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Continuous statistics			
Long name	METplus name	Tools	
Along track error (nm)	ALTK_ERR	TC-Pairs TC-Stat	
Anomaly Correlation including mean error,	ANOM_CORR	,Point-Stat Grid-Stat Series- Analysis Stat- Analysis	
Uncentered Anomaly Correlation excluding mean error	ANOM_CORR _UNCNTR	Point-Stat Grid-Stat Series- Analysis Stat- Analysis	
Bias-corr- ected mean squared error,	BCMSE	,Point-Stat Grid-Stat Ensemble- Stat	
Climatolo- gical mean value	CLIMO_MEAN	Point-Stat Grid-Stat Ensemble- Stat	
Climatolo- gical standard deviation value	CLIMO STDEV	Point-Stat Grid-Stat Ensemble- Stat	
Cross track error (nm)	CRTK_ERR	TC-Pairs TC-Stat	
Absolute value of DIR_ERR (see below)	DIR_ABSERR	Point-Stat Grid-Stat	

Continuous st	Continuous statistics (cont)			
Signed angle between the directions of the average forecast and observed wind vectors	DIR_ERR	Point-Stat Grid-Stat		
Mean of absolute value of forecast minus observed gradients	EGBAR	Grid-Stat		
Standard deviation of the error	ESTDEV	Point-Stat Grid-Stat Ensemble- Stat		
Mean forecast wind speed	F_SPEE- D_BAR	Point-Stat Grid-Stat		
Mean Forecast Anomaly	FABAR	Point-Stat Grid-Stat		
Length (speed) of the average forecast wind vector	FBAR_SPEED	Point-Stat Grid-Stat		
Fractions Brier Score	FBS	Grid-Stat		
Direction of the average forecast wind vector	FDIR	,Point-Stat Grid-Stat		

Continuous statistics (cont)			
Mean Forecast Anomaly Squared	FFABAR	Point-Stat Grid-Stat	
Average of forecast squared	FFBAR	Ensemble- Stat Point-Stat Grid-Stat	
Forecast mean	FMEAN	MODE Grid-Stat Point-Stat	
Average product of forecast climo and observation climo / Mean(f-c)*(o- c)	FOABAR	Point-Stat Grid-Stat	
Average product of forecast and observation / Mean(f*o)	FOBAR	Ensemble- Stat Point-Stat Grid-Stat	
Number of tied forecast ranks used in computing Kendall's tau statistic	FRANK_TIES	Point-Stat Grid-Stat	
Root mean square forecast wind speed	FS_RMS	Point-Stat Grid-Stat	

С

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Continuous statist	ice (cont)	
Standard deviation of the error	FSTDEV	Ensemble- Stat Point-Stat Grid-Stat
Interquartile Range	IQR	Point-Stat Grid-Stat
Kendall's tau statistic	KT_CORR	Point-Stat Grid-Stat
The Median Absolute Deviation	MAD	Point-Stat Grid-Stat
Mean absolute error	MAE	Point-Stat Grid-Stat
Magnitude & Multiplicative bias	MBIAS	Ensemble- Stat Point-Stat Grid-Stat
The Mean Error	ME	Ensemble- Stat Point-Stat Grid-Stat
The Mean Error of the PERTURBED ensemble mean	ME_OERR	Ensemble- Stat
The square of the mean error (bias)	ME2	Point-Stat Grid-Stat
Mean squared error	MSE	Ensemble- Stat Wavelet- Stat Point-Stat Grid-Stat

Continuous st	atistics (cont)	
The mean squared error skill	MSESS	Point-Stat Grid-Stat
Mean squared length of the vector difference between the forecast and observed winds	MSVE	Point-Stat Grid-Stat
Mean observed wind speed	O_SPEE- D_BAR	Point-Stat Grid-Stat
Mean Observation Anomaly	OABAR	Point-Stat Grid-Stat
Average observed value	OBAR	Ensemble- Stat Point-Stat Grid-Stat
Length (speed) of the average observed wind vector	OBAR_SPEED	Point-Stat Grid-Stat
Direction of the average observed wind vector	ODIR	Point-Stat Grid-Stat
Mean Squared Observation Anomaly	OOABAR	Point-Stat Grid-Stat
Average of observation squared	OOBAR	Ensemble- Stat Point-Stat Grid-Stat

Continuous statistics (cont)

Continuous stat	istics (cont)	
Number of tied observ- ation ranks used in computing Kendall's tau statistic	ORANK_TIES	Point-Stat Grid-Stat
Root mean square observed wind speed	OS_RMS	Point-Stat Grid-Stat
Standard deviation of observations	OSTDEV	Ensemble- Stat Point-Stat Grid-Stat
Pearson correlation coefficient	PR_CORR	Ensemble- Stat Point-Stat Grid-Stat
Number of ranks used in computing Kendall's tau statistic	RANKS	Point-Stat Grid-Stat
Root mean squared error	RMSE	Point-Stat Grid-Stat Ensemble- Stat
Root Mean Square Error of the PERTURBED ensemble mean	RMSE_OERR	Ensemble- Stat

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Continuous statistics	(cont)	
Root mean squared forecast anomaly	RMSFA	Point- Stat Grid- Stat
Root mean squared observ- ation anomaly	RMSOA	Point- Stat Grid- Stat
Square root of MSVE	RMSVE	Point- Stat Grid- Stat
S1 score	S1	Grid- Stat
S1 score with respect to observed gradient	S1_OG	Grid- Stat
Scatter Index	SI	Point- Stat Grid- Stat
Spearman's rank correlation coeffi- cient	SP_CORR	Point- Stat Grid- Stat
Absolute value of SPEED_ERR	SPEED _ABSERR	Point- Stat Grid- Stat
Difference between the length of the average forecast wind vector and the average observed wind vector (in the sense F - O),	SPEED_ERR	Point- Stat Grid- Stat

Continuous statistics	(cont)	
Track error of adeck relative to bdeck (nm)	TK_ERR	TC- Pairs
Mean U-comp- onent Forecast Anomaly	UFABAR	Point- Stat Grid- Stat
Mean U-comp- onent	UFBAR	Point- Stat Grid- Stat
Mean U-comp- onent Observation Anomaly	UOABAR	Point- Stat Grid- Stat
Mean U-comp- onent Observation	UOBAR	Point- Stat Grid- Stat
Mean U-comp- onent Squared Forecast Anomaly plus Squared Observation Anomaly	UVFFABAR	Point- Stat Grid- Stat
Mean U-comp- onent Squared Forecast plus Squared Observ- ation	UVFFBAR	,Point- Stat Grid- Stat
Mean((uf-uc) <i>(uo- uc)+ (vf-vc)</i> (vo-vc))	UVFOABAR	Point- Stat Grid- Stat
Mean(uf <i>uo≁vf</i> vo)	UVFOBAR	Point- Stat Grid- Stat

Continuous statistics (cont)

Continuous statistics	(com)	
Mean((uo-uc)²+(- vo-vc)²)	UVOOABAR	Point- Stat Grid- Stat
Mean(uo ² +vo ²)	UVOOBAR	Point- Stat Grid- Stat
Direction of the vector difference between the average forecast and average wind vectors	VDIFF_DIR	Point- Stat Grid- Stat
Length (speed) of the vector difference between the average forecast and average observed wind vectors	VDIFF SPEED	Point- Stat Grid- Stat
Mean(vf-vc)	VFABAR	Point- Stat Grid- Stat
Mean(vf)	VFBAR	Point- Stat Grid- Stat
Mean(vo-vc)	VOABAR	Point- Stat Grid- Stat
Mean(vo)	VOBAR	Point- Stat Grid- Stat

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Distance statistics		
Long name	METplus name	Tools
Baddeleys Delta Metric	BADDELEY	Grid- Stat
Mean-error Distance from observation to forecast	MED_FO	Grid- Stat
Maximum of MED_FO and MED_OF	MED_MAX	Grid- Stat
Mean of MED_FO and MED_OF	MED_MEAN	Grid- Stat
Minimum of MED_FO and MED_OF	MED_MIN	Grid- Stat
Mean-error Distance from forecast to observ- ation	MED_OF	Grid- Stat

Neighborhood statistics		
Long name	METplus name	Tools
Asymptotic Fractions Skill Score	AFSS	Grid- Stat
Fractions Skill Score	FSS	Grid- Stat
Uniform Fractions Skill Score	UFSS	Grid- Stat

Categorical statistic	cs	
Long name	METplus name	Tools
Accuracy	ACC	Point- Stat Grid- Stat MODE
Bias Adjusted Gilbert Skill Score	BAGSS	Point- Stat Grid- Stat
Base Rate	BASER	Point- Stat Grid- Stat Wavelet- Stat MODE
Critical Success Index	CSI	Point- Stat MODE cts Grid- Stat
Expected correct rate used for MCTS HSS_EC	EC_VALUE	Point- Stat Grid- Stat
Extreme Dependency Index	EDI	Point- Stat Grid- Stat
Extreme Dependency Score	EDS	Point- Stat Grid- Stat
Forecast rate/event frequency	F_RATE	Point- Stat Grid- Stat

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Categorical statistics (cont) Point-Stat False alarm FAR Grid-Stat ratio MODE Forecast FBAR Ensemblemean Stat Point-Stat Grid-Stat Frequency FBIAS Wavelet-Bias Stat MODE Point-Stat Grid-Stat Point-Stat Count of Fi_Oj Grid-Stat events in forecast category i and observation category j MODE Number of FN_ON forecast no Grid-Stat and observ-Point-Stat ation no Number of FN_OY MODE forecast no Grid-Stat and observ-Point-Stat ation yes Attributes for FNNN_ONNN MODE pairs of simple forecast and observation objects Number of FΥ Grid-Stat forecast events

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Categorical statistics (cont)	
Number of forecast yes and observation no	FY_ON	MODE Point- Stat Grid-Stat
Number of forecast yes and observation yes	FY_OY	MODE Point- Stat Grid-Stat
Gerrity Score and bootstrap confidence limits	GER	Point- Stat Grid-Stat
Gilbert Skill Score	GSS	Point- Stat Grid-Stat MODE
Hit rate,	H_RATE	Point- Stat Grid-Stat
Hanssen and Kuipers Discri- minant	НК	MODE Point- Stat Grid-Stat
Heidke Skill Score	HSS	MODE Point- Stat Grid-Stat
Heidke Skill Score user-specific expected correct	HSS_EC	Point- Stat Grid-Stat
Logarithm of the Odds Ratio	LODDS	Point- Stat Grid-Stat

Categorical statistics	(cont)	
Dimension of the contingency table & the total number of categories in each dimension	N_CAT	Point- Stat Grid- Stat
Observation rate	O_RATE	Point- Stat Grid- Stat
Odds Ratio	ODDS	MODE Point- Stat Grid- Stat
Odds Ratio Skill Score,,	ORSS	Point- Stat Grid- Stat
Number of observ- ation events	OY	Grid- Stat
Probability of false detection	PODF	Point- Stat Grid- Stat
Probability of detecting no	PODN	Point- Stat Grid- Stat MODE
Probability of detecting yes	PODY	Point- Stat Grid- Stat MODE

Categorical statistics	(cont)	
Probability of detecting yes when forecast is greater than the ith probab- ility thresholds	PODY_i	Point- Stat Grid-Stat
Probability of false detection	POFD	MODE Grid-Stat
Probability of false detection when forecast is greater than the ith probab- ility thresholds	POFD_i	Point- Stat Grid-Stat
Symmetric Extremal Dependency Index,	SEDI	Point- Stat Grid-Stat
Symmetric Extreme Dependency Score	SEDS	Point- Stat Grid-Stat

Metallity statistics Long name Metallity Brier Score BRIER Point

Brier Score	BRIER	Point-
		Stat
		Grid-
		Stat

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Probability statistics	(cont)	
Climatological Brier Score	BRIERCL	Point- Stat Grid- Stat
Brier Skill Score relative to sample climatology	BSS	Point- Stat Grid- Stat
Brier Skill Score relative to external climatology	BSS_SMPL	Point- Stat Grid- Stat
Calibration when forecast is between the ith and i+1th probab- ility thresholds (repeated)	CALIBR- ATION _i	Point- Stat Grid- Stat
Likelihood when forecast is between the ith and i+1th probab- ility thresholds repeated	LIKELIHOOD _i	Point- Stat Grid- Stat
Number of observ- ation when forecast is between the ith and i+1th probab- ility thresholds	ON_i	Point- Stat Grid- Stat

Probability statistics	s (cont)	
Number of observation when forecast is between the ith and i+1th probab- ility thresholds	ON_TP_i	Point- Stat Grid- Stat
Number of observation yes when forecast is between the ith and i+1th probab- ility thresholds	OY_i	Point- Stat Grid- Stat
Number of observation yes when forecast is between the ith and i+1th probab- ility thresholds as a proportion of the total OY (repeated)	OY_TP_i	Point- Stat Grid- Stat
Refinement when forecast is between the ith and i+1th probab- ility thresholds (repeated)	REFINEMENT _i	Point- Stat Grid- Stat
Reliability	RELIABILITY	Point- Stat Grid- Stat
Resolution	RESOLUTION	Point- Stat Grid- Stat

Probability statistics (cont)

FIODADIIILY SLAUSUUS (C		
Area under the receiver operating characteristic curve	ROC_AUC	Point- Stat Grid- Stat
Variability of Observations	UNCERT- AINTY	Point- Stat Grid- Stat
Economic value of the base rate	VALUE BASER	Point- Stat Grid- Stat
Relative value for the ith Cost/Loss ratio	VALUE_i	Point- Stat Grid- Stat
Ensemble statistics		

Long name	METplus name	Tools
Continuous Ranked Probability Score (normal dist.)	CRPS	Ensemb le-Stat
Continuous Ranked Probability Score (empirical dist.)	CRPS_EMP	Ensemb Ie-Stat
Climatological Continuous Ranked Probability Score (normal dist.)	CRPSCL	Ensemb le-Stat
Climatological Continuous Ranked Probability Score (empirical dist.)	CRPSCL_EMP	Ensemb le-Stat

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Ensemble statistic	s (cont)	
Continuous Ranked Probab- ility Skill Score (normal dist.)	CRPSS	Ensemb le-Stat
Continuous Ranked Probab- ility Skill Score (empirical dist.)	CRPSS_EMP	Ensemb le-Stat
The unpert- urbed ensemble mean value	ENS_MEAN	,Ensem ble-Stat
The PERTURBED ensemble mean (e.g. with Observation Error).	ENS_MEAN _OERR	Ensemb le-Stat
Ignorance Score	IGN	Ensemb le-Stat
Probability Integral Transform	PIT	Ensemb le-Stat
Rank of the observation	RANK	Ensemb le-Stat
Count of observations with the i-th rank	RANK_i	Ensemb le-Stat
Number of times the i-th ensemble member's value was closest to the observation (repeated). When n members tie, 1/n is assigned to each member.	RELP_i	Ensemb le-Stat

Mean of the RPS Ensemb Brier Scores for le-Stat each RPS threshold Mean of the RPS_REL Ensemb reliabilities for le-Stat each RPS threshold Mean of the **RPS_RES** Ensemb le-Stat resolutions for each RPS threshold Mean of the RPS_UNC Ensemb uncertainties for le-Stat each RPS threshold Ranked Probab-RPSS Ensemb ility Skill Score le-Stat relative to external climatology RPSS_SMPL Ranked Probab-Ensemb ility Skill Score le-Stat relative to sample climatology Standard SPREAD Ensemb deviation of the le-Stat mean of the **UNPERT-**URBED ensemble Standard SPREAD-Ensemb deviation of the le-Stat _OERR mean of the PERTURBED ensemble

Ensemble statistics	s (cont)	
Standard Deviation of unperturbed ensemble variance and the observation error variance	SPREAD- _PLUS _OERR	Ensemb le-Stat
Maximum variance	VAR_MAX	Ensemb le-Stat
Average variance	VAR_MEAN	Ensemb le-Stat
Minimum variance	VAR_MIN	Ensemb le-Stat
Diagnostic statistic	S	
Diagnostic statistic	s METplus name	Tools
	METplus	Tools

MTD

MODE

AREA_RATIO

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grid squares)

Forecast object

area divided by

the observation

object area

(unitless)

Diagnostic statistic	s (cont)	
Area of the object that meet the object definition threshold criteria (in grid squares)	AREA_T- HRESH	MODE
Absolute value of the difference between the aspect ratios of two objects (unitless)	ASPECT- _DIFF	MODE
Object axis angle (in degrees)	AXIS_ANG	MODE MTD
Difference in spatial axis plane angles	AXIS_DIFF	MTD
Blocking Index	Blocking Index	METplus Use Case
Minimum distance between the boundaries of two objects	BOUNDARY _DIST	MODE

Total great circle distance travelled by the 2D spatial centroid over the lifetime of the 3D object	CDIST _TRAVELLED	MTD
Distance between two objects centroids (in grid units)	CENTROID _DIST	MODE
Latitude of centroid	CENTROID _LAT	MTD MODE
Longitude of centroid	CENTROID _LON	MTD MODE
Time coordinate of centroid	CENTROID_T	MTD
X coordinate of centroid	CENTROID_X	MTD MODE
Y coordinate of centroid	CENTROID_Y	MTD MODE
Space-Time Coherence Diagram	Coherence Diagram	METplus Use Case

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Diagnostic statistics (cont)

Diagnostic statistics (cont)

Diagnostic statistic	s (cont)	
Ratio of the difference between the area of an object and the area of its convex hull divided by the area of the complex hull (unitless)	COMPLEXITY	MODE
Ratio of comple- xities of two objects defined as the lesser of the forecast complexity divided by the observation complexity or its reciprocal (unitless)	COMPLEXITY _RATIO	MODE
Minimum distance between the convex hulls of two objects (in grid units)	CONVEX_HU- LL_DIST	MODE

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Diagnostic statistics	s (cont)	
Radius of curvature	CURVATURE	MODE
Ratio of the curvature	CURVATURE _RATIO	MODE
Center of curvature (in grid coordinates)	CURVAT- URE_X	MODE
Center of curvature (in grid coordinates)	CURVAT- URE_Y	MODE
Cloud Water / Precip Relati- onship	CW/Precip Relationship	Grid- Diag
Difference in object direction of movement	DIRECTION _DIFF	MTD
Difference in the lifetimes of the two objects	DURATION _DIFF	MTD
Object end time	END_TIME	MTD
Difference in object ending time steps	END_TIME _DELTA	MTD
Number of forecast clusters	FCST_CLUS	MODE

Diagnostic statistics (c	ont)	
Number of points used to define the hull of all of the cluster forecast objects	FCST_C- LUS- _HULL	MODE
Forecast Cluster Convex Hull Point Latitude	FCST_C- LUS_HU- LL_LAT	MODE
Forecast Cluster Convex Hull Point Longitude	FCST_C- LUS- _HULL _LON	MODE
Number of Forecast Cluster Convex Hull Points	FCST_C- LUS_HU- LL_NPTS	MODE
Forecast Cluster Convex Hull Starting Index	FCST_C- LUS_HU- LL START	MODE
Forecast Cluster Convex Hull Point X-Coordinate	FCST_C- LUS- _HULL_X	MODE
Forecast Cluster Convex Hull Point Y-Coordinate	FCST_C- LUS- _HULL_Y	MODE

Diagnostic statistics	(cont)	
Forecast Object Raw Values	FCST_O- BJ_RAW	MODE
Number of simple forecast objects	FCST_SIMP	MODE
Number of points used to define the boundaries of all of the simple forecast objects	FCST_S- IMP_BDY	MODE
Forecast Simple Boundary Latitude	FCST_S- IMP_BD- Y_LAT	MODE
Forecast Simple Boundary Longitude	FCST_S- IMP_BD- Y_LON	MODE
Number of Forecast Simple Boundary Points	FCST_S- IMP_BD- Y_NPTS	MODE
Forecast Simple Boundary Starting Index	FCST_S- IMP_BD- Y_START	MODE
Forecast Simple Boundary X-Coor- dinate	FCST_SIMP _BDY_X	MODE

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Diagnostic statistics	s (cont)	
Forecast Simple Boundary Y- Coordinate	FCST_SIMP _BDY_Y	MODE
Number of points used to define the hull of all of the simple forecast objects	FCST_SIMP- _HULL	MODE
Forecast Simple Convex Hull Point Latitude	FCST_SIMP- _HULL_LAT	MODE
Forecast Simple Convex Hull Point Longitude	FCST_SIMP _HULL_LON	MODE
Number of Forecast Simple Convex Hull Points	FCST_SIMP _HULL_NPTS	MODE
Forecast Simple Convex Hull Starting Index	FCST_SIMP _HULL START	MODE
Forecast Simple Convex Hull Point X-Coor- dinate	FCST_SIMP _HULL_X	MODE

Diagnostic statistics	(cont)	
Forecast Simple Convex Hull Point Y-Coordinate	FCST_SIMP _HULL_Y	MODE
Number of thresholds applied to the forecast	FCST _THRESH _LENGTH	MODE
Number of thresholds applied to the forecast	FCST_T- HRESH _LENGTH	MODE
Pratt's Figure of Merit from observ- ation to forecast	FOM_FO	Grid- Stat
Maximum of FOM_FO and FOM_OF	FOM_MAX	Grid- Stat
Mean of FOM_FO and FOM_OF	FOM_MEAN	Grid- Stat
Minimum of FOM_FO and FOM_OF	FOM_MIN	Grid- Stat
Pratt's Figure of Merit from forecast to observation	FOM_OF	Grid- Stat

Diagnostic statist	ics (cont)	
Distance between the forecast and Best track genesis events (km)	GEN_DIST	TC-Gen
Forecast minus Best track genesis time in HHMMSS format	GEN_TDIFF	TC-Gen
Hausdorff Distance	HAUSDORFF	Grid- Stat
Hovmoeller Diagram	Hovmoeller	METplus Use Case
Best track genesis minus forecast initia- lization time in HHMMSS format	INIT_TDIFF	TC-Gen
10th, 25th, 50th, 75th, 90th, and user- specified percentiles of intensity of the raw field within the object or time slice	INTENSITY _10, _25, _50, _75, _90, _NN	MODE

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Diagnostic statistic	s (cont)	
Sum of the intensities of the raw field within the object (variable units)	INTENSITY _SUM	MODE
Total interest for this object pair	INTEREST	MTD MODE
Intersection area of two objects (in grid squares)		MODE
Ratio of inters- ection area to the lesser of the forecast and observation object areas (unitless)	INTERSECT ION_OVER _AREA	MODE
"Volume" of object inters- ection	INTERSECT ION_VOLUME	MTD

Joint Probab- ility Distribution between variable,Joint PDF to Diagnose Relations- hip,Grid-Diag Dimension of the latitude	LAT	MODE
Length of the enclosing rectangle	LENGTH	MODE
Dimension of the longitude	LON	MODE
Meridional Means	Meridional Means	METplus Use Case
Number of cluster objects	N_CLUS	MODE
Number of simple forecast objects	N_FCST- _SIMP	MODE
Number of simple observ- ation objects	N_OBS_SIMP	MODE
Number of observed clusters	OBS_CLUS	MODE

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Diagnostic statistics (cont)

Diagnostic statistics	s (cont)	
Number of points used to define the hull of all of the cluster observation objects	OBS_CLUS _HULL	MODE
Observation Cluster Convex Hull Point Latitude	OBS_CLUS _HULL_LAT	MODE
Observation Cluster Convex Hull Point Longitude	OBS_CLUS _HULL_LON	MODE
Number of Observation Cluster Convex Hull Points	OBS_CLUS _HULL_NPTS	MODE
Observation Cluster Convex Hull Starting Index	OBS_CLUS _HULL START	MODE
Observation Cluster Convex Hull Point X- Coordinate	OBS_CLUS _HULL_X	MODE

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Diagnostic statistics	(cont)	
Observation Cluster Convex Hull Point Y-Coor- dinate	OBS_CLUS _HULL_Y	MODE
Number of simple observation objects	OBS_SIMP	MODE
Number of points used to define the boundaries of the simple observ- ation objects	OBS_SIMP _BDY	MODE
Observation Simple Boundary Point Latitude	OBS_SIMP _BDY_LAT	MODE
Observation Simple Boundary Point Longitude	OBS_SIMP _BDY_LON	MODE
Number of Observation Simple Boundary Points	OBS_SIMP _BDY_NPTS	MODE
Number of points used to define the hull of the simple observation objects	OBS_SIMP _HULL	MODE

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Diagnostic statis	tics (cont)	
Number of Observation Simple Convex Hull Points	OBS_SIMP _HULL_NPTS	MODE
OLR-based MJO Index	OMI	METplus Use Case
Ratio of the nth percentile (INTEN- SITY_NN column) of intensity of the two objects	PERCENTILE _INTENSITY _RATIO	MODE
Phase Diagram for RMM and OMI,	Phase Diagram	METplus Use Case
Realtime Multivariate MJO Index	RMM	METplus Use Case
Spatial distance between (x,y) (x,y) coordi- nates of object spacetime centroid	SPACE _CENTROID _DIST	MTD
Difference in object speeds	SPEED DELTA	MTD

Diagnostic statistics (cont) Difference in START_TIME MTD object starting _DELTA time steps Symmetric SYMMETRIC MODE difference of _DIFF two objects (in grid squares) MTD Difference in t TIME index of object _CENTROID spacetime _DELTA centroid Union area of UNION_AREA MODE two objects (in grid squares) VOLUME MTD Integer count of the number of 3D "cells" in an object Forecast VOLUME MTD object volume _RATIO divided by observation object volume Weather Weather **METplus Regime Index** Regime Index Use Case

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Diagnostic statistics (cont)		
Width of the enclosing rectangle (in grid units)	WIDTH	MODE
X component of object velocity	X_DOT	MTD
y component of object velocity	Y_DOT	MTD
Y component position error (nm)	Y_ERR	TC-Pairs
Zonal Means	Zonal Means	METplus Use Case
Zhu's Measure from observation to forecast	ZHU_FO	Grid- Stat
Maximum of ZHU_FO and ZHU_OF	ZHU_MAX	Grid- Stat
Mean of ZHU_FO and ZHU_OF	ZHU_MEAN	Grid- Stat
Minimum of ZHU_FO and ZHU_OF	ZHU_MIN	Grid- Stat
Zhu's Measure from forecast to observation	ZHU_OF	Grid- Stat



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