

Validation metrics summary

Definitions

Assume that we have a model

$$m$$

and observations

$$o$$

of the same size

$$N$$

.

Root mean square deviation (RMSD)

$$\text{RMSD}(m, o) = \sqrt{\frac{1}{N} \sum_{i=1}^N (m_i - o_i)^2}$$

Bias

$$\text{Bias}(m, o) = \frac{1}{N} \sum_{i=1}^N (m_i - o_i)$$

Pearson correlation coefficient

$$\text{Corr}(m, o) = \frac{\sum_{i=1}^N (m_i - \bar{m})(o_i - \bar{o})}{\sqrt{\sum_{i=1}^N (m_i - \bar{m})^2 \sum_{i=1}^N (o_i - \bar{o})^2}}$$

where

$$\bar{m}$$

and

$$\bar{o}$$

are the mean values of

$$m$$

and

$$o$$

respectively.

Software used

Models were matched up with observational data using the Python package [nctoolkit](#). Plots were created using the Python package [nctoolkit](#), and the R package [ggplot2](#). Data analysis was performed using the Python packages [pandas](#), [nctoolkit](#), and [statsmodels](#).