The data in this folder can be used to re-produce all the figures in the paper titled “Development of turbulent boundary layers past a step change in wall roughness”.

All data files are in the .csv format and below is a description of the information contained in the different data files. In the paper, measurements were carried out for two different conditions (grit-to-smooth and mesh-to-smooth). The files are named according to these two conditions. The files “grit2smooth\_properties.csv” and the “mesh2smooth\_properties.csv” contain all the bulk information. The individual files have headers that explain the quantities that are included.

In addition to these bulk properties, profiles of mean and standard deviation of the streetwise velocity is also provided for different downstream distances (“grit2smooth\_Y\_U\_Ustd.csv” and “mesh2smooth\_Y\_U\_Ustd.csv”). Profiles for each downstream location are presented sequentially in these files. All quantities are presented in absolute form and the data from the properties files can be used to non-dimensionalise the profiles and reproduce the different figures in the paper.

Finally, power spectrum as a function of frequency and wall-normal location is also provided at specific downstream locations for both cases. The locations are included in the filename (e.g. “mesh\_spectra\_100mm.csv” contains the power spectrum as a function of frequency and wall-normal location at 100mm downstream of the mesh to smooth surface change). Data for several downstream locations is provided for the mesh-to-smooth and grit-to-smooth conditions.