

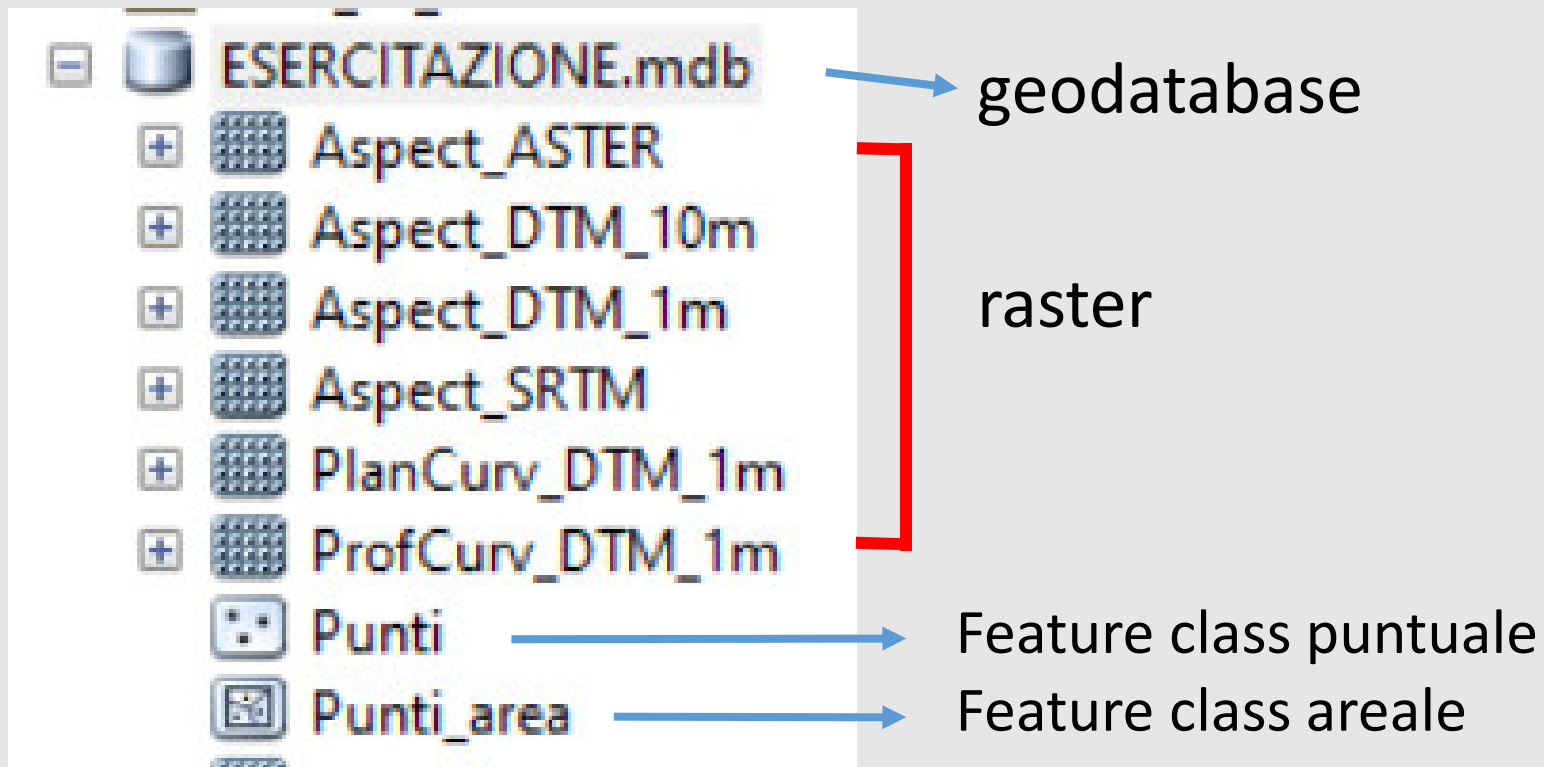
ESERCITAZIONI

importazioni punti da LiDAR
estrazione profilo topografico
verifica accuratezza verticale

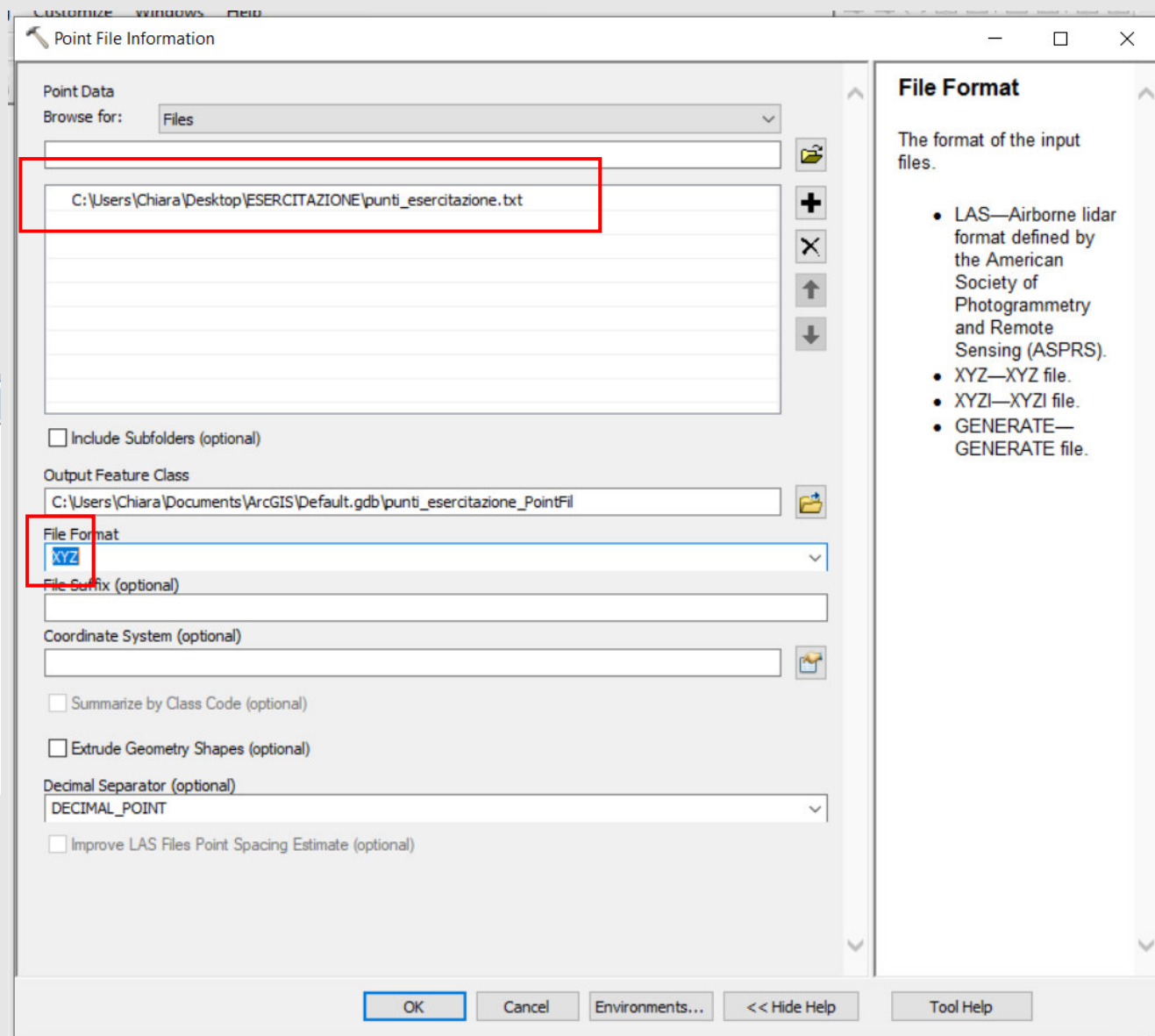
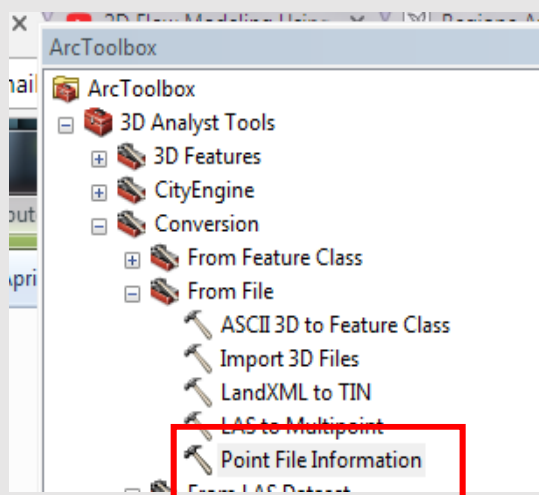
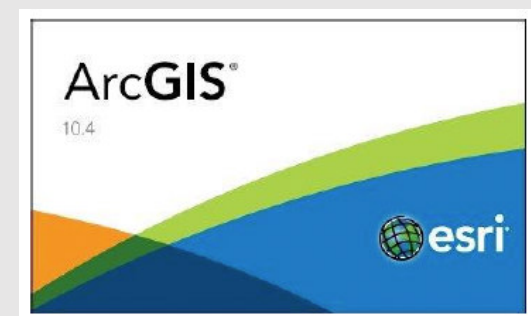
Geodatabase

I geodatabase (database spaziali o Spatial DBMS) sono **archivi di dati geografici memorizzati su database relazionali (RDBMS, Relational DataBase Management System) e non su file system** (come, ad esempio, gli Shapefile).

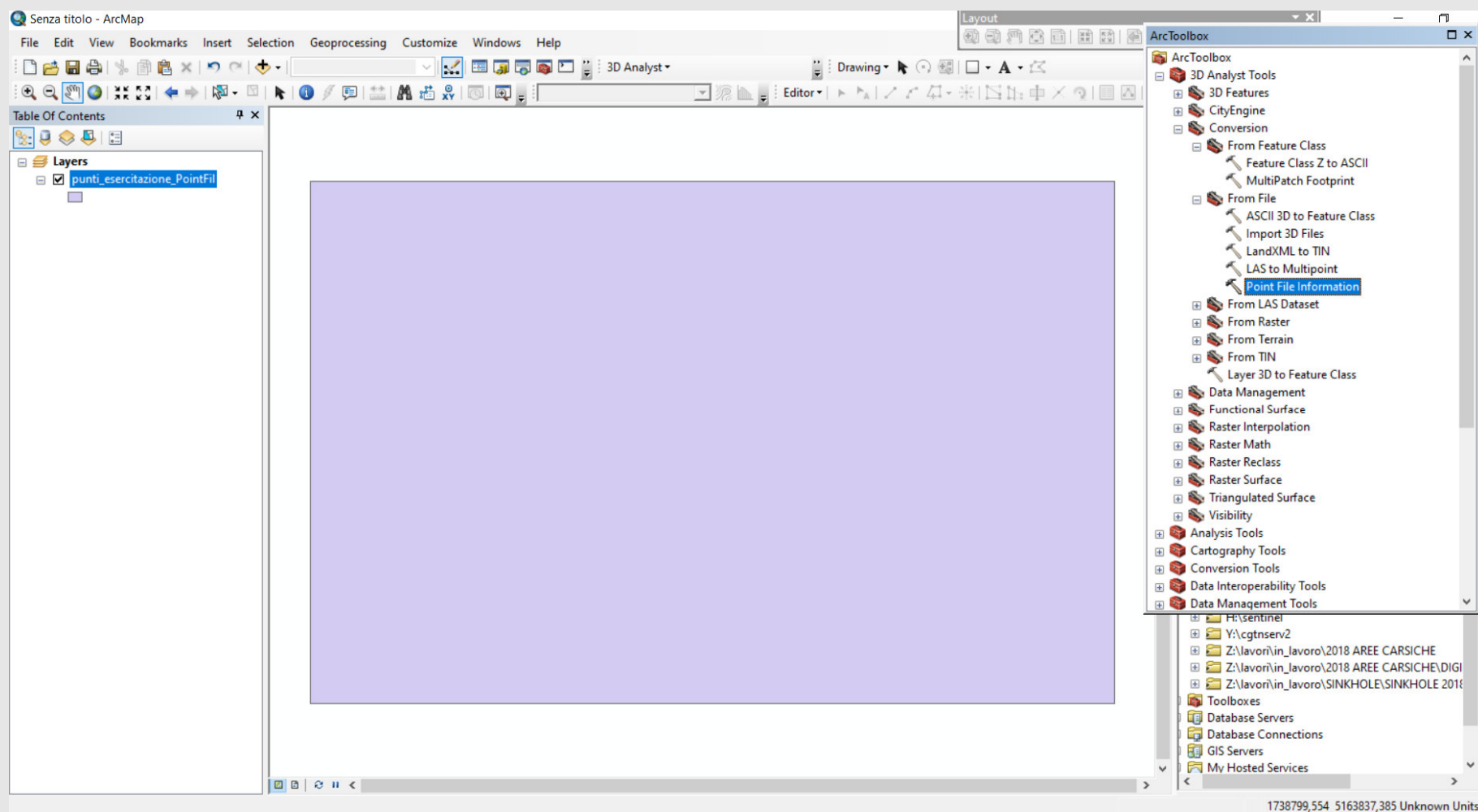
Geodatabase



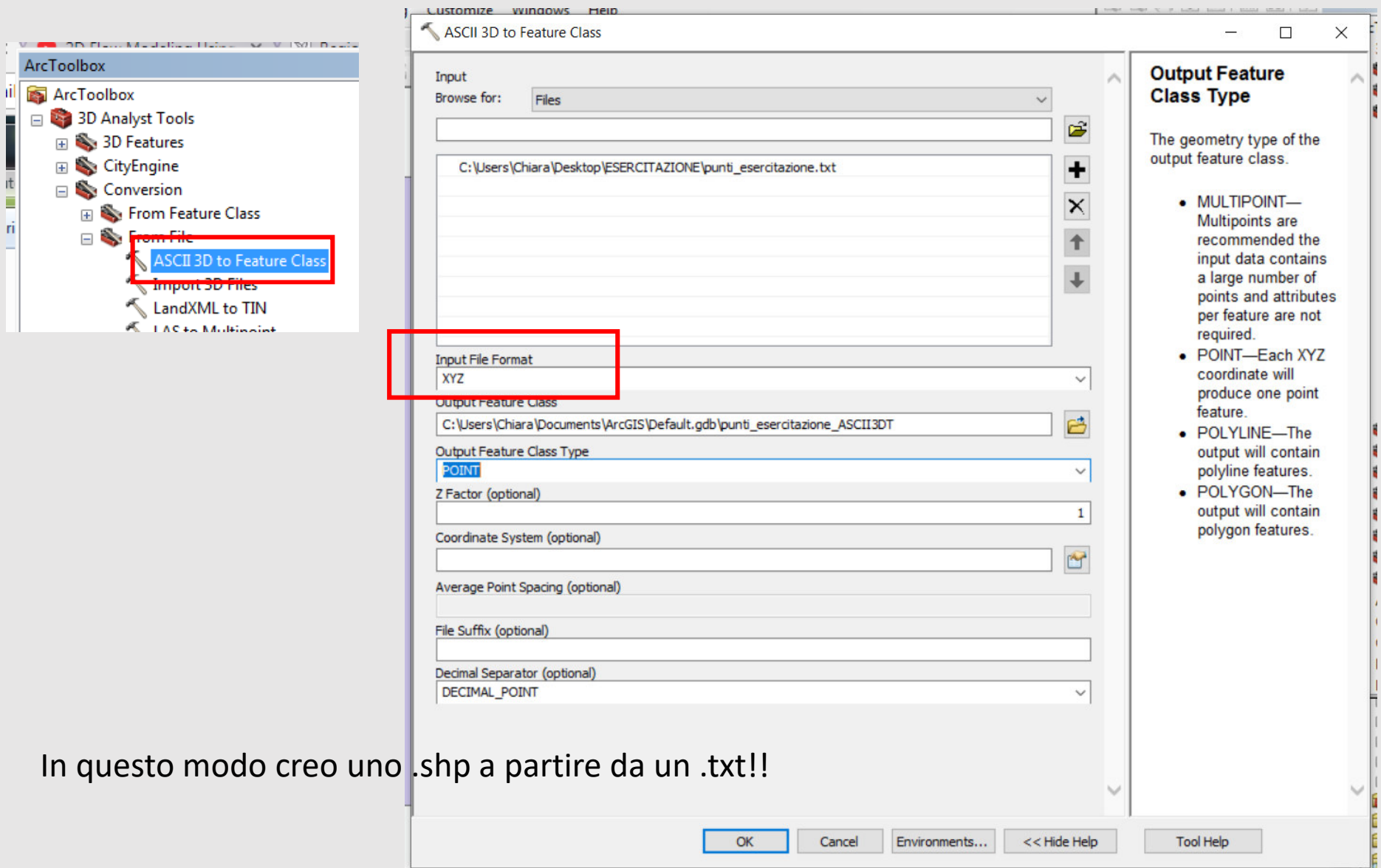
Importazione punti LiDAR, dominio di esistenza dei punti



Importazione punti LiDAR, dominio di esistenza dei punti



Importazione file ASCII punti LiDAR



The image shows the ArcToolbox on the left and the 'ASCII 3D to Feature Class' dialog box on the right. In the ArcToolbox, the 'From File' folder is expanded, and 'ASCII 3D to Feature Class' is highlighted with a red box. In the dialog box, the 'Input File Format' is set to 'XYZ' (highlighted with a red box), the 'Output Feature Class Type' is set to 'POINT', and the 'Input' field contains the file path 'C:\Users\Chiara\Desktop\ESERCITAZIONE\punti_esercitazione.txt'.

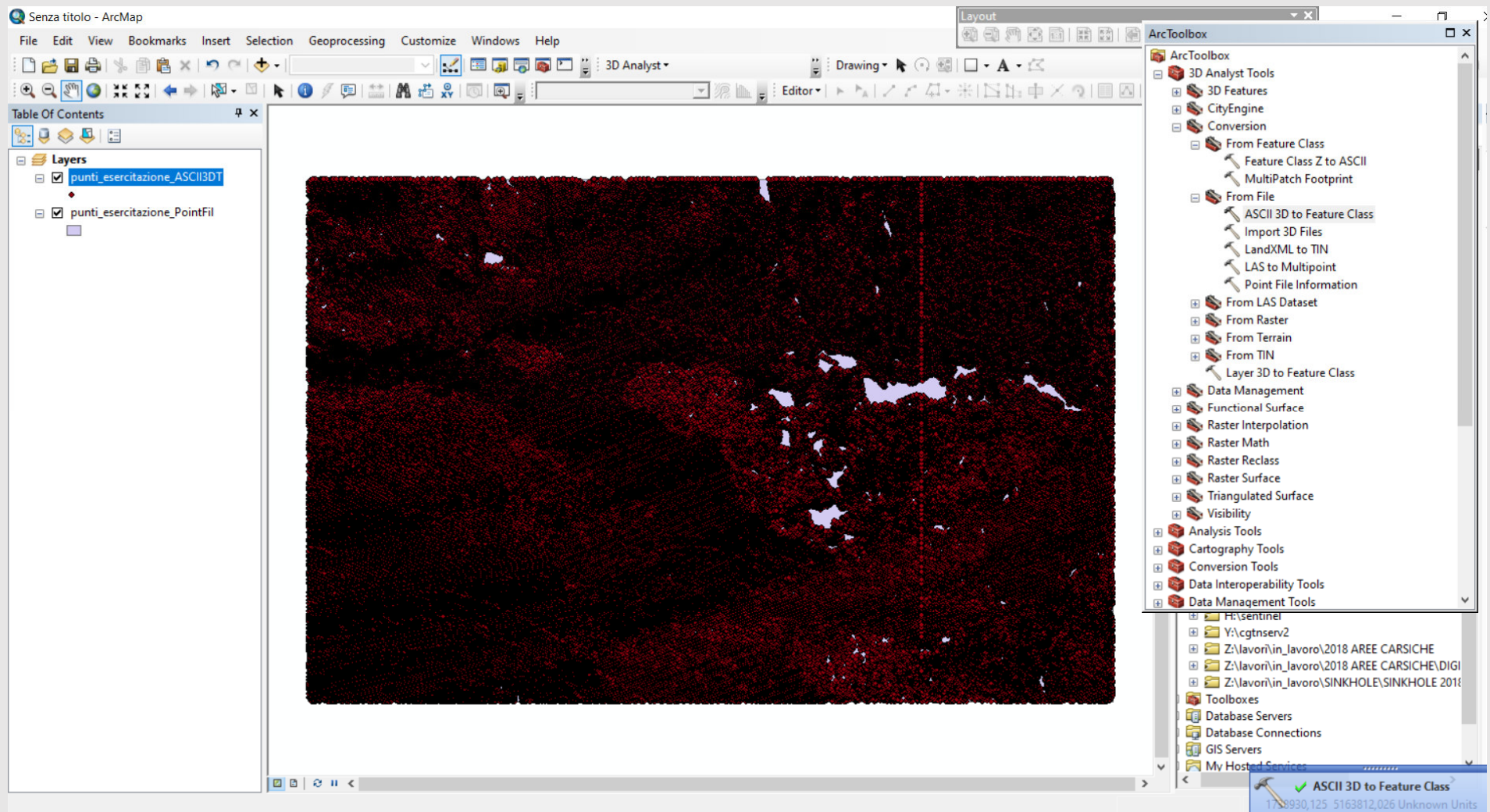
Output Feature Class Type

The geometry type of the output feature class.

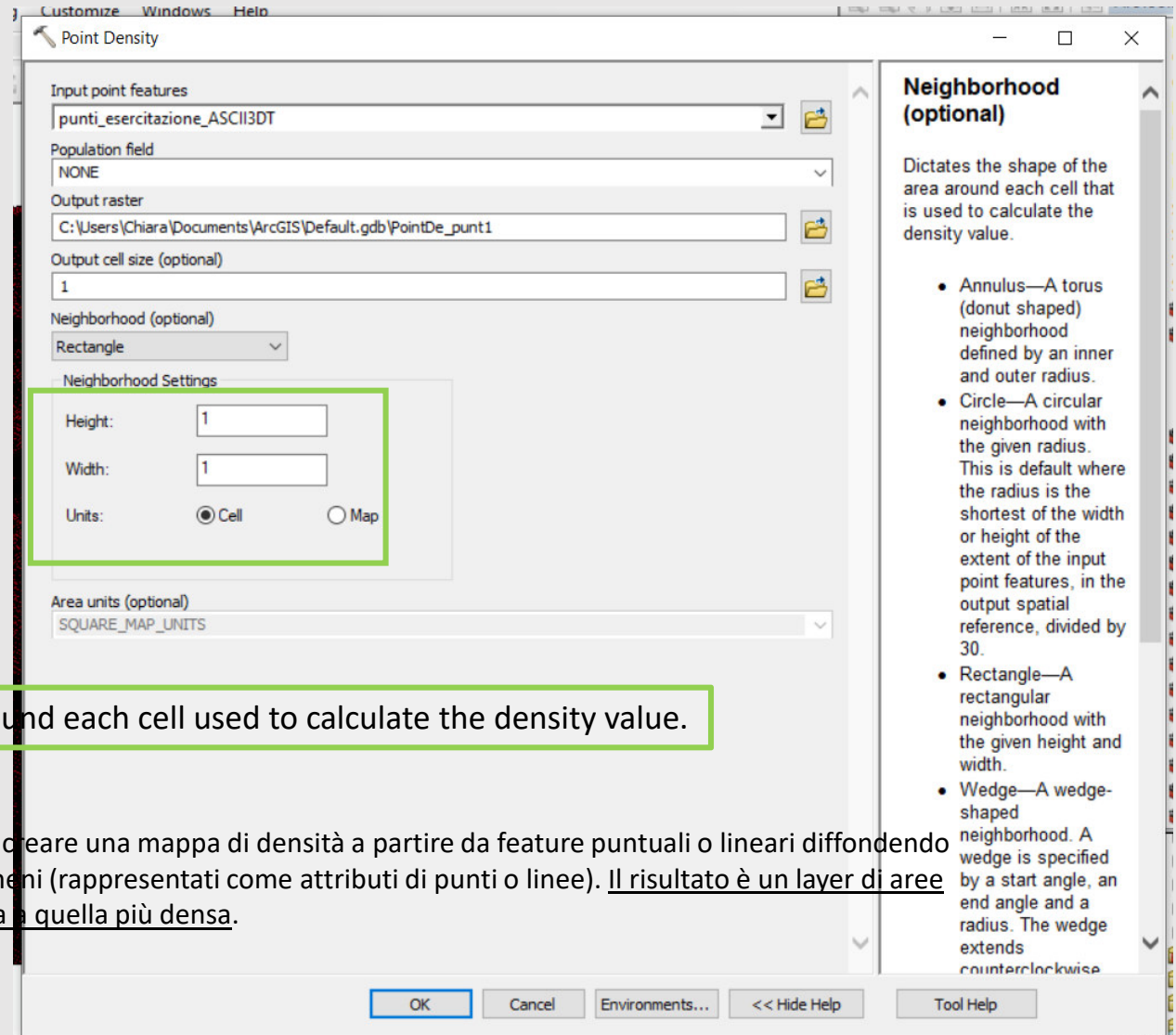
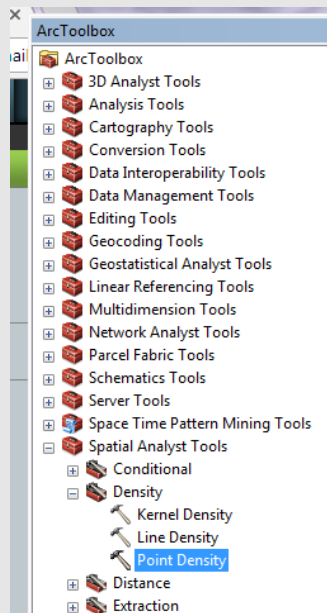
- **MULTIPOINT**—Multipoints are recommended the input data contains a large number of points and attributes per feature are not required.
- **POINT**—Each XYZ coordinate will produce one point feature.
- **POLYLINE**—The output will contain polyline features.
- **POLYGON**—The output will contain polygon features.

In questo modo creo uno .shp a partire da un .txt!!

Nuvola di punti LiDAR



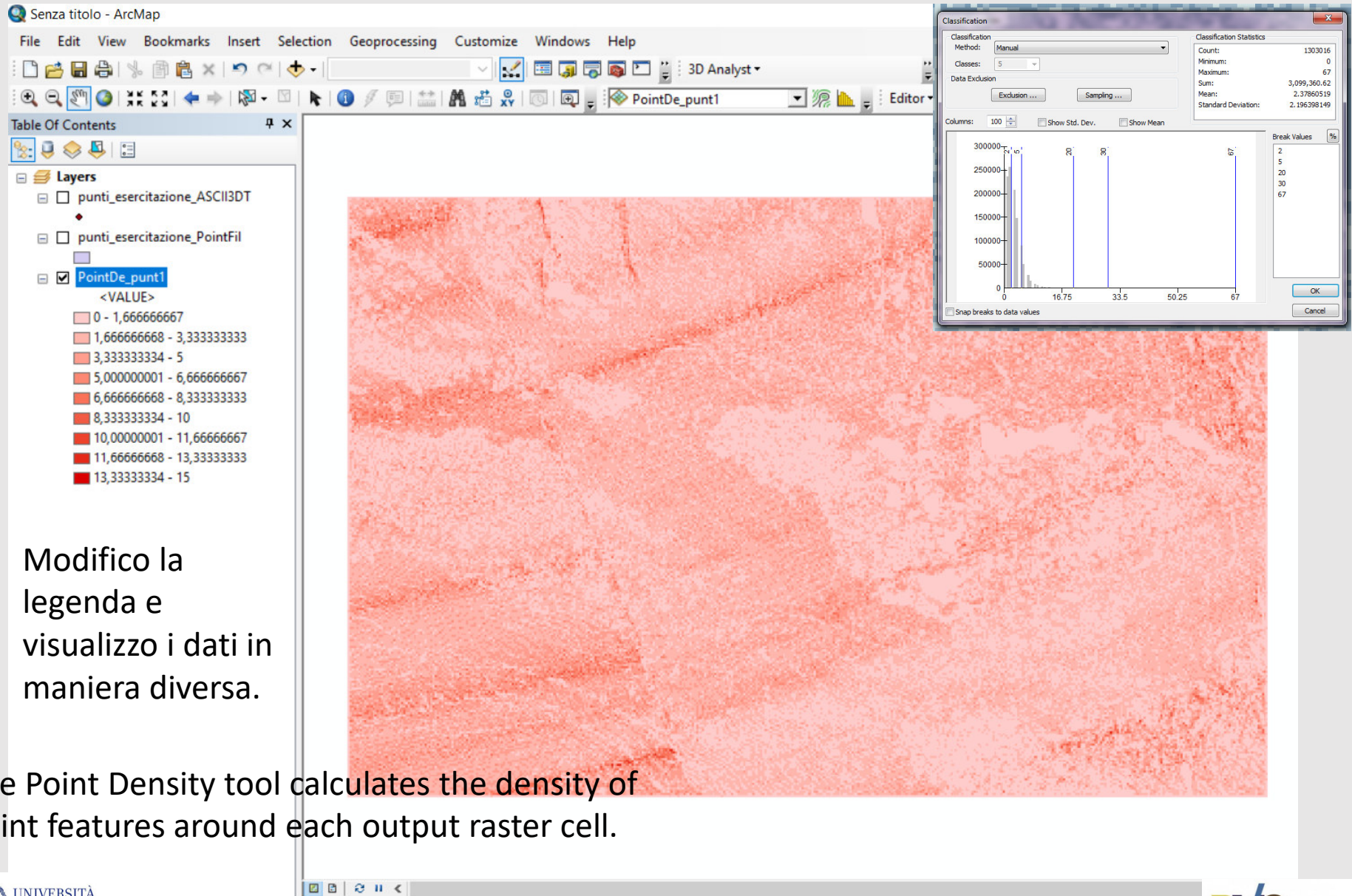
Verifico la DENSITA' dei miei dati



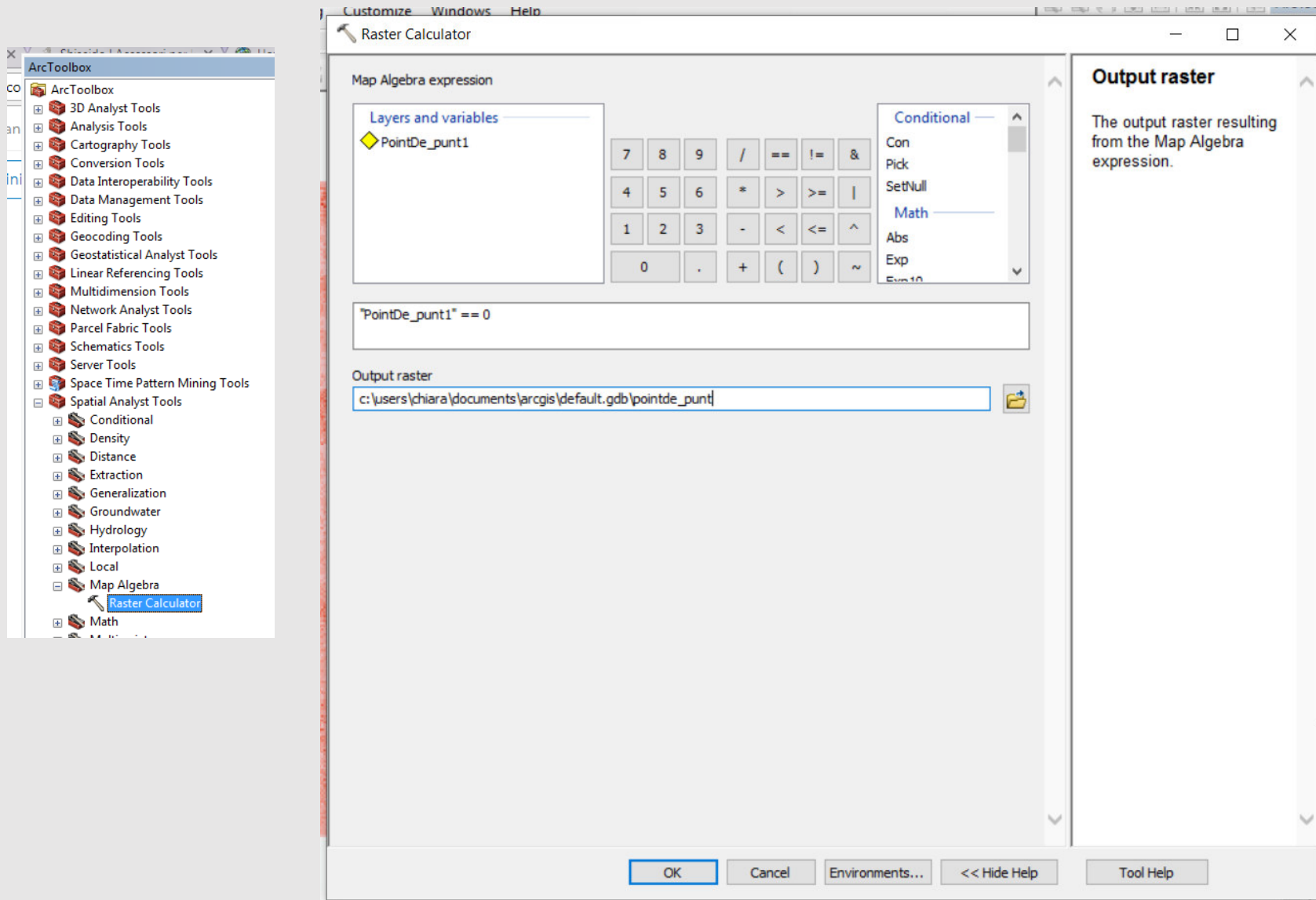
Dictates the shape of the area around each cell used to calculate the density value.

Lo strumento **Calcolo densità** consente di creare una mappa di densità a partire da feature puntuali o lineari diffondendo nella mappa quantità note di alcuni fenomeni (rappresentati come attributi di punti o linee). Il risultato è un layer di aree classificate a partire da quella meno densa a quella più densa.

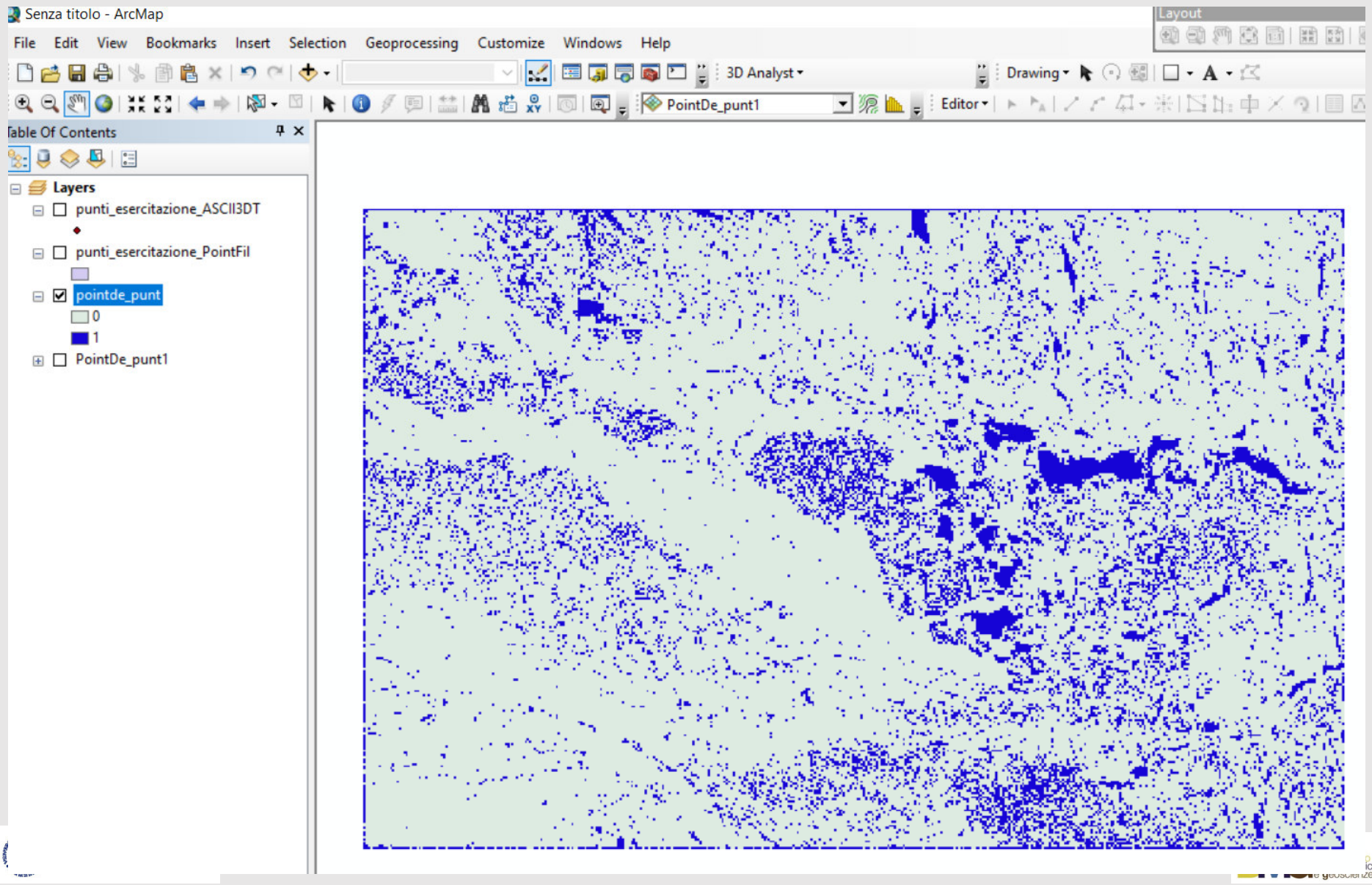
Verifico la DENSITA' dei miei dati



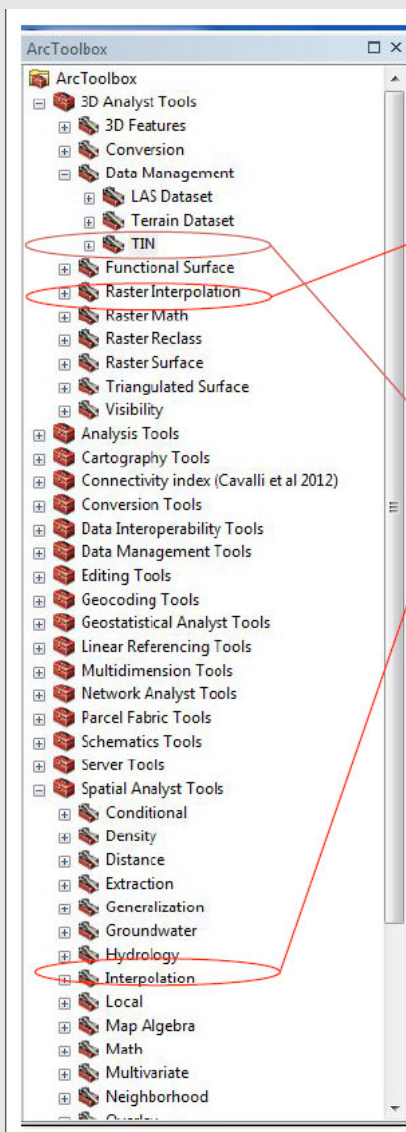
Individuazione dei «data voids»



Individuazione dei «data voids»



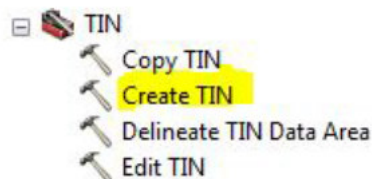
Interpolazione



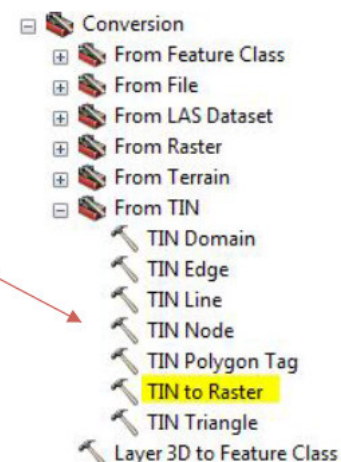
Disponibili diversi algoritmi di interpolazione.
Tenere in considerazione densità e presenza “data voids” nella scelta di:

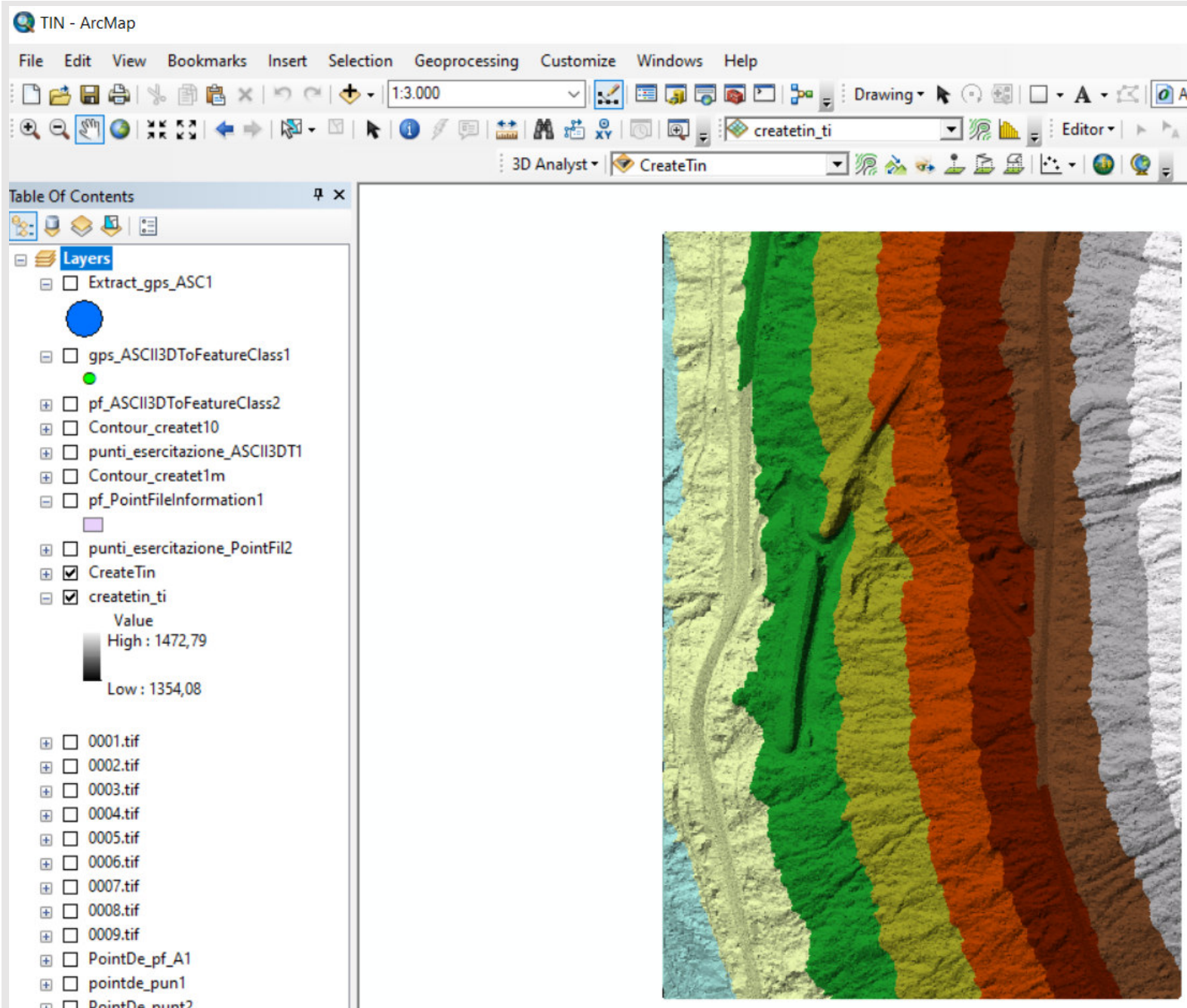
- 1 dimensione della cella del modello digitale
- 2 algoritmo di interpolazione (e relativi parametri)

È possibile creare un TIN da 3D Analyst tools -> Data Management



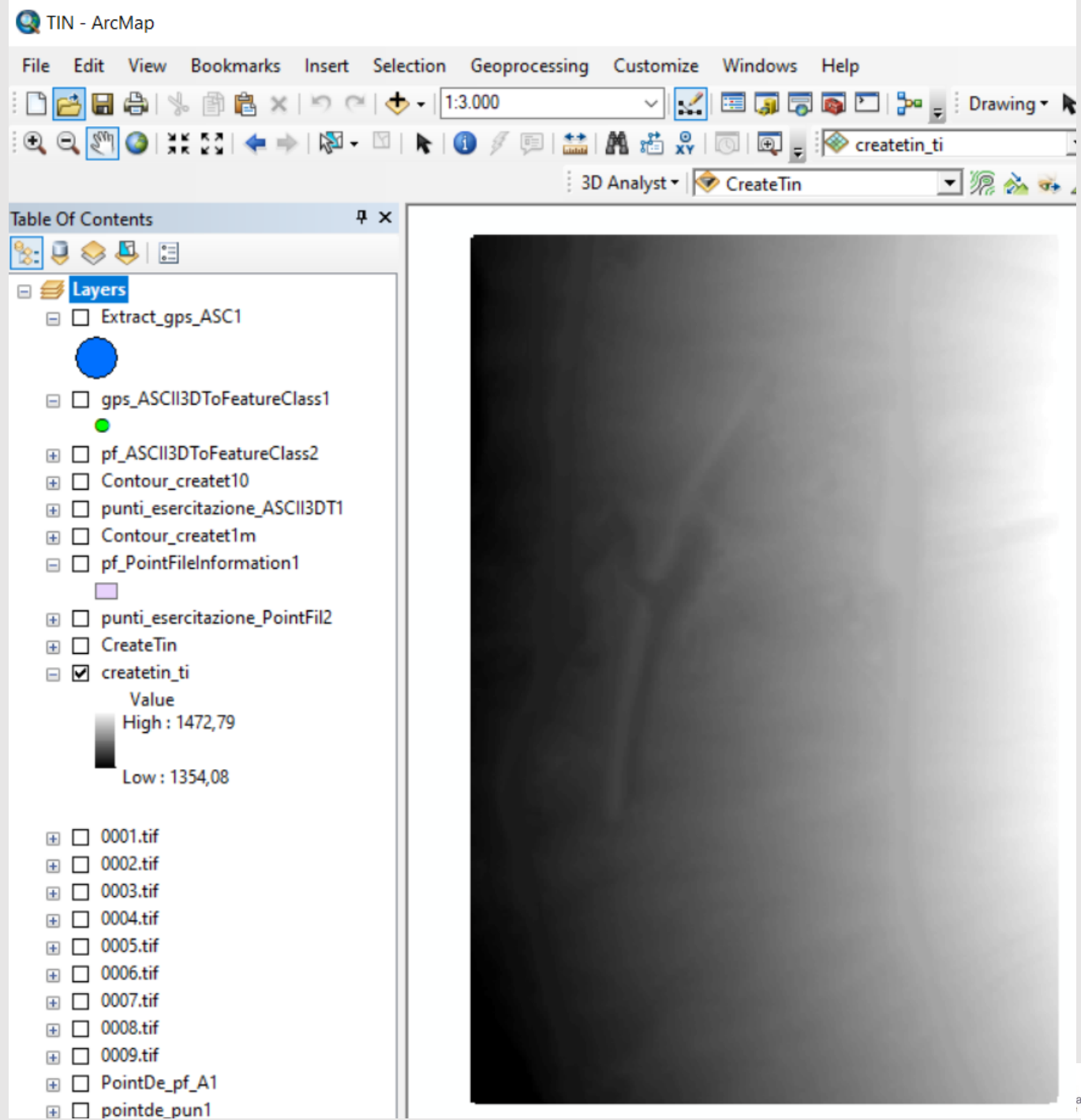
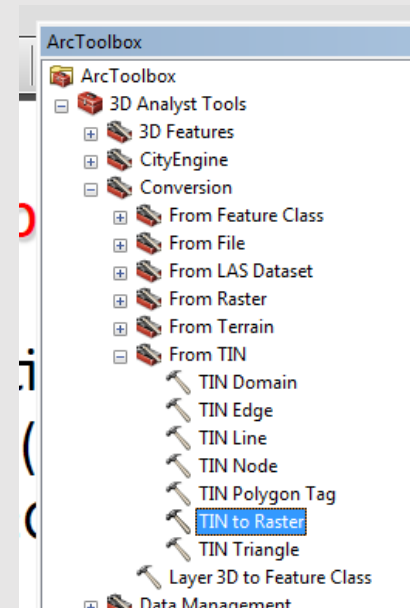
E convertire il TIN in raster





TIN

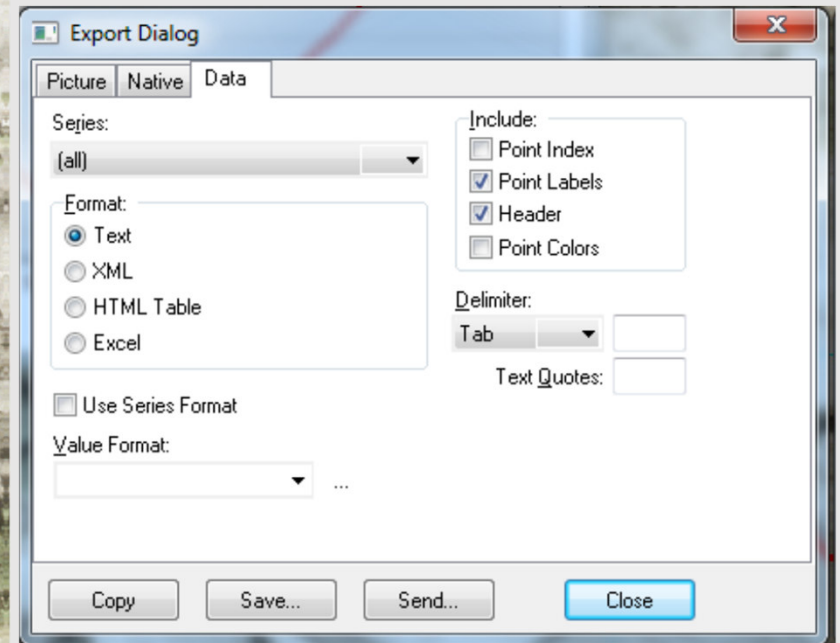
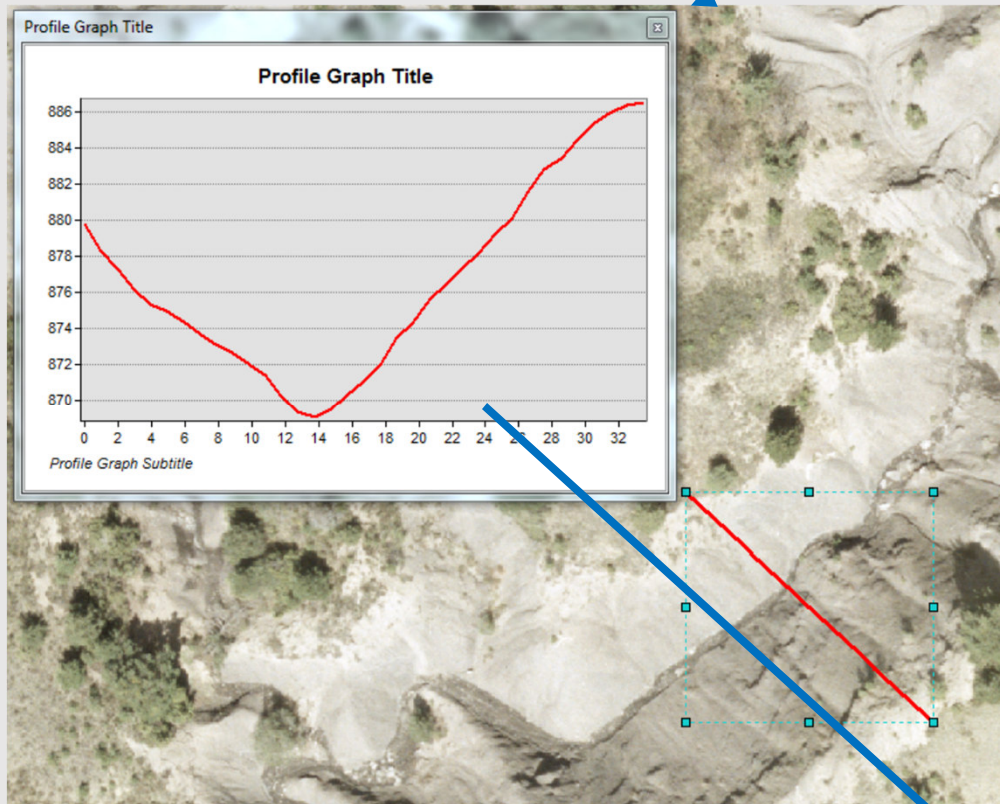
TIN to RASTER



Estrazione di un profilo topografico

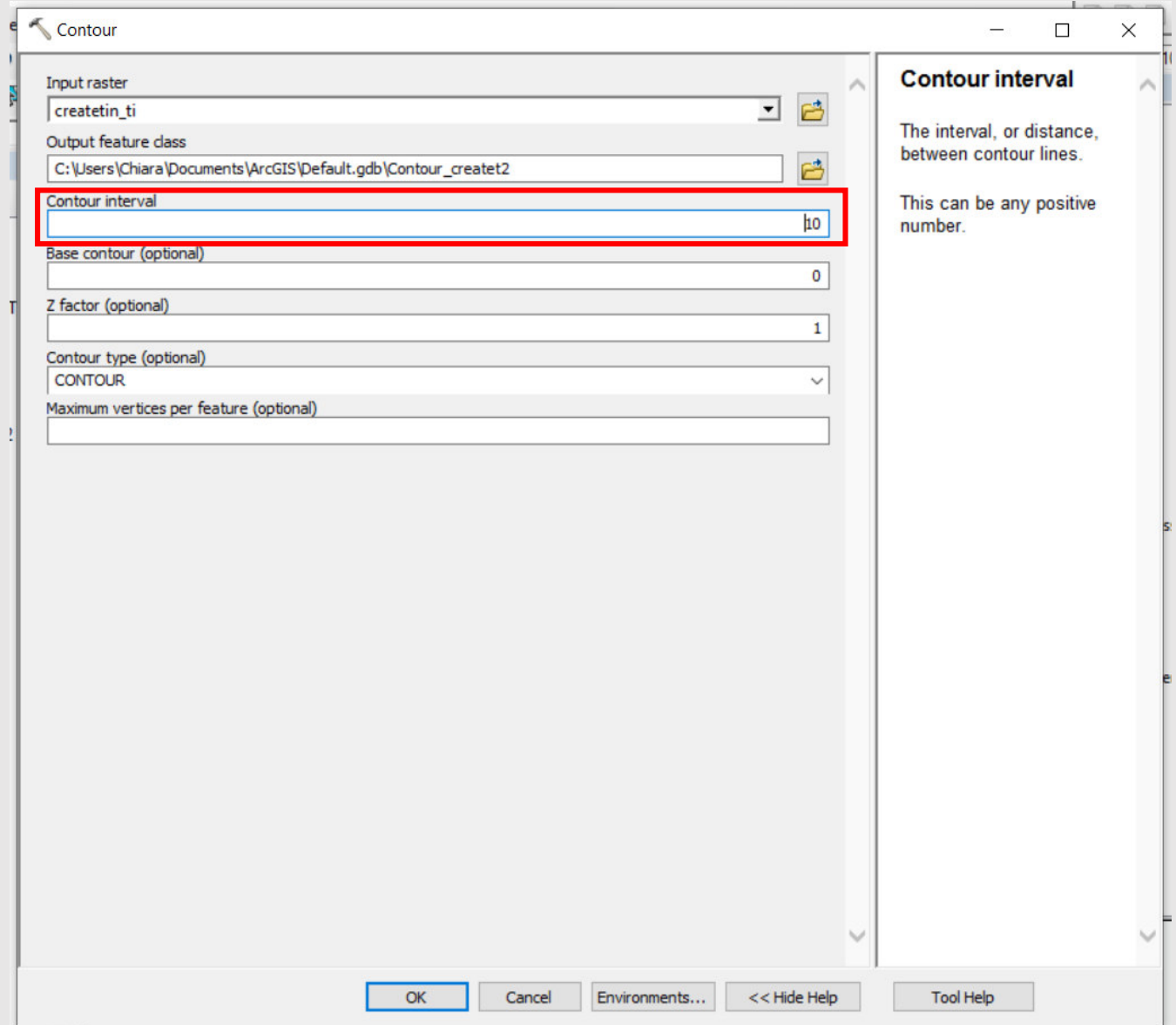
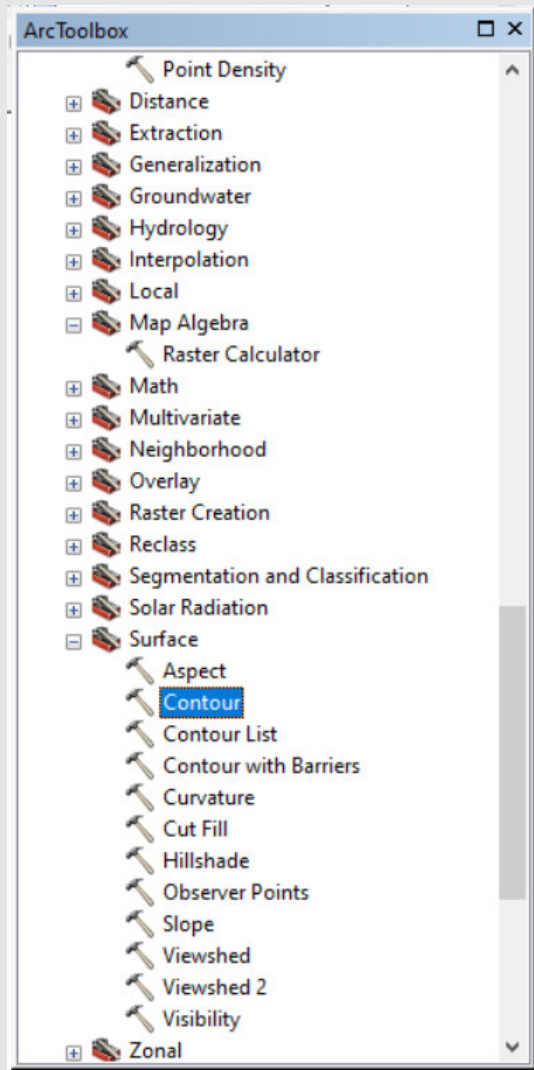


E' un'operazione estremamente utile e veloce che permette di verificare la qualità del dato che si sta utilizzando.

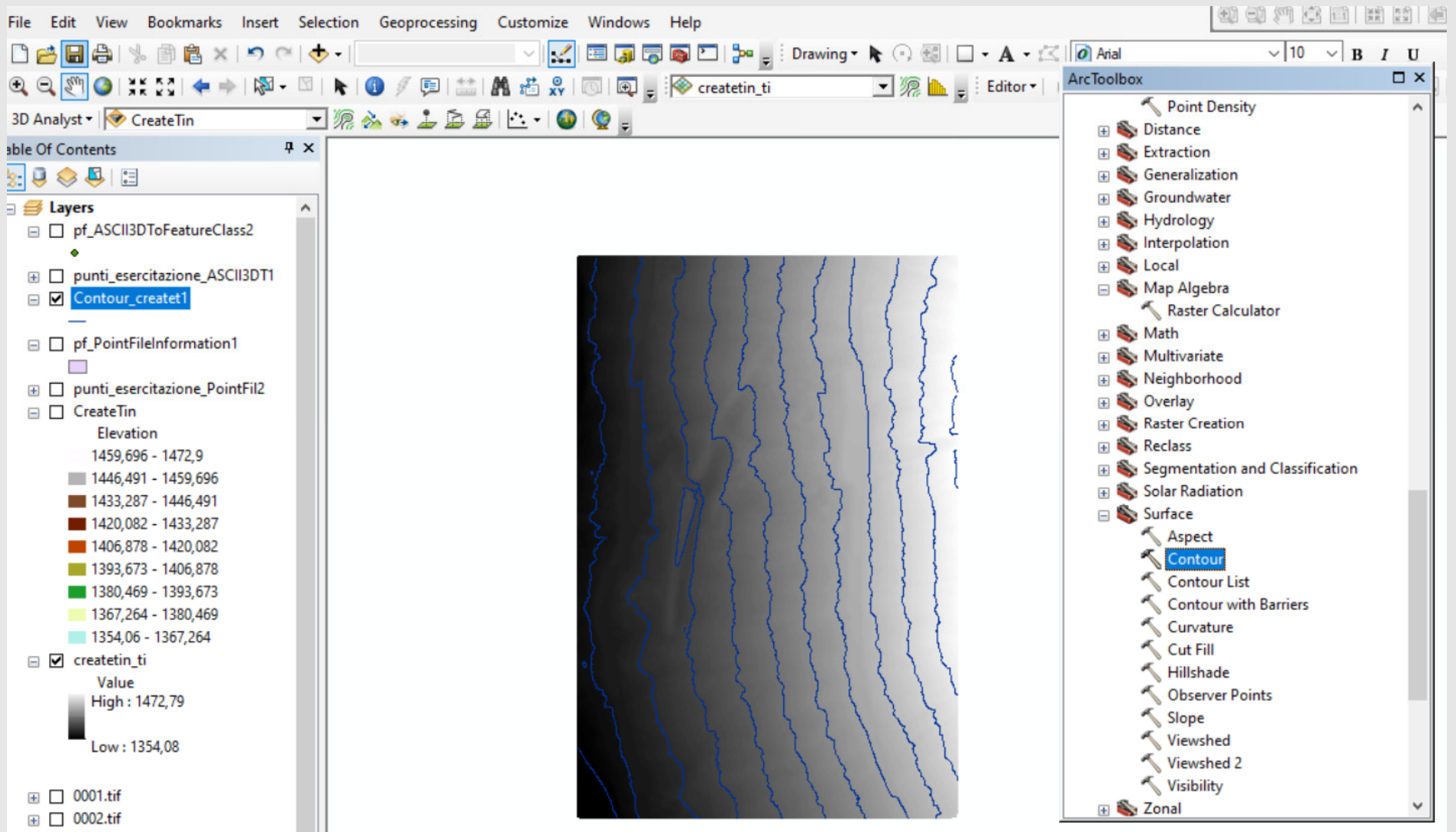


Per esportare utilizzo il tasto dx sul grafico

CONTOUR



CONTOUR lines 10m spaced



Importazione punti di controllo

The screenshot displays the ArcMap interface with the 'ASCII 3D to Feature Class' tool open. The tool's 'Input' section shows the file path: H:\CHIARA\00_RICERCA\CORSI AGGIORNAMENTO\GEOMORPHOMETRY 2017\Geomorfometria\dati\gps.txt. The 'Output Feature Class Type' section lists options: MULTIPOINT, POINT, POLYLINE, and POLYGON. The 'Output Feature Class' section shows the output path: H:\corso 2017-2018AA\1a ESERCITAZIONE\FIAMES\punti_gps.shp. The 'Coordinate System' section is set to 'Decimal Separator (optional)' with 'DECIMAL_POINT' selected. The 'Table of Contents' panel shows the 'Layers' list with 'Extract_gps_ASC1' and 'gps_ASCII3DToFeatureClass1' checked. The 'Map' panel shows a TIN map with a color scale from 1354.08 to 1472.79 and several blue control points overlaid on the terrain.

ASCII 3D to Feature Class

Input
Browse for: Files

H:\CHIARA\00_RICERCA\CORSI AGGIORNAMENTO\GEOMORPHOMETRY 2017\Geomorfometria\dati\gps.txt

Output Feature Class Type

The geometry type of the output feature class.

- MULTIPOINT—Multipoints are recommended if the input data contains a large number of points and attributes per feature are not required.
- POINT—Each XYZ coordinate will produce one point feature.
- POLYLINE—The output will contain polyline features.
- POLYGON—The output will contain polygon features.

Output Feature Class
H:\corso 2017-2018AA\1a ESERCITAZIONE\FIAMES\punti_gps.shp

Output Feature Class Type
POINT

Z Factor (optional)

Coordinate System (optional)

Average Point Spacing (optional)

File Suffix (optional)

Decimal Separator (optional)
DECIMAL_POINT

OK

ArcToolbox

ArcToolbox

- 3D Analyst Tools
 - 3D Features
 - CityEngine
 - Conversion
 - From Feature Class
 - From File
 - ASCII 3D to Feature Class
 - Import 3D Files
 - LandXML to TIN

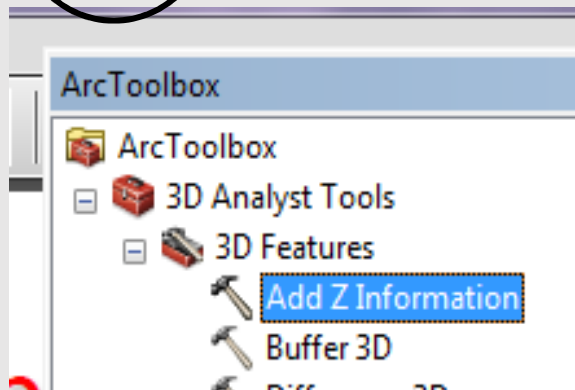
Table of Contents

Layers

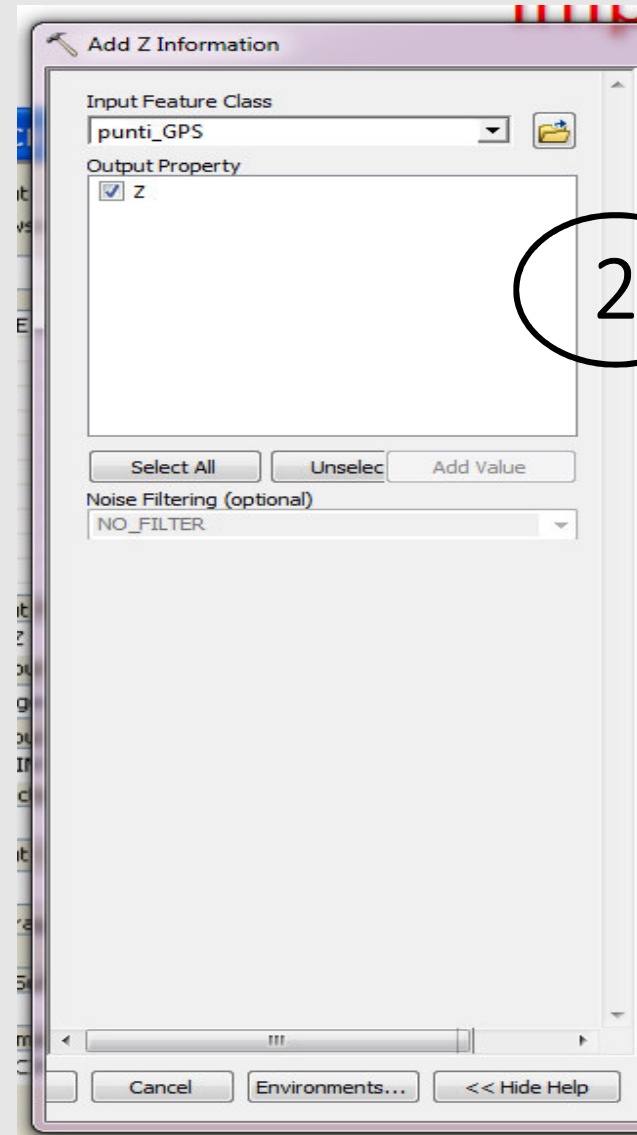
- ☒ Extract_gps_ASC1
- ☐ gps_ASCII3DToFeatureClass1
- ☐ pf_ASCII3DToFeatureClass2
- ☒ Contour_createt10
- ☐ punti_esercitazione_ASCII3DT1
- ☐ Contour_createt1m
- ☐ pf_PointFileInformation1
- ☐ punti_esercitazione_PointFil2
- ☐ CreateTin
- ☒ createt1n_t1
 - Value
 - High : 1472,79
 - Low : 1354,08
- ☐ 0001.tif
- ☐ 0002.tif
- ☐ 0003.tif
- ☐ 0004.tif
- ☐ 0005.tif
- ☐ 0006.tif
- ☐ 0007.tif
- ☐ 0008.tif
- ☐ 0009.tif
- ☐ PointDe_pf_A1
- ☐ pointde_pun1

Esplicitare le quote

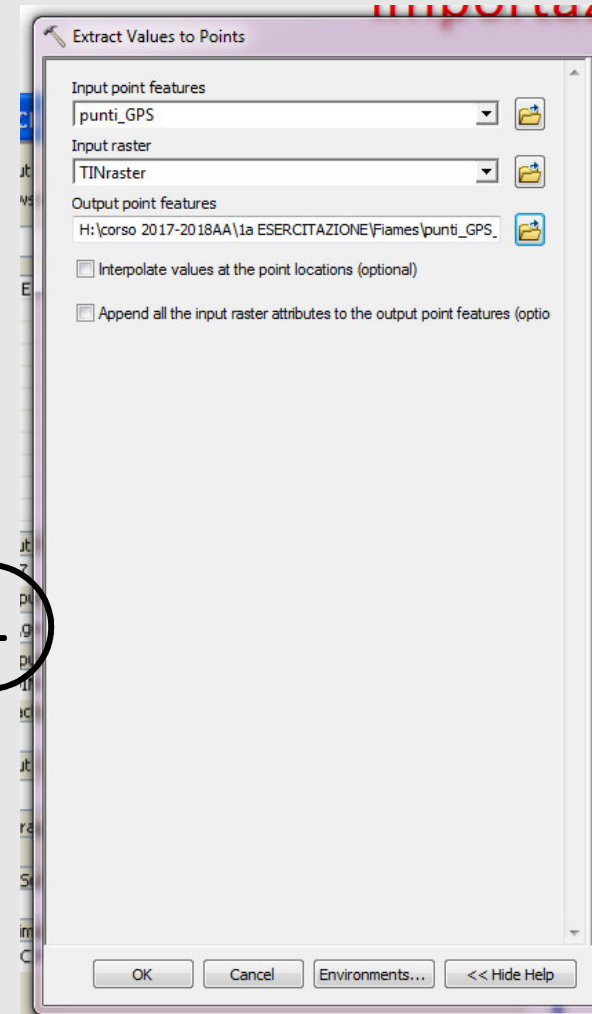
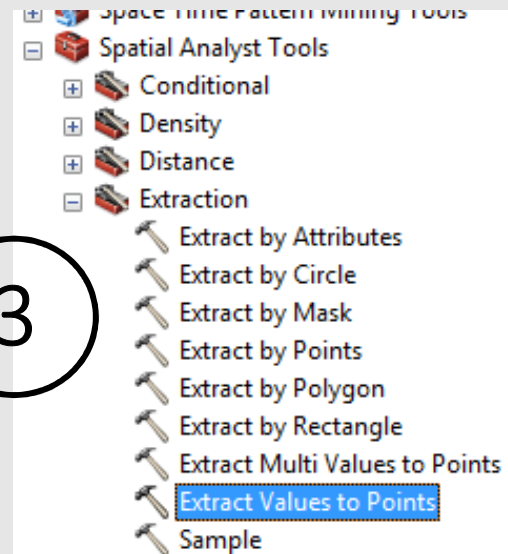
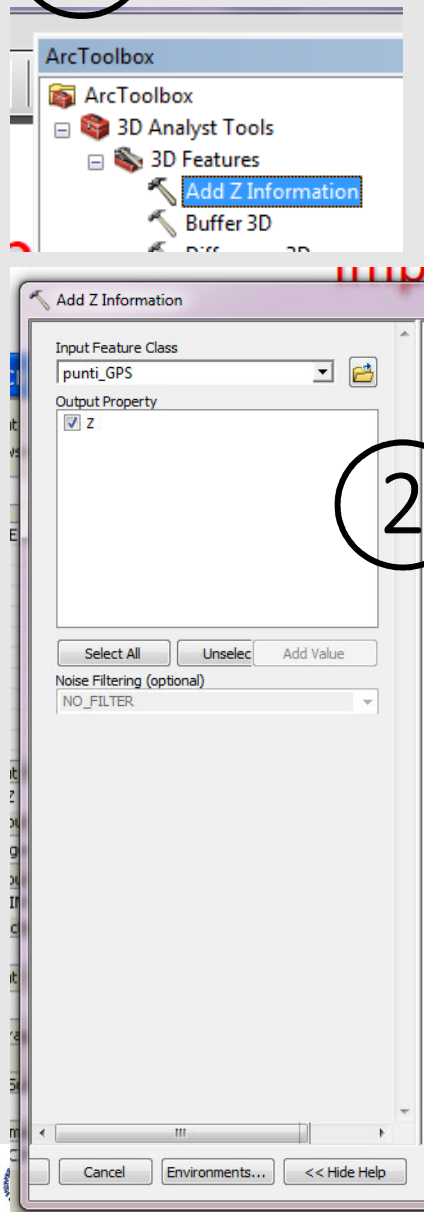
1



2



① Come assegnare le quote del DTM ai punti di controllo



Esporto la tabella in .dbf

The screenshot displays the QGIS interface with a Digital Terrain Model (DTM) map in the background. A red circle highlights the 'Z' column in the 'punti_GPS_DTM' table, and a blue circle highlights the 'EASTERVALU' column. The 'Export Data' dialog is open, showing 'All records' selected for export. The 'Output table' path is set to 'H:\CHIARA\00_RICERCA\Articoli_Chia\in lavoro\Water resources'. The 'Saving Data' dialog is also open, showing the file name 'Punti_comparison.dbf' and the save type 'dBASE Table'.

Table: punti_GPS_DTM

FID	Shape *	Id	Z	EASTERVALU
0	Point ZM	0	1404.75	1404.682861
1	Point ZM	0	1453.7	1452.536743
2	Point ZM	0	1458.82	1459.42041
3	Point ZM	0	1433.08	1432.490845
4	Point ZM	0	1392.75	1393.21814
5	Point ZM	0	1371.85	1371.866089
6	Point ZM	0	1413.32	1413.198853
7	Point ZM	0	1429.08	1428.272827
8	Point ZM	0	1464.61	1463.317139
9	Point ZM	0	1457.5	1455.868652
10	Point ZM	0	1410.44	1410.00244
11	Point ZM	0	1454.68	1454.63269

Export Data

Export: All records

Use the same coordinate system as:

- ☐ this layer's source data
- ☐ the data frame
- ☐ the feature dataset you export the data into (only applies if you export to a feature dataset in a geodatabase)

Output table:

H:\CHIARA\00_RICERCA\Articoli_Chia\in lavoro\Water resources

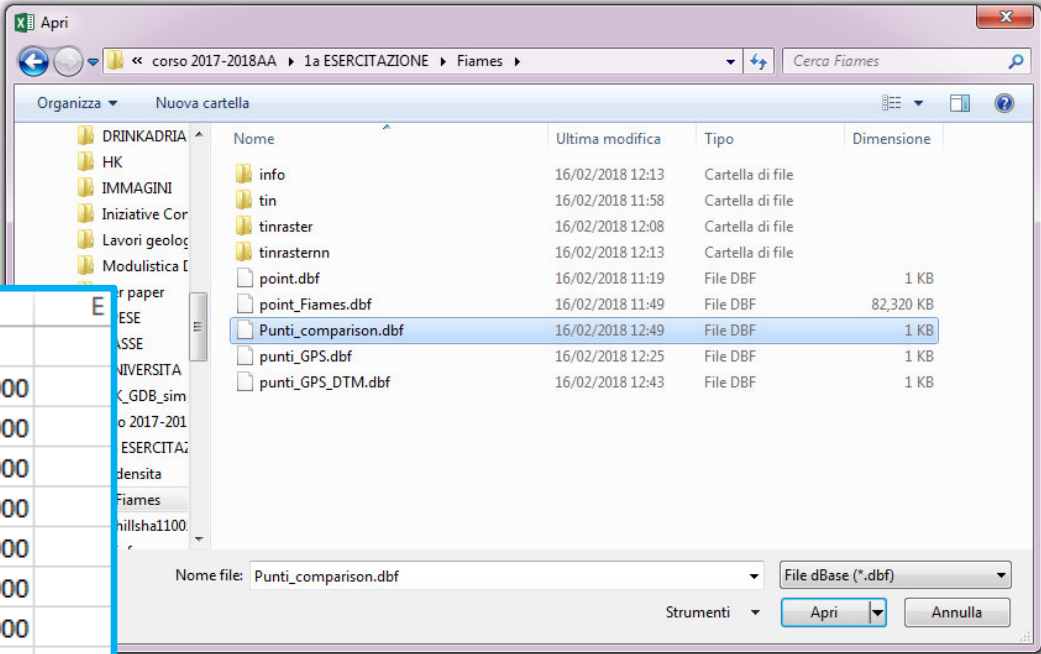
Saving Data

Look in: F:\ames

Name: Punti_comparison.dbf

Save as type: dBASE Table

Analisi di accuratezza verticale



Apri

Informazioni

Nuovo

Apri

Salva

Salva con nome

Stampa

Condividi

Esporta

Chiudi

Cartelle di lavoro recenti

OneDrive

Computer

Aggiungi una posizione

Computer

Documenti

Desktop

Sfogli

B	C	D	E
Z	RASTERVALU	Differenza	
1404.750000000000	1404.68286133000	0.06713867000	
1453.700000000000	1452.53674316000	1.16325684000	
1458.820000000000	1459.42041016000	-0.60041016000	
1433.080000000000	1432.49084473000	0.58915527000	
1392.750000000000	1393.21813965000	-0.46813965000	
1371.850000000000	1371.86608887000	-0.01608887000	
1413.320000000000	1413.19885254000	0.12114746000	
1429.080000000000	1428.27282715000	0.80717285000	
1464.610000000000	1463.31713867000	1.29286133000	
1457.500000000000	1455.86865234000	1.63134766000	
1410.440000000000	1410.00244141000	0.43755859000	
1454.880000000000	1454.63269043000	0.24730957000	

Nome file: Punti_comparison.dbf

File dBase (*.dbf)

Strumenti

Apri

Annulla