StackProf

Logiciel de mesures sur profils empilés

version 1.01 (30 mai 2021)

ASCII export file format
English description

- Indentation is made using space characters; two space characters for one indentation.
- For better readability, lines about key-value pair of object with close description are described only one time in tables below.

Project input file and parameters

Line	Value description and details	Value example
GeneratedByAppRelease;**<value>**	string	1.01
bIncludeProfilesCurvesData;**<value>**	string: true | false. File content state about profile curves data.	false
bUseGeoRef;**<value>**	string: true | false. Indicates if the project uses georeferencing.	true
bWarningFlagByUser_setLinearRegressionData_asEmpty;**<value>**	string: true | false. Content state of linear regression data for flagged profiles.	true
bWarningFlagByUser_setProfilesCurvesData_asEmpty;**<value>**	string: true | false. Content state of profiles curve data for flagged profiles.	false
boxContent;**<value>**	string: allBoxes | onlyOneBox. Indicates that the file contains data for all boxes or only one.	allBoxes
contentType;resultExport		
exportDate;**<value>**	string	2020.12.31 12;54;53
exportDateFormat;yyyy.MM.dd hh;mm;ss		
imagesSet_geoRefInfos	Georeferencing data used by the project	
coordRefSys_coordTrans		
EPSG_code;EPSG;**<value>**	Integer value of the EPSG Code; or "notSet" string for project not using georeferencing	32633
imageGeoRef		
pathAndFilename	Not used by project: oath and filename of the background image, set at project creation.	
absolutePath;**<value>**	string of the absolute path to the file with '/' character separating directories	/home/user2/reftest
filename;**<value>**	string of the filename	Px1_Num5_LeChantier.tif
worldFileContent	World file data used in project like described here: https://en.wikipedia.org/wiki/World_file	
0_A_xScale;**<value>**	decimal value of x scale	0.5
1_D_rotationTerms_1;**<value>**	decimal value of rotationTerms_1	0
2_B_rotationTerms_2;**<value>**	decimal value of rotationTerms_2	0
3_E_yScale;**<value>**	decimal value of y scale	-0.5
4_C_xTranslationTerm;**<value>**	decimal value of x translationTerm	350697.75
5_F_yTranslationTerm;**<value>**	decimal value of y translationTerm	4754094.75
versionFormat;**<value>**	string	0.8
computationMainMode;1	Constant value set at 1 (one)	
computationParameters	*Stacked profiles computation parameters*	
baseComputationMethod;**<value>**	string : mean | median	median
correlationScoreMapParameters		
PX1_PX2	*Parameters for Px1 and Px2 correlation score map usage*	
bUse;**<value>**	string : true | false. Indicates if the file is used as weighting.	true
option_thresholdRejection		
bUse;**<value>**	string : true | false	true
rejectValueIfBelow;**<value>**	decimal value	170
option_weighting		
bUse; **<value>**	string : true | false	true
weightExponent;**<value>**	integer value. Range from 2 to 6	2
ZOther	*Parameters for DeltaZ correlation score map usage.*	
bUse;**<value>**	''	true
option_thresholdRejection		
bUse;**<value>**	''	false
rejectValueIfBelow;**<value>**	''	180
option_weighting		
bUse;**<value>**	''	false
weightExponent;**<value>**	''	6

Line	Value description and details	Value example
pixelExtractionMethod;**<value>**	string : nearestPixel | biLinearInterpolation2x2 (2x2 means: four surrounding pixels)	
profilOrientation; **<value>**	string : progressDirectionAlongTraceIsFromFirstToLastPoint | progressDirectionAlongTraceIsFromLastToFirstPoint	

Line	Value description and details	Value example
inputFiles	*Project input files*	
inputCorrelationScoreMaps	*Correlation score map files*	
PX1_PX2		
attributes	*attributes of the correlation score map file for Px1 and Px2*	
basetype;**<value>**	integer value describing the value type contained in the file (see Basetype table)	2
fileSize;**<value>**	integer value of the file size in byte	812652858
height;**<value>**	integer value of the image height in pixel	31000
nchannels;**<value>**	integer value of the image channels amount	1
width;**<value>**	integer value of the image width in pixel	24673
pathAndFilename		
absolutePath;**<value>**	string of the absolute path to the file with '/' character separating directories	/home/user2/reftest
filename;**<value>**	string of the filename	Correl_LeChantier_Num_5.tif
ZOther		
attributes	*attributes of the correlation score map file for DeltaZ*	
basetype;**<value>**	''	2
fileSize;**<value>**	''	812652858
height;**<value>**	''	31000
nchannels;**<value>**	''	1
width;**<value>**	''	24673
pathAndFilename		
absolutePath;**<value>**	''	/home/user2/reftest
filename;**<value>**	''	DeltaZ_correlScore.tif
inputDisplacementMaps	Displacement map files	
PX1		
attributes	attributes of the input displacement map for Px1	
basetype;**<value>**	''	5
fileSize;**<value>**	''	1567121002
height;**<value>**	''	31000
nchannels;**<value>**	''	1
width;**<value>**	''	24673
pathAndFilename		
absolutePath;**<value>**	''	/home/user2/reftest
filename;**<value>**	''	Px1_Num5_LeChantier.tif
PX2		
attributes	*attributes of the input displacement map for Px1*	
basetype;**<value>**	''	5
fileSize;**<value>**	''	1567121002
height;**<value>**	''	31000
nchannels;**<value>**	''	1
width;**<value>**	''	24673
pathAndFilename		
absolutePath;**<value>**	''	/home/user2/reftest
filename;**<value>**	''	Px2_Num5_LeChantier.tif
ZOther		
attributes	attributes of the input displacement map for DeltaZ	
basetype;**<value>**	''	5
fileSize;**<value>**	''	1567121002
height;**<value>**	''	31000
nchannels;**<value>**	''	1
width;**<value>**	''	24673
pathAndFilename		
absolutePath;**<value>**	''	/home/user2/reftest
filename;**<value>**	''	DetalZ.tif

Line	Value description and details	Value example

pixelValueResolution
  PX1
  micmacStep;**<value>**
  spatialResolution;**<value>**
  PX2
  micmacStep;**<value>**
  spatialResolution;**<value>**
  ZOther
  micmacStep;**<value>**
  spatialResolution;**<value>**
	Pixel factors values for each input component
	values for Px1
	  decimal value
	  decimal value
	values for Px2
	  ''
	  ''
	values for DeltaZ
	  ''
	  ''
		
		0.1
		1
		
		0.1
		1
		
		0.1
		1

routeName;**<value>**	string. Name of the trace used in the project	trace 2
Boxes are ordered along the trace, taking into account the selected profil orientation. Azimuth degree and unit vector direction values also.	One comment line about the lines order of the following table.	

Measures values

Measures values are joined by component. One table per component (Perpendicular, Parallele, deltaZ)
- If the project only uses Px1 and Px2, deltaZ component table will not appear.
- If the project only uses deltaZ, Perpendicular and Parallele components tables will not appear.

In component table, measures values for a box fit in one line.
The box order takes into account the selected profile orientation.

Line	Value description and details
component;**<value>**	string : Perp
<columns titles. see table below>	Columns titles (<boxId;linearRegression_isComputed;yOffsetAtX0;…>)
boxId;<i>;<…>	measures values for box i
boxId;<j>;<…>	measures values for box j
boxId;<k>;<…>	measures values for box k
	empty line, separating the different component tables
component;**<value>**	string : Parall
<columns titles. see table below>	Columns titles (<boxId;linearRegression_isComputed;yOffsetAtX0;…>)
boxId;<i>;<…>	measures values for box i
boxId;<j>;<…>	measures values for box j
boxId;<k>;<…>	measures values for box k
	empty line, separating the different component tables
component;**<value>**	string : deltaZ
<columns titles. see table below>	Columns titles (<boxId;linearRegression isComputed;yOffsetAtX0;…>)
boxId;<i>;<…>	measures values for box i
boxId;<j>;<…>	measures values for box j
boxId;<k>;<…>	measures values for box k
	empty line

Example with three boxes (with boxIds i, j and k)

Table describing the box values of the table, by column, from left to right

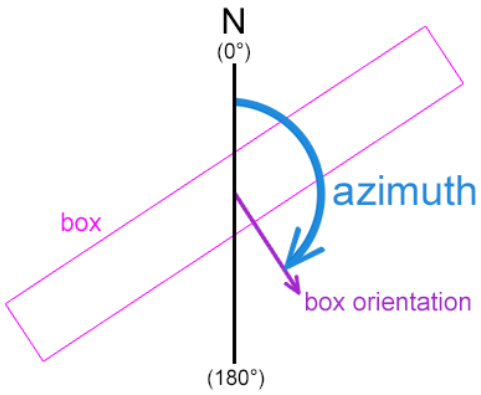
Line	**Value description and details**
boxId	Box Id. First boxId along the trace is 1 (one)
bNoWarningFlagByUser	string : true | false. Indicates if the user has not flagged the profile (“true” means that the flag is off)
linearRegression_isComputed	string : true | false | N/A. Indicates if the linear regression model on the two sides was computed with valid result for yOffsetAtX0 and sigmabSum Flagged profile and bWarningFlagByUser_setLinearRegressionData_asEmpty at true leads to value at “N/A”
yOffsetAtX0	decimal. The offset measure at the profile center position (see X0 below) Flagged profile and with bWarningFlagByUser_setLinearRegressionData_asEmpty at true leads to an empty value.
sigmabSum	decimal. Sum of leftSide_stdErrorOfIntercept and rightSide_stdErrorOfIntercept Flagged profile and bWarningFlagByUser setLinearRegressionData asEmpty at true leads to an empty value.
leftSide_isComputed	About the computed linear regression on the **left side** of the profile center. string : true | false. Indicates if the linear regression was computed Flagged profile and bWarningFlagByUser_setLinearRegressionData_asEmpty at true leads to an empty value.
leftSide_a_slope	About the computed linear regression on the **left side** of the profile center. decimal. Slope of the line equation of the computed linear regression model Flagged profile and bWarningFlagByUser setLinearRegressionData asEmpty at true leads to an empty value.
leftSide_b_intercept	About the computed linear regression on the **left side** of the profile center. decimal. Intercept of the line equation of the computed linear regression model Flagged profile and bWarningFlagByUser_setLinearRegressionData_asEmpty at true leads to an empty value.
leftSide_stdErrorOfSlope	About the computed linear regression on the **left side** of the profile center. decimal. Estimated standard deviation of the error in estimating the slope. See used formula below. Flagged profile and bWarningFlagByUser setLinearRegressionData asEmpty at true leads to an empty value.
leftSide_stdErrorOfIntercept	About the computed linear regression on the **left side** of the profile center. Decimal. Estimated standard deviation of the error in estimating the intercept. See used formula below. Flagged profile and bWarningFlagByUser setLinearRegressionData asEmpty at true leads to an empty value.
leftSide_stdErrorOfTheRegression	About the computed linear regression on the **left side** of the profile center. Decimal. Standard error of the regression. See used formula below. Flagged profile and bWarningFlagByUser setLinearRegressionData asEmpty at true leads to an empty value.
leftSide_sumsq	About the computed linear regression on the **left side** of the profile center. decimal. Sum of squares of the residuals from the best-fit line Flagged profile and bWarningFlagByUser_setLinearRegressionData_asEmpty at true leads to an empty value.
rightSide_isComputed	About the computed linear regression on the **right side** of the profile center. ’’ ’’ ’’
rightSide_a_slope	’’ ’’ ’’ ’’
rightSide_b_intercept	’’ ’’ ’’ ’’

Line	Value description and details
rightSide_stdErrorOfSlope	'' '' '' ''
rightSide_stdErrorOfIntercept	'' '' '' ''
rightSide_stdErrorOfTheRegression	'' '' '' ''
rightSide_sumsq	'' '' '' ''

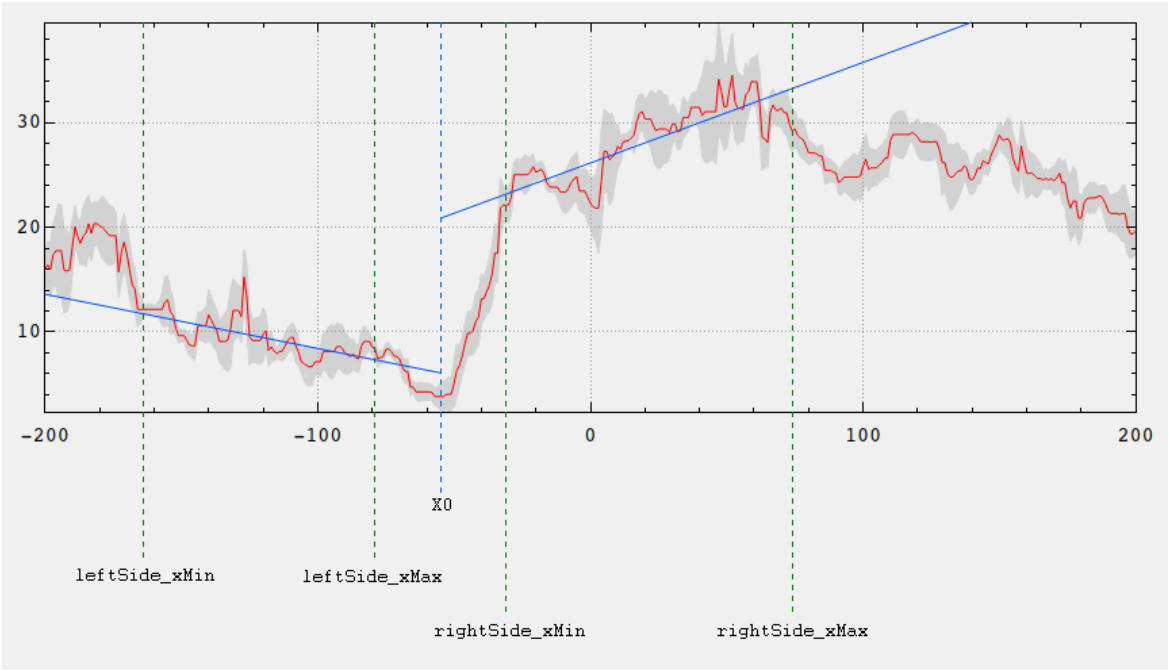
Line	Value description and details
oddPixelLength	Box length in pixel
oddPixelWidth	Box width in pixel
centerPoint_lat	Decimal or "N/A" string. WGS84 Latitude decimal degree of the box center point If the project does not used georeferencing, the value is "N/A"
centerPoint_lon	Decimal or "N/A" string. WGS84 Longitude decimal degree of the box center point If the project does not used georeferencing, the value is "N/A"
distanceFromFirstPointOfTrace_in_meter | distanceFromFirstPointOfTrace_in_pixel	decimal. Distance, along the trace, between the box center and the first point of the trace. If the project uses georeferencing, the field is distanceFromFirstPointOfTrace_in_meter (unit is meter) If the project does not use georeferencing, the field is distanceFromFirstPointOfTrace in pixel (unit is image pixel)
azimuthDegree	Decimal. see below
centerPoint_pixel_x	decimal. Image pixel x location of the box center point
centerPoint_pixel_y	decimal. Image pixel y location of the box center point
unitVectorDirection_x	decimal. x component of the unit vector direction of the box (value increases going to right)
unitVectorDirection_y	decimal. y component of the unit vector direction of the box (value increases going to down)
leftSide_xMin	decimal. **x min** position of the range used to compute the regression linear model at **left** side of the profile center
leftSide_xMax	decimal. **x max** position of the range used to compute the regression linear model at **left** side of the profile center
rightSide_xMin	decimal. **x min** position of the range used to compute the regression linear model at **right** side of the profile center
rightSide_xMax	decimal. **x max** position of the range used to compute the regression linear model at **right** side of the profile center
X0	decimal. x location of the profile center to compute yOffsetAtX0

Azimuth degree

Azimuth degree indicates the box orientation from a vertical axis. This value is an angle in decimal degree.
The angle is measured clockwise from a vertical axis (value zero is North and goes up). This value depends of the profile orientation.



Ranges and X0 locations



Example of ranges and X0 locations

Formulas of the linear regression standard deviations values

Estimated standard deviation of the error in estimating the slope

$$\text{stdErrorOfTheSlope} = \frac{stdErrorOfTheRegression}{\sqrt{x\ values\ count}} * \frac{1}{stdDev[X]}$$

Estimated standard deviation of the error in estimating the intercept

$$\text{stdErrorOfIntercept} = \frac{stdErrorOfTheRegression}{\sqrt{x\ values\ count}} * \sqrt{1 + \frac{Mean[X]*Mean[X]}{Variance[X]}}$$

Standard error of the regression

$$\text{stdErrorOfTheRegression} = \sqrt{(1/(x\ values\ count\ -\ 2) * sumsq)}$$

Profil curves data

- Export file with bIncludeProfilesCurvesData at true contains profiles curves data.
- Flagged profile with bWarningFlagByUser_setProfilesCurvesData_asEmpty at true leads to empty value for each data point.

Table containing the points of the different profiles components by box

Line	**Value description and details**
profilCurves	Section title
	empty line
boxId;<value>	Integer
<columns titles line #1. See table below>	Columns titles (<methodMajorMinor by component;N/A;…>)
<columns titles line #2. See table below>	Columns titles (<title_by_component;x;…>)
<point values data. See table below > … … …	

Columns titles line #1 and #2

methodMajorMinor_by_component	N/A	string. y meaning of major curve: mean | weightedMean | median | weightedMedian	String. minor : meaning of the absolute deviation around y : absDevAroundMean | absDevAroundWeightedMean | absDevAroundMedian | absDevAroundWeightedMedian	''	''	''	''
title by component	x	Perp	Perp	Parall	Parall	deltaZ	deltaZ

Values are ordered by component following this order: Perpendicular, Parallele, deltaZ.
- If the project only uses Px1 and Px2, deltaZ component columns will not appear.
- If the project only uses deltaZ, Perpendicular and Parallele components columns will not appear.

baseComputationMethod	**correlationScoreMapParameters used as weight**	**y meaning of major curve**	**meaning of the absolute deviation around y**
mean	**false**	mean	absDevAroundMean
mean	**true**	weightedMean	absDevAroundWeightedMean
median	**false**	median	absDevAroundMedian
median	**true**	weightedMedian	absDevAroundWeightedMedian

Points data values

<empty column>	-((box pixel length - 1)/2)	…	…	…	…	…	…
<empty column>	-((box pixel length - 1)/2) + 1	…	…	…	…	…	…
<empty column>	-((box pixel length - 1)/2) + 2	…	…	…	…	…	…
<empty column>	…	…	…	…	…	…	…
<empty column>	…	…	…	…	…	…	…
<empty column>	-1	…	…	…	…	…	…
<empty column>	0	…	…	…	…	…	…
<empty column>	+1	…	…	…	…	…	…
<empty column>	…	…	…	…	…	…	…
<empty column>	…	…	…	…	…	…	…
<empty column>	((box pixel length -1)/2) - 2	…	…	…	…	…	…
<empty column>	((box pixel length -1)/2) - 1	…	…	…	…	…	…
<empty column>	((box pixel length -1)/2)	…	…	…	…	…	…

Basetype description table

Data type integer values come from OpenImageIO (include/OpenImageIO/typedesc.h)

Value in export file	Input file data type
2	unsigned byte
4	16 bits unsigned integer
5	16 bits signed integer
11	32 bits float (decimal)

[end of document]