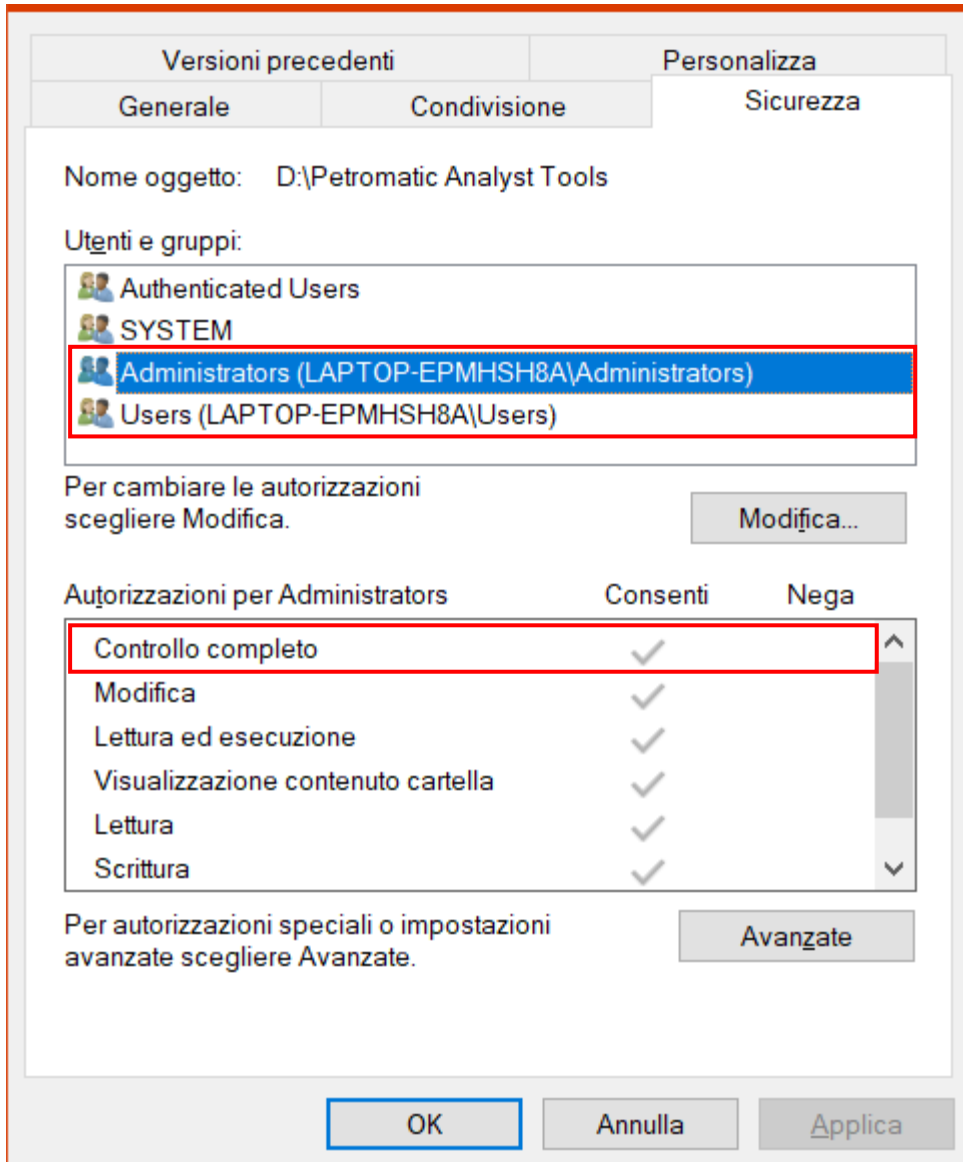# Preliminary Operation

1. Copy the directory "Micro-Fabric Analyzer" on a preferred location on your hard drive and be sure to have administration permission (complete control) on it. To do this, **right-click** on the directory and click **Properties > Security** and check the permission allowed to the user.

2. Copy the Micro-Fabric Analyzer toolbox into the ArcGIS toolboxes directory (usually in C:\Program Files (x86)\ArcGIS\Desktop10.**x**\ArcToolbox\Toolboxes"
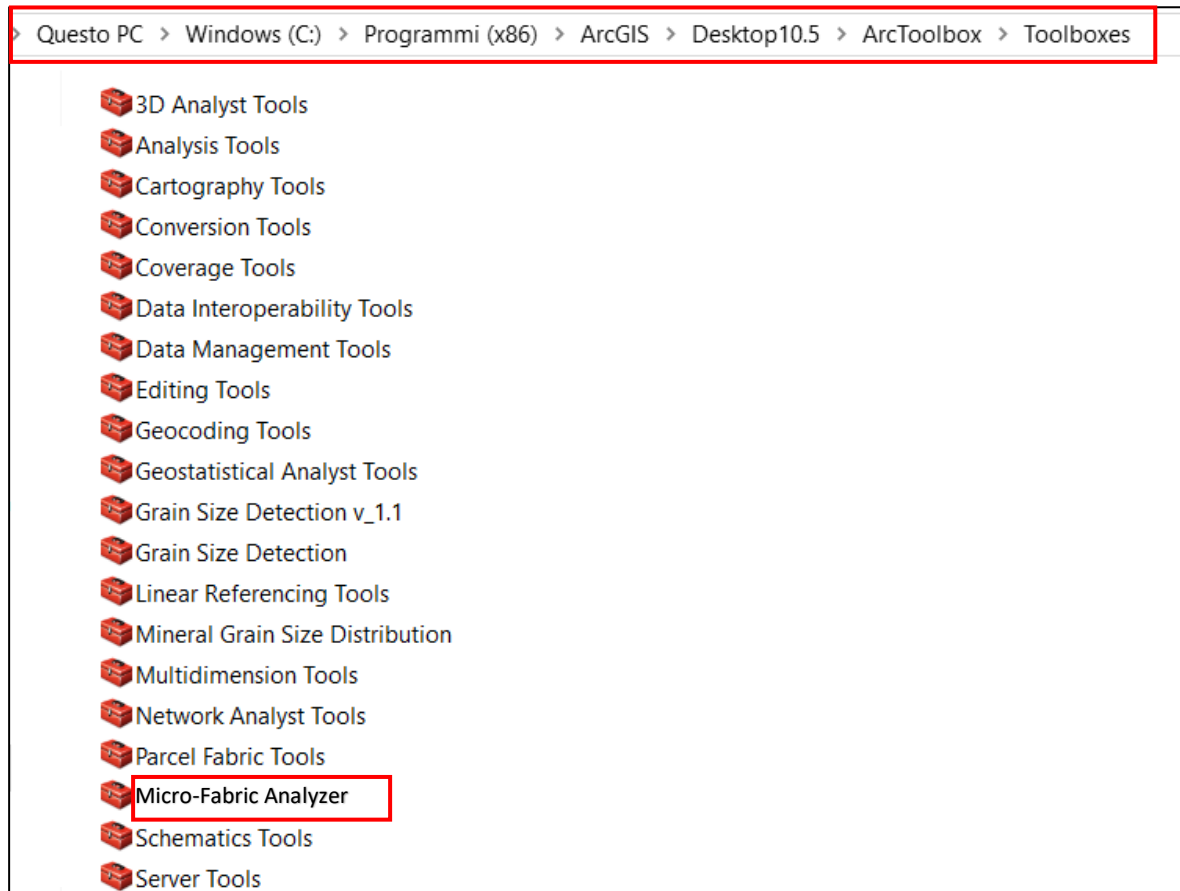

3. Use the Micro-Fabric Analyzer subfolders to store your data.
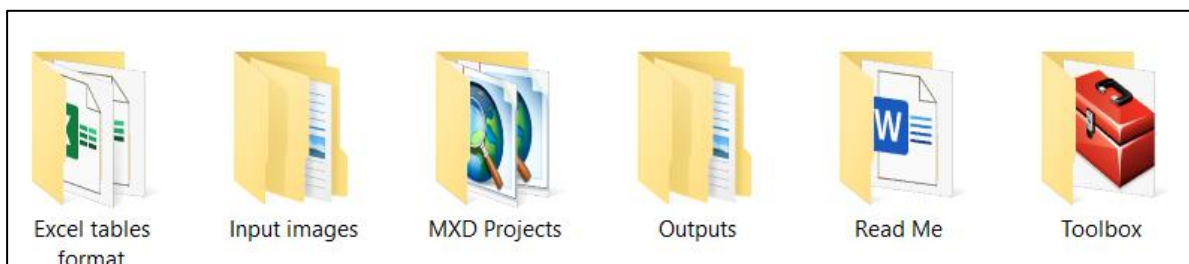

- **Excel tables format**: it contains preformatted tables to store data obtained by the GSD and Min-GSD tools;
- **Input Images**: it contains example images to be used for executing the different tools;
- **MXD Projects**: the directory used to save the ArcGIS .*mxd* projects;
- **Outputs**: the directory used to store both temporary and final outputs of the GSD and Min-GSD tools;
- **Toolbox**: it contains the Micro-Fabric Analyzer toolbox.

4. Opening the Micro-Fabric Analyzer by right-click of the mouse (add toolbox) into the ArcToolbox panel of ArcGIS:
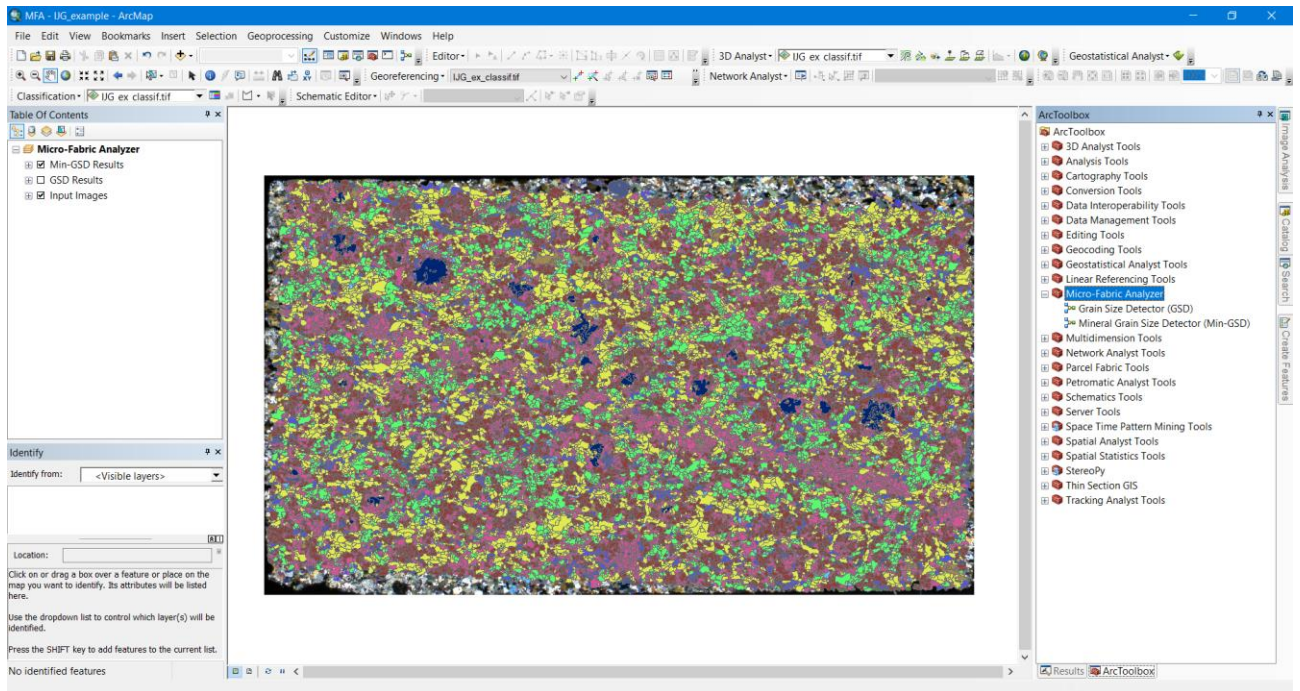

5. Use the Grain Size Detector (GSD) as the first tool, to derive the map of polygons representing the thin section grains. Use the help menu of the tools to know the toolbox requests.
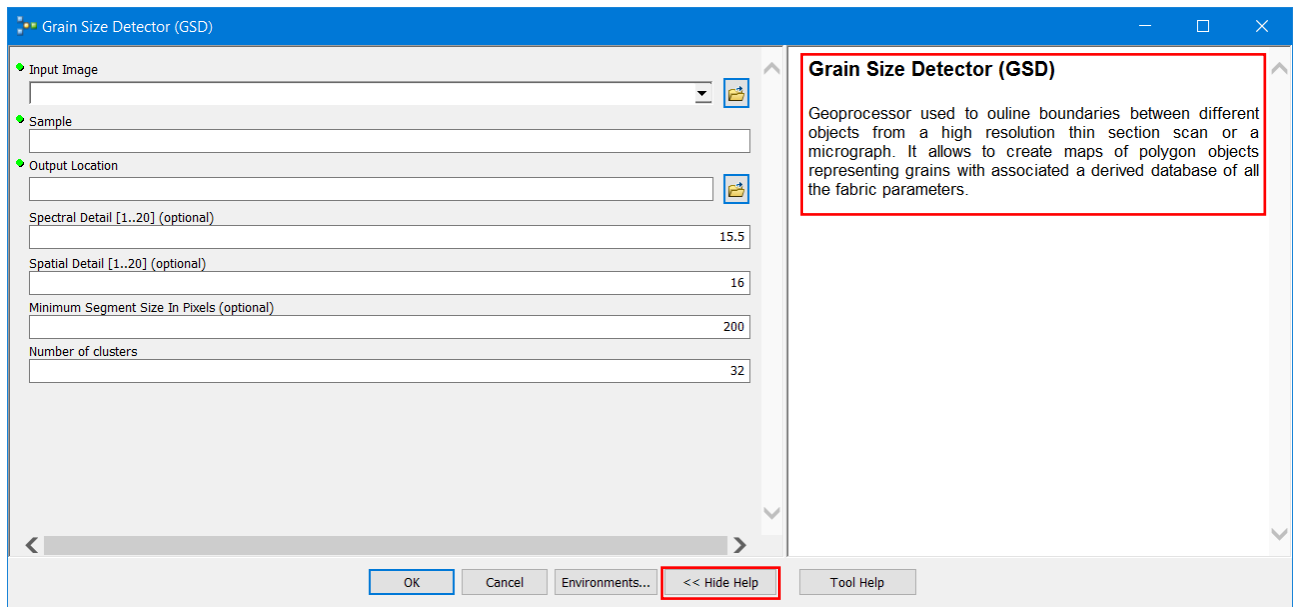
6. As second step of the procedure, you should georeferenced the classification map of minerals obtained through the Q-XRMA, on the thin section optical image:
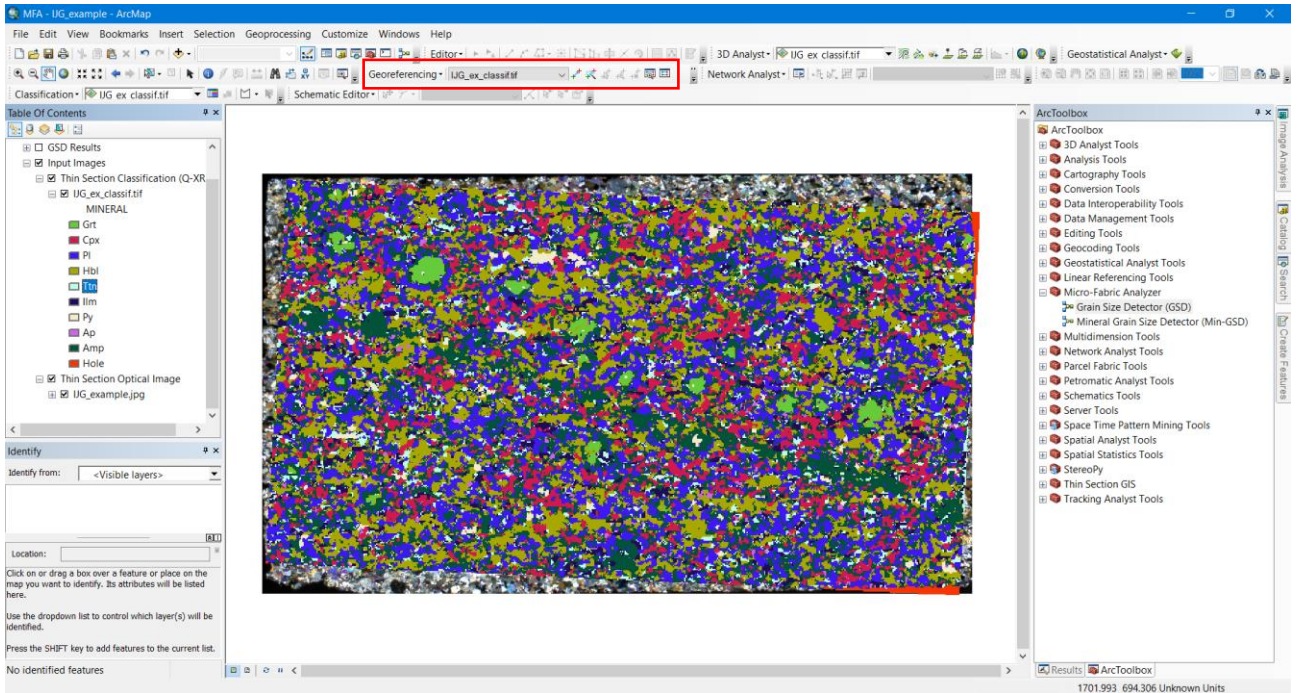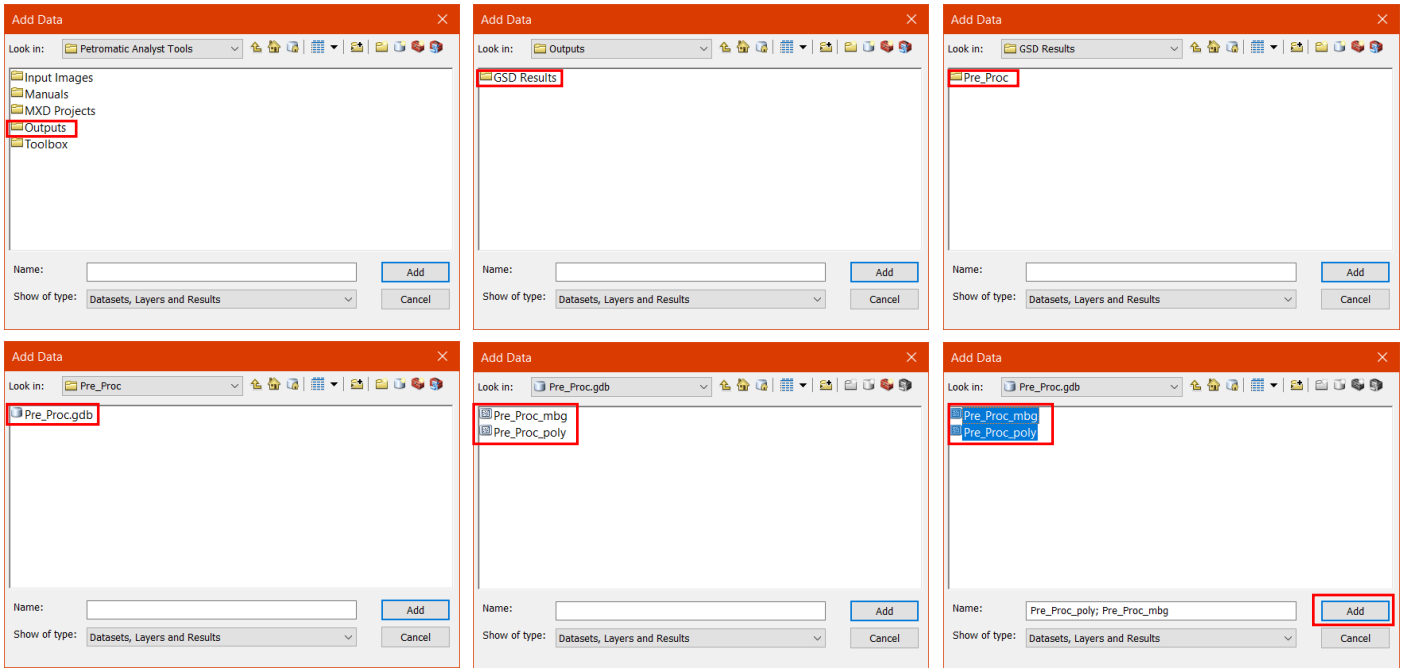

7. Finally, use the Mineral Grain Size Detector (Min-GSD) to associate the name of the mineral to each digitized polygon:
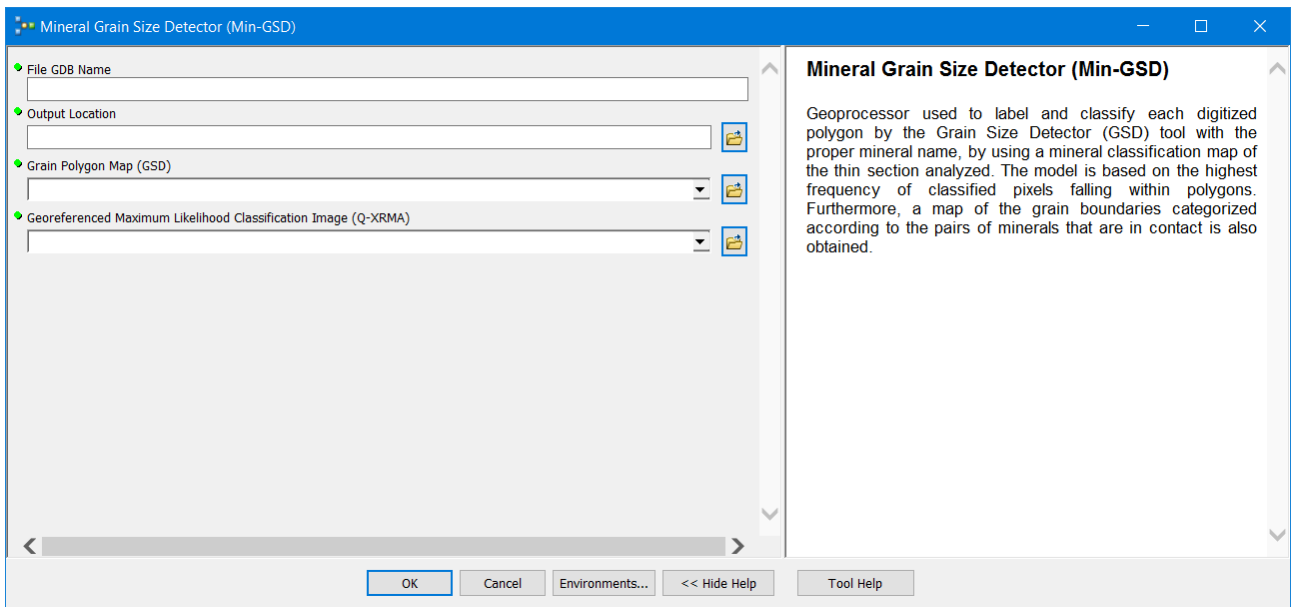
8. Load the obtained outputs into the ArcGIS project from the created output geodatabase:

9. Display the desired Grain Shape factor calculated choosing from those available:
   - Orientation (0-180°); Width (µm); Length (µm); Area (µm^2); Aspect Ratio; Equivalent Diameter (µm); Perimeter (µm); Roundness; Shape Factor 1; Shape Factor 2.