

## **HOBOS tutorial**

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# 1. Accessing the HOBOS data

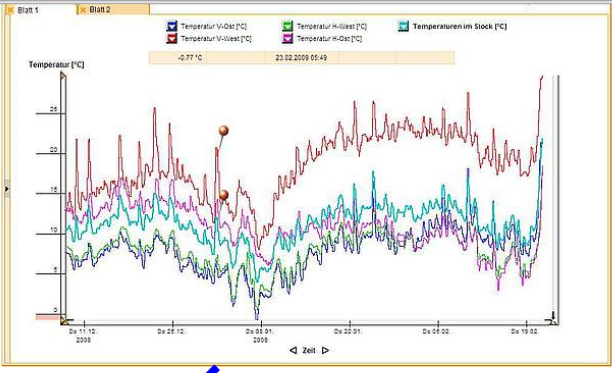
You can access the HOBOS data by activating the Link **[Preview / Vorschau]** on the front page of HOBOS:

The screenshot shows the website <http://www.hobos-online.de/> in a browser window. The page header includes the University of Würzburg logo and the text 'HOBOS'. A search bar is located on the left. The main content area features the large 'HOBOS' logo with a stylized antenna above it. Below the logo, the text reads 'INQUIRY BASED LEARNING - with the superorganism honeybee colony'. A quote follows: 'Tell me, and I will forget / Show me, and I may remember / Involve me, and I will understand. (A Chinese Proverb on Education)'. Below this, it says 'Dive online into a living honeybee colony...' and lists three bullet points: '•discover phenomena', '•make and test hypotheses', and '•Preview / Vorschau'. A blue arrow points to the 'Preview / Vorschau' link. Below the list are two more links: 'Schools / Schulen' and 'Universities / Universitäten'. At the bottom of the page, there is a photograph of several bees on a honeycomb. The right side of the page contains a 'HOBOS' logo, a 'Links' section with 'Geschichte from A - Z' and 'FAQ', a 'Navigation' section with 'University of Würzburg' and 'HOBOS', and logos for 'Nachhaltigkeit lernen' and 'UNESCO'.

On this page you can see the data from the meteorological station indicating the weather conditions near the hive, as well as from the webcams. By scrolling down this page, you will find this link **[here]**, which will allow you access to the HOBOS data:

HOBOS: Preview - Mozilla Firefox

http://www.hobos.biozentrum.uni-wuerzburg.de/preview/



Temperatur [°C]

Temperatur V-Ost [°C] Temperatur H-West [°C] Temperaturen im Stock [°C]  
 Temperatur V-West [°C] Temperatur H-Ost [°C]

-0.77 °C 23.02.2009 05:49

Zeit

**Please click [here](#) to access the sensor data, a popup window appears and enter the following words:**

**User: HOBOS & Password: HOBOS**

*In the popup window, drag and drop the sensors of your interest on the screen to display the diagrams.*

**Mozilla Firefox is required for access.**

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Übertragen der Daten von www.dezem.de... BEEGROUP THEODOR-BOVERI-WEG 6 97074 WÜRZBURG TEL.: +49 931/31-84319

A pop-up-window will open. Enter “HOBOS” (in capitals) in both fields “user” and “password”:

HOBOS: Popup

www.hobos.biozentrum.uni-wuerzburg.de

Julius-Maximilians-  
**UNIVERSITÄT  
 WÜRZBURG**

**HOBOS**

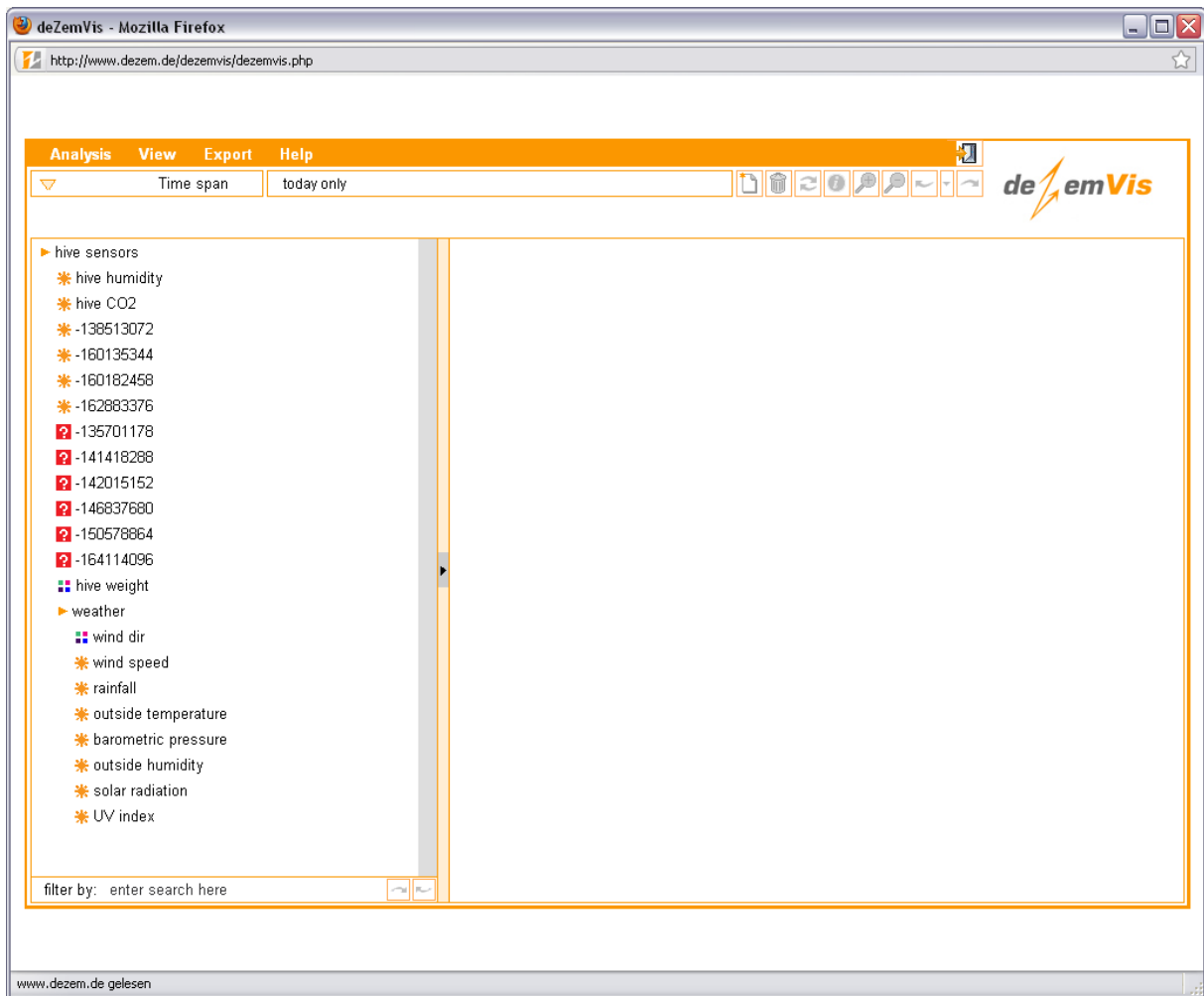
User:

Password:

**Login**

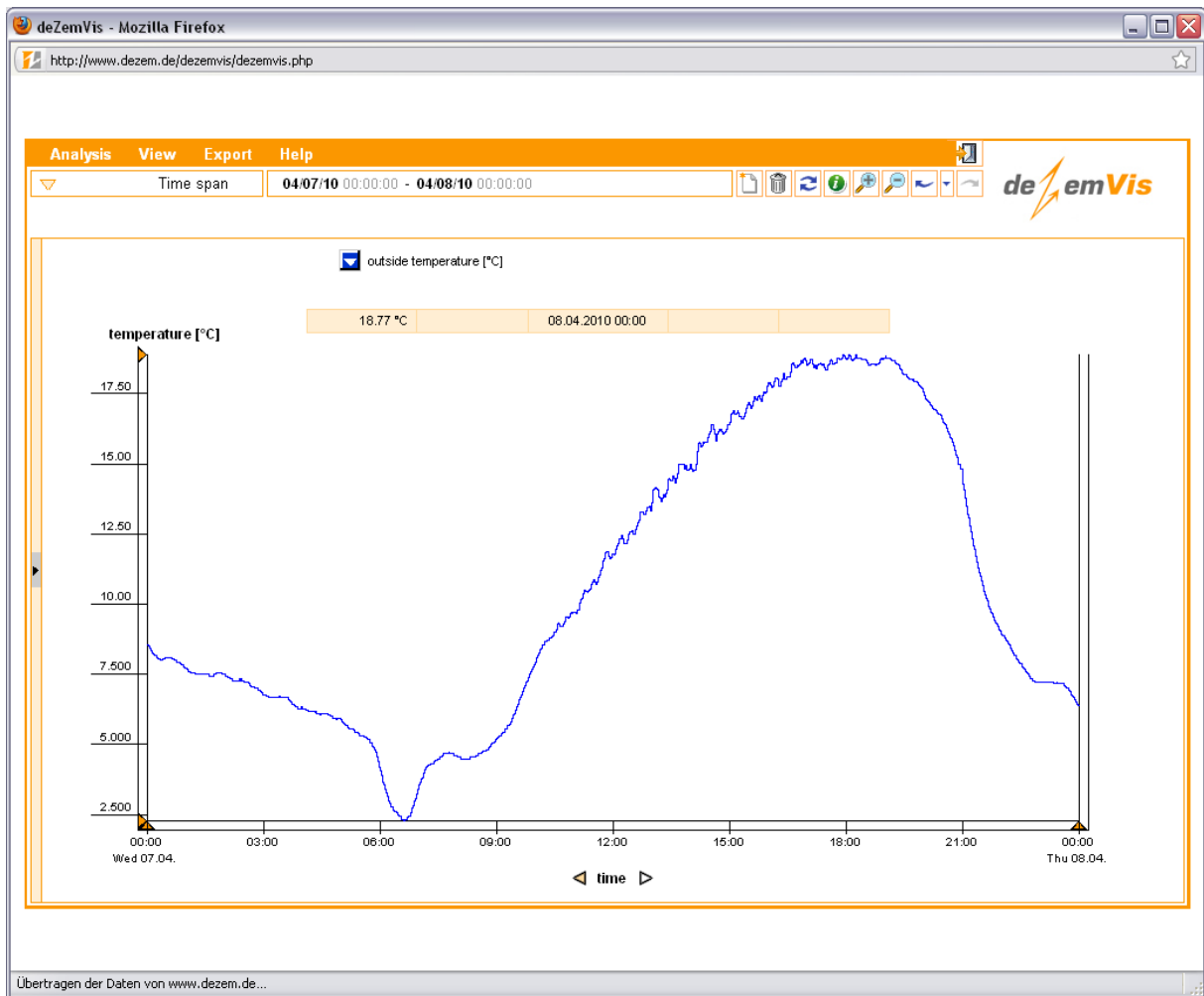
PC-Info:  
 FlashPlayer : 10,0,32,18  
 System : Windows Vista  
 Resolution : 1366x768

You will then have access to the front page of the HOBOS data:

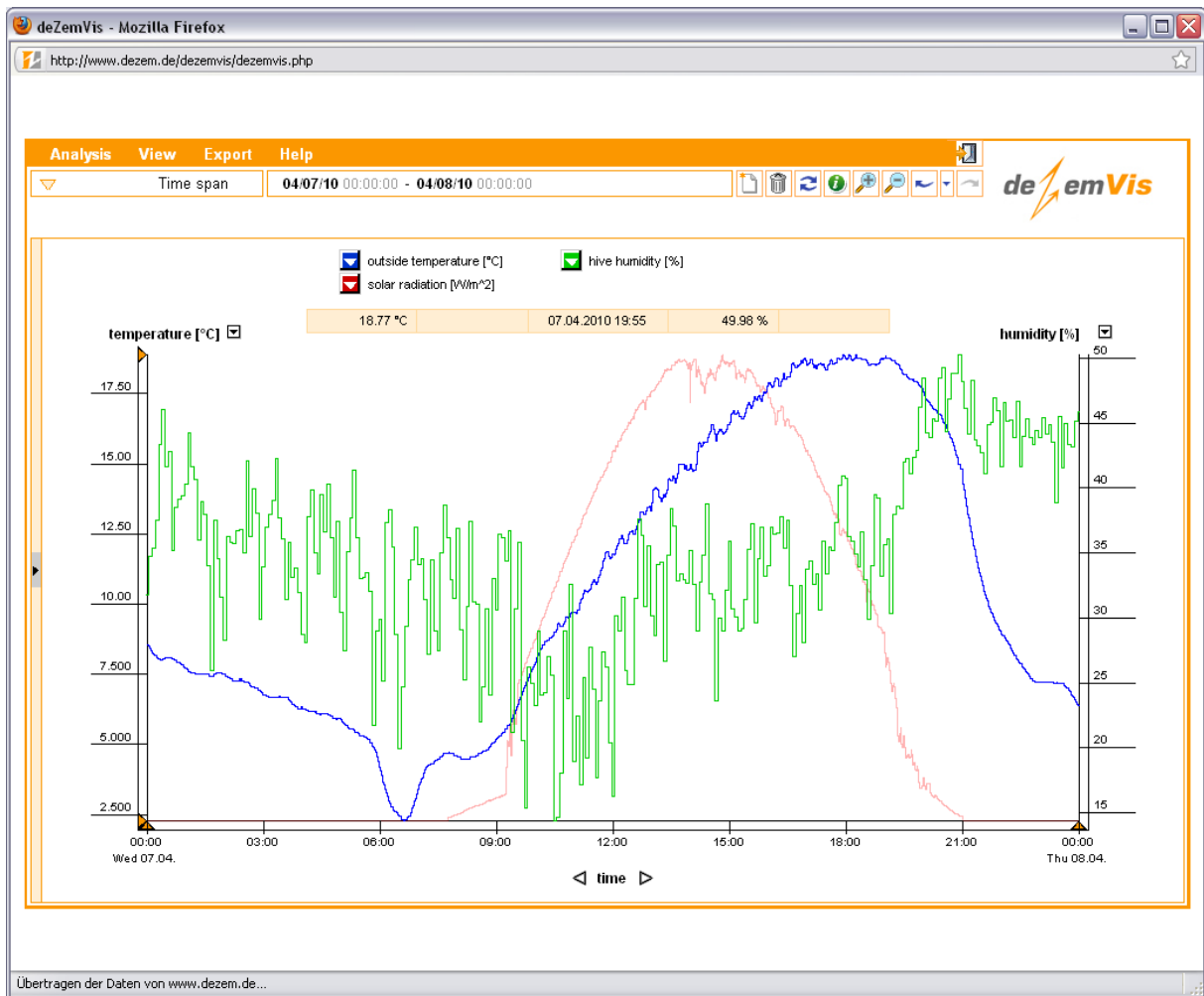


In the following, you will find a more detailed description of this user interface.

The available data is listed on the left side of the window. To view a chosen data track, use the drag & drop function: click on it with the left mouse key, and, with the key still pressed, drag it to the free field on the right. An example of this process is shown with the “outside temperature” data track:



Using this interface, it is possible to display several data tracks in the same graph simultaneously. The maximum number of simultaneously displayed parameters is six.

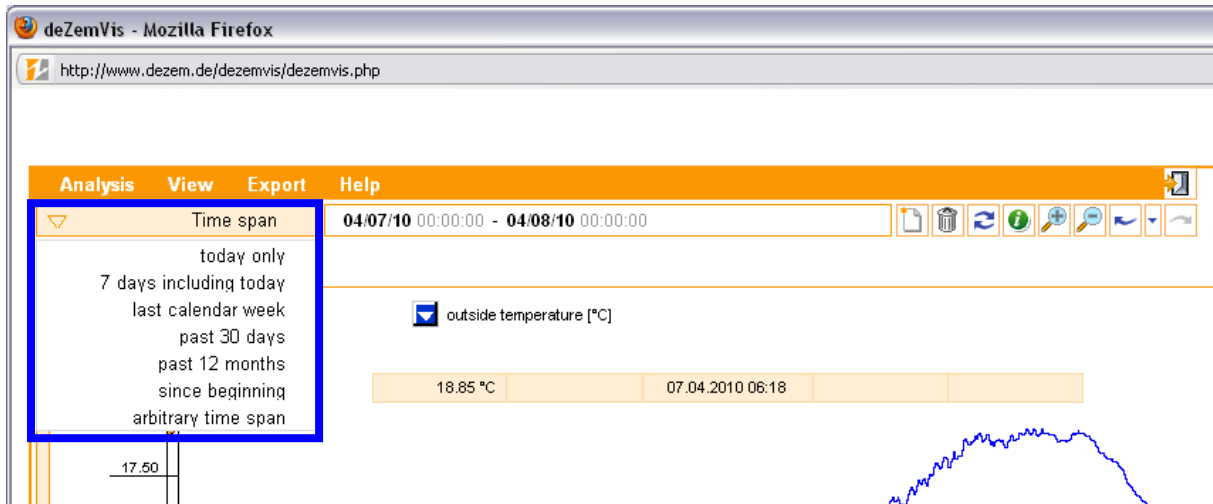


Only two scales can be shown simultaneously on the ordinate. Using the appropriate buttons, you can switch between the available axis captions:



## 2. Selecting the span of time

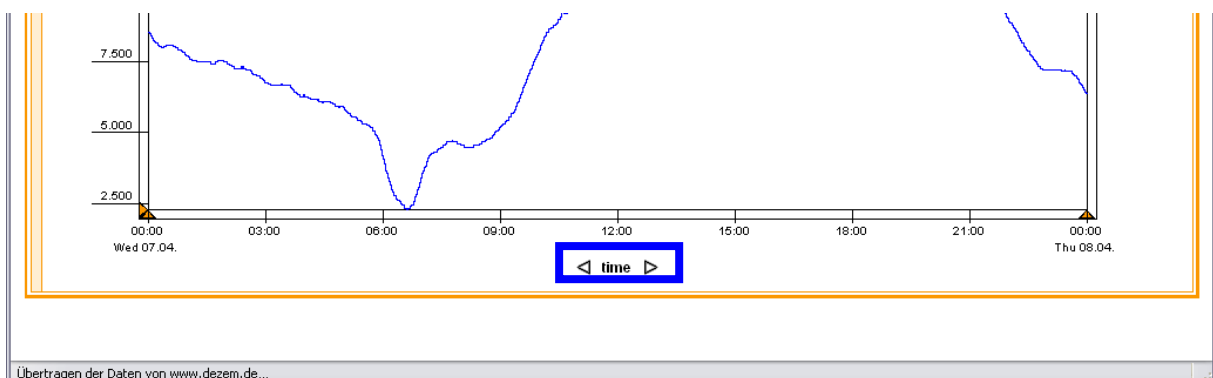
All HOBOS data is plotted against time. The default setting is the current day, which means a time period of 24 hours. To choose another time period, use the button on the upper left marked **[Time span]**:



Apart from various preset spans of time, you can also set any time period you like up to the minute, using the **[arbitrary time span]** button:

The 'Select period' dialog box is shown, allowing users to specify a custom time range. It has a title bar with 'Select period' and a close button. The dialog contains two sections: 'from' and 'till'. Each section has a calendar icon, a 'day' input field, a 'month' input field, a 'year' input field, and a '00:00' time input field. The 'from' section is set to day 7, month 4, year 2010, and 00:00. The 'till' section is set to day 8, month 4, year 2010, and 00:00. At the bottom of the dialog, there are 'OK' and 'cancel' buttons.

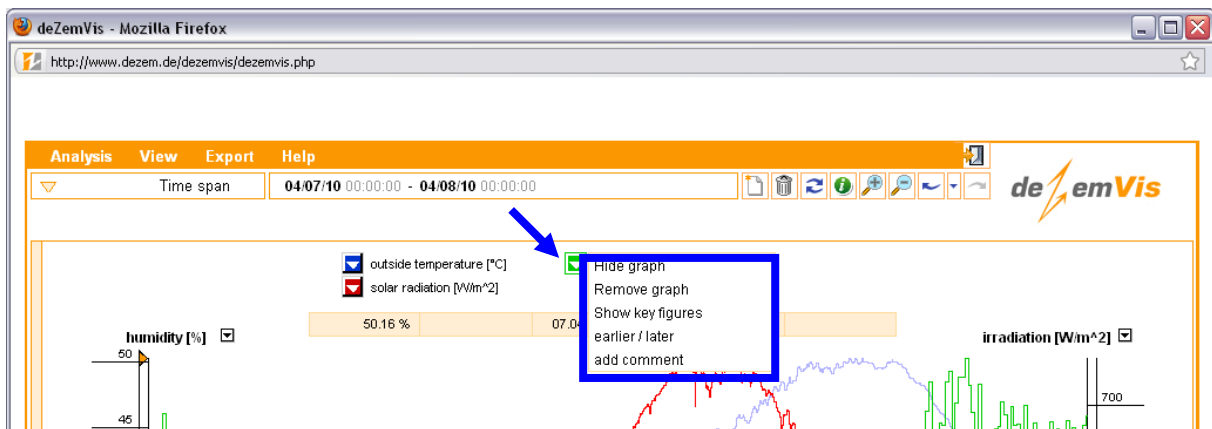
The arrows on the axis caption "time" offer yet another means of changing the time period:



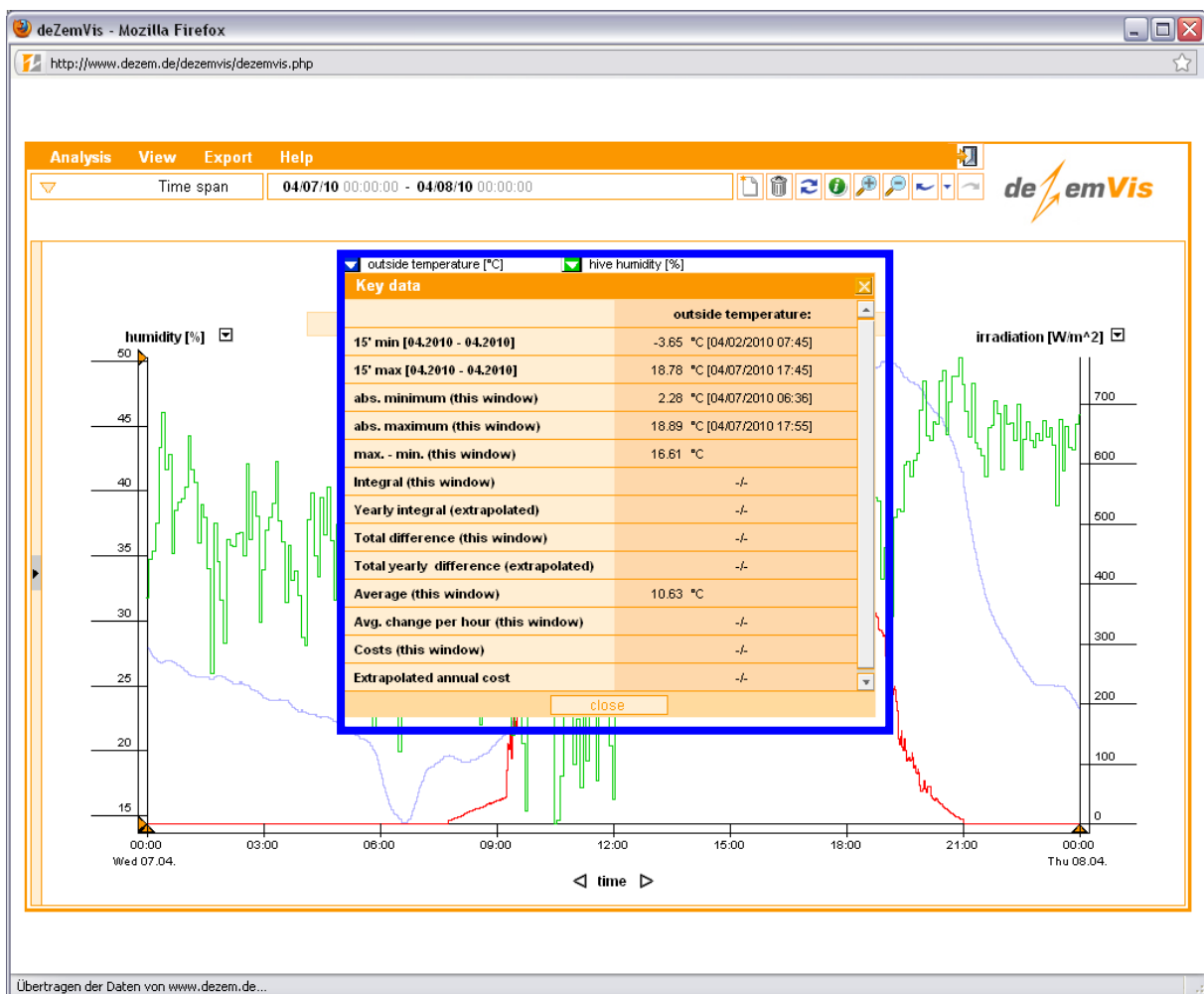
By using the arrows, you can include data from a block of time directly adjacent to (before or after) the currently chosen time period, while keeping the total viewed time period unchanged.

### 3. Displaying key data and further functions

For data tracks already included in the graph, clicking on an appropriately colored button will reveal various selection modes.

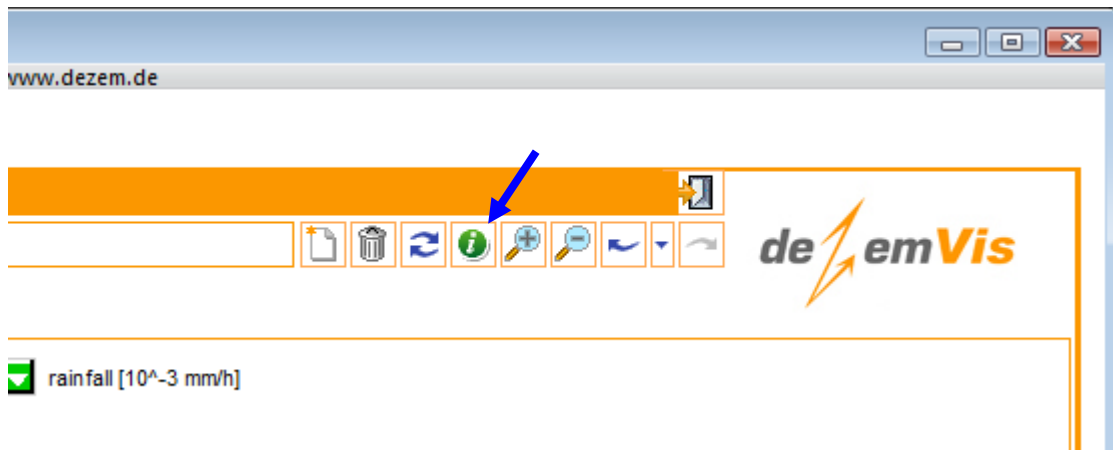


You can hide or delete the selected curve, or call up various characteristics using the **[Show key figures]** button:

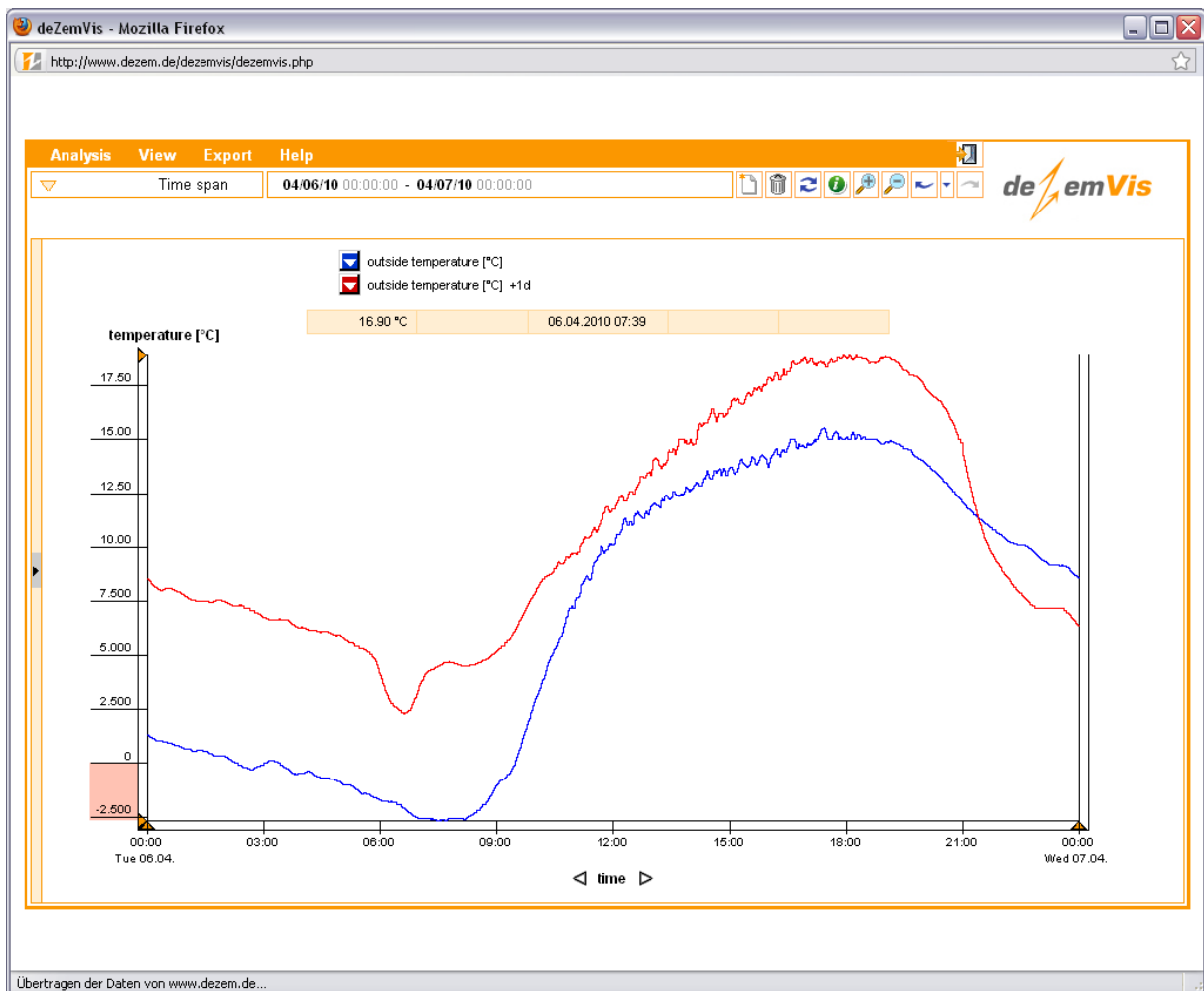


Note: The button top right allows you to display the characteristics of all selected data tracks:



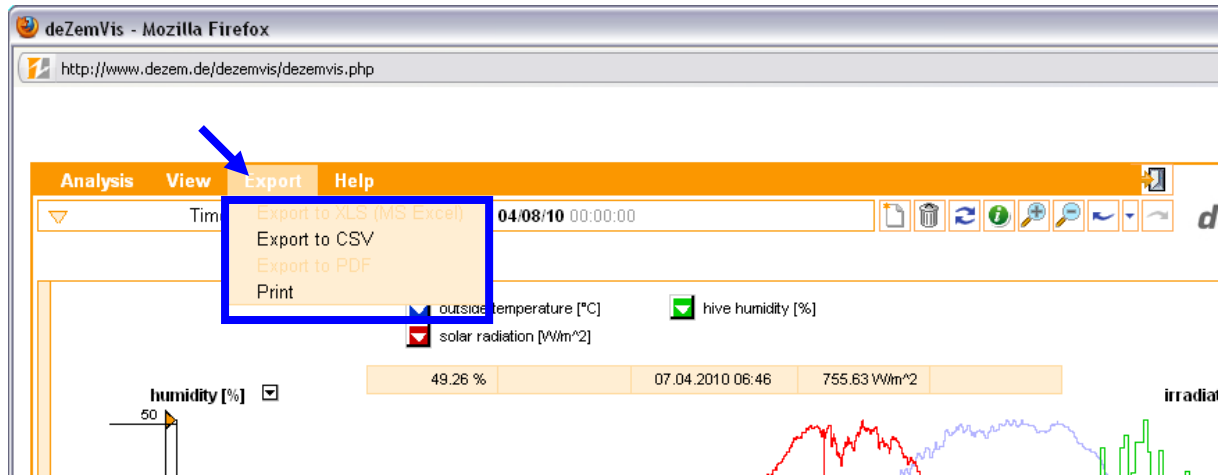


Using the **[earlier / later]** button, you also have the ability to display simultaneously in one graph the time span of a chosen data track shifted to any time period you like. As an example, you can see in the following screenshot the simultaneous display of the outside temperature on two successive days:

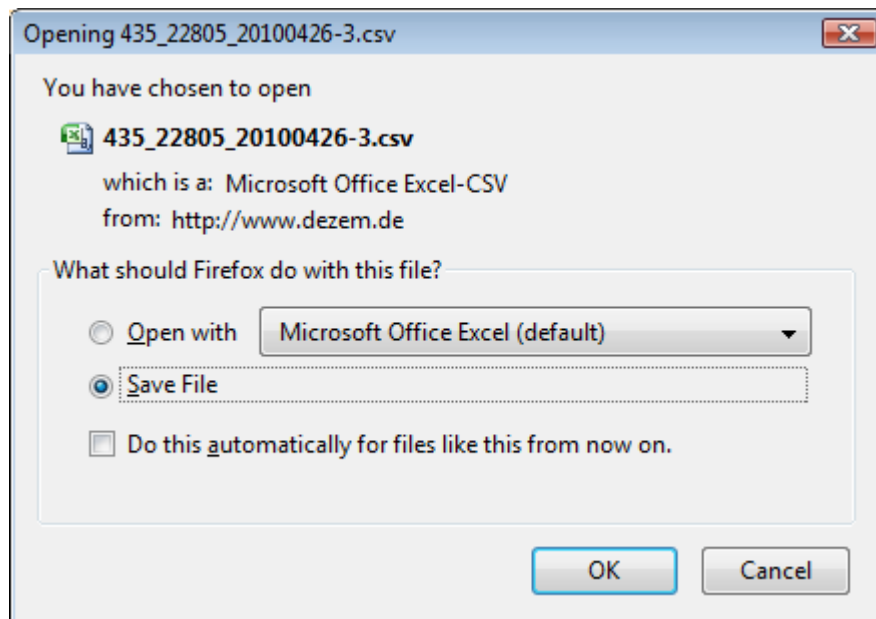


## 4. Exporting data and the print function

An export function is available for further use of the data with, for instance, a spreadsheet program. You can also print the graphs generated in the interface. For both functions, use the button **[Export]** in the menu bar:



**[Print]** will print the actual sheet as well as the characteristics of the visible graphs. The button **[Export to CSV]** allows an export of the selected data in CSV format. In the following window, select “Save File”:



You can then choose the name and location of the file to be saved. We strongly recommend that you carefully choose a filename that will allow fast and easy identification of the data at a later date.

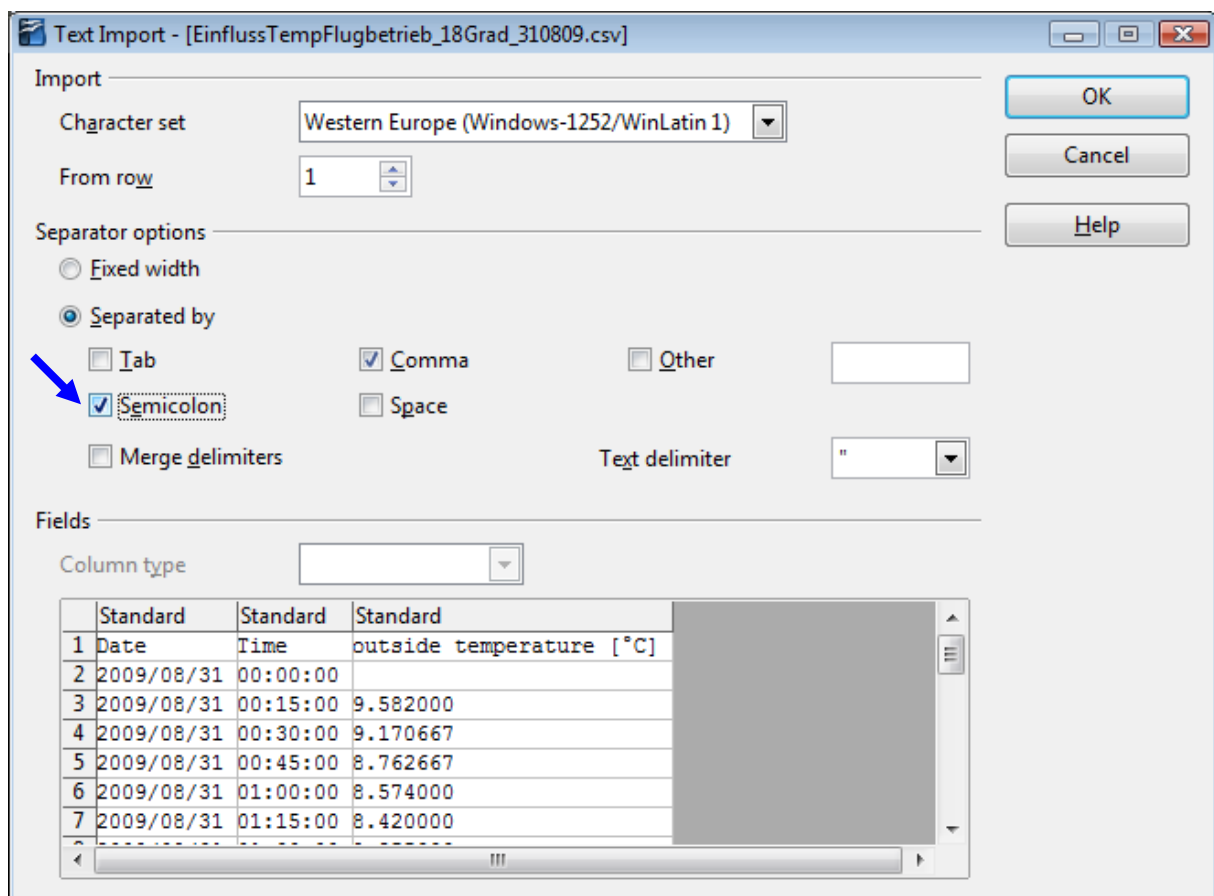
You can now open the file using a spreadsheet program.

## 5. Importing data into a spreadsheet program

To open the exported HOBOS data with a spreadsheet program, it is necessary to import it correctly. In the following you will find examples for this process for the three most popular programs: OpenOffice.org 3.1, and Microsoft® Excel 2002 and 2007.

### OpenOffice.org 3.1

You can open the exported file directly with this program. A text import window will pop up. Look at the following picture to see which entries are necessary. Most important is the check in the “semicolon” box (arrow):

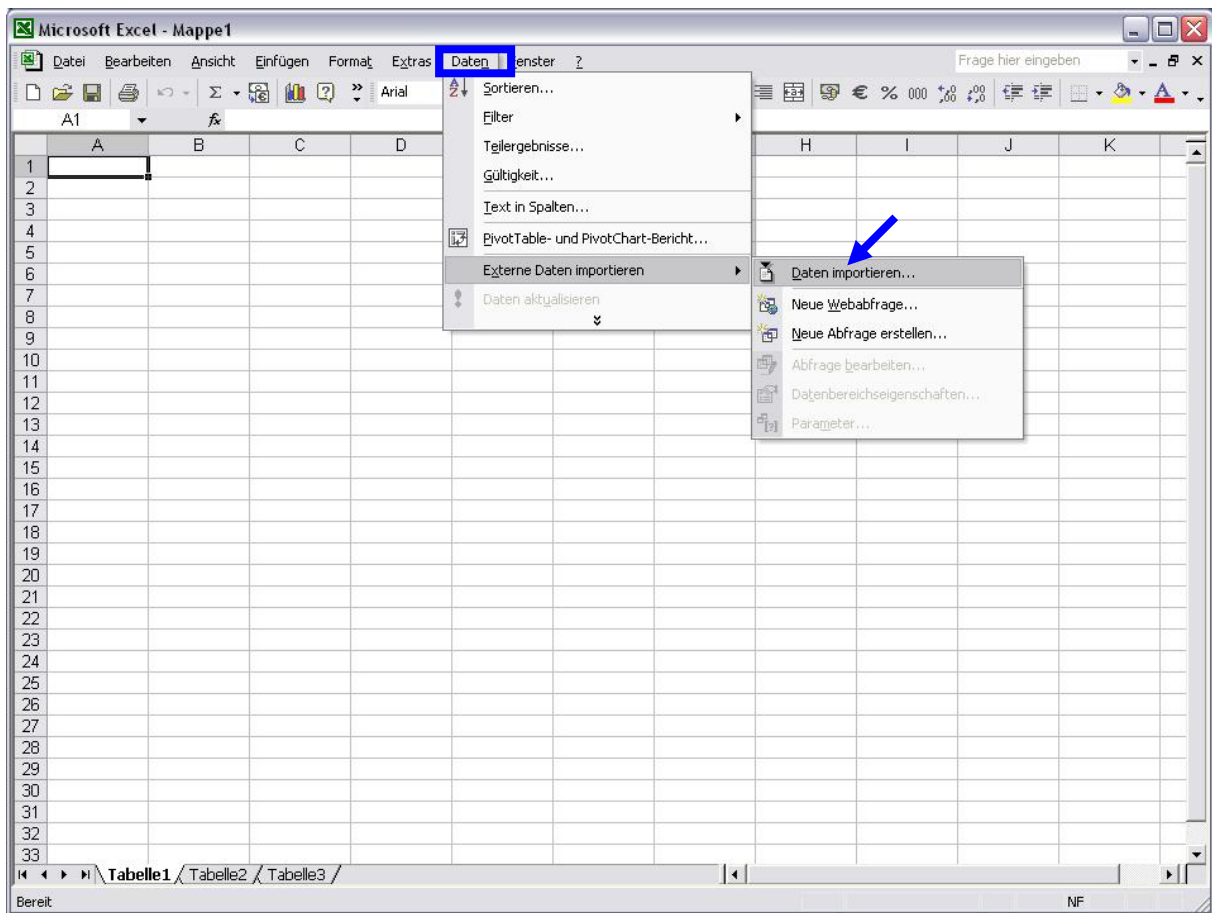


Click **[OK]** to conclude the import process.

### Microsoft® Excel 2002 and Excel 2007

Import the data using the **“Textkonvertierungs-Assistent”**. First, start Microsoft® Excel 2002 or 2007 respectively.

In Microsoft® Excel 2002, you will find the **Textkonvertierungs-Assistent** in the menu bar under **[Daten]**. Then select **[Externe Daten importieren]** and **[Daten importieren]**:

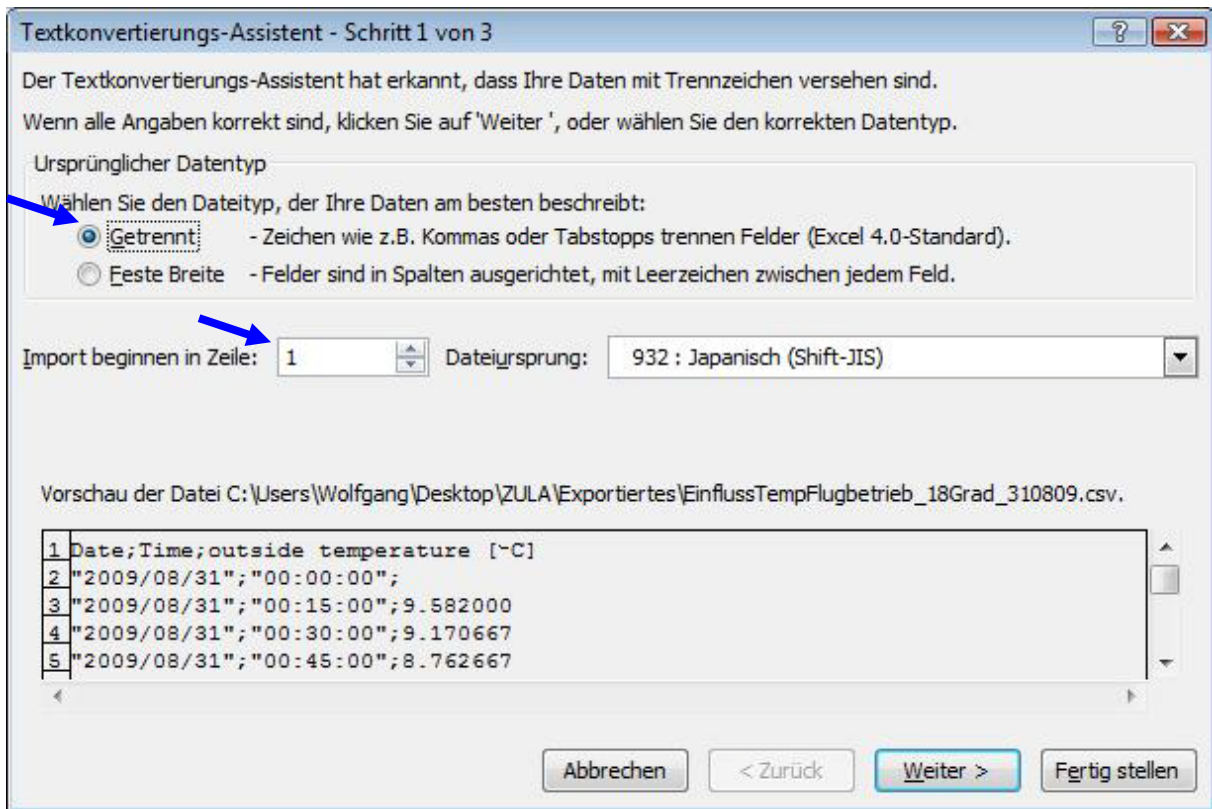


In Microsoft® Excel 2007, you will also find the **Textkonvertierungs-Assistent** in the menu bar under **[Daten]**. Then press **[Aus Text]** in the field “Externe Daten abrufen”:



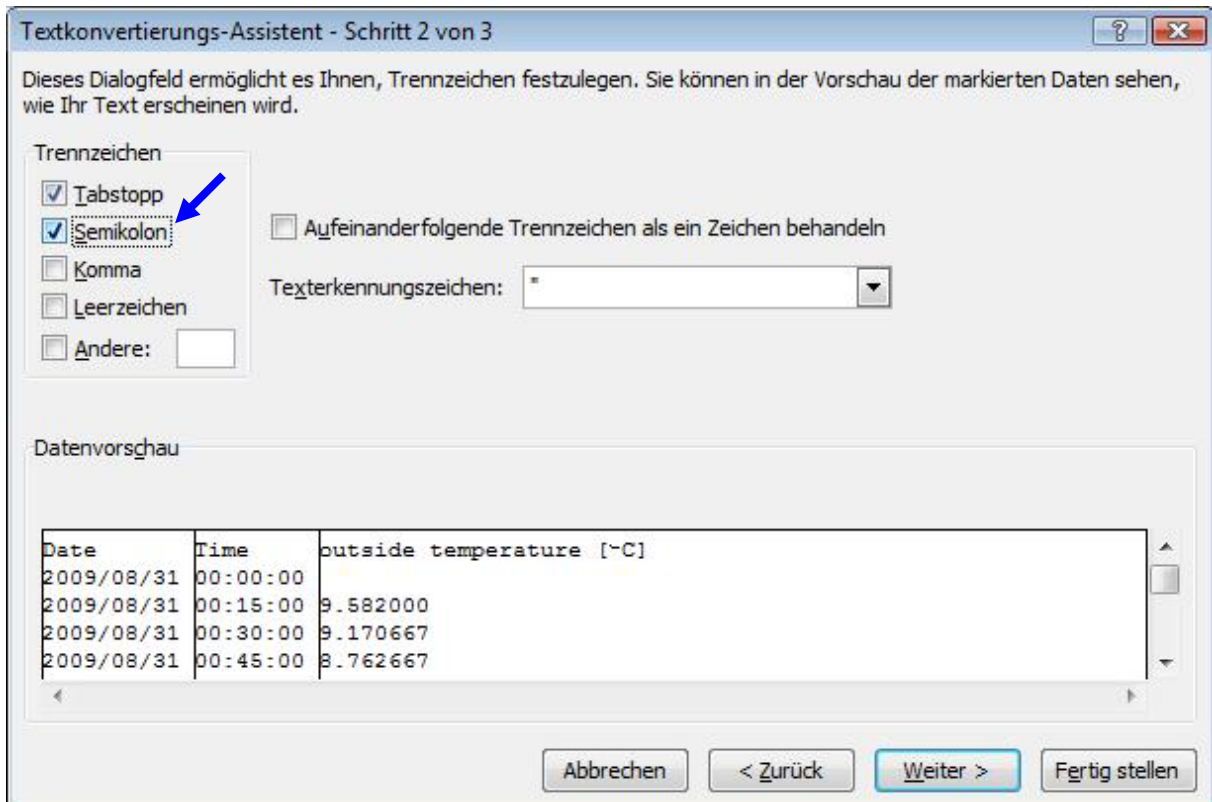
The **Textkonvertierungs-Assistent** works in a very similar way in both versions of Microsoft® Excel. It is a three-step process:

First step: See the picture below for the necessary entries (blue arrows).

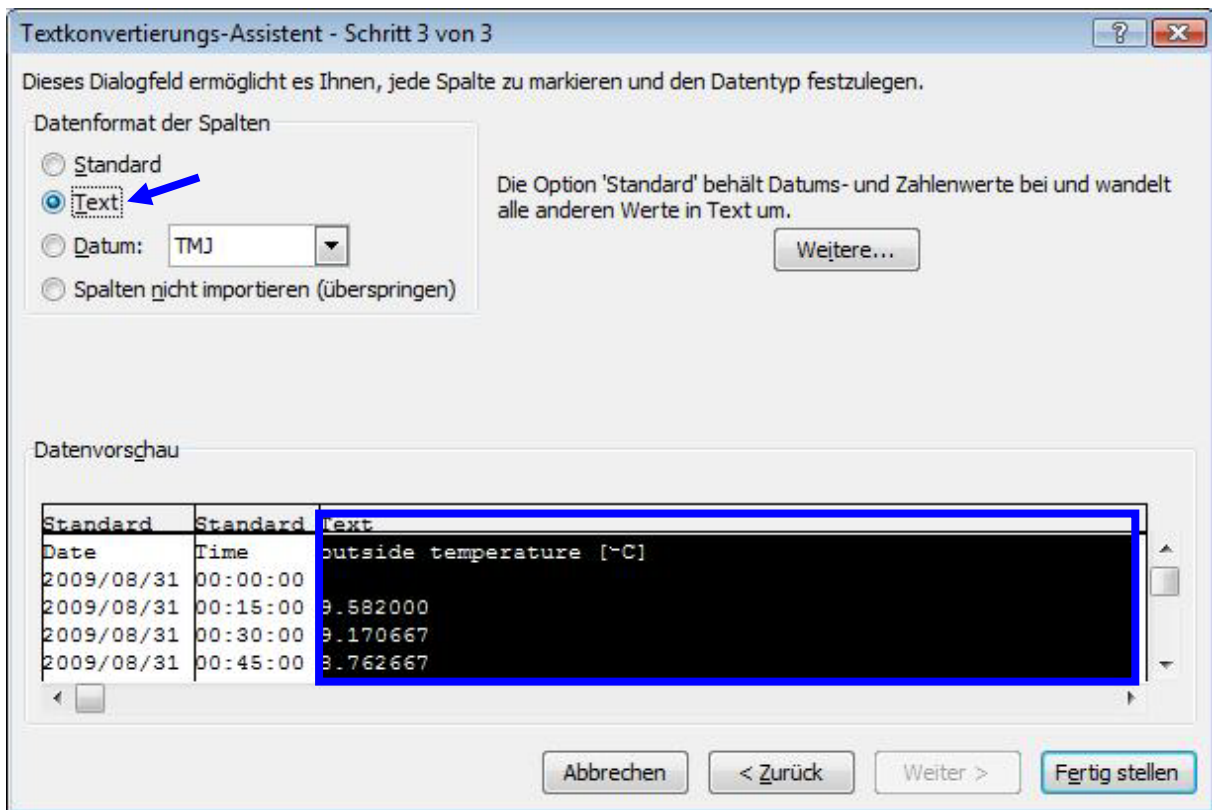


Press **[Next]** to continue to the second step.

Second step: Make sure you check the **“semicolon”** box:



Third step: The field “**Datenvorschau**” appears next. It shows the data of the columns that will be displayed in Excel. You can select the individual sections by clicking on them with the mouse. The columns “Date” and “Time” stay unchanged. All the other columns must be converted to text format, which is crucial for the correct display of decimal places. Highlight these columns one after the other and select in the field “**Datenformat der Spalten**” the entry “Text”. In the following picture, an example of the process is shown with the “outside temperature” data:



Conclude the process by pressing the button [**Fertig stellen**]. A small window will open where you can choose the place on the spreadsheet for the insertion of the new data. Finish the import process using the [**OK**] button.

### Finishing the import process

This is what your spreadsheet should look like after a successful data import:

435\_22804\_20091129.csv - OpenOffice.org Calc

File Edit View Insert Format Tools Data Window Help

Arial 10 B I U

E2

	A	B	C	D	E	F	G	H	I	J
1	Date	Time	hive temperature outside [°C]							
2	29.11.09	00:00:00								
3	29.11.09	00:15:00	11.625000							
4	29.11.09	00:30:00	11.625000							
5	29.11.09	00:45:00	11.625000							
6	29.11.09	01:00:00	11.625000							
7	29.11.09	01:15:00	11.600262							
8	29.11.09	01:30:00	11.501932							
9	29.11.09	01:45:00	11.500000							
10	29.11.09	02:00:00	11.500000							
11	29.11.09	02:15:00	11.390528							
12	29.11.09	02:30:00	11.375000							
13	29.11.09	02:45:00	11.375000							
14	29.11.09	03:00:00	11.328194							
15	29.11.09	03:15:00	11.250000							
16	29.11.09	03:30:00	11.244940							
17	29.11.09	03:45:00	11.130588							
18	29.11.09	04:00:00	11.123594							
19	29.11.09	04:15:00	11.006267							
20	29.11.09	04:30:00	10.990161							
21	29.11.09	04:45:00	10.879700							
22	29.11.09	05:00:00	10.829967							
23	29.11.09	05:15:00	10.750000							
24	29.11.09	05:30:00	10.670667							
25	29.11.09	05:45:00	10.625000							
26	29.11.09	06:00:00	10.578667							
27	29.11.09	06:15:00	10.500000							
28	29.11.09	06:30:00	10.500000							
29	29.11.09	06:45:00	10.382000							
30	29.11.09	07:00:00	10.375000							

Sheet1/

Sheet 1 / 1 Default STD Sum=0 100%