

## Supplemental material for “A spatio-temporal downscaler for output from numerical models”

The supplemental material to the paper “A spatio-temporal downscaler for output from numerical models” by Veronica J. Berrocal, Alan E. Gelfand and David M. Holland consists of the following:

- Trace plots for the static version of the downscaler model with  $\beta_1(\mathbf{s}) = 0$  for August 11, 2001. The file containing the plots is a PDF file named “*Supplement-Trace-plots-static.pdf*”.
- Trace plots for some of the parameters of the spatio-temporal version of the downscaler with  $\beta_{0t}$ ,  $\beta_{1t}$ ,  $\beta_0(\mathbf{s}, t)$ ,  $\beta_1(\mathbf{s}, t)$  modeled as independent replicates. The file containing the plots is a PDF file named “*Supplement-Trace-plots-spatiotemporal.pdf*”.
- Color maps of the simulated observed process and of the predictive surface obtained by using, respectively, Bayesian melding and the downscaler. The maps are the color versions of the plots presented in Figure 4. The file containing the plots is a PDF file named “*Supplement-Figure4-color.pdf*”.
- Color maps of the posterior predictive mean and standard deviation for the spatially-varying additive bias  $\beta_0(\mathbf{s})$ . The maps are the color versions of the plots presented in Figure 5. The file containing the plots is a PDF file named “*Supplement-Figure5-color.pdf*”.
- Color maps of the observed and the predicted ozone surface for August 11, 2001. The maps are the color versions of the plots presented in Figure 6. The file containing the plots is a PDF file named “*Supplement-Figure6-color.pdf*”.
- Color maps of the posterior predictive mean and posterior predictive standard deviation of the 4th highest ozone concentration during the period May 1–October 15, 2001. The maps are the color versions of the plots presented in Figure 7. The file containing the plots is a PDF file named “*Supplement-Figure7-color.pdf*”.
- Color maps of the posterior predictive probability that the 4th highest ozone concentration during the period May 1–October 15, 2001 is above a given threshold. The maps are the color versions of the plots presented in Figure 8. The file containing the plots is a PDF file named “*Supplement-Figure8-color.pdf*”.