

# **Clidata Java Application Manual**

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# Content

1	Installation.....	5
2	Running and Connecting into the system.....	6
3	Main menu.....	7
4	Working with the application.....	9
4.1	The screen.....	9
4.2	Menu.....	10
4.3	Toolbar.....	10
4.4	Searching for the record.....	11
4.5	Sorting of the data.....	13
4.6	Export to CSV.....	14
5	Metadata.....	15
5.1	Type of time.....	15
5.2	System parameters.....	15
5.3	Time schemes.....	16
5.4	Units.....	17
5.5	Historical units.....	18
5.6	Instruments.....	19
5.7	Elements.....	20
5.7.1	Monthly data calculation.....	21
5.7.2	Monthly data count.....	25
5.7.3	Normal data calculation.....	27
5.7.4	Extreme data calculation.....	29
5.7.5	Gis periods.....	31
5.8	Elements substitution.....	32
5.9	Clicom conversion.....	32
5.10	Phenomena.....	34
5.11	Day with Phenomena.....	38
5.12	Area.....	39
5.13	Basin.....	40
5.14	Region – 1. level of country subdivision.....	41
5.15	District – 2. level of country subdivision.....	42
5.16	Extended metadata.....	43
5.17	Type of reference station.....	44
5.18	Calculation.....	44
5.19	Quality control formula.....	51
5.20	Table values.....	53
6	Station geography information.....	54
6.1	Station.....	54
6.1.1	Form.....	54
6.2	Table.....	56
6.3	Address.....	57
6.4	Hydrological information.....	58
6.5	Station observation.....	59
6.6	Station area.....	61
6.7	Extended geography.....	62
6.8	Station Google maps.....	63
6.9	Reference station.....	63

6.10 Heliographic/Sun horizon.....	64
6.11 Obstacles.....	65
6.12 Station instruments.....	66
6.13 Hydrological table.....	67
6.14 Photos.....	68
6.15 Mkp - River Profile Curve.....	69
6.16 Station visits.....	70
6.17 Station Files.....	71
6.18 Station maps.....	72
6.19 Station reports.....	73
7 Key entry forms.....	74
7.1 Validation change.....	74
7.2 Selection of key entry form.....	75
7.2.1 Key entry form information.....	76
7.2.2 Key entry form Settings.....	76
7.2.3 Column Size.....	77
7.2.4 Key entry form Details.....	77
7.3 Key entry in data grid.....	83
7.3.1 Toolbar.....	83
7.3.2 Colors – Key entry mode.....	85
7.3.3 Colors – quality control mode.....	85
7.3.4 Correction of the value in quality control.....	86
7.4 Key entry form of Phenomena.....	86
7.5 Intensity rainfall key entry.....	87
7.6 Upper air data key entry.....	88
7.7 Rainfall gauge, totalizator.....	88
7.8 Monthly data key entry.....	89
7.9 Monthly data count key entry.....	90
7.10 Normal data key entry.....	91
8 Products.....	92
8.1 Monthly data.....	92
8.1.1 Form view.....	93
8.1.2 Table view.....	95
8.1.3 Cross table .....	96
8.2 Monthly Data Count.....	97
8.3 Extremes.....	100
8.4 Normals.....	102
8.5 Phenomena monthly data.....	105
8.6 Phenomena Normals.....	106
8.7 Wind rose.....	106
8.7.1 Parameters of wind rose.....	106
8.7.2 Displaying the wind rose chart.....	108
9 Administration.....	111
9.1 Users.....	111
9.2 Restrictions.....	112
9.3 Objects.....	113
9.4 Rights.....	114
9.5 Roles.....	115
9.6 Grant right.....	116



# 1 Installation

Clidata application is distributed in self extracting archives.

Contact developers for the new version available

Main application archive is:

**Clidata-install.exe**

For the upgrade scalability the libraries and binary files are separated from the main application archive. They are:

**bin-install.exe**

**jre-install.exe**

**lib-install.exe**

This archives are installed usually only 1x. These archives are updated seldom.

Put all archives into any directory and unpack these self extract archives.

After unpacking you will find two executable files in the directory:

Clidata.bat ... main application starter


Clidata\_debug.bat ... starter with DEBUG console. Into this console the error and information messages are written.

## 2 Running and Connecting into the system

Run the „Clidata.bat“ file. The following dialog will appear:



Here you can fill the username, password and target server.

During the first run you can configure the server by pressing  button. The configuration dialog will appear:



It is necessary to fill the correct connection information

- ID – the id of the connection. Put any text string and remember
- Name – the description of the connection id. Put any name and remember.
- Host – the name of the server machine to which you are connecting.
- Service – the name of the database service.

The host and service names are provided by database administrator.

During the first run the system asks for the creation of the desktop link. We recommend to create the desktop link. If you **don't want** the link to be created, in that case, choose in main menu of the program **File/Settings** and check **Create shortcut**. The link is created as follows:



### 3 Main menu

After connection into the system the main menu is displayed:



The main menu options are as follows:

Stations ... manage the station and geography information

Metadata ... manage the static list of values

Kef ... different key entry forms

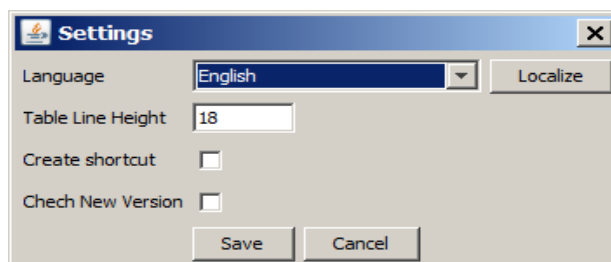
ROM ... Preparation and export of the data for run-off model

Products ... different data reports

Administration ... manage the localizations, system, users and rights

File – Settings ... main settings of the system. You can choose:

- the different language
- the height of the table row – necessary for windows systems with different magnifying ratio, if the lines of the tables in the application are too narrow try to set this value. The usual value is 18.
- Application shortcut – if checked the shortcut is not created in the future



- Check new version – if checked the system is not looking for the new version in the internet. If you experience the slow system start up, it can be because the system is checking for the new

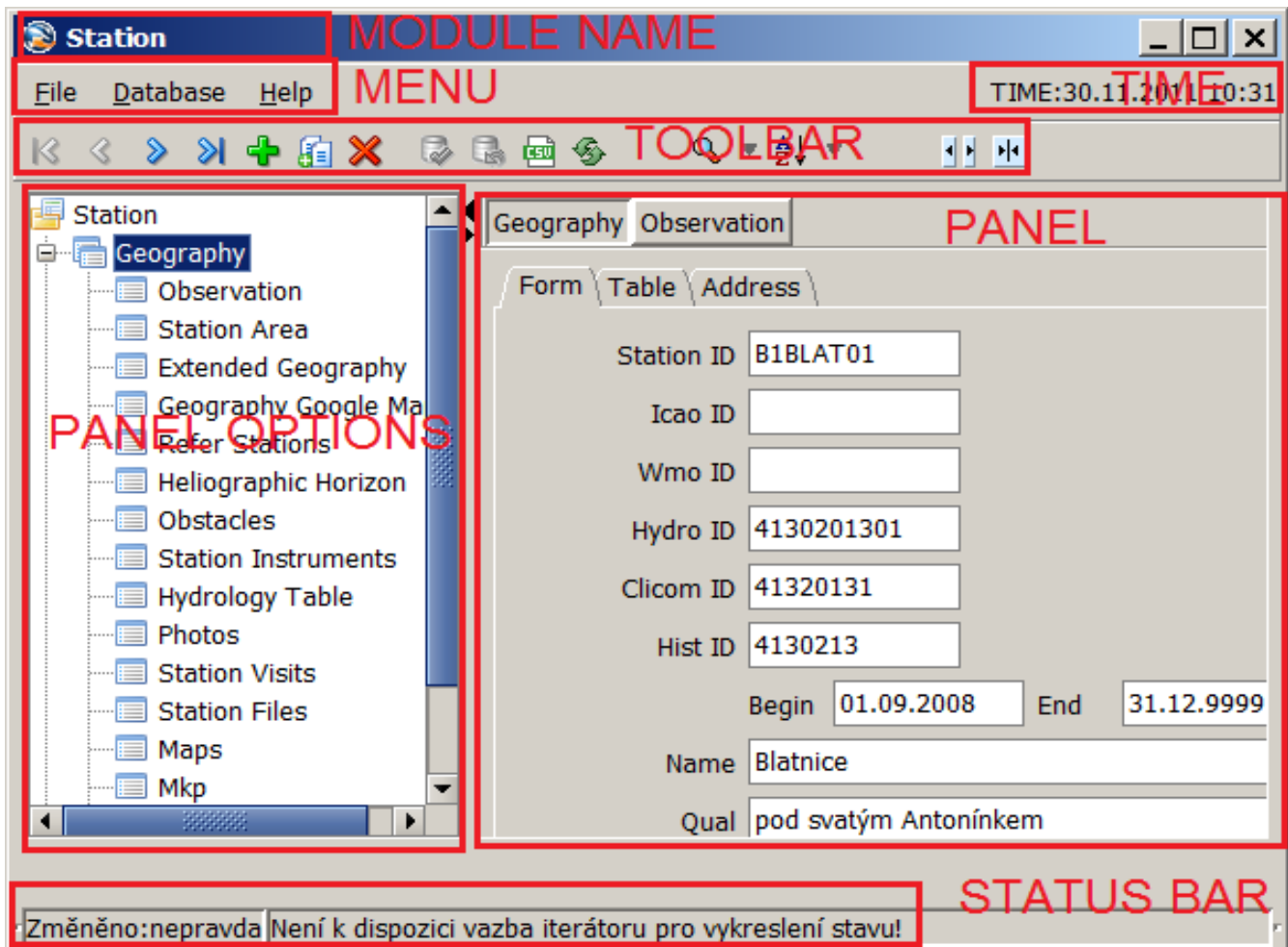
version and is not able to find the upgrade server.

The „Localize“ button reads the current localization messages from the database. This is usually not necessary to press. Only if you are doing the self translation of the system this button can be useful.



## 4 Working with the application

### 4.1 The screen



The module application menu consists of several parts:

Module name ... informs which module is currently running. Actually the module "Station:" is running

Panel Options – select any panel from the menu. Click only 1x to select the panel from the tree menu.

Time ... informs of the actual database time. This time can be different from the computer time!

Panel ... The part where the selected panel is opened from the menu.

Status bar ... informs about the current focused item field.

Menu ... the options described in the following text.

Toolbar ... displays icons for working with the object in the panel. Icons are described in the following text.

## 4.2 Menu

File → Exit ... terminates the application or the current module

Database → Insert (Insert Key) ... inserts a new record into the table. Be aware of the current focus. The record is inserted into the table where the focus is located.

Database → Duplicate (F4 Key) ... insert new record into the table and copy the values from the record where the focus is located. The key attributes are not copied. They must be entered manually.

Database → Delete (F5 Key)... delete the record where the focus is located.

Database → Commit (F12 Key) ... save all changes into the database. When records are changed/inserted or updated they are not saved into database immediately. You must select Commit to apply the changes into the database.

Database → RollBack (F11 Key) ... the changes are not applied. The state is returned to last committed values.

Database → Search (F7 Key) ... display the search dialog for the table where the focus is located.

Help → About application ... the actual information on the application.

Help → Help ... displays the application help.

## 4.3 Toolbar



The navigation between the records in the table. This is useful mainly in form view where only one record of the table is visible.



Insert new record



duplicate record



delete record



Commit changes into the database



Rollback changes



export focused table values into the CSV file. Export is explained in the following text.



refresh data, reread the data from database. This option is useful when the changes in the database are not visible. For example when the changes has been made by different user.



Show the search dialog. The searching is explained in the following text.



The sorting of the data. This is explained in the following text.

For some modules the other icons can be displayed. These icons are useful only in these modules. These icons are e.g.:




Split the geography or observation record.

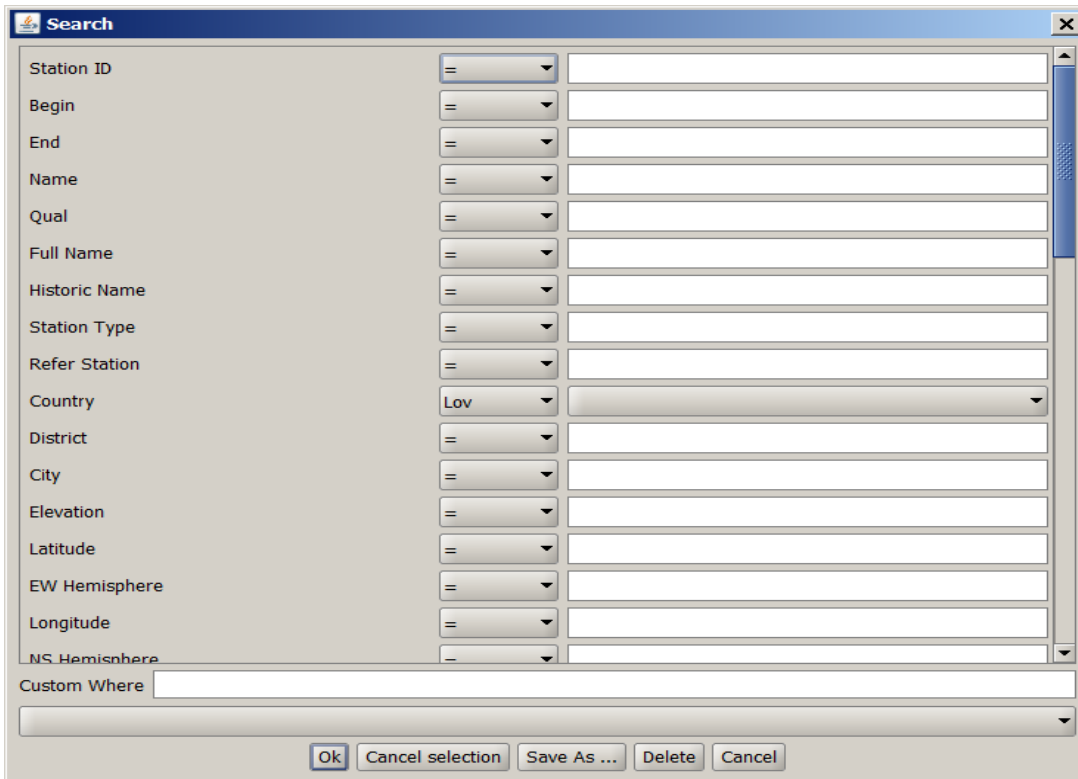
 Merge the geography or observation record

 If the cross table is used this icon navigates the cursor into underlying sequence table.

## 4.4 Searching for the record

The searching is carried out by pressing the following icon  or by the menu selection Database → Search or by pressing the F7 key.

The Search Dialog look as follows::



In the left part of the dialog the field names are displayed. The user can search according these fields. In the middle there is the selection of the operator and in the right part the values are entered.

The search operators are as follows:

=, <, >, <=, >= ... the comparison with the entered value

**Like, Not Like** ... comparison with value entered in the template form. The template is defined by means of the special symbols % and \_. The % symbol means any character sequence. The \_ symbol means any character. E.g. Os% will search for the value of Ostrava as well as for the value of Osaka.


**In, Not In** ... expect more than value and this is the set delimited by comma (,). The text values needs to be enclosed in apostrophes ('). E.g. 'O1PORU01','O1MOSN01' is the set of two strings.

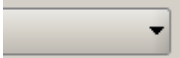
**Is Null, Is Not Null** ... compares the empty and not empty value

**Between** ... Expect the range from and to

**Lov** ... The selection of the value from the predefined list. This selection is available only for some values.

At the bottom of the dialog there is additional fields with the AND and OR operators. Also if the user knows the real underlying table structure he/she can use direct WHERE condition for the selection of the values.

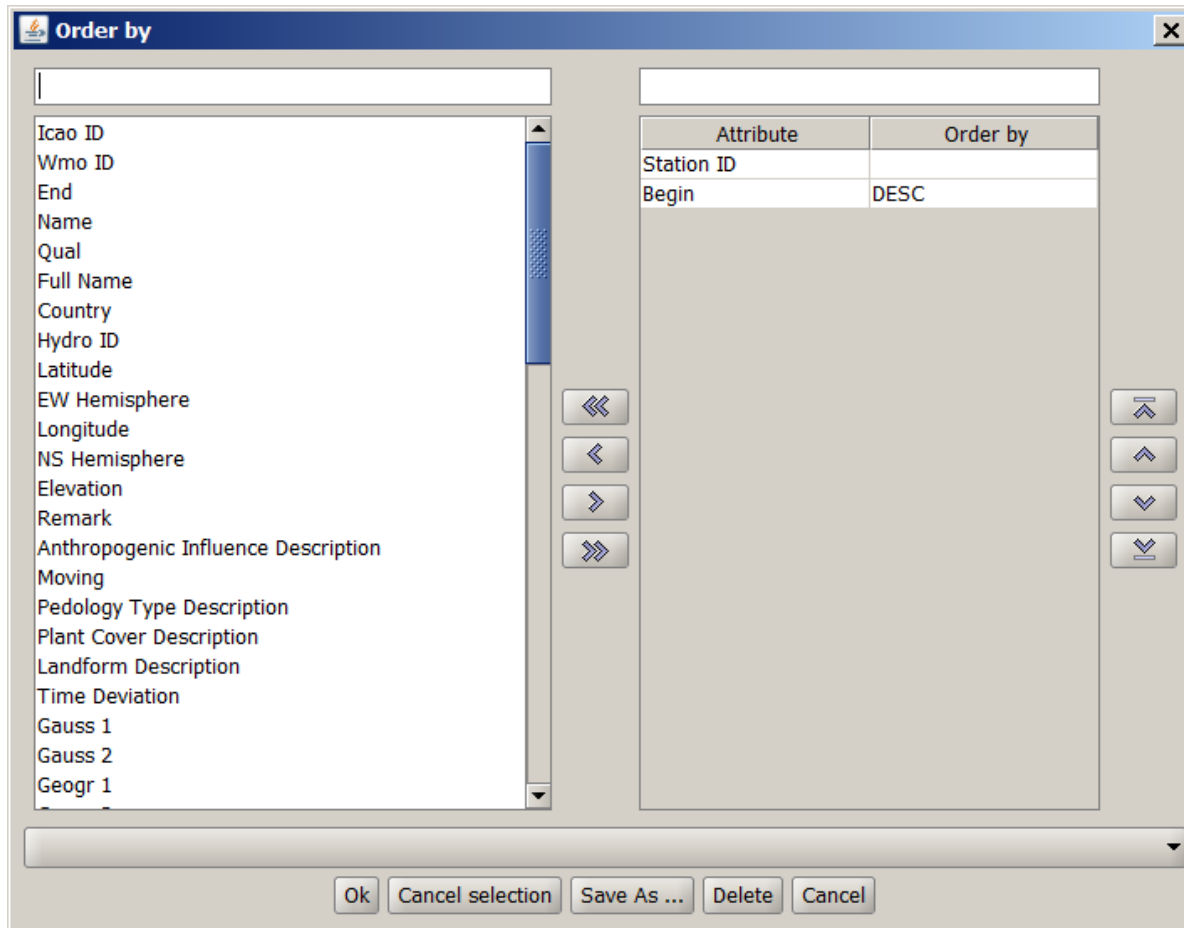
Once the search condition is created this condition can be saved for the later use. The condition can be saved by the „Save as“ button. The saved configuration will appear right beside the  icon if you press the small triangle.


All saved configurations can be accessed after you press this  listbox.

After selection of the saved condition you can delete the condition by pressing delete button.

## 4.5 Sorting of the data

The sorting dialog will appear after pressing  icon.



You can easily add or remove the columns for the sorting. Use the following icons . The sorting



priority can be changed by  icons.

The sorting can be saved in the same way like the searching

There is additional options for the sorting:

ASC ... sort the fields ascending

DESC ... sort the fields descending


ASC NULLS FIRST ... sort the fields ascending but place the empty fields first


ASC NULLS LAST ... sort the fields ascending but place the empty fields last

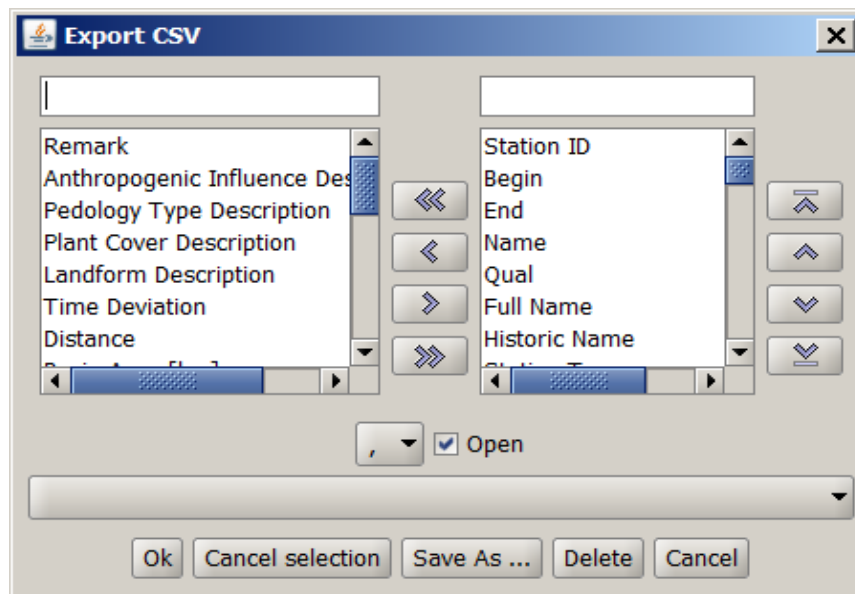
DESC NULLS FIRST ... sort the fields descending but place the empty fields first



DESC NULLS LAST ... sort the fields descending but place the empty fields last

## 4.6 Export to CSV

Export is available after pressing  button. It is necessary to set the focus to the field of the table for which the export is processed. Exported are all data from the current selection. If you want to export only part of the data you need to specify the search condition (see previous chapters).

After pressing  button the following dialog will appear:



You can add or remove fields by  buttons. The order of the columns can be changed by  buttons.

The selection can be saved for later used.

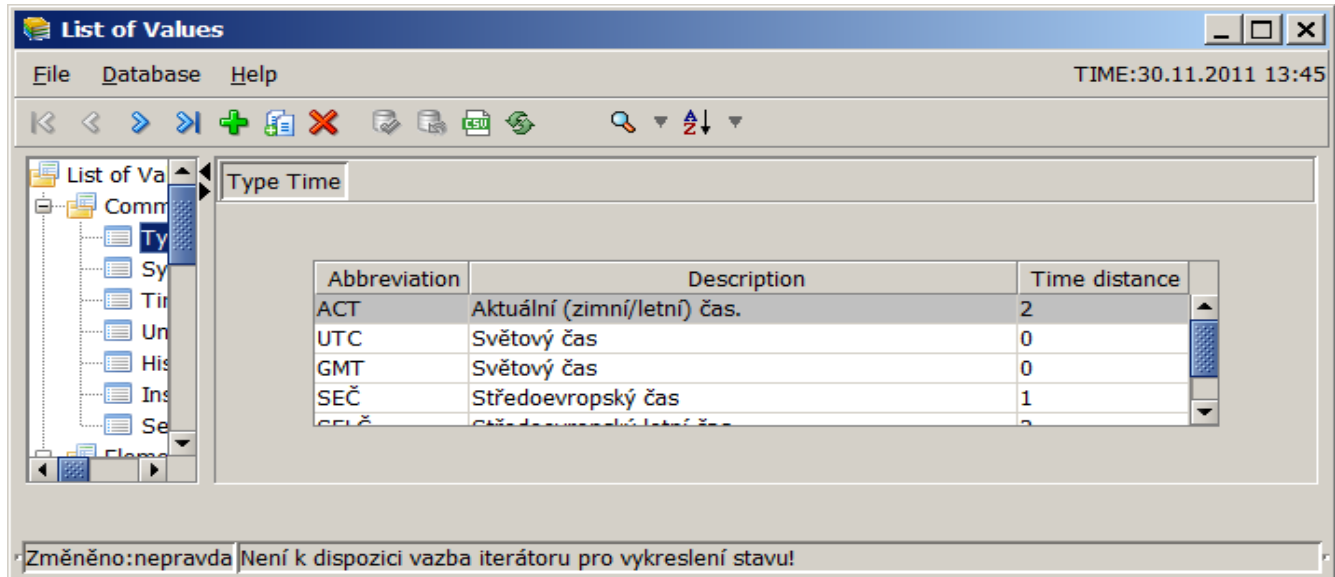
By „Open“ selection you can set that after export the file is directly opened by the application associated with “csv” extension (Excel, Open Office Scal, etc...)

The field separator can be either comma(,) or semicolon (;). The selection depends on operating system national settings.

## 5 Metadata

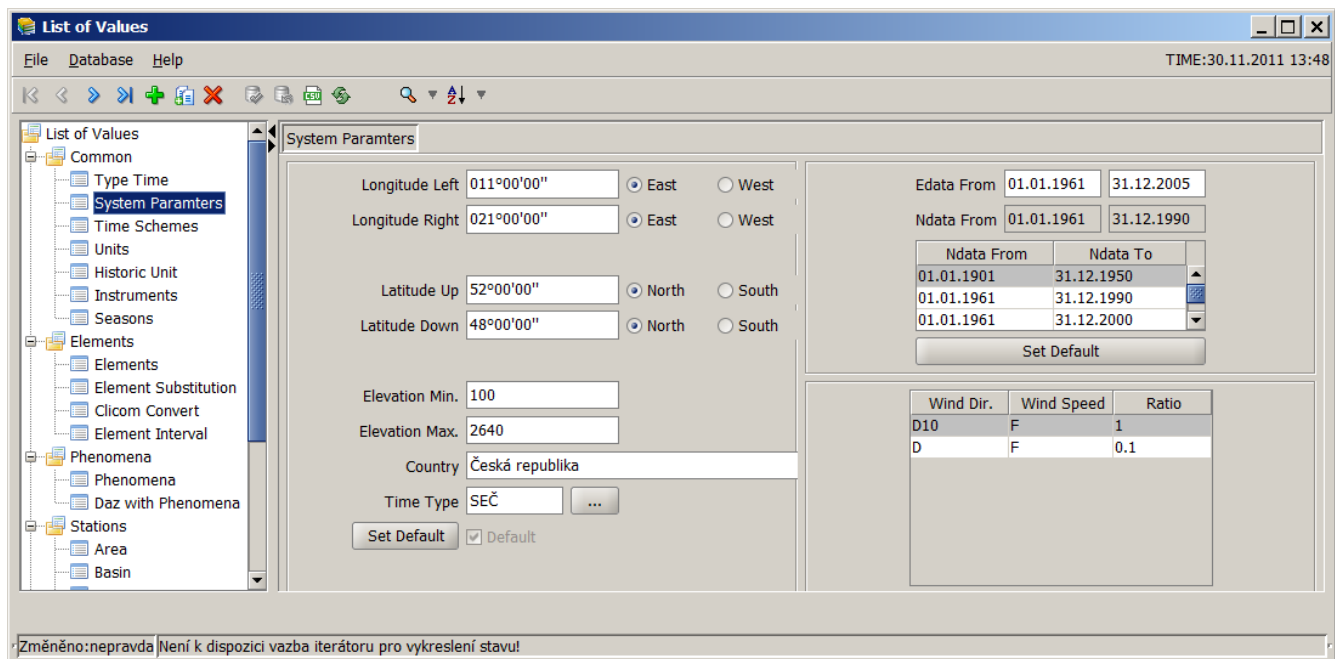
The part of the application used for the definition of different lists of values.

### 5.1 Type of time



The form is used for the definition of different times used by the system. Specify the abbreviation of the time, its description and time distance from the GMT.

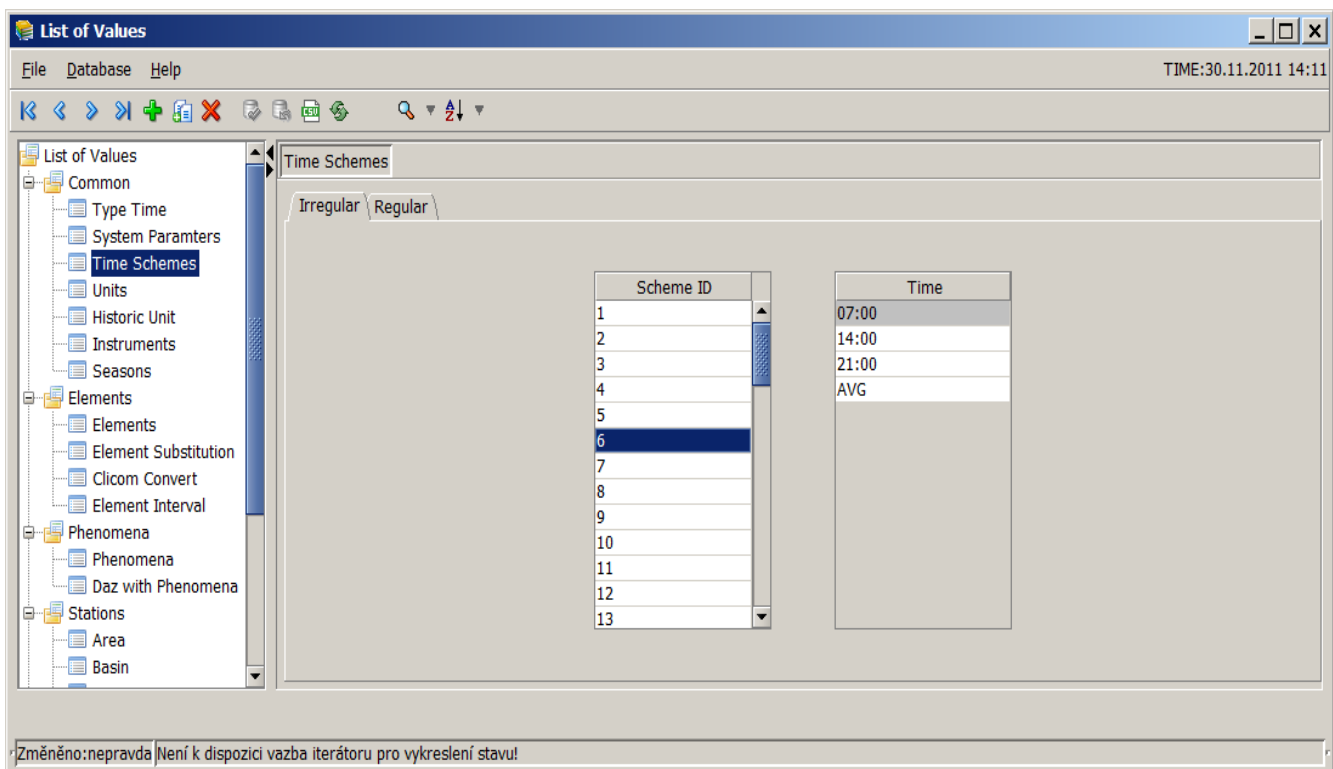
### 5.2 System parameters



The settings of the system and countries. Here you will define the name of the country and the country borders.

- Longitude left/right, Latitude left/right – these values define square of the country. Each station of the country must lay within this square
- Elevation min and max – these values maximum and minimum elevation of the country. Each station of the country must lay within this range
- Country – the name of the country
- Type time – default database time. It is selected from the list of times
- Default – defines which information is default for all data in the database.
- Edata – defines the **standard** period for the calculation of extremes. Besides this standard period also the extremes for all data are calculated.
- Ndata – different periods for the calculation of normal values. Only one period is selected as the default from the list
- Wind direction and wind speed – this defines the pairs of the elements for the wind direction and wind speed. Use ratio:
  - 1 for wind direction values 1-36
  - 0.1 for the wind direction values 1-360.
  - 1.125 for the wind direction 1-32

### 5.3 Time schemes



This form is used for the definition of time schemes used in the database. We define 2 basic types of the time schemes:

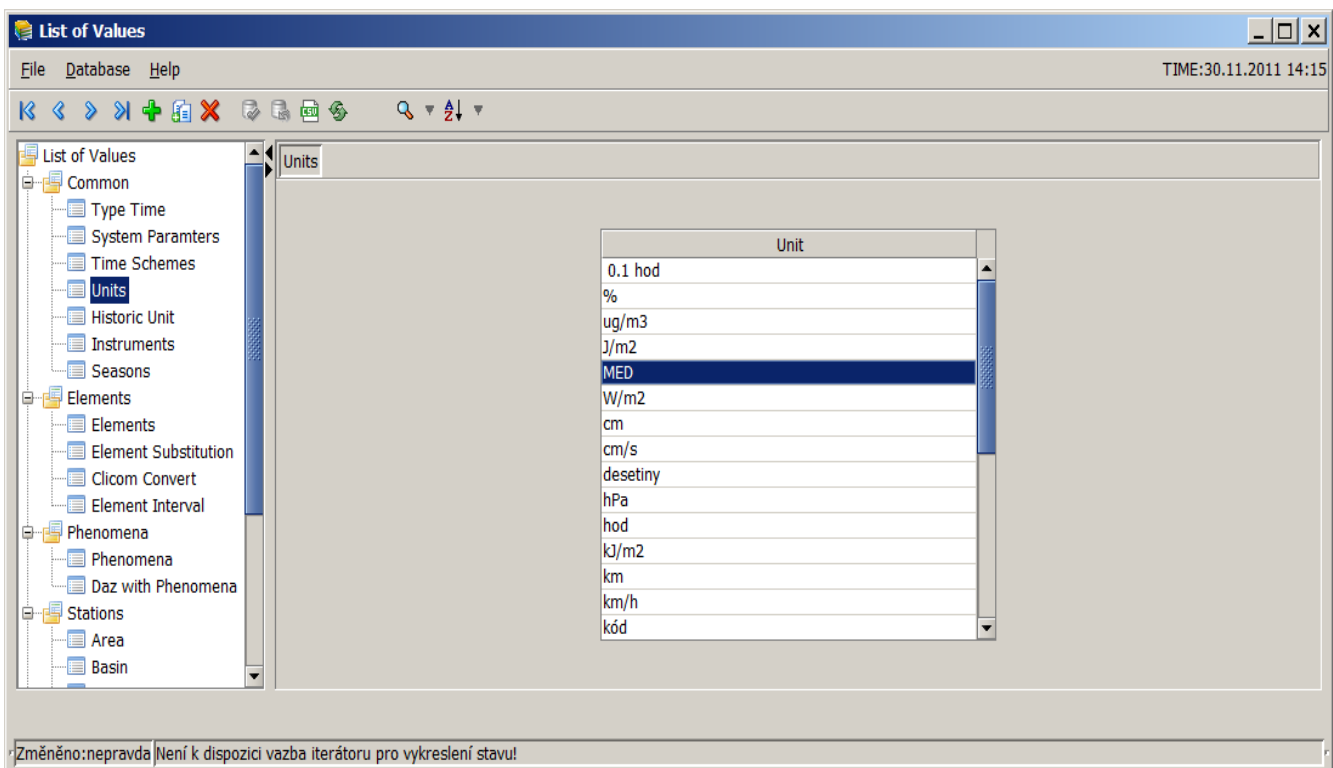
- **Irregular** – this scheme is used usually for manual measurement. It is also called climatological



scheme sometimes. It is used for elements measured by observers in specific times during a day. For irregular scheme you can specify time in the HH:MM format. Also you can use one of 'MAX', 'MIN', 'AVG', 'SUM' functions. Examples:

- E.g. The temperature is measured three times a day at 7,14 and 21. We define scheme number 1. We add 3 times: '07:00', '14:00' and '21:00'
- Temperature maximum is measured once a day at 21. We define scheme number 2. We add one time '21:00'
- The monthly data is calculated for 7,14 and 21 (times) and daily average (daily function). We define scheme number 3. We add 4 values: '07:00', '14:00', '21:00' and 'AVG' (see picture).
- **Regular scheme** – this scheme is used for automatic weather stations. The element is measured in specific time intervals. For this scheme we only define here the intervals. The maximal interval is '24:00' (day) and minimum '00:01' (one minute).

## 5.4 Units



Definition of all units used in the definition of the station observation.

## 5.5 Historical units

The screenshot shows the 'List of Values' application window. The 'Historic Unit' section is active, displaying a table with columns for 'Unit', 'Historic -> Current', 'Current -> Historic', 'New', and 'Old'. The table lists various units and their corresponding conversion formulas and values.

Unit	Historic -> Current	Current -> Historic	New	Old
Beaufort			0	0
D10			10	1
D10 Ang			20	2
D10 Ger			40	3
F10	:value*10	:value/10	70	4
Gran	:value/1447.2361809045226130653266331658	:value*1447.236180904522613065326633	90	5
Par.Lin.	:value*0.2256	:value/0.2256	120	6
Par.Lin1	:value*0.30077443	:value/0.30077443	160	7
Par.Lin2	(:value+30000)*0.030077443	(:value/0.030077443-30000)	190	8
Par.Lin3	:value*2.256	:value/2.256	230	9
°R	:value*1.25	:value/1.25	270	10
Smithson			310	11
torr	(:value+700)*1.33322	:value/1.33322-700	330	12
torr1	(:value+600)*1.33322	:value/1.33322-600		
torr2	:value*1.33322	:value/1.33322		
Vienna	cld_viennaUnit(:value,'F',10)	cld_viennaUnit(:value,'T',10)		

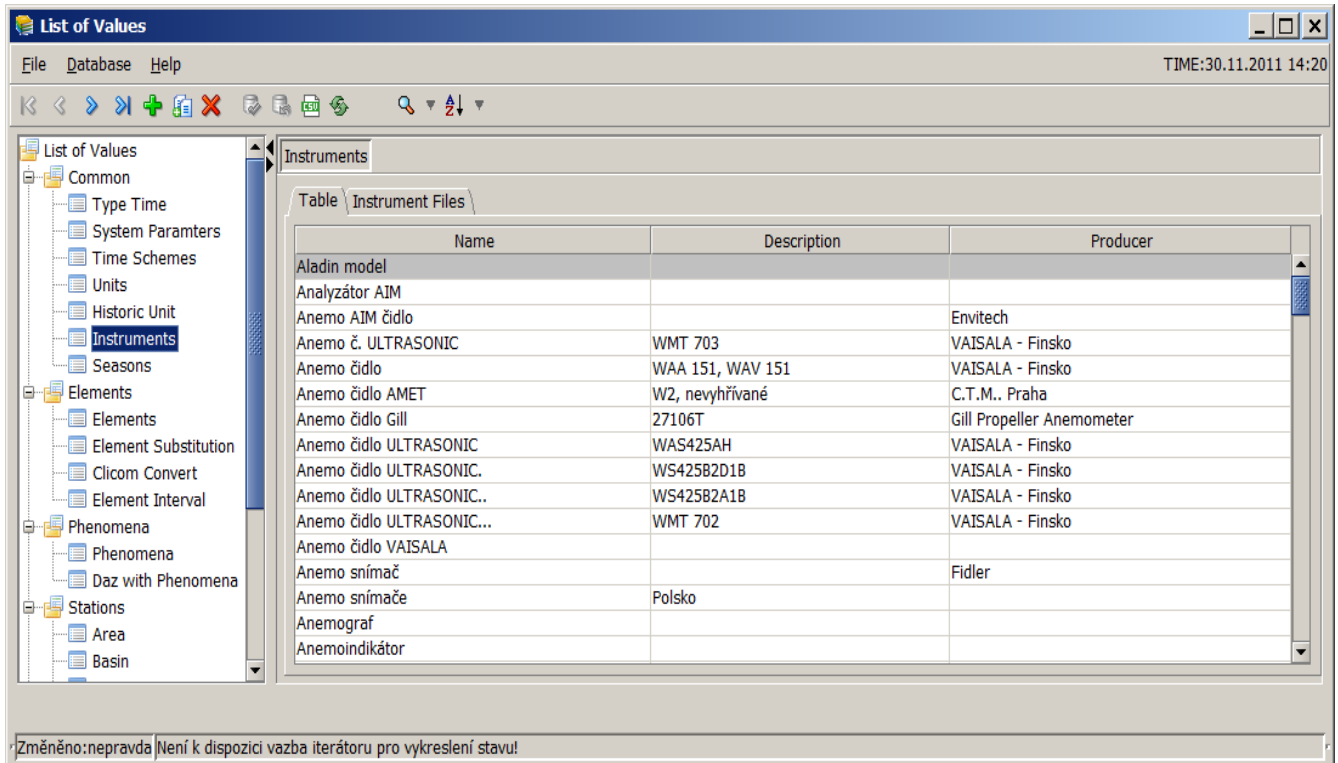
At the bottom of the window, a status bar displays the message: "Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!"

The historical units define the translation table between the unit values. The translation can be defined either by table or by formula.

By table – in the right side of the form specify the old and new value. The new value must be always number. The old value can be also the character string

By formula – you can use the general translation formula. In the formula use **:value** variable for the specification of the value to transfer. After that specify the formulas for the both directions. In the formula you can use any arithmetic operators and brackets.

## 5.6 Instruments



The screenshot shows the 'List of Values' application window. The title bar reads 'List of Values' and the status bar shows 'TIME:30.11.2011 14:20'. The interface includes a menu bar (File, Database, Help), a toolbar with various icons, and a tree view on the left. The tree view is expanded to 'Instruments'. The main area displays a table with the following data:

Name	Description	Producer
Aladin model		
Analyzátor AIM		
Anemo AIM čidlo		Envitech
Anemo č. ULTRASONIC	WMT 703	VAISALA - Finsko
Anemo čidlo	WAA 151, WAV 151	VAISALA - Finsko
Anemo čidlo AMET	W2, nevyhříváné	C.T.M.. Praha
Anemo čidlo Gill	27106T	Gill Propeller Anemometer
Anemo čidlo ULTRASONIC	WAS425AH	VAISALA - Finsko
Anemo čidlo ULTRASONIC.	WS425B2D1B	VAISALA - Finsko
Anemo čidlo ULTRASONIC..	WS425B2A1B	VAISALA - Finsko
Anemo čidlo ULTRASONIC...	WMT 702	VAISALA - Finsko
Anemo čidlo VAISALA		
Anemo snímač		Fidler
Anemo snímače	Polsko	
Anemograf		
Anemoindikátor		

At the bottom of the window, a status bar contains the text: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

Definition of all instruments used in definition of station observation.

Name – unique identifier of the instrument

Description – description of the instrument

Producer – produced name

Instrument files – in this table you can add any file from the file system for the instrument. (e.g. documentation)

## 5.7 Elements

The screenshot shows the 'List of Values' application window. On the left is a tree view with categories like Common, Elements, Phenomena, and Stations. The 'Elements' category is selected. The main area is titled 'Elements' and contains a form for configuring an element. The form has two tabs: 'Form' (selected) and 'Table'. The 'Form' tab includes fields for Element ID (A), Name (Stav počasí), Description (Stav počasí), Unit (kód), Scale (1), Calculation Scale, Lower Limit (0), Upper Limit (9), Lower Limit KEF, and Upper Limit KEF. Below these are sections for 'Monthly Data', 'Monthly Data Count', 'Extremes', 'Normals', and 'Gis'. The 'Irregular' section has a 'Source Scheme Mdata' dropdown. The 'Regular' section has a 'Source Interval Mdata' dropdown, 'Begin' and 'End' fields, and checkboxes for Max, Min, Avg, and Sum. The 'Mdata Calculation (Target)' section has checkboxes for Max, Min, Avg, Sum, and Pentade 1 through 6. At the bottom, there is a status bar with the text: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavů'.

Definition of all measured elements/parameters.

**Element id** – the unique identifier of the element. We use 6 characters for the identifier

**Name** – is the short name of the element. Use maximally 15 characters. This is useful for the table reports when we do not need very long names

**Description** – long name of the element. Use maximally 35 characters.

**Limits** – We recognise 2 types of limits. The limits are optional. It does not need to be filled. Also you can specify only upper or lower limit and the other limit can be opened.

- **Hard limits (lower limit, upper limit)** – the limits when the value outside these limits is not stored into the database.
- **Soft limits (lower limit KEF, upper limit KEF)** – warning limits. Used during the key entry process for the checking of these limits. Value is stored into database. In Key entry form the value is displayed with different color.
- 

**Sparse element** – When the element is measured seldom or the element has a lot of missing values check this tick. For sparse elements the limits for the calculation of monthly, normal and extreme data are not applied.

Calculation limits applied when the sparse is not ticked:

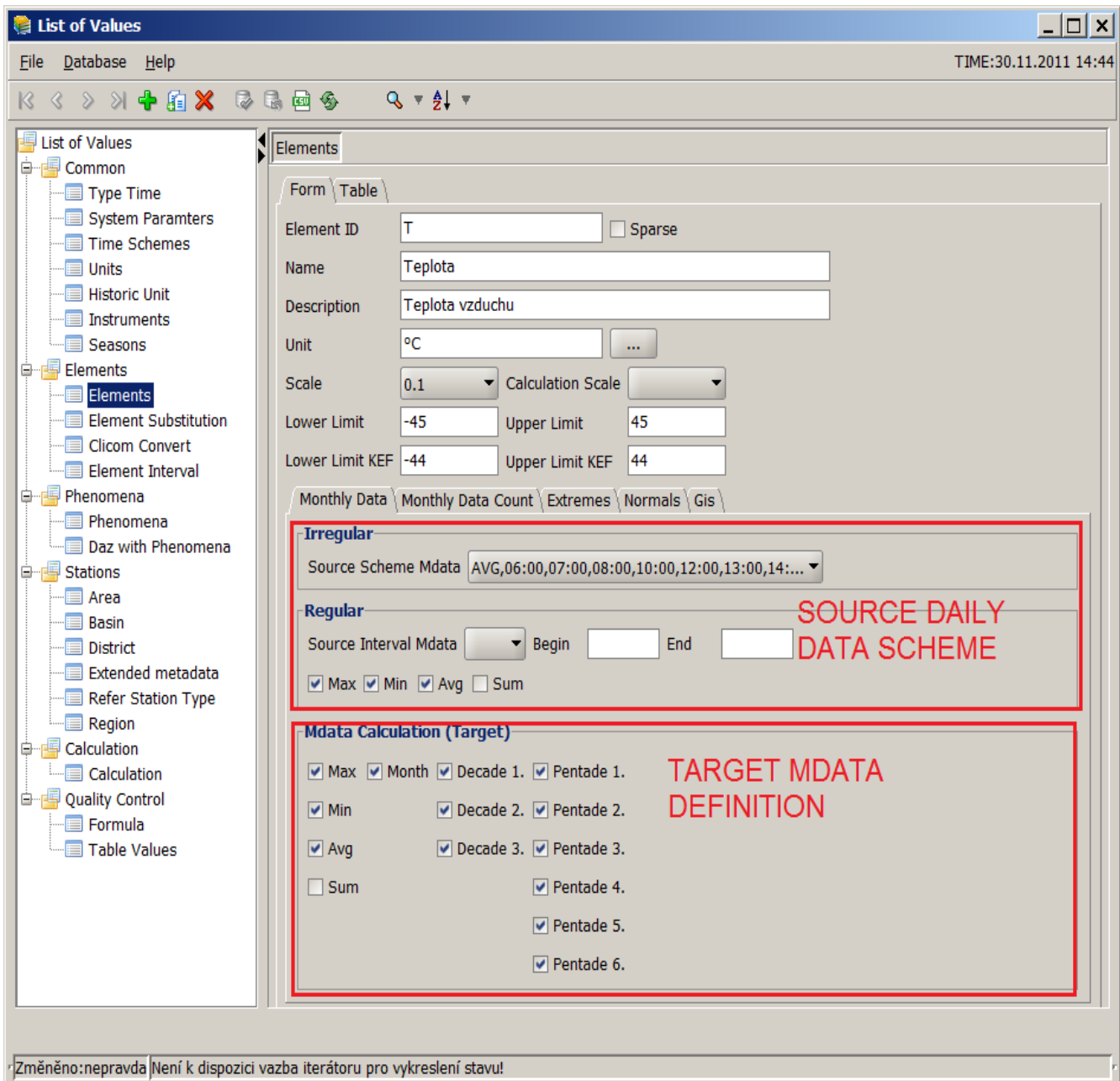
For the calculation of Monthly data there is a limit 3/5 meaning that maximally 5 values are missing in month and maximally 3 consecutive missing values.

For the calculation of Extremes data there is a limit that at least 10 years must be present.

For the calculation of Normal values there is a limit that at least 10 years must be present.

### 5.7.1 Monthly data calculation

The definition is at the bottom of the screen.



At the upper part set the **source** daily data for the calculation:

- The source can be either **regular** or the **irregular** time scheme.
- The irregular scheme can use a function in the list (see picture). In the picture the T element is calculated for several times as well as for the **daily** average!
- For regular time scheme the monthly data is calculated for **daily** maximum, minimum and average.

At the bottom part set the **target** for monthly data calculation:

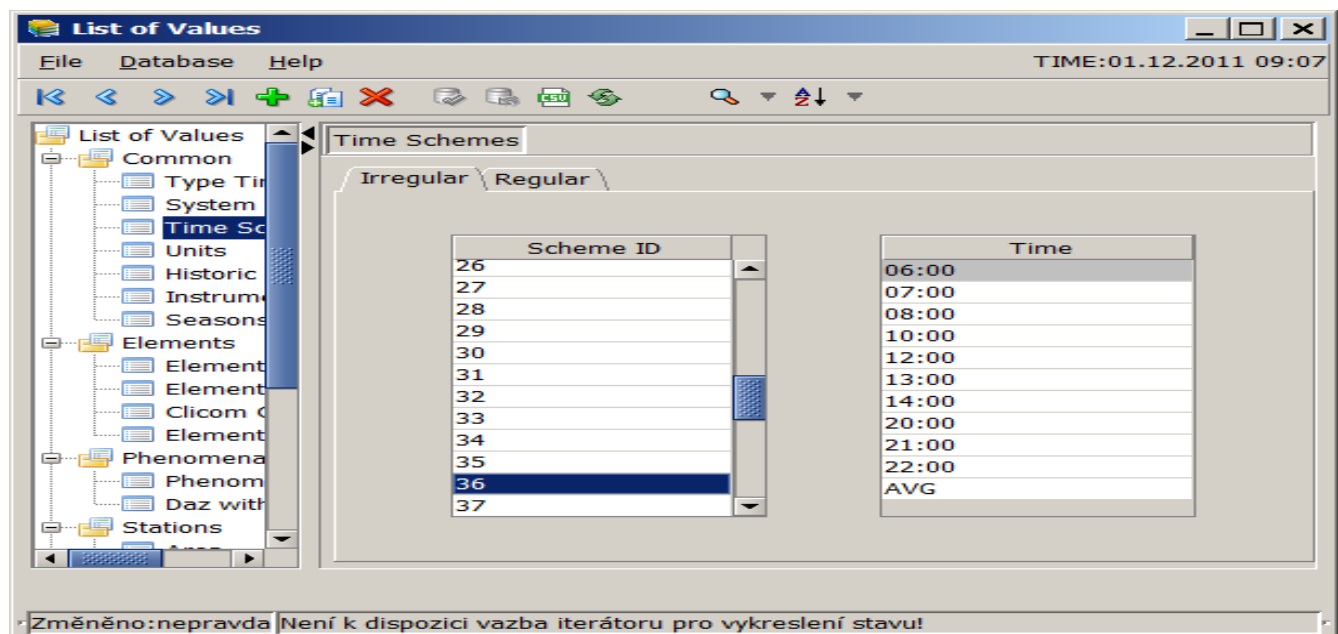
- The functions min, max, avg and sum specifies the **monthly** maximum, minimum, average and summary.
- Select always **month** option. Additionally you can select any **decade**(10-days) or any **pentade**(5-days). The **year** is calculated for month option automatically!

The result of this calculation is stored into MDATA table.

**Note:**

- For the calculation of monthly data the data must satisfy 3/5 condition. Not 5 days in month is missing. Not 3 subsequent days is missing in month. If the condition is not satisfied. The monthly data is not calculated
- In you need to calculate the monthly data even when the condition is not satisfied, use **sparse** element tick.

In the following picture you can see the definition of time scheme 36 for the definition of daily average and other times during day. This scheme is used for the calculation of monthly data in the example picture.



**Note:** the calculation of daily average(or sum or max or min) is defined in station observation for each particular station!

### Example 1:

For the calculation of monthly maximum of daily averages for irregular time scheme. You need to set:

- **source** in irregular part is time scheme containing the 'AVG' (daily average)
- **target**, tick the **Max** function and also tick the **Month** option

Station ID	Element ID	Year	Time	Type	Type Desc	Function	Regular
O1PORU01	T	1968	AVG	0	Month	MAX	N

January			February			March			April		
Value	Flag	Date	Value	Flag	Date	Value	Flag	Date	Value	Flag	Date
4.2		17.01.1968	7.3		08.02.1968	14.6		30.03.1968	18.2		24.04.1968

May			June			July			August		
Value	Flag	Date	Value	Flag	Date	Value	Flag	Date	Value	Flag	Date
20		06.05.1968	24		18.06.1968	24.6		06.07.1968	21.7		17.08.1968

September			October			November			December		
Value	Flag	Date	Value	Flag	Date	Value	Flag	Date	Value	Flag	Date
18.7		07.09.1968	14.5		13.10.1968	16.4		03.11.1968	1.9		23.12.1968

Year			Other Fields	
Value	Flag	Date	Validation	Src Type
24.6		06.07.1968	C	0

See the above picture. In MDATA table we can read that for the station O1PORU01 in year 1968 for irregular data the maximum of daily average for January is 4.2 on January 17<sup>th</sup>. Also there is the yearly maximum of daily average 24.5 degrees. This maximum was on 6<sup>th</sup> of July. See products for more information on data.

## Example 2:

For the calculation of monthly maximum of daily averages for regular daily data 1 hour measurement. You need to set:

- **source** in regular part tick the **Avg** option (daily average)
- **target**, tick the **Max** function and also tick the **Month** option

The screenshot shows the 'Products' software interface. The main window is titled 'Products' and has a menu bar with 'File', 'Database', and 'Help'. The status bar at the top right shows 'TIME:01.12.2011 09:32'. The main area is titled 'Monthly Data' and contains a configuration table and a grid of monthly data boxes.

Station ID	Element ID	Year	Time	Type	Type Desc	Function	Regular
O1PORU01	T	1998	AVG	0	Month	MAX	Y

Month	Value	Flag	Date
January	7.6	*	09.01.1998
February	10.3		16.02.1998
March	12.6		04.03.1998
April	16.4		28.04.1998
May	20.5		12.05.1998
June	25.8		07.06.1998
July	26.5		21.07.1998
August	24.6		02.08.1998
September	19.7		11.09.1998
October	14.7		17.10.1998
November	7	*	03.11.1998
December	4.6		16.12.1998
Year	26.5		21.07.1998

Validation	Src	Type
C		0

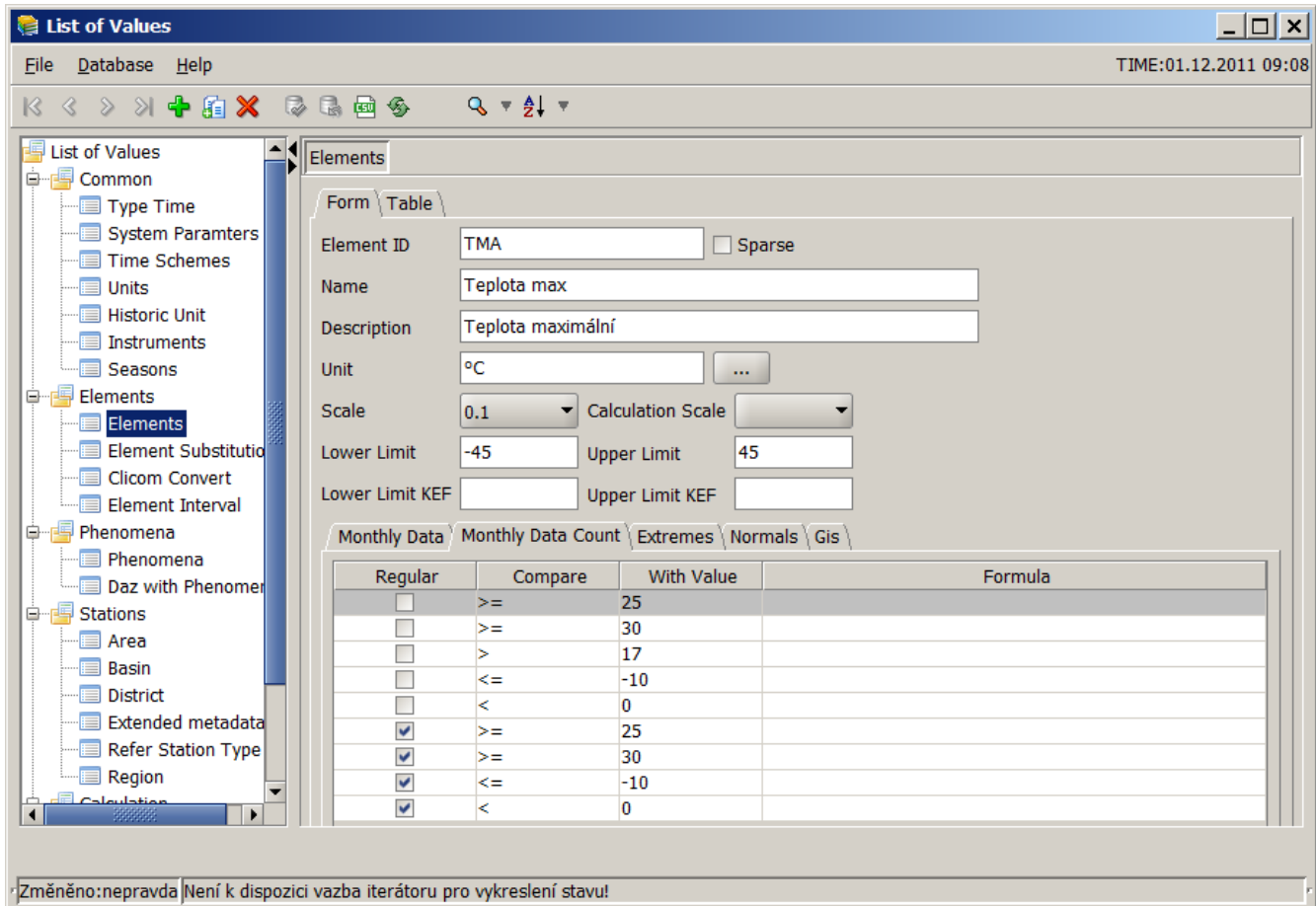
Other Fields

Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!

See the above picture. In MDATA table we can read that for the station O1PORU01 in year 1998 for regular data the maximum of daily average for January is 7.6 on January 9<sup>th</sup>. Also there is the yearly maximum of daily average 26.5 degrees. This maximum was on 21<sup>th</sup> of July. See products for more information on data.



## 5.7.2 Monthly data count



The other option in element definition is for the calculation of monthly count values. By this definition you can calculate the number of days satisfying some condition. E.g. the number of days when the temperature is greater than 30 °C.

The result of this calculation is stored into MDATA\_COUNT table. There is also application of condition 3/5. Use sparse element if the condition is not satisfied for your data.

In the table you only need to fill the condition:

- **Basic condition, for all users:**
    - Regular – tick, define if the condition I applied to regular(selected) or irregular data(not selected)
    - compare, with value – select the function for the comparison. Select one of <, <=, >, >=.
- After that write the value you want to compare

**Example:** see the above picture. The element is TMA (temperature maximum). The definition of monthly data count is defined for several limits. See the first line with condition TMA >= 25. When the value of TMA is greater than 25, this day is considered as summer day in Czech Republic. In MDATA\_COUNT table we can read the number of summer days in Czech republic.

Monthly Data Count								
Form   Table   Cross Table								
Station ID	Element ID	Year	Time	Type	Type Desc	Function	Param	Regular
B1BRBY01	TMA	1961	21:00	0	Month	>=	25	N
January		February		March		April		
Value	Flag	Value	Flag	Value	Flag	Value	Flag	
0		0		0		0		
May		June		July		August		
Value	Flag	Value	Flag	Value	Flag	Value	Flag	
0		11		8		15		
September		November		October		December		
Value	Flag	Value	Flag	Value	Flag	Value	Flag	
15		0		0		0		
Year		Other Fields						
Value	Flag	Validation	Src Type					
49		C	0					

See the above picture with the results from MDATA\_COUNT table. You can read that at the station B1BRBY01 there is in year 1961 11 summer days in June. In the whole year 1961 there is 49 summer days for this station. See products for more information on data.

- **Advanced option, for experienced users only:** Also you can select the Function. If this option is specified, write into the value field the number and into formula field write the general formula. Use VALUE variable in the formula.

E.g. write number 1 and into formula field write text: VALUE>10 and VALUE<20

## 5.7.3 Normal data calculation

The screenshot shows the 'List of Values' application window. The title bar reads 'List of Values' and the system tray shows 'TIME:01.12.2011 09:41'. The menu bar includes 'File', 'Database', and 'Help'. The toolbar contains various icons for navigation and editing. The left sidebar shows a tree view with categories: 'List of Values', 'Common', 'Elements', 'Phenomena', and 'Stations'. The 'Elements' category is expanded, showing 'Elements' selected. The main area is titled 'Elements' and has two tabs: 'Form' and 'Table'. The 'Form' tab is active, showing the following fields:

- Element ID: TMA  Sparse
- Name: Teplota max
- Description: Teplota maximální
- Unit: °C
- Scale: 0.1 Calculation Scale: [dropdown]
- Lower Limit: -45 Upper Limit: 45
- Lower Limit KEF: [empty] Upper Limit KEF: [empty]

Below these fields are tabs for 'Monthly Data', 'Monthly Data Count', 'Extremes', 'Normals', and 'Gis'. The 'Normals' tab is active, showing a 'Normal Function' dropdown menu set to 'AVG'. The status bar at the bottom displays the message: 'Změněno:nepravda Není k dispozici vazba iterátoru pro vykreslení stavu!'.

The Normals tab in element definition is used for the definition of monthly function used for the normal calculation. The normal function can be either AVG or SUM. It is obvious that for the temperature we use monthly average for normal calculation and for the precipitation we use monthly summary for the rainfall.

The result of the calculation is written into NDATA table.

The whole year is saved as month number 13!

### Note:

- The periods for the normal calculation is defined in system parameters!
- There needs to be at least **10** year of monthly data for the calculation of the normal. This is regarded as interim normal.
- There needs to be at least **25** year of monthly data for the calculation of the standard normal.
- If you need to get the results even when you do not have enough data use **sparse** option for the element.

**Example:**

At the picture above you can see the definition of monthly average normal for TMA element (temperature maximum).

Station ID	Element ID	Month	Time	Number Of Years	Regular	Calc Begin	Calc End	Real Begin	Real End
O1PORU01	TMA	01	21:00	33	N	1961	2000	1968	2000

Value		Empirical probability of exceeding Monthly Data		
Source	Homogeneity	10%	20%	30%
S	N	-1.94	-1.1	-0.37
Normal	1.4	40%	50%	60%
		1.17	1.7	2.44
		70%	80%	90%
		2.87	3.51	5.5

Empirical probability of exceeding Daily Data				
1%	2%	5%	10%	20%
-11.75	-10	-7.4	-5.4	-2.4
30%	40%	50%	60%	70%
-0.6	0.6	1.6	2.7	4
80%	90%	95%	98%	99%
5.6	7.67	9	10	11.35

In the picture you can see the result of the calculation for irregular data. For the station O1PORU01 and TMA (temperature maximum) the is normal value 1.4 for the 1<sup>st</sup> month (January). This normal was calculated for the period 1961-200 but data are present in database from 1968-2000. It is 33 years of data therefore the normal is standard and the field source is S. See products for more information on data.

Station ID	Element ID	Month	Time	Number Of Years	Regular	Calc Begin	Calc End	Real Begin	Real End
O1PORU01	TMA	13	21:00	23	N	1961	1990	1968	1990

Value		Empirical probability of exceeding Monthly Data		
Source	Homogeneity	10%	20%	30%
P	N	12.1	12.4	12.7
Normal	13.1	40%	50%	60%
		12.9	12.9	13.07
		70%	80%	90%
		13.34	13.8	14.4

Empirical probability of exceeding Daily Data				
1%	2%	5%	10%	20%
-6.47	-4.5	-1.6	0.7	3.7
30%	40%	50%	60%	70%
6.8	10.2	13.6	16.6	19.4
80%	90%	95%	98%	99%
22.2	25.5	27.4	29.5	30.8

In the other picture you see whole year normal. The field month is 13! The whole year normal for temperature maximum on station O1PORU01 is 13.1. This normal is interim because there is only 23 years of data. Therefore the source flag is P.

## 5.7.4 Extreme data calculation

The screenshot shows the 'List of Values' application window. The 'Elements' tab is active, displaying a form for defining an element. The element ID is 'TMA' and the name is 'Teplota max'. The description is 'Teplota maximální' and the unit is '°C'. The scale is set to '0.1' and the calculation scale is also '0.1'. The lower limit is '-45' and the upper limit is '45'. The 'Extremes' tab is selected, showing options for 'Irregular' and 'Regular' source schemes. The 'Irregular' option is selected with a source scheme of '21:00'. The 'Regular' option has fields for 'Source Interval Edata', 'Begin', and 'End', and checkboxes for 'Max', 'Min', 'Avg', and 'Sum'. The status bar at the bottom indicates a change: 'Změněno: nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

The Extreme tab in element definition is used for the definition of source for extremes calculation. The source can be either regular or irregular. See the definition of monthly data source. This definition is similar.

The result of the calculation is written into EDATA table.

The whole year is saved as month number 13!

### Note:

- The periods for the normal calculation is defined in system parameters! You do not need to specify the period for the whole data in database.
- There needs to be at least **10** year of daily data for the calculation of the extremes.
- If you need to get the results even when you do not have enough data use **sparse** option for the element.

## Example:

At the picture above you can see the definition of source irregular daily data for extremes calculation. The daily temperature maximum in Czech republic is measured at 21:00.

Station ID	Element ID	Month	Time	Regular	Real Begin	Real End	Number Of Years	User	Source
O1PORU01	TMA	13	21:00	N	1968	2005	38	SYS	S

**Values**

Max	Date Max	Min	Date Min
37.4	01.08.1994	-19.8	12.01.1987
Avg	Max Sch Change	Max Day Change	Std. dev.
13.5	18	18	

**Empirical probability of exceeding Daily Data**

1%	2%	5%	10%	20%
-6.39	-4.5	-1.6	0.8	3.9
30%	40%	50%	60%	70%
7	10.4	14	17	20
80%	90%	95%	98%	99%
22.9	26.1	28.3	30.4	31.6

In the picture you can see the result of the calculation for irregular data. For the station O1PORU01 and TMA (temperature maximum) the is extremes: maximum 37.4 on 1<sup>st</sup> of August 1994 and minimum -19.8 on January the 12<sup>th</sup> 1987. The data for extreme is from the period 1968-2005. It is 38 years of data. This is the extreme calculated for standard period defined in system parameters. Therefore the source flag is S. Mention that the month is 13. It is for whole year.

Station ID	Element ID	Month	Time	Regular	Real Begin	Real End	Number Of Years	User	Source
O1PORU01	TMA	13	21:00	N	1968	2010	43	SYS	F

**Values**

Max	Date Max	Min	Date Min
37.4	01.08.1994	-19.8	12.01.1987
Avg	Max Sch Change	Max Day Change	Std. dev.
13.6	18.6	18.6	9.68

**Empirical probability of exceeding Daily Data**

1%	2%	5%	10%	20%
-6.3	-4.49	-1.6	0.8	4.1
30%	40%	50%	60%	70%
7.2	10.6	14.1	17.2	20.1
80%	90%	95%	98%	99%
23	26.3	28.4	30.59	31.7

In the other picture you see extremes calculated for whole data in database. There is data period 1968-2010. The source flag is F it indicated that the normal is calculated for whole data.

## 5.7.5 Gis periods

The screenshot shows the 'List of Values' application window. The left sidebar contains a tree view with categories like 'Common', 'Elements', 'Phenomena', and 'Stations'. The 'Elements' category is selected, and the 'Elements' sub-item is highlighted. The main area is titled 'Elements' and has two tabs: 'Form' and 'Table'. The 'Form' tab is active, showing configuration fields for an element with ID 'TMA'. The fields include: Name 'Teplota max', Description 'Teplota maximální', Unit '°C', Scale '0.1', Lower Limit '-45', Upper Limit '45', and checkboxes for 'Sparse', 'Lower Limit KEF', and 'Upper Limit KEF'. Below these fields are tabs for 'Monthly Data', 'Monthly Data Count', 'Extremes', 'Normals', and 'Gis'. The 'Gis' tab is selected, showing 'Irregular' and 'Regular' sections. The 'Irregular' section has a 'Source Scheme Gis' dropdown set to '21:00'. The 'Regular' section has 'Source Interval Gis', 'Begin', and 'End' fields. At the bottom, a status bar displays the message: 'Změněno:nepravda Není k dispozici vazba iterátoru pro vykreslení stavu!'.

In the last tab GIS there is definition of the source time scheme for the area quality control.

### Example:

In the picture above you see the definition that the TMA element will be controlled in GIS by area quality control.

## 5.8 Elements substitution

The screenshot shows the 'List of Values' application window with the 'Element Substitution' form open. The form has a 'Table' tab selected, displaying a table with the following data:

Seq. Nr.	Tech Line Element	Substitution ID
1559108074	NSTAV	NSTAV
1020041	Q	Q
612942894	Q	Q - prtok
623694874	SCEP	SCEP - snih procento, polygon
1020011	SCEP	SCEP
1020051	SRA1H	SRA1H
612942904	SRA1H	SRA1H hodinova srazka
1020001	SRP_RA	SRP_RA
623694884	SRP_RK	SRP_RK - srazky, polygon
1020071	SRP_RK	SRP_RK Ostrava
1692010284	SRP_ST	SRP_ST
623696914	SVHPPR	SVHPPR - procento vodni hod
1020061	SVHPPR	SVHPPR
1020021	T	T
612942914	T	T -teplota
623651254	TP1	TP1 - teplota polygon
1020031	TP1	TP1

The status bar at the bottom of the application window displays the message: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

This form is used for the definition of time lines complementary process in Run-off model.

## 5.9 Clicom conversion

The screenshot shows the 'List of Values' application window with the 'Clicom Convert' form open. The form has a 'Clicom Elements Convert' tab selected, displaying a table with the following data:

Clicom ID	Element ID	Time
501	TMA	21:00
502	TMI	21:00
503	TPM	07:00
504	T	07:00
505	T	14:00
506	T	21:00
507		
508	TV	07:00
509	TV	14:00
510	TV	21:00
511	H	07:00
512	H	14:00
513	H	21:00
514		
515		
516		
517		
518		
519		
520		
521		
522		

The status bar at the bottom of the application window displays the message: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

In this form the translation between the Clicom element and Clidata element is defined.



**Irregular** daily data define:

Clicom ID – id of the element used in Clicom

Element ID, Time – define always the pair of element id and time for the Clidata system. Several Clicom elements is stored into clidata in one element but in other time

**Regular** daily data define:

Clicom ID – id of the element used in Clicom

Element ID – define only the element id. The time is determined from the Clicom file.

Clicom Mdata and Clicom Phenomena is used in case the daily data is not present but only monthly data or phenomena is present. Consult this options always with the Clidata application developers.

## 5.10 Phenomena
























Phenomen...	Name	Character	Character	Storm
DE	Děšť	●	q	<input type="checkbox"/>
DP	Dešťová přeháňka	☂	Q	<input type="checkbox"/>
DS	Děšť se sněhem	☂*	t	<input type="checkbox"/>
JI	Jinovatka	∇	f	<input type="checkbox"/>
KR	Kroupy	▲	h	<input type="checkbox"/>
LE	Ledovka	~	p	<input type="checkbox"/>
MD	Mrznoucí déšť	☂	W	<input type="checkbox"/>
ML	Mlha	≡	s	<input type="checkbox"/>
MR	Mrholení	☂	w	<input type="checkbox"/>
NA	Náledí	☂	P	<input type="checkbox"/>
NM	Námraza	∇	g	<input type="checkbox"/>
BB	Bouřka blízká	☂	o	<input checked="" type="checkbox"/>
RO	Rosa	☂	a	<input type="checkbox"/>
SK	Sněhové krupky	☂	y	<input type="checkbox"/>
SN	Sněžení	*☂	r	<input type="checkbox"/>
SP	Sněhová přeháňka	*☂	R	<input type="checkbox"/>
SV	Silný vítr	☂	c	<input type="checkbox"/>
TS	Tuhé srážky	☂		<input type="checkbox"/>
VB	Vítr bouřlivý	☂	X	<input type="checkbox"/>

This is definition of the list of all phenomena. Each phenomenon is marked with 2 character abbreviation. After that there is a picture symbol. This picture is taken from true type font. This font name is **jevy.ttf**. If the option storm is ticked than during key entry process you can add additional information on the storm.

Bellow is the table of all symbols defined.

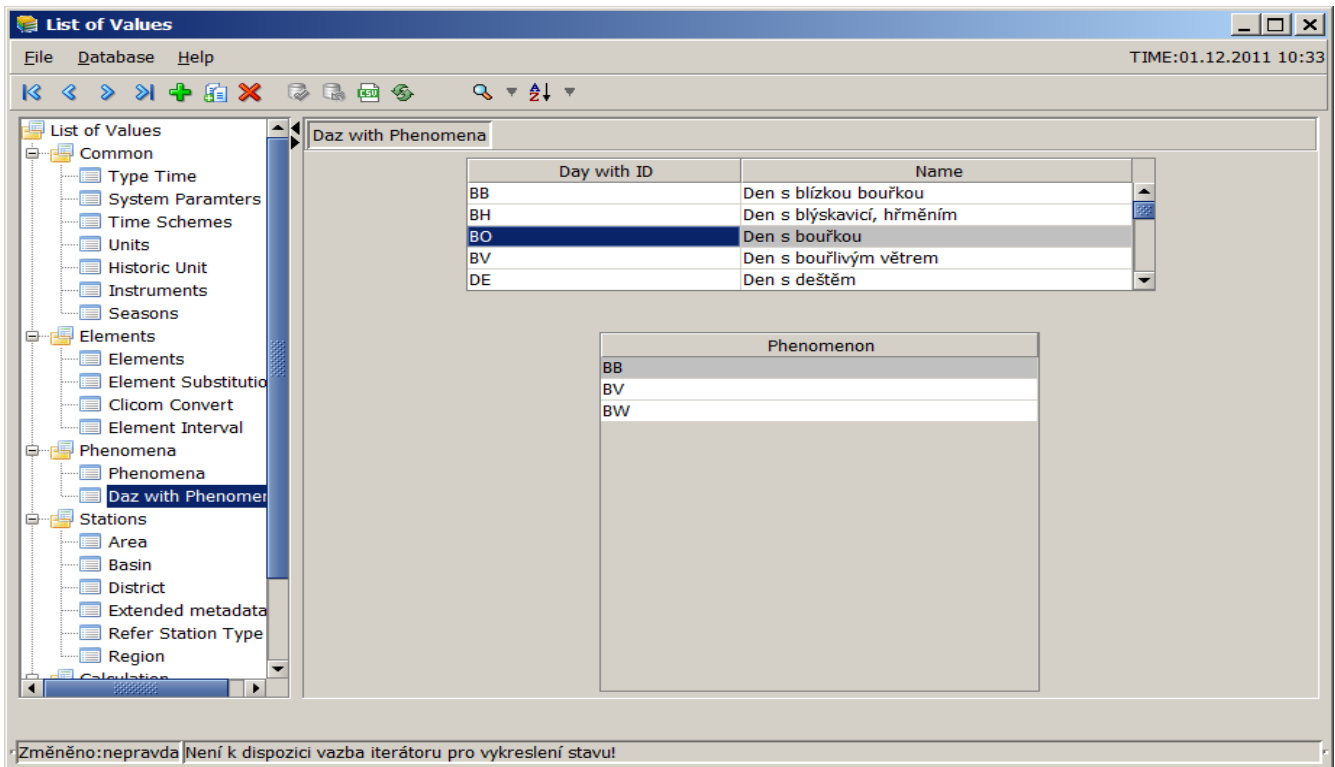
Abbreviation	Name	Symbol	Font
RO	Dew	☂	a
ZR	White dew	☂	A
ML	Fog	≡	s
KO	Mist	≡	S
PM	Ground fog	≡	d
ZM	Ice fog	≡	D
JI	Soft rime	∇	f
JM	Hoar-frost	┌	F
NM	Hard rime	∇	g
PN	Clear ice	∇	G

Abbreviation	Name	Symbol	Font
LE, L2	Glaze	~	p
NA, ZZ	Ground ice	☐	P
DE	Rain	●	q
DP, D2	Rain shower	▼	Q
MR	Drizzle	◡	w
MD	Freezing rain	~	W
ZD	Ice pellets	△	e
MM	Freezing drizzle	~	E
SN	Snowfall	*	r
SP, S2	Snow shower	▼	R
DS, SD	Rain with snow	●*	t
PD, PS	Rain with snow in showers	▼*	T
SK	Snow pellets	▲	y
SR	Snow pellets in showers	▼*	Y
LJ	Ice prisms	→	u
SZ	Snow grains	▲	U
NS	Discontinuous snow cover	☒	i
SS	Snow cover	☒	I
KR	Hail	▲	h
KP	Hail in showers	▼	H
NK		△	j
NR		▼	J
VN	Gusty wind 2 (10 – 14 mps)	N↘	z
V3	Gusty wind 3 (14 – 17 mps)	N↘	Z
V4	Gusty wind 4 (17 – 20 mps)	N↘	x
VB	Gale (17 – 20 mps)	↘	X
SV	Strong wind (14 – 17 mps)	↘	c
P2	Variable wind 2 (10 – 14 mps)	P↘	C
P3	Variable wind 3 (14 – 17 mps)	P↘	v

Abbreviation	Name	Symbol	Font
P4	Variable wind 4 (17 – 20 mps)		V
HU	Squall 2 (10 – 14 mps)		b
H3	Squall 3 (14 – 17 mps)		B
H4	Squall 4 (17 – 20 mps)		n
ZS	Drifting snow		1
ZN	Blowing snow		2
ZP	Drifting dust or sand		3
ZI	Blowing dust or sand		4
PR	Dust or sand whirl		5
PV	Dust storm or sandstorm		6
VD	Excellent visibility		k
PZ	Dust haze		K
KU	Smoke		l
ZA	Haze		L
DB	White rainbow		7
DU	Rainbow		8
GL	Glory		9
IR	Irization		0 – zero
KM	Corona round the Moon		;
KS	Corona round the Sun		:
SH	Halo round the Sun		<
MH	Halo round the Moon		.
OE	St. Elmo's fire		>
ZC	Mirage		/
PO	Aurora		?
TR	Spout, tornado		\
VT	Spray		=

Abbreviation	Name	Symbol	Font
BB	Storm	⚡	o
BV	Distant storm	(⚡)	O
BL	Lightning	⚡	m
BW	Very distant storm	)⚡(	M
HR	Thunder	⚡	,

## 5.11 Day with Phenomena



This form puts several phenomena into logical groups. Each group consists of related phenomena. (e.g. there is several phenomena for the precipitation: rain, rain shower, etc ... ). When these phenomena are grouped they form so called day with phenomena (e.g. day with rain). We can calculate the number of days with the occurrence of the phenomena (e.g. days with rain).

### Example:

The 'Phenomena Monthly Data' form is shown with the following data:

Station ID	Day with Phenomena	Year
B2LUKO01	BO	1994

January	February	March	April
2	0	1	0
May	June	July	August
4	0	2	0
September	October	November	December
0	0	0	0
Year	9		

In picture above there is definition of day with storm (BO) it consist of 3 phenomena near storm, far storm and very far storm (BB, BV, BW). In the other picture you see the result value. Where at the January 1994 there were 2 days with storm and in whole year there were 9 storms.

## 5.12 Area

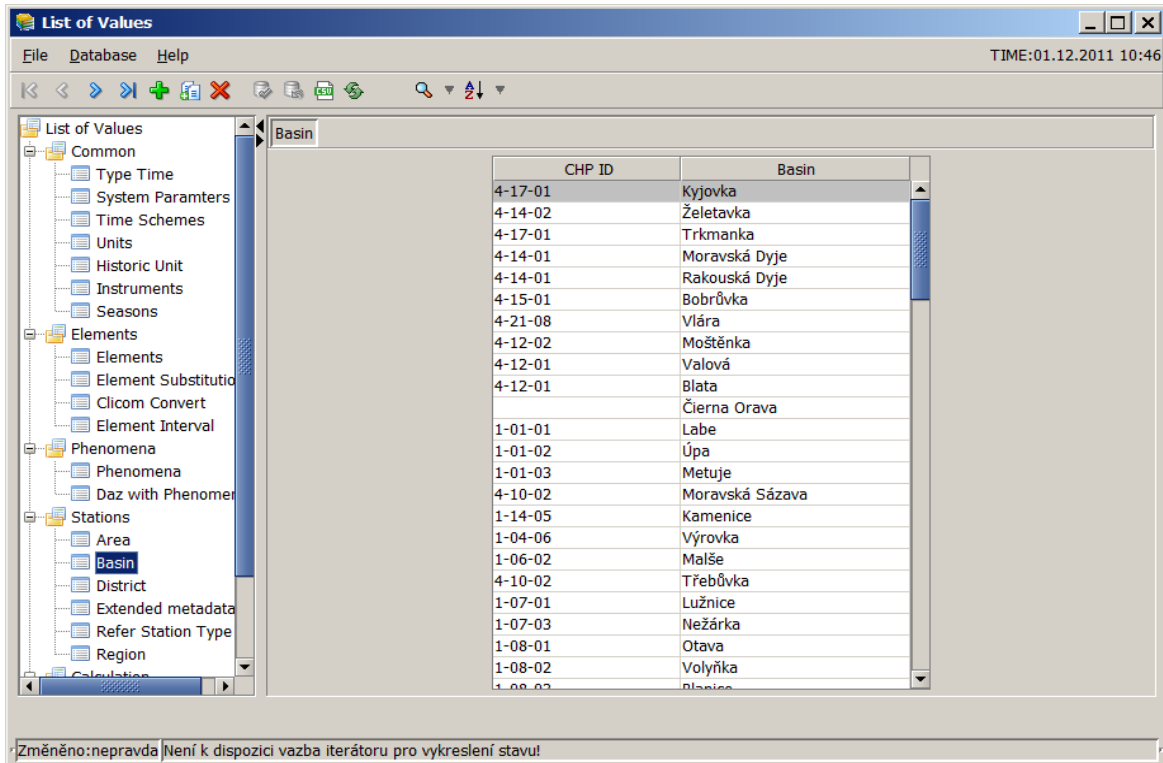
The screenshot shows the 'List of Values' application window. The title bar reads 'List of Values' and the status bar shows 'TIME:01.12.2011 10:44'. The interface is divided into three main sections:

- Left Panel:** A tree view showing the application's structure. The 'Stations' folder is expanded, and 'Area' is selected.
- Area Type Table:** A table with two columns: 'Area Type ID' and 'Description'. It contains two rows: (1, Aladin) and (2, Test oblast).
- Area Table:** A table with two columns: 'Area ID' and 'Description'. It contains 21 rows, with 'Area ID' values from 1 to 21 and 'Description' values from 'a' to 'u'.

At the bottom of the window, a status bar displays the message: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

This is the definition of several areas. This is only list of the areas and later each particular station can be assigned to any of the areas. At the left there is the area definition and at right is the list of area members.

## 5.13 Basin



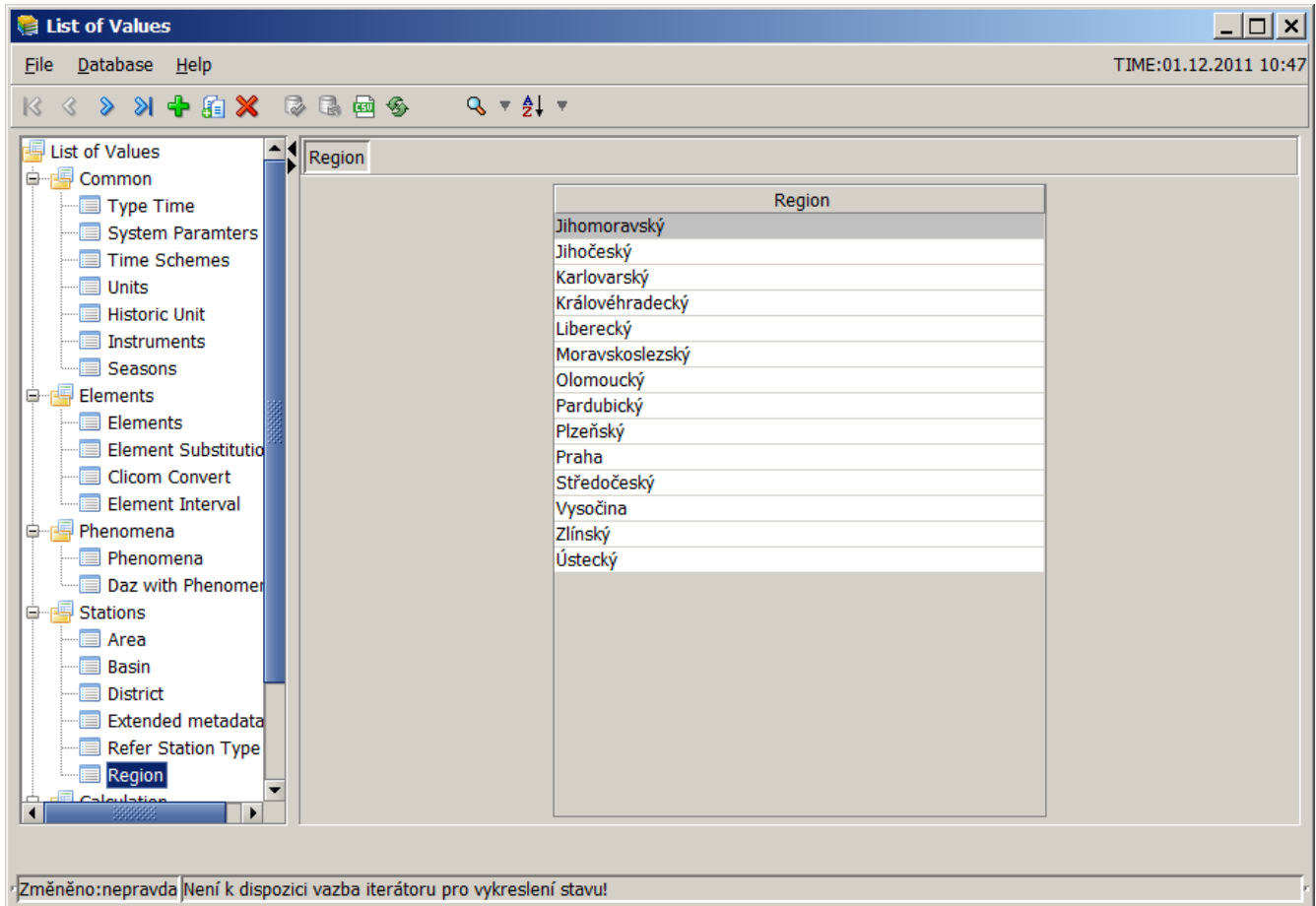
The screenshot shows the 'List of Values' application window. The left sidebar contains a tree view with categories like 'Common', 'Elements', 'Phenomena', and 'Stations'. The 'Basin' category is selected. The main area displays a table with two columns: 'CHP ID' and 'Basin'. The table contains 20 rows of data. At the bottom of the window, there is a status bar with the text: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

CHP ID	Basin
4-17-01	Kyjovka
4-14-02	Želetavka
4-17-01	Trkmanka
4-14-01	Moravská Dyje
4-14-01	Rakouská Dyje
4-15-01	Bobrovka
4-21-08	Vlára
4-12-02	Moštěnka
4-12-01	Valová
4-12-01	Blata
	Čierna Orava
1-01-01	Labe
1-01-02	Úpa
1-01-03	Metuje
4-10-02	Moravská Sázava
1-14-05	Kamenice
1-04-06	Výrovka
1-06-02	Malše
4-10-02	Třebůvka
1-07-01	Lužnice
1-07-03	Nežárka
1-08-01	Otava
1-08-02	Volyňka
1-08-03	Blavice

Definition of the river basins. Set the hydrological number CHP-ID for each basin and the name of the basin.

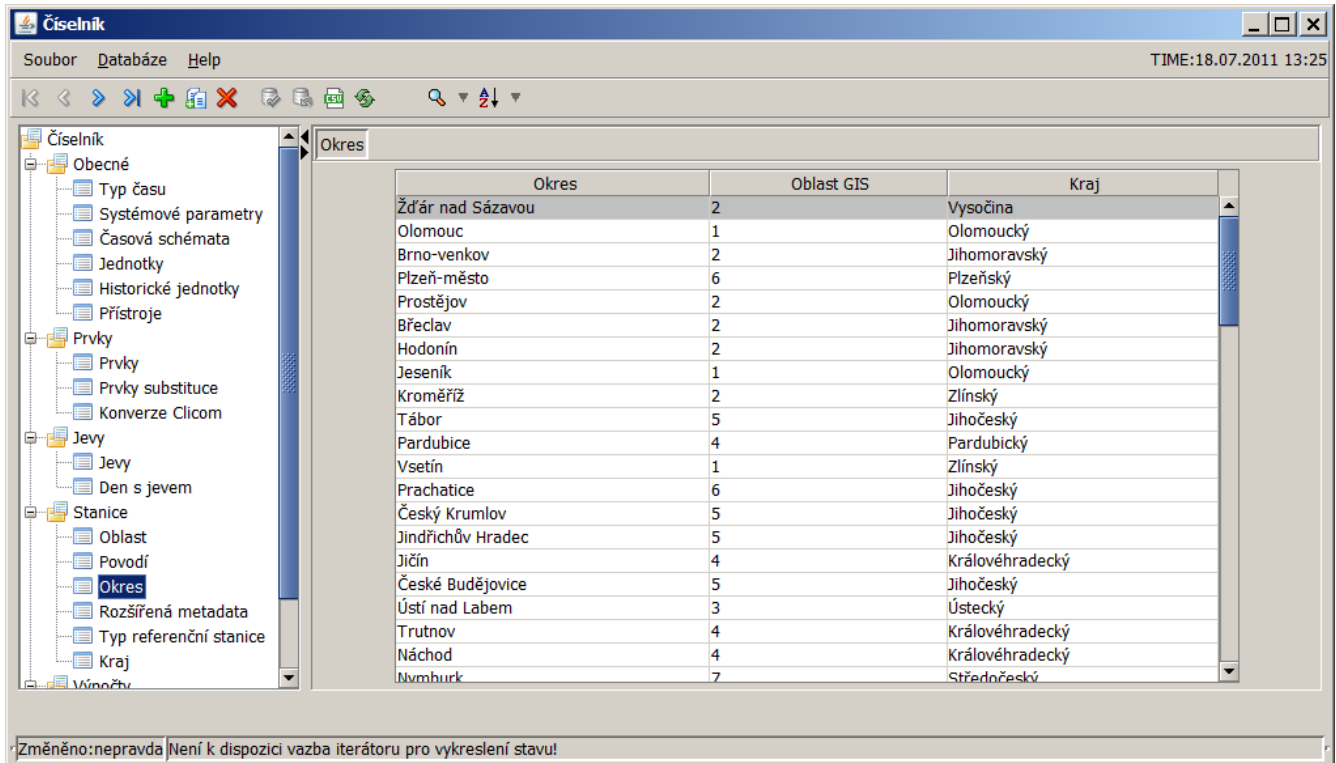


## 5.14 Region – 1. level of country subdivision



Define the subdivision of the countries.

## 5.15 District – 2. level of country subdivision



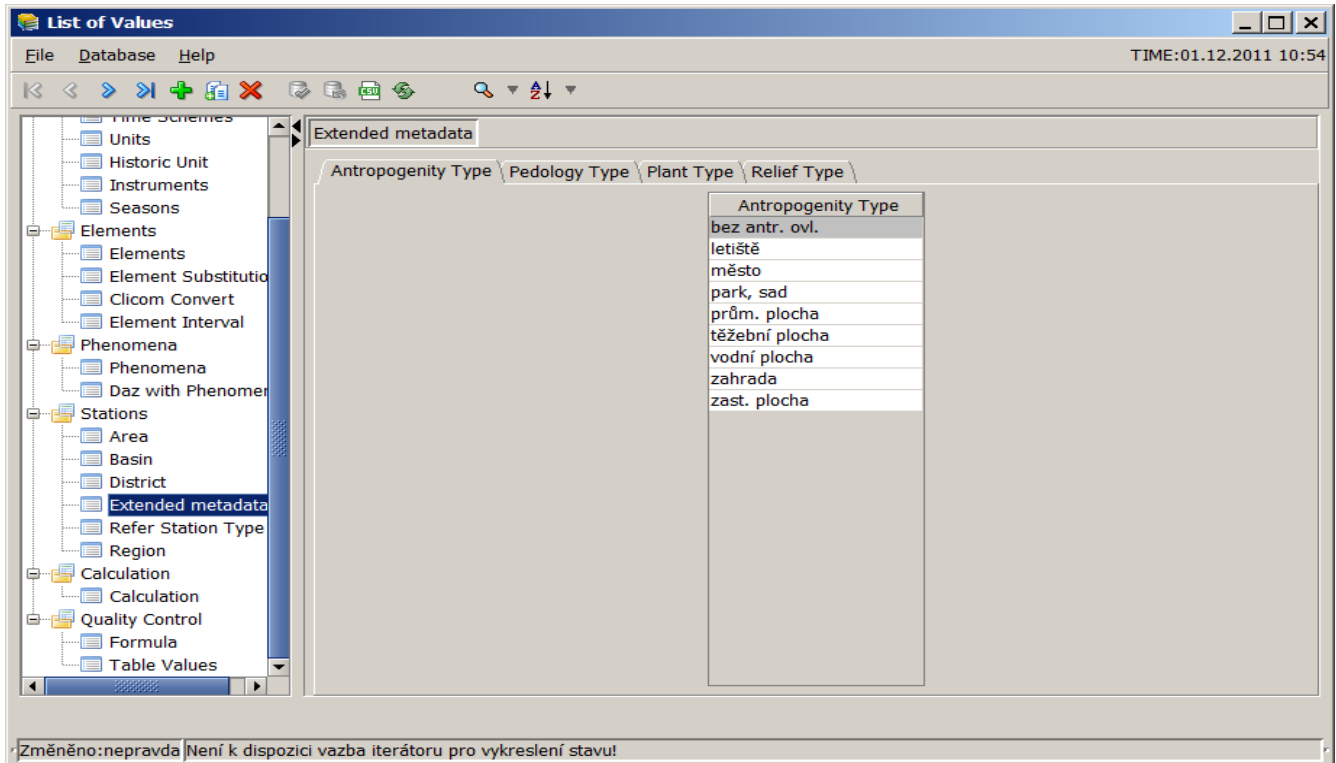
The screenshot shows the 'Číselník' application interface. On the left is a tree view with categories like 'Obecné', 'Prvky', 'Jevy', and 'Stanice'. The 'Okres' category is selected. The main area displays a table with the following data:

Okres	Oblast GIS	Kraj
Žďár nad Sázavou	2	Vysočina
Olomouc	1	Olomoucký
Brno-venkov	2	Jihomoravský
Plzeň-město	6	Plzeňský
Prostějov	2	Olomoucký
Břeclav	2	Jihomoravský
Hodonín	2	Jihomoravský
Jeseník	1	Olomoucký
Kroměříž	2	Zlínský
Tábor	5	Jihočeský
Pardubice	4	Pardubický
Vsetín	1	Zlínský
Prachatice	6	Jihočeský
Český Krumlov	5	Jihočeský
Jindřichův Hradec	5	Jihočeský
Jičín	4	Královéhradecký
České Budějovice	5	Jihočeský
Ústí nad Labem	3	Ústecký
Trutnov	4	Královéhradecký
Náchod	4	Královéhradecký
Nymburk	7	Středočeský

At the bottom of the window, a status bar reads: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

Definition of subdivision lists. Each District must be assigned to region. The GIS region can be other subdivision used in GIS.

## 5.16 Extended metadata



Definition of lists for extended station information.

**Anthropogenic type** – the list of influence of the humans to the station, it means: Airport, Town, Park, Water reservoir, Garden etc ..

**Pedology type** – the type of soil at the station: Blackland, Brownland, Peat, Sand, etc...

**Plant cover** – vegetation surroundings: Forest, Grass, Steppe, etc ...

**Relief type** – the country relief at the station surroundings: Flat land, Mountains, Valley

## 5.17 Type of reference station

The screenshot shows the 'List of Values' application window. The title bar reads 'List of Values' and the status bar shows 'TIME:01.12.2011 11:02'. The interface includes a menu bar (File, Database, Help) and a toolbar. A tree view on the left lists various categories, with 'Refer Station Type' selected. The main workspace is divided into two panes:

- Refer Station For:** A table with columns 'For ID' and 'Description'. It contains four rows:
 

For ID	Description
1	SOM
2	SOM SRA
3	SOM T
4	SOM Q
- Refer Station Use:** A table with columns 'Use ID' and 'Description'. It contains three rows:
 

Use ID	Description
1	Jedna stanice
2	Vyber 1 dle priority
3	Prumer vsech

At the bottom of the window, a status bar displays the message: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

Definition of reference station type. This is used in Run-off model. At the left there is the list of different reference types. At the right is the usage. Do not feel the right side.

## 5.18 Calculation

The screenshot shows the 'List of Values' application window. The title bar reads 'List of Values' and the status bar shows 'TIME:01.12.2011 11:03'. The interface includes a menu bar (File, Database, Help) and a toolbar. A tree view on the left lists various categories, with 'Calculation' selected. The main workspace is divided into two panes:

- Calculation Table:** A table with columns 'Formul...', 'Description', 'Function', and 'Formula'. It lists several calculations:
 

Formul...	Description	Function	Formula
110	Prům. denní RV	AVG	{(RV.06:00)+(RV.13:00)+(RV.21:00)}/3
111	Prům. denní E	AVG	{(E.06:00)+(E.13:00)+(E.21:00)}/3
112	Prům. denní F	AVG	{(F.06:00)+(F.13:00)+(F.21:00)}/3
113	Prům. denní O	AVG	{(O.06:00)+(O.13:00)+(O.21:00)}/3
114	Prům. denní P	AVG	{(P.06:00)+(P.13:00)+(P.21:00)}/3
115	Prům. denní H	AVG	{(H.06:00)+(H.13:00)+(H.21:00)}/3
150	TEPVP AVG null	AVG	{TEPVP.AVG.NULL}
151	TEPVP MAX null	MAX	{TEPVP.MAX.NULL}
152	TEPVP MIN null	MIN	{TEPVP.MIN.NULL}
153	TEPV_X AVG null	AVG	{TEPV_X.AVG.NULL}
154	TEPV_X MAX null	MAX	{TEPV_X.MAX.NULL}
155	TEPV_X MIN null	MIN	{TEPV_X.MIN.NULL}
- Configuration Panel:** Located below the table, it includes:
  - Radio buttons for 'Default', 'Source RDATA\_N, target RDATA\_R', and 'Source RDATA\_R, target RDATA\_N'. 'Default' is selected.
  - Fields for 'Station ID', 'Element ID', 'Date', and 'Time'. 'Irregular' is selected in the 'Time' dropdown.
  - Fields for 'Result' and 'Function'.

At the bottom of the window, a status bar displays the message: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

Define the formula:

- Formula ID, the unique number of the formula
- Function is the main target time
  - MAX,MIN,AVG,SUM – group function for day, typically daily maximum or average
  - XX:XX – daily time calculation, from one element calculate the other element
- In description write any text
- In formula write the definition of the formula.
  - Use variables in curly brackets form {ELEMENT.TIME}, see below for more variables.
  - Use any operators like \*,/,+,-
  - Use parenthesis () for priority specification
  - Use any Oracle function see SQL Functions in oracle documentation

Test the formula:

- Write the station, target element, day, and time
- Choose the data target table (Regular/ Irregular)
- Press button and check the result if it is OK.
- The calling command is displayed and the value should appear in result field. You can check also how the formula is filled with real values in right bottom field.

Variable	Description
{ELEMENT.TIME}	Set <b>ELEMENT</b> in defined <b>TIME</b> . The <b>TIME</b> is in <b>HH:MM</b> format or one of <b>AVG, MAX, MIN, SUM</b> functions. Special time <b>XX:XX</b> is replaced with real time from the element observation schedule.
{ELEMENT.anything-X}	<b>X</b> -days back
{ELEMENT.cokoli-XM}	<b>X</b> -minutes back
{ELEMENT.FUNC}	Replace <b>FUNC</b> with one of <b>AVG, MAX, MIN</b> or <b>SUM</b> to calculate the daily summary, average, minimum or maximum. There must be all values in the day to calculate the result.
{ELEMENT.FUNC.NULL}	The same as above. Some values can miss
{ELEMENT.FUNC.VALMIN(X)}	The same as above <b>AVG, MAX, MIN</b> or <b>SUM</b> Define a minimum values present for the calculation
{ELEMENT.FUNC.NULLMAX(X)}	The same as above. Define the maximum number of missing values.
{ELEMENT.TIME.FLAG1}, {ELEMENT.TIME.FLAG2}	Select the value flag 1 of flag 2
{ELEMENT.FUNC.INTERVAL.COUNT}	Summary of the time sub-interval. The aggregate function is one of <b>MAX, MIN, AVG, SUM</b> . The <b>INTERVAL</b> defines the source time interval for the calculation, The <b>COUNT</b> defines the number of times from the source interval to

{SPEC.ELEV}

group.

Station elevation defined in station geography.

{SPEC.ELEMENT.HEIG}

Height of the instrument measuring the element above ground. The value defined in station observation.

{SPEC.TIME}

The time of the value calculation

{anything.REFER}

Any variable. But the value is not taken from current station but from reference station.

{ELEMENT.FUNC.DETAIL(DETAIL\_ELEMENT)}

Calculate **MAX** or **MIN** value of the element in day. The result is not the value but the value of the **DETAIL** element in corresponding time. This is useful e.g. for the calculation of direction of maximal wind speed.

{DWPHENO.DW\_ABBREVIATION.TIME\_SHIFT.COUNT}

Calculate the number of phenomena occurrence from **MET\_PHENOMENA** table for defined day with phenomena. Use shift when the interval is not starting in 00:00. Shift is in minutes. The shift 0 means 00:00 - 23:59. Shift -60 means 23:00prev day-23:00current day

{DWPHENO.DW\_ABBREVIATION.TIME\_SHIFT.OCCUR}

Select 1 or 0 in case the phenomenon occurred.

**Examples:**

{T.07:00} ... temperature at 7 am

{T.AVG} ... average daily temperature

{T.XX:XX}... temperature in time according to observation time schedule

{T.07:00-1} ... temperature at 7 am previous day

{SRA1H.SUM.01:00.3} ... 3-hour summary of precipitation calculated from 1 hour precipitation

{T.07:00.REFER} ... temperature at 7 at reference station

{SPEC.T.HEIG} ... height of instrument measuring temperature

{SPEC.ELEV} ... elevation of the station

{Fmax.MAX.DETAIL(Dmax)} ... direction of wind (Dmax -direction, Fmax speed)

{DWPHENO.DR.-300.COUNT} ... count of precipitation phenomena from 19:00 in previous day to 18:59 today

{DWPHENO.DR.-300.OCCUR} ... 1 if there was precipitation and 0 if there wasn't precipitation from 19:00 previous day to 18:59 today

**Calculation formulas used in the Czech Republic:**

Type, Function and Description	
AVG	$((\{T.07:00\} + \{T.14:00\} + (2 * \{T.21:00\})) / 4)$
Average daily temperature	
AVG	$((\{F.07:00\} + \{F.14:00\} + \{F.21:00\}) / 3)$
Daily average wind speed	

Type, Function and Description	
AVG	((O.07:00)+{O.14:00}+{O.21:00})/3
<b>Average daily cloud amount</b>	
AVG	((P.07:00)+{P.14:00}+{P.21:00})/3
<b>Average daily pressure</b>	
AVG	((H.07:00)+{H.14:00}+{H.21:00})/3
<b>Average daily humidity of the air</b>	
XX:XX	{SRA15M.SUM.00:15.4}
<b>One hour precipitation total calculated from the 15-minutes precipitation</b>	
XX:XX	<pre> 100*{E.XX:XX} / cld_killzero( round( power(10, 10.79574*(1-273.16/({T.XX:XX}+273.16)) -5.028*log(10,({T.XX:XX}+273.15)/273.16) +1.50475e-4*(1-power(10,-8.2969*({T.XX:XX} +273.16)/273.16-1)) +0.42873e-3*(power(10,4.76955*(1-273.16/({T.XX:XX} +273.16)))-1) +0.78614 ),1) </pre>
<b>Relative humidity.</b>	
<p>The formula uses the function:</p> <pre> CREATE OR REPLACE function cld_killzero(n number) return number is begin   if n=0 then     return null;   else     return n;   end if; end; / </pre>	
XX:XX	<pre> round(decode({TV.XX:XX.FLAG1}, 'L', power(10, -9.09685*(273.16/({TV.XX:XX}+273.16)-1) -3.56654*log(10,273.16/({TV.XX:XX}+273.16)) +0.87682*(1-({TV.XX:XX}+273.16)/273.16) +0.78614 ) , power(10, 10.79574*(1-273.16/({TV.XX:XX}+273.16)) -5.028*log(10,({TV.XX:XX}+273.16)/273.16) +1.50475e-4*(1-power(10,-8.2969*({TV.XX:XX} +273.16)/273.16-1)) +0.42873e-3*(power(10,4.76955*(1-273.16/({TV.XX:XX} +273.16)))-1) +0.78614 </pre>

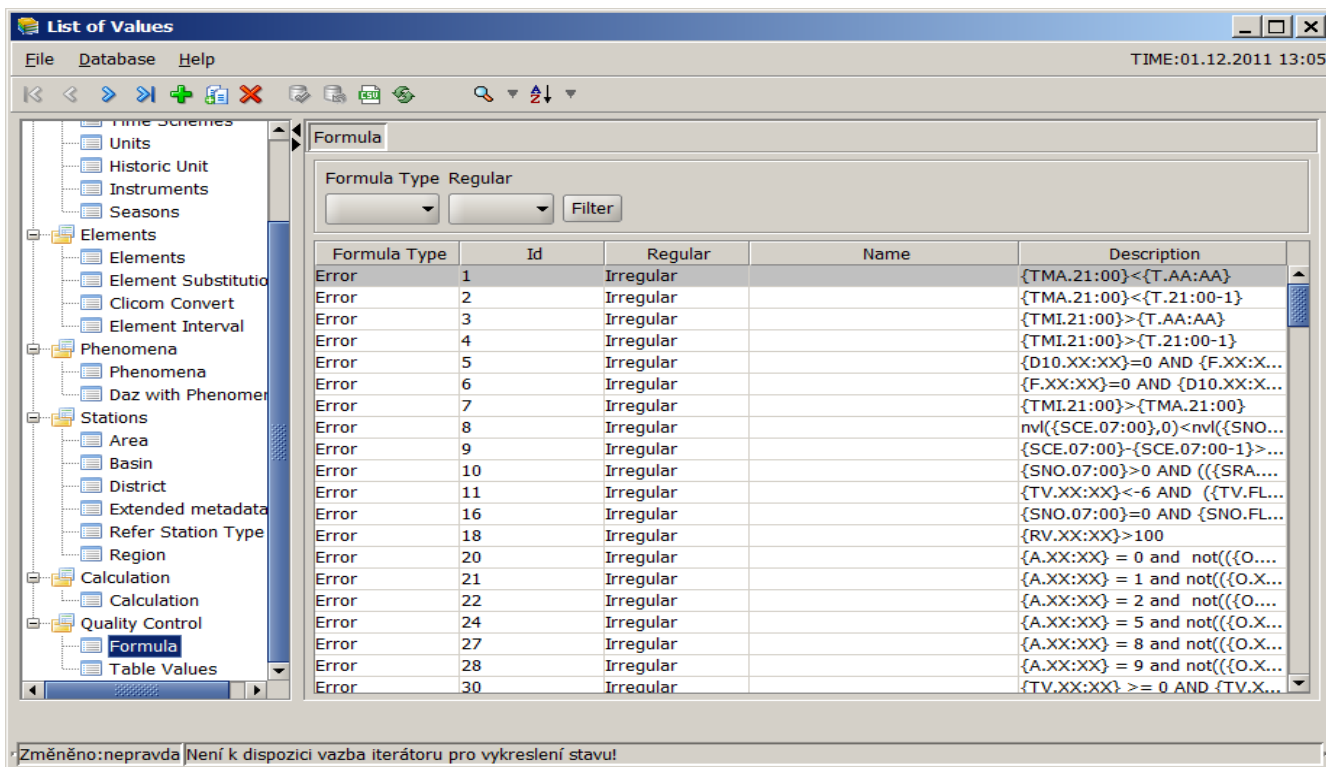
Type, Function and Description	
	<pre> ) ) - 1e- 6*decode({F.XX:XX},0,1110,1,985,2,834,3,783,4,750,5,730,6, 715,7,700,8,691,9,684,10,679,11, 675,12,672,13,669,14,667,665) *({T.XX:XX}- {TV.XX:XX}) *power(10, log(10,{P.XX:XX.REFER}) +({SPEC.ELEV}+nvl({SPEC.P.HEIG},0)- {SPEC.ELEV.REFER})- {SPEC.P.HEIG.REFER}) /(18400+67.53*({T.XX:XX}- {T.XX:XX.REFER})/2+0.003*({SPEC.ELEV} +nvl({SPEC.P.HEIG},0)- {SPEC.ELEV.REFER})- {SPEC.P.HEIG.REFER})) ) * decode({TV.XX:XX.FLAG1},'L', (1+1.1e-6*{TV.XX:XX}/0.0008)*0.8821 , (1+1.4e-6*({TV.XX:XX}-10)/0.0008) ),1) </pre>
<b>Vapour pressure</b>	
XX:XX	{SRA1H.SUM.01:00.3}
<b>Three hour precipitation total calculated from one hour precipitation</b>	
XX:XX	{SRA3H.SUM.03:00.2}
<b>Six hour precipitation total calculated from three hour precipitation</b>	
AVG	(({RV.07:00}+{RV.14:00}+{RV.21:00}))/3
<b>Average daily relative humidity of the air</b>	
XX:XX	{SRA30M.SUM.00:30.2}
<b>One hour precipitation total calculated from 30-minutes precipitation</b>	
AVG	<pre> ({P.00:00}+{P.01:00}+{P.02:00}+{P.03:00}+{P.04:00}+ {P.05:00}+{P.06:00}+{P.07:00}+{P.08:00}+{P.09:00}+ {P.10:00}+{P.11:00}+{P.12:00}+{P.13:00}+{P.14:00}+ {P.15:00}+{P.16:00}+{P.17:00}+{P.18:00}+{P.19:00}+ {P.20:00}+{P.21:00}+{P.22:00}+{P.23:00})/24 </pre>
<b>Average pressure of the air.</b>	
AVG	<pre> ({S-P.00:00}+{S-P.01:00}+{S-P.02:00}+{S-P.03:00}+{S- P.04:00}+{S-P.05:00}+{S-P.06:00}+{S-P.07:00}+{S-P.08:00}+ {S-P.09:00}+{S-P.10:00}+{S-P.11:00}+{S-P.12:00}+{S- P.13:00}+{S-P.14:00}+{S-P.15:00}+{S-P.16:00}+{S-P.17:00}+ {S-P.18:00}+{S-P.19:00}+{S-P.20:00}+{S-P.21:00}+{S- P.22:00}+{S-P.23:00})/24 </pre>
<b>Average pressure of the air recalculated to the see level</b>	
AVG	(({T05.07:00}+{T05.14:00}+{T05.21:00}))/3
AVG	(({T10.07:00}+{T10.14:00}+{T10.21:00}))/3



Type, Function and Description	
AVG	$((\{T20.07:00\}+\{T20.14:00\}+\{T20.21:00\})/3)$
AVG	$((\{T50.07:00\}+\{T50.14:00\}+\{T50.21:00\})/3)$
AVG	$((\{T100.07:00\}+\{T100.14:00\}+\{T100.21:00\})/3)$
<b>Average daily temperature of the soil in 5, 10, 20, 50 and 100 cm, climatic</b>	
AVG	{HPU1.AVG}
AVG	{HPU2.AVG}
AVG	{HPU3.AVG}
<b>Relative humidity of the soil</b>	
AVG	{T05.AVG}
AVG	{T10.AVG}
AVG	{T20.AVG}
AVG	{T50.AVG}
AVG	{T100.AVG}
<b>Average daily temperature of the soil in 5, 10, 20, 50 and 100 cm, regular</b>	
XX:XX	<pre> decode(sign({T.XX:XX}+5),-1, -- &lt; -5 ({H.XX:XX}/100)*power(10,-9.09685*(273.16/({T.XX:XX} +273.16)-1) -3.56654*log(10,273.16/({T.XX:XX}+273.16))+0.87682*(1- ({T.XX:XX}+273.16)/273.16) +0.78614) , -- &gt;= -5 ({H.XX:XX}/100)*power(10,10.79574*(1-273.16/({T.XX:XX} +273.16)) -5.028*log(10,({T.XX:XX}+273.16)/273.16) +1.50475e-4*(1-power(10,-8.2969*(({T.XX:XX} +273.16)/273.16-1))) +0.42873e-3*(power(10,4.76955*(1-273.16/({T.XX:XX} +273.16)))-1) +0.78614) ) </pre>
<b>Vapour pressure from the Automatic station</b>	
XX:XX	round({SSV15M.SUM.00:15.4}/60/6,0)
<b>One hour amount of sunshine calculated from the 15-minutes sunshine</b>	
AVG	$((\{S-P.00:00\}+\{S-P.01:00\}+\{S-P.02:00\}+\{S-P.03:00\}+\{S-P.04:00\}+\{S-P.05:00\}+\{S-P.06:00\}+\{S-P.07:00\}+\{S-P.08:00\}+\{S-P.09:00\}+\{S-P.10:00\}+\{S-P.11:00\}+\{S-P.12:00\}+\{S-P.13:00\}+\{S-P.14:00\}+\{S-P.15:00\}+\{S-P.16:00\}+\{S-P.17:00\}+\{S-P.18:00\}+\{S-P.19:00\}+\{S-P.20:00\}+\{S-P.21:00\}+\{S-P.22:00\}+\{S-P.23:00\})-192000)/24)$
<b>Geographical potential at 850hPa</b>	
AVG	$((\{T.00:00\}+\{T.01:00\}+\{T.02:00\}+\{T.03:00\}+\{T.04:00\}+\{T.05:00\}+\{T.06:00\}+\{T.07:00\}+\{T.08:00\}+\{T.09:00\}+$

Type, Function and Description	
	{T.10:00}+{T.11:00}+{T.12:00}+{T.13:00}+{T.14:00}+ {T.15:00}+{T.16:00}+{T.17:00}+{T.18:00}+{T.19:00}+ {T.20:00}+{T.21:00}+{T.22:00}+{T.23:00}) /24
<b>Average daily temperature, regular</b>	
XX:XX	({E.00:00}+{E.01:00}+{E.02:00}+{E.03:00}+{E.04:00}+ {E.05:00}+{E.06:00}+{E.07:00}+{E.08:00}+{E.09:00}+ {E.10:00}+{E.11:00}+{E.12:00}+{E.13:00}+{E.14:00}+ {E.15:00}+{E.16:00}+{E.17:00}+{E.18:00}+{E.19:00}+ {E.20:00}+{E.21:00}+{E.22:00}+{E.23:00}) /24
<b>Average daily vapour pressure, regular</b>	
AVG	({E.07:00}+{E.14:00}+{E.21:00}) /3
<b>Average daily vapour pressure, climatic</b>	

## 5.19 Quality control formula



Definition of quality control formulas. The formula can be error or warning and is specified separately for regular and irregular data. If the formula is **satisfied**, then the formula indicate **error** or **warning**!

The warning formula is during quality process displayed by green color. Error formula is displayed with red color. The user must repair error formula.

The values passed quality control are validated.

The list of variables used:

Variable	Description
{ELEMENT.TIME}	Element in specified time in format HH:MM
{ELEMENT.XX:XX}	Element in time according time schedule
{ELEMENT.AA:AA}	Element in all times according time schedule
{ELEMENT.???.FLAG1}, {ELEMENT.???.FLAG2}	Element flag
{ELEMENT.anything-X}	Shift by X-days back
{ELEMENT.anything-XM}	Shift by X-minutes back
{\$ELEMENT}	Select value from tabulate values
{SPEC.DT}	Date and time of controlled value
{?.REFER}	Select anything but from reference station

**Examples:**

Control formula with description
{TMA.21:00}<{T.AA:AA}
Temperature maximal (TMA) is less than all any temperature during day. You must use AA:AA here. Note: Using XX:XX here is wrong because if you change the TMA value (in 21:00) than you are not able to control all other times
{TMA.21:00}<{T.21:00-1}
Temperature maximal (TMA) is less than temperature in previous day in 21:00
{D10.XX:XX}=0 AND {F.XX:XX}<>0
Wind speed (F) is not zero and wind direction (D10) is zero. XX:XX here is correct because you are comparing the same times!

## 5.20 Table values

Item	Elevation From	Elevation To (Inc)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
FFMAX	0	250	17	17	17	16	15	14	14	14	14	15	17	17
FFMAX	251	400	17	17	17	17	16	16	16	15	15	15	17	17
FFMAX	901	1602	24	23	23	21	21	21	21	21	21	22	24	24
FFMAX	601	900	23	24	24	22	22	22	22	22	21	21	22	22
FFMAX	401	600	20	20	20	19	18	18	18	18	18	19	20	20
PMAX	0	250	1027	1027	1027	1027	1020	1020	1020	1020	1027	1027	1027	1027
PMAX	251	400	1013	1013	1013	1000	1000	1000	1000	1000	1007	1013	1013	1013
PMAX	401	600	1007	1000	1007	993	987	987	987	987	993	1000	1000	1000
PMAX	601	900	980	980	980	980	967	960	960	960	967	973	973	980
PMAX	901	1602	960	960	960	960	960	960	960	960	960	960	960	960
PMIN	0	250	947	947	947	953	960	960	960	960	953	947	947	947
PMIN	251	400	933	933	933	940	947	947	947	947	940	933	933	933
PMIN	401	600	907	907	907	900	893	893	893	893	900	907	907	907
PMIN	601	900	880	880	880	873	867	867	867	867	873	880	880	880
PMIN	901	1602	720	720	720	720	720	720	720	720	720	720	720	720
SCEMA	0	250	40	60	40	15						10	15	25
SCEMA	251	400	50	50	60	30	5					15	30	45
SCEMA	901	1602	250	250	250	170	100	10				40	100	120
SCEMA	601	900	120	150	120	90	30	2				10	60	70
SCEMA	401	600	70	70	70	50	5				2	30	30	50
T*	0	250	13	14	17	19	19	19	20	19	19	18	14	13
T*	601	900	13	14	17	19	19	19	20	19	19	18	14	13
T*	401	600	13	14	17	19	19	19	20	19	19	18	14	13
T*	251	400	13	14	17	19	19	19	20	19	19	18	14	13
T**	0	250	4	4	4	5	5	6	6	6	6	6	5	4
T**	601	900	4	4	4	5	5	6	6	6	6	5	4	4
T**	401	600	4	4	4	5	5	6	6	6	6	5	4	4
T**	251	400	4	4	4	5	5	6	6	6	6	5	4	4
T***	0	250	4	4	4	5	7	8	7	6	5	4	4	4
T***	601	900	4	4	4	5	7	8	7	6	5	4	4	4
T***	401	600	4	4	4	5	7	8	7	6	5	4	4	4
T***	251	400	4	4	4	5	7	8	7	6	5	4	4	4
T***	601	900	4	4	4	5	7	8	7	6	5	4	4	4
T***	901	1602	4	4	4	5	6	6	6	5	5	5	4	4
T*MAX	601	900	9	14	23	28	30	32	33	33	32	25	19	15
T*MAX	401	600	10	15	25	29	32	33	35	35	33	27	21	16
T*MAX	251	400	12	15	25	29	32	33	35	35	33	27	21	16
T*MAX	0	250	12	18	26	30	32	34	36	37	34	28	22	16
T*MAX	901	1602	15	16	20	26	30	32	32	32	32	25	22	15
T*MIN	601	900	-22	-22	-22	-8	-6	-3	2	2	-3	-9	-17	-22
T*MIN	0	250	-22	-22	-22	-7	-4	0	2	3	-2	-7	-15	-22
T*MIN	251	400	-23	-22	-22	-8	-4	-3	2	2	-3	-9	-17	-22
T*MIN	401	600	-23	-22	-22	-8	-4	-3	2	2	-3	-9	-17	-22

In this form the limits for variable are defined. The limits in this table depends on elevation and on month of the year. These variables are used in control formulas. The control formula variable is defined with curly brackets and dollar sign.

### Example:

We use warning formula  $(F.XX:XX) > \{ \$FFMAX \}$  in quality control.

The wind speed (F) in January 15 at 07:00 is 18 m/s at the O1PORU01 station with elevation 242 meters above sea.

The system looks at the table at limit 0-250 into Jan column. There is 17 m/s.

The Formula is  $18 > 17$  therefore formula is satisfied and the system indicates an warning.

## 6 Station geography information

This part of the application covers all station information definitions. Station name, location, address, station surroundings, files pictures etc.

### 6.1 Station

Form – form view of the geography information

Table – table view of geography records

Address -station address

Hydrological info – hydrological information on station

#### 6.1.1 Form

The screenshot shows a software window titled 'Station' with a menu bar (File, Database, Help) and a toolbar. The main area is divided into a left sidebar and a main form. The sidebar shows a tree view with 'Geography' selected. The main form has tabs for 'Form', 'Table', 'Address', and 'Hydrological Info', with 'Form' active. The form contains the following fields:

Station ID	O1PORU01	Geogr EW	18.159352
Icao ID		Longitude	018°10'34"
Wmo ID	11790	EW Hemisphere	<input type="radio"/> East <input type="radio"/> West
Hydro ID	2010115900	X	3727314.7997 Refresh
Clicom ID	20111590	Geogr NS	49.82529
Hist ID	2010131	Latitude	49°50'31"
Begin	01.01.1998	End	31.12.9999
Name	Ostrava	NS Hemisphere	<input checked="" type="radio"/> North <input type="radio"/> South
Qual	Poruba	Y	5526232.6492
District	Ostrava-město	Elevation	242
Country	Česká republika	Time Deviation	-13
Basin	Odra	<input type="checkbox"/> Moving	
Refer Station	O1MOSN01	Station Type	KLIMA-INTER-AMS
Full Name	Ostrava, Poruba		
Historic Name	Hannersdorf		
Remark	Od 1.1.1998 data z AS		

In this form the basic information on station is entered. The most important is the **station identifier**. The station identifier has 8 alfa-numeric characters. The letters are capital.

In Czech republic the identifier is constructed according the following template OTNNNNXX, where:

O – geographical area

T – the part of the river basin

NNNN – The part of the station name

XX – order of the station in the same location. In one location there can be more than one station. There can be for example in one place synoptic, rainfall, upper air and automatic weather station in one place.

Next important information is the period of station observation. The period is defined by **Begin** and **end** dates. If some important information is changed on the basic station definition than the record is split into more lines with different time periods.

**Name** of the station is the short station name(25 characters). You can put additional information for station name this additional information is put into **Qual** field(25 characters). **Full Name** is the long name of the station(50 characters). The short name is useful for table reports.

The station location can be entered either by **Geogr EW** and **Geogr NS** fields in fraction of degrees. In that case the negative value means South and West while positive North and East and longitude and latitude is calculated.

Other option is to use **Longitude** and **Latitude** fields. In that case Geogr NS and Geogr EW are calculated.

The refresh button calculates the GIS coordinates.

**Note:** In Czech republic we use the EPSG:28403(Gauss Krüger) coordinate system. In Africa they use EPSG:4326 (Geographical coordinate system). This coordinate system is defined in system parameters in variable EPSG.

The **elevation** is the value in meters.

**The time deviation** sets the difference of two places in minutes in so called solar time. In the solar time the sun is in the same place in the sky in all places. This deviation is different for each Longitude and has no difference in latitude.

You can enter various station identifiers: **Wmo Id, Icao Id, Hydro Id, Clicom Id, Hist Id.**

**District** – country subdivision, select from the predefined list.

**Basin** – set to which river basin the station belongs

**Refer station** – the station near the current station. Usually station measuring pressure. The reference station is used in calculation in formulas with the REFER identifier. See calculation definition part of the manual.

## 6.2 Table

The screenshot shows the 'Station' application window. The title bar reads 'Station' and the status bar shows 'TIME:02.12.2011 08:55'. The menu bar includes 'File', 'Database', and 'Help'. The toolbar contains various icons for navigation and editing. The left-hand pane shows a tree view of the application's structure, with 'Geography' selected. The main area is divided into 'Form' and 'Table' views, with 'Table' selected. The table displays the following data:

Station ID	Begin	End	Name	Qual	Station Type	Country	Wmo ID	Elevation
B1BLAT01	01.09.2008	31.12.9999	Blatnice	pod svatým Antonínkem	MSS	Česká republika		211
B1BOJK01	01.04.2003	31.12.9999	Bojkovice		MSS	Česká republika		302
B1BUCH01	01.10.2006	31.12.9999	Buchlovice		MSS	Česká republika		255
B1BYSH01	01.05.2004	31.12.9999	Bystřice pod Hostýnem		MKS	Česká republika	11771	314
B1BZEN01	01.04.2008	31.12.9999	Bzenec		MSS	Česká republika		182
B1CHKO01	01.01.2007	31.12.9999	Kostelany		MSS	Česká republika		403
B1DREV01	01.12.1991	31.12.9999	Dřevohostice		MSS	Česká republika		238
B1HLHO01	01.12.2008	31.12.9999	Horní Lhota		ASS	Česká republika		348
B1HLHO02	01.12.2008	31.12.9999	Horní Lhota		MSS	Česká republika		348
B1HLUK01	01.10.1997	31.12.9999	Hluk		MSS	Česká republika		225
B1HODO01	10.06.2003	31.12.9999	Hodonín		MSS	Česká republika		175
B1HOLE01	01.07.2009	31.12.9999	Holešov		AMS	Česká republika	11774	222.3
B1HOLE02	01.07.2009	31.12.9999	Holešov		MSS	Česká republika		222.3
B1IVAN01	01.08.2010	31.12.9999	Ivanovice na Hané		AKS2	Česká republika	11749	243
B1KLZI01	01.02.2011	31.12.9999	Luhačovice	Kladná-Žilín	AKS2	Česká republika		329
B1KOJE01	01.04.1995	31.12.9999	Kojetín		MSS	Česká republika		203
B1KRAL01	01.11.1995	31.12.9999	Kralice na Hané		MSS	Česká republika		210
B1KROM01	11.08.1999	31.12.9999	Kroměříž		AKS1	Česká republika	11751	233
B1KVAS01	01.07.1983	31.12.9999	Kvasice		MSS	Česká republika		190
B1MSLI01	01.08.1980	31.12.9999	Morkovice-Slížany	Slížany	MSS	Česká republika		289
B1NAMH01	01.04.1994	31.12.9999	Náměšť na Hané		MSS	Česká republika		275
B1NAPA01	01.07.2005	31.12.9999	Napajedla		MSS	Česká republika		185
B1NIVN01	01.01.1989	31.12.9999	Nivnice		MSS	Česká republika		254
B1PLUM01	01.02.2009	31.12.9999	Plumlov		MSS	Česká republika		303
B1PODI01	01.06.2003	31.12.9999	Podivice		MSS	Česká republika		350
B1PROT01	11.06.1999	31.12.9999	Protivanov		AKS1	Česká republika	11716	675
B1RADE01	01.01.1994	31.12.9999	Radějov		MSS	Česká republika		240
B1RYCH01	01.07.1991	31.12.9999	Vyškov	Rychtářov	MSS	Česká republika		400
B1SLJN01	01.06.1987	31.12.9999	Slavičín		MSS	Česká republika		362
B1STHR01	01.01.1980	31.12.9999	Starý Hrozenkov		MSS	Česká republika		412
B1STIT01	16.12.1998	31.12.9999	Štítná nad Vláří - Popov	Štítná nad Vláří	AKS1	Česká republika	11780	315
B1STME01	12.08.1999	31.12.9999	Staré Město		AKS1	Česká republika	11754	221
B1STRN01	15.12.1998	31.12.9999	Strání		AKS1	Česká republika	11779	383
B1STRZ01	10.06.1999	31.12.9999	Strážnice		AKS1	Česká republika	11755	176
B1SVAR01	01.09.1996	31.12.9999	Svárov		MSS	Česká republika		290
B1UHBR01	01.04.1999	31.12.9999	Uherský Brod		MSS	Česká republika		222
B1VAP01	01.01.1991	31.12.9999	Vápenice		MSS	Česká republika		760
B1VEJATT	27.09.1973	31.12.9999	Velká Javořina		TOTAL	Česká republika		961
B1VELI01	01.12.1996	31.12.9999	Zlín	Veliková	MSS	Česká republika		392
B1VELV01	01.02.2006	31.12.9999	Velká nad Veličkou		MSS	Česká republika		289
B1VIZO01	17.12.1998	31.12.9999	Vizovice		AKS1	Česká republika	11777	313
B1VKLO01	25.06.1982	31.12.9999	Valašské Klobouky		MSS	Česká republika		433

At the bottom of the window, a status bar reads: 'Změněno:nepravda |Není k dispozici vazba iterátoru pro vykreslení stavu|'

The view of records is displayed as table. This is more useful for the navigation between the records. In table view only some of the fields are visible. Select the station and switch into form view for more details on station.



## 6.3 Address

The screenshot shows a software window titled "Station" with a menu bar (File, Database, Help) and a toolbar. The main area is divided into "Geography" and "Observation" tabs, with "Observation" selected. Under "Observation", there are sub-tabs: "Form", "Table", "Address", and "Hydrological Info". The "Address" sub-tab is active, displaying a form with the following fields:

Address Title	<input type="text"/>
Address Street	<input type="text"/>
Address City	BLATNICE POD SVATÝM ANTONÍNEM 252
Address Code	696 71
Address Email	<input type="text"/>
Address Phone	518 331 334
Address Fax	<input type="text"/>
Address Contact Person	Vladislav Kráčalík
Address Remark	<input type="text"/>

At the bottom of the window, a status bar displays the text: "Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!"

In station address fill the information on station contact. It is usually used for voluntary stations where one person is responsible for station operations.

## 6.4 Hydrological information

Field	Value
Hydro DTB	4720
Chp ID	41602044
Basin	Oslava
Basin Area [km]	165.9
Basin Area [%]	
Distance	6.7
River	Balinka
SPA H1	120
SPA H2	160
SPA H3	200
SPA Q1	10.8
SPA Q2	17
SPA Q3	25.3

Other hydrology information are stored in separate tab view.

**Hydro DTB** – hydrological id

**Chp Id** – hydrological river order

**Basin** – river basin

**Basin Area [km]** – size of the river basin in km<sup>2</sup>

**Basin Area [%]** – size of the river basin in percentages

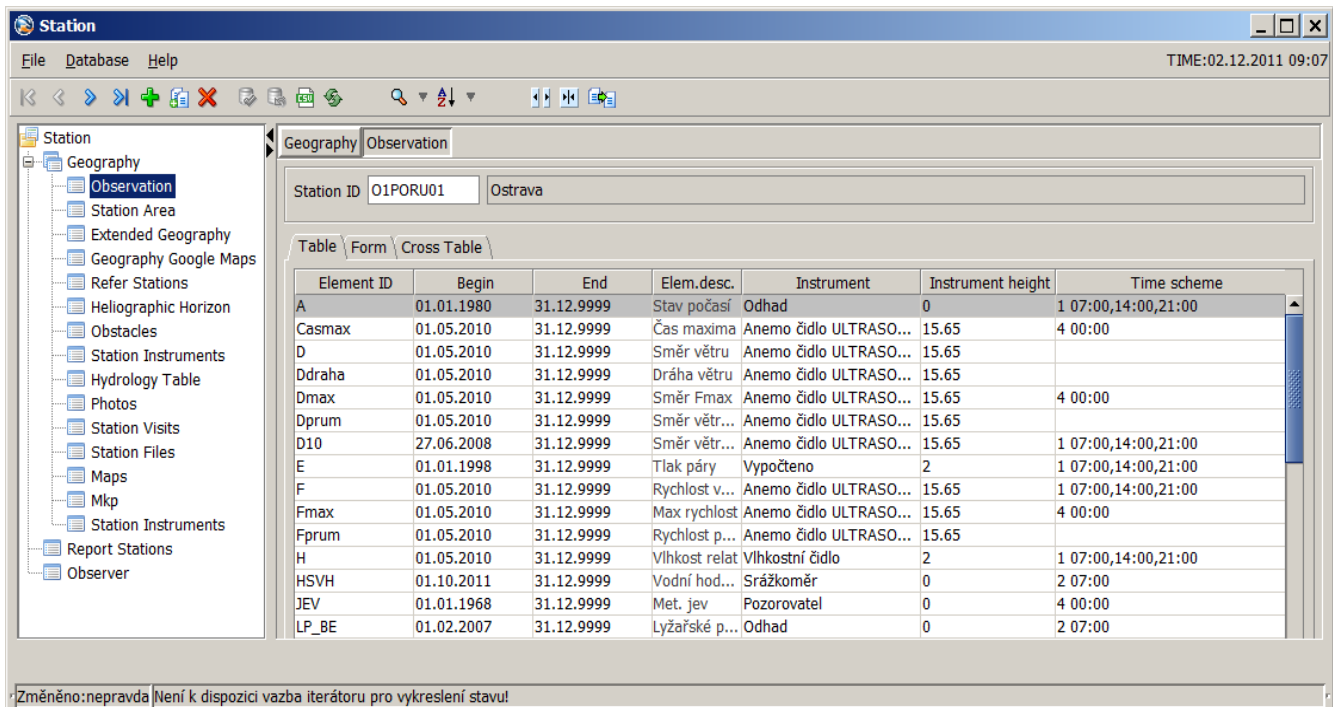
**Distance** – distance of the station location from the beginning of the river

**River** – station river

**SPA H1-H3** – hydrological limits of water height

**SPA Q1-Q3** – hydrological limits of water flow

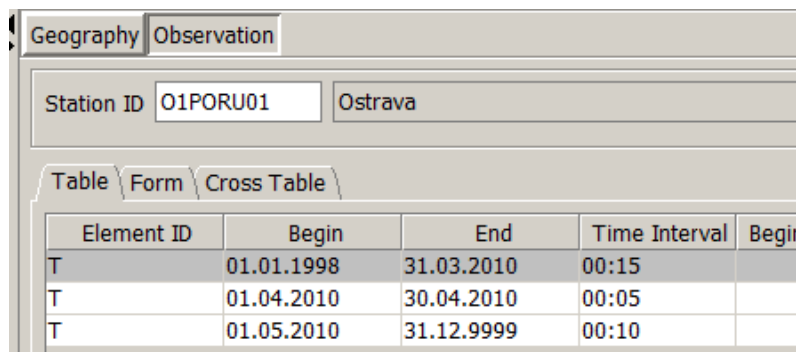
## 6.5 Station observation



Station observation is the list of all measured elements/parameters. For each parameter you must set the following information:

**Element ID** – element id selected from the list of values defined in metadata section of the application

**Begin and End** – the period of the measurement. For each element you can have more records. These records differ in period. You use more periods usually when the observation scheme changes.



See the example in the picture. The T element is measured for 3 different periods in different times. The 00:05 minutes measurement is used because there was simultaneous 10 minutes and 15 minutes measurement.

- **Element description** – is the name associated with the Element Id. It is filled automatically after Element id is entered.
- **Instrument** – is the name of the instrument selected from the list. The list is defined in metadata part of the application.

Note: special instrument is **Calculated** and **Observer**.

- **Instrument height** – is the height of the instrument above ground in meters. If you do not know the height set the value to 0.
- **(Time scheme) vs. (Interval, Begin Time, End Time)** – for each of the elements you must set the time scheme of the measurement.
  - **Time scheme = Irregular measurement.** It is measured manually by **observer** in predefined times according to some schedule. E.g. Temperature maximum is measured 1x per day at 21:00. Or temperature 3x per day at 07:00, 14:00, 21:00.  
The values of irregular measurement are stored into RDATA\_N table
  - **Interval, Begin Time, End Time = Regular scheme.** It is measured in predefined time intervals. E.g. each hour, each 10 minutes. It is measured usually by **automatic weather station**. The begin time and end time is **optional**. It is used for example for sunshine when this element is measured only from 05:00 to 22:00.  
The values of regular measurement are stored into RDATA\_R table
- **Calc XX:XX N** – is the place for the order number of the formula for the element daily data calculation. The number is selected from the list defined **in metadata in Calculation module**. The result of the calculation is stored into RDATA\_N table (irregular measurement). The time attribute of the calculation result is from 00:00 to 23:59 according to time schedule specified in **Time Scheme** column.
- **Calc XX:XX R** – is the same as above but the result of the calculation is stored into RDATA\_R table (regular measurement). The time attribute of the calculation result is from 00:00 to 23:59 according to definition in **(Interval, Begin Time, End Time)** columns.
- **Calc Avg N** – is the place for daily average formula. The formula is selected from the list defined **in metadata in Calculation module**. The result is stored into RDATA\_N table (irregular measurement). The time attribute in RDATA\_N table is set to 'AVG'. The time 'AVG' is **NOT** defined in Time Scheme column.
- **Calc Max N, Calc Min N, Calc Sum N** – the same as above but the daily maximum, minimum and summary is calculated for irregular measurement, respectively. The time attribute of RDATA\_N table is set to 'MAX', 'MIN' and 'SUM' values, respectively.
- **Calc Avg R** – is the place for daily average formula. The formula is selected from the list defined **in metadata in Calculation module**. The result is stored into RDATA\_R table (regular measurement). The time attribute in RDATA\_R table is set to 'AVG'.
- **Calc Max R, Calc Min R, Calc Sum R** – the same as above but the daily maximum, minimum and summary is calculated for regular measurement, respectively. The time attribute of RDATA\_R table is set to 'MAX', 'MIN' and 'SUM' values, respectively.
- **Interpolate** – this option is useful only for regular measurement. If you tick this option the missing values are calculated by interpolation process. Only small gaps can be filled. The size of the gap is maximally 4 consequent missing values for 1 hour, 15 minutes or 10 minutes measurement.
- **Historical unit** – during key entry process you can use this alternative historical unit. The historical unit and its conversion is defined in system metadata.
- **Remark** – put any text remark for the observation line definition.

## 6.6 Station area

The screenshot shows the 'Station' application window. The left sidebar contains a tree view with 'Station Area' selected. The main area displays the 'Station Area' form with the following data:

Area Type ID	Description	Area Id
Aladin	C	25

At the bottom of the window, a status bar displays the message: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

In this form you can assign some of the area to the station.

- **Area type id** – is the area type selected from the list of predefined areas in system metadata
- Description, Area ID – is the area value also selected from the predefined list in metadata part.

In the example there is the Station O1PORU01 belongs to C area of the Aladin subdivision of the country. Aladin is the forecasting model and the forecasts are created for some parts of the Czech republic.

## 6.7 Extended geography

The screenshot shows the 'Station' application window. The title bar reads 'Station' and the system tray shows the time 'TIME:02.12.2011 09:45'. The menu bar contains 'File', 'Database', and 'Help'. The toolbar includes icons for navigation and data management. The left sidebar shows a tree view with 'Station' expanded to 'Geography', where 'Extended Geography' is selected. The main window has two tabs: 'Geography' and 'Extended Geography'. The 'Extended Geography' tab contains a form for station O1PORU01. The form has fields for 'O1PORU01', '01.01.1998', '31.12.9999', and 'Ostrava'. Below these are four dropdown menus with corresponding text fields:

Field Name	Selected Value	Description
Plant Cover Type	louka	travnatý porost, orná půda na J
Anthropogenic Influence Type	zast. plocha	na okraji města, zástavba na S, V
Pedology Type	hnědozem	ilimerizovaná půda oglejená na sprašových hlínách
Landform Type	sníženina	Západní Karpaty;Vněkarpatské sníženiny;Severní Okraj Ostravské pánve, rovinatý terén, široké údolí

The status bar at the bottom displays the message: 'Změněno:nepravda |Není k dispozici vazba iterátoru pro vykreslení stavu!'.

This is the additional information to the station geography. Fill the Plant Cover type, Anthropogenic influence Type Pedology type and Landform types from the list prepared in the metadata part of the application. For each value selected from the list you can also store some additional text information.

In the Example in the first option there is in Czech language information that he Plant Cover of the station O1PORU01 is meadow. In the text field there is additional description (persistent grass ground cover, arable soil in the south)

## 6.8 Station Google maps

The screenshot shows the 'Station' application window. The title bar reads 'Station'. The menu bar contains 'File', 'Database', and 'Help'. The status bar at the top right shows 'TIME:02.12.2011 09:52'. The main interface is divided into a left sidebar and a right main area. The sidebar contains a tree view with 'Station' at the top, followed by 'Geography' and its sub-items: 'Observation', 'Station Area', 'Extended Geography', 'Geography Google Maps' (highlighted), 'Refer Stations', 'Heliographic Horizon', 'Obstacles', 'Station Instruments', 'Hydrology Table', 'Photos', 'Station Visits', 'Station Files', 'Maps', 'Mkp', 'Station Instruments', 'Report Stations', and 'Observer'. The main area is titled 'Geography Geography Google Maps'. It contains a form with the following fields: 'Station ID' (O1PORU01), 'Name' (Ostrava), 'Begin' (01.01.1998), 'End' (31.12.9999), 'Geogr 1' (18.1594), and 'Geogr 2' (49.8253). There is a 'Move Coordinates' checkbox. Below the form is a Google Maps embed showing a red location pin in Ostrava. The map includes navigation controls and a 'Mapa', 'Satelitní', 'Hybridní' selector. At the bottom of the window, a status bar reads 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

This form shows the station location in the Google maps. The location is displayed by the red marker. If you tick the checkbox **Move coordinates** you can move the marker and the geographical coordinates of the station will change to new coordinates read from the Google map.

## 6.9 Reference station

The screenshot shows the 'Station' application window. The title bar reads 'Station'. The menu bar contains 'File', 'Database', and 'Help'. The status bar at the top right shows 'TIME:02.12.2011 09:54'. The main interface is divided into a left sidebar and a right main area. The sidebar contains a tree view with 'Station' at the top, followed by 'Geography' and its sub-items: 'Observation', 'Station Area', 'Extended Geogr', 'Geography Goo', 'Refer Stations' (highlighted), 'Heliographic Ho', 'Obstacles', 'Station Instrum', 'Hydrology Table', 'Photos', 'Station Visits', 'Station Files', 'Maps', 'Mkp', 'Station Instrum', 'Report Stations', and 'Observer'. The main area is titled 'Geography Refer Stations'. It contains a form with the following fields: 'Station ID' (O1PORU01), 'Name' (Ostrava), 'Begin' (01.01.1998), and 'End' (31.12.9999). Below the form is a table with the following data:

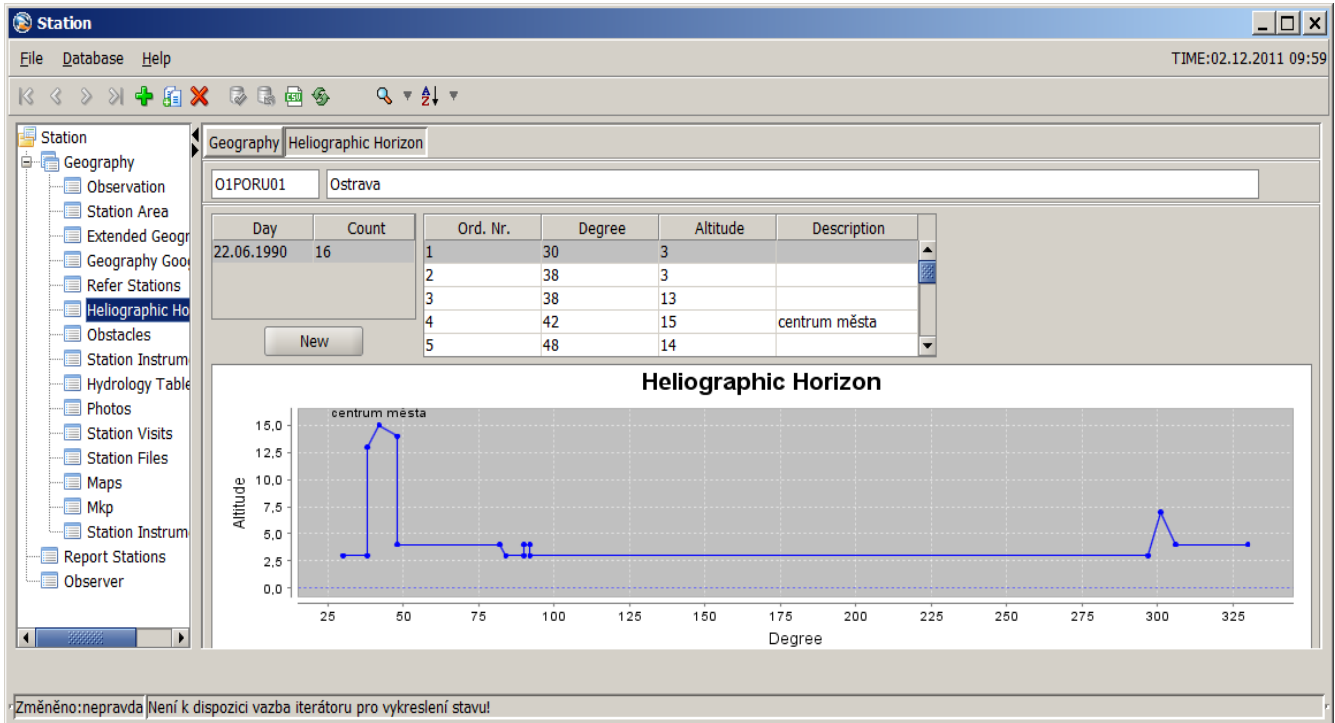
Refer For ID	Refer Use ID	Seq. Nr.	Ord.Nr.	Station ID
SOM	Jedna stanice	2626877924	1	O1OPAV01

At the bottom of the window, a status bar reads 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

You can enter the reference stations in this form. **Refer for** and **refer use** is selected from the

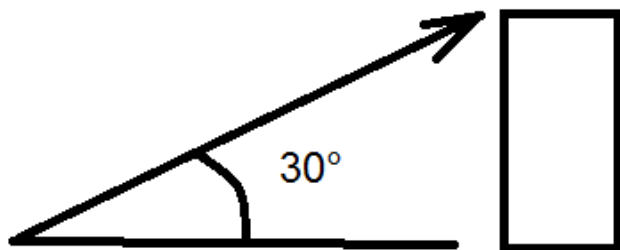
predefined lists in metadata. **Reref for** is the information for the reference station **purpose**. **Refer use** is the information **how** this reference information **is used**. In the right part of the screen you set the reference stations from the list of all stations.

### 6.10 Heliographic/Sun horizon



This form defines the shape of the sun horizon. The shape is set in 0 till 360 degrees and by the altitude. The altitude is in degrees (0-90). In the picture you can see that there is in 42° some building. In 300° there is some tree.

In the picture bellow you see how the altitude is measured in 0-90 degrees.

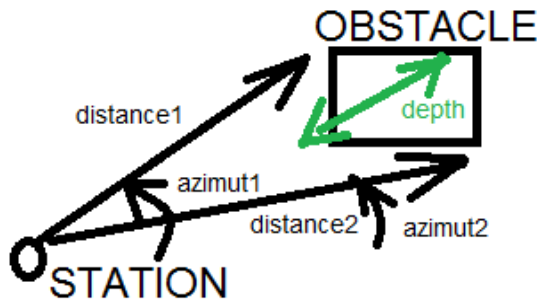




## 6.11 Obstacles

Day	Order Nr.	Azimuth 1	Distance 1	Azimuth 2	Distance 2	Height	Depth	Porosity	Description
01.01.2000	1	20	40	50	13	50	80	1	Tree

This is another definition of station surroundings. It defines the obstacles as displayed in the picture. The picture shows some ground plan of a building.



## 6.12 Station instruments

The screenshot shows the 'Station' software interface. The main window displays a table of station instruments for station ID 'O1PORU01' in Ostrava. The table has columns for Instrument Name, From, To, Valid To, Instrument Number, Inventory Number, and Met. Reg. Number. Below the table is a form view for the selected instrument, showing fields for Instrument Name, Producer, Instrument Type, BeginDate, EndDate, ValidToDate, and Description.

Instrument Name	From	To	Valid To	Instrument Number	Inventory Number	Met. Reg. Number
Anemo čidlo	06.09.2011	28.11.2011	28.04.2012	S 13228		ÚMK/1303.004/04
Anemo čidlo	06.09.2011	28.11.2011	28.04.2012	S 15312		ÚMK/1306.009/06
Anemo čidlo	25.04.2007	06.09.2011	20.09.2008	S 15203, S 15316		13.03-0021/04
Anemo čidlo	16.09.2004	25.04.2007	10.09.2006	S 15202		13.03-0023/04
Anemo čidlo	01.09.2004	16.09.2004			náhradní	
Anemo čidlo	08.02.2001	01.09.2004				
Anemo čidlo	06.08.2000	08.02.2001				
Anemo čidlo	27.11.1997	06.08.2000				
Anemo čidlo ULT...	27.06.2008	31.12.9999		C 4010005		ÚMK/1308.003/08
Automatizovaná ...	02.02.2010	31.12.9999	22.04.2010	069	688970000	ÚMK/1505.006/08
Automatizovaná ...	25.04.2007	02.02.2010	13.04.2009	024	688970000	15.05-0004/07
Automatizovaná ...	27.11.1997	25.04.2007		024	688970000	
Monitor k AS	29.05.2008	31.12.9999				
Monitor k AS	09.11.2005	29.05.2008			71385	

From Value:      To Value:      Correction:

Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!

Table		Form	
Instrument Name	Anemo čidlo		
Producer	VAISALA	Instrument Type	WAA 151
BeginDate	06.09.2011	Instrument Number	S 13228
EndDate	28.11.2011	Inventory Number	
ValidToDate	28.04.2012	Met. Reg. Number	ÚMK/1303.004/04
Description	náhradní čidlo		

This form and table is used to store information on all station instruments. This serves as the instrument inventory.

- Instrument name – character field with the name of the instrument on the station
- Producer – name of the instrument producer
- Instrument Type – manufacture code or type of the instrument
- Begin and End Date – period of instrument usage
- Valid To Date – date to next instrument revision/calibration
- Instrument number – production number

- Inventory number, Meteorological registration number – sets by meteorological organization for inventory purposes
- Description – any information text for the instrument

### 6.13 Hydrological table

The screenshot shows the 'Station' software interface with the 'Hydrology Table' form open. The form contains the following data:

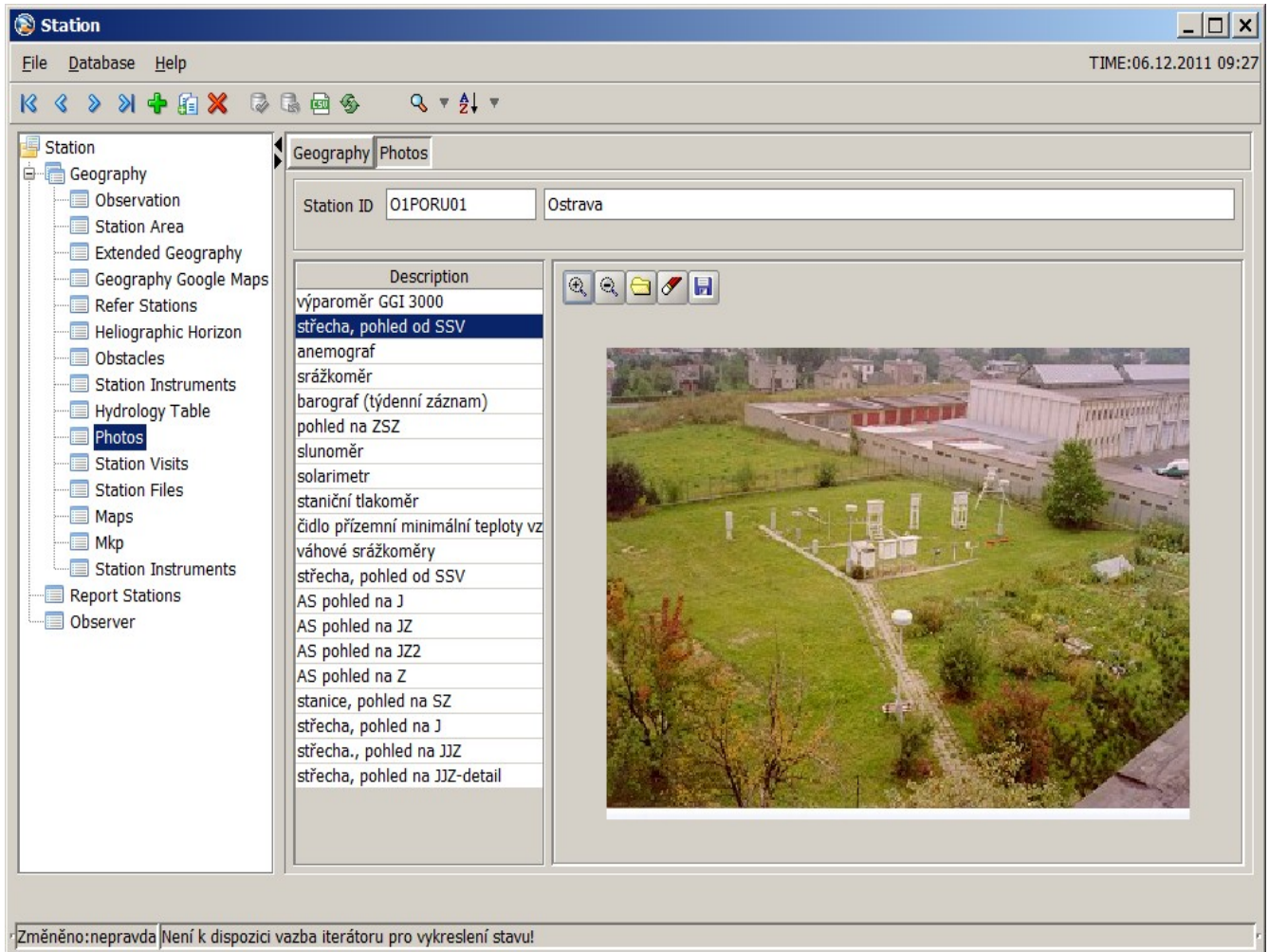
Station ID	04247800		Odry
Hsa		QA	3.6
Qmd30	9.33	Qpd10	
Qmd60	5.6	Qpd20	
Qmd90	3.91	Qpd50	
Qmd120	2.9	Qpd80	
Qmd150	2.21	Qpd90	
Qmd180	1.71	Qpd95	
Qmd210	1.33	Qpd99	
Qmd240	1.02		
Qmd270	0.76		
Qmd300	0.54		
Qmd330	0.34		
Qmd355	0.17		
Qmd364	0.07		
		Qn05	83.9
		Qn1	39.2
		Qn2	56.8
		Qn5	83.9
		Qn10	107
		Qn20	132
		Qn50	169
		Qn100	199






This form is used for entering the hydrological characteristics of the station. An example of a hydrological table definition is in picture. For new record press “+” icon.

Fill in the following characteristics:

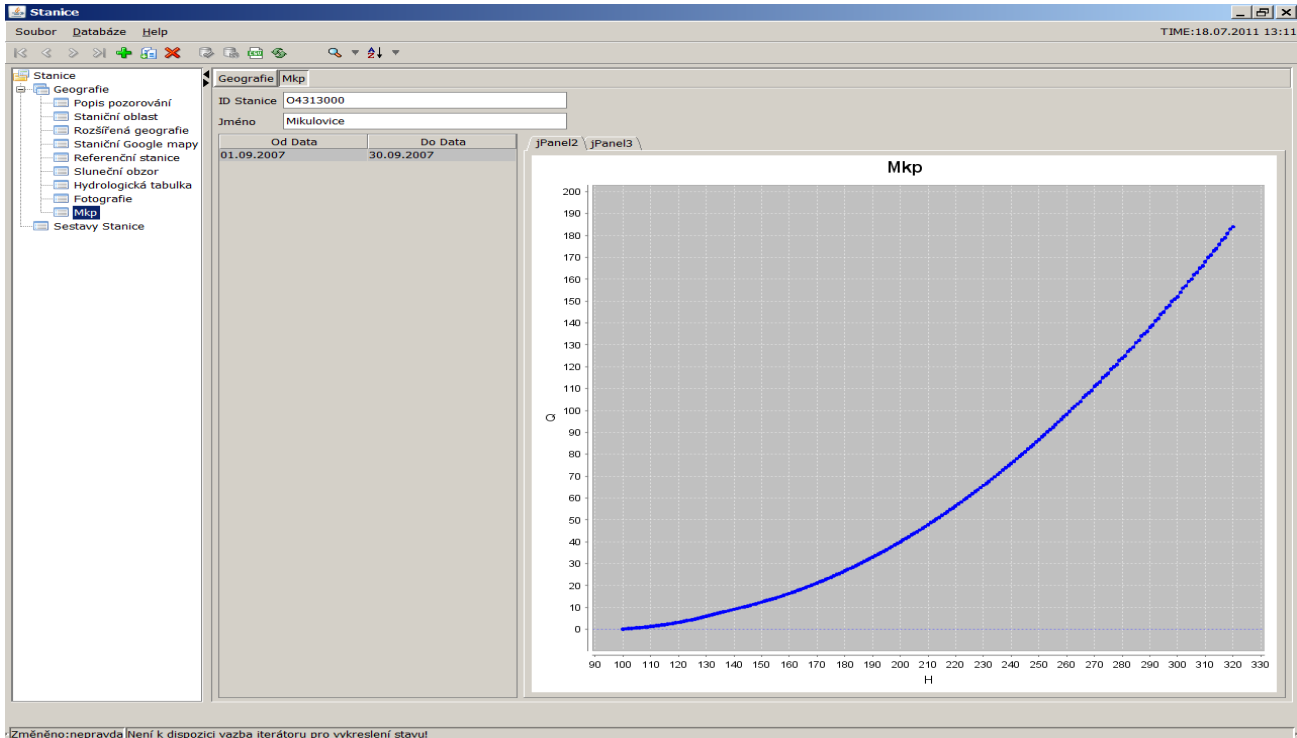
- **HSA** ... precipitation volume on the drainage basin
- **QA** ... mean discharge
- **QMD<sub>X</sub>** ... X-day discharge
- **QPD<sub>X</sub>** ... X-percentage-mean daily discharge
- **QN<sub>X</sub>** ... X-year-flood discharge

## 6.14 Photos



Station photos. Put the name of the photography and upload the photo from computer to database by  icon. The photo can be later downloaded from database to computer by  icon. Using the   icons you can zoom in and out the picture. By  icon you can delete the photo from database.

## 6.15 Mkp - River Profile Curve



You can enter the river profile curve for hydrological purposes. The curve is valid for some period entered at the left part of the screen.

## 6.16 Station visits



The screenshot shows the 'Station' software interface. The main window is titled 'Station' and has a menu bar with 'File', 'Database', and 'Help'. The status bar at the top right shows 'TIME:06.12.2011 09:34'. The left sidebar shows a tree view of the 'Station' structure, with 'Station Visits' selected. The main area is divided into two panes: 'Geography' and 'Station Visits'. The 'Station Visits' pane contains a form with the following fields:

- Station ID: O1PORU01
- Location: Ostrava

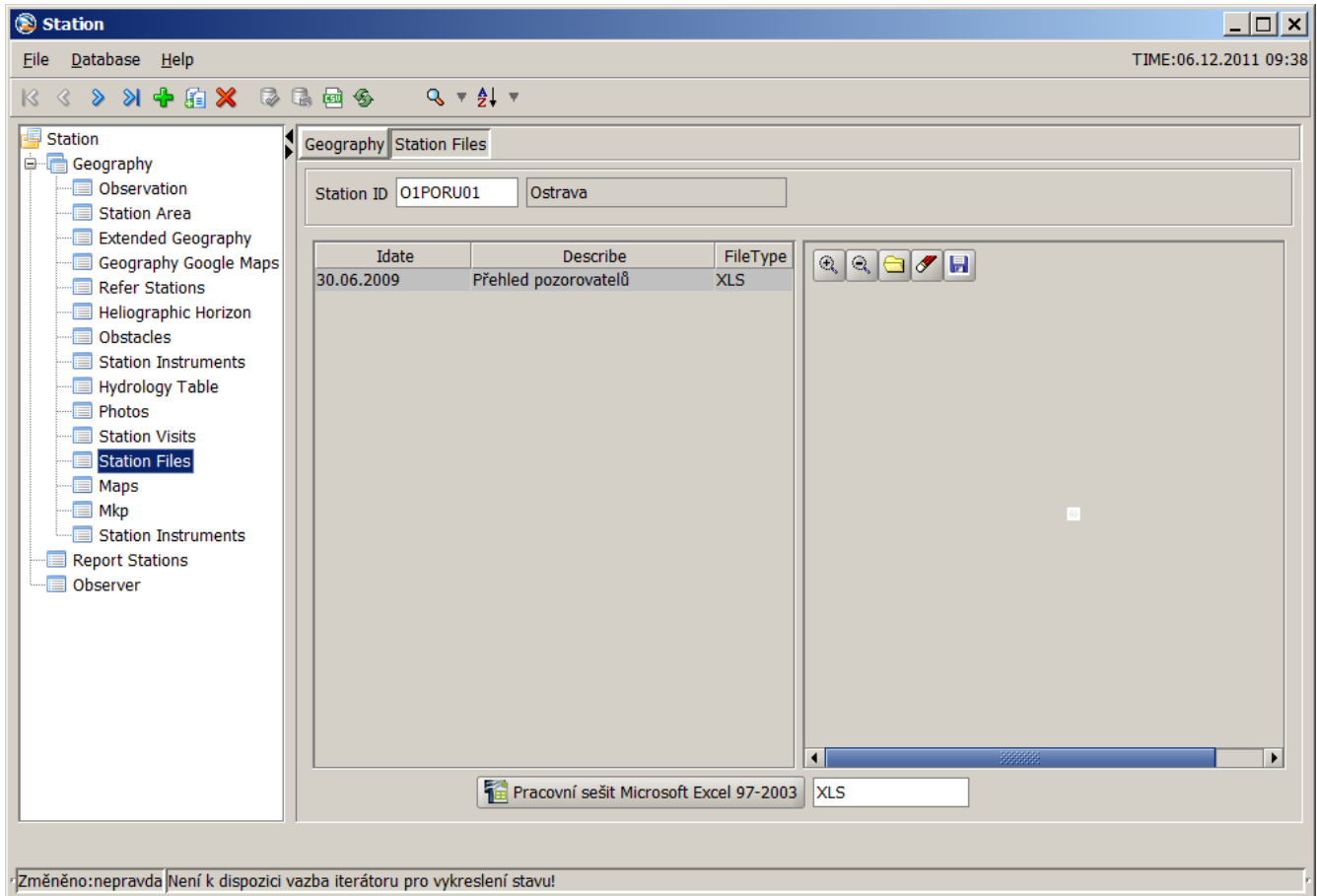
Date	Description
16.09.2004	instalace čidel větru po kalibraci
21.03.2005	instalace slunoměrného čidla SD5 (OMK)
13.04.2005	montáž ochranné skruže na srážkoměr - SERDAL
04.05.2005	proměření napětí v datových kabelech a PC (p.Kr
01.03.1999	rozdíly v datech mezi výkazem a zprávou Inter
21.06.1999	zahájení testování 3-hod. přenosů dat
13.07.1999	výpadek stanice v důsledku bouřky
16.07.1999	zprovoznění stanice (modem, převodníky)
07.10.1999	ukončení zkušebního provozu 3-hod. přenosu dat
09.11.1999	výpadek provozu stanice (7.15-9.00 hod.)
11.02.2000	instalace nové verze METEO
23.03.2000	výpadek provozu stanice
27.03.2000	obnovení provozu stanice
21.04.2000	dotažení lan stožáru
16.05.2000	instalace verze METEO (v.17.4.2000)
03.10.2006	instalace nové verze WinMeteo (v.2006-09-23) p
06.08.2000	výpadek stanice po bouřce
08.08.2000	zprovoznění stanice
18.08.2000	servisní práce OMK
25.04.2007	inspekce stanice
08.02.2001	výměna opraveného čidla směru větru



Below the table is a large text area for notes, currently containing a watermark of a camera with a slash through it. To the right of the text area are icons for search, zoom, and file operations. At the bottom of the form, there is a button labeled 'Dokument Microsoft Word 97-2003' and a text field containing 'DOC'. The status bar at the bottom of the window shows the message: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'.

Form used for entering files or notes for station visits. Enter the date of the visit into **Date** column.

After that enter the description of the visit. Optionally you can upload the file by  icon. The extension of the file is at the field right from the button. The extension is automatically associated with MS Windows program. If you press the button the file is opened in associated application. You can back download the file from database to computer by  icon.

## 6.17 Station Files



Form used for entering any files for. Enter the date of the visit into **Date** column. After that enter the description of the visit. Optionally you can upload the file by  icon. The extension of the file is at the **File type** field. The extension is automatically associated with MS Windows program. If you press the button the file is opened in associated application. You can back download the file from database to computer by  icon.

## 6.18 Station maps

The screenshot shows the 'Station' software interface. The window title is 'Station'. The menu bar includes 'File', 'Database', and 'Help'. The status bar at the top right shows 'TIME:06.12.2011 09:40'. The left sidebar contains a tree view with categories like 'Observation', 'Station Area', 'Extended Geography', 'Geography Google Maps', 'Refer Stations', 'Heliographic Horizon', 'Obstacles', 'Station Instruments', 'Hydrology Table', 'Photos', 'Station Visits', 'Station Files', 'Maps', 'Mkp', 'Station Instruments', 'Report Stations', and 'Observer'. The 'Maps' category is selected. The main area is titled 'Geography Maps' and contains a form for 'Station ID' (O1PORU01) and 'Ostrava'. Below this is a table with columns 'Idate', 'Describe', and 'Scale'. The table contains the following data:

Idate	Describe	Scale
01.07.2005	letecký snímek 3	1:2000
02.07.2005	letecký snímek 2	1:15000
03.07.2005	letecký snímek 1	1:60000
01.11.2008	1	1:25000
01.12.2010	digitální atlas Dobruška	1:50000
02.12.2010	digitální atlas Dobruška	1:5000
30.06.2002	letecký snímek	1:2000

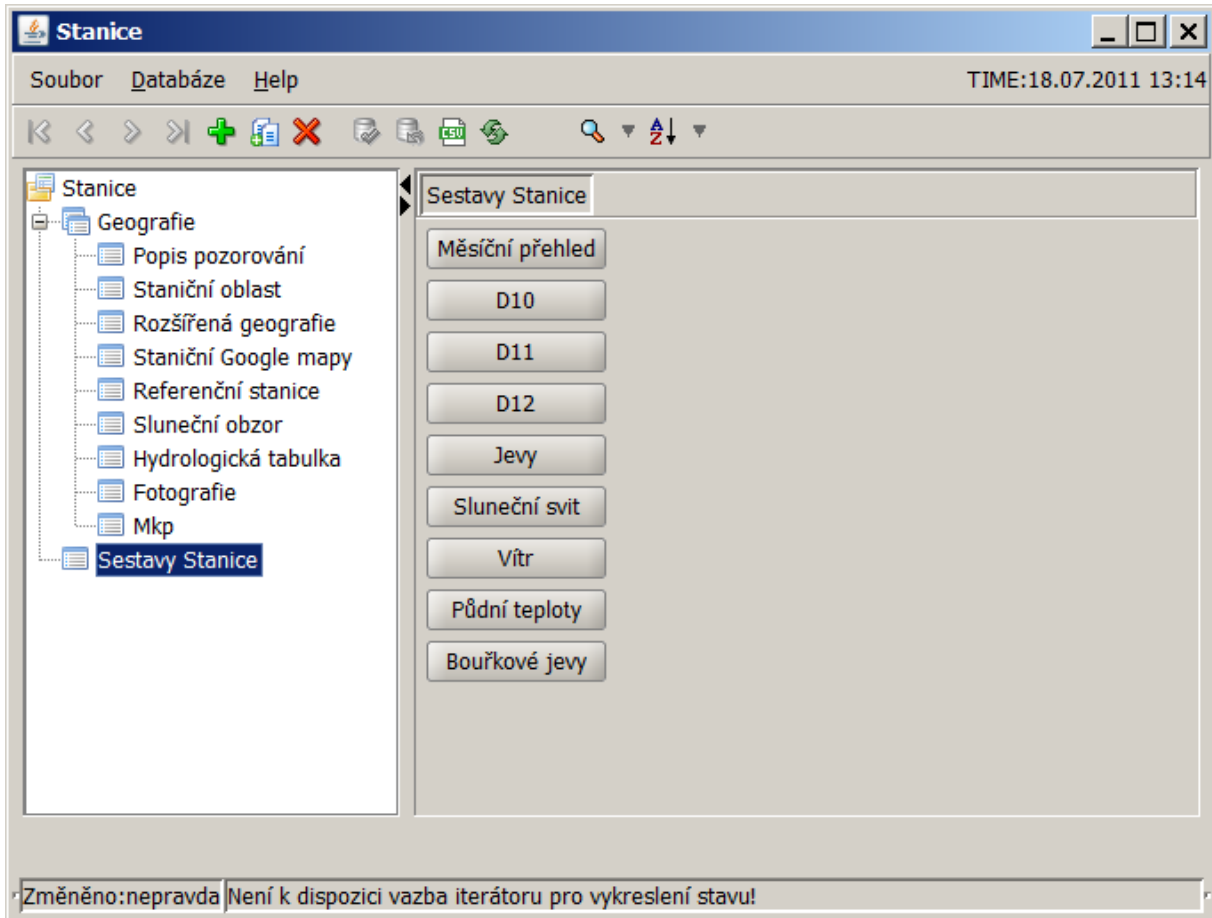
To the right of the table is a map view showing a topographic map of the area around Poruba and Hraněčnick. A green arrow points to a specific location on the map. The map view includes navigation controls like zoom in, zoom out, and pan.

At the bottom of the window, there is a status bar with the text: 'Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!'

The form used for storing scanned map pictures. The map is saved as a binary picture file. Put the information of the date of the map description and the map scale.



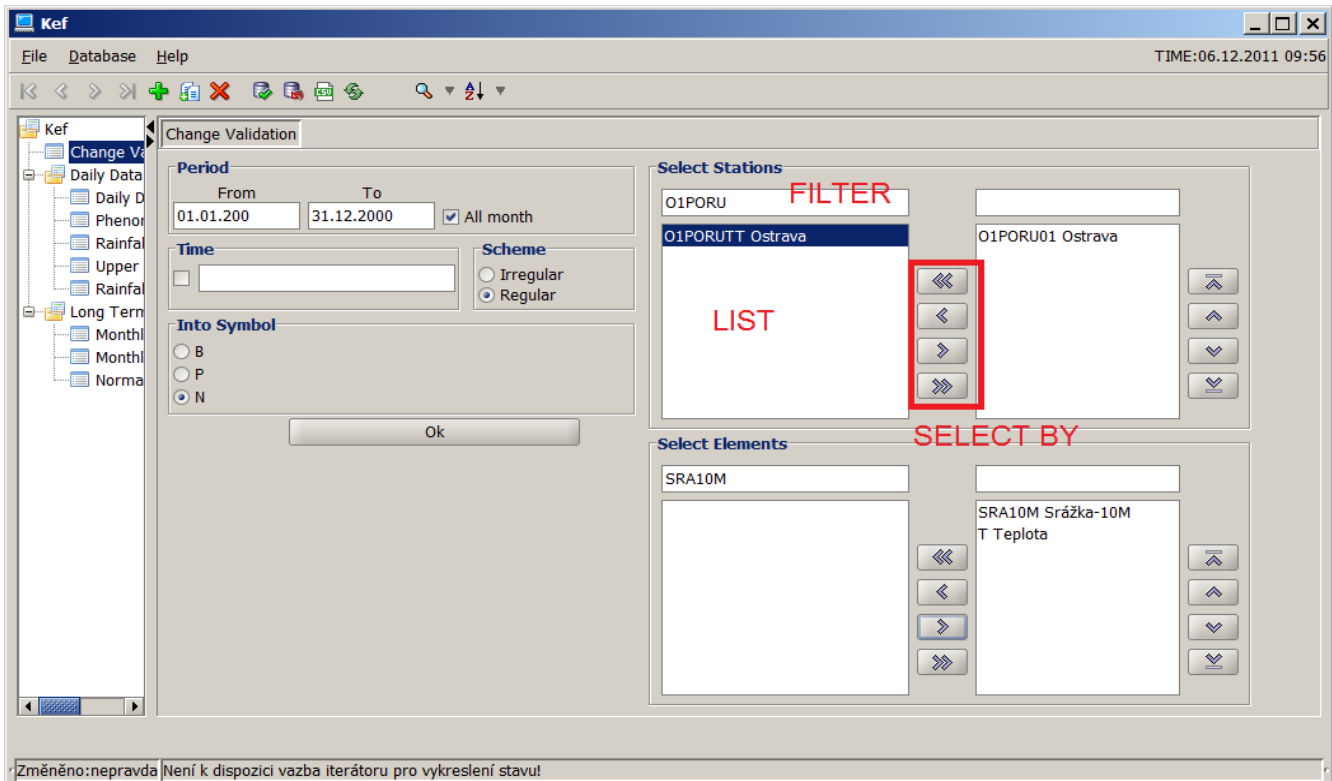
## 6.19 Station reports



This prints special station reports. Ask the developers for the availability of report for your country. Each report is country specific and must be developed separately for each country. Special funding is required for the reports.

# 7 Key entry forms

## 7.1 Validation change



This form is for the changing of the validation symbols. In system each value receives some validation flags when it pass some quality control process. We recognize the following validation symbols:

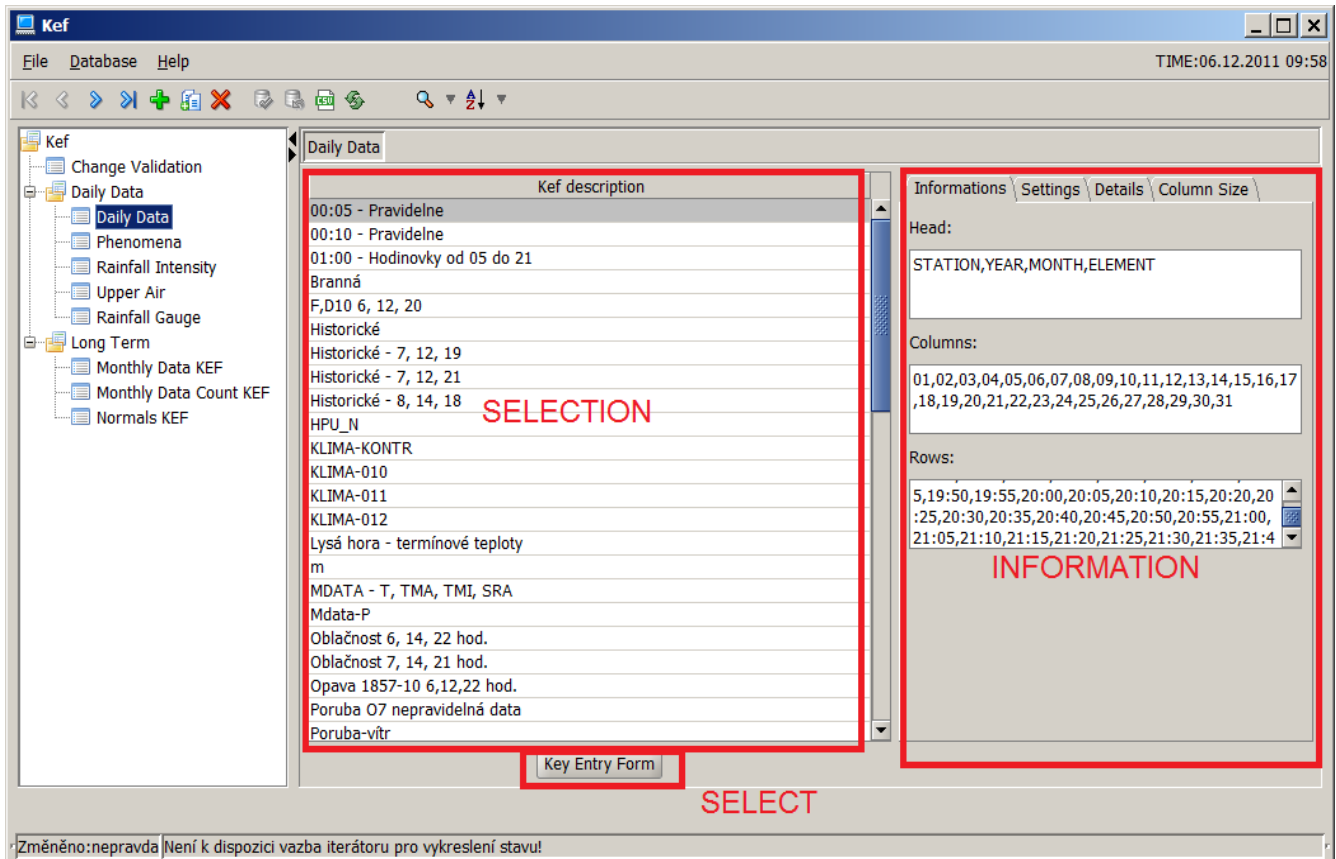
Flag	Value
N	New value. This value is not validated and can be changed
P,W	Value passed <b>formula quality control</b> . The value can pass the quality control with W warning symbol (This value can be correct). P and W has the same quality control level. This value can be changed only in quality control form! Before changing in other part except quality control you must change the validation symbol for the value.
A	Value passed area quality control in GIS. This value cannot be changed. This value cannot be changed. Before changing you must change the validation symbol for the value.
B	Manually validated value. This value cannot be changed. Before changing you must change the validation symbol for the value.
C	Calculated value. This value cannot be changed

To change the validation symbol for the value select the period **From-To**. By ticking **All month** the period is extended to whole months. Optionally you can change the validation symbol for one time. In that case tick the **time checkbox** and **fill the time** in format HH:MM. If the time is not specified in that case all the times according time schedule are changed. Select the scheme for the data. It can be either regular or irregular.

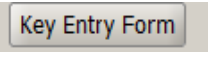
Finally set the **target** validation symbol (the source symbol is not set). At the right side select the station(s) and element(s). The fields above the list are used as filters for the lists.

By pressing **Ok** button you change the validation symbol for specified data.

## 7.2 Selection of key entry form



In the left part select the key entry form. In the right part there is an information on selected key entry form. In other tabs you can change/create new key entry form.

Form is executed by pressing  button.

## 7.2.1 Key entry form information

Informations Settings Details Column Size

Head:  
STATION,YEAR,MONTH,ELEMENT

Columns:  
01,02,03,04,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31

Rows:  
5,19:50,19:55,20:00,20:05,20:10,20:15,20:20,20:25,20:30,20:35,20:40,20:45,20:50,20:55,21:00,21:05,21:10,21:15,21:20,21:25,21:30,21:35,21:4

KEF

STATION 01PORU01 YEAR 2000 MONTH 01 ELEMENT T

ROWS	01	02	03	04	05	06	07	08	09	10	COLUMNS
00:00	-20	-21	-15	-10	6	13	-13	1	-4	-4	
00:05											
00:10											

Information panel displays the information on currently selected key entry form. You see the information of the key entry form header columns and row.

## 7.2.2 Key entry form Settings

Informations Settings Details Column Size

Columns: 10 Rows: 31

DialogInput 12  
DilleniaUPC 14  
DokChampa 16  
Dotum 18  
DotumChe 20  
DS-Digital 24  
Dutch801 Rm BT 30  
Ebrima 36

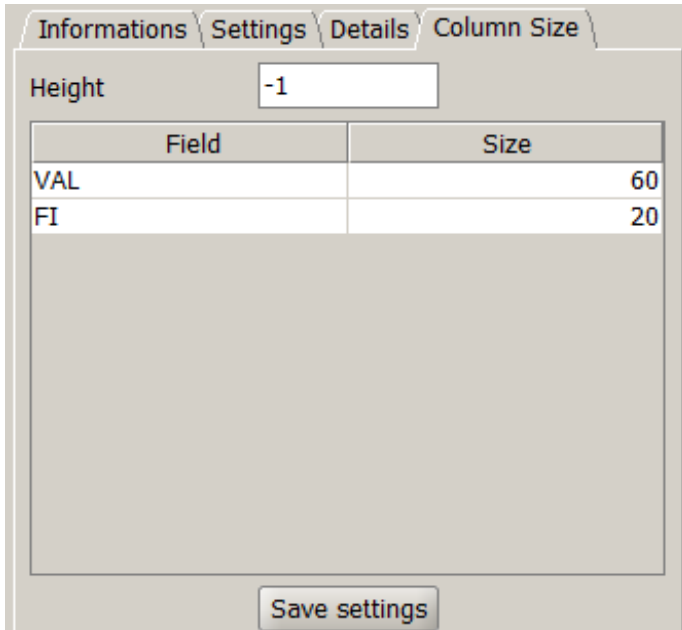
Bold  
 Italic

Actual ABC abc 012  
Preview ABC abc 012

Save settings

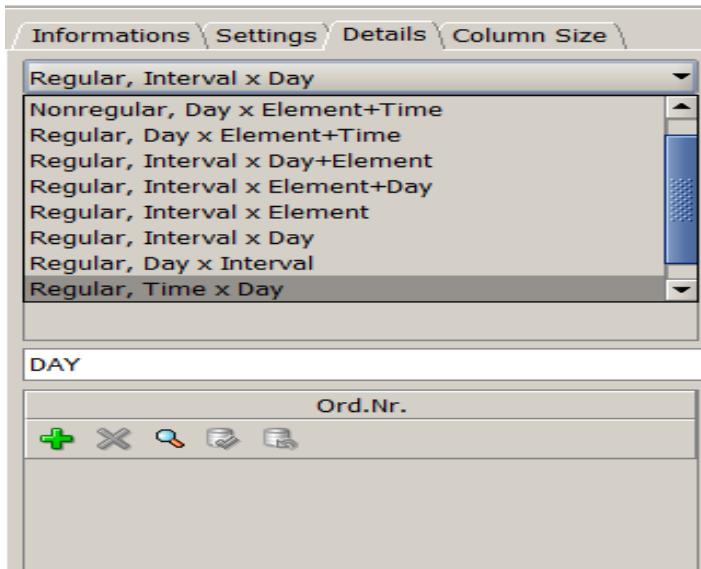
In Settings you can change the number of displayed rows and columns at the top. At the bottom you can change the font.

### 7.2.3 Column Size



Set the width of each column. Also you can change the height of one row.


### 7.2.4 Key entry form Details



Settings of the information displayed in the key entry form. It is a specification of the key entry form layout.


In the list box you can select from many options:

- **Nonregular, Day X Element+Time – the layout for irregular data.**
  - Header: Station, Year, Month
  - Columns: Element +time (E.G. T 07:00, T14:00, T 21:00, TMA 21:00, TMI 07:00...)
  - Rows: days of the month

Informations Settings Details Column Size		
Nonregular, Day x Element+Time		
DAY		
Ord.Nr.		
		
ELEMENT_TIME		
Ord.Nr.	Element ID	Time
10	TMA	21:00
20	TMI	21:00
30	T	07:00
40	T	14:00
50	T	21:00
60	SRA	07:00
70	D10	07:00

- **Regular, Day x Element+Time**

- Header: Station, Year, Month
- Columns: Element +time (E.G. T 07:00, T14:00, T 21:00, TMA 21:00, TMI 07:00...)
- Rows: days of the month

Informations Settings Details Column Size		
Regular, Day x Element+Time		
DAY		
Ord.Nr.		
		
ELEMENT_TIME		
Ord.Nr.	Element ID	Time
10	T	00:00
20	T	01:00
30	F	01:00

- **Regular, Interval x Day+Element**

- Header: Station, Year, Month

- Columns: Element + day, the element is first ( T 01, TMA 01, P 01, T 02, TMA 02, P 02,..., T 31, TMA 31, P 31)
- Rows: Times according to interval specification. Bellow is interval 01:00 it means times 00:00, 01:00, 02:00, ... , 23:00

Informations Settings Details Column Size

Regular, Interval x Day+Element

TIMEINTERVAL

Ord.Nr.	Interval/Func	Begin	End
10	01:00		

DAY\_ELEMENT

Ord.Nr.	Element ID
10	T
20	TMA
30	P

- **Regular, Interval x Element+Day**

- Header: Station, Year, Month
- Columns: Element + day, the day is first ( 01 T, 02 T, ... 31 T, 01 P, 02 P, ..., 31 P)
- Rows: Times according to interval specification. Bellow is interval 01:00 it means times 00:00, 01:00, 02:00, ... , 23:00

Ord.Nr.	Interval/Func	Begin	End
10	01:00		

Ord.Nr.	Element ID
10	T
20	P

- **Regular, Interval x Element**

- Header: Station, Year, Month, Day
- Columns: Element ( T, TMA,...)
- Rows: Times according to interval specification. Bellow is interval 01:00 it means times 00:00, 01:00, 02:00, ... , 23:00

Ord.Nr.	Interval/Func	Begin	End
10	01:00		

Ord.Nr.	Element ID
100	T
110	TMA

- **Regular, Interval x Day**



- Header: Station, Year, Month, Element
- Columns: Day ( 01, 02, ... 31)
- Rows: Times according to interval specification. Bellow is interval 01:00 it means times 00:00, 01:00, 02:00, ... , 23:00

The screenshot shows a software interface with tabs: Informations, Settings, Details, and Column Size. A dropdown menu is set to 'Regular, Interval x Day'. Below it is a section labeled 'TIMEINTERVAL' containing a table:

Ord.Nr.	Interval/Func	Begin	End
10	01:00		

Below the table is a section labeled 'DAY' with a header 'Ord.Nr.' and a toolbar containing icons for add (+), delete (X), search (magnifying glass), save (floppy disk), and refresh (circular arrow).

- **Regular, Day x Interval**

- Header: Station, Year, Month, Element
- Columns: Times according to interval specification. Bellow is interval 01:00 it means times 00:00, 01:00, 02:00, ... , 23:00
- Rows: Day ( 01, 02, ... 31)

The screenshot shows a software interface with tabs: Informations, Settings, Details, and Column Size. A dropdown menu is set to 'Regular, Day x Interval'. Below it is a section labeled 'DAY' with a header 'Ord.Nr.' and a toolbar containing icons for add (+), delete (X), search (magnifying glass), save (floppy disk), and refresh (circular arrow).

Below the toolbar is a section labeled 'TIMEINTERVAL' containing a table:

Ord.Nr.	Interval/Func	Begin	End
10	01:00		

- **Regular, Time x Day**

- Header: Station, Year, Month, Element
- Columns: Times specified 00:00, 01:00, 02:00
- Rows: Day ( 01, 02, ... 31)

The screenshot shows a software window with tabs: 'Informations', 'Settings', 'Details', and 'Column Size'. A dropdown menu is set to 'Regular, Time x Day'. Below it is a table with two columns: 'Ord.Nr.' and 'Time'. The table contains three rows of data.

Ord.Nr.	Time
5	00:00
10	01:00
20	02:00

Below the table is a section labeled 'DAY' with a sub-header 'Ord.Nr.' and a toolbar containing icons for adding (+), deleting (X), searching (magnifying glass), and other functions.

- **Station**

- Header: Year, Month, Day
- Columns: Elements and times specified T 07:00, T 14:00, T21:00,TMA 21:00, ...)
- Rows: Stations specified (O1PORU01, O1MOSN01,...)

The screenshot shows a software window with tabs: 'Informations', 'Settings', 'Details', and 'Column Size'. A dropdown menu is set to 'Test Station'. Below it is a table with two columns: 'Ord.Nr.' and 'Station'. The table contains two rows of data.

Ord.Nr.	Station
10	O1PORU01
20	O1MOSN01

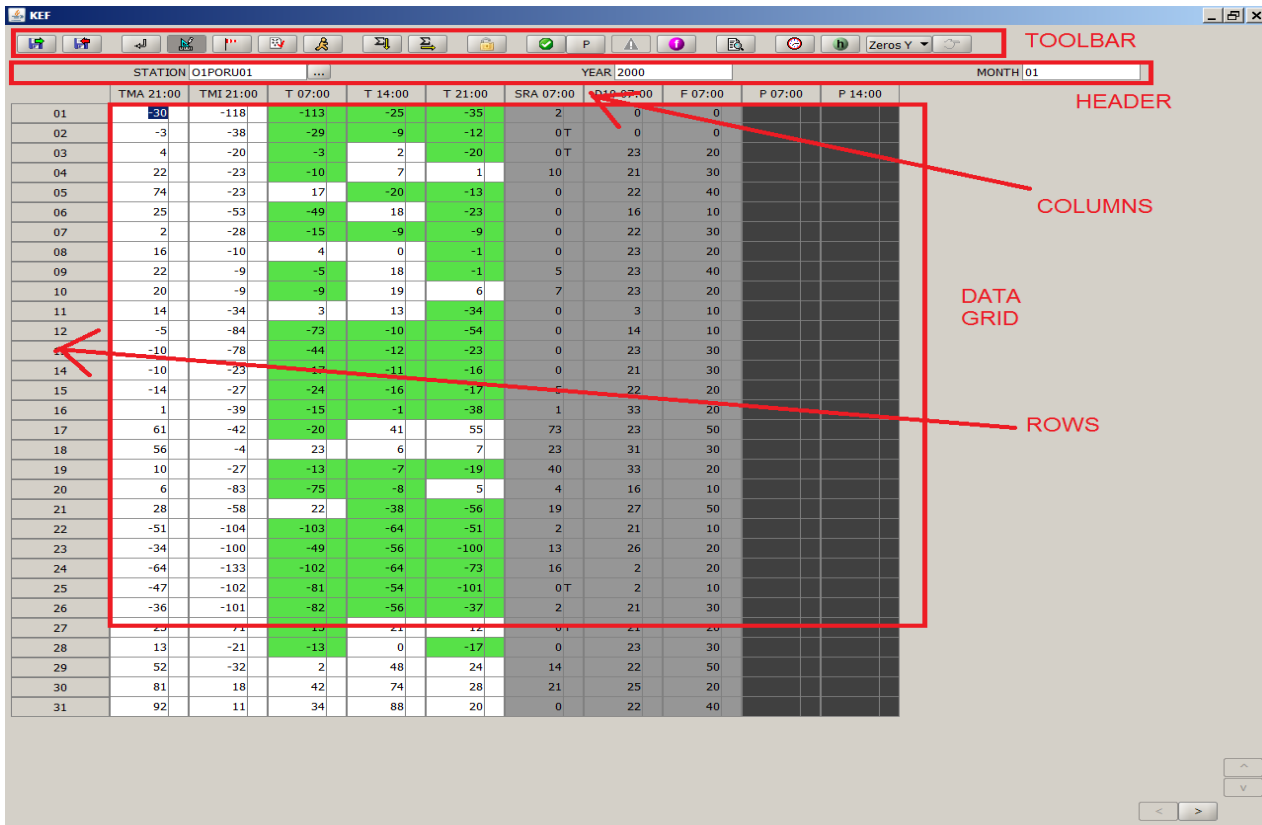
Below the table is a section labeled 'ELEMENT\_TIME' with a table with three columns: 'Ord.Nr.', 'Element ID', and 'Time'. The table contains four rows of data.

Ord.Nr.	Element ID	Time
10	T	07:00
20	T	14:00
30	T	21:00
40	TMA	21:00

### 7.3 Key entry in data grid

The key entry form is a grid view of the database data. The form has several parts:

- toolbar – control the key entry and quality control data grid
- Header – enter the data header/key for the selection of the grid
- Grid – enter the data belonging to selected header
- Columns/Rows – specifies in the Key Entry Form Details (see in previous chapters)



#### 7.3.1 Toolbar

In the top of the grid there is a tool bar with several icons. This icons control the key entry form. The icons meaning is as follows:



Load data into key entry form. The data are loaded only when complete header is specified. When data are not present in database the grid is empty.



Save data into database.



Specification of ENTER key behavior:

Not selected – Move from top to bottom

Selected – Move to from left to right



Key entry with or without decimal character

Not selected – key entry with decimal point

Selected – key entry without decimal point. The data are displayed according to definition of the element scale. When the scale is 0.1 it means that the value of temperature 15.4 is displayed as 154. The value of 16 is displayed as 160.



Use historical unit

Not selected – key entry in current units

Selected – key entry in historical units



Jump to next allowed field

Not selected – jump to available fields only (invalidated)

Selected – jump to any values (even validated and calculated)



Jum to field of the same type

Not selected – jump to field of the same type only (value, value, value, ... navigation, not flags)

Selected – jump to all fields (value, flag, value, flag nvaigation)



Show control summary at the bottom and at the left



Change of validation (invalidate/validate). This button opens the change validation panel. In the panel the current field information is selected. You can adjust the selection and after pressing Ok button close the change validation flag dialog. (see more in change validation flag chapter)



Data control. After pressing this button the grid is switched into **quality control mode**. The button at the right validates only one value in position of cursor in key entry mode. This button is used to lock/protect the value during the current month,.

Not selected – key entry mode

Selected – quality control mode



Show the formula in quality control where the error or warning is indicated.

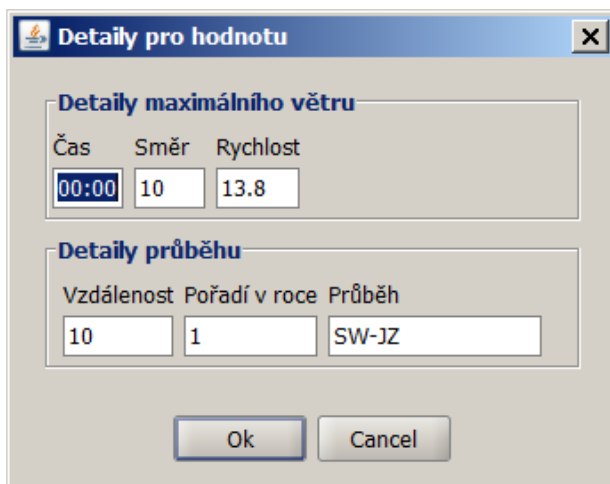


Show or hide validation symbols


Not selected – validation flags are hidden


Selected – validation flag are displayed

 Show value details. It displays the storm details in meteorological phenomena key entry form.:




There is a shortcut key combination CTRL+ENTER to do the same as the press of this button.

 Show the change history. The table displays all changes of the value. In the changes by mouse double-click you can return to previous value before the change.

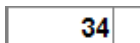
 Show changes flags

Not selected – the historical changes flag is hidden

Selected – the historical changes flag is shown

 a menu for filling the copy or nulls into row or column

### 7.3.2 Colors – Key entry mode

 New value, not validated



 Validated value or calculated value

 Value outside limits specified in elements specification. (See Elements definition)

 Field is not available

### 7.3.3 Colors – quality control mode

 The value is validated by area quality control

 Warning, a value can be ok, see details by pressing  icon

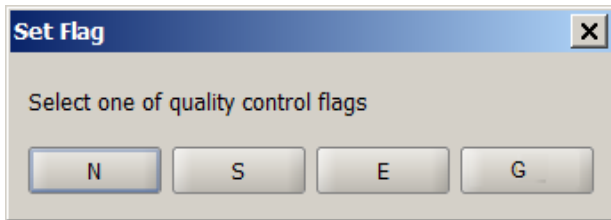
 Error, value must be corrected, see details by pressing  icon

 Validated value, value is ok

 Missing value

### 7.3.4 Correction of the value in quality control

Repair a value



Select one of the value flags:

N - null value, empty field

S – standard correct value, no any flag is assigned

E – estimated value, flag E is assigned to value

G – guessed value, flag G is assigned to value

### 7.4 Key entry form of Phenomena

We recommend to set the Settings: 5 columns, 31 rows, Arial 16 bold font.

	01			02			03			04			05							
01																				
02	*	02:00	i 04:00	0	*	14:15	i 15:15	00												
03	=	06:00	- 23:59	0	⊗	06:00	i 07:15	00												
04	=	00:00	- 04:00	0	●	20:10	- 21:50	0												
05	⦿	03:00	- 03:30	0																
06	↵	00:00	- 10:00	1																
07	=	12:00	- 20:00	0																
08																				
09																				
10	*	02:00	i 10:00	0	*	22:00	- 23:00	0												
11																				
12	↵	04:00	- 11:00	1																
13	↵	02:00	- 10:00	1																
14																				
15	*	13:00	i 23:59	00																
16	*	05:00	- 10:10	00																
17	*	04:00	- 08:30	00	●	16:00	i 21:50	1	↵	19:00	- 22:00	1	↵	21:00	- 22:30	1	⦿	21:50	- 22:00	1

Enter the phenomenon symbol. The **symbol** key is defined in the phenomena part in metadata.

After that enter the phenomena **begin** and **end**.

You must set if the phenomenon is **continuous** by (-) minus sign or **interrupted** by (i) sign into the field between times.

Set the intensity of phenomenon in last field. The intensity is one of 00,0,1,...,9 values and combination of intervals using minus (-) sign. E.g. 0-1, 3-0. The 0-1 means that intensity at beginning is 0 and 1 at the end of the phenomenon

For storms you can set details by pressing CTRL-ENTER key combination,

**Value Details**

**Wind Maximum Details**

Time: 23:00    Direction: 230    Speed: 5

**Process Details**

Distance: 5    Order in Year: 0    Process: SW-NE

Buttons: Ok, Cancel

Here you specify the time of the maximum wind speed its speed and direction.

Also you can specify the distance of the storm in Km order of the storm in year and the process,

### 7.5 Intensity rainfall key entry

STATION: 01PORU01    YEAR: 2011    MONTH: 08    DAY: 01    HOUR: 00

	+00	+01	+02	+03	+04	+05	+06	+07	+08	+09	+10	+11	+12	+13	+14	+15	+16	+17	+18	+19
00:00																				
00:20				0.1											0.1					
00:40																				
01:00	0.1																			
01:20																				
01:40					0.1					0.1	0.1		0.1	0.1		0.1	0.1		0.1	
02:00		0.1							0.1											
02:20							0.1											0.1		
02:40									0.1											
03:00							0.1										0.1			

It is possible to key entry 1 minute precipitation data. This form settings is:

rows:10

columns 20

details:

Informations Settings Details Column Size

Rainfall Intensity

HOURL10

Ord.Nr.	Item
10	10

PLUS10

Ord.Nr.	Item
10	20

## 7.6 Upper air data key entry

	H	P	T	RH	D	F	O3	DP
0001	304	988.3	-0.7	87	259	1.2		-2.6
0002	345	983.3	-0.8	91	264	2		-2.1
0003	392	977.5	-1	91	267	2.3		-2.3
0004	442	971.3	-1.3	92	271	2.5		-2.4
0005	497	964.7	-1.7	93	274	2.5		-2.7
0006	551	958.1	-2.2	95	276	2.3		-2.9
0007	609	951.1	-2.6	97	278	2.1		-3
0008	668	944.2	-3	99	278	1.9		-3.1
0009	724	937.5	-3.3	100	277	1.9		-3.3
0010	782	930.7	-3.7	100	272	1.8		-3.7
0011	839	923.9	-4.1	100	266	1.8		-4.1
0012	897	917.2	-4.3	100	265	2		-4.3
0013	955	910.5	-4.6	100	269	2.2		-4.6
0014	1014	903.6	-4.9	100	274	2.4		-4.9
0015	1074	896.8	-5.1	100	275	2.5		-5.1
0016	1132	890.3	-5.3	100	271	2.7		-5.3
0017	1191	883.5	-5.2	93	267	2.8		-6.2
0018	1249	877.1	-5.3	86	263	2.9		-7.3
0019	1304	870.9	-5.4	79	259	3.1		-8.5
0020	1371	863.5	-5.9	80	261	3.4		-8.8

You enter the height pressure and other characteristics into columns.

Each measurement is identified by:

Station Id, Year, month day and time.

## 7.7 Rainfall gauge, totalizer

	Begin	End	Value	Ref. Station
0001	06.11.2009	30.04.2010	248	O1PORU01
0002	01.05.2010	21.06.2011	832	O1PORU01
0003				

Key entry of log term precipitation data. Usually at the mountains. You enter the period of the measurement amount of precipitation and reference station. The reference station is any station measuring the precipitation each day.



## 7.8 Monthly data key entry

Monthly Data KEF

Form Table

Station ID Element ID Year Time Type Type Desc Function Regular  
B1BRBY01 E 1964 AVG 0 Month AVG N

January			February			March			April		
Value	Flag	Date	Value	Flag	Date	Value	Flag	Date	Value	Flag	Date
3.1			4.3			5.1			7.8		
May			June			July			August		
Value	Flag	Date	Value	Flag	Date	Value	Flag	Date	Value	Flag	Date
10.2			16.4			15.1			13.5		
September			October			November			December		
Value	Flag	Date	Value	Flag	Date	Value	Flag	Date	Value	Flag	Date
11.9			8.8			7			4.9		
Year			Other Fields								
Value	Flag	Date	Validation	Src	Type						
9			C		0						

Změněno:nepravda Není k dispozici vazba iterátoru pro vykreslení stavu!

In this form the monthly data are key entered. You fill the information like in monthly data report (see monthly data report for more information)

## 7.9 Monthly data count key entry

Monthly Data Count KEF

Form Table

Station ID Element ID Year Time Type Type Desc Function Param Regular

B1SLIN01 ... SRA ... 1976 07:00 2 Decade 2. > 50 N

January February March April

Value Flag Value Flag Value Flag Value Flag

0 0 0

May June July August

Value Flag Value Flag Value Flag Value Flag

0 0 0 0

September November October December

Value Flag Value Flag Value Flag Value Flag

0 0 0 0

Year Other Fields

Value Flag Validation Src Type

0 C 0

Změněno: nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!

In this form the count of days exceeding some condition is input. You fill the information like in monthly data count report (see monthly data count report for more information)

## 7.10 Normal data key entry

The screenshot shows the 'Normals KEF' window with the following data entry fields:

Station ID	Element ID	Month	Time	Number Of Years	Regular	Calc Begin	Calc End	Real Begin	Real End
B2VMEZ01	E	01	AVG	30	N	1961	1990	1961	1990

**Value**

Source	Homogeneity
S	N
Normal	4.4

**Empirical probability of exceeding Monthly Data**

10%	20%	30%
3.4	3.74	3.9
40%	50%	60%
4.1	4.35	4.55
70%	80%	90%
4.8	5.06	5.6

**Empirical probability of exceeding Daily Data**

1%	2%	5%	10%	20%
1.2	1.5	1.9	2.3	3
30%	40%	50%	60%	70%
3.5	4.1	4.5	4.9	5.3
80%	90%	95%	98%	99%
5.7	6.2	6.8	7.31	7.94

Změněno: nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!

You enter normals. See normal data report for the meaning of the fields.

## 8 Products

In product part the user can access derived data. He is able to view:

- Monthly data
- Monthly data count
- Extremes
- Normals
- Phenomena monthly data
- Phenomena normals
- Wind rose

### 8.1 Monthly data

The display of calculated monthly data. To be able to receive the monthly data the monthly data calculation must be defined.

See the definition of monthly data calculation in **Elements** page of Metadata module for more details. In picture is an example of monthly data definition:

The screenshot shows the 'List of Values' application window. The 'Elements' tab is active, and the 'Monthly Data' sub-tab is selected. The configuration is as follows:

- Element ID:** TMA
- Name:** Teplota max
- Description:** Teplota maximální
- Unit:** °C
- Scale:** 0,1
- Lower Limit:** -45
- Upper Limit:** 45
- Monthly Data:** Irregular (Source Scheme Mdata: 20:00,21:00,22:00)
- Regular:** Source Interval Mdata: Begin, End
- Max/Min/Avg/Sum:** Max, Min, Avg, Sum (all checked)
- Mdata Calculation (Target):** Max, Month, Decade 1, Pentade 1, Min, Decade 2, Pentade 2, Avg, Decade 3, Pentade 3, Pentade 4, Pentade 5, Pentade 6 (all checked)

Red boxes highlight the 'Monthly Data' and 'Mdata Calculation (Target)' sections. The word 'SOURCE' is written in red to the right of the 'Irregular' section, and 'TARGET' is written in red to the right of the 'Mdata Calculation (Target)' section.

It is highly recommended to fill the search condition before displaying any data in monthly data report:

Search dialog box showing search criteria:

- Station ID: O1PORU01
- Element ID: T
- Year: 2011
- Type: Lov
- Type desc:
- Function: MAX
- Time:
- Regular: N
- January:
- February:
- March:
- April:
- May:
- June:
- July:
- August:
- September:

Buttons: Ok, Cancel selection, Save AS ..., Delete, Cancel

In the screen you see the example of the select condition. We require daily irregular data from station O1PORU01. We want to see only temperature (T) for the year 2011 and monthly maximum

### 8.1.1 Form view

Products application window showing Monthly Data form:

Search Criteria:

Station ID	Element ID	Year	Time	Type	Type Desc	Function	Regular
O1PORU01	T	2011	AVG	0	Month	MAX	N

Monthly Data Grid:

Month	Value	Flag	Date
January	8.5		14.01.2011
February	7.6		06.02.2011
March	13.1		14.03.2011
April	17.6		22.04.2011
May	21.8		31.05.2011
June	23.6		22.06.2011
July	23.6		13.07.2011
August	26		26.08.2011
September	22.4		05.09.2011
October	17.4		06.10.2011
November	8.1		07.11.2011
December			

Other Fields:

Value	Flag	Date	Validation	Src Type
			C	0

Status Bar: Změněno:nepravda Není k dispozici vazba iterátoru pro vykreslení stavu!

In this form we see the monthly data information.

**Station Id** is the identifier of the station

**Element Id** is the id of measured element

**Year** is the year for which the line was obtained

**Time** specifies the **daily data** time of the **source**. There can be:

HH:MM source time of the daily data measurement (HH hour 00-23, MM minute 00-59)

AVG source daily data average

MAX source daily data maximum

MIN source daily data minimum

SUM source daily data summary

**Type** is one of 0-9 numbers. The number meaning is as follows:

0 – whole month

1 – 1<sup>st</sup> decade (1<sup>st</sup> 10-days)

2 – 2<sup>nd</sup> decade (2<sup>nd</sup> 10-days)

3 – 3<sup>rd</sup> decade (3<sup>rd</sup> 10-days)

4 – 1<sup>st</sup> pentade (1<sup>st</sup> 5-days)

5 – 2<sup>nd</sup> pentade (2<sup>nd</sup> 5-days)

6 – 3<sup>rd</sup> pentade (3<sup>rd</sup> 5-days)

7 - 4<sup>th</sup> pentade (4<sup>th</sup> 5-days)

8 - 4<sup>th</sup> pentade (4<sup>th</sup> 5-days)

9 - 4<sup>th</sup> pentade (4<sup>th</sup> 5-days)

**Type description** is the description of Type number field as defined in previous paragraph.

**Function** is monthly calculation function. It can be one of:

MAX – target monthly maximum

MIN – target monthly minimum

AVG – target monthly average

SUM – target monthly summary

**Regular** specifies the source time scheme resp. source table. It can be as follows:

N – irregular data, source data is stored in RDATA\_N table

Y – regular data, source data is stored in RDATA\_R table

**January -December** is result monthly data individually displayed for each month

**Year** is whole year characteristic

For each result there is 3 fields:

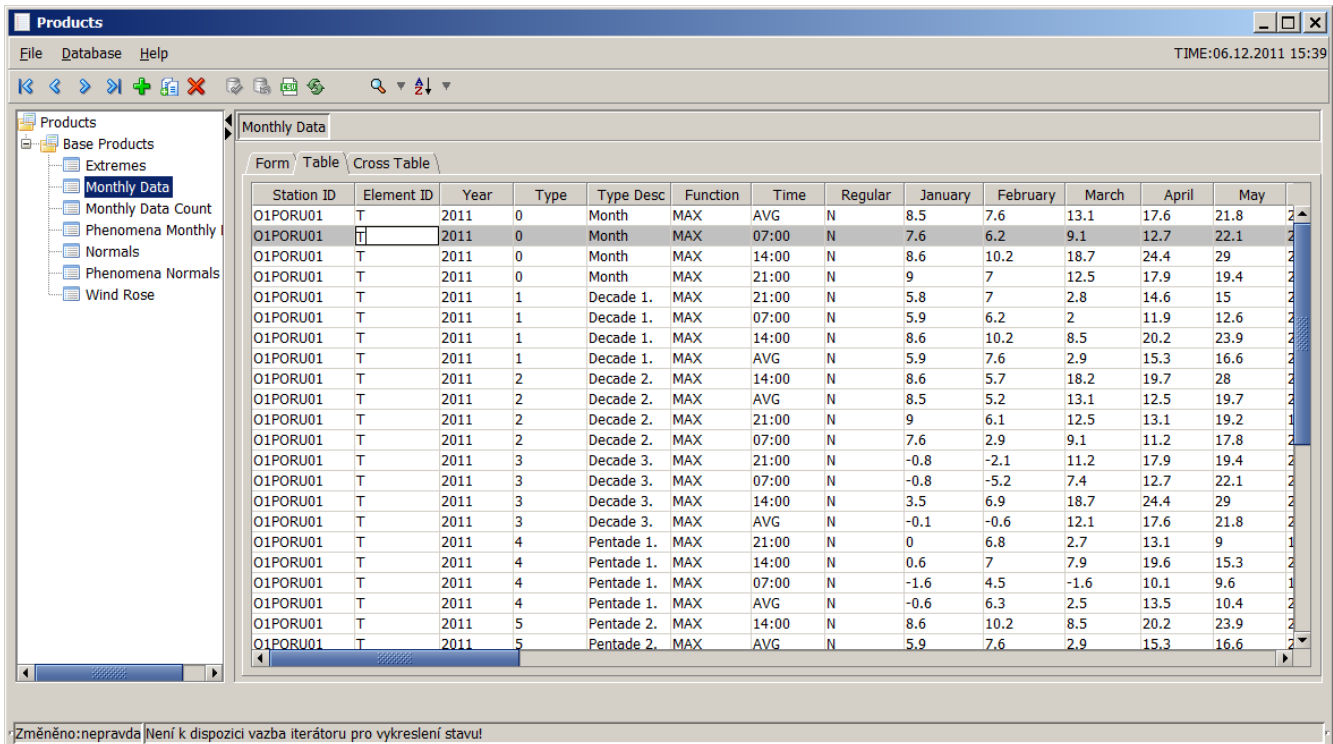
**Value** – value of monthly characteristic. In the picture you can see monthly information for irregular data from station O1PORU01. The temperature (T) element is displayed for the year 2011 and monthly maximum of daily average is 8.5 in January. In whole year there is not value

yet.

**Flag** – flag for the value. The flag can be \* meaning that the maximum or minimum occurred more than once and I meaning that the daily data source is interrupted (not complete)

**Date** - is the data of the maximum or the minimum value

## 8.1.2 Table view



The screenshot shows a software window titled 'Products' with a menu bar (File, Database, Help) and a toolbar. On the left is a tree view with 'Monthly Data' selected. The main area displays a table with columns: Station ID, Element ID, Year, Type, Type Desc, Function, Time, Regular, and months from January to May. The table contains 25 rows of data for Station ID O1PORU01, showing various time intervals and functions like MAX and AVG. A status bar at the bottom reads 'Změněno: nepravda Není k dispozici vazba iterátoru pro vykreslení stavu!'.

Station ID	Element ID	Year	Type	Type Desc	Function	Time	Regular	January	February	March	April	May	
O1PORU01	T	2011	0	Month	MAX	AVG	N	8.5	7.6	13.1	17.6	21.8	2
O1PORU01	T	2011	0	Month	MAX	07:00	N	7.6	6.2	9.1	12.7	22.1	2
O1PORU01	T	2011	0	Month	MAX	14:00	N	8.6	10.2	18.7	24.4	29	2
O1PORU01	T	2011	0	Month	MAX	21:00	N	9	7	12.5	17.9	19.4	2
O1PORU01	T	2011	1	Decade 1.	MAX	21:00	N	5.8	7	2.8	14.6	15	2
O1PORU01	T	2011	1	Decade 1.	MAX	07:00	N	5.9	6.2	2	11.9	12.6	2
O1PORU01	T	2011	1	Decade 1.	MAX	14:00	N	8.6	10.2	8.5	20.2	23.9	2
O1PORU01	T	2011	1	Decade 1.	MAX	AVG	N	5.9	7.6	2.9	15.3	16.6	2
O1PORU01	T	2011	2	Decade 2.	MAX	14:00	N	8.6	5.7	18.2	19.7	28	2
O1PORU01	T	2011	2	Decade 2.	MAX	AVG	N	8.5	5.2	13.1	12.5	19.7	2
O1PORU01	T	2011	2	Decade 2.	MAX	21:00	N	9	6.1	12.5	13.1	19.2	1
O1PORU01	T	2011	2	Decade 2.	MAX	07:00	N	7.6	2.9	9.1	11.2	17.8	2
O1PORU01	T	2011	3	Decade 3.	MAX	21:00	N	-0.8	-2.1	11.2	17.9	19.4	2
O1PORU01	T	2011	3	Decade 3.	MAX	07:00	N	-0.8	-5.2	7.4	12.7	22.1	2
O1PORU01	T	2011	3	Decade 3.	MAX	14:00	N	3.5	6.9	18.7	24.4	29	2
O1PORU01	T	2011	3	Decade 3.	MAX	AVG	N	-0.1	-0.6	12.1	17.6	21.8	2
O1PORU01	T	2011	4	Pentade 1.	MAX	21:00	N	0	6.8	2.7	13.1	9	1
O1PORU01	T	2011	4	Pentade 1.	MAX	14:00	N	0.6	7	7.9	19.6	15.3	2
O1PORU01	T	2011	4	Pentade 1.	MAX	07:00	N	-1.6	4.5	-1.6	10.1	9.6	1
O1PORU01	T	2011	4	Pentade 1.	MAX	AVG	N	-0.6	6.3	2.5	13.5	10.4	2
O1PORU01	T	2011	5	Pentade 2.	MAX	14:00	N	8.6	10.2	8.5	20.2	23.9	2
O1PORU01	T	2011	5	Pentade 2.	MAX	AVG	N	5.9	7.6	2.9	15.3	16.6	2

In table view you can see all records satisfying the select criteria. You see that for the criteria specified above many records are selected. Navigate to any of these records and switch to form view for details.

### 8.1.3 Cross table

The screenshot shows the 'Products' application interface. The left sidebar contains a tree view with 'Monthly Data' selected. The main window displays a cross-table view for 'Station ID O1PORU01' in 'Year 2011'. The table has columns for months and rows for different times and an average (AVG) row. The data is as follows:


Element ID	Time	January	February	March	April	May	June	July	August	September	October	November	December
T	07:00	7.6	6.2	9.1	12.7	22.1	21.8	24.2	26.1	19.4	14.9		
T	14:00	8.6	10.2	18.7	24.4	29	29.8	30.9	33.8	31	24.7		
T	21:00	9	7	12.5	17.9	19.4	22	22.4	25	19.5	16.8		
T	AVG	8.5	7.6	13.1	17.6	21.8	23.6	23.6	26	22.4	17.4		

This displays the same records like in table view but you can use the filters at the top. Also you can use drag and drop functions to manipulate the view to display the desired information in other form. Eg if we move the Element ID into top and Function to the left we obtain the following view:

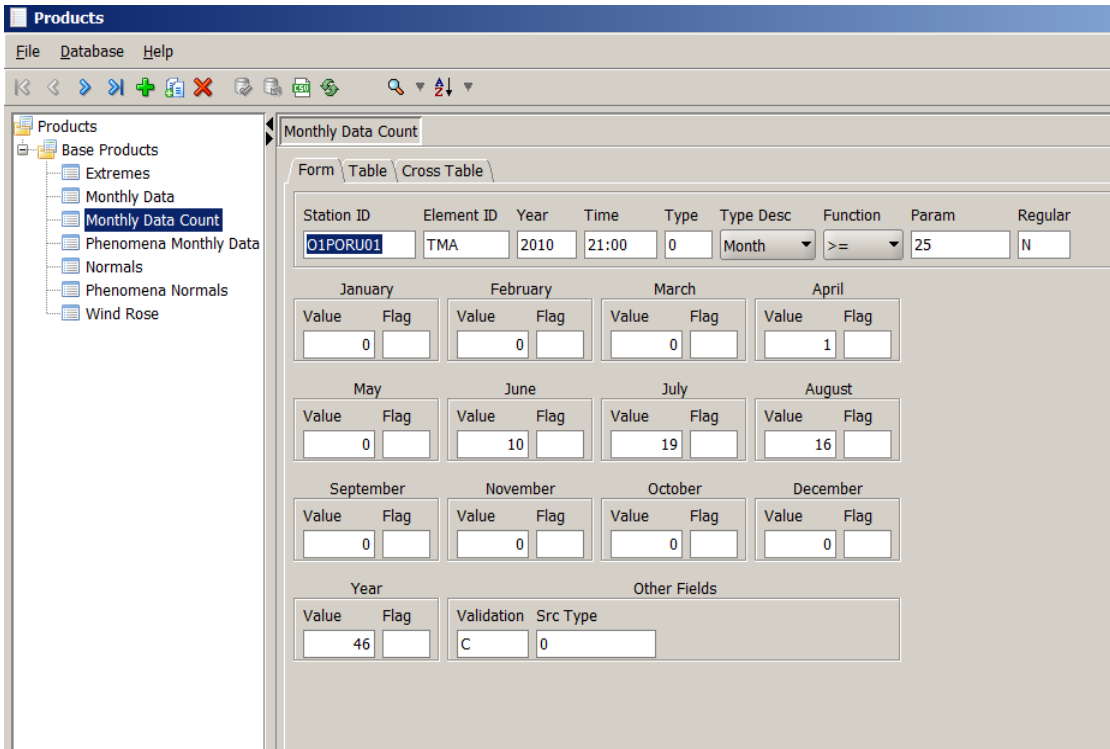
The screenshot shows the 'Products' application interface with the cross-table view modified. The 'Element ID' is now in the top row and 'Function' is in the left column. The data is as follows:

Function	Time	January	February	March	April	May	June	July	August	September	October	November	December	Year	Valida
AVG	07:00	-1	-3.9	1.2	7.9	12.4	17.1	16.4	17.7	12.2	6.2	0			
AVG	14:00	1.9	0.8	9.6	16.4	19.5	22.5	20.8	24.8	21.5	13.5	7.4			
AVG	21:00	-0.8	-1.9	4	10.6	12.7	17	16.7	17.8	13.5	7.9	1.8			
AVG	AVG	-0.2	-1.7	4.7	11.4	14.3	18.4	17.7	19.5	15.2	8.9	2.7			
MAX	07:00	7.6	6.2	9.1	12.7	22.1	21.8	24.2	26.1	19.4	14.9	3.2			
MAX	14:00	8.6	10.2	18.7	24.4	29	29.8	30.9	33.8	31	24.7	18.6			
MAX	21:00	9	7	12.5	17.9	19.4	22	22.4	25	19.5	16.8	9.9			
MAX	AVG	8.5	7.6	13.1	17.6	21.8	23.6	23.6	26	22.4	17.4	8.1			
MIN	07:00	-12.3	-13.2	-6.7	4.3	-0.1	13.1	11.3	10	5.5	-2.1	-5.9			
MIN	14:00	-6.2	-8	2.1	5.4	1.1	14.4	11.7	13.9	12.3	7.3	-1.4			
MIN	21:00	-11.9	-9.7	-1.9	4.6	2.1	11.5	10.4	11.5	8.5	0.3	-2.6			
MIN	AVG	-9.7	-9.5	-1.5	4.7	2.3	13.9	11	13	10.8	2.2	-1.2			



Selecting any value in cross table and pressing  button we navigate to record in underlying table/form view.

## 8.2 Monthly Data Count



Station ID	Element ID	Year	Time	Type	Type Desc	Function	Param	Regular
01PORU01	TMA	2010	21:00	0	Month	>=	25	N

January		February		March		April	
Value	Flag	Value	Flag	Value	Flag	Value	Flag
0		0		0		1	

May		June		July		August	
Value	Flag	Value	Flag	Value	Flag	Value	Flag
0		10		19		16	

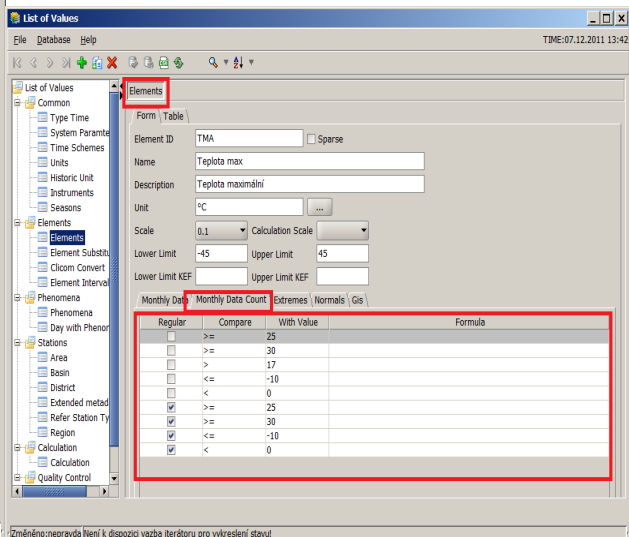
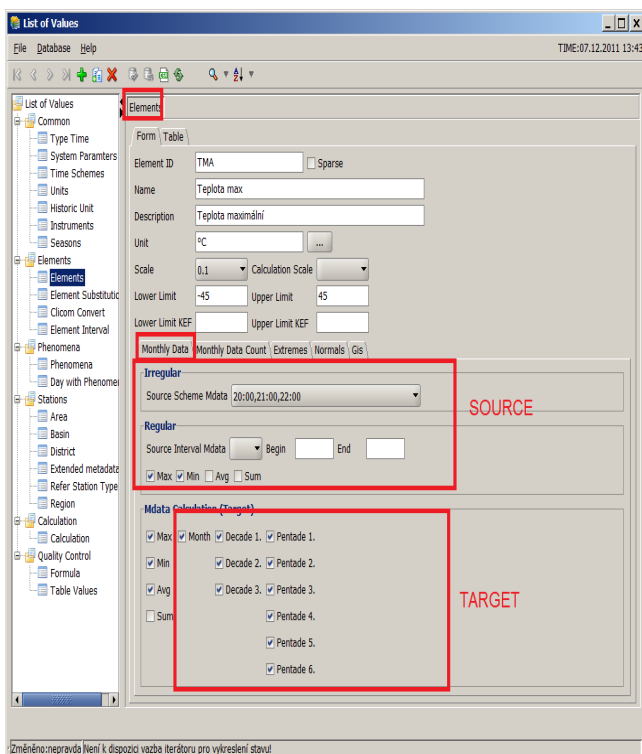
  

September		November		October		December	
Value	Flag	Value	Flag	Value	Flag	Value	Flag
0		0		0		0	

Year		Other Fields	
Value	Flag	Validation	Src Type
46		C	0

This displays the information on number of days satisfying predefined condition. The condition is defined in Elements panel in Metadata module (See the definition of Elements Count for more details). In picture is an example of definition



The meaning of the fields:

**Station Id** is the identifier of the station

**Element Id** is the id of measured element

**Year** is the year for which the line was obtained

**Time** specifies the **daily data** time of the **source**. There can be:

HH:MM source time of the daily data measurement (HH hour 00-23, MM minute 00-59)

AVG source daily data average

MAX source daily data maximum

MIN source daily data minimum

SUM source daily data summary

**Type** is one of 0-9 numbers. The number meaning is as follows:

0 – whole month

1 – 1<sup>st</sup> decade (1<sup>st</sup> 10-days)

2 – 2<sup>nd</sup> decade (2<sup>nd</sup> 10-days)

3 – 3<sup>rd</sup> decade (3<sup>rd</sup> 10-days)

4 – 1<sup>st</sup> pentade (1<sup>st</sup> 5-days)

5 – 2<sup>nd</sup> pentade (2<sup>nd</sup> 5-days)

6 – 3<sup>rd</sup> pentade (3<sup>rd</sup> 5-days)

7 - 4<sup>th</sup> pentade (4<sup>th</sup> 5-days)

8 - 4<sup>th</sup> pentade (4<sup>th</sup> 5-days)

9 - 4<sup>th</sup> pentade (4<sup>th</sup> 5-days)

**Type description** is the description of Type number field as defined in previous paragraph.

**Function, Param** is daily data condition for comparison. It can be one of:

- > value in month is grater than **Param**
- >= value in month is grater or equal to **Param**
- <= value in month is less or equal lo **Param**
- < value in month is less than **Param**

**Regular** specifies the source time scheme resp. source table. Ti can be as follows:

N – irregular data, source data is stored in RDATA\_N table

Y – regular data, source data is stored in RDATA\_R table

**January -December** is result monthly data individually displayed for each month. The picture above displays the result where for station O1PORU01 and element TMA (temperature maximum) there were 19 days in July where temperature maximum is grater or equal to 25 degrees. The data are taken from irregular measurement.

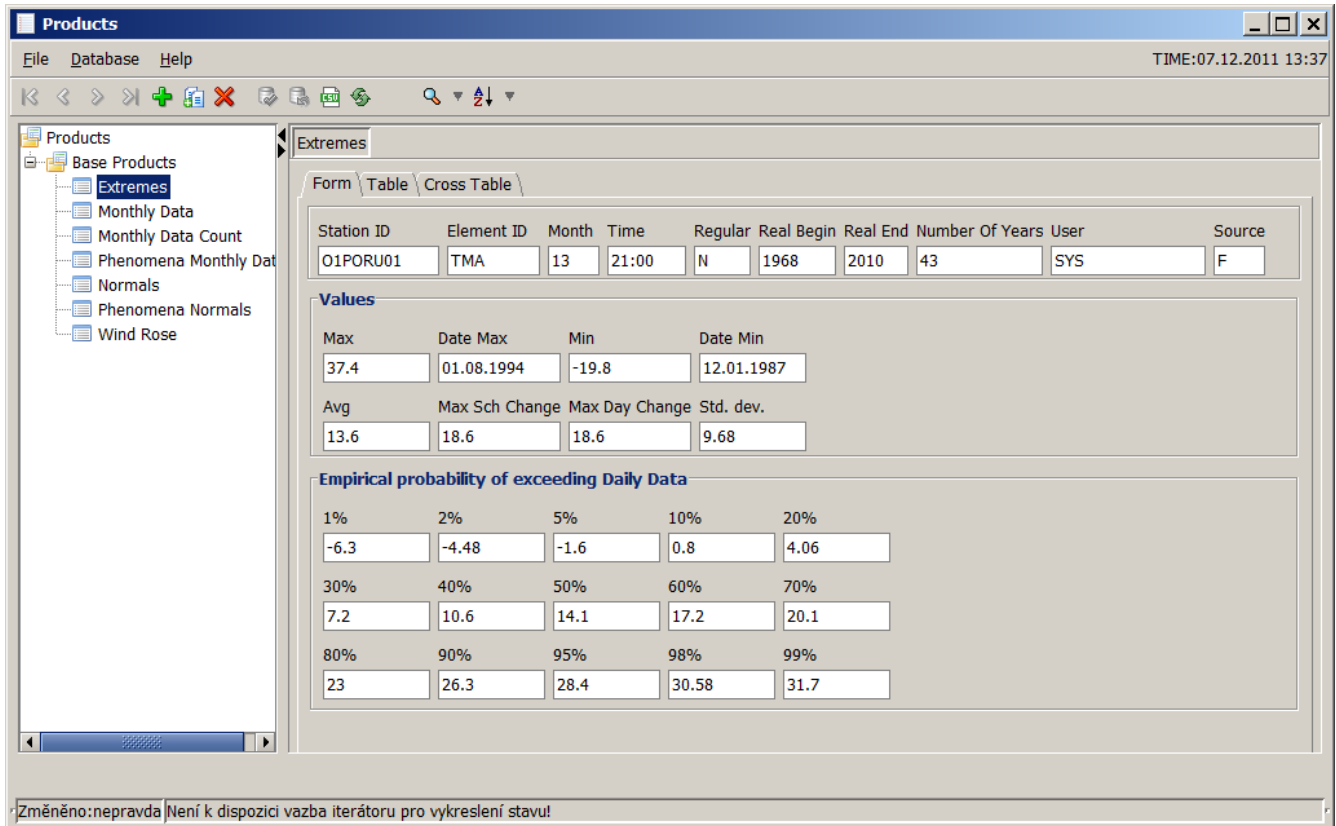
**Year** is whole year characteristic

For each result there is 3 fields:

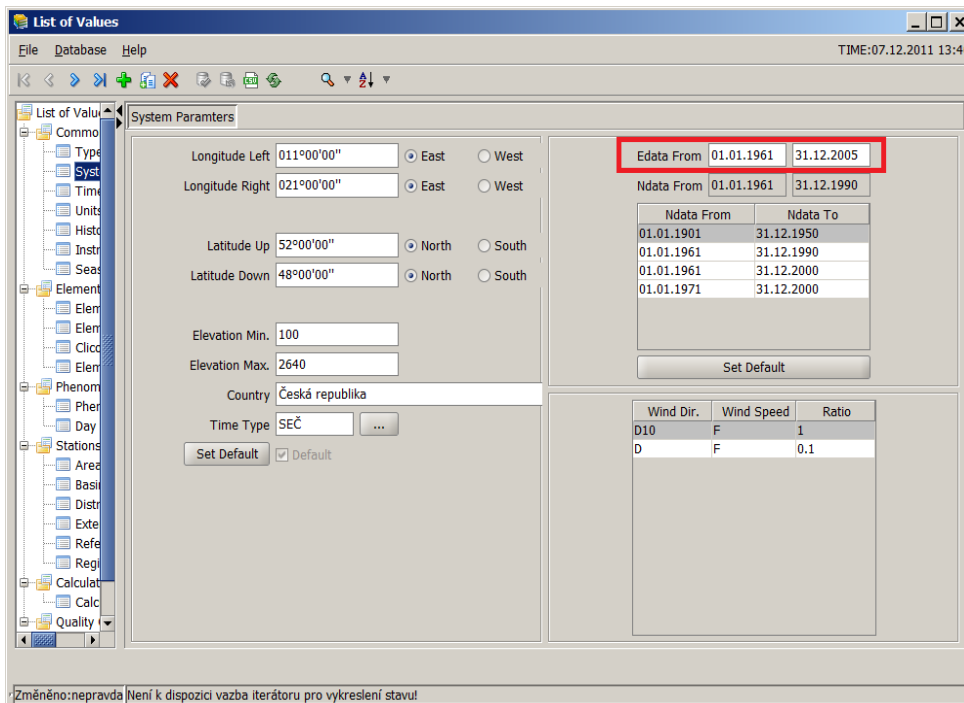
**Value** – value of number of days satisfying the condition.

**Flag** – flag for the value. The flag can be I meaning that the daily data source is interrupted (not complete)

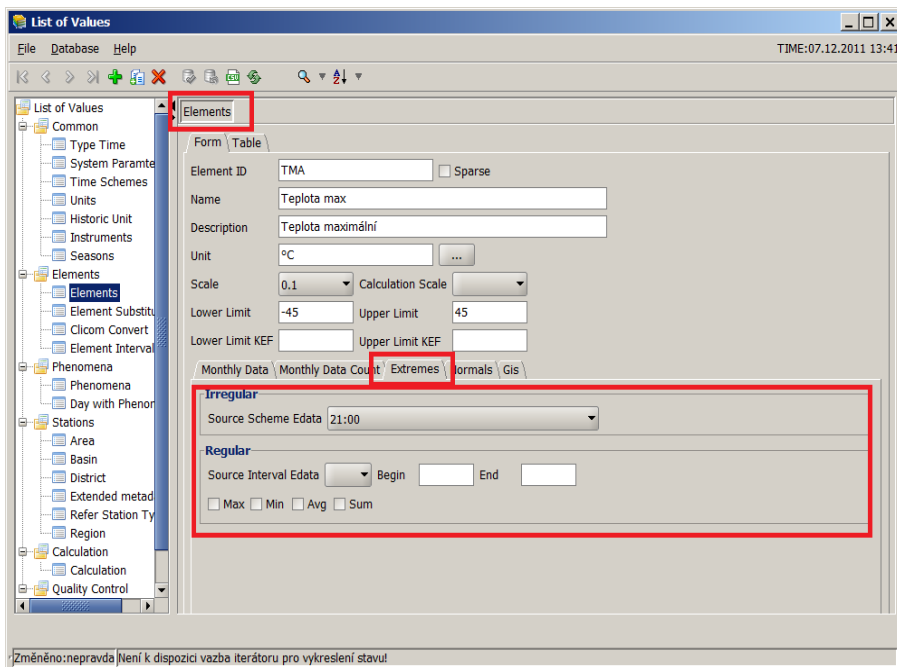
### 8.3 Extremes



This forms shows the report on extreme values. The extreme values are calculated according the definition of period in **System parameters** in metadata (See system parameters for more details).



and according the definition of source data in **Elements** in metadata(see elements definition for more details):



The extremes are calculated for the period specified in system parameters and for all data in the database. This two calculations are distinguished in **Source** column.

Meaning of the fields:

**Station Id** is the identifier of the station

**Element Id** is the id of measured element

**Month** is the the month order from 01 to 12. **The value of 13 is for the year!**

**Time** specifies the **daily data** time of the **source**. There can be:

HH:MM source time of the daily data measurement (HH hour 00-23, MM minute 00-59)

AVG source daily data average

MAX source daily data maximum

MIN source daily data minimum

SUM source daily data summary

**Regular** specifies the source time scheme resp. source table. It can be as follows:

N – irregular data, source data is stored in RDATA\_N table

Y – regular data, source data is stored in RDATA\_R table

**Real Begin and End** is the period with data in database. This period can be shorter than period specified in system parameters.

**Number of Years** is the real count of years used for the calculation

**User** is the username of the user responsible for the calculation. If the calculations is carried out by system the SYS user is displayed.

**Source** is one of the following:

S .. data calculated for standard period defined in system parameters

F .. data calculated for all data present in database

T .. temporary data not calculated by system automatically but by the user

**Max, Date Max, Min Date Min, Avg** are the characteristics for the long term period. In dates there is a data of maximum or minimum.

**Max Sch change** – is maximal change of the value between two consecutive times

**Max day change** – is maximal change of the value between two consecutive days in the same time

**Std. Dev** is standard deviation for the data.

**Empirical probabilities** are percentile values read from the probability distribution chart

## 8.4 Normals

The screenshot shows a software application window titled 'Products' with a menu bar (File, Database, Help) and a toolbar. A sidebar on the left lists various product types, with 'Normals' selected. The main window displays a 'Normals' form with a table and several input fields.

**Normals Table:**

Station ID	Element ID	Month	Time	Regular	Normal	Homogeneity	Source	Real Begin	Real End	Number Of Years	Calc Begin	Calc End
O1PORU01	TMA	13	21:00	N	13.1	N	P	1968	1990	23	1961	1990
O1PORU01	TMA	13	21:00	N	13.4	N	S	1971	2000	30	1971	2000
O1PORU01	TMA	13	21:00	N	13.3	N	S	1968	2000	33	1961	2000

**Normals Form Details:**

Station ID: O1PORU01, Element ID: TMA, Month: 13, Time: 21:00, Number Of Years: 30, Regular: N, Calc Begin: 1971, Calc End: 2000, Real Begin: 1971, Real End: 2000.

**Value:** Source Homogeneity: S, N; Normal: 13.4

**Empirical probability of exceeding Monthly Data:**

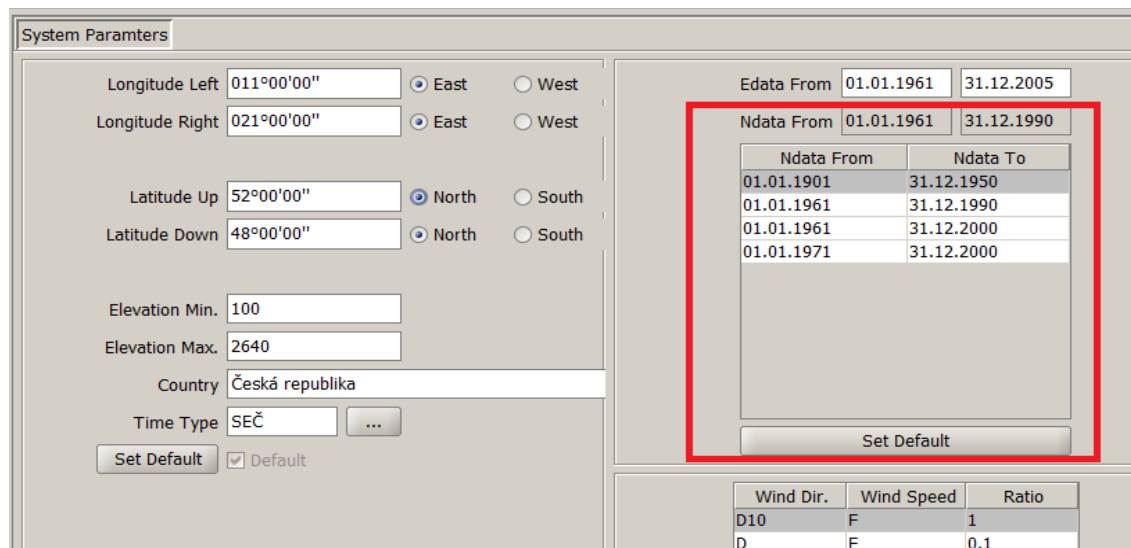
	10%	20%	30%
10%	12.1	12.71	12.9
40%	13.04	13.4	13.6
70%	13.86	14.29	14.83

**Empirical probability of exceeding Daily Data:**

	1%	2%	5%	10%	20%
1%	-6.31	-4.4	-1.4	1	4.1
30%	7	10.4	13.8	16.8	19.7
80%	22.7	26	28.1	30.3	31.5

At the bottom of the window, a status bar reads: 'Změněno: nepravda | Není k dispozici vazba iterátoru pro vykreslení stavů.'

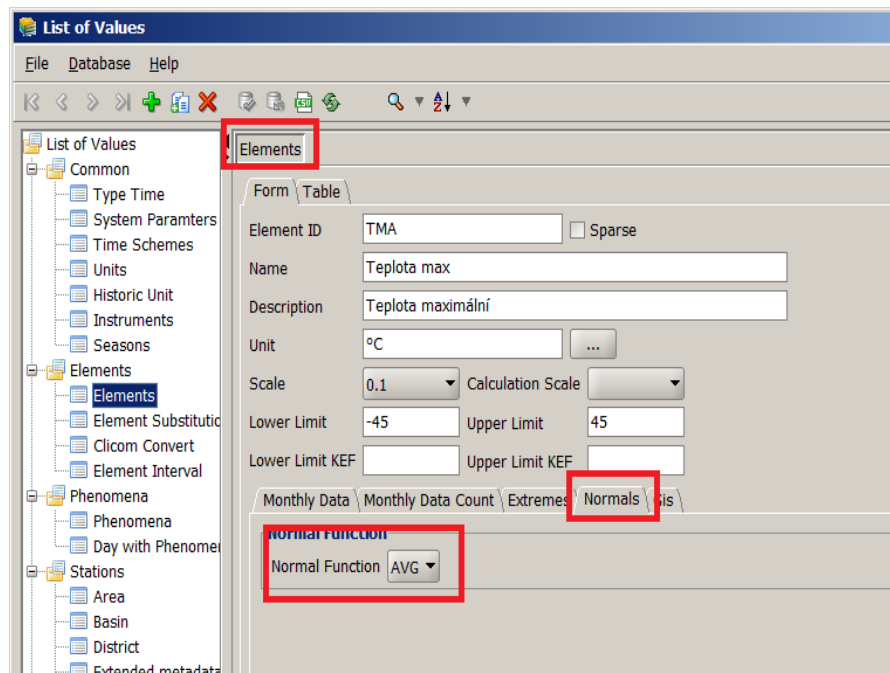
The normals are calculated for the several periods specified in system parameters:



One of these periods is specified as default period.

In the picture above with results you can see the values calculated for 3 different periods.

The normals are calculated from monthly averages or summaries. The definition is in Elements in metadata module:



The fields in report are as follows:

**Station Id** is the identifier of the station

**Element Id** is the id of measured element

**Month** is the the month order from 01 to 12. **The value of 13 is for the year!**

**Time** specifies the **daily data** time of the **source**. There can be:

HH:MM source time of the daily data measurement (HH hour 00-23, MM minute 00-59)

AVG source daily data average

MAX source daily data maximum

MIN source daily data minimum

SUM source daily data summary

**Regular** specifies the source time scheme resp. source table. Ti can be as follows:

N – irregular data, source data is stored in RDATA\_N table

Y – regular data, source data is stored in RDATA\_R table

**Real Begin and End** is the period with data in database. This period can be shorter than period specified in system parameters.

**Calc Begin and End** is the period definition in system parameters.

**Number of Years** is the real count of years used for the calculation

**Source** is one of the following:

S .. standard normal. There is at least 25 years in data

P .. interim normal for at least 10 years of data

**Value** is the value of normal

**Homogeneity** can be either N or H. The values calculated by system receives the N flag always. Manually you can enter normals with H flag.

**Empirical probabilities** are percentile values read from the probability distribution chart. There are two groups. The Rdata group are values taken from daily data distribution and Mdata is from monthly data distribution.



## 8.5 Phenomena monthly data

Products

File Database Help

Phenomena Monthly Data

Form Table Cross Table

Station ID Day with Phenomena Year

B2LUKO01 BO 1994

January	February	March	April
2	0	1	0
May	June	July	August
4	0	2	0
September	October	November	December
0	0	0	0

Year

9

This report shows the number of days in month with some phenomena occurrence. To be able to receive this value the day with phenomena must be defined in metadata. In the picture you can see some definition for day with storm:

List of Values

File Database Help

Day with Phenomena

Day with ID	Name
BB	Den s blízkou bouřkou
BO	Den s bouřkou
BV	Den s bouřlivým větrem
DE	Den s deštěm

Phenomenon
BB
BV
BW

In result report you can see that there were 2 storms in January 1994 in station B2LUKO01.

## 8.6 Phenomena Normals

Station ID	Day with Pheno ID	Month	Real Begin	Real End	Calc Begin	Calc End	Number Of Years
O1PORU01	DE	13	1968	2000	1961	2000	33

Value		Empirical probability of exceeding Monthly Data		
Source Homogeneity	S N	10%	20%	30%
		129.64	130.98	140
Normal	146	40%	50%	60%
		141.66	145	146.34
		70%	80%	90%
		149.68	157.06	170.08

The value of normals of phenomenon occurrence. The periods are the same like in normals of daily data definition. The phenomena normals are calculate from phenomena monthly data.

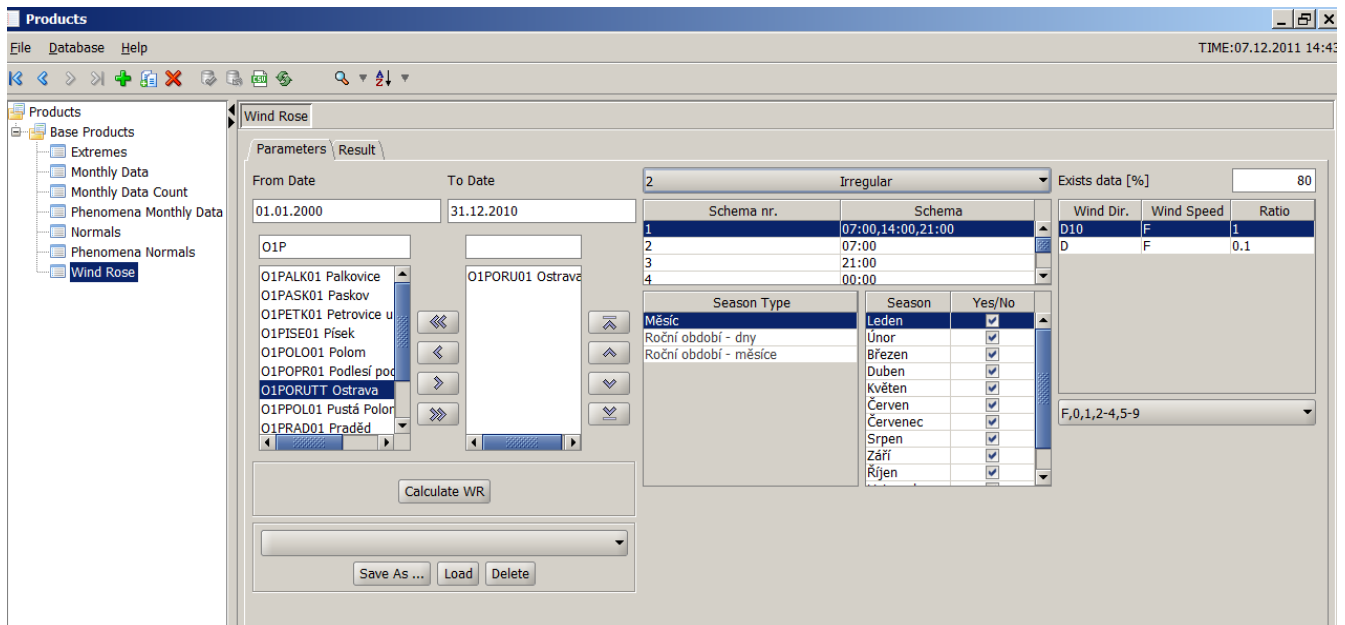
In the result you can see that there is 146 days with rain for whole year in station O1PORU01.

## 8.7 Wind rose

This part of the application is used for the calculation of wind rose charts.

### 8.7.1 Parameters of wind rose

First you must define the parameters in the first tab:



The parameters are as follows and all parameters must be set correctly according your data in database.

**From and to Dates** – specifies the period of the calculation. The data must present for this period

**Scheme** – choose irregular scheme for the data from RDATA\_N table or regular scheme for data from RDATA\_R table. After that choose the correct **time(s) or interval** from the list below.

**Station(s)** select one or more stations for the calculation. The blank fields above the list of available stations is as filter. You can put into the filter part of the Station Id and press enter. It will filter the



Station ids. Use  buttons for selection the station.

The year is divided into seasons. The seasons are defined in Metadata like in the following picture:

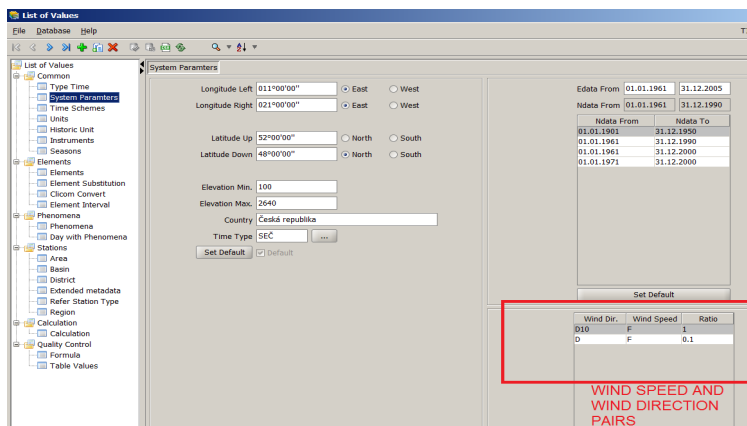
Season Type	Seq. Nr.	Season	Begin Date	Seq. Nr.
Měsíc	112068	Leden	01.01.2010	112078
Roční období - dny	112198	Únor	01.02.2010	112088
Roční období - měsíce	3191723074	Březen	01.03.2010	112098
		Duben	01.04.2010	112108
		Květen	01.05.2010	112118
		Červen	01.06.2010	112128
		Červenec	01.07.2010	112138
		Srpen	01.08.2010	112148
		Září	01.09.2010	112158
		Říjen	01.10.2010	112168
		Listopad	01.11.2010	112178
		Prosinec	01.12.2010	112188

Wind Dir.	Wind Speed	Ratio
D10	F	1
D	F	0.1

F,0,1,2-4,5-9

Finally set the pair of Wind speed and Wind direction element.

The pairs are defined in system parameters:

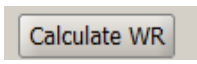


The ratio is:

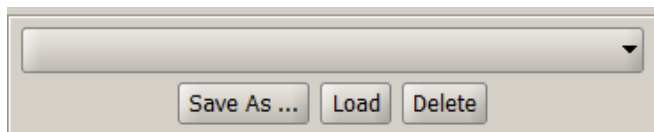
1 for wind direction 1-36

0.1 for wind direction 1-360

1.125 for wind direction 1-32

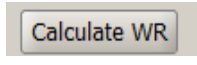

After you are finished with the definition of all parameters press  button. This will calculate the wind rose.

The configuration can be saved by the following block:

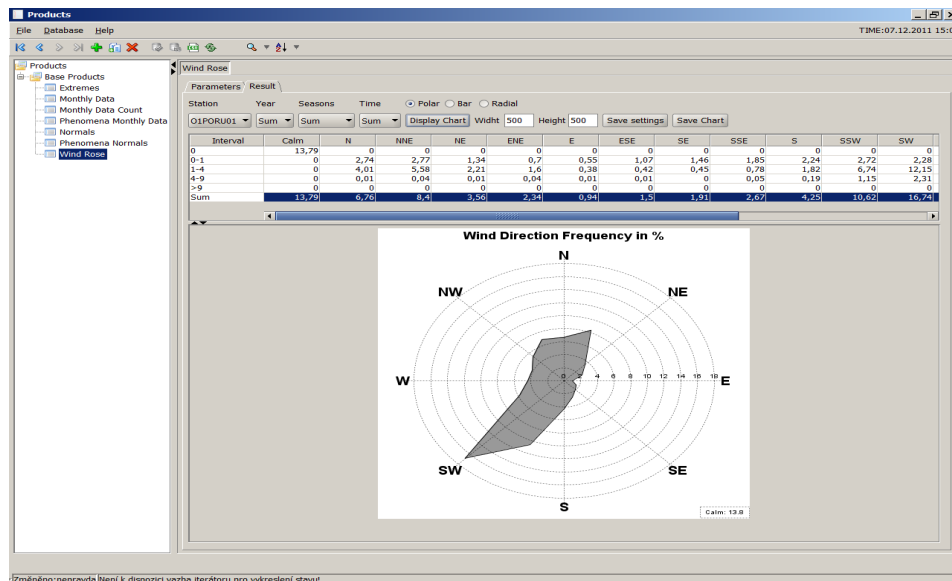


Use **save as** button for saving the configuration. **Load** loads saved configuration selected from the list and **Delete** deletes saved configuration selected in the list.

## 8.7.2 Displaying the wind rose chart

After you press  button you can see in the  the percentage of data present in selected period.

## Switch into Result tab

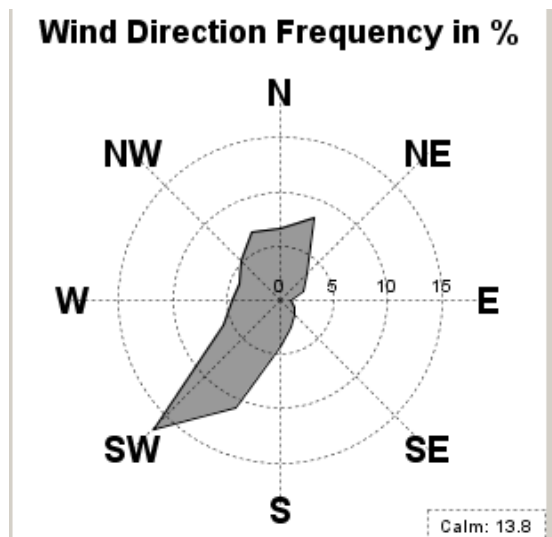


You can filter the results by station/year/Seasons/times. If the lists show sum it means that all stations or seasons or years or times are selected.

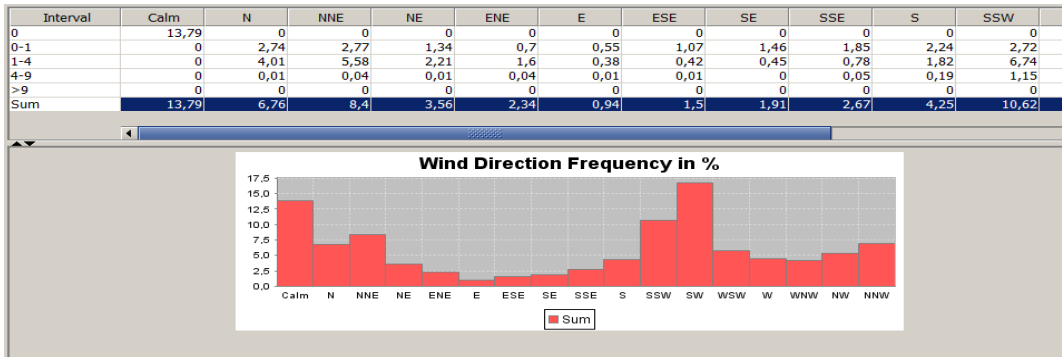
By pressing **Display Chart** button the chart is drawn to the screen. The size of the chart is specified in **Width** and **Height** fields.

You can select from 3 types of charts:

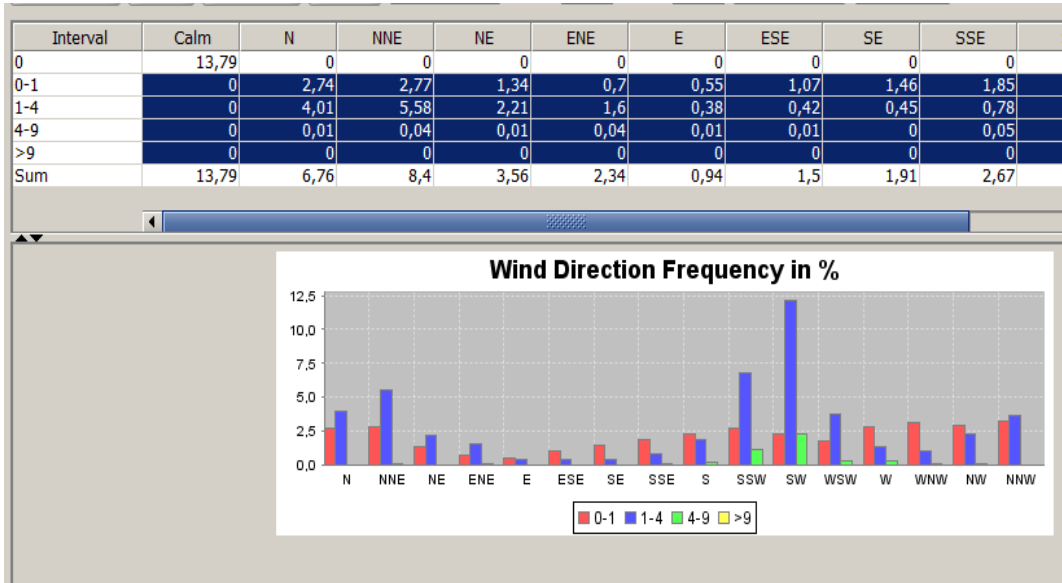
**Polar** – only 1 line for calculation can be selected from the list of lines in table below.



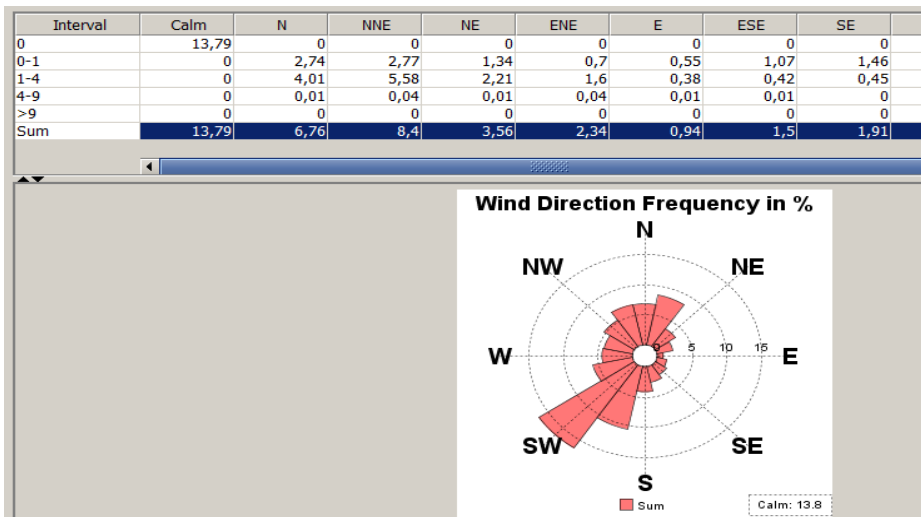
**Bar** – single line selection:



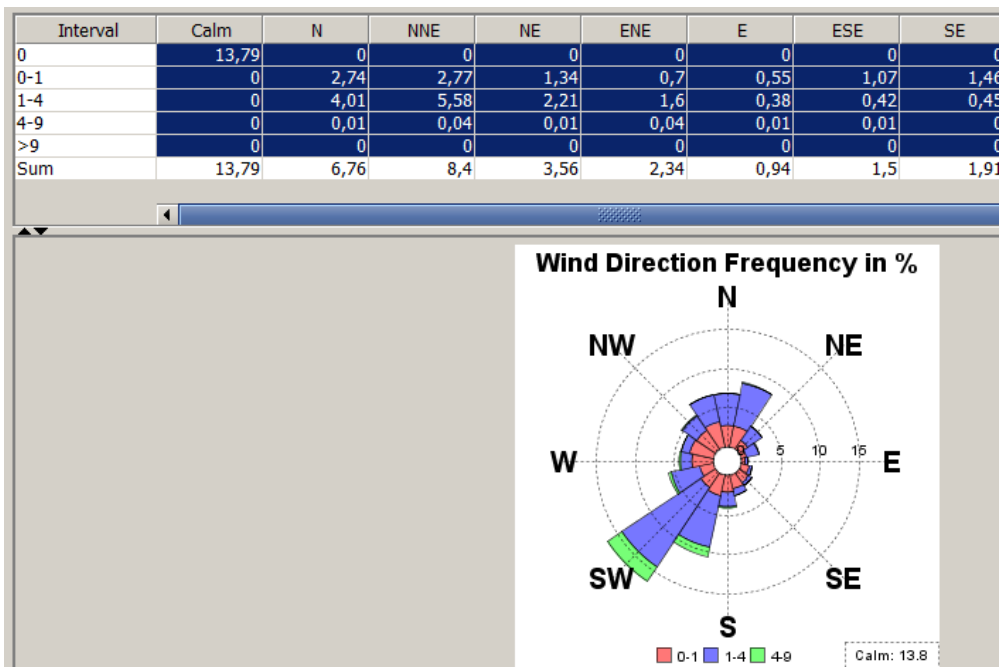
**Bar – multi line selection**



**Radial – single line selection**



**Radial – multi line selection**



You can save the chart into file by pressing **Save chart** button. By changing the extension you can save the chart in different file format (JPG,GIF,BMP,SVG,PDF,PNG,TIF)

## 9 Administration

Module for the application administration

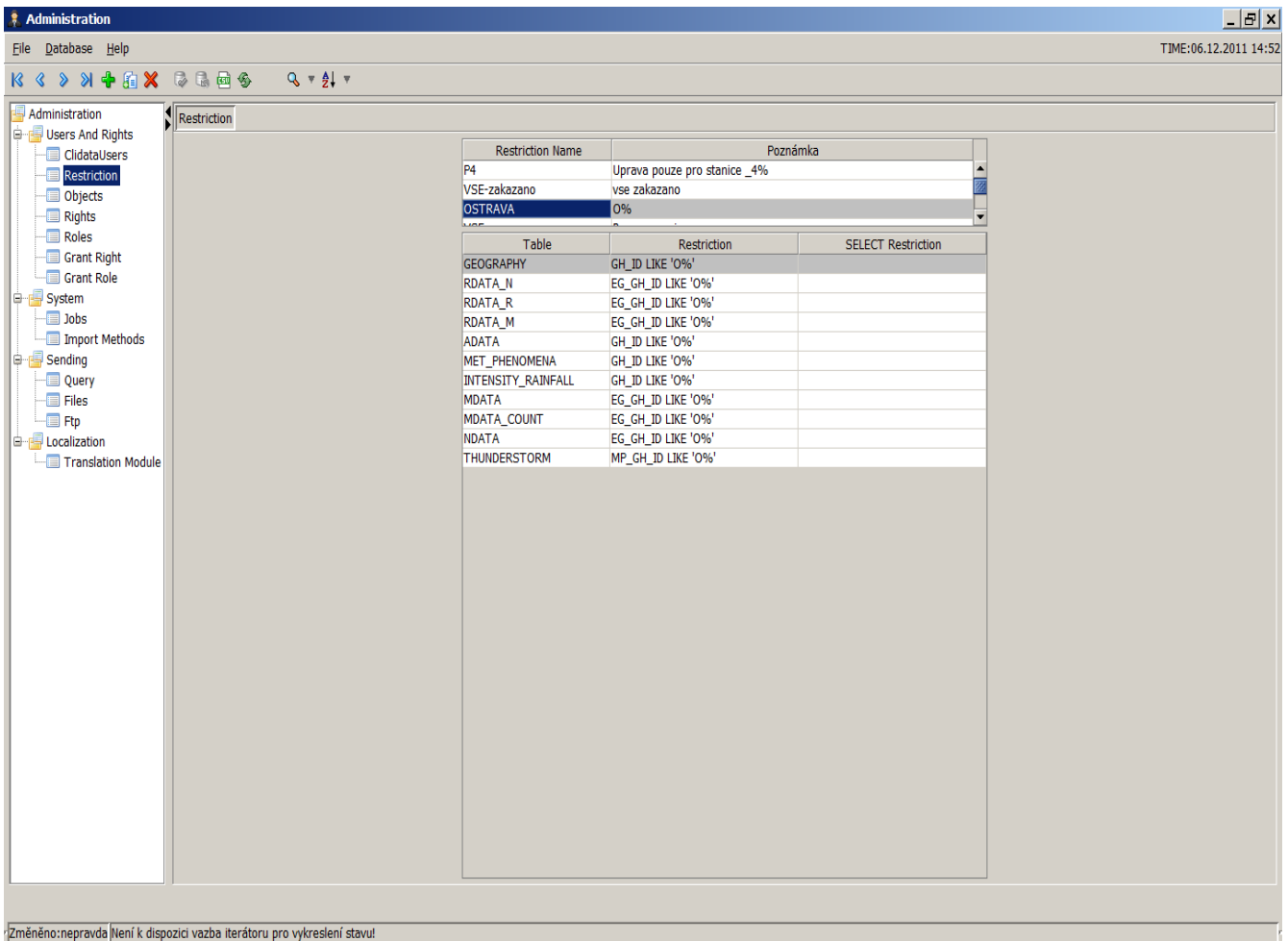
### 9.1 Users

User Name	Restriction	DB
AUXTOVA	VSE	<input checked="" type="checkbox"/>
BLAZEK	OSTRAVA	<input checked="" type="checkbox"/>
BRZAKOVA	OSTRAVA	<input checked="" type="checkbox"/>
CANOVA	OSTRAVA	<input checked="" type="checkbox"/>
CECHAKOVA	OSTRAVA	<input checked="" type="checkbox"/>
CHMU	VSE	<input checked="" type="checkbox"/>
COUFAL	OSTRAVA	<input checked="" type="checkbox"/>
DISCO	OSTRAVA	<input checked="" type="checkbox"/>
DOLEZEL	OSTRAVA	<input checked="" type="checkbox"/>
DROBEK	OSTRAVA	<input checked="" type="checkbox"/>
FENOLOGIE		<input checked="" type="checkbox"/>
GIS	OSTRAVA	<input checked="" type="checkbox"/>
HAKOVA		<input checked="" type="checkbox"/>
HOMOVA	OSTRAVA	<input checked="" type="checkbox"/>
HONKOVA	OSTRAVA	<input checked="" type="checkbox"/>
HOST	VSE-cteni	<input checked="" type="checkbox"/>
HOSTYNEK	OSTRAVA	<input checked="" type="checkbox"/>
HRADIL	OSTRAVA	<input checked="" type="checkbox"/>
HRTON	OSTRAVA	<input checked="" type="checkbox"/>
HUDDOVICOVA	OSTRAVA	<input checked="" type="checkbox"/>
ICLIDATA		<input checked="" type="checkbox"/>
IMPORT	OSTRAVA	<input checked="" type="checkbox"/>
JONOV	OSTRAVA	<input checked="" type="checkbox"/>
KALETA	OSTRAVA	<input checked="" type="checkbox"/>
KLIEGROVA	OSTRAVA	<input checked="" type="checkbox"/>
KOLICOVA	OSTRAVA	<input checked="" type="checkbox"/>
KOPECKY		<input checked="" type="checkbox"/>
KOSIK	OSTRAVA	<input checked="" type="checkbox"/>
Krizka		<input type="checkbox"/>
KRIZKA	VSE-cteni	<input type="checkbox"/>
KVETON	OSTRAVA	<input checked="" type="checkbox"/>
LAZARCZYKOVA	OSTRAVA	<input checked="" type="checkbox"/>
LIPINA	VSE	<input checked="" type="checkbox"/>
MADERICOVA	VSE	<input checked="" type="checkbox"/>
MEDERICOVA		<input type="checkbox"/>
MOZNY		<input checked="" type="checkbox"/>

Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!

Enter new user in this form. Fill for each user the password and set the restriction of the data from predefined list of restrictions.

## 9.2 Restrictions

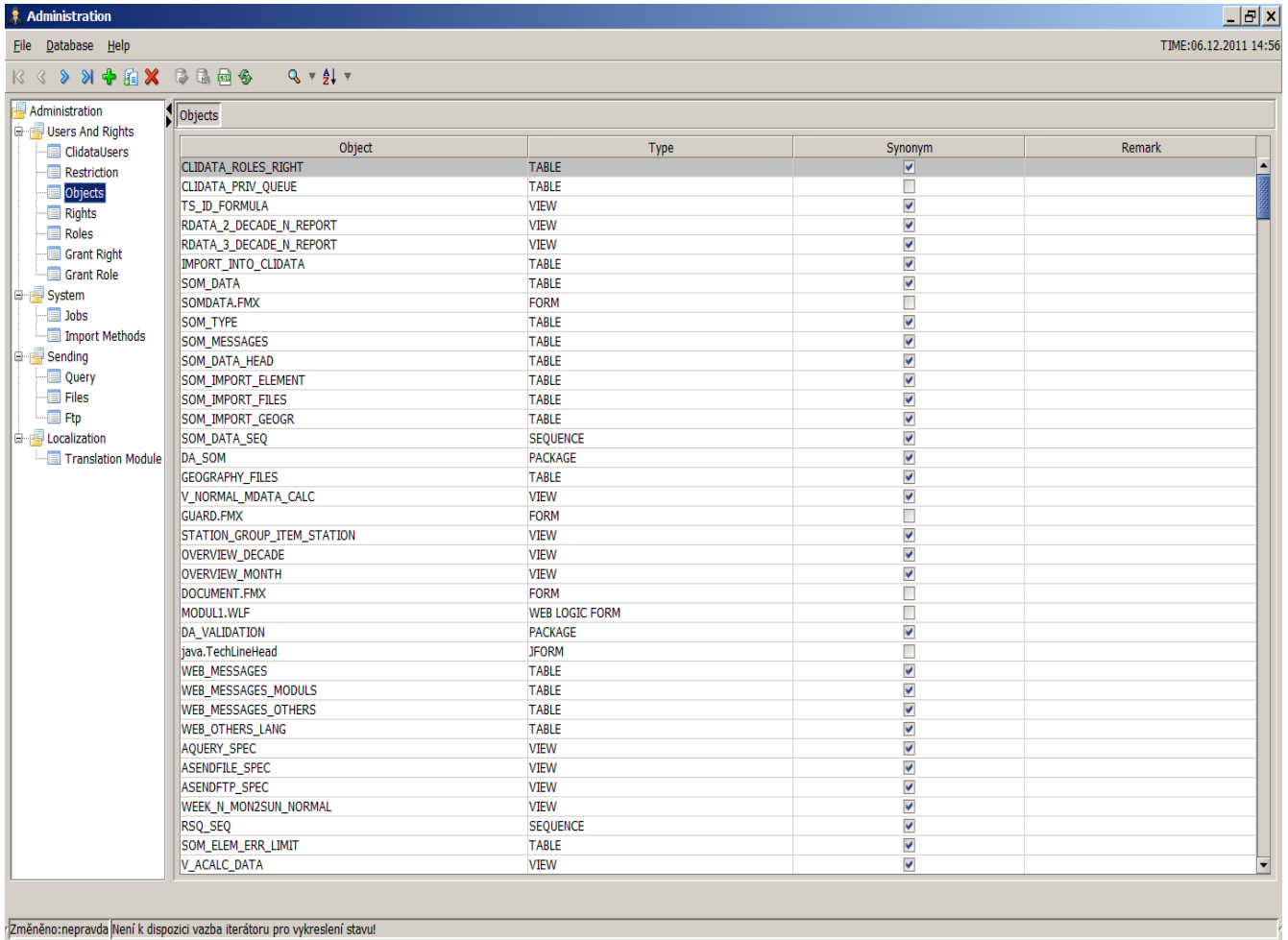


This form is for the definition of restrictions for the data manipulation. Each user can be assigned with one restriction definition. One restriction consists of table definitions with a condition for select and update. The condition is used as in the SQL where clause for the selection from the underlying table.

In the picture there is a restriction **Ostrava** which restricts all user to be able to modify only tables where the Station id begins with O. The user has no any restriction for select therefore user is able to select all data.



## 9.3 Objects



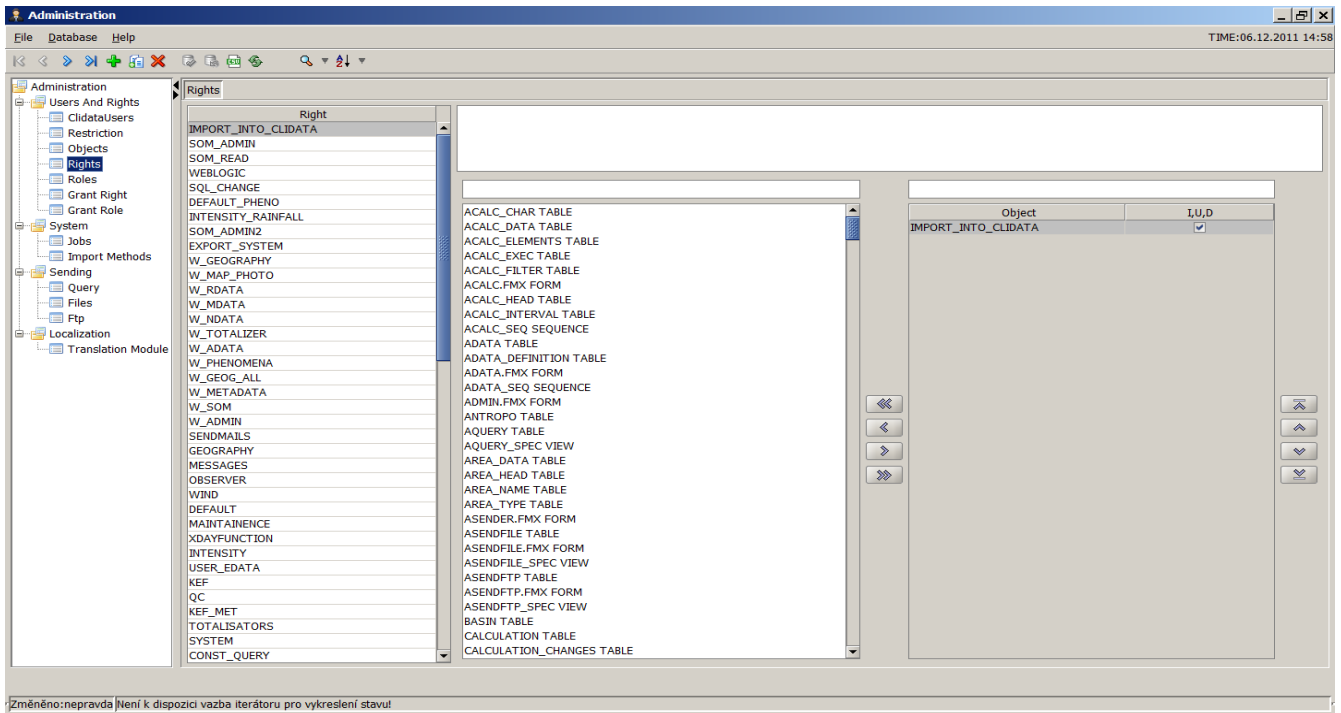
Object	Type	Synonym	Remark
CLIDATA_ROLES_RIGHT	TABLE	<input checked="" type="checkbox"/>	
CLIDATA_PRIV_QUEUE	TABLE	<input type="checkbox"/>	
TS_ID_FORMULA	VIEW	<input checked="" type="checkbox"/>	
RDATA_2_DECADE_N_REPORT	VIEW	<input checked="" type="checkbox"/>	
RDATA_3_DECADE_N_REPORT	VIEW	<input checked="" type="checkbox"/>	
IMPORT_INT0_CLIDATA	TABLE	<input checked="" type="checkbox"/>	
SOM_DATA	TABLE	<input checked="" type="checkbox"/>	
SOMDATA.FMX	FORM	<input type="checkbox"/>	
SOM_TYPE	TABLE	<input checked="" type="checkbox"/>	
SOM_MESSAGES	TABLE	<input checked="" type="checkbox"/>	
SOM_DATA_HEAD	TABLE	<input checked="" type="checkbox"/>	
SOM_IMPORT_ELEMENT	TABLE	<input checked="" type="checkbox"/>	
SOM_IMPORT_FILES	TABLE	<input checked="" type="checkbox"/>	
SOM_IMPORT_GEOGR	TABLE	<input checked="" type="checkbox"/>	
SOM_DATA_SEQ	SEQUENCE	<input checked="" type="checkbox"/>	
DA_SOM	PACKAGE	<input checked="" type="checkbox"/>	
GEOGRAPHY_FILES	TABLE	<input checked="" type="checkbox"/>	
V_NORMAL_MDATA_CALC	VIEW	<input checked="" type="checkbox"/>	
GUARD.FMX	FORM	<input type="checkbox"/>	
STATION_GROUP_ITEM_STATION	VIEW	<input checked="" type="checkbox"/>	
OVERVIEW_DECADE	VIEW	<input checked="" type="checkbox"/>	
OVERVIEW_MONTH	VIEW	<input checked="" type="checkbox"/>	
DOCUMENT.FMX	FORM	<input type="checkbox"/>	
MODUL1.WLF	WEB LOGIC FORM	<input type="checkbox"/>	
DA_VALIDATION	PACKAGE	<input checked="" type="checkbox"/>	
java.TechLineHead	JFORM	<input type="checkbox"/>	
WEB_MESSAGES	TABLE	<input checked="" type="checkbox"/>	
WEB_MESSAGES_MODULS	TABLE	<input checked="" type="checkbox"/>	
WEB_MESSAGES_OTHERS	TABLE	<input checked="" type="checkbox"/>	
WEB_OTHERS_LANG	TABLE	<input checked="" type="checkbox"/>	
AQUERY_SPEC	VIEW	<input checked="" type="checkbox"/>	
ASENDFILE_SPEC	VIEW	<input checked="" type="checkbox"/>	
ASENDFTP_SPEC	VIEW	<input checked="" type="checkbox"/>	
WEEK_N_MONZSUN_NORMAL	VIEW	<input checked="" type="checkbox"/>	
RSQ_SEQ	SEQUENCE	<input checked="" type="checkbox"/>	
SOM_ELEM_ERR_LIMIT	TABLE	<input checked="" type="checkbox"/>	
V_ACALC_DATA	VIEW	<input checked="" type="checkbox"/>	

Změněno:nepravda | Není k dispozici vazba iterátoru pro vykreslení stavu!

In this form there is list of all database objects to which the user can get access. The synonym means that the object is visible to all users or not. Also type specifies the type of the object.

Pleas do not change this definition. It is reserved to change only by developers of the system.

## 9.4 Rights



This form defines all individual rights in the system. The rights are assigned to users.

We focus to the following rights:

### Right to access Clidata application

Right	Description
DEFAULT	All users needs this right to be able to work with Clidata

### Right to access modules of Java Clidata application

Right	Description
JF_ALL	Access to whole modules of the system
JF_ADMIN	Access to administration part of the system
JF_KEF	Access to key entry forms
JF_LOV	Access to metadata
JF_PRODUCTS	Access to products
JF_SOM	Access to run-off model
JF_STATION	Access to station definitions

### Rights to modify data

Right	Description
W_ADATA	User can write to Upper air data
W_ADMIN	User can modify data in administration part
W_GEOG_ALL	User can modify all geography information

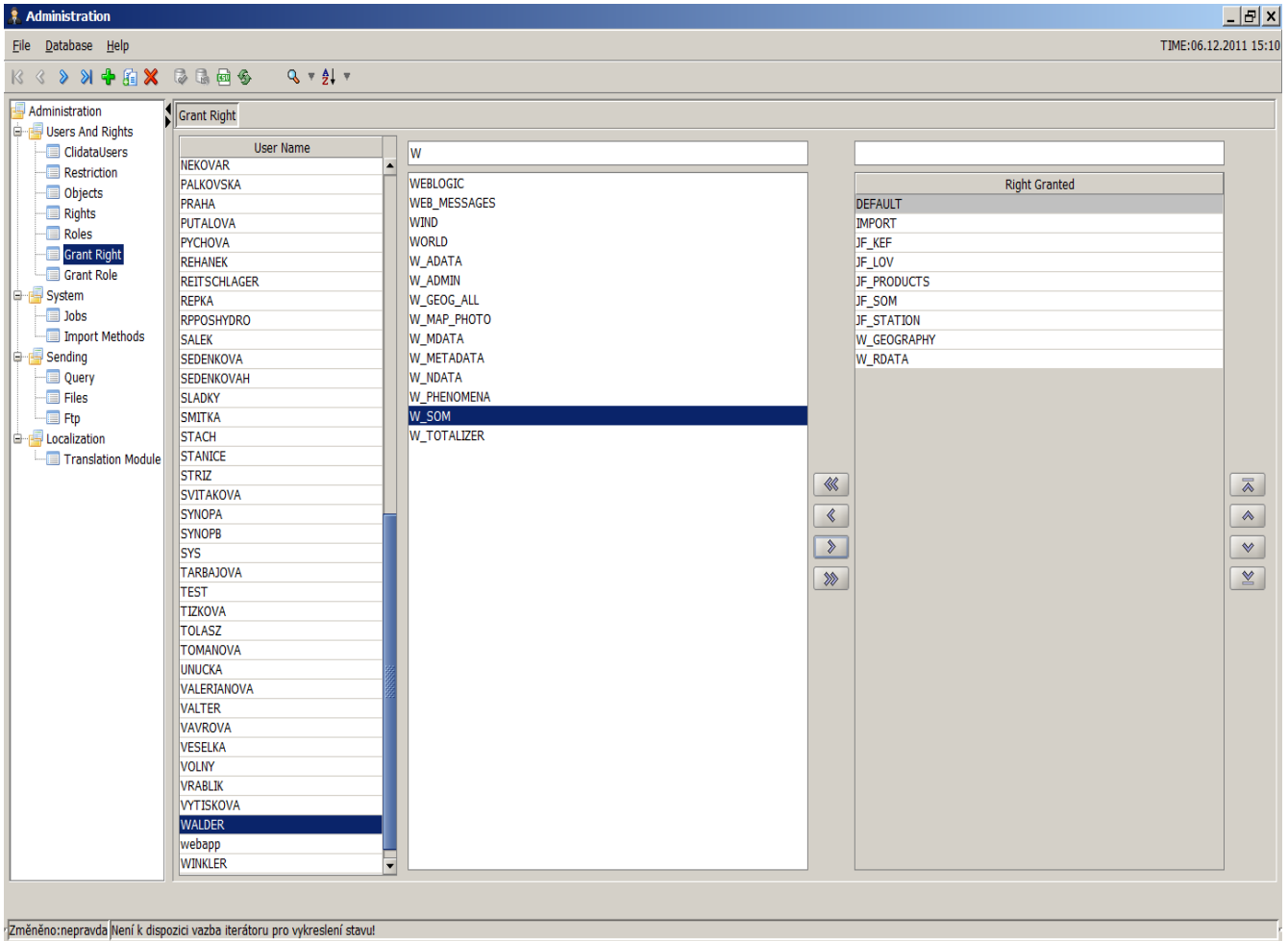
W_GEOGRAPHY	User can modify only station and observation information
W_MAP_PHOTO	User can add maps and photos
W_MDATA	User can write monthly data
W_METADATA	User can modify metadata information
W_NDATA	User can modify normal information
W_PHENOMENA	User can enter meteorological phenomena
W_RDATA	User can modify daily data
W_SOM	User can modify run-off model preparation
W_TOTALIZER	User can modify rainfall gauge (totalizator) data

## 9.5 Roles

The screenshot displays the 'Administration' software interface. The main window is titled 'Roles' and shows a list of roles on the left and a list of permissions on the right. The 'Role' list includes: GEOGCHANGE, KEF, QC, SYSPARAMS, PRODUCTS, ADMIN, and QCGIS. The 'Right' pane lists permissions: ADATA, FORM\_SYSTEM, KEF, KEF\_MET, KEF\_NDATA, and TOTALISATORS. The interface also features a menu bar (File, Database, Help), a toolbar, and a status bar at the bottom with the text 'Změněno:nepravda | není k dispozici vazba iterátoru pro vykreslení stavu!'.

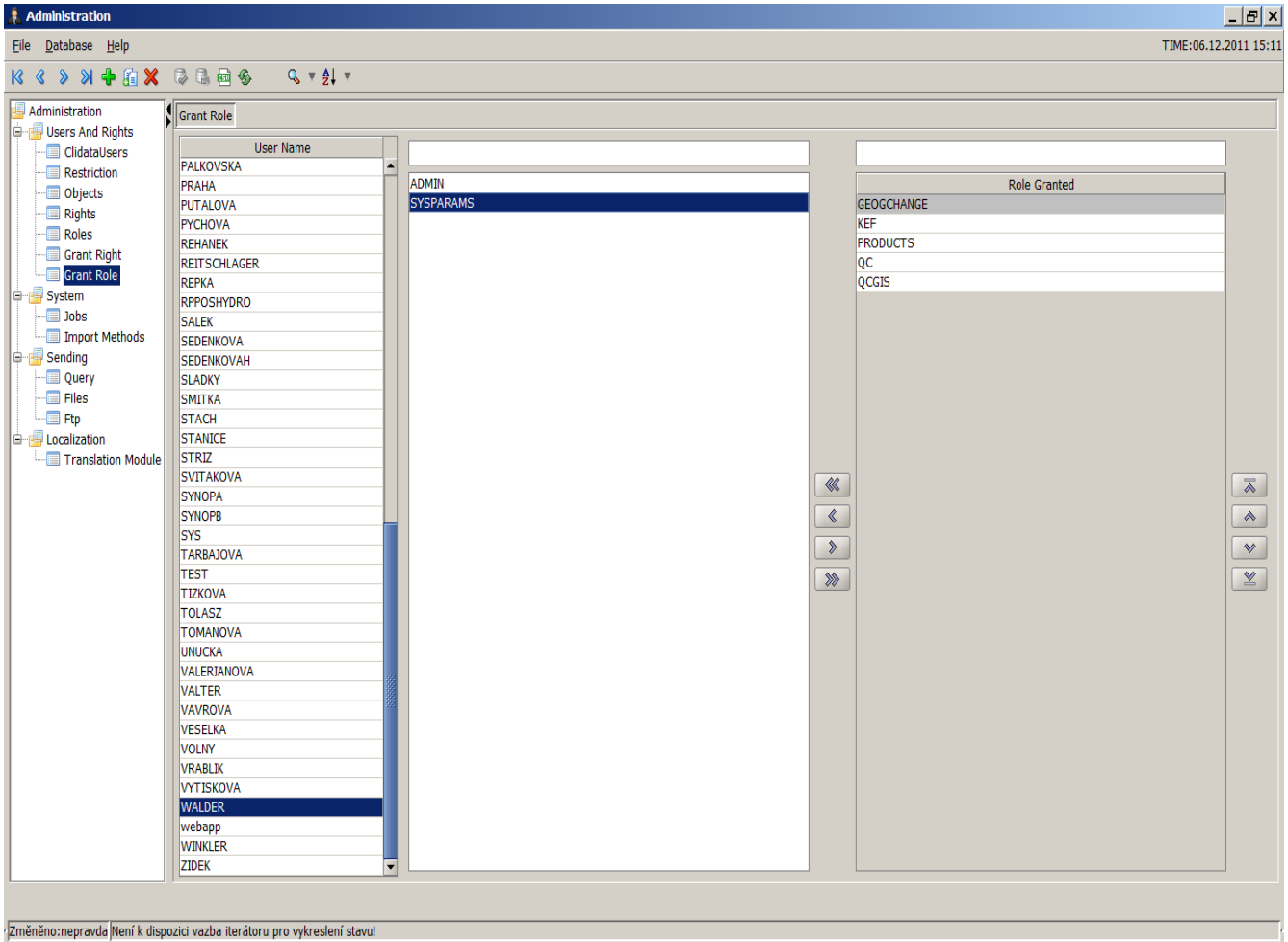
Individual rights can be grouped into more complex roles.

## 9.6 Grant right



Assignment of the rights to users. The user in the picture has the rights to all Java modules except administration. He is able to modify station geography and key entry daily data.

## 9.7 Grant role



The user at the picture has some roles assigned. The individual rights of the roles are defined in Roles page.