

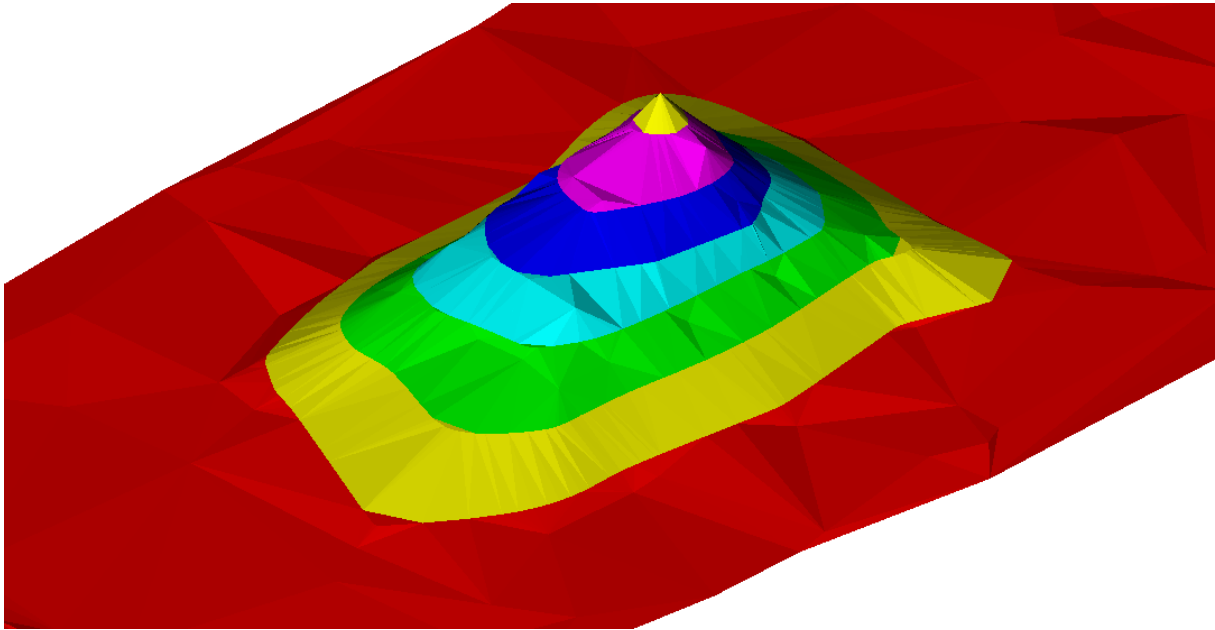
## Tutorial MP-DTM

Program MP-DTM is used to calculate volume, draw contour lines and a lot more.

It uses Jonathan Shewchuk's algorithm, the license according to a description: triangle.txt

The program in lisp was developed by Marian Poniewiera. The program is free to use without the right to further sale.

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### Table of Contents

1	Installation.....	2
2	Menu of commands MP-DTM.....	2
3	Loading points from a text file - CPKT1.....	2
4	Creating contours - WarWS.....	3
5	Calculating the volume of the heap – SIA.....	3
6	Inserts a point on the TIN surface - WPP.....	4
7	Creates a slope map - SiaKol.....	5
8	Volume between points on two layers - SiaObj.....	5
9	Other commands - MP-DTM.....	6

## 1 Installation

1) You can find the program on the website:

<http://www.geolisp.pl/pliki/mp-dtm.zip>

2) Unpack mp-nmt.zip, the catalog c:\Geolisp\ should be created

3) With command \_Appload load the file in catalog c:\Geolisp\:

2a) To AutoCAD: MP-NMT.fas

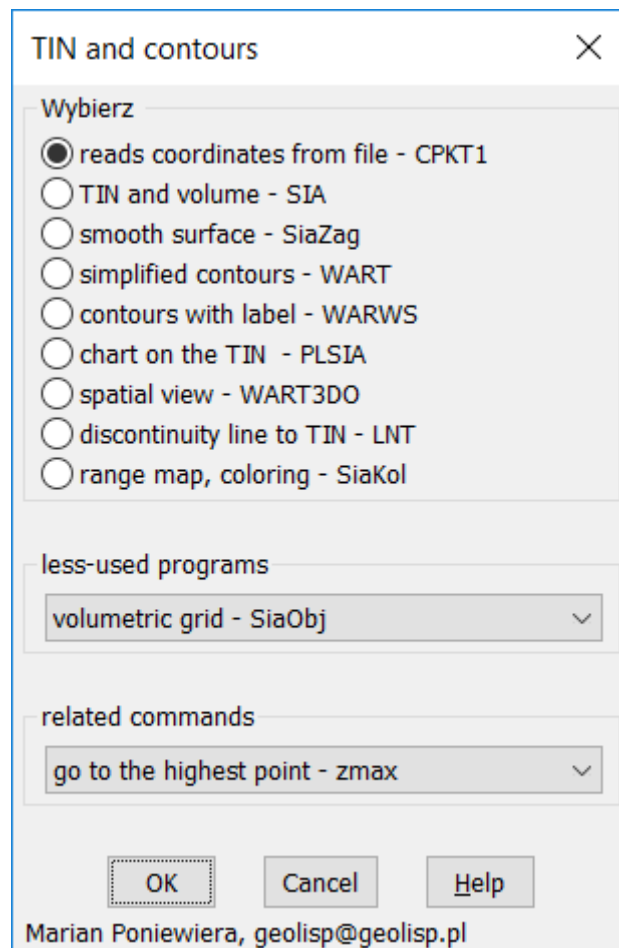
2b) To Bricscad: MP-NMT.des

2c) To Gstarcad: MP-NMTg.fas

2d) To Zwcad: MP-NMT.zel

## 2 Menu of commands MP-DTM

All commands described below can be found in the menu MP-DTM. You can write it in command line.

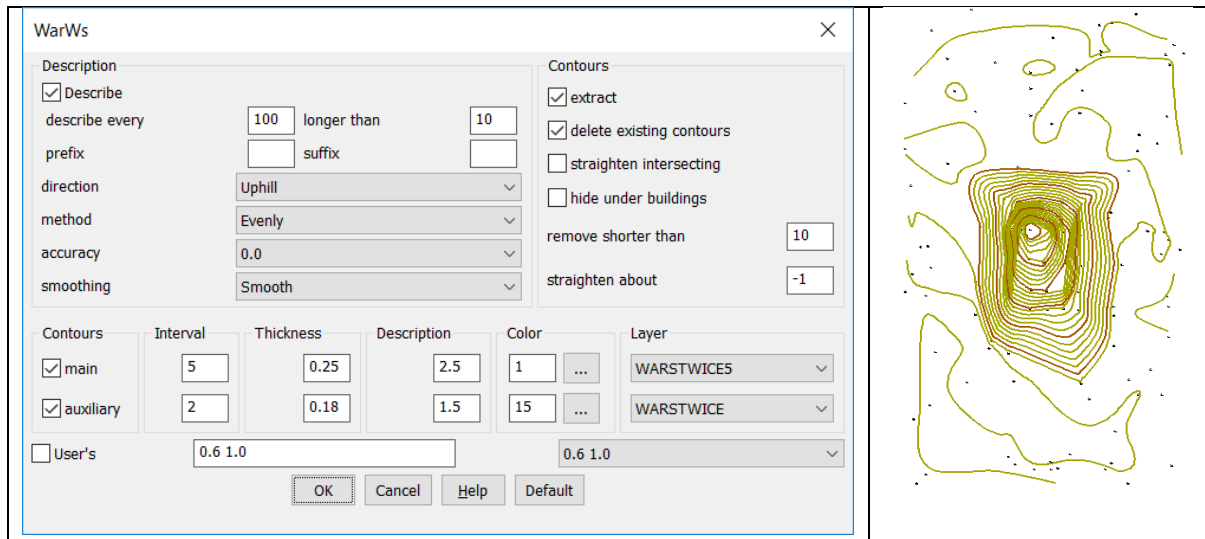


## 3 Loading points from a text file - CPKT1

Run the **cPkt1** command and indicate the path to file c:\Geolisp\Example\Halda.txt. Points were inserted to the drawing into the layer *Pomiar* (measurement).

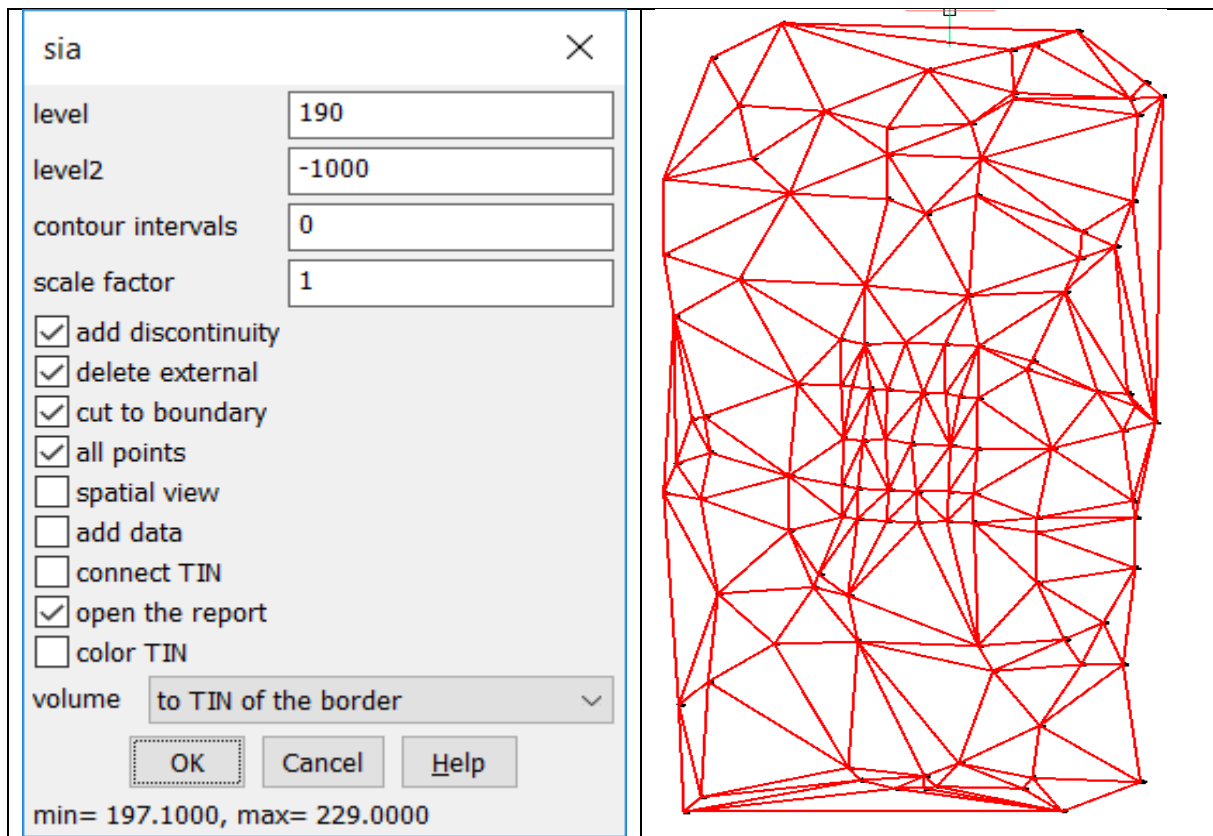
#### 4 Creating contours - WarWS.

We need points on Pomiar layer (we use points from Chapter 2). Run the **WarWS** command. Adapt the settings in the WarWS dialog box to your needs. The program has created contour lines.

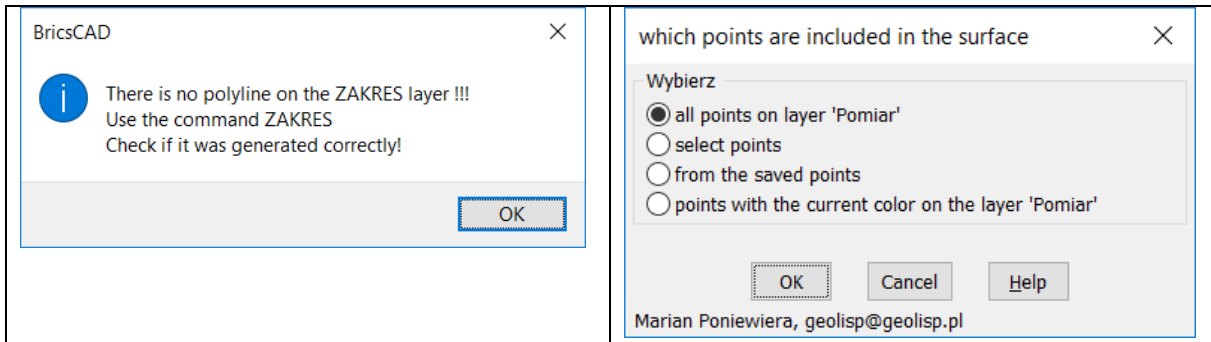


#### 5 Calculating the volume of the heap – SIA

We need points on Pomiar layer (we use points from Chapter 2). Save the drawings. Run the **Sia** command. In the popup list "volume" select "to TIN of the border". The grid volume is counted as the sum of the prisms. The top of the prism rests on the grid, its bottom is the surface made based on points lying on the border (on the polyline on the *Zakres* layer). Accept the SIA dialog box.



Since you have not created a polyline on the layer Zakres, the program informs you about it and lets you create it:

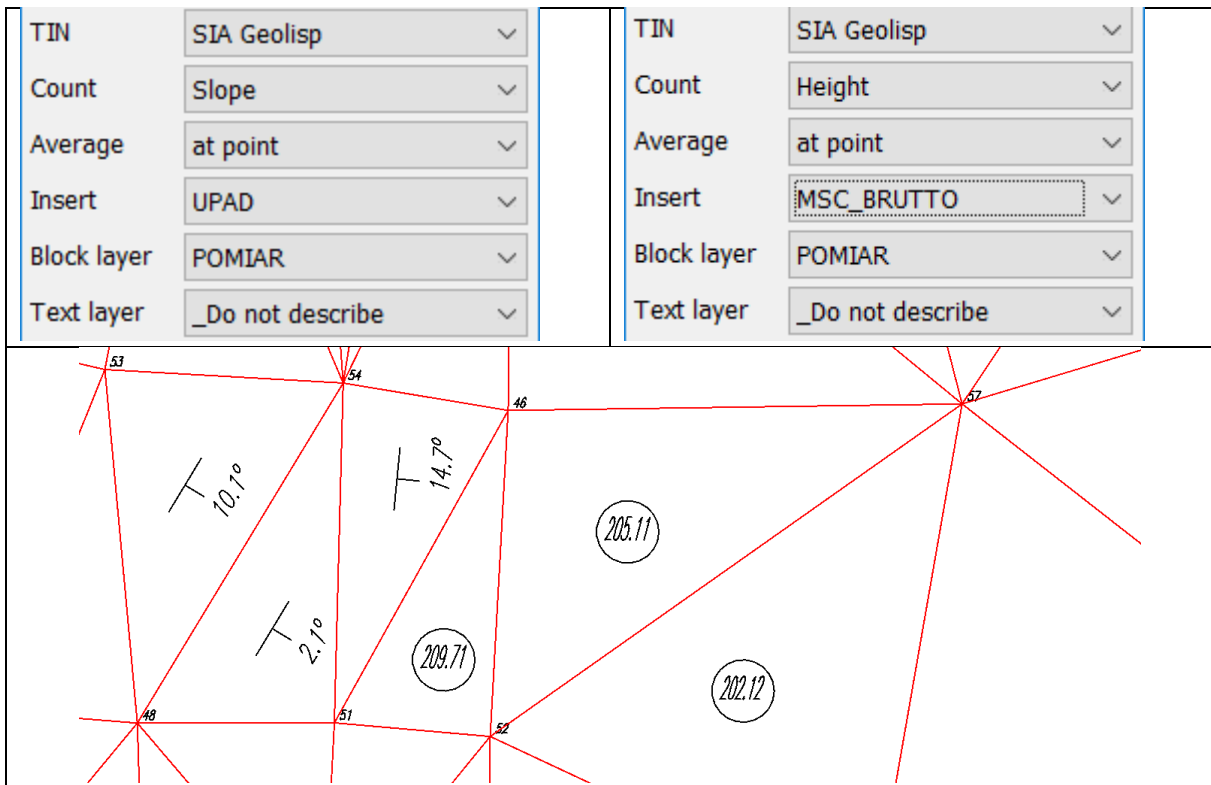


The program calculated the volume, created a report of the points used and the calculations made.

	A	B
1	<b>Report of the value from the program Geolisp</b>	
2		
3	Volume between TINs =	839916
4		
5	Area 1 TIN =	423157
6	Number of triangles =	213
7	Volume above the level =	4404243
8	Volume below the level =	0
9	Volume difference =	4404243
10	Sum of volume =	4404243
11	Reference level =	190
12	Difference between last calculations:	0

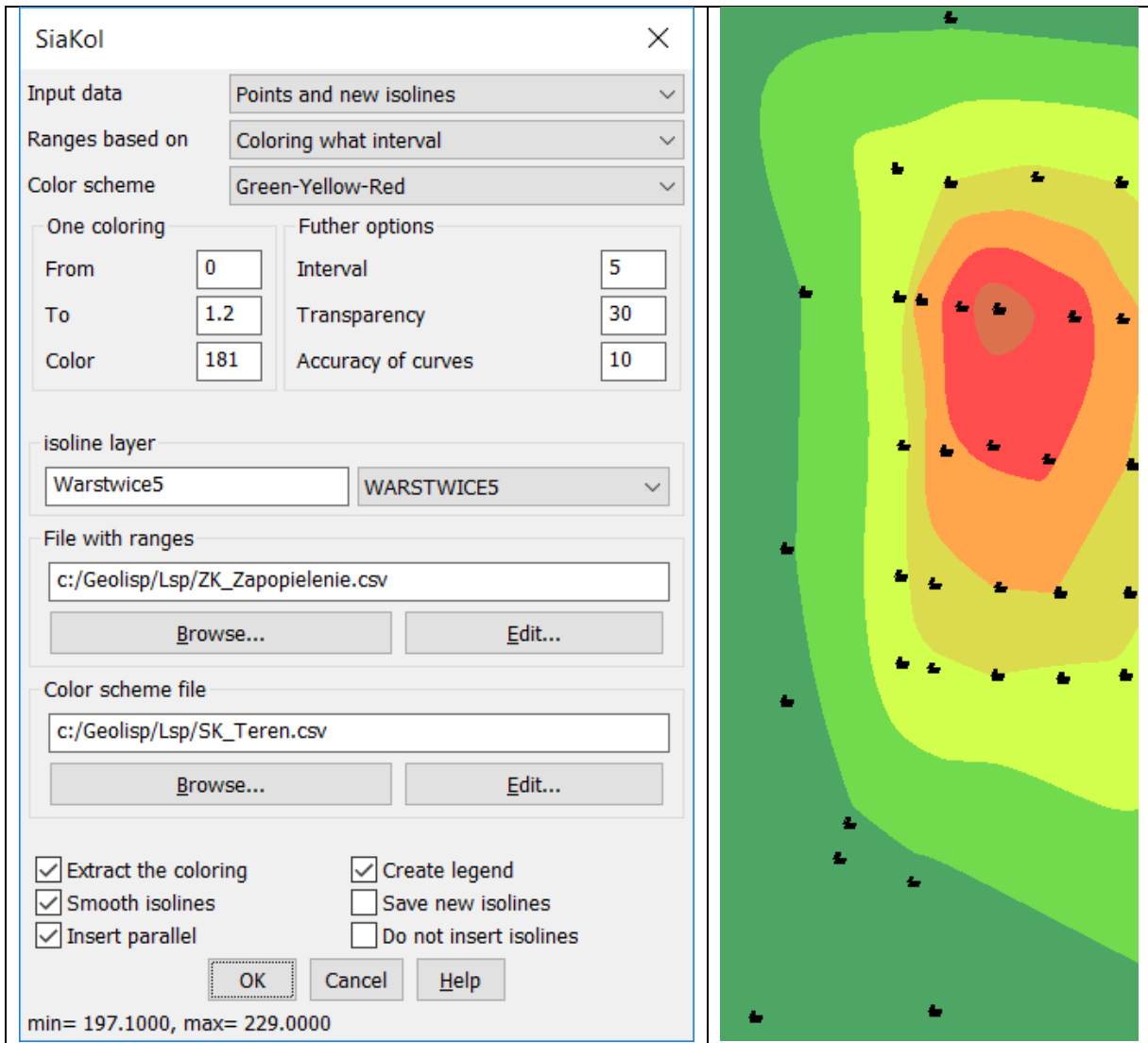
## 6 Inserts a point on the TIN surface - WPP

Inserts a point on the TIN surface, the Z-ordinate or Slope is calculated based on this surface.



## 7 Creates a range map - SiaKol

The SiaKol program creates a range map (chorochromatic). It colors places with given values in different colors. It includes the isolines to the surface, making ranges they are nicely smoothed. Inserts a legend. We need ready grid (we use TIN from Chapter 5).



## 8 Volume between points on two layers - SiaObj

Command SiaObj enables you to make a simplified surface volume between points on layer *Pomiar1* and *Pomiar2* (Measurement1 and Measurement2). The program calculates volume, shows where embankment is, excavation is. Creates new points on the layer *Pomiar* = the difference between *Pomiar1* and *Pomiar2*.

See: C:\Geolisp\Example\SiaObj.dwg

Run the command SiaObj i select an option:

The program on the command line interface will give the calculated volume:

Area: 248473

Fill volume: -103116

Cut volume: 185987

Net volume: 289103

## 9 Other commands in menu MP-DTM

You will find helpfiles in the folder:

c:\Geolisp\HELP\WSZYSTKI\

List of all commands:

- menu of commands - MP-DTM
- reads coordinates from file - CPKT1
- TIN and volume - SIA
- smooth surface - SiaZag
- simplified contours - WART
- contours with label - WARWS
- chart on the TIN - PLSIA
- spatial view - WART3DO
- discontinuity line to TIN - LNT
- range map, coloring - SiaKol
- volumetric grid - SiaObj
- information about TIN - SIAI
- determines current scale - ubs
- display order - WARKOLEJ
- removes points not lying at boundary - UsPktZak
- simulates flood - POWODZ
- exaggerate elevation - SKALAZ
- smooth all contours - SPWAR
- replaces polyline with splines - Pl2Spl
- straightens out all contours - DEWAR
- straightens intersecting contours - WARPRZEC
- draws range based on points - ZAKRES
- changing TIN into a solid - POKLAD
- hides contour lines under buildings, etc. - PRZWAR
- look for depression watershed - STB
- old WarWs version - WARWS1
- describes contours - WAROPI
- describes center of contour - WAROPI1
- numbering / inserting blocks - nrpkt
- go to the highest point - zmax
- go to the lowest point - zmin
- gives all objects height to 0.0
- extend the grid - SiaPrzed
- calculates volume between contour lines - objWa
- spatial view - Z3D
- plan view - Z2D
- description of contours along the line - WarPL
- inserts block on the TIN surface - wpP
- inserts point on the TIN surface - WpSia
- inserts slope on the TIN surface - WpSiaN
- average value of the parameter in area - SiaSr
- increases vertices and smooth contour - ZagWar
- linear regression on grid - LinRegSia
- smooth all contours on layers: warstwie\* - SpWarWs
- describes 1 contour - WaOp
- explode TIN to lines - sia2lin