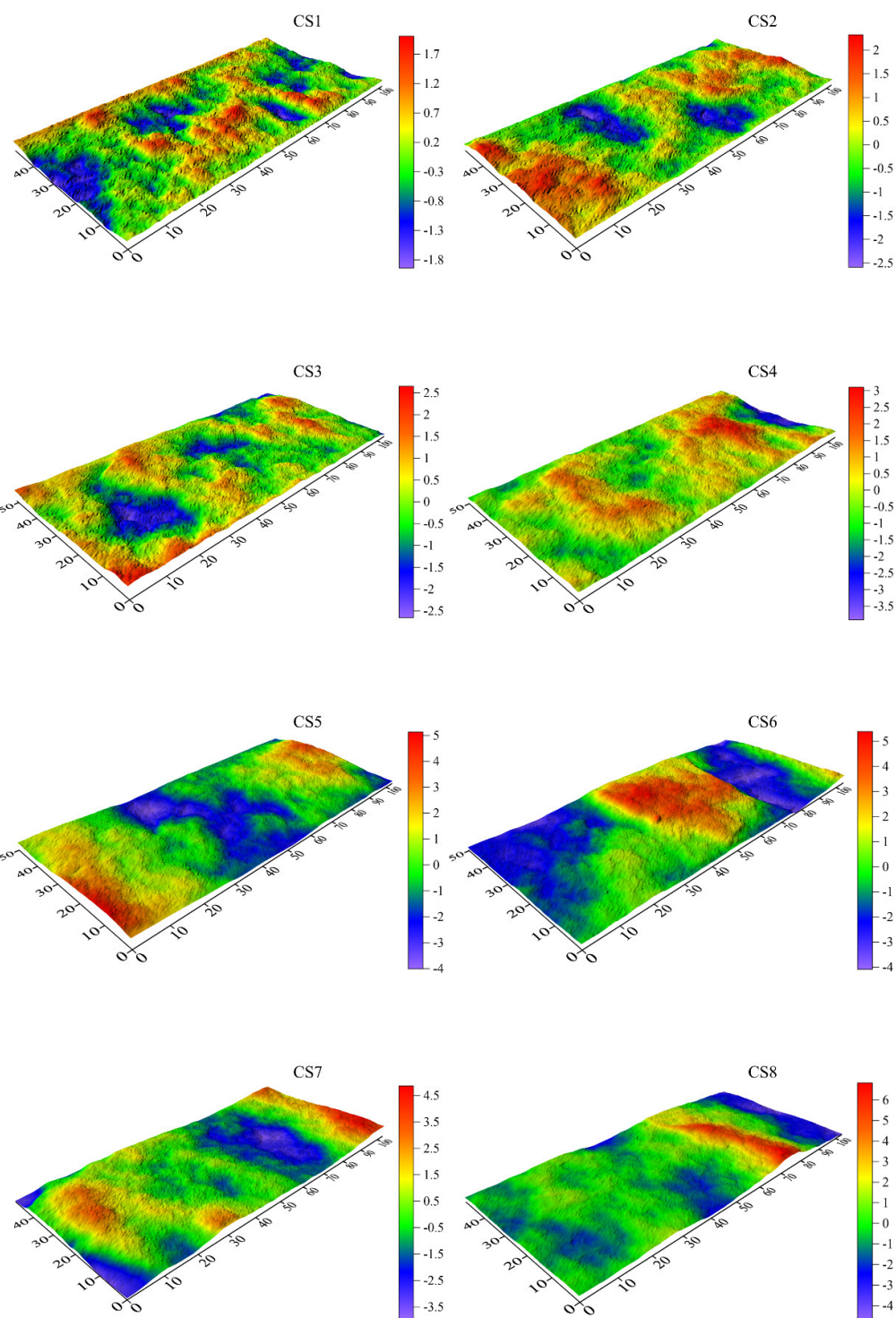
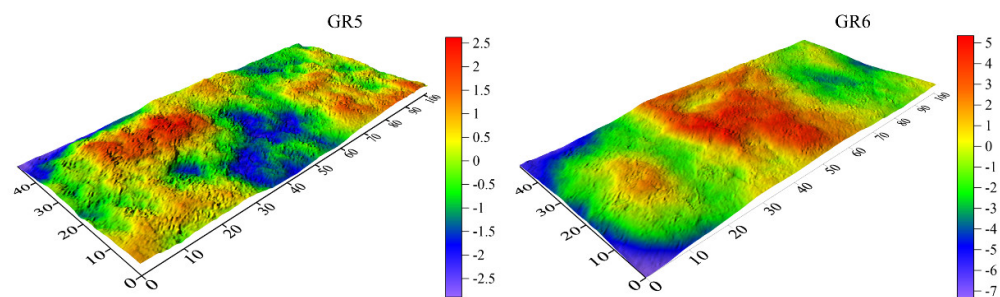
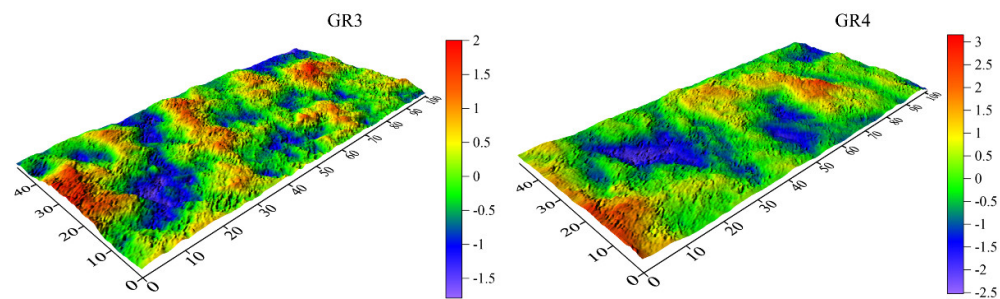
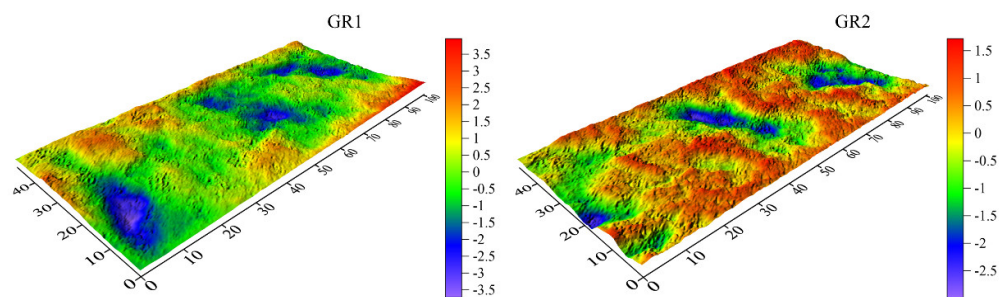
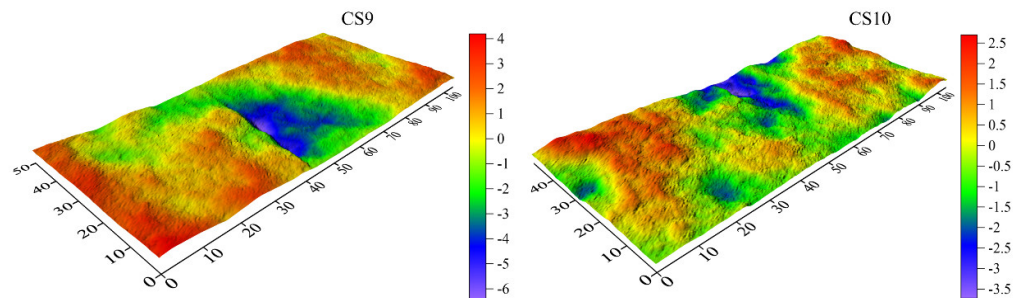
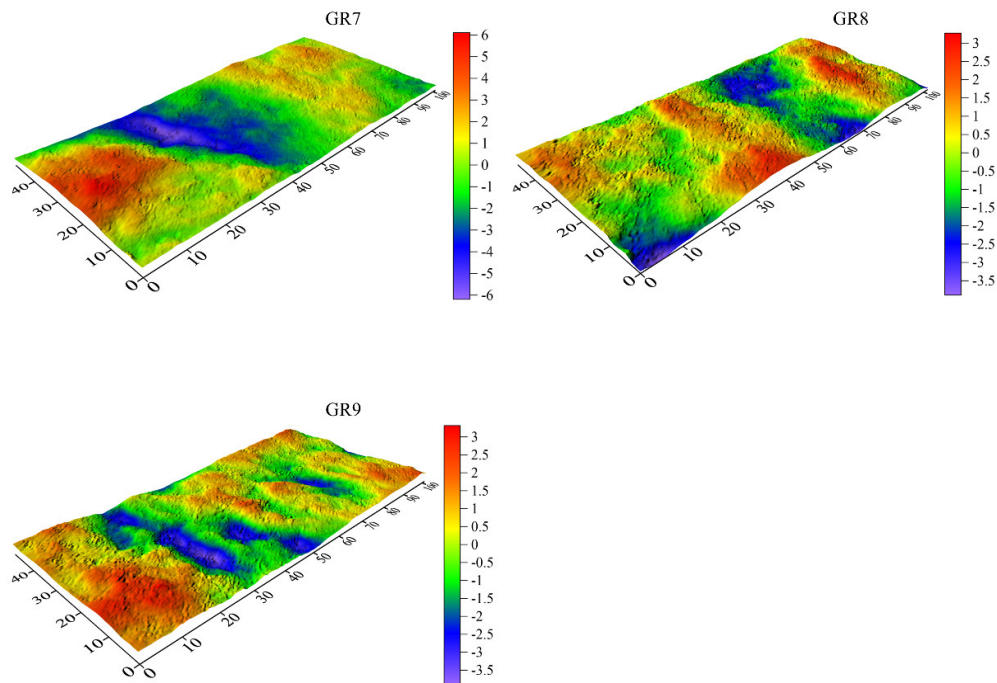


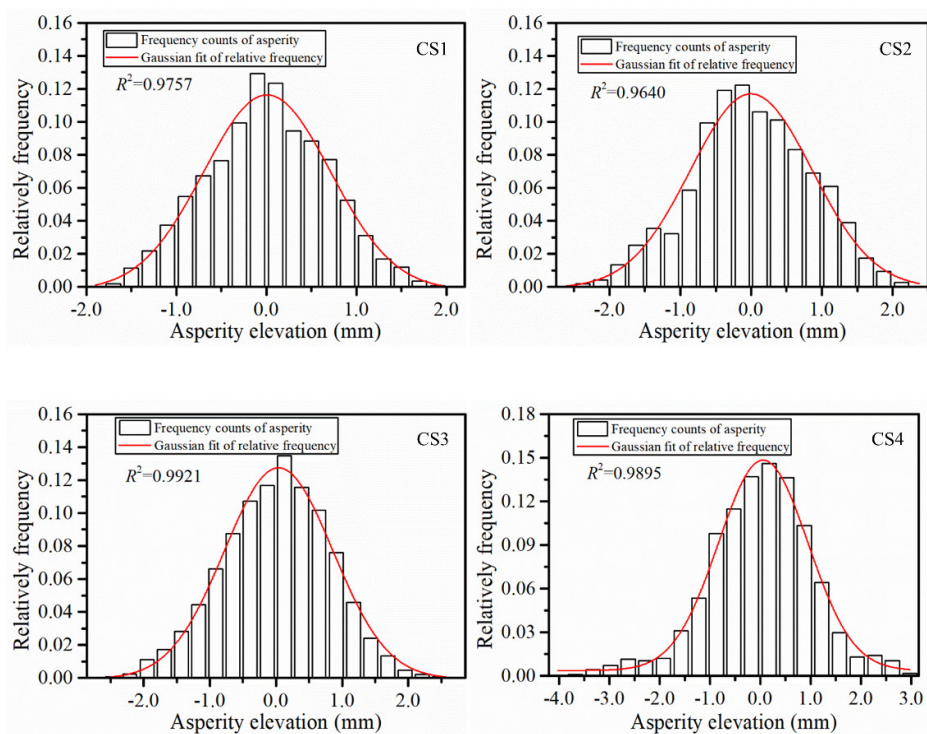
## Supplementary Material



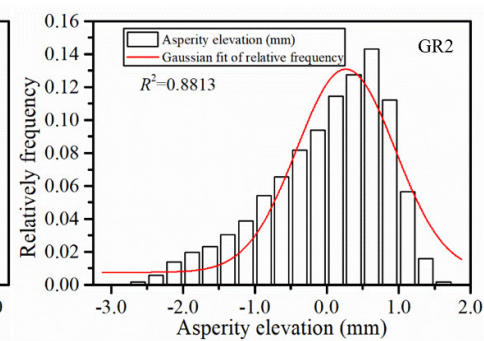
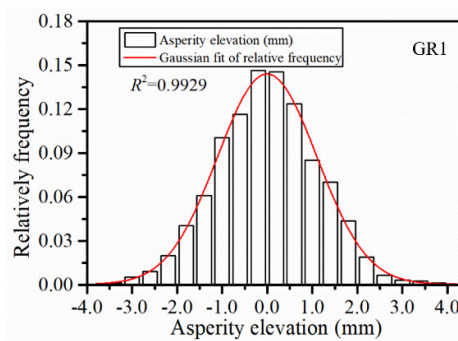
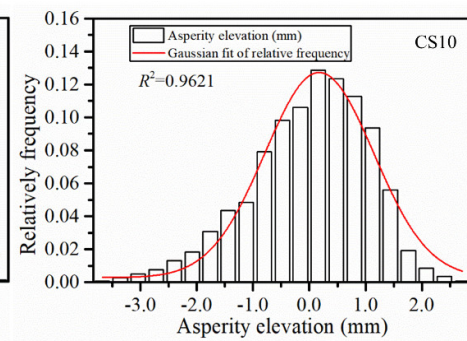
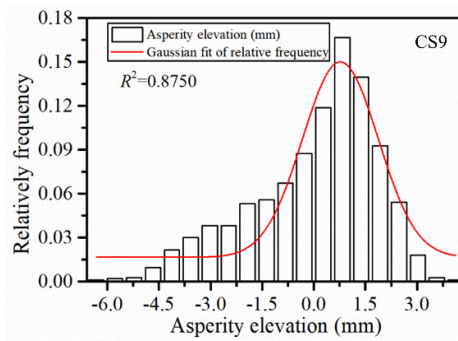
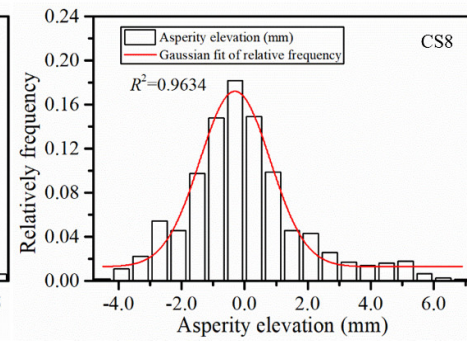
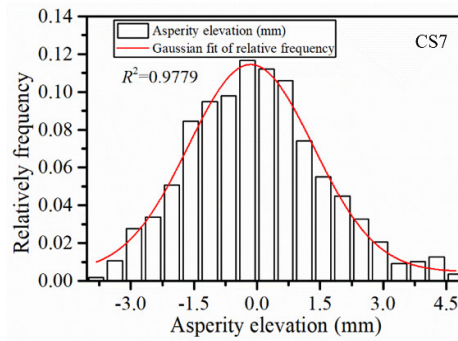
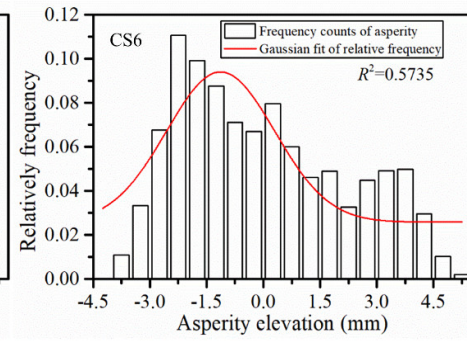
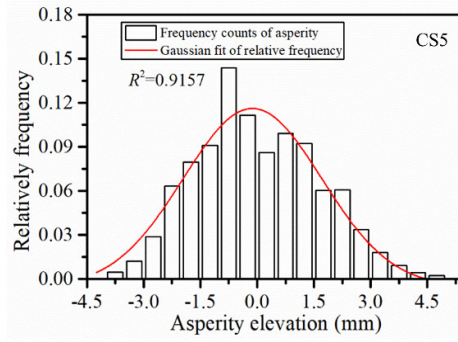


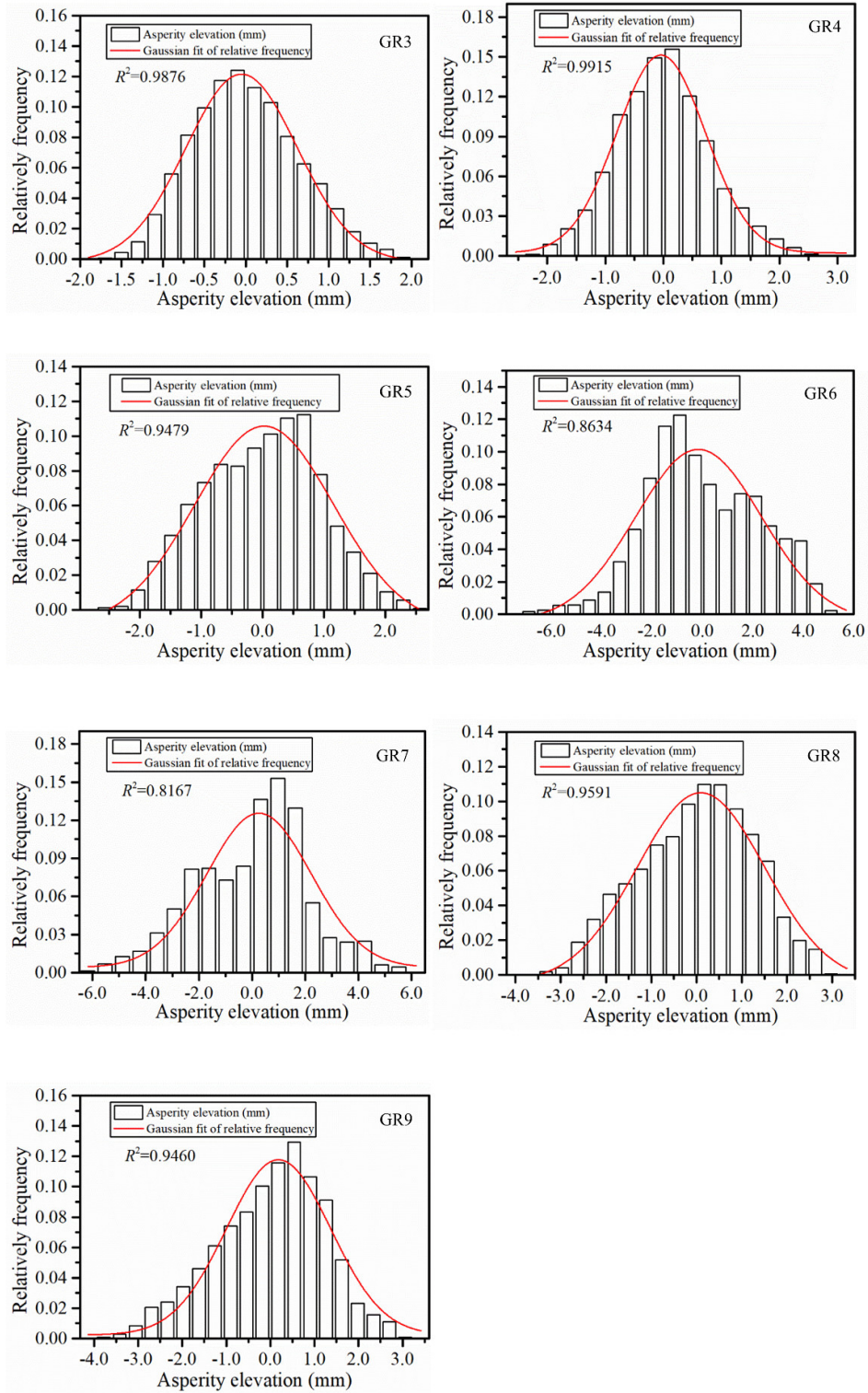


**Figure S1.** Surface morphology of coarse sandstone and granite joint samples (all dimensions are in units of mm).









**Figure S2.** Gaussian fit of the asperity elevation distribution for coarse sandstone and granite joint samples.