Symbol	Description
$S_{i,j}$	The first-order sensitivity index corresponding to the ith input variable ($i = 1, 2, ..., p$) and the jth point in the output space
n	In general, n is the number of executions of the simulator required to compute the sensitivity indices. For this study, n is the number of executions of the "emulator" required to compute the sensitivity indices since the simulator is computationally too slow to run. For the Sobol and eFAST methods, $n = 1000$–$10\,000$ (for this study, we used $n = 10\,000$ for Sobol and $n = 5000$ for eFAST). For the GAM and PLS methods, we believe $n < 100$ is sufficient (for this study, we used $n = N = 80$)
p	The number of input variables/the dimension of the input space
m	The number of output variables/the dimension of the output space
N	The number of executions of the simulator required to train an emulator (for this study, $N = 80$)
$\mathbf{X}$	Apart from Eq. (1), $\mathbf{X}$ refers to the $N \times p$ matrix which stores the N sets of p-dimensional inputs that are used for two purposes: (i) in the calculations to train the emulators that are used to replace the simulator (see Sect. 2.3) and (ii) in the calculation of the sensitivity indices using the sensitivity analysis methods that do not require an emulator (namely GAM and PLS). For Eq. (1), $\mathbf{X}$ also refers to the $n \times p$ matrix to compute the SIs if the simulator is computationally cheap to run.
$\boldsymbol{X}_i$	A column vector represented by the ith column of matrix $\mathbf{X}$ ($i = 1, 2, ..., p$)
$\boldsymbol{x}_i$	The row vector represented by the ith row of matrix $\mathbf{X}$ ($i = 1, 2, ..., N$)
$\mathbf{Y}$	The $n \times m$ matrix which stores the n sets of m-dimensional simulator outputs (corresponding to the n sets of inputs stored in $\mathbf{X}$) that are used as part of the calculation to compute the sensitivity indices
$\boldsymbol{Y}_j$	The jth column of matrix $\mathbf{Y}$ ($j = 1, 2, ..., m$)
$\boldsymbol{y}_i$	The simulator output after the simulator has been run at the p-dimensional input given by $\boldsymbol{x}_i$ ($i = 1, 2, ..., N$)