Supplementary material

Appendix A: Model interpretability

Figure A1 shows the mean Pearson correlation between the four inputs of the bottleneck model and each of the $25 \times 25$ pixels of the latent space. The figure was generated using the training data (10,530 images). The test data was not used for this calculation because we are interpreting the trained model and not evaluating its performance in this case. As expected for the variable $s_x$, the correlation changes substantially along the horizontal axis, and there is roughly no change along the vertical axis. Conversely, for $s_y$, the correlation variation is substantial through the vertical axis while almost nonexistent through the horizontal axis. We have the same behavior for $w_u$ (the horizontal component of the wind velocity) and $w_v$ (the vertical component of the wind velocity).

**Figure A1.** Correlation between the two-dimensional latent space of shape $[25, 25, 1]$ and the inputs of interest, source location $(s_x, s_y)$ and wind velocity $(w_u, w_v)$, on the training data (10,530 images).