

FAST AND AUTOMATIC MEASUREMENT OF GRAIN GEOMETRIES FROM 3D POINT CLOUDS

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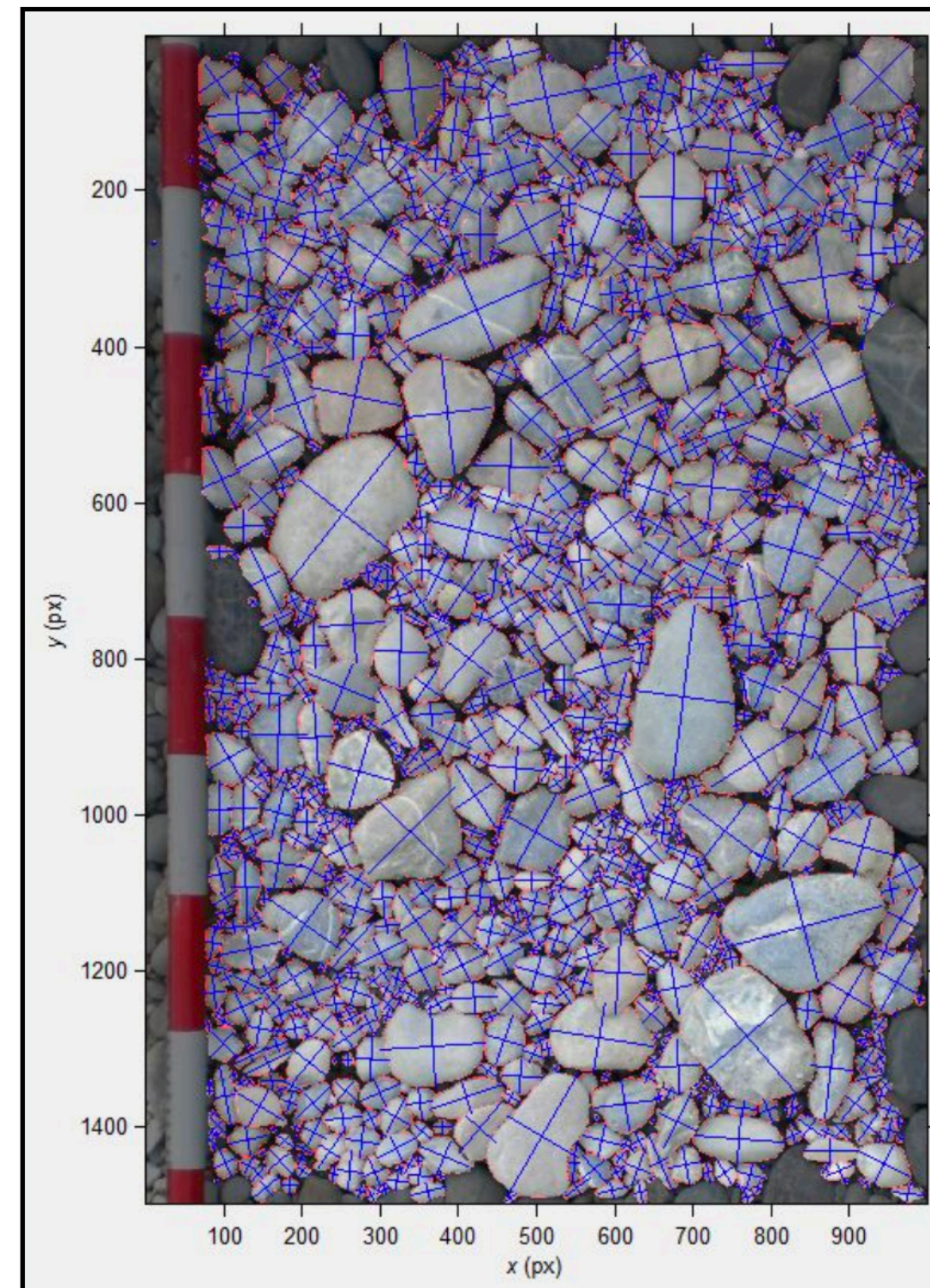
EGU 2022 - GM2.1: New approaches for monitoring and modelling sediment transport

WHY A NEW METHOD FOR GRAIN SIZE MEASUREMENTS ?

Hand measurements: time consuming, physically demanding, limited representativity

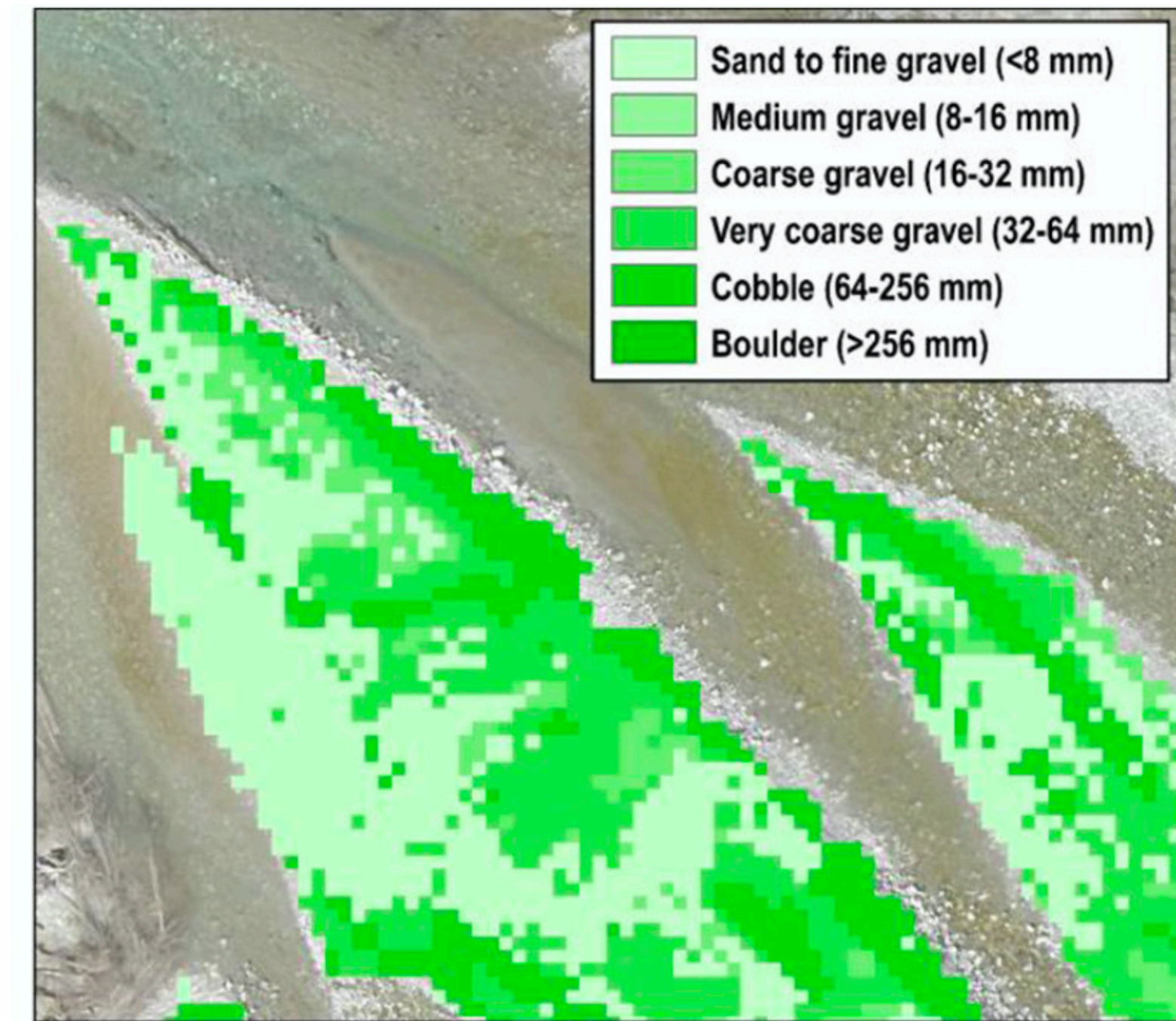


Photo measurements: easier to implement but 2D vision of 3D object + segmentation



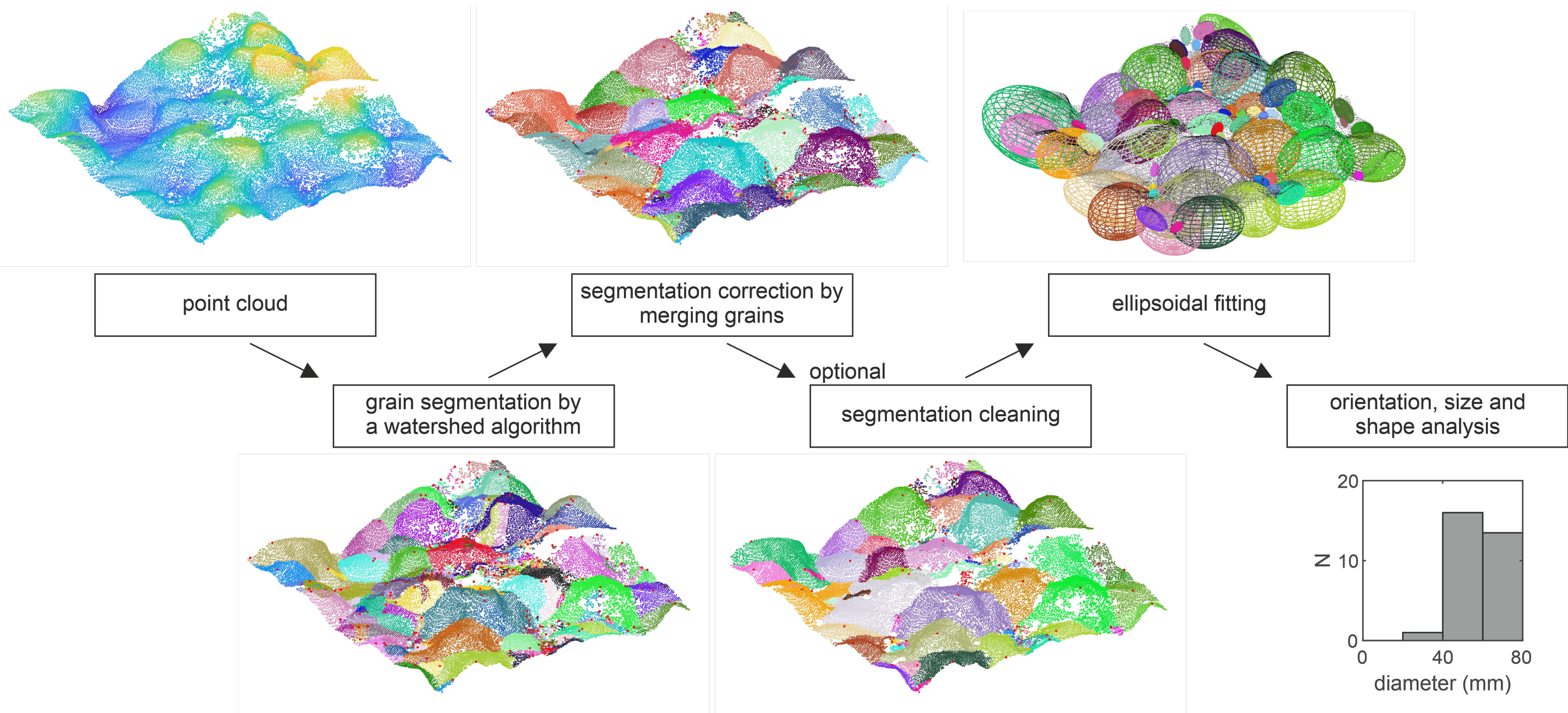
segmentation with *BaseGrain*
(<https://basement.ethz.ch/download/tools/basegrain.html>)

Use of 3D data (camera/LiDAR/drone): often via roughness

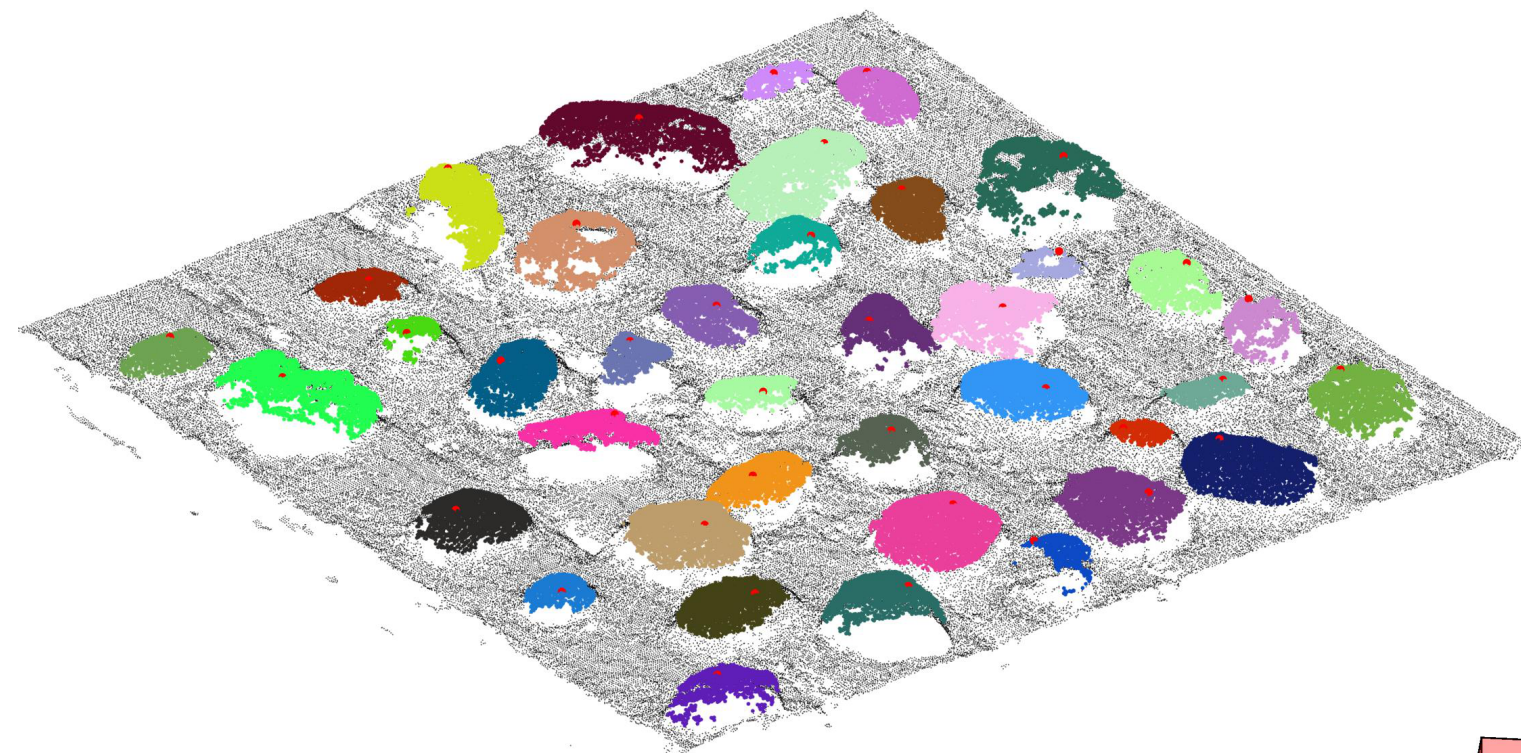


Vázquez-Tarrío et al, 2017

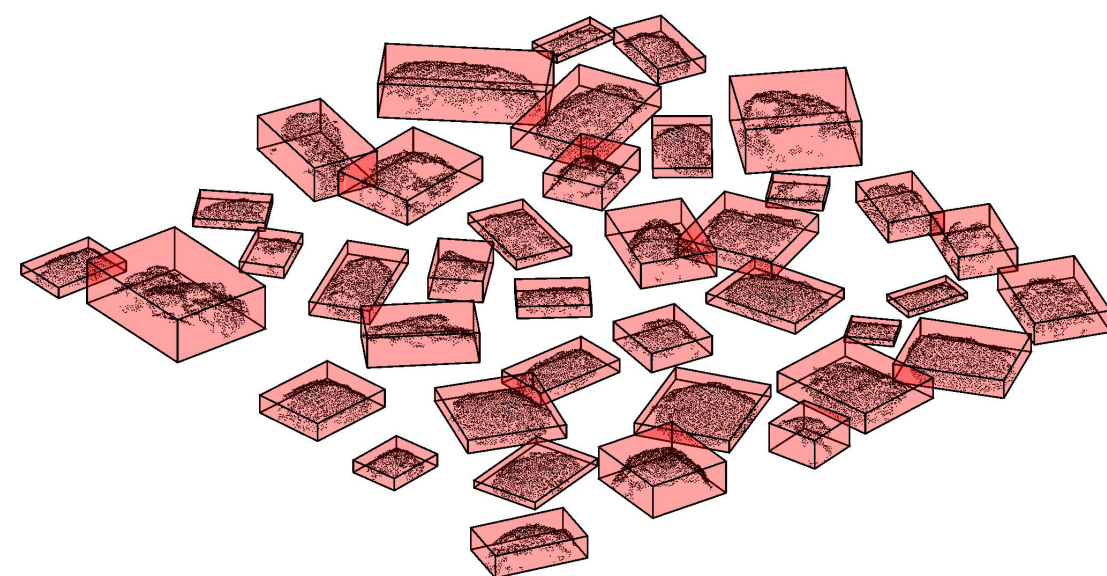
G3POINT: FAST AND AUTOMATIC MEASUREMENT OF GRAIN GEOMETRIES FROM 3D POINT CLOUDS



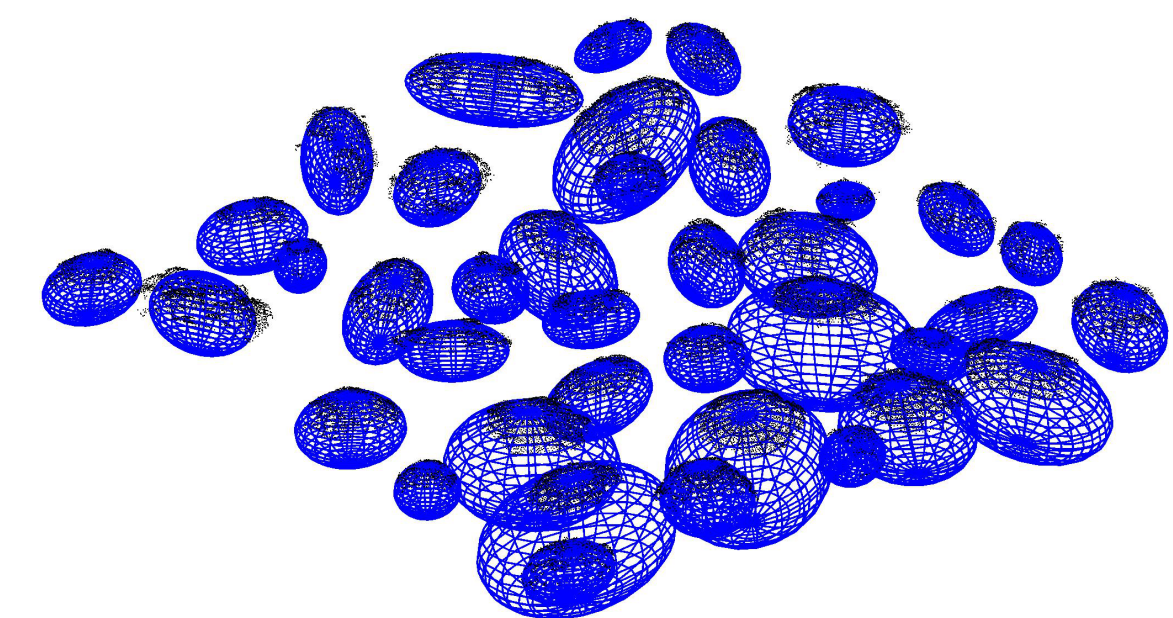
VALIDATION IN THE LAB



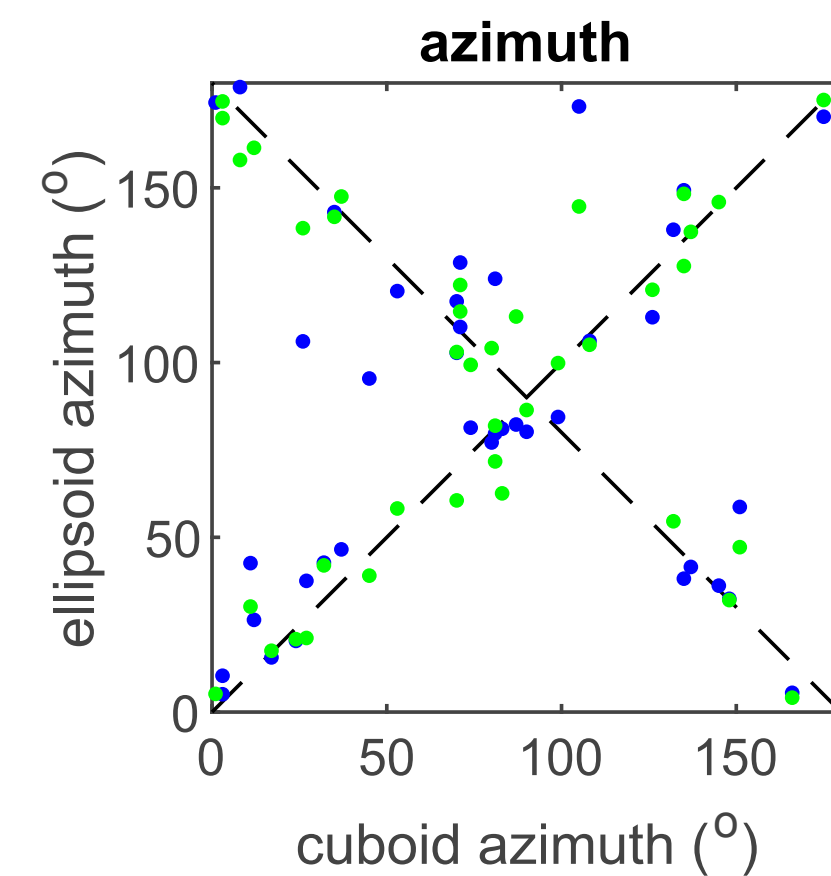
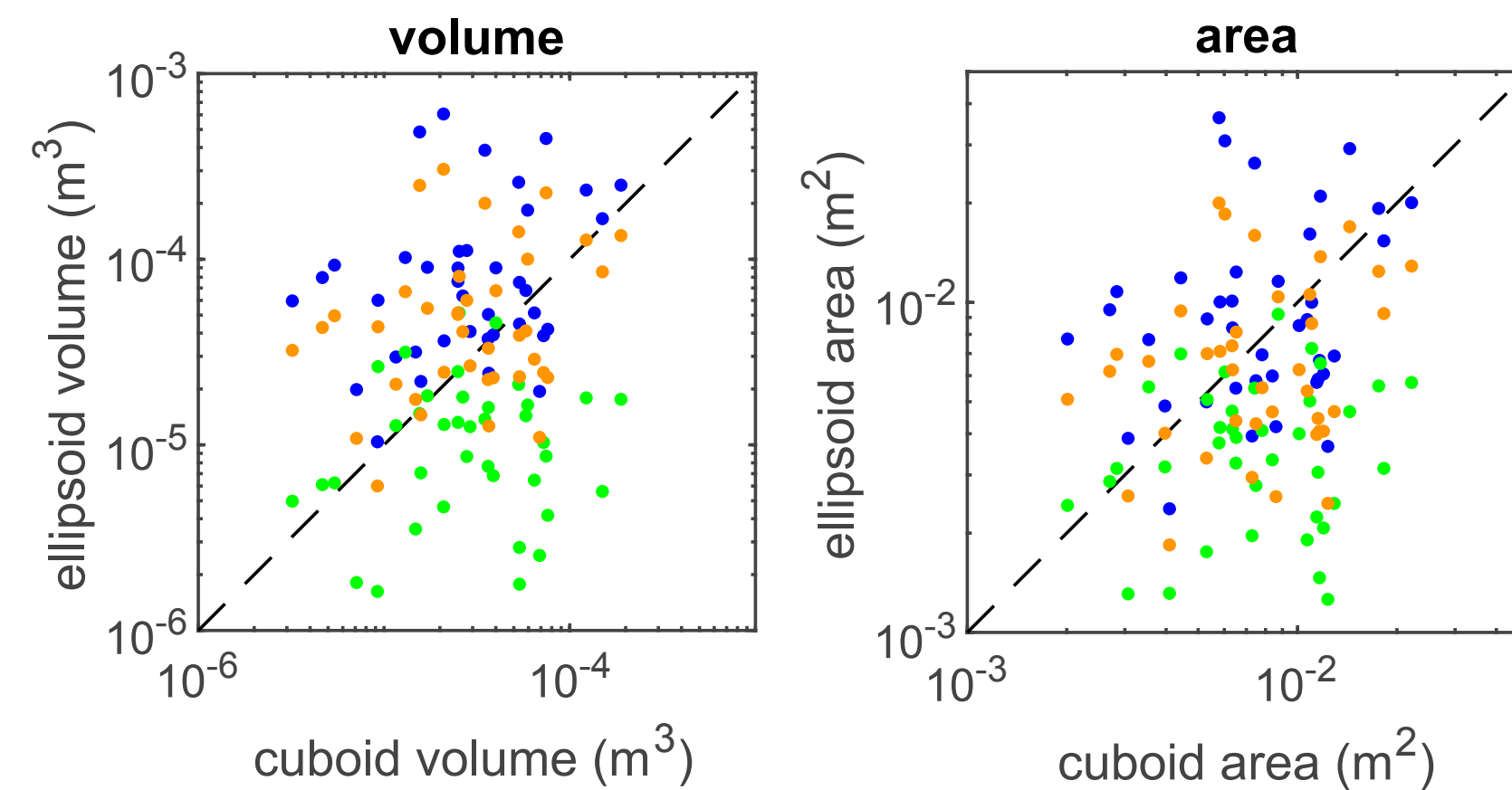
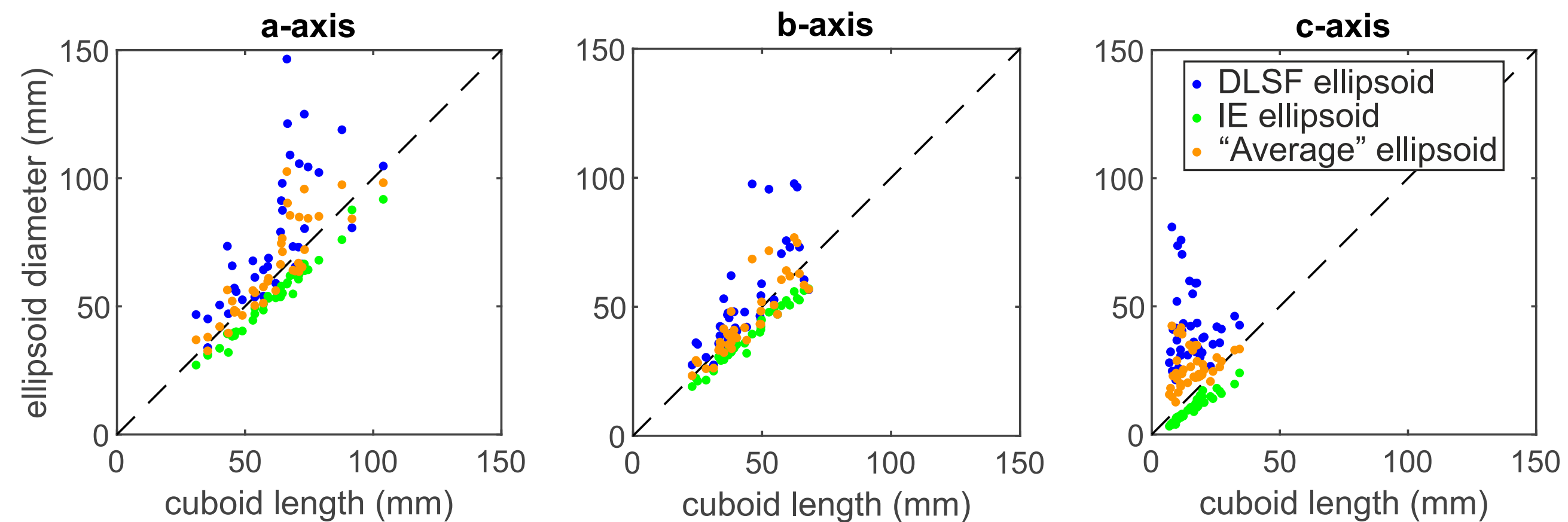
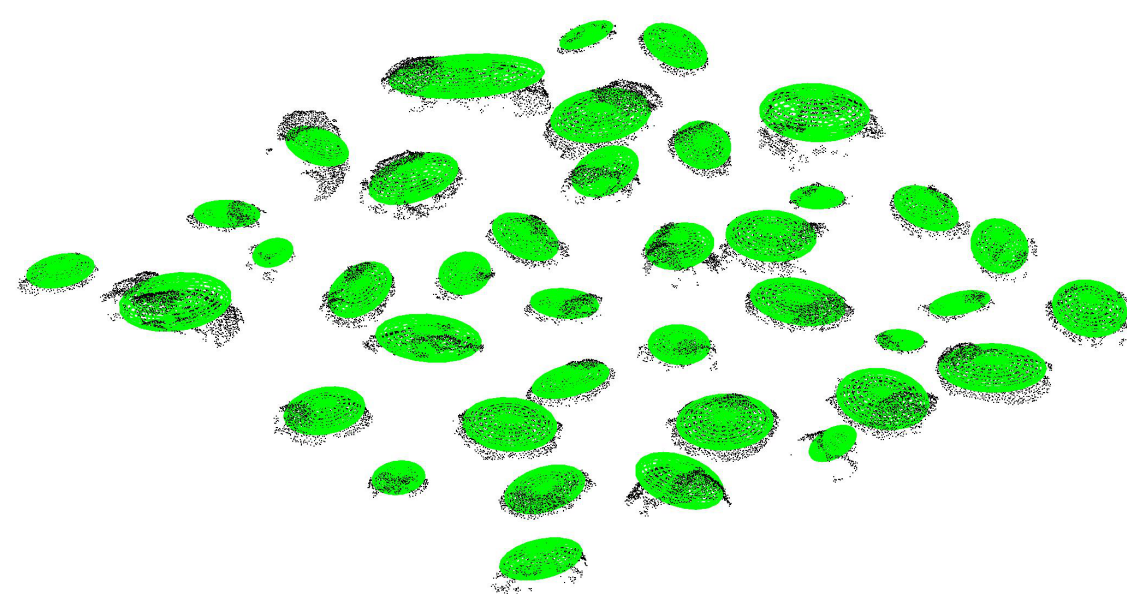
Cuboid



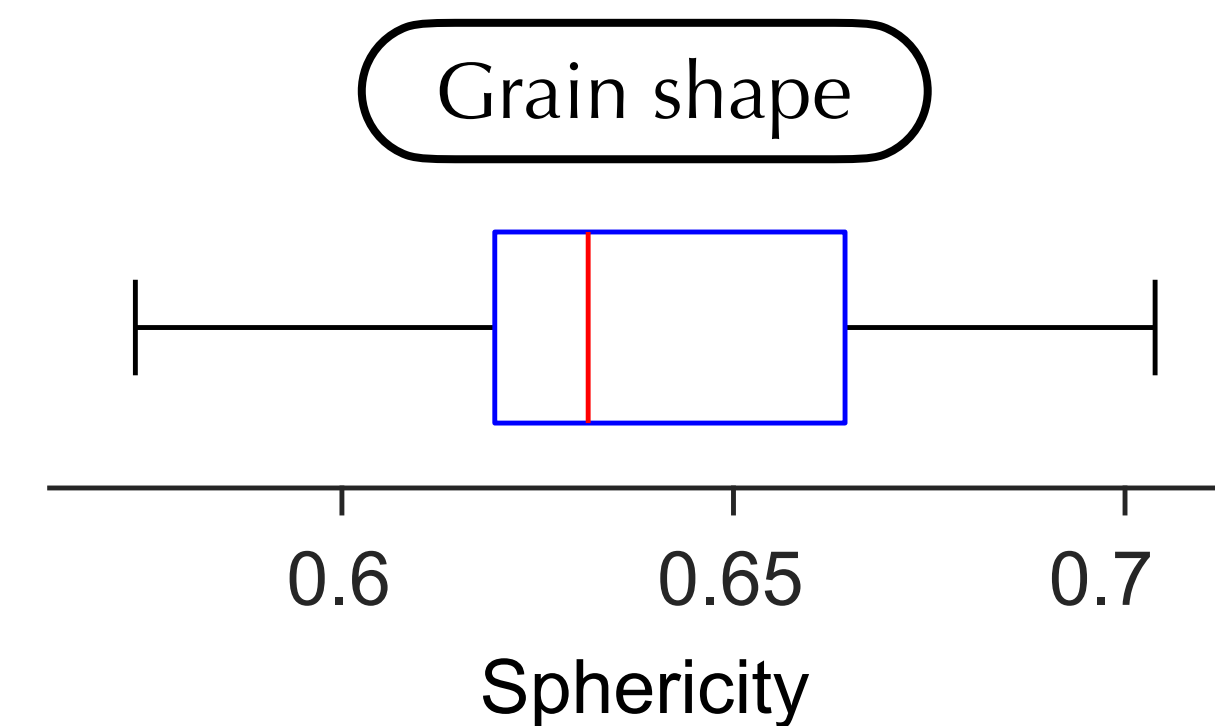
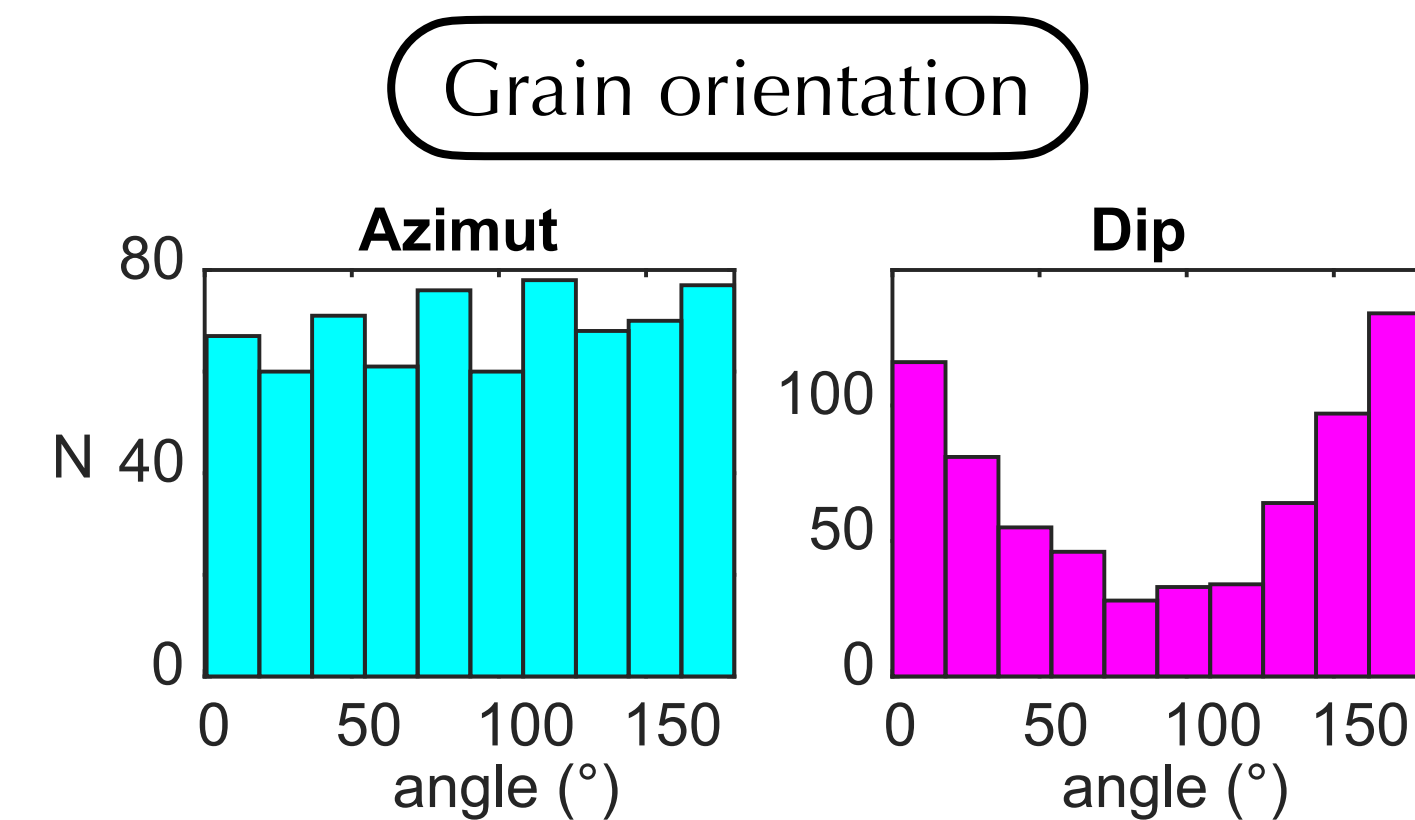
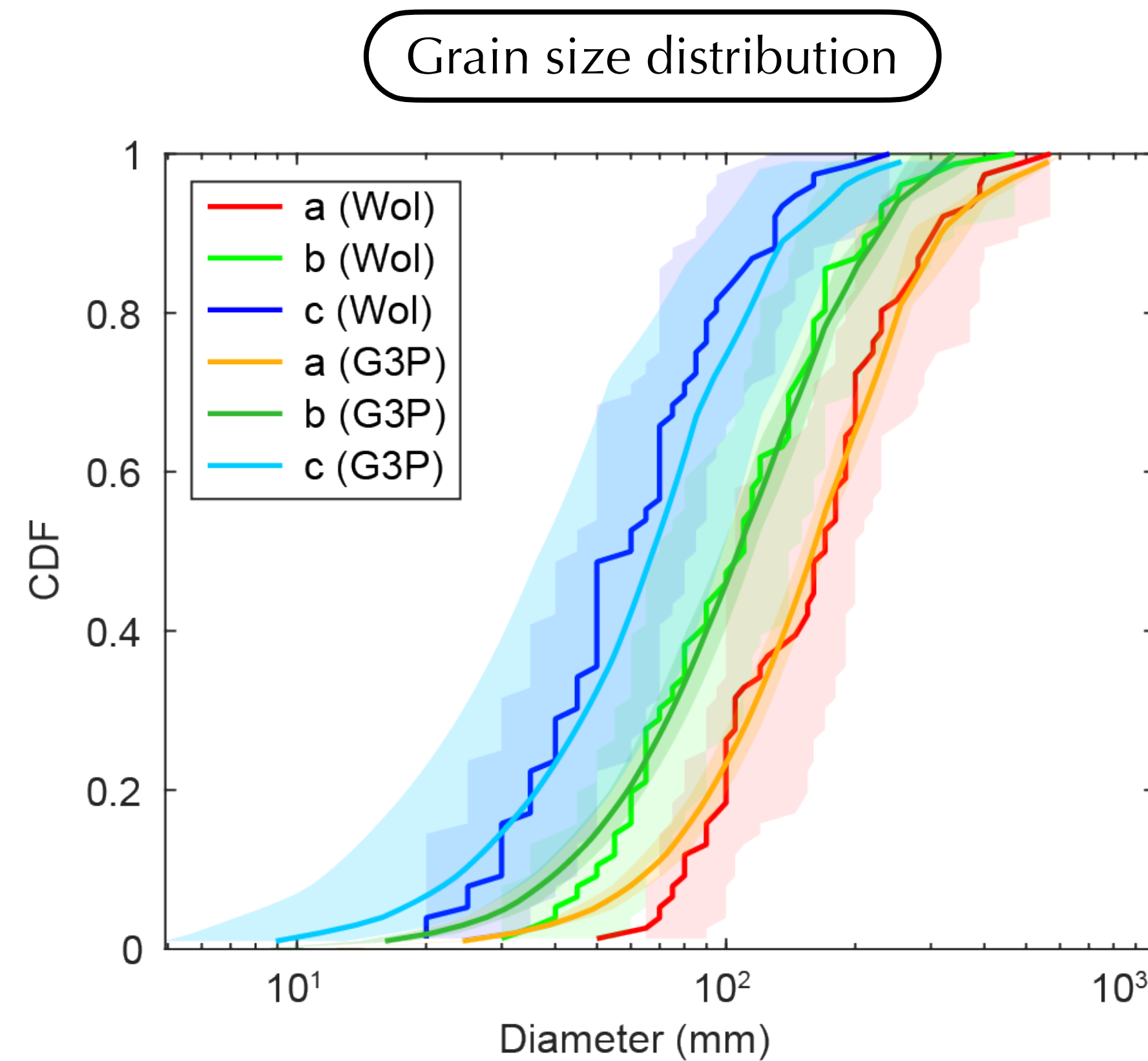
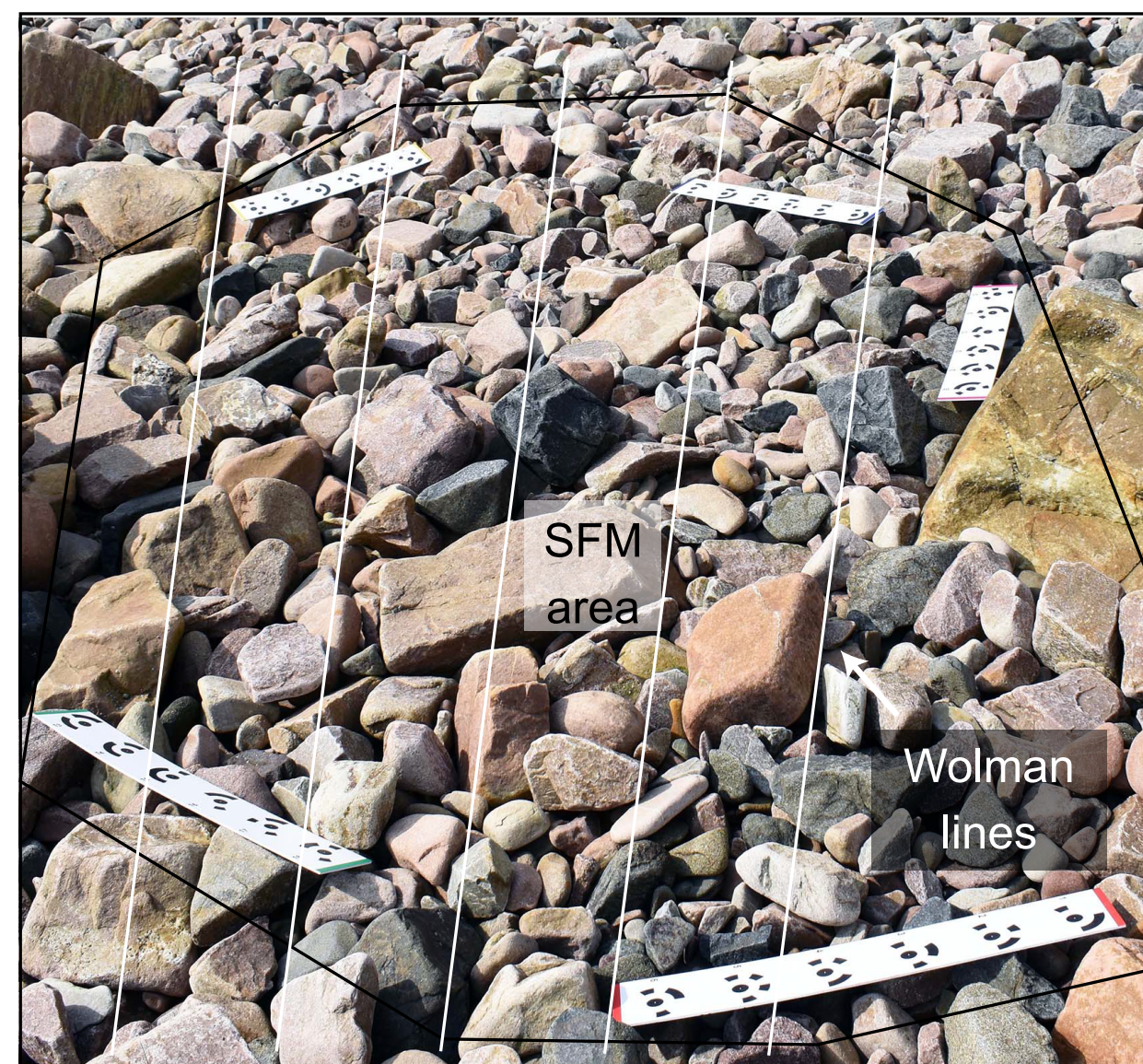
Least squared ellipsoid



Inertia ellipsoid



VALIDATION ON NATURAL SEDIMENTS (G3POINT VS MANUAL COUNTS)



**In revision for Esurf and
available on GitHub**

[https://doi.org/10.5194/
egusphere-2022-75](https://doi.org/10.5194/egusphere-2022-75)

[https://github.com/
philippesteer/G3Point/](https://github.com/philippesteer/G3Point/)

