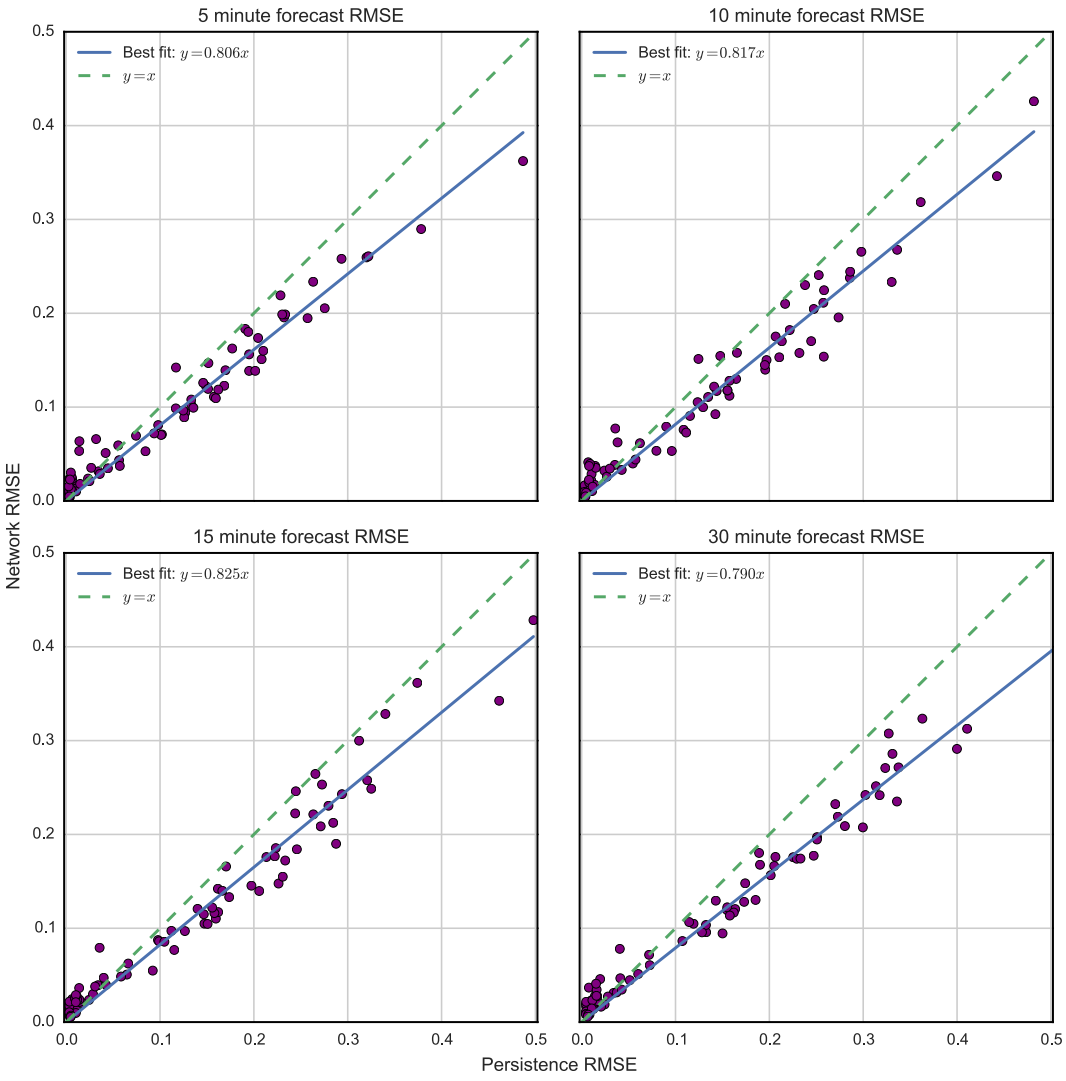

Fig. 11. Network RMSE vs clear-sky index persistence RMSE for all days and 5, 10, 15, and 30 min forecast horizons calculated for clear-sky indices. The slope of the best fit line is used to approximate the skill of the forecasts. Each point represents one day of data and forecasts. The forecast skill is positive for any point below the $y = x$ line. The plots illustrate that network forecasts may have negative skill for days that are nearly clear. Furthermore, they show a consistent positive skill for cloudier days with few outliers.

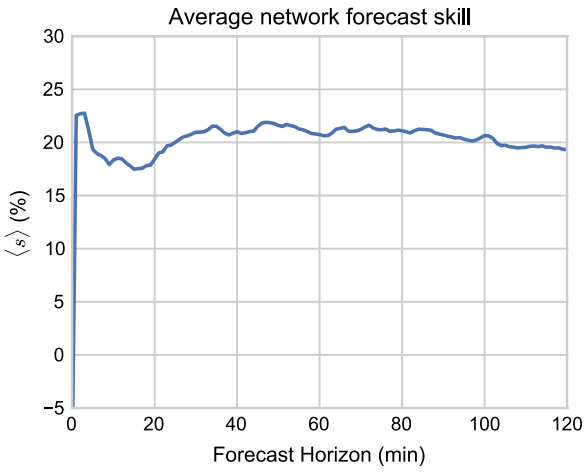

Fig. 12. Average skill of our network forecasts for the study period of April, May, and June 2014.

deviations of clear-sky index forecasts for each forecast method. Here, we analyzed forecasts of clear-sky index instead of irradiance so all values are dimensionless. The solid contour lines are lines of constant CRMSE. We see that network forecasts have correlations greater than or approximately equal to spatially-averaged persistence but with higher standard deviation. This means network forecasts capture more variability. Network forecast standard deviation transitions from performing like clear-sky index persistence forecasts at short time horizons to approaching spatially-averaged persistence, analogous to the transitions for MAE and RMSE in Figs. 9 and 10. At roughly 30 min forecast horizons, network forecasts behave about the same as spatially-averaged persistence forecasts as we expect based on the method used and average cloud velocities. Hence, we say that our network forecasts are more useful than simple spatial averaging for forecast horizons