Global Downscaling of Remotely-Sensed Soil Moisture using Neural Networks

Seyed Hamed Alemohammad\textsuperscript{1,2}, Jana Kolassa\textsuperscript{3,4}, Catherine Prigent\textsuperscript{1,2,5}, Filipe Aires\textsuperscript{1,2,5}, Pierre Gentine\textsuperscript{1,2,6}

\textsuperscript{1}Department of Earth and Environmental Engineering, Columbia University
\textsuperscript{2}Columbia Water Center, Columbia University
\textsuperscript{3}Universities Space Research Association, Columbia, MD
\textsuperscript{4}Global Modelling and Assimilation Office, NASA Goddard Space Flight Center, Greenbelt, MD
\textsuperscript{5}Observatoire de Paris
\textsuperscript{6}Earth Institute, Columbia University

Correspondence to: Pierre Gentine (pg2328@columbia.edu)

Supplementary Materials
Figure S1- Percentage bias between the SMAP 9km soil moisture estimates and NN 9km estimates. White regions indicate no data.
Figure S2- Correlation coefficient ($R^2$) between SMAP observed soil moisture at 9km and Interpolated soil moisture at 9km. White regions indicate no data.
Figure S3- Percentage bias between the SMAP 9km soil moisture estimates and Interpolated 9km estimates. White regions indicate no data.
Figure S4- Correlation coefficient ($R^2$) between SMAP observed soil moisture at 9km and No Heterogeneity soil moisture estimates at 9km. White regions indicate no data.
Figure S5- Percentage bias between the SMAP 9km soil moisture estimates and No Heterogeneity 9km estimates. White regions indicate no data.
Figure S6- Location of each ISMN station used for comparison against downscaled soil moisture estimates