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Please send comments and suggestions to SWPC.Webmaster@noaa.gov

2016 Verification Statistics for Daily M flare, X flare, and Proton Event Probability Forecasts

Forecast Type: Likelihood (probability) of the occurrence of an M flare, X flare, or Proton Event

Note: Mpred1 = M flare PREDiction day 1
                Mpred2 = M flare PREDiction day 2
                Mevents = Observed number of M flares,
        etc.

Missing data: NA
Total Records: Total number of daily forecast/observation records used to generate statistics
326

Event Days: Total number of days in the sample on which at least one (M, X, Proton event) occurred

Mevents	Xevents	Pevents
10	0	1

Mean observation

Mevents	Xevents	Pevents
0.031	0	0.0031

Mean, Median, and Standard Deviation of all forecasts

	Mpred1	Mpred2	Mpred3	Xpred1	Xpred2	Xpred3	Ppred1	Ppred2	Ppred3
mean	0.053	0.050	0.046	0.012	0.0113	0.0112	0.017	0.015	0.014
median	0.010	0.010	0.010	0.010	0.0100	0.0100	0.010	0.010	0.010
sd	0.078	0.073	0.070	0.012	0.0096	0.0094	0.028	0.021	0.020

Mean, Median and Standard Deviation of forecast given the non-occurrence (flx=0) of an event

	Mpred1	Mpred2	Mpred3	Xpred1	Xpred2	Xpred3	Ppred1	Ppred2	Ppred3
mean	0.046	0.045	0.041	0.012	0.0113	0.0112	0.016	0.014	0.014
median	0.010	0.010	0.010	0.010	0.0100	0.0100	0.010	0.010	0.010
sd	0.066	0.063	0.060	0.012	0.0096	0.0094	0.026	0.021	0.020

Mean, Median and Standard Deviation of forecast given the occurrence (flx=1) of an event

	Mpred1	Mpred2	Mpred3	Xpred1	Xpred2	Xpred3	Ppred1	Ppred2	Ppred3
mean	0.27	0.23	0.20	NA	NA	NA	0.2	0.1	0.05
median	0.32	0.28	0.22	NA	NA	NA	0.2	0.1	0.05
sd	0.12	0.13	0.15	NA	NA	NA	NA	NA	NA

Discrimination: The difference between [Mean (flx=1)] and [Mean (flx=0)]

Mpred1	Mpred2	Mpred3	Xpred1	Xpred2	Xpred3	Ppred1	Ppred2	Ppred3
0.225	0.186	0.157	NA	NA	NA	0.184	0.086	0.036

Linear correlation (r) between forecasts and observations
Mpred1 Mpred2 Mpred3 Xpred1 Xpred2 Xpred3 Ppred1 Ppred2 Ppred3
 0.50   0.44   0.39   NA   NA   NA   0.36   0.22   0.10

Mean Error, Mean Absolute Error, Mean Square Error, and Root Mean Square Errors of forecasts.

	Mpred1	Mpred2	Mpred3	Xpred1	Xpred2	Xpred3	Ppred1	Ppred2	Ppred3
ME	0.022	0.067	0.026	0.012	0.011	0.000	0.014	0.017	0.003
MAE	0.020	0.065	0.151	0.011	0.011	0.017	0.012	0.016	0.054
MSE	0.016	0.023	0.156	0.011	0.000	0.015	0.011	0.003	0.056
RMSE	0.067	0.024	0.160	0.012	0.000	0.015	0.019	0.003	0.058

Forecast skill with respect to observed climatology (same as prediction efficiency)
Mpred1 Mpred2 Mpred3 Xpred1 Xpred2 Xpred3 Ppred1 Ppred2 Ppred3
 0.231 0.185 0.144   -Inf   -Inf   -Inf 0.054 -0.016 -0.089