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**Calibration of the k-$\epsilon$ model constants for use in CFD applications**
NINA GLOVER, SERGE GUILLIAS, LIORA MALKI-EPSHTEIN, University College London — The k-$\epsilon$ turbulence model is a popular choice in CFD modelling due to its robust nature and the fact that it has been well validated. However it has been noted in previous research that the k-$\epsilon$ model has problems predicting flow separation as well as unconfined and transient flows. The model contains five empirical model constants whose values were found through data fitting for a wide range of flows (Launder 1972) but ad-hoc adjustments are often made to these values depending on the situation being modeled. Here we use the example of flow within a regular street canyon to perform a Bayesian calibration of the model constants against wind tunnel data. This allows us to assess the sensitivity of the CFD model to changes in these constants, find the most suitable values for the constants as well as quantifying the uncertainty related to the constants and the CFD model as a whole.

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