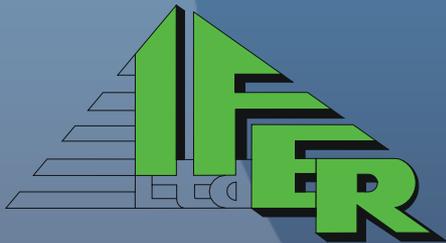


New Features of Field-Map

Version XE5 and XE6



IFER - Monitoring and Mapping Solutions Ltd.

<http://www.field-map.com>

Basic information

- Many improvements directly implemented into Field-Map
- Significant improvement of programmes included into Field-Map instalation (e.g, Firebird desktop, Field-Map Symbol Editor)
- Group of new scripting functions, procedures and properties
- Up-to-date documentation and helps with new examples

FMDC - Users interface

- Extended support of small screens with high resolution
- Expandable buttons
- Expandable fonts in attributes
- Wider distance between items in lookup lists
- Expanded virtual keyboard
- Wider distance between GIS layers in map window
- Adapted window for notes (attribute type memo)
- Settings stored for each project individually

Adjust screen for finger control

Button expansion, %: 125

Font expansion, %: 125

7 8 9

4 5 6

1 2 3

←

READY 4 (Two species (picea. abies))

Map Plot Trees

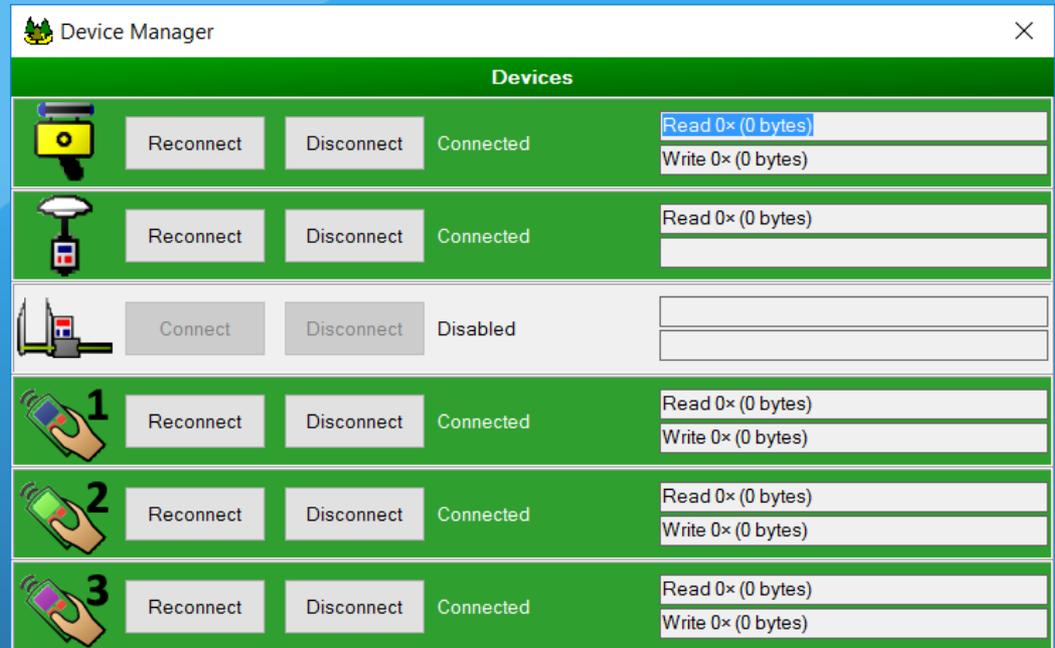
Basic data	DBH-H	Crown projection	Crown profile	Stem profile
DBH, mm	243			
Height, m	25,00			
Live crown base, m	23,45			
Species	Picea excelsa			
Calculated height, m	Picea excelsa			

Map Plot Trees

Copy Paste OK Cancel

New support of electronic devices

- Support of on-line calliper in Deadwood measurement
- Up to 3 non-specific devices controlled by scripting

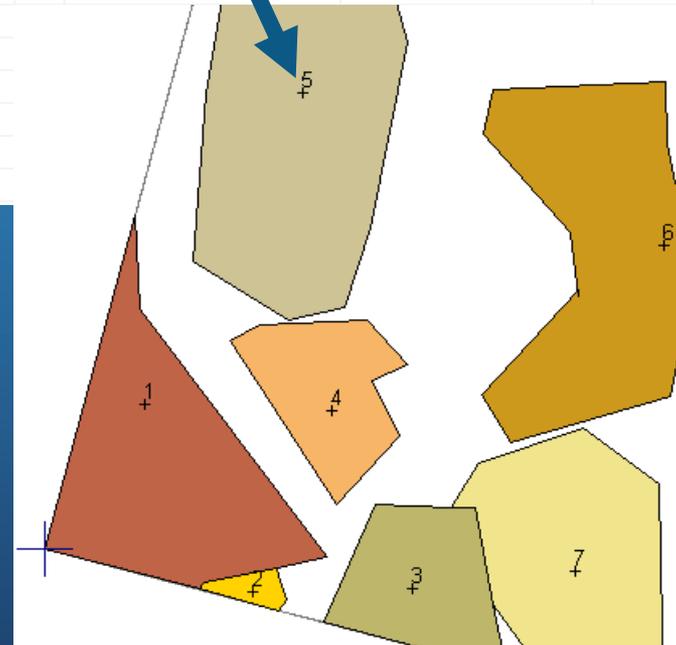


Geodatabase

- Option to store spatial data directly in the database in binary format
- Data is stored in standardized format that can be used in other applications (WKB format = Well-known binary)



	IDPlots	ID	FMGIS_point	FMGIS_pointAttribs	FMGIS_polyg
1	1	1	0x0101000000EC51B81...	0x0101000000000000...	0x01030000000100...
2	1	2	0x0101000000B4C876B...	0x0101000000000000...	0x01030000000100...
3	1	3	0x0101000000F2D24D6...	0x0101000000000000...	0x01030000000100...
4	1	4	0x0101000000F4FDD47...	0x0101000000000000...	0x01030000000100...
5	1	5	0x0101000000986E128...	0x0101000000000000...	0x01030000000100...
6	1	6	0x0101000000C8FC2F...	0x0101000000000000...	0x01030000000100...
7	1	7	0x0101000000B72689...	0x0101000000000000...	0x01030000000100...
8	1	8	0x01010000001F87EB5...	0x0101000000000000...	0x01030000000100...
9	1				000000100...
10	1				000000100...
11	1				000000100...
12	1				000000100...
13	1				000000100...
14	1				000000100...



Data Collector

- Positioning to trees - store automatically correction of magnetic declination for the next mapping
- Data checking - results are stored in Navigator for fast movement in database
- Improved support of the format ECW in Background map
- Automatic zoom to selected entity after switch to map

ID	Species	DBH, mm	Easting, m	Northing, m	Altitude, m
159	Fagus sylvatic	442	-680194,826	-964500,498	608,5
160	Fagus sylvatic	816	-680198,835	-964499,225	609,0
161	Fagus sylvatic	107	-680210,094	-964501,861	611,4
162	Fagus sylvatic	87	-680210,101	-964498,806	610,4
163	Fagus sylvatic	83	-680212,432	-964499,105	610,2
164	Fagus sylvatic	81	-680211,565	-964502,336	611,3
165	Fagus sylvatic	78	-680212,776	-964496,444	608,5
166	Fagus sylvatic	105	-680212,037	-964494,426	607,4
167	Fagus sylvatic	111	-680214,052	-964492,392	606,7
168	Acer pseudop	96	-680218,645	-964504,327	613,6
169	Acer pseudop	143	-680216,12	-964506,045	613,2
170	Acer pseudop	108	-680215,623	-964504,483	613,3
171	Sorbus aucup	106	-680217,446	-964501,902	612,9
172	Sorbus aucup	93	-680215,605	-964501,879	612,2
173	Sorbus aucup	94	-680215,668	-964501,951	612,2
174	Acer pseudop	101	-680224,59	-964505,728	614,6
175	Fagus sylvatic	113	-680222,278	-964501,673	611,8
176	Fagus sylvatic	489	-680197,313	-964488,914	602,1
177	Fagus sylvatic	418	-680198,495	-964484,802	600,5
178	Fagus sylvatic	236	-680202,49	-964483,357	599,7
179	Fagus sylvatic	523	-680205,892	-964481,136	599,4
180	Fagus sylvatic	204	-680204,448	-964490,307	598,4
181	Fagus sylvatic	653	-680215,034	-964472,711	596,9
182	Fagus sylvatic	729	-680217,043	-964469,535	595,5

Trees (1)	Species	DBH, mm	Missing value.
Trees (8)			Missing value.

Validity checking finished.

Copy to clipboard | Save to File | Show Navigator

Database Navigator

Navigate to database records

Plot ID=1

Trees: Missing value(s)

Trees: Missing value(s)

Switch between map and attributes

Automatic switch from map to attribute page

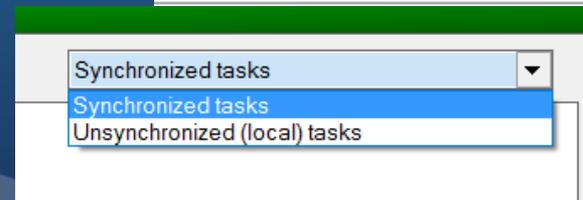
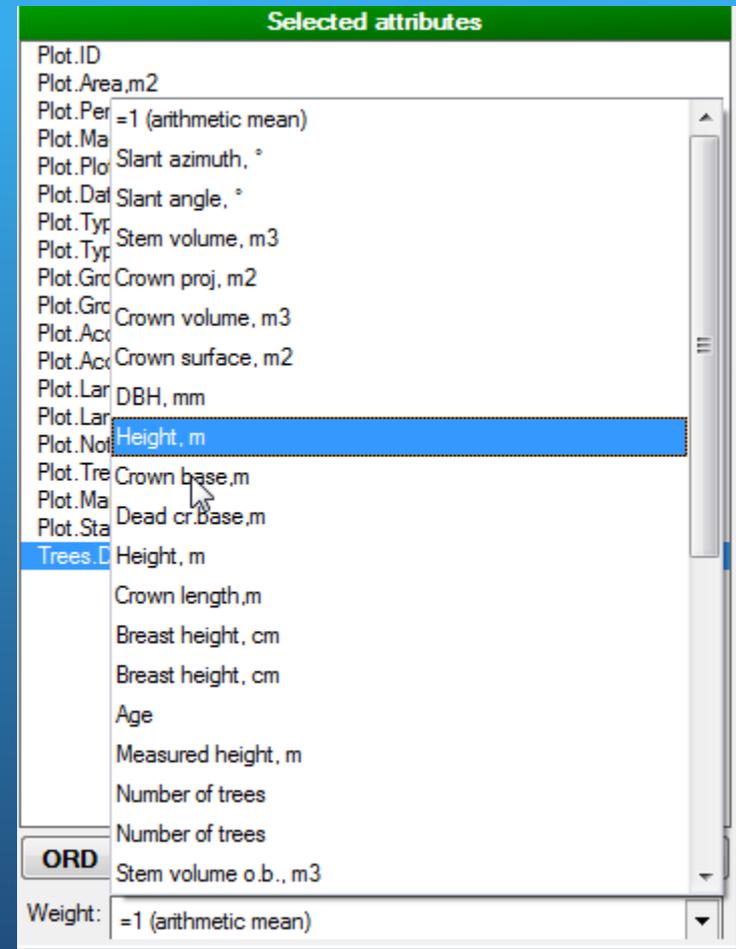
Delay, sec: 3

Show floating switch button

Zoom to selected entity after switch to map

Database Query Tool - evolution

- New user defined options of calculating statistics
 - Arithmetic mean
 - Weighted mean
 - All numeric attributes of specific layer are available as possible weights
- Synchronized vs. local tasks
- Store result of tasks in navigator file - use DQT for fast searching of records in database
- Formatted export to Excel



Project Manager

- Import attribute labels from another FM Project
- Use thousand separator for numerical attributes (→ DQT)

Attribute Labels

Attribute name	Attribute label	Attribute
meterAboveFork_mm	Diameter above fork, mm	Tloušťka nad rozvětvením
lengthOfBranchSegment	Length of branch segment, m	Délka větve, m
addFork	Add fork	Přidat rozvětvení
forked	Forked	Kmen rozvětven
numberOfChildBranches	Branches	Větve
heightOfFork_m	Height of fork, m	Výška rozvětvení, m
meterBelowFork_mm	Diameter below fork, mm	Tloušťka pod rozvětvením
volume_m3	Volume (stem model), m3	Objem (model kmene), m3
volume_m3	Volume (Smalian), m3	Objem (Smalian), m3
lots		
rees		
ranches1		
ranches2		
ranches3		
meterAboveFork_mm	Diameter above fork, mm	Tloušťka nad rozvětvením
lengthOfBranchSegment	Length of branch segment, m	Délka větve, m
addFork	Add fork	Přidat rozvětvení
forked	Forked	Kmen rozvětven
numberOfChildBranches	Branches	Větve
heightOfFork_m	Height of fork, m	Výška rozvětvení, m
meterBelowFork_mm	Diameter below fork, mm	Tloušťka pod rozvětvením
volume_m3	Volume (stem model), m3	Objem (model kmene), m3
volume_m3	Volume (Smalian), m3	Objem (Smalian), m3
lots		
rees		

Size: Min value:

Decimal places: Max value:

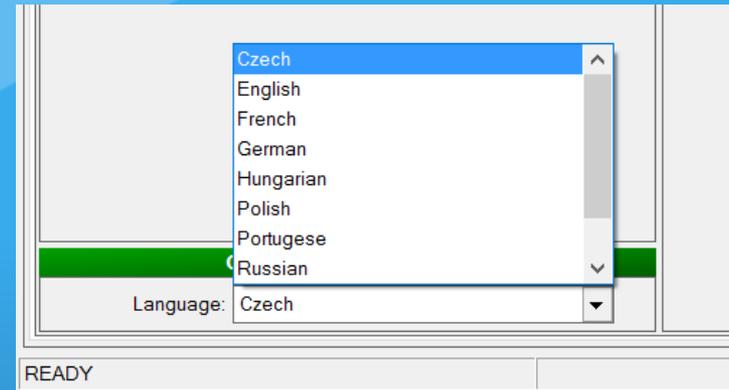
Use thousand separator

Example. 999 999 999

- Copy: Attribute label (2) -> Attribute label
- Copy: Attribute label (2) -> Attribute label (3)
- Exchange: Attribute label (2) <-> Attribute label
- Exchange: Attribute label (2) <-> Attribute label (3)
- Import attribute label from project...
- Import attribute label (2) from project...
- Import attribute label (3) from project...
- Clear

Inventory Analyst

- Support of more languages in exported results
- New export to Excel - formatted export
- CHM help for Inventory Analyst
- Tool for preparing data for repeated measurement (KNN library)
- adjustment of the calculation of the arithmetic mean with strata



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	107. PBP - Celkový počet stromů podle tloušťkových tříd a kategorií dřevin (stromy od 7 cm výč. tl.)																
	Total number of trees (DBH >= 7 cm), broken down by diameter class and species category																
2																	
3	Kategorie dřevin / Kategorie dřevin / Počet stromů																
4	<i>Species category / Species category / Tree number</i>																
5	Tloušťková třída (5 cm)	jehličnany		dlouhověké listnáče				krátkověké listnáče				Celkem					
6		<i>conifers</i>		<i>long-lived broadleaves</i>				<i>short-lived broadleaves</i>				<i>Total</i>					
7		mil.	($\alpha=0.10$)	%	mil.	($\alpha=0.10$)	%	mil.	($\alpha=0.10$)	%	mil.	($\alpha=0.10$)	%	mil.	($\alpha=0.10$)	%	
8	7 - 11.9 cm	1,8	-	-	42,5	5,1	0,0	11,0	30,9	26,8	21,9	31,6	52,7	33,7	28,8	38,6	47,0
9	12 - 16.9 cm	1,7	0,8	2,6	39,1	4,2	3,4	5,0	25,3	10,3	7,8	12,9	20,3	16,2	13,4	19,1	22,6
10	17 - 21.9 cm	0,3	0,1	0,5	6,9	2,9	2,4	3,4	17,4	3,7	3,2	4,3	7,3	6,9	6,1	7,7	9,6
11	22 - 26.9 cm	0,3	-	-	6,9	1,2	-	-	7,2	3,5	3,0	4,0	6,9	5,0	4,4	5,6	7,0
12	27 - 31.9 cm	0,1	-	-	2,3	0,7	0,6	0,8	4,2	1,4	1,1	1,7	2,8	2,2	1,9	2,5	3,1
13	32 - 36.9 cm	-	-	-		0,3	-	-	1,8	1,1	1,0	1,2	2,2	1,4	1,3	1,5	2,0
14	37 - 41.9 cm	-	-	-		0,5	-	-	3,0	0,9	0,8	1,0	1,8	1,4	1,3	1,5	2,0
15	42 - 46.9 cm	-	-	-		-	-	-		0,9	0,8	1,0	1,8	0,9	0,8	1,0	1,3
16	47 - 51.9 cm	-	-	-		-	-	-		0,5	0,1	0,9	1,0	0,5	0,1	0,9	0,7
17	52 - 56.9 cm	-	-	-		0,4	-	-	2,4	0,2	-	-	0,4	0,6	0,4	0,8	0,8
18	57 - 61.9 cm	0,1	-	-	2,3	0,4	-	-	2,4	0,1	-	-	0,2	0,6	-	-	0,8
19	62 - 66.9 cm	-	-	-		0,3	-	-	1,8	-	-	-		0,3	-	-	0,4
20	67 - 71.9 cm	-	-	-		0,1	-	-	0,6	0,4	0,0	0,8	0,8	0,5	0,2	0,8	0,7
21	72 cm +	-	-	-		0,5	0,4	0,6	3,0	0,9	0,6	1,2	1,8	1,4	1,1	1,7	2,0
22	Celkem	4,4	1,1	7,6	100,0	16,6	10,6	22,7	100,0	50,7	44,9	56,5	100,0	71,7	65,6	77,7	####
23	Total																
24	Go to table of content																

Synchronization - evolution

- Option to run synchronization only for currently open plot or entire database
- Synchronization of all graphic and numeric layers
- Possibility to skip some layers from synchronization
- Synchronization was significantly speeded-up and the transfer of graphical objects was made more stable (WKB blobs instead of shapefiles)
- Analyze Synchronization Traffic tool

Analysis results		
Last update by users in user groups		
Plots 999 (999)		
ADMINS	a	5.9.2016 15:18:18
Data assignment to users		
Plots 999 (999)		
ADMINS	a	5.9.2016 15:18:14
USERS	u	5.9.2016 15:18:14

Synchronization - evolution (continue)

- Attempt to repeat synchronization in case of failure because of the busy database
- Post meta-data of FM project and lookup lists to synchronization (easy updating)
- Post other project files to synchronization
- Create project with/without synchronization

Firebird Dektop

- New Field-Map tool to work directly with Firebird database

The screenshot displays the Firebird Dektop interface. On the left, a query window titled 'DBH-H' shows the SQL query `select * from trees`. Below the query, a table of data is visible with columns for 'STEM_VOLUME_M3' and 'CROWNPROJ_AREA_M2'. The table contains 206 records. On the right, a window titled 'Parameterization of Regression Model' displays a scatter plot of 'HEIGHT_M' versus 'DBH_MM'. The plot shows a positive correlation between tree diameter and height, with a red regression line. The regression equation is $[HEIGHT_M]=5,9287E-1*[DBH_MM]^6,2165E-1$. The plot also shows the correlation coefficient $R=0,96$, the standard error of the estimate $Syx=3,73$, and the number of data points $n=201$. The plot includes a grid and axes ranging from 0 to 1100 on the x-axis and 0 to 45 on the y-axis. Below the plot, there are buttons for 'Copy to clipboard', 'Save to file', 'Edit labels', and 'Close'. At the bottom of the interface, there are navigation buttons and options for 'Export to Excel' and 'Save to table'.

STEM_VOLUME_M3	CROWNPROJ_AREA_M2	CROWNPROJ_AREA_M2	CROWNPROJ_AREA_M2	CROWNPROJ_AREA_M2	CROWNPROJ_AREA_M2
13,546					
0,073284	33,974				
0,0298299	35,806				
0,0264463	32,224				
	38,612				
0,1435977	50,248				
0,0958483	25,115				
0,2752618	52,992				
0,0409334	28,443	133,047	126,518	106	10,748
0,0538243	17,31	93,342	94,489	120	10,799
0,1093589	48,198	363,855	219,694	148	14,314
2,1231023	190,177	2143,722	825,517	467	25,993
1,0523897	90,614	854,341	454,736	354	23,075
0,0204598	15,052	98,32	93,627	81	10,551
0,0383677	31,475	139,407	125,516	103	10,746

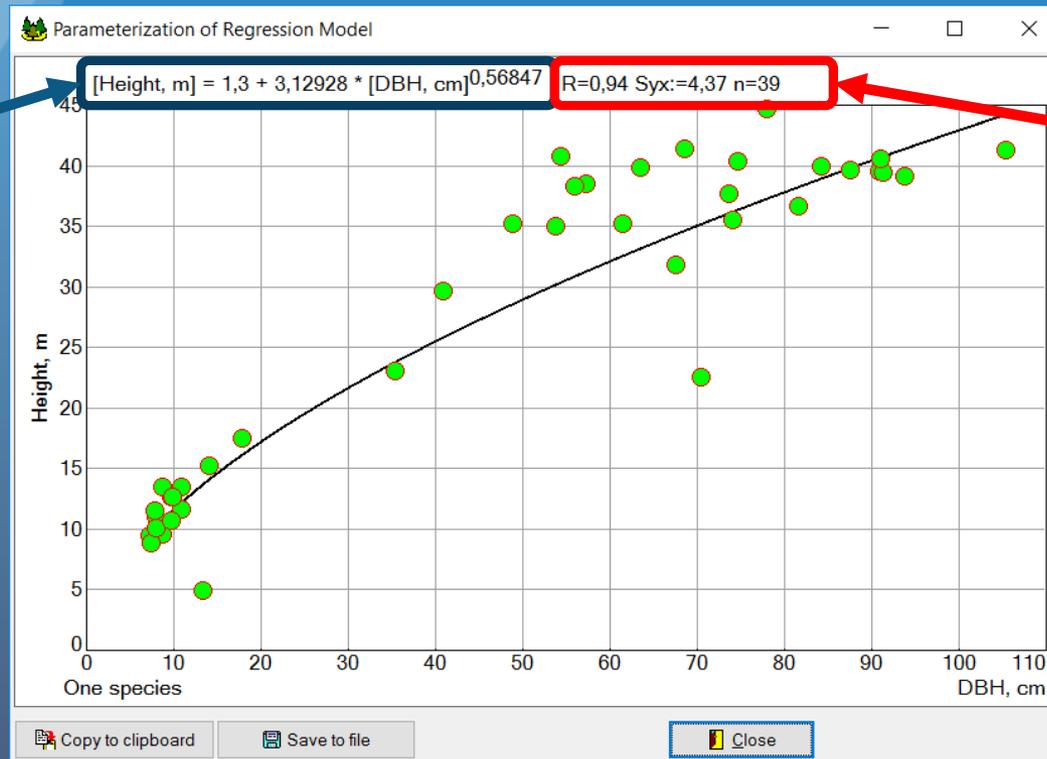
Field-Map Scripting

Scripting functions for basic statistics

- Mean, Median, Quadratic Mean, Weighted mean
 - Variance, Standard deviation, Variance of mean, ...
 - Standard Error, Mean Error
 - Confidence interval
-
- ...and even more statistics can be simply calculated now!
 - Coefficient of Variation
 - Stratified Confidence Interval Of Total

Regression and regression charts

- 14 regression model types + powerful non-linear optimization
- Easy implementation
- function `ParameterizeRegressionModel`



Parameterized equation

Regression statistics

Available regression models

Regression model	Function	Model Type
Linear	$Y=P1+P2*X$	'LINE'
Power	$Y=P1*X^P2$	'POWER'
Hyper	$Y=1/(P1+P2*X)$	'HYPER'
HyperX	$Y=X/(P1+P2*X)$	'HYPERX'
Exponential	$Y=P1*exp(P2*X)$	'EXP'
Exponential (absolute value)	$Y=P1*exp(P2*X)+P3$	'EXPABS'
Exponential/Linear	$Y=P1*exp(P2*X)+P3*X$	'EXPLIN'
2nd Polynomial	$Y=P1+P2*X+P3*(X^2)$	'POLY2'
Power (absolute value)	$Y=P1+P2*X^P3$	'POWERABS'
Height curve	$Y=exp(P1+P2/X)$	'HCURVE'
Mikhaylov	$Y=P1*exp(-P2/X)$	'MIKHAYLOV'
Freese	$Y=exp(P1+P2*ln(x)+P3*X)$	'FREESE'
Petterson	$Y=1.3+(X/(P1+P2*X))^3$	'PETTERSON'
Log	$Y=P1+P2*ln(X)$	'LOG'

New GIS functions

Layer wrapper

- Find Intersecting Polygons
- Get Intersecting Polygon Areas
- Find Contained Points Or Centroids
- Find Polygon Containing Point
- Find Lines Intersecting Polygon
- Get Combined Polygons Coordinates
- Create FM point, line, polygon

New functions for work with XML

Table and Layer wrapper

- Set Values From XML
- Add Data To XML

Global functions

- Create XML Output
- Create XML Output File
- Free XML Output

Get current settings and use it in scripting

- Get Finger Control
- Get Button Expansion Percentage
- Get Font Expansion Percentage
- Get Pole Position Mode
- Get GPS Antenna Height, cm
- Get Bearing Angle, deg
- Get Bearing Azimuth, deg
- Get Laser Equipment Height, cm
- Get Azimuth Fix Offset, deg
- Get Azimuth Units
- Get Magnetic Declination, deg0
- Get GPS Antenna Height, cm
- Get Pole Position Mode
- ...

New string list wrapper

New functions and procedures to work with string list (objects)

Function

- Add, Find, IndexOf
- AddStrings, Count, Text
- IndexOfName

Property

- Duplicates, Sorted, CaseSensitive, Strings, Delimiter, DelimitedText, NameValueSeparator, Name, Value

Procedures

- Free
- EndUpdate
- Assign, Strings
- Clear, Delete, Move, Insert
- Exchange, Sort
- LoadFromFile, SaveToFile

Scripting functions control devices and measurement

- Non Specific Equipment Active
- Process Messages
- Manage Non Specific Equipment
- Send Message To Non Specific Equipment
- Reset Online Calliper
- Get Current Position
- Get Continuous GPS Coordinates
- Measure Remote Diameter
- Measure Stem Profile
- Cancel Measurement
- Measure Horiz. Dist.
- Measure Inclination
- Measure Horiz. Dist. and Inclination

Stem profile modeling

- Get ID, Set ID
- Get Species Code and Name
- Get DBH, mm and Tree Height, m
- Get Stump Height and diameter
- Add point
- Sort By Height
- Parametrize Model
- Apply Global Model
- Diam For Height By Model, mm
- Height For Diam By Model, m
- Volume, m³
- Total Volume, m³
- Stem Volume, m³
- Merchantable Volume, m³
- Show Stem Profile
- ...

Users interface - new functions

- Make Log Window Stay On Top
- Input Text
- Input Integer With Counter
- Input From Check List Tab
- Input Option With Starting Value
- Save String To File
- Save String To File As UTF8
- Show Distribution Chart

Custom applications

Custom application

- Implementation of new business model



CZETAX HOLINY

Nástroj pro mapování holin

Field-Map version X6.0.0+
Project version 21.1.2016 / 3



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Nástroj pro podporu tvorby LHP

CZETAX

Field-Map version X6.0.0+
Project version 3.4.2013 / 859



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Field-Map version X6.0.0+
Project version 24.7.2015 / 1846



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Project version 5.8.2016 / 2326



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Thank you for your attention

