

Osnove obrade podataka multi-beam podataka u

BeamworX



Autoclean

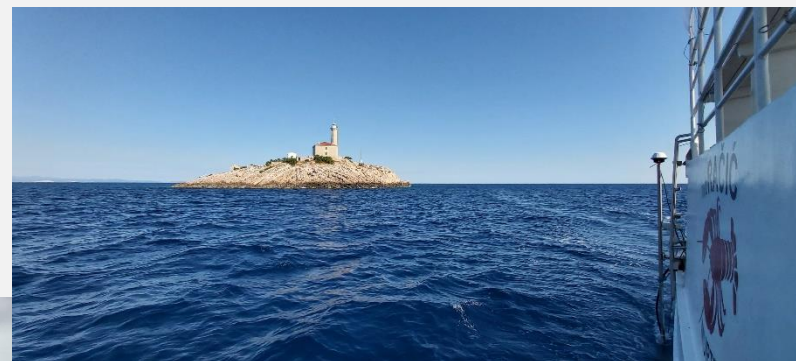
Ozren Hasan

- Plan rada

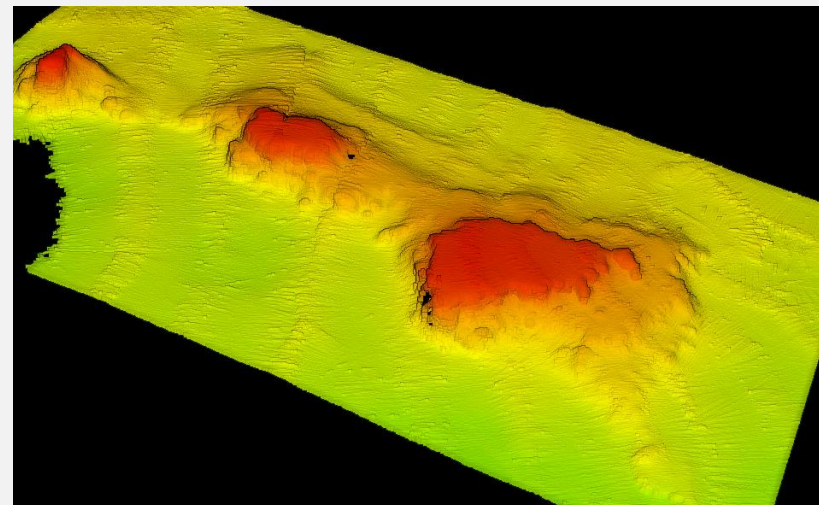
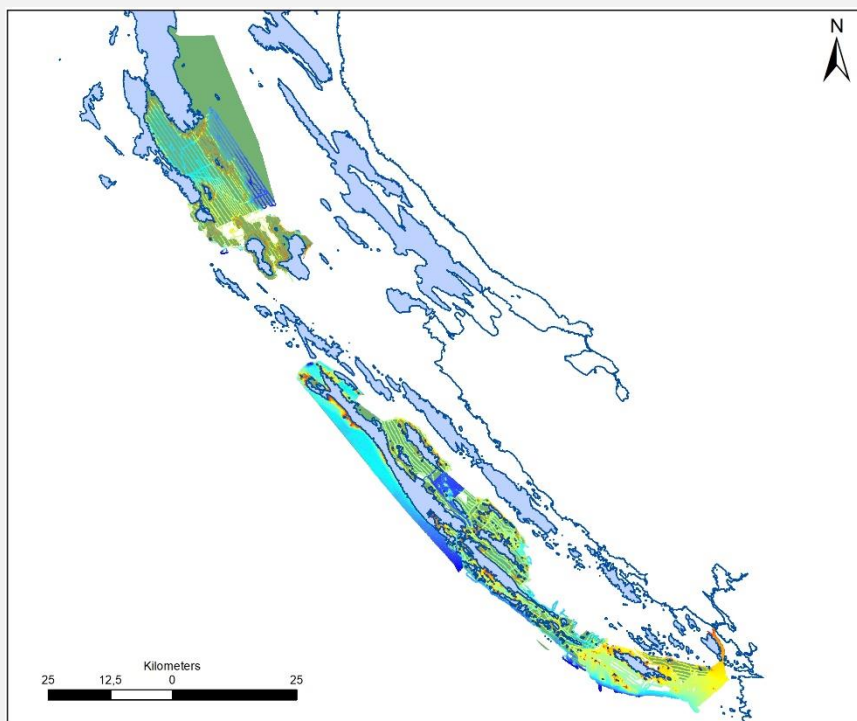
- Općenito - instalacija
- Pokretanje programa, moduli
- Izrada projekta - novi projekt, uvoz podataka, prozori, cell size
- Filtriranje
- Dodatni alati
- Izvoz podataka

Uređaj za snimanje MBES:

- WASSP S3 160 kHz, 224 zrake (120°), do 400m dubine
- GNSS GPS Hemisphere
- Valeport SPV



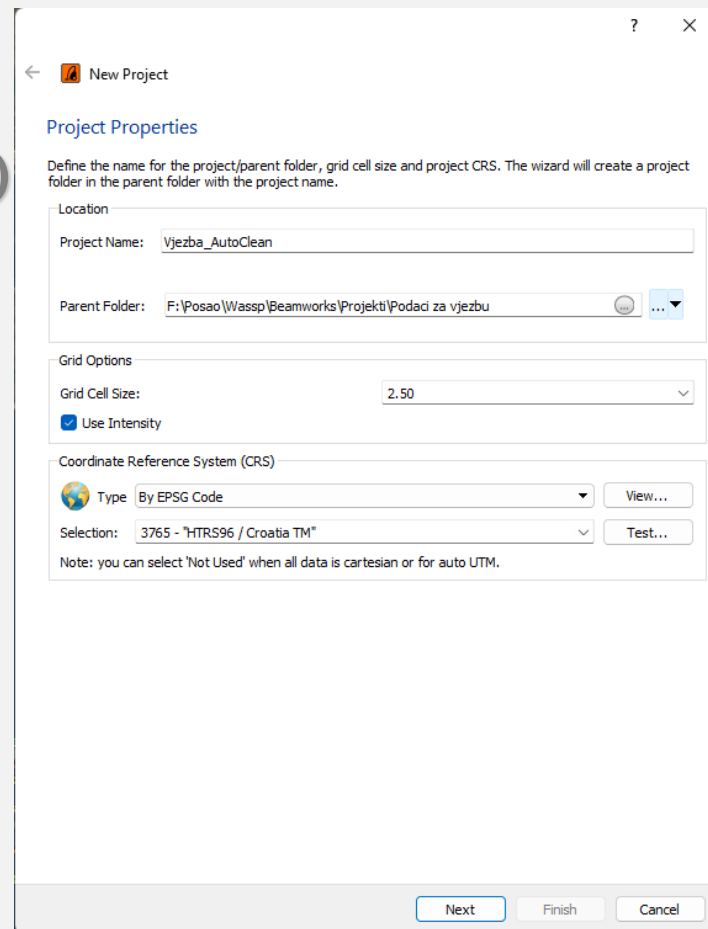
- Dosadašnji napredak i plan daljnjih terenskih aktivnosti
 - Predviđeno za HGI: MBES
 - Žirje - Kornati - Sit - Žut - Dugi Otok: 622 km²
 - Lošinj - Cres: 537 km²



- Služi za obradu svih point-cloud podataka, ne samo MBES (npr. lidar)
- Instalacija
 - www.beamworx.com
 - Verzija: 2022.3
- Dongle
- Moduli: NavaQ, AutoClean, AutoPatch



- Izrada novog projekta
 - File/New project
 - Ime projekta (lokacija/datum/verzija)
 - Folder
 - Grid options - cell size
 - Use intensity
 - Coordinate system



← New Project

Project Properties

Define the name for the project/parent folder, grid cell size and project CRS. The wizard will create a project folder in the parent folder with the project name.

Location

Project Name:

Parent Folder: ...

Grid Options

Grid Cell Size:

☒ Use Intensity

Coordinate Reference System (CRS)

Type: View...

Selection: Test...

Note: you can select 'Not Used' when all data is cartesian or for auto UTM.

Next Finish Cancel

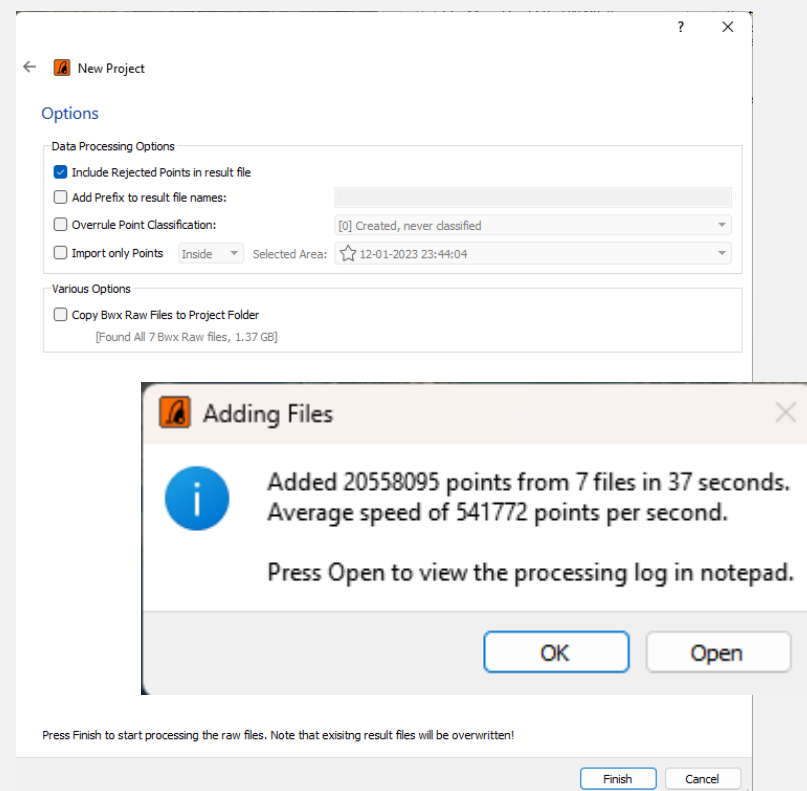
- Data import

- Ako se radi novi projekt, wizard odmah nudi import (Select Files)
- Vrsta podataka: Result data (wmbf, bwxres), Raw

- Processing settings

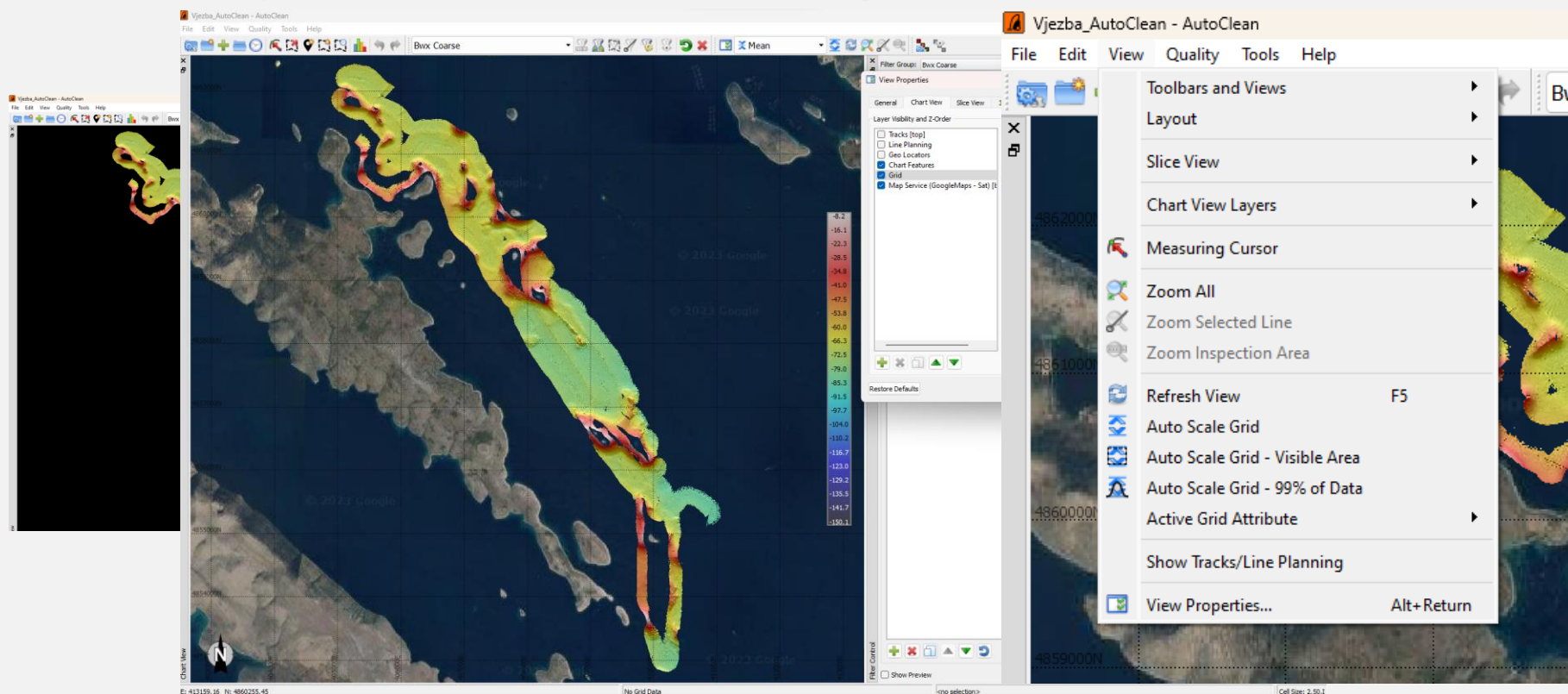
- Odabrati XML od broda (može iz RAW)
- Importirati svaki dan/tjedan zasebno
- SVP iz XML config

- Sve RAW držati na jednom mjestu



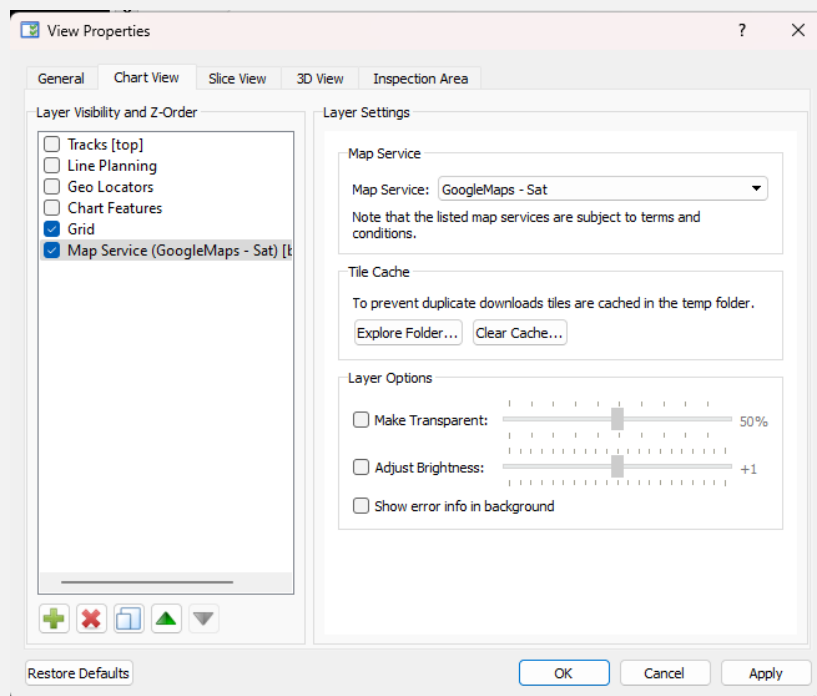
• Prozori i podloge

- Glavni prozor, Filter Control, 3D, Slice View
- Grid - boje, raspon (autoscale, Show Survey Statistics), bathy/BSE - desni klik “View Properties”



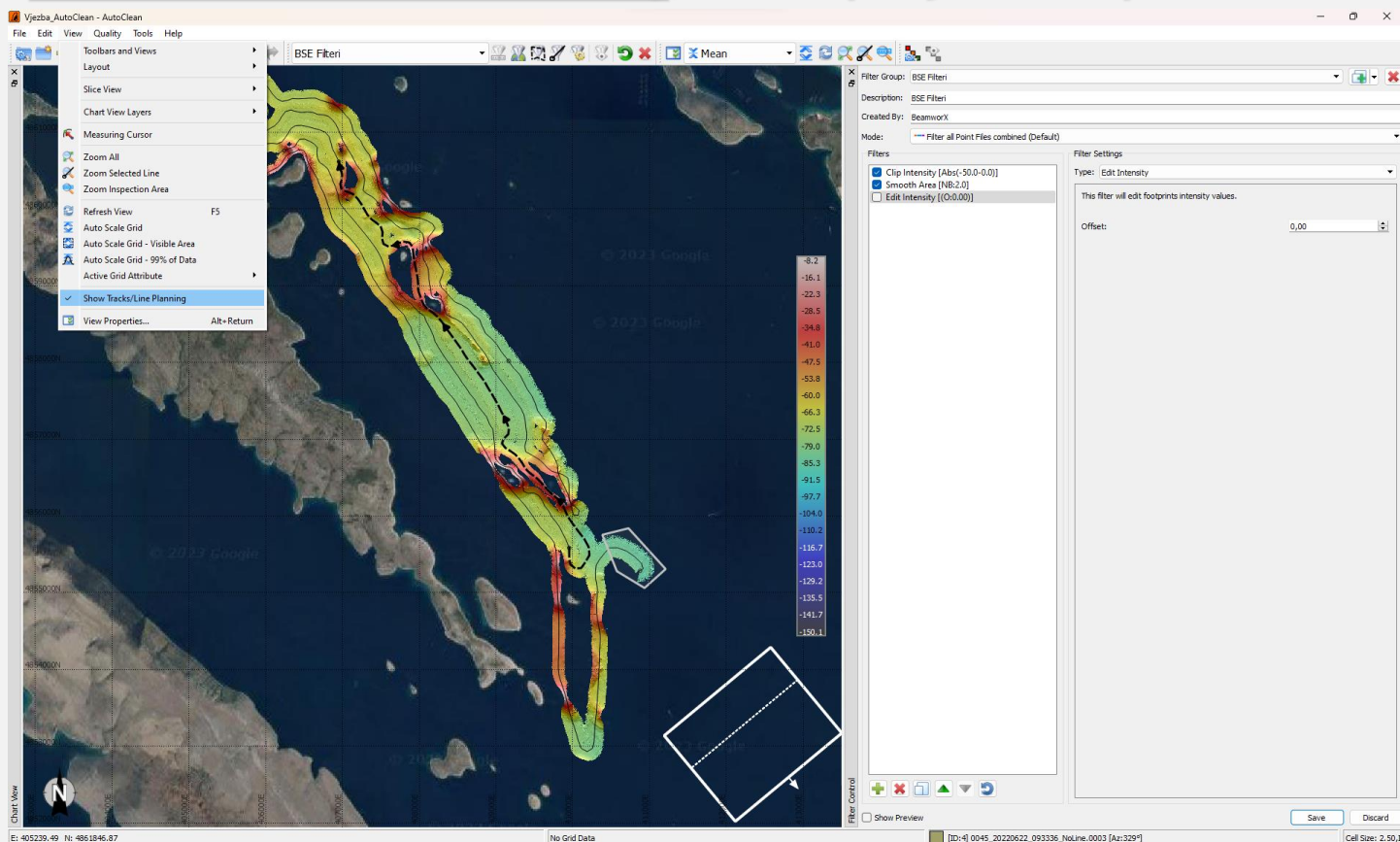
- Prozori i podloge

- Glavni prozor, Filteri, 3D, Slice View
- Grid - boje, raspon (autoscale, Show Survey Statistics), bathy/BSE - desni klik “View Properties”
- Podloge: Map service - desni klik “View Properties”



• Prozori i podloge

- Glavni prozor, Filteri, 3D, Slice View
- Show Tracks/Line Planning, Show project Properties



• Prozori i podloge

- Glavni prozor, Filteri, 3D, Slice View
- Show Tracks/Line Planning, Show project Properties

Project Properties
? ×

General
Line Planning
Point Files

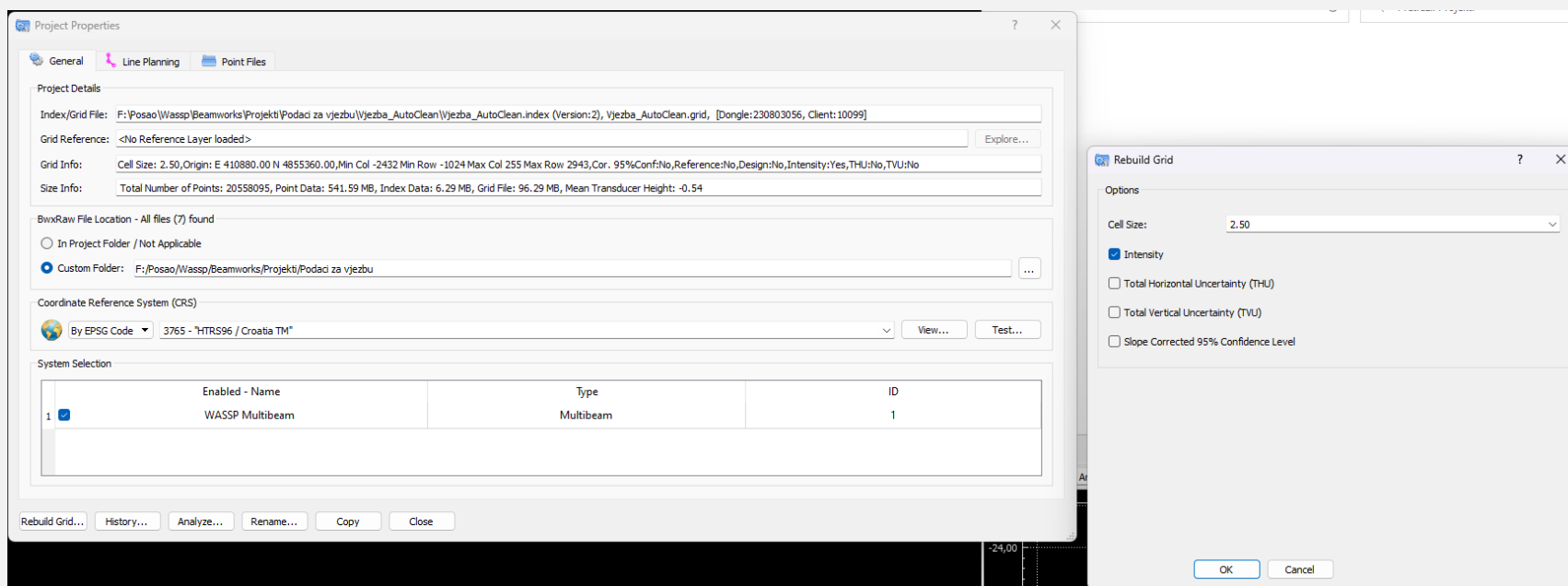
Project contains 7 point files - Selected Track ID 4

	Enabled - File Name	Raw	Pt. Count	File Size	Start Time	Duration	Length	Width	Az(°)	Original File Type	Exists	ID
1	☒ 0042_20220621_154700_NoLine.0001.bwxres	Yes	2947184	77.64 MB	21-06-2022 13:46:57	00:56:45	3945.8	1920.0	304.6	BeamworX Result File	YES	1
2	☒ 0042_20220621_154700_NoLine.0002.bwxres	Yes	3014646	79.43 MB	21-06-2022 14:43:43	00:53:03	5991.9	1144.7	321.4	BeamworX Result File	YES	2
3	☒ 0045_20220622_093336_NoLine.0002.bwxres	Yes	2963484	78.06 MB	22-06-2022 08:28:02	00:55:24	6521.0	954.6	144.3	BeamworX Result File	YES	3
4	☒ 0045_20220622_093336_NoLine.0003.bwxres	Yes	2944683	77.58 MB	22-06-2022 09:23:27	00:57:08	6259.3	1363.3	329.2	BeamworX Result File	YES	4
5	☒ 0045_20220622_093336_NoLine.0004.bwxres	Yes	2895294	76.26 MB	22-06-2022 10:20:36	00:59:07	3169.2	1296.8	136.9	BeamworX Result File	YES	5
6	☒ 0045_20220622_093336_NoLine.0005.bwxres	Yes	2884584	76.01 MB	22-06-2022 11:19:44	01:00:22	4873.9	1228.7	140.3	BeamworX Result File	YES	6
7	☒ 0045_20220622_093336_NoLine.0006.bwxres	Yes	2908220	76.60 MB	22-06-2022 12:20:06	00:58:26	5998.1	1273.3	319.9	BeamworX Result File	YES	7

Enable All
Disable All
Enable Area...
View File...
Remove File(s)

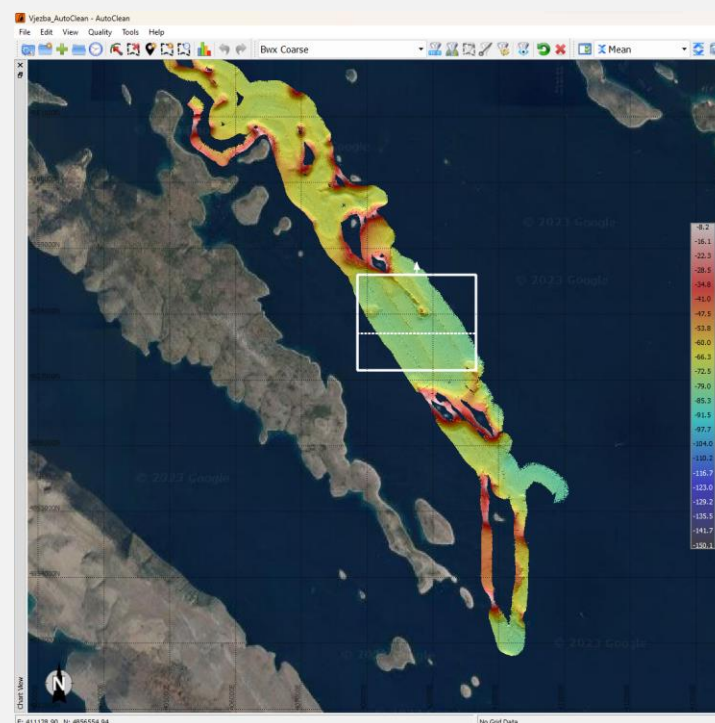
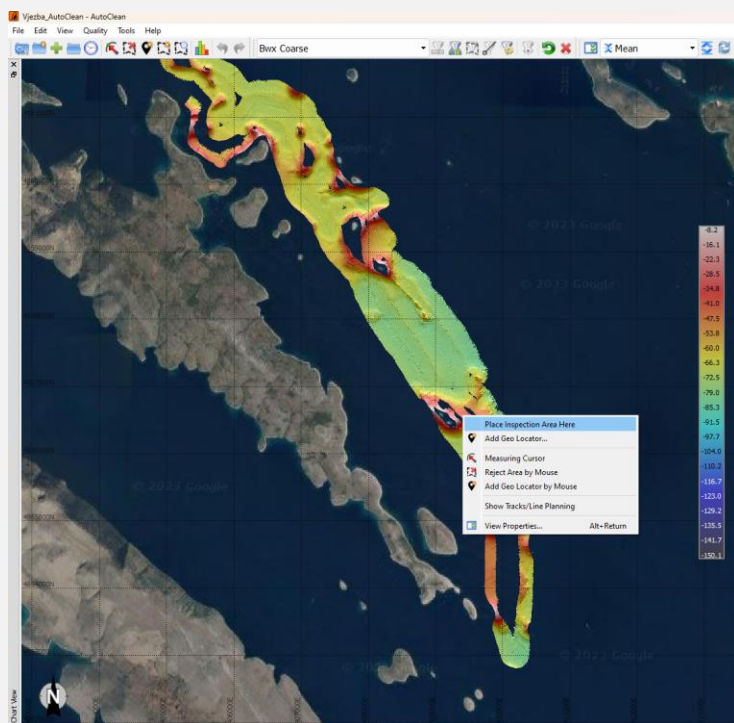
Rebuild Grid...
History...
Analyze...
Rename...
Copy
Close

- Prozori i podloge
 - Glavni prozor, Filteri, 3D, Slice View
 - Show project Properties; General, Grid Size (Rebuild Grid)



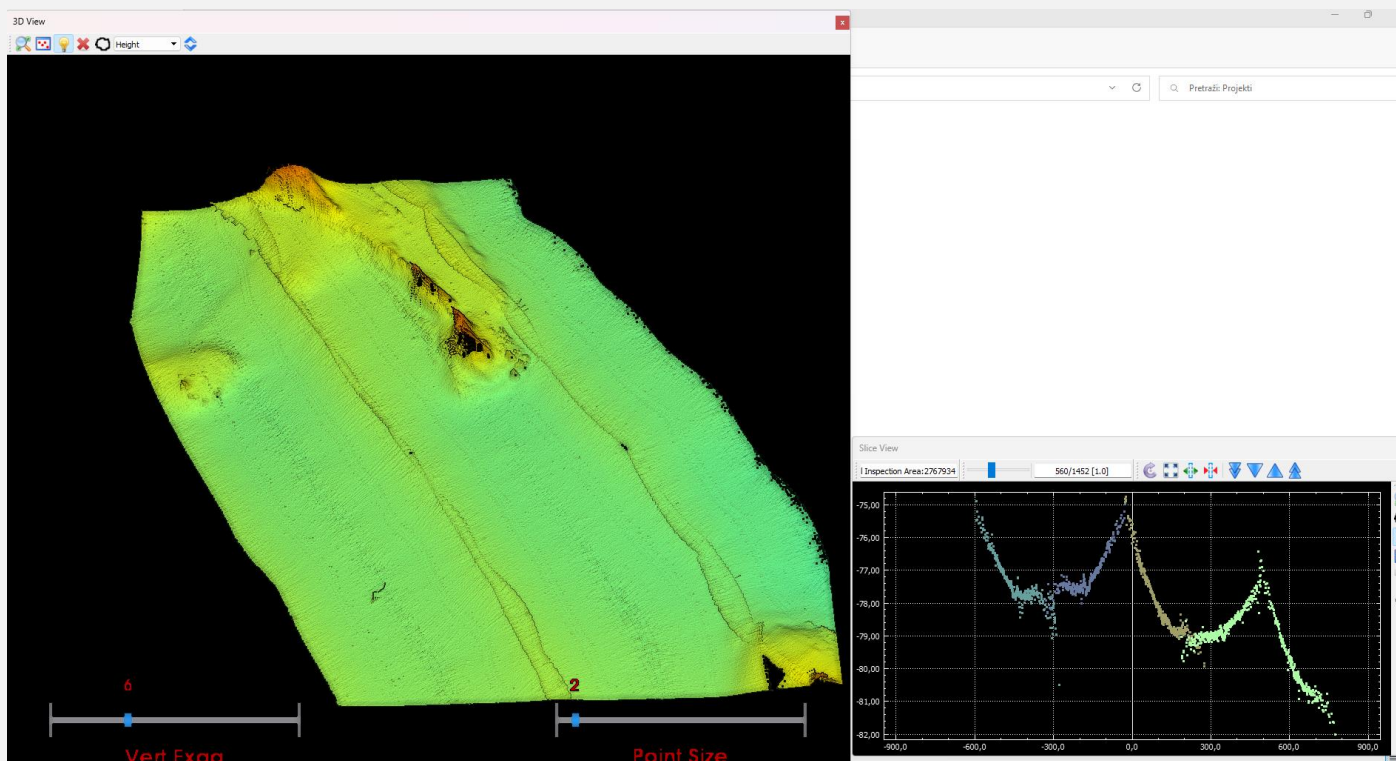
• Prozori i podloge

- Glavni prozor, Filteri, 3D, Slice View
- 3D - desni klik + Place Inspection Area Here



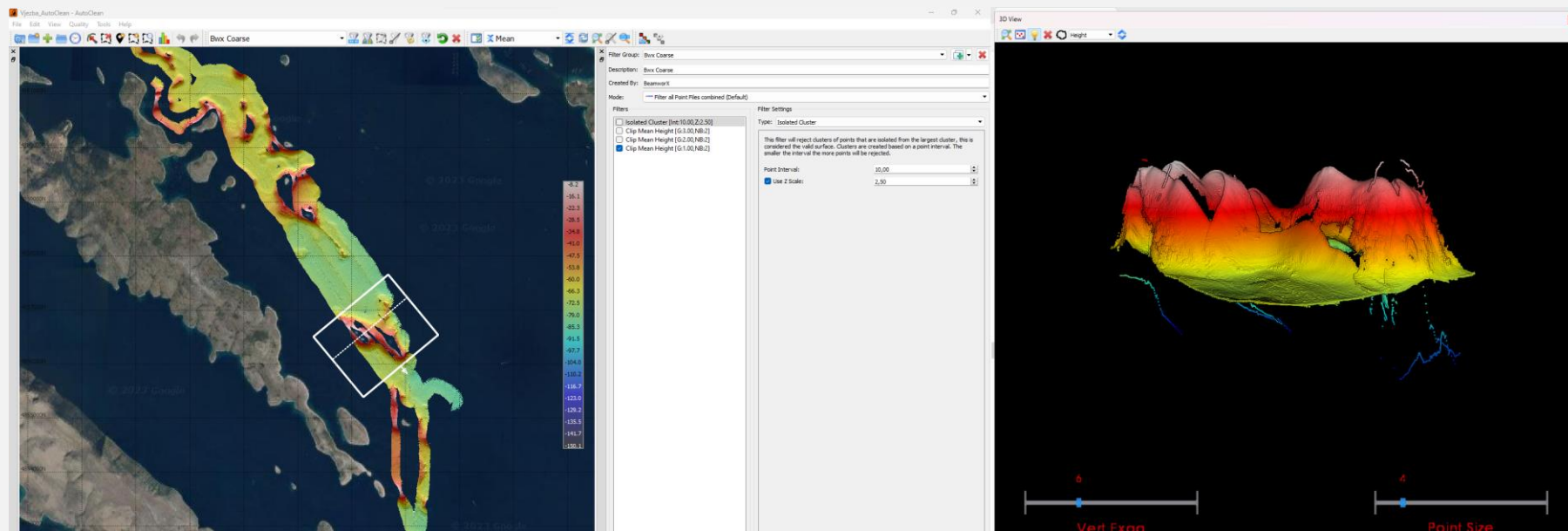
- Prozori i podloge

- Glavni prozor, Filteri, 3D, Slice View
- 3D - desni klik + Place Inspection Area Here
 - Vert Exag., Slice View, Place Slice, veličina Insp. Area



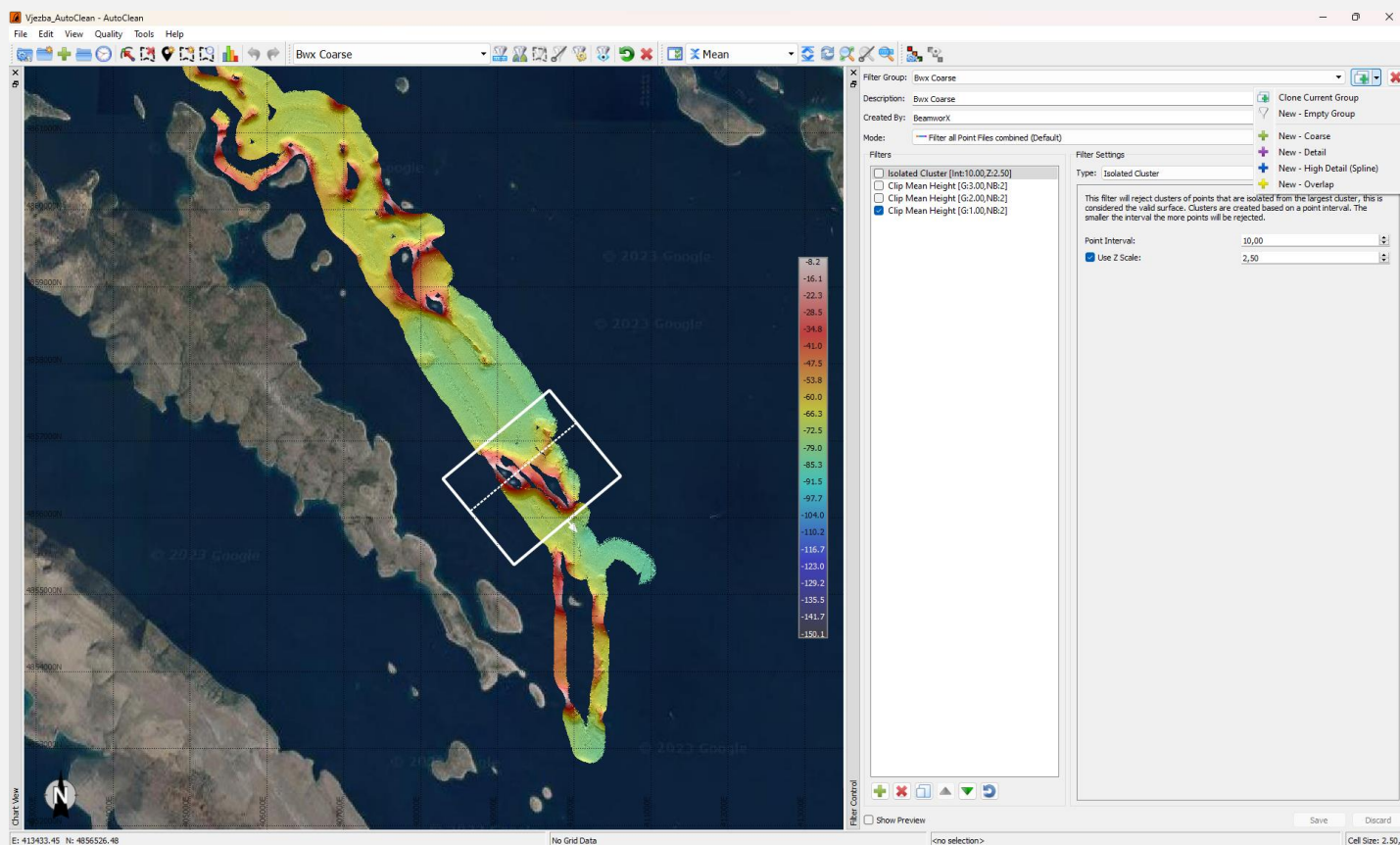
• Filteri

- Filteri - Show Preview; Filter: Entire Survey, Selected Area, Selected Line, Inspection Area
- Može i ručno u 2D i 3D (Reject Points)



• Filteri

- Filteri: odabir, grupe filtera i kreiranje novih grupa filtera, filteri za MBES ili BSE

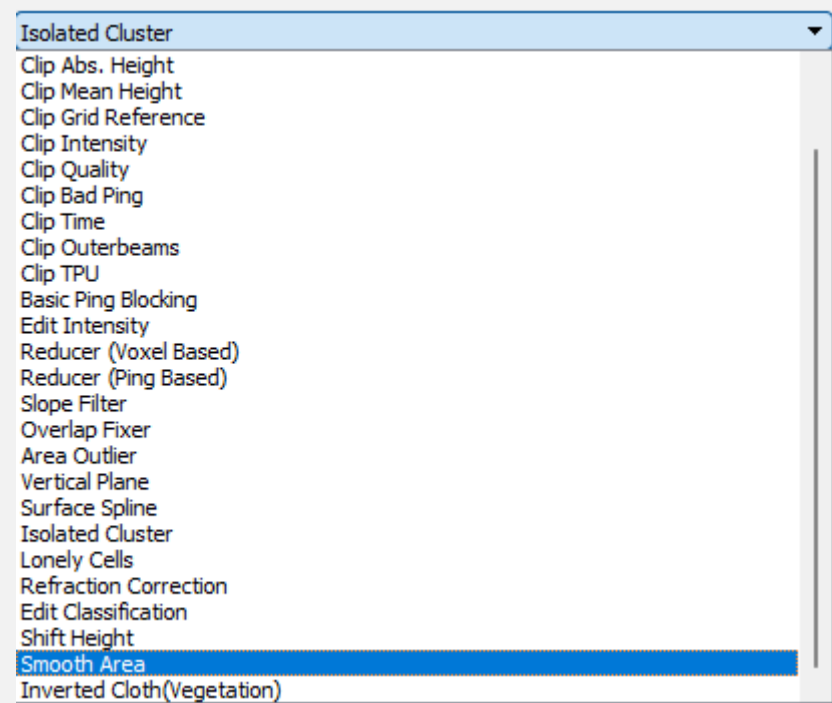


- Filteri

- Filteri:

- BwX Coarse
 - BwX Detail
 - Refraction Correction
 - Overlap Fixer
 - Isolated Cluster
 - Shift Height
 - Smooth Area (zadnje)

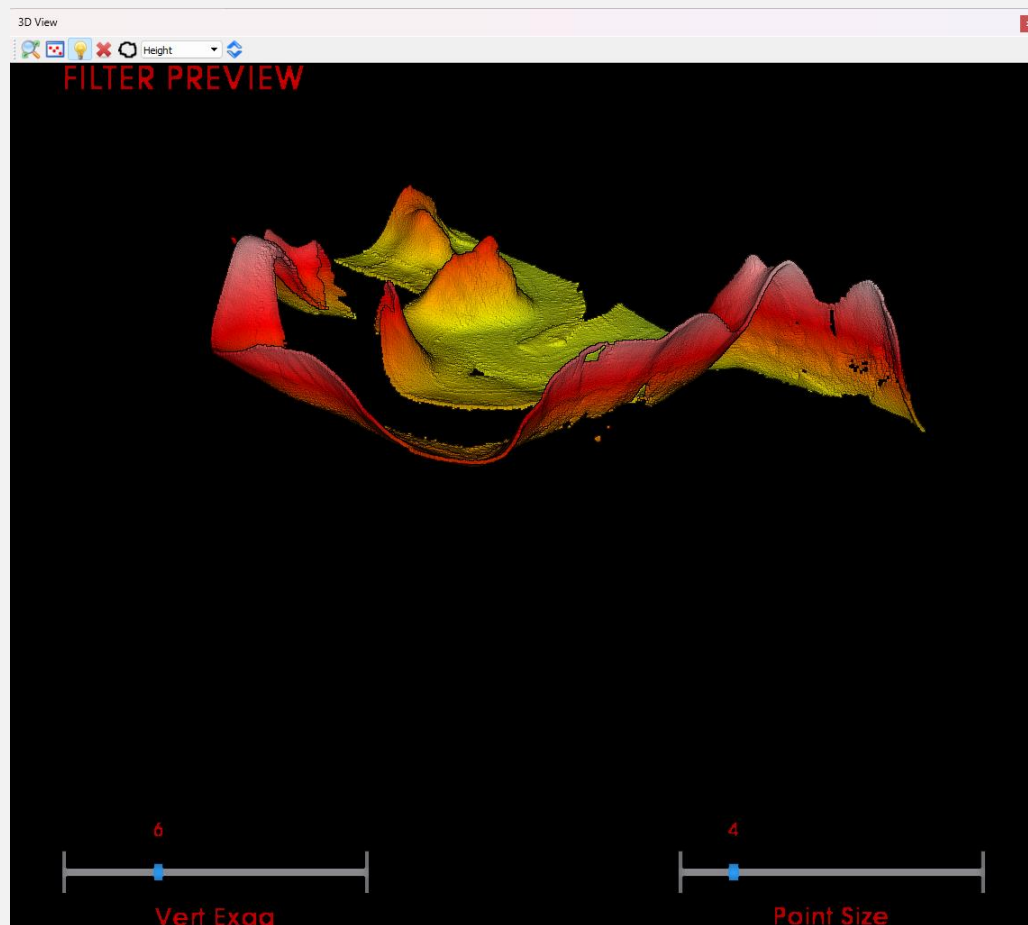
 - Clip Intensity
 - Smooth Area (Intensity)
 - Edit Intensity (Offset)



• Filteri

– Filteri:

- BwX Coarse
 - Isolated Cluster (sporo)
 - Clip Mean Hight
- BwX Detail
- Refraction Correction
- Overlap Fixer
- Isolated Cluster
- Shift Height
- Smooth Area (zadnje)
- Clip Intensity
- Smooth Area (Intensity)
- Edit Intensity (Offset)

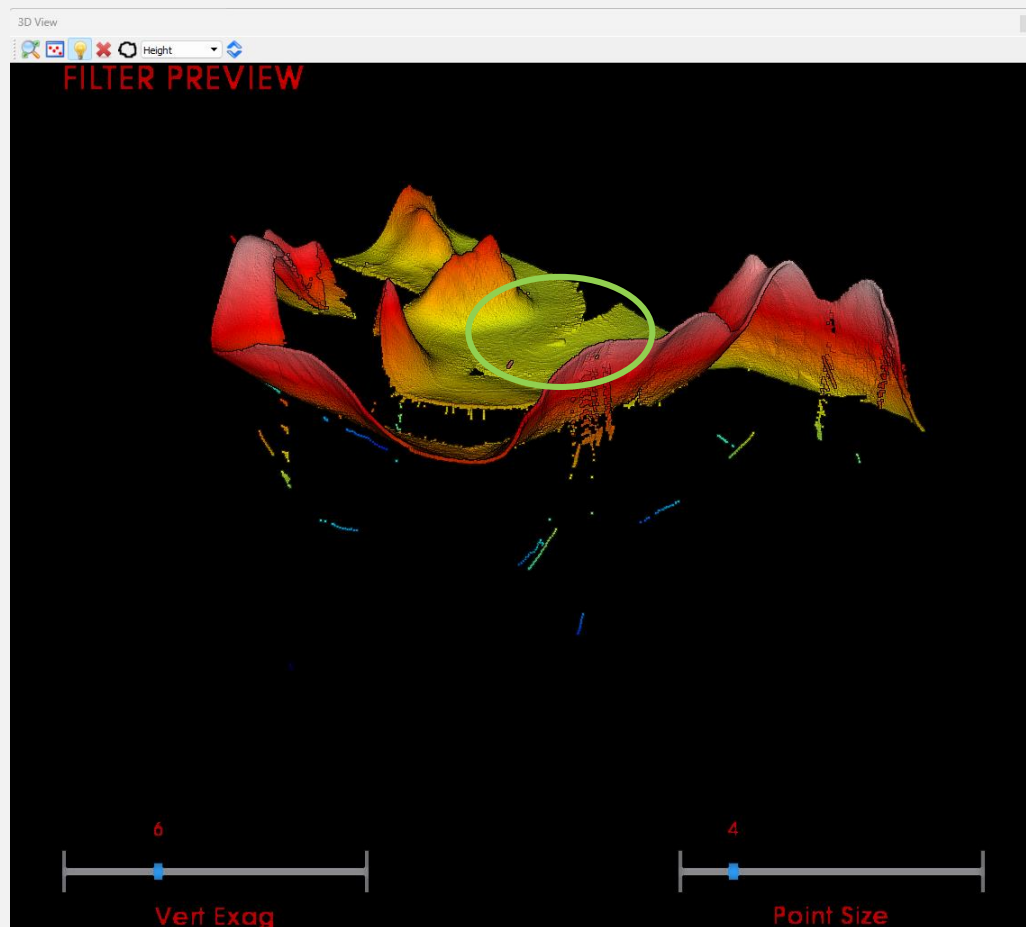


• Filteri

– Filteri:

- BwX Coarse
- BwX Detail
 - Isolated Cluster (sporo)
 - Clip Mean Height
- Refraction Correction
- Overlap Fixer
- Shift Height
- Smooth Area (zadnje)

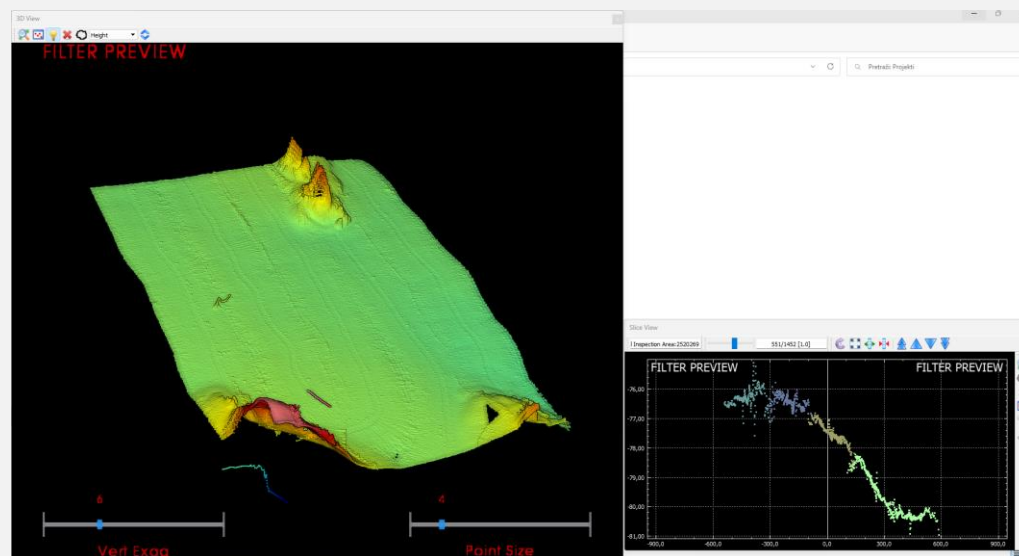
- Clip Intensity
- Smooth Area (Intensity)
- Edit Intensity (Offset)



• Filteri

– Filteri:

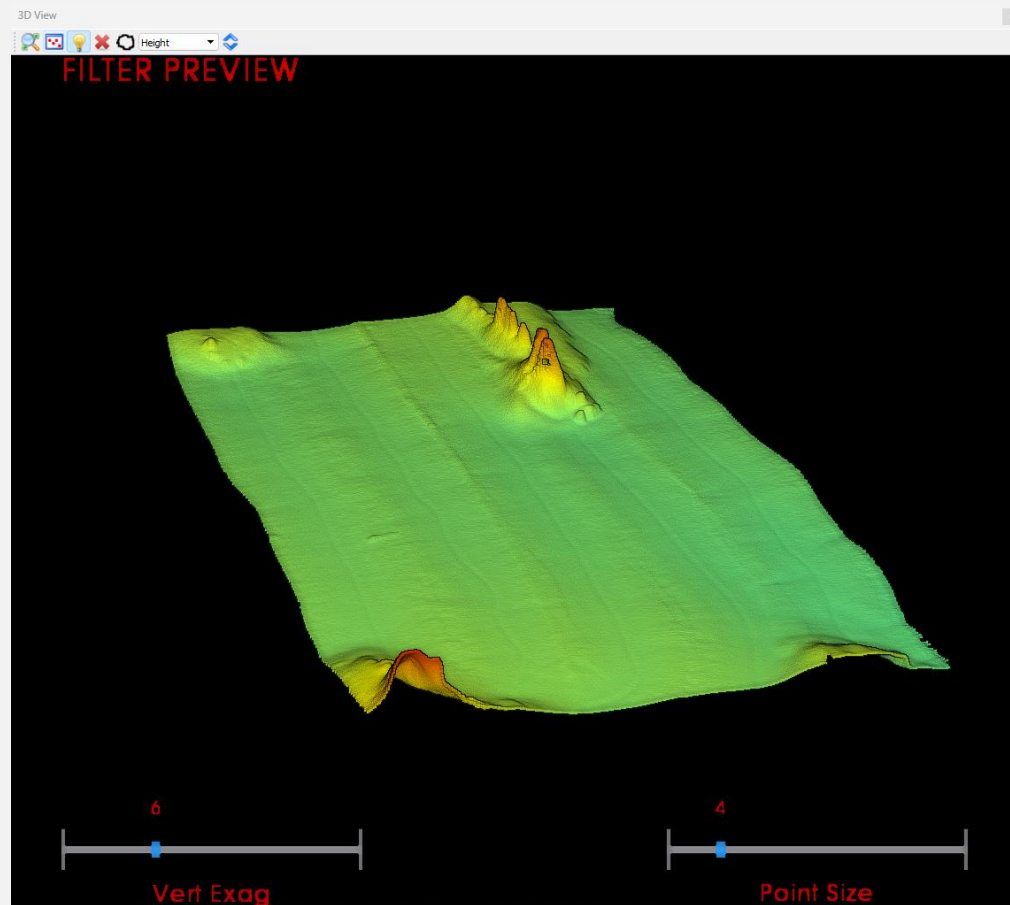
- BwX Coarse
- BwX Detail
- Refraction Correction
 - Raditi prije BwX Detail
- Overlap Fixer
- Shift Height
- Smooth Area (zadnje)
- Clip Intensity
- Smooth Area (Intensity)
- Edit Intensity (Offset)



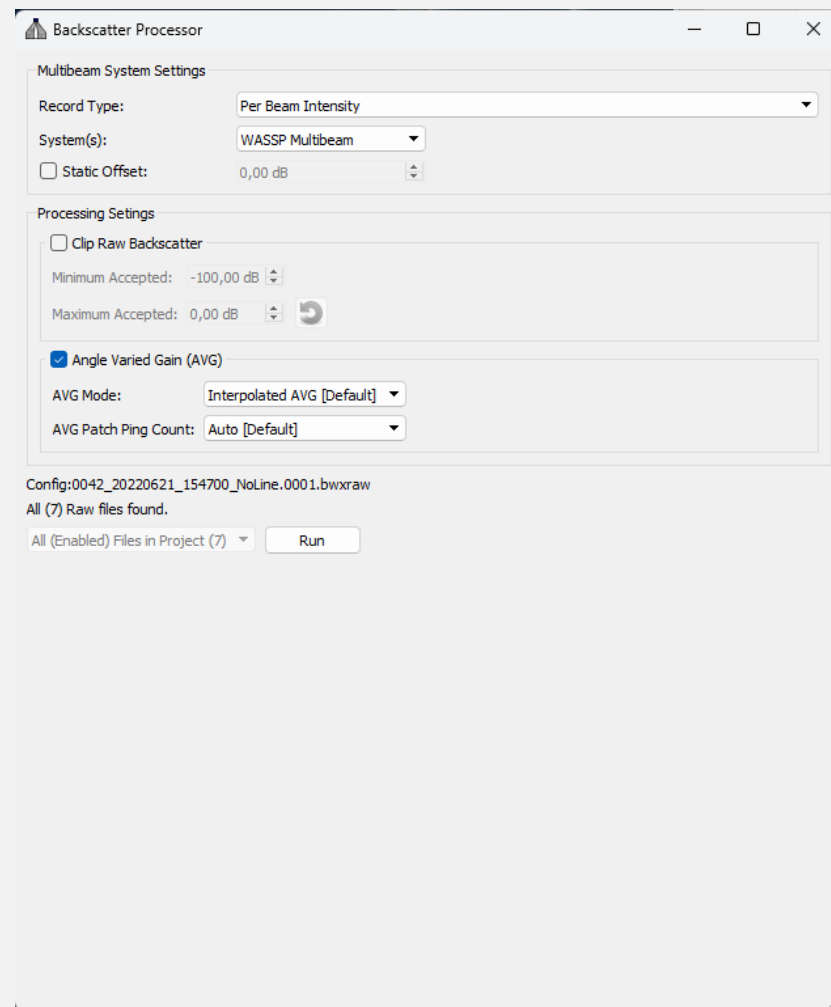
• Filteri

– Filteri:

- BwX Coarse
- BwX Detail
- Refraction Correction
- Overlap Fixer
- Shift Height
- Smooth Area (zadnje)
- Clip Intensity
- Smooth Area (Intensity)
- Edit Intensity (Offset)



- **Backscatter Processor**
 - Tools/Backscatter Processor
 - Clip RAW Backscatter - ne
 - AVG - čisti uzdužne linije
 - Interpolated AVG
 - File based AVG
 - Project AVG (test)
 - Run



The screenshot shows the 'Backscatter Processor' window with the following settings:

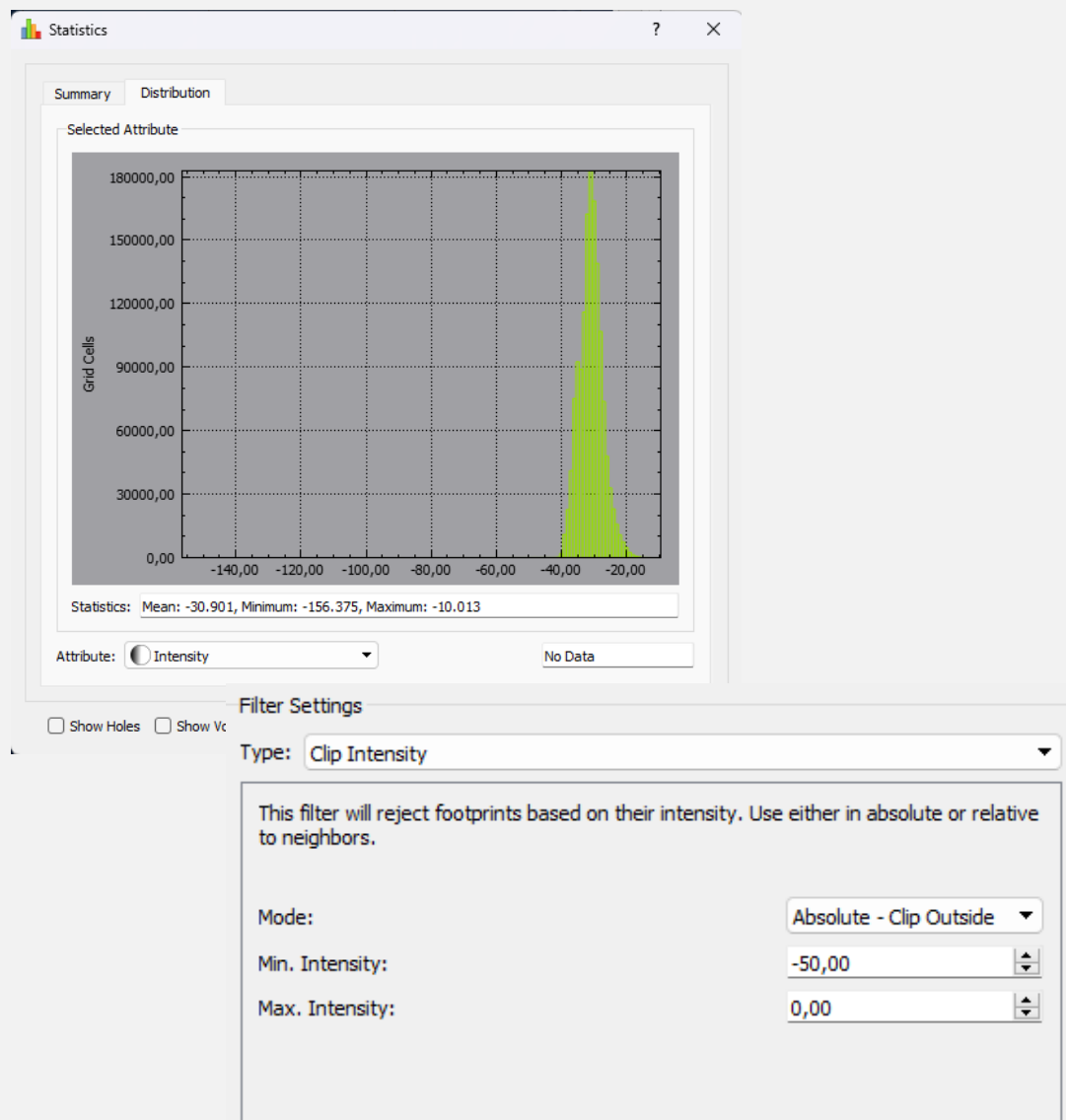
- Multibeam System Settings**
 - Record Type: Per Beam Intensity
 - System(s): WASSP Multibeam
 - ☐ Static Offset: 0,00 dB
- Processing Settings**
 - ☐ Clip Raw Backscatter
 - Minimum Accepted: -100,00 dB
 - Maximum Accepted: 0,00 dB
 - ☒ Angle Varied Gain (AVG)
 - AVG Mode: Interpolated AVG [Default]
 - AVG Patch Ping Count: Auto [Default]

Config: 0042_20220621_154700_NoLine.0001.bwxraw
All (7) Raw files found.
All (Enabled) Files in Project (7) [Run]

• Filteri

– Filteri:

- BwX Coarse
- BwX Detail
- Refraction Correction
- Overlap Fixer
- Shift Height
- Smooth Area (zadnje)
- Clip Intensity
- Smooth Area (Intensity)
- Edit Intensity (Offset)



- Prozori i podloge

- Filteri:

- BwX Coarse
 - BwX Detail
 - Refraction Correction
 - Overlap Fixer
 - Shift Height
 - Smooth Area (zadnje)

 - Clip Intensity
 - Smooth Area (Intensity)
 - Edit Intensity (Offset)

Filter: Entire Survey, Selected Area, Selected Line, Inspection Area

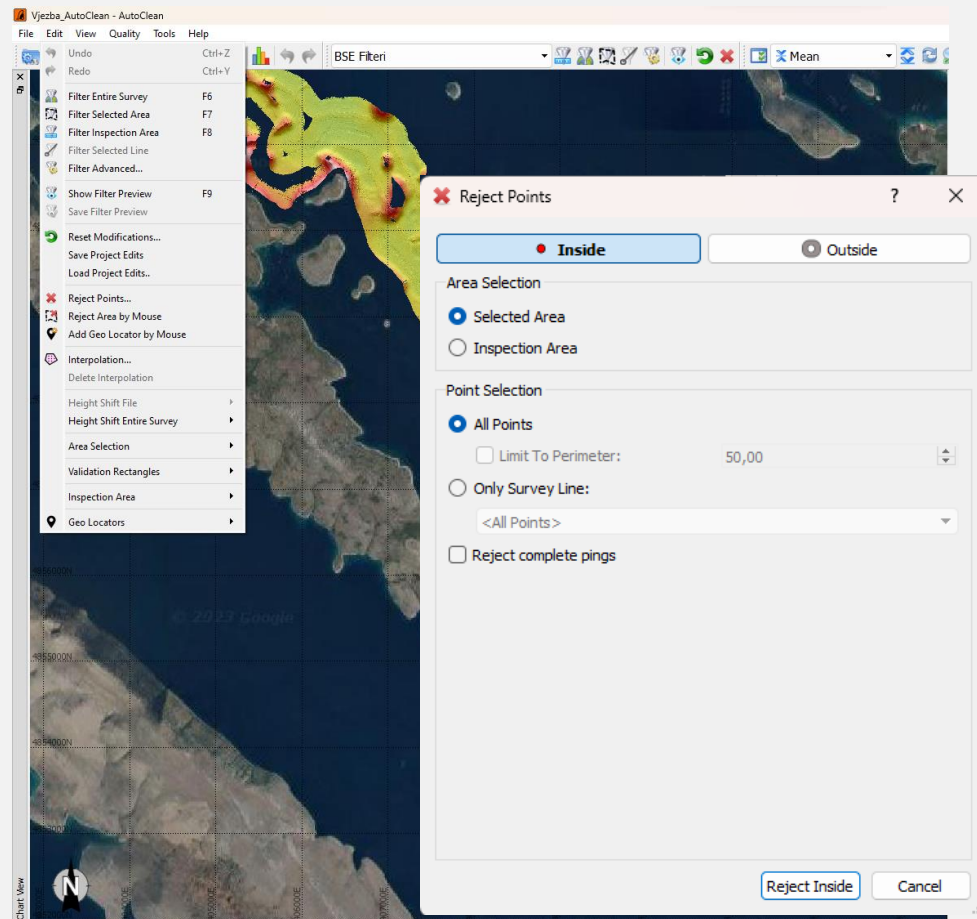
• Prozori i podloge

– Dodatni alati

– Reject points

• Brisanje viška točaka

- Ako filter ne očisti
- Ako su loši podaci



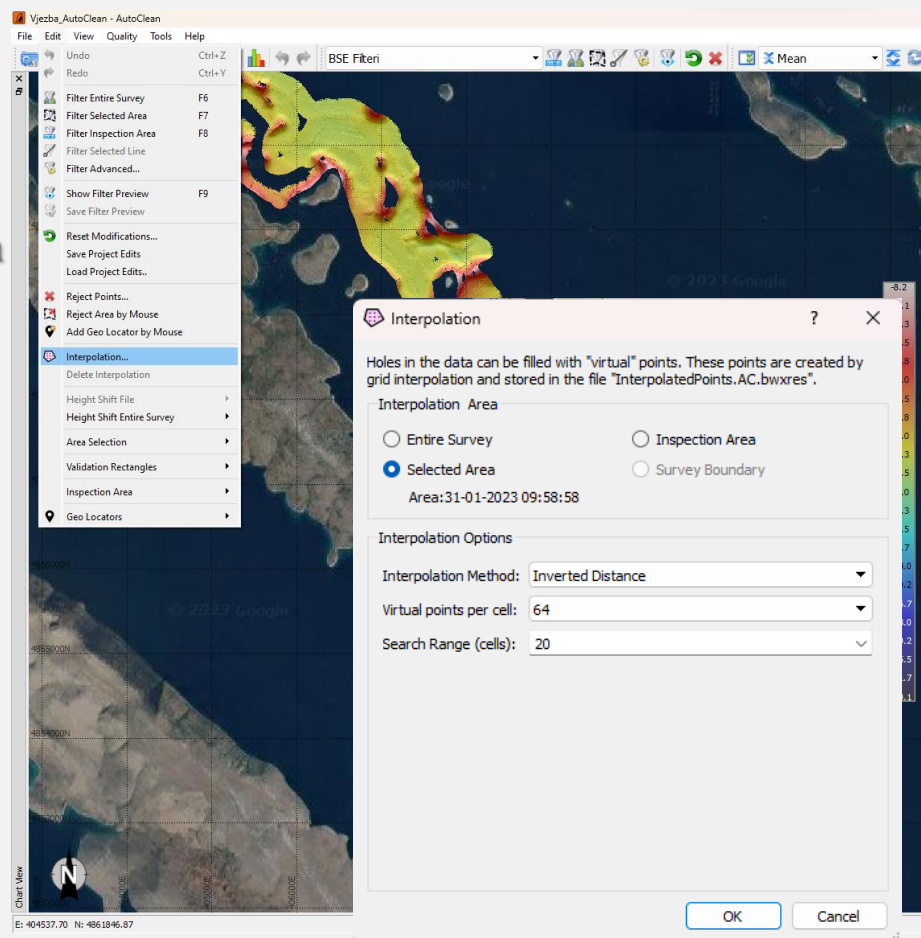
• Prozori i podloge

– Dodatni alati

– Interpolation

• Interpolacija praznih područja

- Grid Cell Size
- Različite metode interpolacije



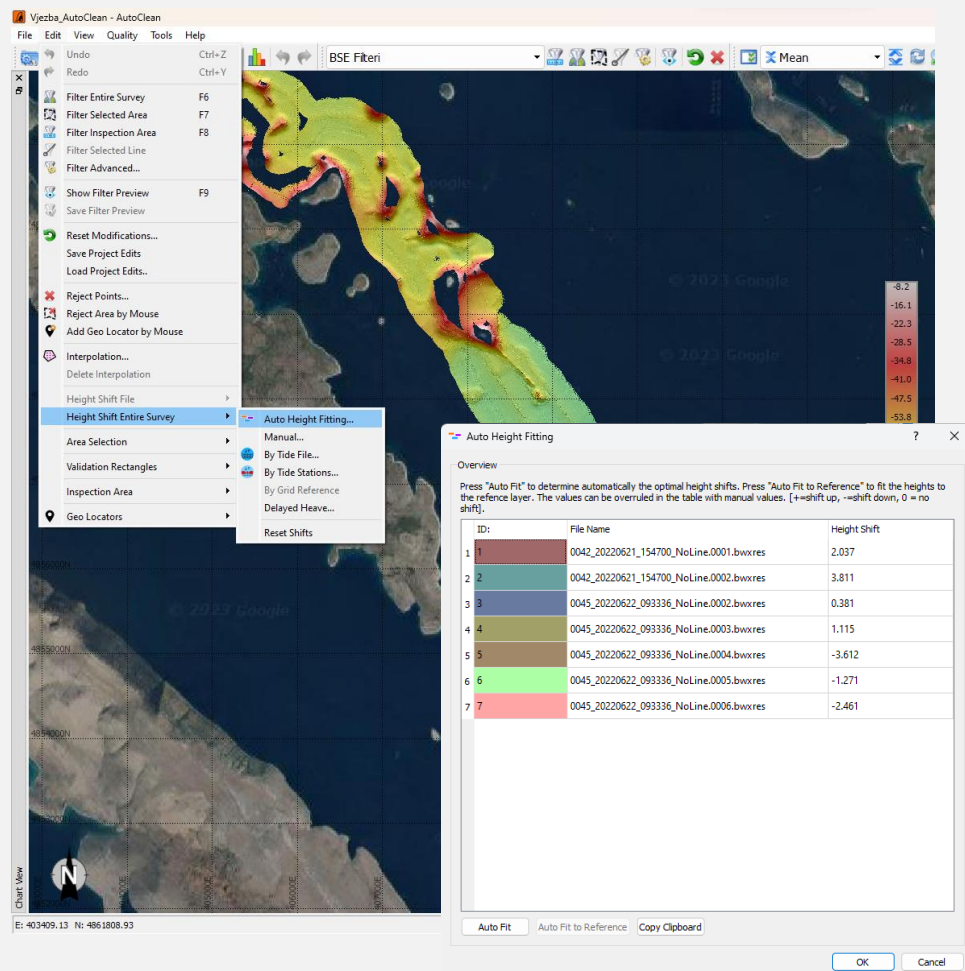
• Prozori i podloge

– Dodatni alati

– Height Shift Entire Survey

- Auto Height Fitting

- Raditi po završetku fitiranja
- Prije Smooth



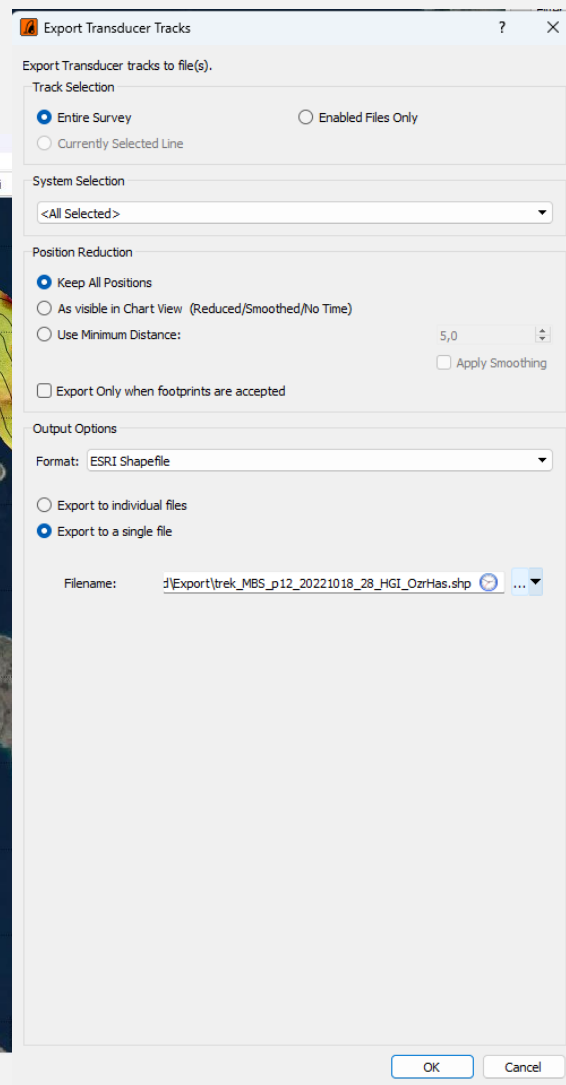
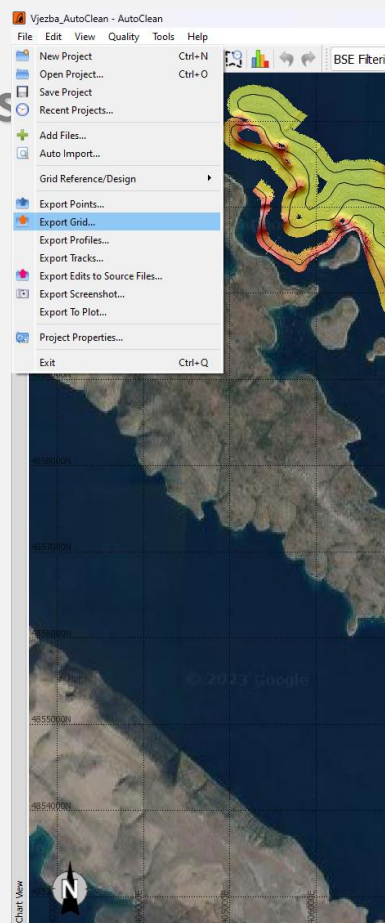
The screenshot shows the 'Vjezba_AutoClean - AutoClean' software interface. The 'Height Shift Entire Survey' menu is open, showing options like 'Auto Height Fitting...', 'Manual...', 'By Tide File...', 'By Tide Stations...', 'By Grid Reference', 'Delayed Heave...', and 'Reset Shifts'. The 'Auto Height Fitting' dialog box is also open, displaying a table of height shifts for various files.

ID:	File Name	Height Shift
1	0042_20220621_154700_NoLine.0001.bwxres	2.037
2	0042_20220621_154700_NoLine.0002.bwxres	3.811
3	0045_20220622_093336_NoLine.0002.bwxres	0.381
4	0045_20220622_093336_NoLine.0003.bwxres	1.115
5	0045_20220622_093336_NoLine.0004.bwxres	-3.612
6	0045_20220622_093336_NoLine.0005.bwxres	-1.271
7	0045_20220622_093336_NoLine.0006.bwxres	-2.461

The dialog box also includes an 'Overview' section with instructions: 'Press "Auto Fit" to determine automatically the optimal height shifts. Press "Auto Fit to Reference" to fit the heights to the reference layer. The values can be overruled in the table with manual values. [+]=shift up, -=shift down, 0 = no shift'. At the bottom, there are buttons for 'Auto Fit', 'Auto Fit to Reference', 'Copy Clipboard', 'OK', and 'Cancel'.

• Izvoz podataka

- File/Export
- Points, Grid, Profiles, Tracks

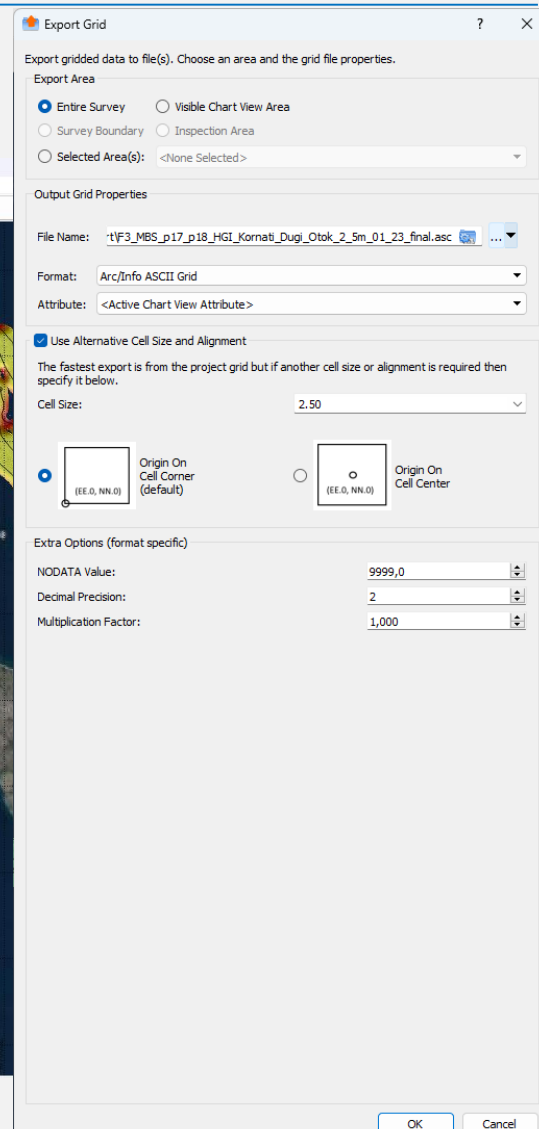
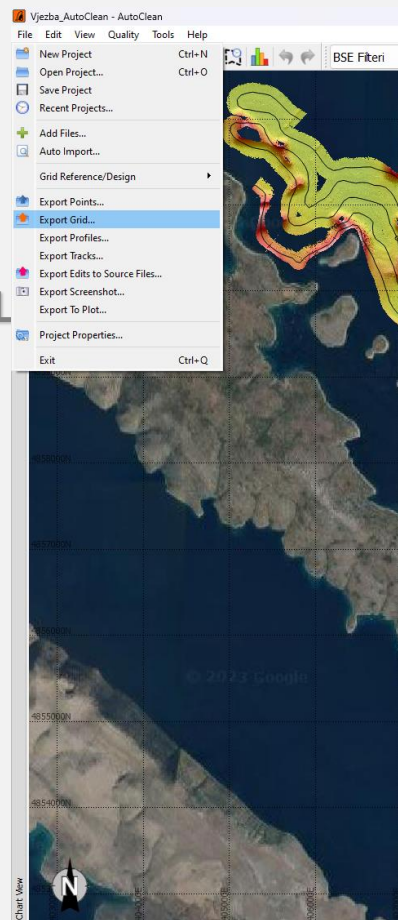


• Izvoz podataka

– File/Export

– Grid

- Entire Survey/Visible
- Selected Area
- Format: Esri/Cad/GeoTIFF/KML
- Attribute
- Cell size



- Zovi čovika!
 - Joost Mars - joost@beamworx.com

Hvala na pažnji!

