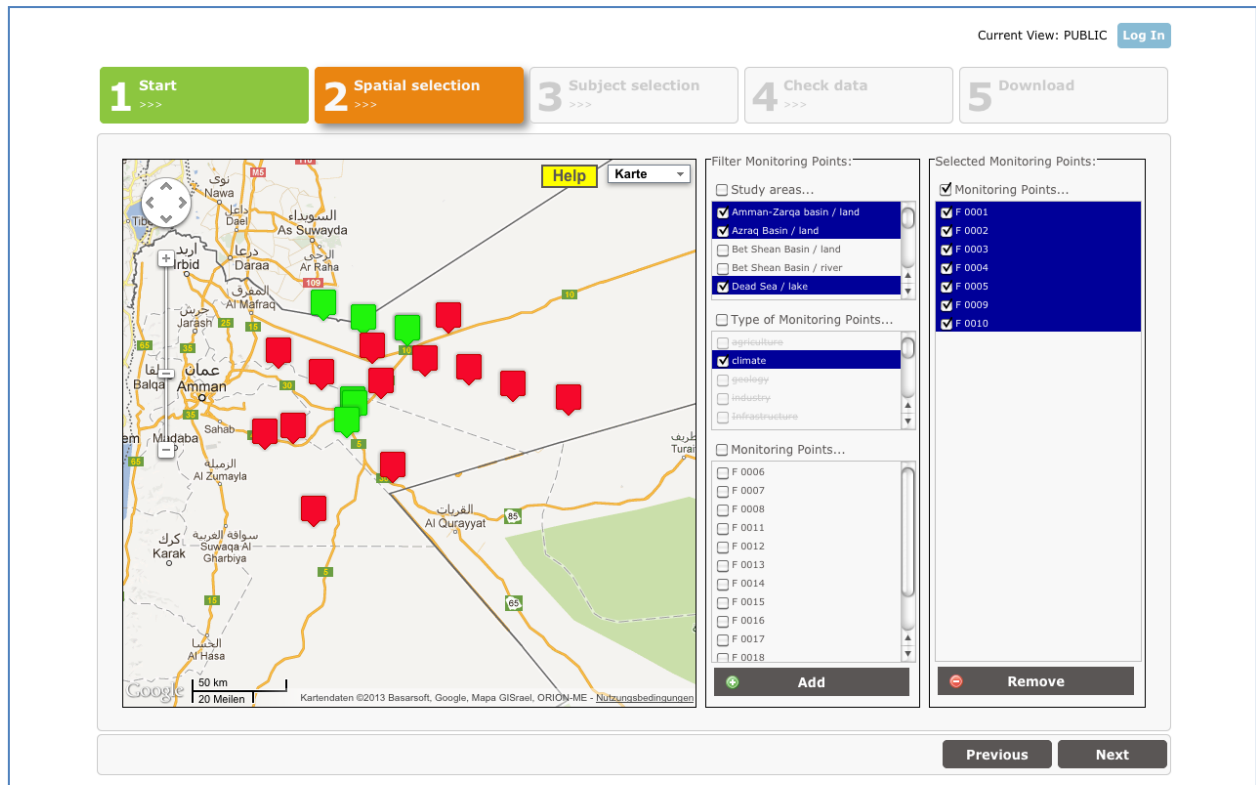


you now have several options to choose your sampling points, where you might be interested in:

1. choose them directly in the middle column, by checking the sampling locations
2. choose all sampling locations by checking the tick-mark “Monitoring Points”
3. via map: click with your left mouse button on the flags of interest
4. via bounding box in the map: holding Ctrl-button and drag a bounding box

Whatever option you take, the pre-selected monitoring-points will be marked in the list and get yellow in the map.

When you now press the green “Add”-button at the bottom of the middle column, your selected monitoring points will appear in the right column and get green in the map:



You may also change your selection by the remove button, which is under the right column.

Otherwise, when you think you are happy, click “next” and choose your subjects of interest. In our case it is just “precipitation”, that can be selected by adding it to the “selected subject” column by clicking “add”:

1 Start >>>

2 Spatial selection >>>

3 Subject selection >>>

4 Check data >>>

5 Download

Subjects:

☒ Subjects...

☒ precipitation precipitation

Add

Selected Subjects:

☒ Subjects...

Remove

Previous Next

After going to the 4th tab (data check) by the “next button”, you may sort your search result (in our case 4716 records) by date or location or any other value in the data-table:

1 Start >>>

2 Spatial selection >>>

3 Subject selection >>>

4 Check data >>>

5 Download

Values

Found 4716 records in total.
 Listed only newest 2000 records of 4716 found.
 To export all unlocked 4716 records click on 'Download' button on next tab.

date	location	parameter	value	unit	data sampler
1937-10-01 00:00		F 0003		precipitation	0
1937-10-31 00:00		F 0003		precipitation	0
1937-11-06 00:00		F 0003		precipitation	10.5
1937-11-13 00:00		F 0003		precipitation	0
1937-11-14 00:00		F 0003		precipitation	0
1937-11-19 00:00		F 0003		precipitation	0
1937-11-30 00:00		F 0003		precipitation	0
1937-12-01 00:00		F 0003		precipitation	0
1937-12-31 00:00		F 0003		precipitation	0
1938-01-01 00:00		F 0003		precipitation	0
1938-01-31 00:00		F 0003		precipitation	0
1938-02-09 00:00		F 0003		precipitation	2
1938-02-21 00:00		F 0003		precipitation	3
1938-03-05 00:00		F 0003		precipitation	5.5
1938-03-13 00:00		F 0003		precipitation	1.5
1938-03-20 00:00		F 0003		precipitation	2.5

Showing 1 to 4,716 of 4,716 entries

Previous Next

In the 5th and last tab, you have several options to explore the data.

1 Start >>>

2 Spatial selection >>>

3 Subject selection >>>

4 Check data >>>

5 Download

Download Values

Select file type:
CSV

Download file

Download Diagram

locationF 0004

unit class-

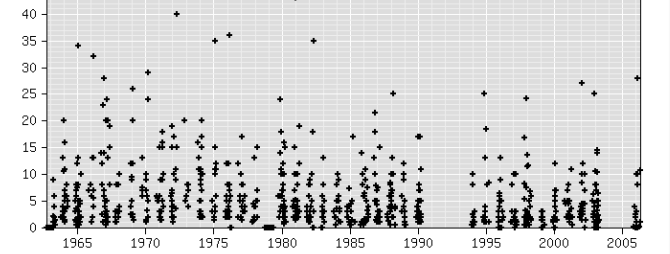
date from01.10.1962 (dd.mm.yyyy)

parameterprecipitation

unit%

date until25.04.2006 (dd.mm.yyyy)

Generate Chart

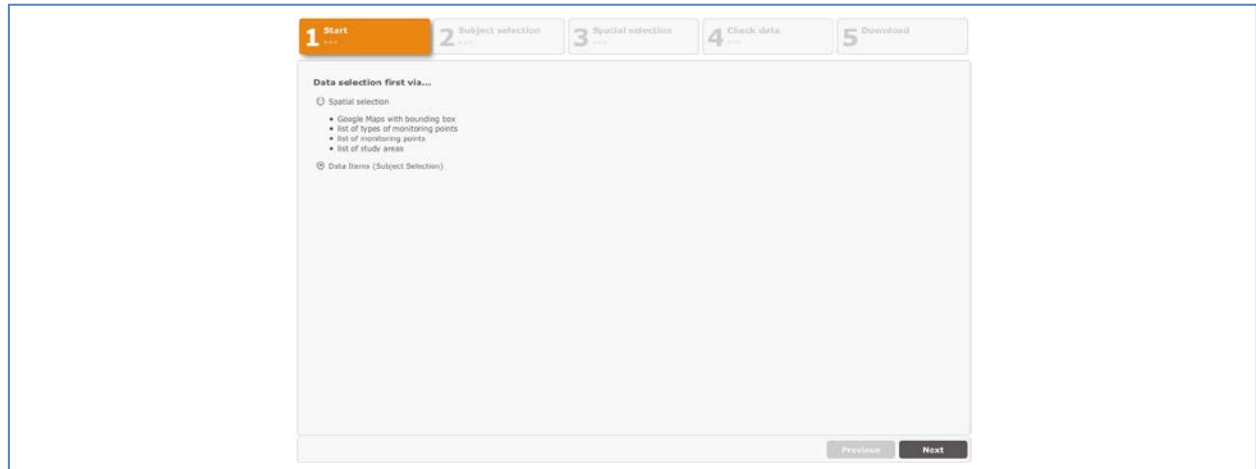


PreviousNext

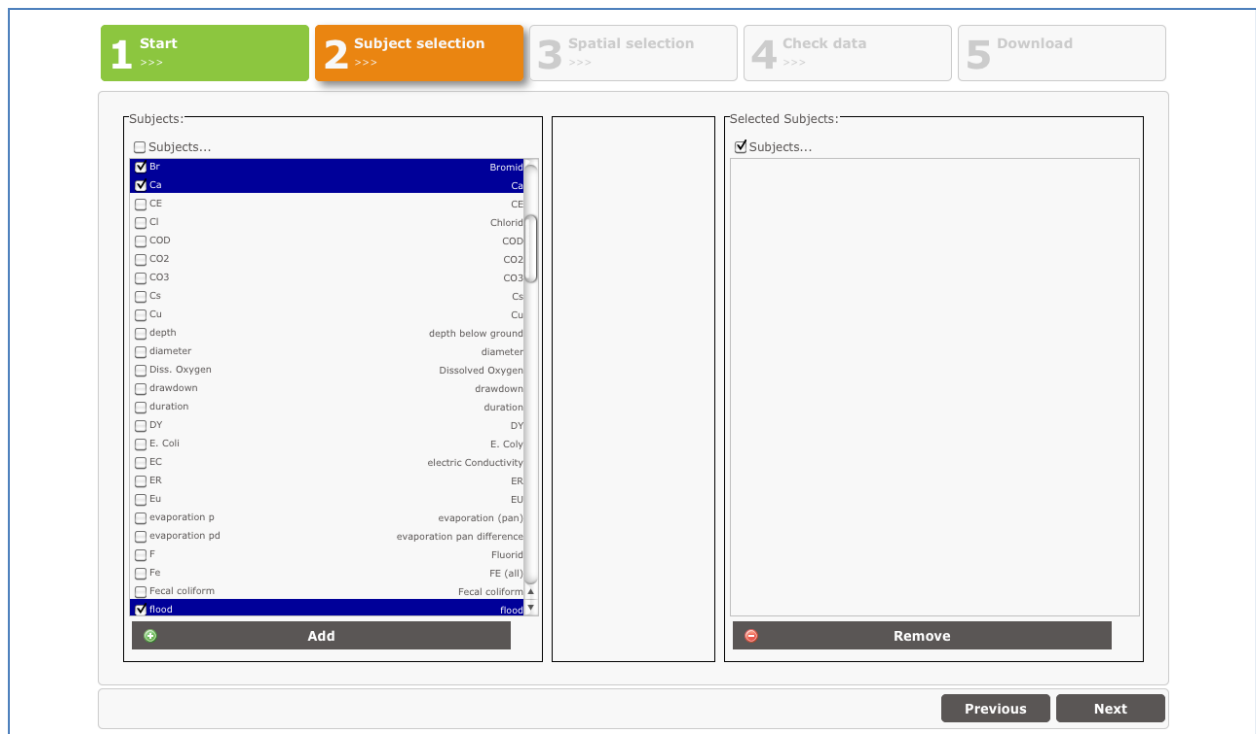
first you may select the location and then you see automatically the period of the data-series. You may select another period and “generate chart”. Secondly, you may also use the “download” function to export the entire search result as csv, xls, pdf or html to your hard disc.

Option 1: subject selection

When you are interested in specific datasets, but not sure about the area of interest, take the subject selection offer at the first tab and continue by pressing “next”



In the following tab, you select the subjects of your interest, in our case I took Br (bromide), Ca (calcium) and flood:

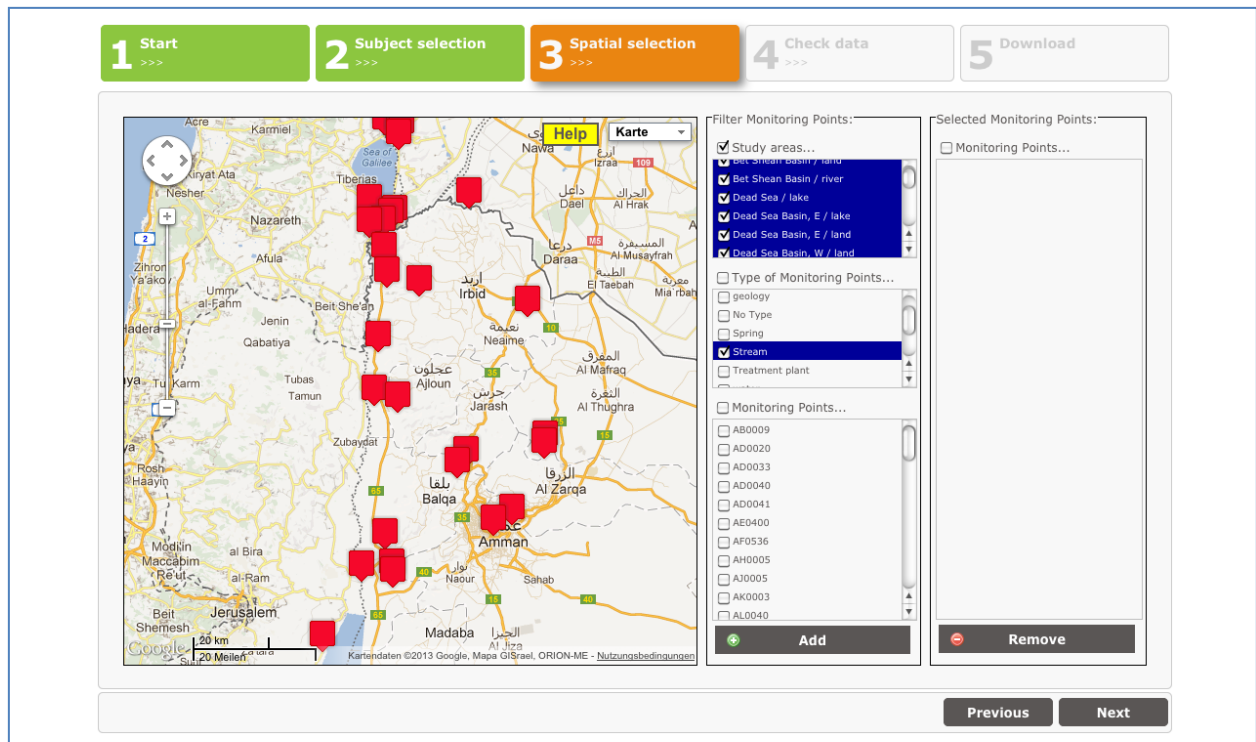


Now add it to the selection window by pressing “add”.

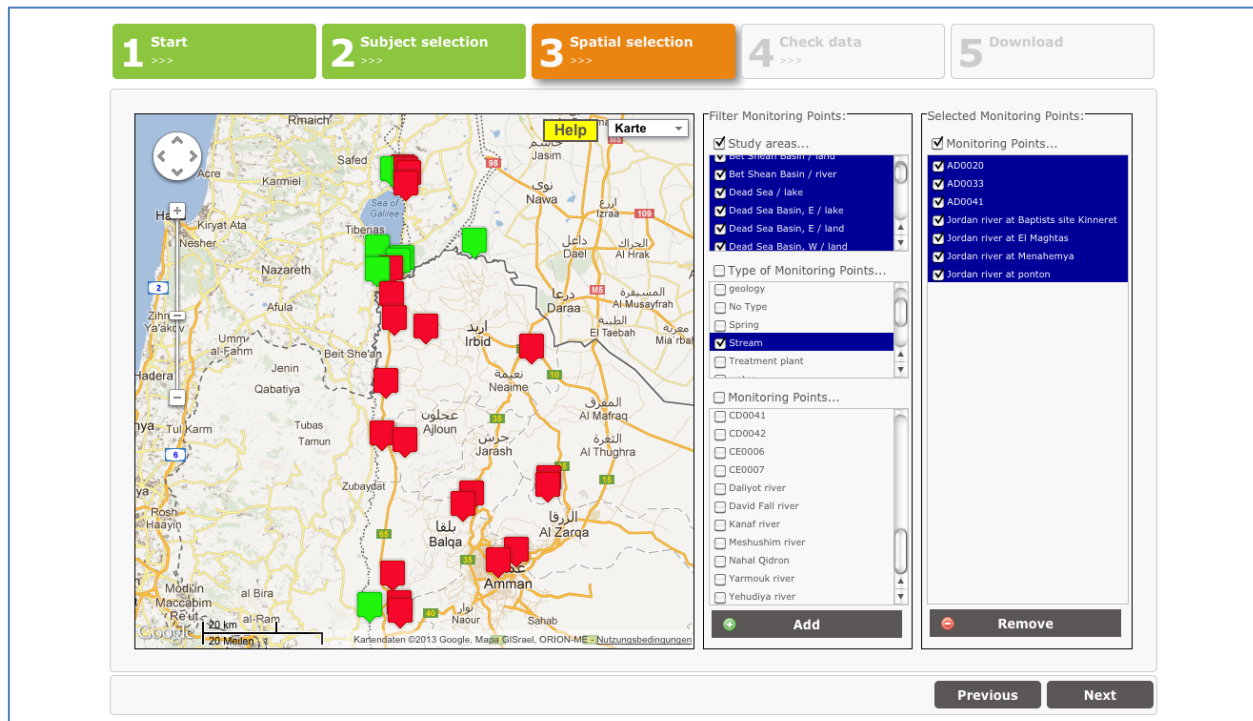
However, the amount of subjects will not give you the guarantee, to find for your (not yet selected) area any monitoring point. The reason is, in that list, there are all subjects listed, which are counted in the database, even if there is no monitoring point or value added already.

Anyway, let's continue...

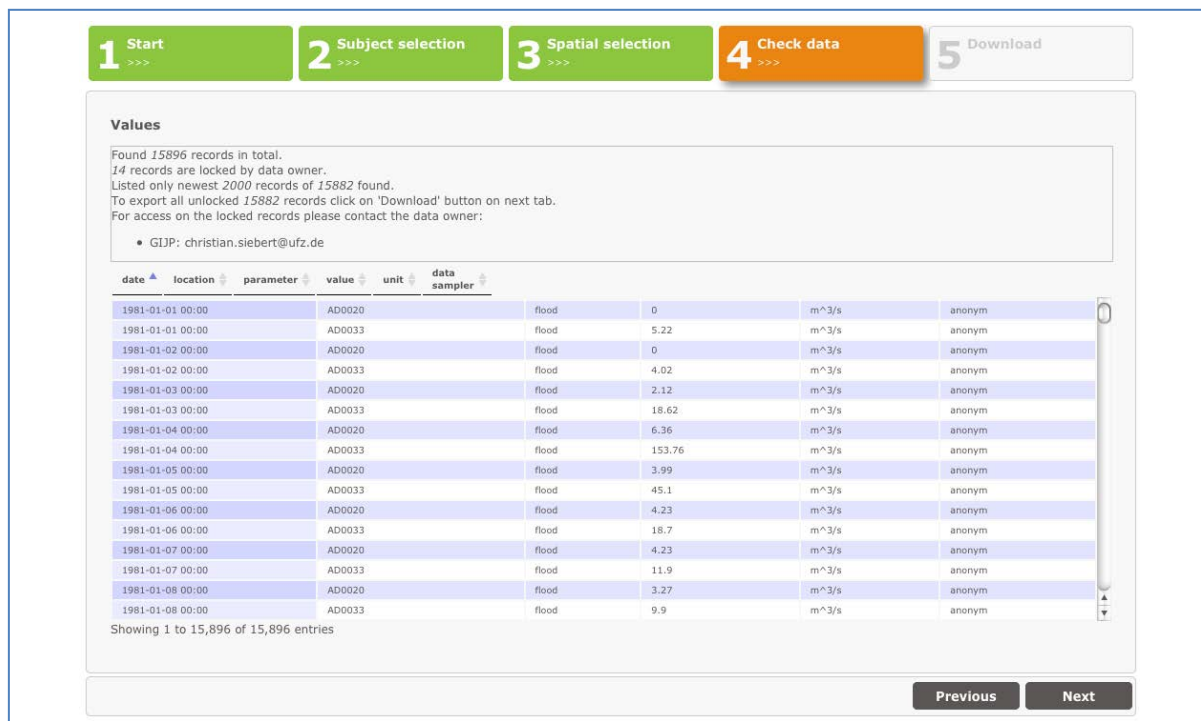
The next (3rd) tab will allow you to choose now your area and also the types of monitoring points:



Now you are again in the spatial selection tab, to chose (a) your area of interest and (b) the type of monitoring points. Since I took 3 parameter, which have only minor connections, a series of possibilities appear. I choose now all Study Areas and select "Stream". Then I choose the Yarmouk River (all monitoring points starting with AD,) and the Jordan River stations:

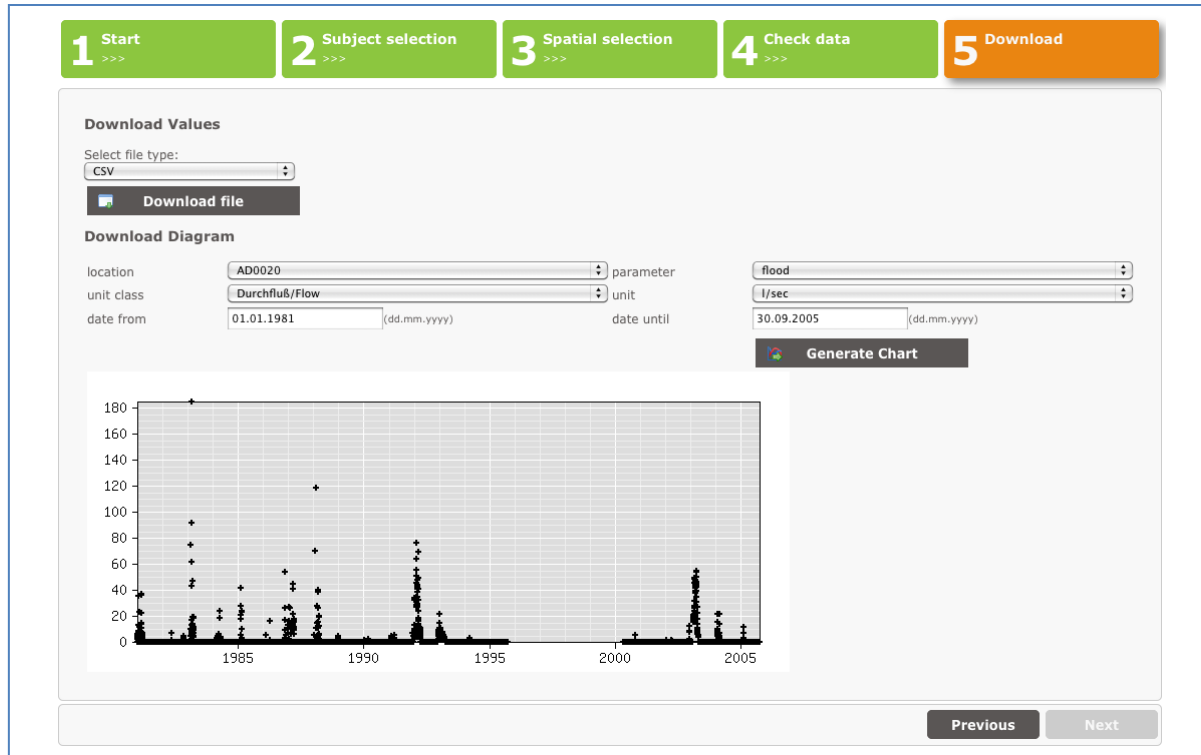


Now the result is impressive, 15896 records are prepared to get downloaded. However, you recognise, there are 14 records locked by the owner. these are datasets, which you are not allowed to receive automatically, because the data owner (that could be you) wanted to publish these data first. BUT, you have the contact detail below (in that case its me: christian.siebert@ufz.de and you are free to contact that person to request personally for the locked data:



For the rest, you can go directly to the download or export the data.

Example screen for exploring data:



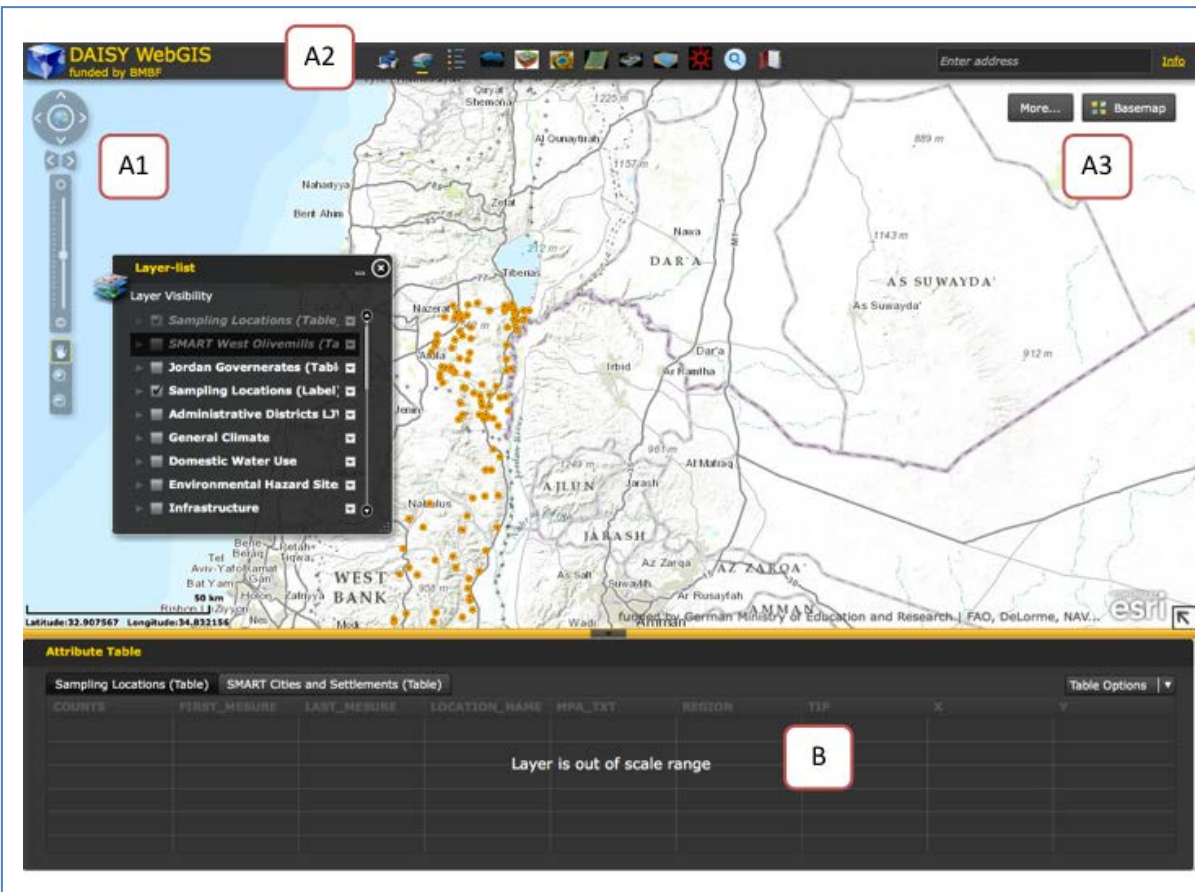
2 WebGIS 2.0

<https://www.ufz.de/webgis-daisy>

The WebGIS is designed to give you a cartographic environment to develop informative maps including spatial point- and areal data. The functionality of the WebGIS is in dependence of GIS-environments with full informal and basic analytical functions.

After approaching the DAISY-webgis page, you will get welcomed and see the following screen, which is generally divided into 2 parts.

The upper part as Map Window (A) and the lower part representing the attribute table (B) of point sources within the visible map frame.

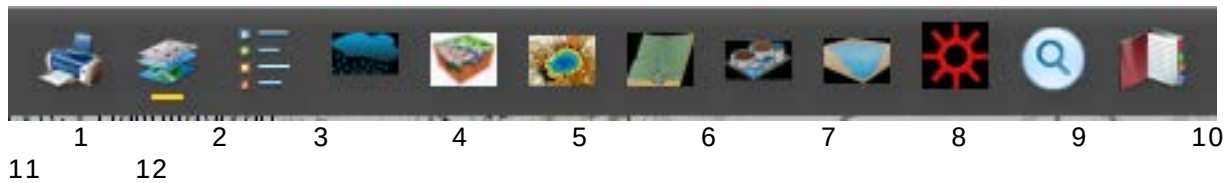


Scrollbar (A1)

By the cursor-circle you may pan the map window,

3 buttons below the scrollbar, equip your mouse with

drag function (hand),
zoom-functionality (+/-)



General tool-bar (A2)

that allows you to select between:

- print function (1),
- switch on layer table (2),
- legend (3)
- climate (4)
- geology (5)
- springs (6)
- streams (7)
- treatment plant (8)
- water body (9)
- wells (10)
- find by location_names (11)
- hot spots... (12)

Basemap button (A3)

you may choose between a variety of basemaps for your background, from Open Street Map, topographical reliefs to satellite images of your map scene

More...-button (A3)

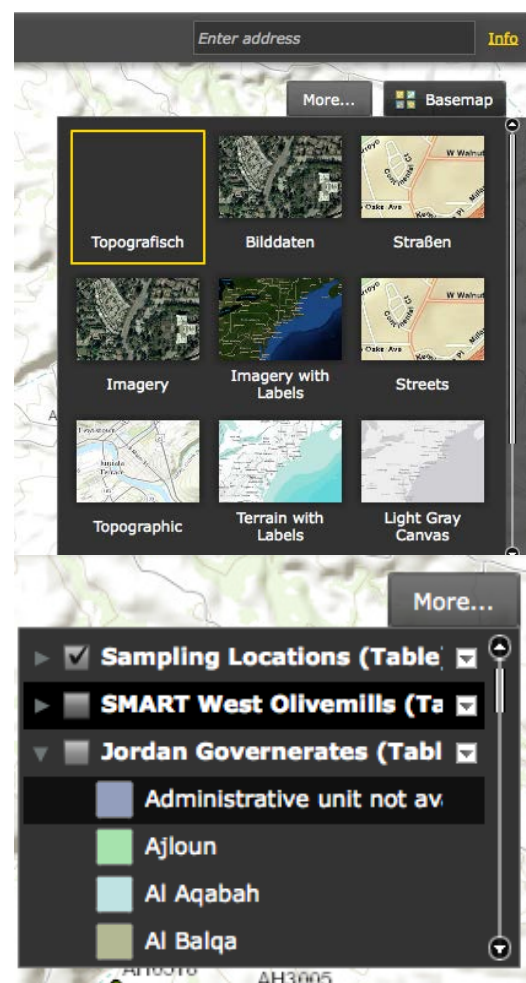
allows to quickly screen the layer table. It gives the same functionality like the Layer list, however in contrast to that, the more...list will disappear when your mouse arrow leaves it.

Address... field (A3)

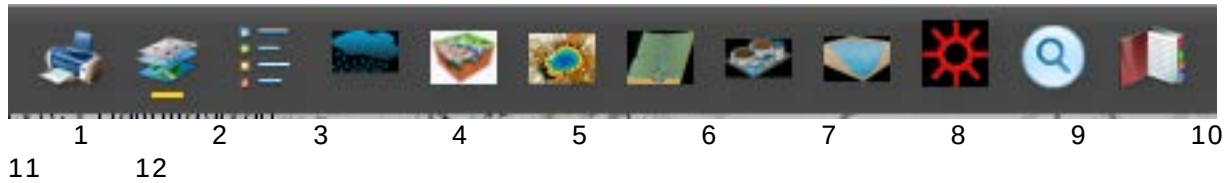
allows you to jump to any address in the world (similar to google maps but with the full functionality of the selectable basemaps (A3))

Info button (A3)

Will inform you by an additional splash screen about the funding agency (BMBF) and will give a direct link to the DAISY Harvester



General Toolbar



1. print

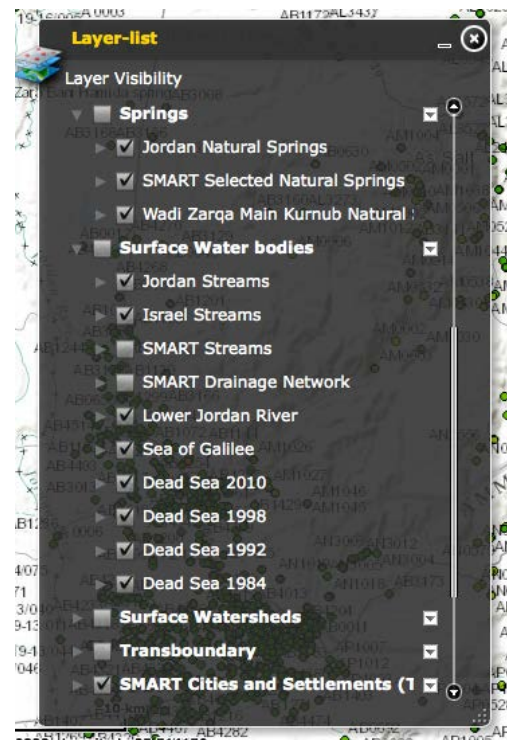
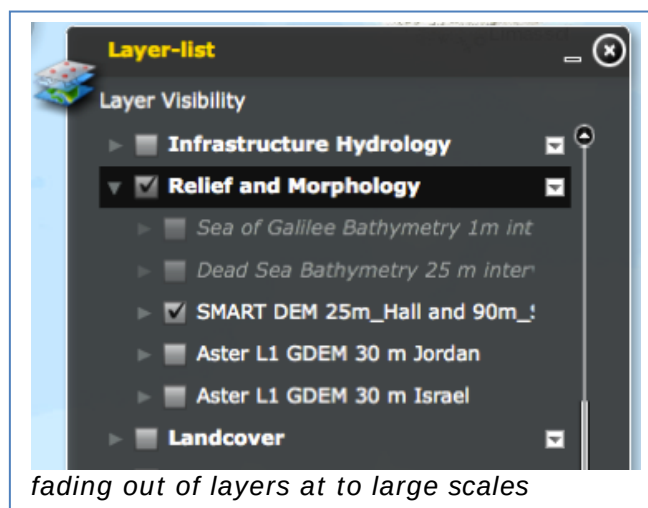
By selecting print function, you are going to print your map window including a given title and subtitle in a landscape-format (paper-size, pdf-functionality depends on your connected printers)

2. Layer-list

The layer table (default visible but can be closed by clicking upper-right “X”) allows you to switch on/off layers within your mapping window. It is the main-control panel of your map window.

By checking the boxes in front of a layer-group you switch all layers inside that group on, if they are by themselves activated (checked).

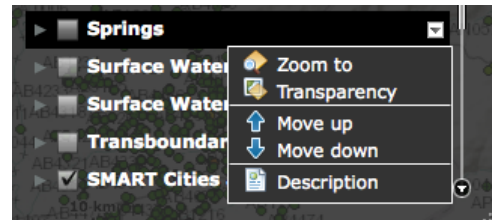
The visibility of the included layers is restricted. To regulate clarity of the map window, particularly point-data are not visible at all zoom-stages. In that case, the layers appear greyish in the layer table. You may zoom in and at predefined scales you can observe in the layer table, that all layers switch from greyish to black (visible).



Fade-out: example on the layer-group “Relief and Morphology” is active, however the scale is to large to make Bathymetry of Sea of Galilee and of the Dead Sea visible

By switching on available sub-menus by clicking on the arrow in front of the layer, you may receive additional information or legend entries.

Behind each layer you find an arrow-button, by pressing that button a menu appears that allows you to zoom to the extent of the layer, to make layer group transparent, move the layer up/down to make it visible/invisible and to call description.

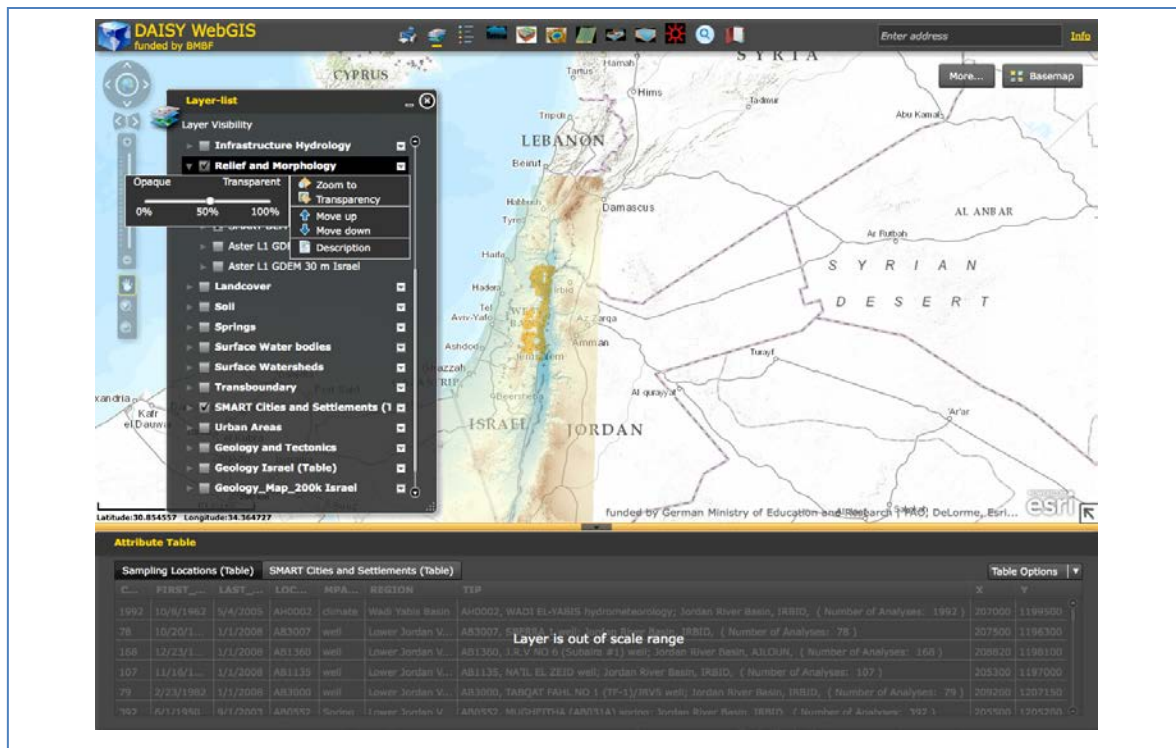


for

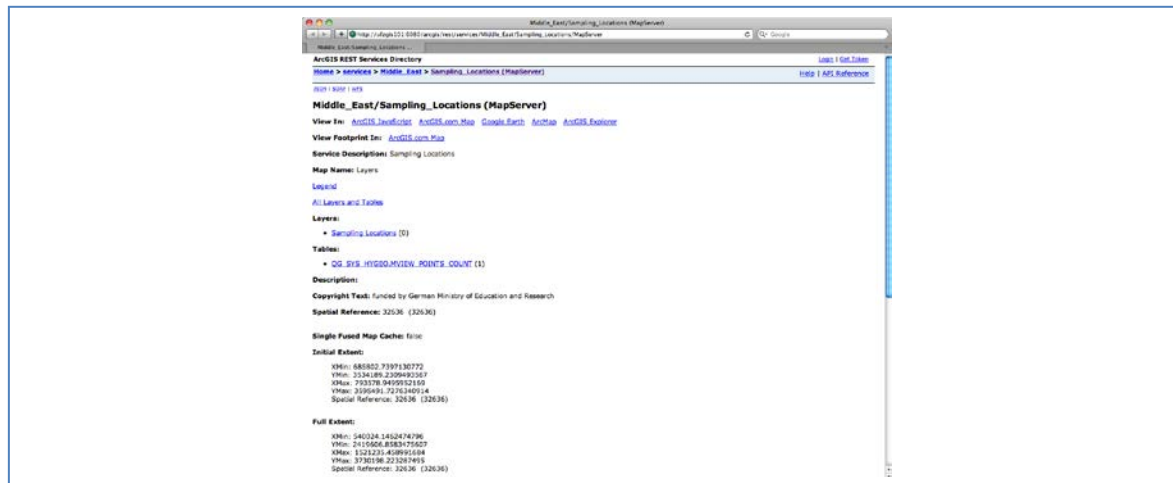


Attention: the zoom to the layer extent gives you an idea what extension the layer has, e.g. where point information are available but not necessarily let the layer appear, if its visibility is restricted to a certain zoom-depth (see screenshot with fading out effect).

The following example shows the 50%-transparency of the Layer-Group “Relief and Morphology”

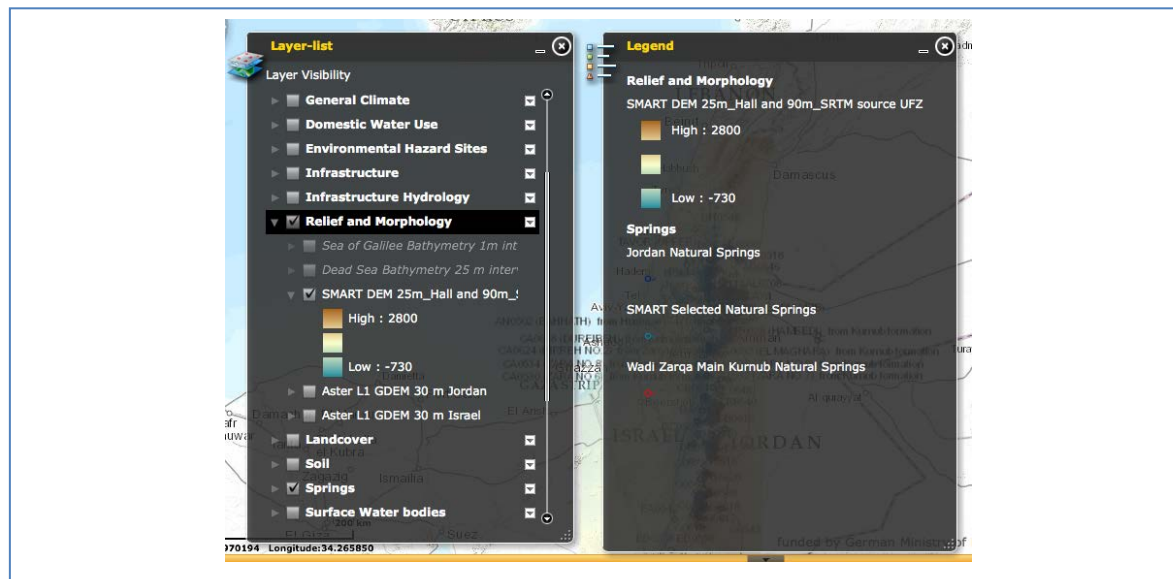


If you are interested in Metadata of the Layer Datasets, click on “description” and receive available metadata from the REST Service Directory:



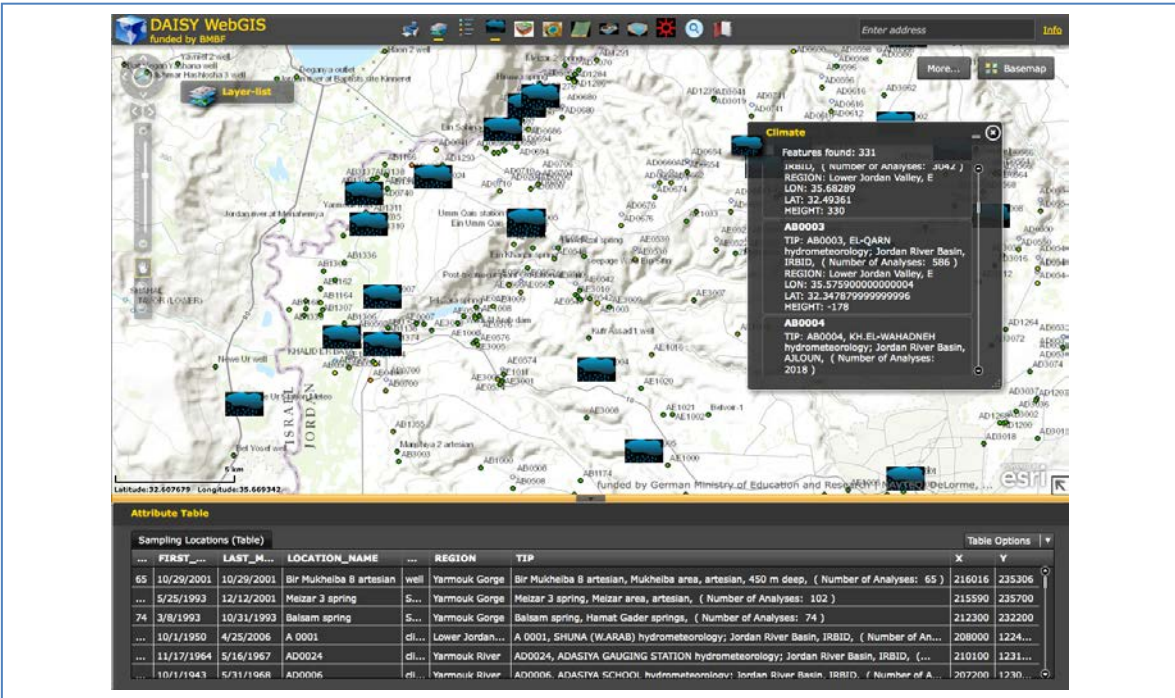
3. Legend

Instead using the submenus you may use the “legend”-icon in the general tool-bar and receive for all active (visible) layers the legend entries, as shown below:



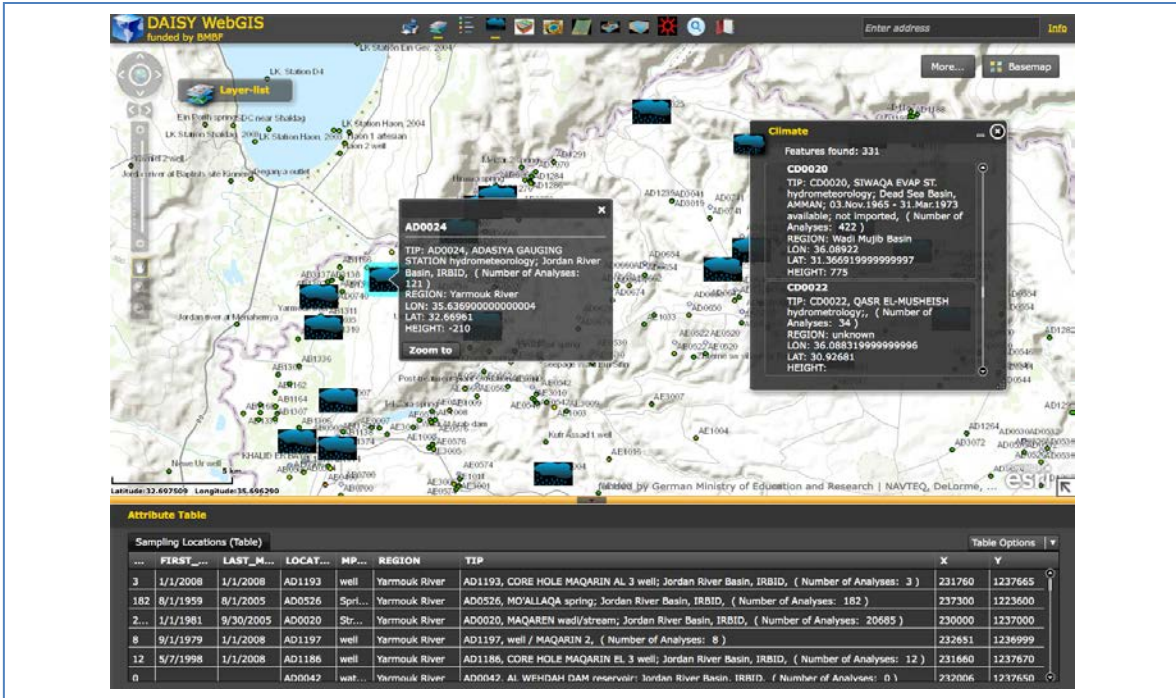
4. Climate -> 10. Wells

The icons 4-10 in the general tool-bar allow to plot special types of monitoring points directly by clicking the respective symbol in the tool-bar (A2). In the example, climate stations were chosen:



An inset-window appears that give all information to the springs in the data set. If you go to the inset window and scroll for a specific climate station, then the left-click on it will let you jump to the location of the chosen station.

If you zoom to an area of interest, as given in the picture below, you may click on the climate station-symbol and the information for the respective points will be given:



At the

same time you may recognise, that the attribute table (B) already shows values of the monitoring-points in the visible map window.

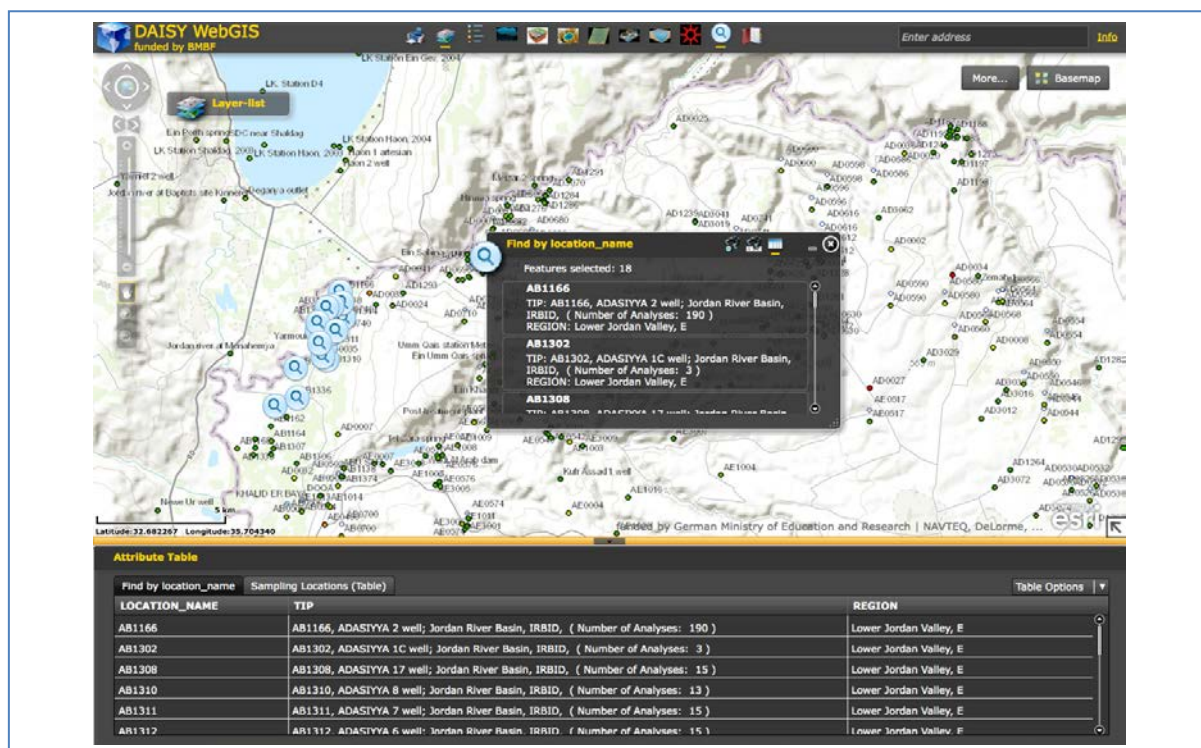
11. Query for names in monitoring point database (DAISY-Harvester link)

If you choose the query by location names the following inset-window appears:



You are in the “select features” query, where you now may take the rectangle (in the mid) symbol to open a bounding box in the map window. After having chosen your area of interest, all monitoring points in the bounding-box rectangle will be shown.

At the same time, the attribute-table is filled with all monitoring points in the bounding-box area.



Find by location_name

Features selected: 18

- AB1166**
TIP: AB1166, ADASIYYA 2 well; Jordan River Basin, IRBID, (Number of Analyses: 190)
REGION: Lower Jordan Valley, E
- AB1302**
TIP: AB1302, ADASIYYA 1C well; Jordan River Basin, IRBID, (Number of Analyses: 3)
REGION: Lower Jordan Valley, E
- AB1308**
TIP: AB1308, ADASIYYA 17 well; Jordan River Basin, IRBID, (Number of Analyses: 15)
REGION: Lower Jordan Valley, E
- AB1310**
TIP: AB1310, ADASIYYA 8 well; Jordan River Basin, IRBID, (Number of Analyses: 13)
REGION: Lower Jordan Valley, E
- AB1311**
TIP: AB1311, ADASIYYA 7 well; Jordan River Basin, IRBID, (Number of Analyses: 15)
REGION: Lower Jordan Valley, E
- AB1112**
TIP: AB1112, ADASIYYA 6 well; Jordan River Basin, IRBID, (Number of Analyses: 15)
REGION: Lower Jordan Valley, E

Attribute Table

LOCATION_NAME	TIP	REGION
AB1166	AB1166, ADASIYYA 2 well; Jordan River Basin, IRBID, (Number of Analyses: 190)	Lower Jordan Valley, E
AB1302	AB1302, ADASIYYA 1C well; Jordan River Basin, IRBID, (Number of Analyses: 3)	Lower Jordan Valley, E
AB1308	AB1308, ADASIYYA 17 well; Jordan River Basin, IRBID, (Number of Analyses: 15)	Lower Jordan Valley, E
AB1310	AB1310, ADASIYYA 8 well; Jordan River Basin, IRBID, (Number of Analyses: 13)	Lower Jordan Valley, E
AB1311	AB1311, ADASIYYA 7 well; Jordan River Basin, IRBID, (Number of Analyses: 15)	Lower Jordan Valley, E
AB1112	AB1112, ADASIYYA 6 well; Jordan River Basin, IRBID, (Number of Analyses: 15)	Lower Jordan Valley, E

you decide to search for a specific location name, then use the same function but the next symbol in the upper right corner of the inset window (select by attribute) and the inset window will give you the option to type in a location name:



Attention: it queries the database where names have to be exactly defined, however, transcription of names from any local language to English is not an easy issue it may happen, that the name you typed in, will not lead to the search result.

The solution will be, to type just the first letter in and you will receive all monitoring points, starting with that letter.

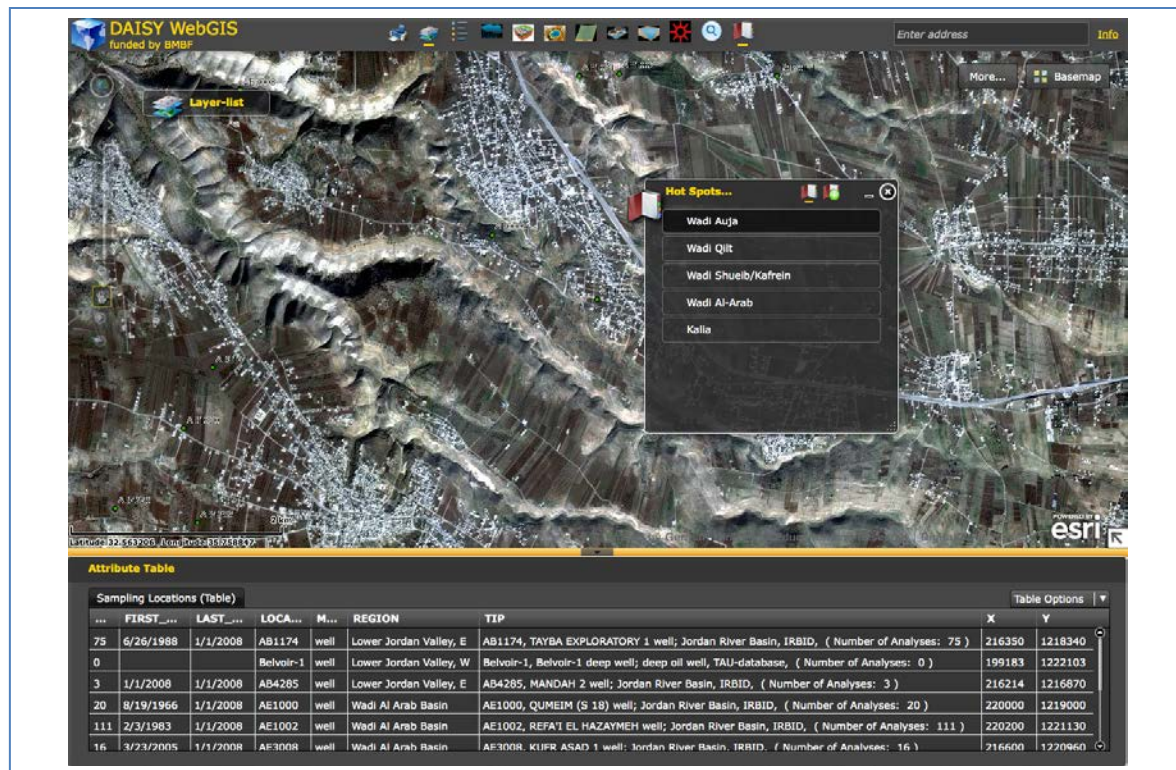
When you know the point of interest exactly, type it in (as shown below on the example "AE1000" and you will directly get the result. By clicking on it you will jump to that location:

Attribute Table

Find by location_name	Sampling Locations (Table)						Table Options	
...	FIRST...	LAST...	LOCA...	M...	REGION	TIP	X	Y
75	6/26/1988	1/1/2008	AB1174	well	Lower Jordan Valley, E	AB1174, TAYBA EXPLORATORY 1 well; Jordan River Basin, IRBID, (Number of Analyses: 75)	216350	1216340
0			Belvoir-1	well	Lower Jordan Valley, W	Belvoir-1, Belvoir-1 deep well; deep oil well, TAU-database, (Number of Analyses: 0)	199183	1222103
3	1/1/2008	1/1/2008	AB4285	well	Lower Jordan Valley, E	AB4285, MANDAH 2 well; Jordan River Basin, IRBID, (Number of Analyses: 3)	216214	1216870
20	8/19/1966	1/1/2008	AE1000	well	Wadi Al Arab Basin	AE1000, QUMEIM (S 18) well; Jordan River Basin, IRBID, (Number of Analyses: 20)	220000	1219000
111	2/3/1983	1/1/2008	AE1002	well	Wadi Al Arab Basin	AE1002, REFA' EL HAZAYMEH well; Jordan River Basin, IRBID, (Number of Analyses: 111)	220200	1221130
16	3/23/2005	1/1/2008	AF3008	well	Wadi Al Arab Basin	AF3008, KIFB ASAD 1 well; Jordan River Basin, IRBID, (Number of Analyses: 16)	216600	1220950

12. Hot Spot

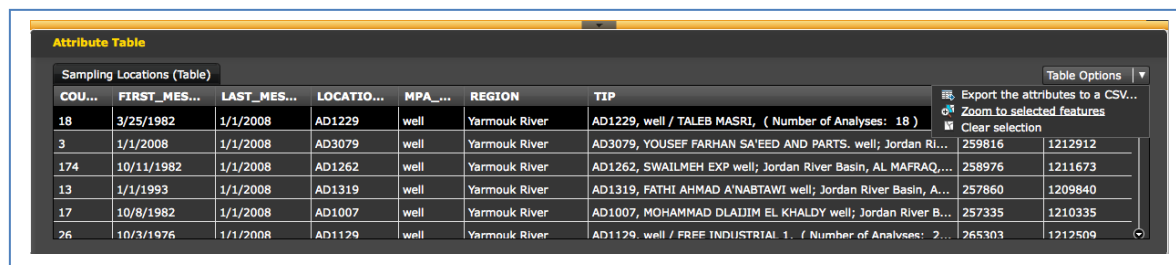
The final tool on the general tool-bar is the “hot spot” function, where pre-selected hotspots are selectable to directly jump to these extends in the map view:



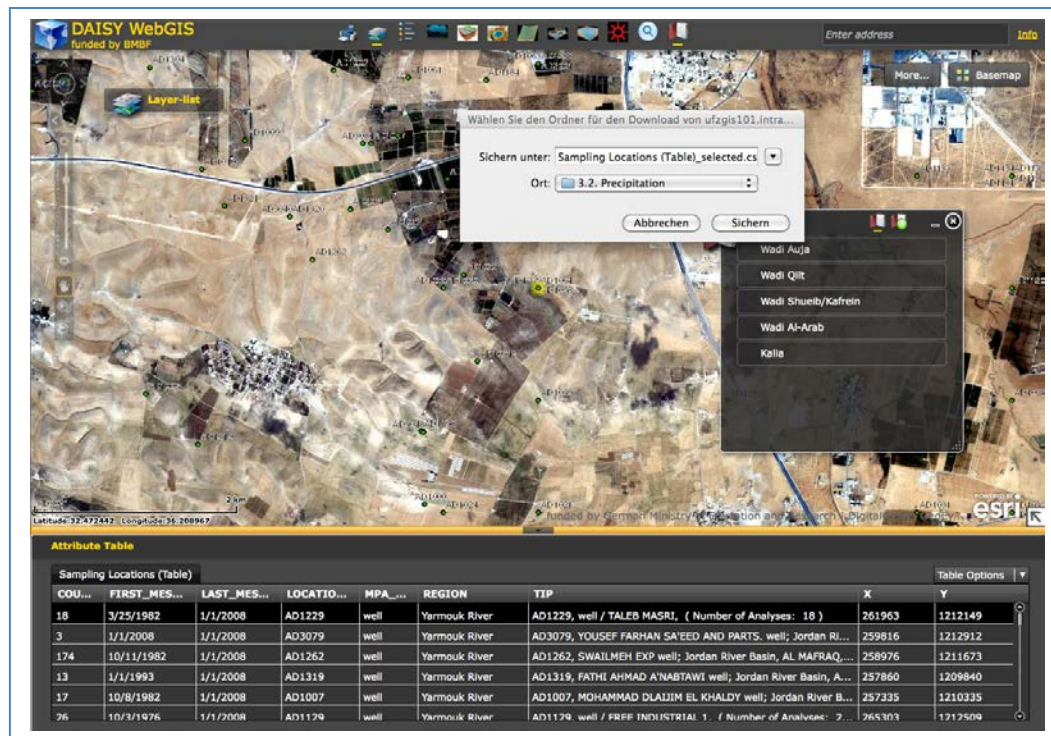
Attribute table (B)

In the attribute table (B) are all attributes listed of the temporary map-extension. under “table option” you will have the option to:

- export the table as csv-table,
- zoom to the selected feature and
- to clear the selection



When you choose the export-option, you will just asked, where to store it:



Help

If you have any questions, please do not hesitate to ask either via E-mail:

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