#	Column/ Variable name	Shapefile name	Units	Description
1	SID	SID		Storm Identifier.
2	SEASON	(same)	year	
3	NUMBER	(same)		The cardinal number of the system for that season. The count includes all basins, so this will not be continuous for basin files.
4	BASIN	(same)		Basins include: NA - North Atlantic EP - Eastern North Pacific WP - Western North Pacific NI - North Indian SI - South Indian SP - Southern Pacific SA - South Atlantic MM - Missing - should not appear in final IBTrACS product
5	SUBBASIN	(same)		Subbasins include: MM - missing - no sub basin for this basin (no subbasins provided for WP, SI) CS - Caribbean Sea GM - Gulf of Mexico CP - Central Pacific BB - Bay of Bengal AS - Arabian Sea WA - Western Australia EA - Eastern Australia
6	NAME	(same)		Name provided by the agency. IBTrACS ignores most names that include digits or abbreviations.
7	ISO_TIME	(same)	UTC	ISO Time provided in Universal Time Coordinates (UTC). Format is YYYY-MM-DD HH:mm:ss Most points are provided at 6 hour intervals. Some agencies provided 3 hour points (e.g., New Delhi) or times at important observations (e.g., landfall times in the North Atlantic, etc.).
8	NATURE	(same)		Combined storm type. This is assigned based on all available storm types. They include: DS - Disturbance TS - Tropical ET - Extratropical SS - Subtropical NR - Not reported MX - Mixture (contradicting nature reports from different agencies)
9	LAT	(same)	deg north	
10	LON	(same)	deg_east	

#	Column/ Variable name	Shapefile name	Units	Description
11	WMO_WIND	(same)	knots	Maximum sustained wind speed from the WMO agency for the current location. NO adjustment is made for differences in wind speed averaging periods. hurdat/atcf = North Atlantic - U.S. Miami (NOAA NHC) - 1-minute winds tokyo = RSMC Tokyo (JMA) - 10-minute newdelhi = RSMC New Delhi (IMD) - 3-minute reunion = RSMC La Reunion (MFLR) - 10 minute bom = Australian TCWCs (TCWC Perth, Darwin, Brisbane) - 10-minute nadi = RSMC Nadi (FMS) - 10 minute wellington = TCWC Wellington (NZMS) - 10-minute
12	WMO_PRES	(same)	mb	
13	WMO_AGENCY	(same)		This is the reporting agency responsible for the basin as currently listed. It should be noted that many of the agencies did not accept official WMO responsibility until relatively recently, e.g., La Reunion in 1993 or IMD in 1990. Therefore the WMO agency is used loosely todescribe the currently reponsible agency.
14	TRACK_TYPE	(same)		Track type Tropical storms can interact. This identifies : PROVISIONAL - Real time data used to populate the position and other parameters of this system. This is a provisional track that will be replaced when reanalysis of the storm is performed. (Usually within 2 years of the storm's occurence) PROVISIONAL_spur - Real time data (see provisional description above) but due to differences in positions between various inputs, algorithm can not identify accurate position. When counting storms, these should not likely be counted. These should be rare for PROVISIONAL data. MAIN - primary track associated with a storm system. This is a track that has had some reanalysis and is higher quality than provisional data. spur - usually short lived tracks associated with a main track and often represents alternate positions at the beginning of a system. Can also represent actual system interactions (e.g., Fujiwhara interactions).
15	DIST2LAND	(same)	km	Distance to land from the current position. The land dataset includes all continents and any islands larger than 1400 km^2. The distance is the nearest at the present time in any direction.
16	LANDFALL	(same)	km	Nearest location to land within next 6 hours. This can be thought of a landfall flag: =0 -- Landfall within 6 hours. >0 -- No landfall within next 6 hours. Calculations are based on storm center (columns 9,10). Values less than 60 nmile likely are impacted by the system even though the center of the system is not over land. The uses the same land mask as DIST2LAND.

#	Column/ Variable name	Shapefile name	Units	Description
17	IFLAG	(same)		Interpolation Flag A 14 character flag string which denotes the source of each agency's report: Interpolation Flags include: _ == missing reports. No information provided. O == original report as provided by the agency. P == position was interpolated (all variables were interpolated/filled, including intensity) I == Position was provided, but Intensity variables (and likely other variables) were interpolated/filled V = Position and intensity variables are original but some variables were interpolated/filled. The order of the 14 characters refers to the following 14 datasets: 1 - USA Agency (see column 18) 2 - Tokyo 3 - CMA 4 - HKO 5 - NewDelhi 6 - Reunion 7 - BoM 8 - Nadi 9 - Wellington 10 - ds824 11 - TD9636 12 - TD9635 13 - Neumann Southern Hemisphere data set 14 - M.L. Chenoweth N Atlantic Historic dataset

#	Column/ Variable name	Shapefile name	Units	Description
18	USA_AGENCY	(same)		The agency file providing the information: The representative US agency data is derived from a hierarchical selection: the first dataset in the following list to provide information at the given time is used as the USA_agency: - HURDAT_ATL - HURSAT_EPA - ATCF (for NA and EP basins only) - JTWC_WP - JTWC_IO - JTWC_EP - JTWC_CP - JTWC_SH - CPHC [separate file provided by CPHC for years 1966-2003, 2008] - tcvitals - THIS INDICATES THAT THE DATA ARE PRELIMINARY While these agencies are generally orthogonal, there are cases where a system is provided in more than one source. In this case, the report from the highest source is used. ATCF format info from: https://www.nrlmry.navy.mil/atcf_web/docs/database/new/abdeck.txt HURDAT2 info from: http://www.nhc.noaa.gov/data/hurdat/hurdat2-format-atlantic.pdf
19	USA_ATCF_ID	(same)		The ATCF ID is assigned by US agencies and can be used to comparethe storm with other US cyclone-related datasets. If two (or more) ATCF tracks make up one storm, then the IDs are separated by a colon. The format of the ATCF ID is B<bb><nn><yyyy> where bb is the basin ID, nn is the number of the storm in that basin and yyyy is the year. Possible basin values are: AL: North Atlantic, SL: South Atlantic, EP: East Pacific, WP: West Pacific, SH: Southern Hemisphere, IO: North Indian For the provisional data, other basin identifiers were provided that include: CP: Central Pacific, SP: South Pacific, SI: South Indian, AS: Arabian Sea (North Indian) and BB: Bay of Bengal (North Indian)
20	USA_LAT	(same)	deg north	
21	USA_LON	(same)	deg east	

#	Column/ Variable name	Shapefile name	Units	Description
22	USA_RECORD	(same)		Record identifier (see notes below) C – Closest approach to a coast, not followed by a landfall G – Genesis I – An intensity peak in terms of both pressure and wind L – Landfall (center of system crossing a coastline) P – Minimum in central pressure R – Provides additional detail on the intensity of the cyclone when rapid changes are underway S – Change of status of the system T – Provides additional detail on the track (position) of the cyclone W – Maximum sustained wind speed
23	USA_STATUS	(same)		Status of system. Options are: DB - disturbance, TD - tropical depression, TS - tropical storm, TY - typhoon, ST - super typhoon, TC - tropical cyclone, HU,HR - hurricane, SD - subtropical depression, SS - subtropical storm, EX - extratropical systems, PT - post tropical, IN - inland, DS - dissipating, LO - low, WV - tropical wave, ET - extrapolated, MD - monsoon depression, XX - unknown.
24	USA_WIND	(same)	knots	Maximum sustained wind speed in knots: 0 - 300 kts.
25	USA_PRES	(same)	mb	Minimum sea level pressure, 850 - 1050 mb.

#	Column/ Variable name	Shapefile name	Units	Description
26	USA_SSHS	(same)		Saffir-Simpson Hurricane Scale information based on the wind speed provided by the US agency wind speed (US agencies provide 1-minute wind speeds) -5 = Unknown [XX] -4 = Post-tropical [EX, ET, PT] -3 = Miscellaneous disturbances [WV, LO, DB, DS, IN, MD] -2 = Subtropical [SS, SD] Tropical systems classified based on wind speeds [TD, TS, HU, TY,, TC, ST, HR] -1 = Tropical depression (W<34) 0 = Tropical storm [34<W<64] 1 = Category 1 [64<=W<83] 2 = Category 2 [83<=W<96] 3 = Category 3 [96<=W<113] 4 = Category 4 [113<=W<137] 5 = Category 5 [W >= 137]
27	USA_R34_NE	(same)	nmile	34 kt wind radii maximum extent in northeastern quadrant
28	USA_R34_SE	(same)	nmile	34 kt wind radii maximum extent in southeastern quadrant
29	USA_R34_SW	(same)	nmile	34 kt wind radii maximum extent in southwestern quadrant
30	USA_R34_NW	(same)	nmile	34 kt wind radii maximum extent in northwestern quadrant
31	USA_R50_NE	(same)	nmile	50 kt wind radii maximum extent in northeastern quadrant
32	USA_R50_SE	(same)	nmile	50 kt wind radii maximum extent in southeastern quadrant
33	USA_R50_SW	(same)	nmile	50 kt wind radii maximum extent in southwestern quadrant
34	USA_R50_NW	(same)	nmile	50 kt wind radii maximum extent in northwestern quadrant
35	USA_R64_NE	(same)	nmile	64 kt wind radii maximum extent in northeastern quadrant
36	USA_R64_SE	(same)	nmile	64 kt wind radii maximum extent in southeastern quadrant
37	USA_R64_SW	(same)	nmile	64 kt wind radii maximum extent in southwestern quadrant
38	USA_R64_NW	(same)	nmile	64 kt wind radii maximum extent in northwestern quadrant
39	USA_POCI	(same)	mb	pressure in millibars of the last closed isobar, 900 - 1050 mb NOT BEST-TRACKED (not reanalyzed)
40	USA_ROCI	(same)	nmile	radius of the last closed isobar, 0 - 999 n mi. NOT BEST TRACKED (not reanalyzed)
41	USA_RMW	(same)	nmile	radius of max winds, 0 - 999 n mi. NOT BEST TRACKED (not reanalyzed)
42	USA_EYE	(same)	nmile	eye diameter, 0 - 120 n mi. NOT BEST TRACKED (not reanalyzed)
43	TOKYO_LAT	TOK_LAT	deg north	
44	TOKYO_LON	TOK_LON	deg east	

#	Column/ Variable name	Shapefile name	Units	Description
45	TOKYO_GRADE	TOK_GRADE		<Grade> 1 : Not used 2 : Tropical Depression (TD) 3 : Tropical Storm (TS) 4 : Severe Tropical Storm (STS) 5 : Typhoon (TY) 6 : Extratropical Cyclone (L) 7 : Just entering into the responsible area of Japan Meteorological Agency (JMA) 8 : Not used 9 : Tropical Cyclone of TS intensity or higher
46	TOKYO_WIND	TOK_WIND	knots	Maximum sustained wind speed [10-min averaging period]
47	TOKYO_PRES	TOK_PRES	mb	Central pressure
48	TOKYO_R50_DIR	TOK_R50_DR		1 : Northeast (NE) 2 : East (E) 3 : Southeast (SE) 4 : South (S) 5 : Southwest (SW) 6 : West (W) 7 : Northwest (NW) 8 : North (N) 9 : (symmetric circle)
49	TOKYO_R50_LONG	TOK_R50_L	nmile	The longest radius of 50kt winds or greater
50	TOKYO_R50_SHORT	TOK_R50_S	nmile	The shortest radius of 50kt winds or greater
51	TOKYO_R30_DIR	TOK_R30_DR		1 : Northeast (NE) 2 : East (E) 3 : Southeast (SE) 4 : South (S) 5 : Southwest (SW) 6 : West (W) 7 : Northwest (NW) 8 : North (N) 9 : (symmetric circle)
52	TOKYO_R30_LONG	TOK_R30_L	nmile	The longest radius of 30kt winds or greater
53	TOKYO_R30_SHORT	TOK_R30_S	nmile	The shortest radius of 30kt winds or greater
54	TOKYO_LAND	TOK_LAND		<Indicator of landfall or passage> Landfall or passage over the Japanese islands occurred within one hour after the time of the analysis with this indicator.
55	CMA_LAT	(same)	deg north	

#	Column/ Variable name	Shapefile name	Units	Description
56	CMA_LON	(same)	deg east	
57	CMA_CAT	(same)		Intensity category according to the Chinese National Standard for Grade of Tropical Cyclones (which has been used since 15 June 2006): 0 — Weaker than Tropical Depression or unknown intensity; 1 — Tropical Depression (TD: 10.8–17.1 m/s); 2 — Tropical Storm (TS:17.2–24.4 m/s); 3 — Severe Tropical Storm (STS: 24.5–32.6 m/s); 4 — Typhoon (TY: 32.7–41.4 m/s); 5 — Severe Typhoon (STY: 41.5–50.9 m/s); 6 — Super Typhoon (SuperTY: ≥51.0 m/s); 9 — Extratropical Cyclone (ET) stage.
58	CMA_WIND	(same)	knots	Two-minute mean maximum sustained wind (MSW; m/s) near the TC center. WND = 9 indicates MSW < 10 m/s, WND = 0 indicates unknown intensity.
59	CMA_PRES	(same)	mb	Minimum pressure (hPa) near the TC center.
60	HKO_LAT	(same)	deg north	
61	HKO_LON	(same)	deg east	
62	HKO_CAT	(same)		After 2009, we further classified two more storm types above typhoon, so there are in total 7 storm types LW (Low) <22 kt TD (Tropical Depression) 22 – 33 kt TS (Tropical Storm) 34 – 47 kt STS (Severe Tropical Storm) 48 – 63 kt T (Typhoon) 64 – 80 kt ST (Severe Typhoon) 81 – 99 kt SuperT (Super Typhoon) >= 100 kt
63	HKO_WIND	(same)	knots	
64	HKO_PRES	(same)	mb	
65	NEWDELHI_LAT	NEW_LAT	deg north	
66	NEWDELHI_LON	NEW_LON	deg east	
67	NEWDELHI_GRADE	NEW_GRADE		Types of disturbances: Low pressure area W<17 knots D - Depression 17<=W<28 DD - Deep Depression 28<=W<34 CS - Cyclonic Storm 34<=W<48 SCS - Severe Cyclonic Storm 48<=W<64 VSCS - Very Severe Cyclonic Storm 64<=W<120 SCS - Super Cyclonic Storm W>=120 knots
68	NEWDELHI_WIND	NEW_WIND	knots	

#	Column/ Variable name	Shapefile name	Units	Description
69	NEWDELHI_PRES	NEW_PRES	mb	
70	NEWDELHI_CI	NEW_CI		
71	NEWDELHI_DP	NEW_DP	mb	
72	NEWDELHI_POCI	NEW_POCI	mb	
73	REUNION_LAT	REU_LAT	deg north	
74	REUNION_LON	REU_LON	deg east	
75	REUNION_TYPE	REU_TYPE		01= tropics; disturbance (no closed isobars) 02= <34 knot winds, <17m/s winds and at least one closed isobar 03= 34-63 knots, 17-32m/s 04= >63 knots, >32m/s 05= extratropical 06= dissipating 07= subtropical cyclone (nonfrontal, low pressure system that comprises initially baroclinic circulation developing over subtropical water) 08= overland 09= unknown
76	REUNION_WIND	REU_WIND	knots	Maximum average wind speed
77	REUNION_PRES	REU_PRES	mb	Central pressure
78	REUNION_TNUM	REU_TNUM		Dvorak T-number
79	REUINION_CI	REU_CI		Dvorak CI-number
80	REUNION_RMW	REU_RMW	nmile	Radius of maximum winds
81	REUNION_R34_NE	REU_R34_NE	nmile	34 kt wind radii maximum extent in northeastern quadrant
82	REUNION_R34_SE	REU_R34_SE	nmile	34 kt wind radii maximum extent in southeastern quadrant
83	REUNION_R34_SW	REU_R34_SW	nmile	34 kt wind radii maximum extent in southwestern quadrant
84	REUNION_R34_NW	REU_R34_NW	nmile	34 kt wind radii maximum extent in northwestern quadrant
85	REUNION_R50_NE	REU_R50_NE	nmile	50 kt wind radii maximum extent in northeastern quadrant
86	REUNION_R50_SE	REU_R50_SE	nmile	50 kt wind radii maximum extent in southeastern quadrant
87	REUNION_R50_SW	REU_R50_SW	nmile	50 kt wind radii maximum extent in southwestern quadrant
88	REUNION_R50_NW	REU_R50_NW	nmile	50 kt wind radii maximum extent in northwestern quadrant
89	REUNION_R64_NE	REU_R64_NE	nmile	64 kt wind radii maximum extent in northeastern quadrant
90	REUNION_R64_SE	REU_R64_SE	nmile	64 kt wind radii maximum extent in southeastern quadrant
91	REUNION_R64_SW	REU_R64_SW	nmile	64 kt wind radii maximum extent in southwestern quadrant
92	REUNION_R64_NW	REU_R64_NW	nmile	64 kt wind radii maximum extent in northwestern quadrant

#	Column/ Variable name	Shapefile name	Units	Description
93	BOM_LAT	(same)	deg north	
94	BOM_LON	(same)	deg east	
95	BOM_TYPE	(same)		This indicates the type of system that this cyclone was at the time of the observation. Note that cyclones can evolve during their lifetimes and hence change type mid-stream (e.g. Extratropical transition (ETT)) ADAM Code Type of Cyclone WMO Code NULL Default – unknown 09 10 Tropics; disturbance (no closed isobars) 01 20 <34 knot (17m/s) winds, and at least one closed isobar 02 21 34-63 knots (17-32m/s) two or less quadrants 02 30 34-63 knots (17-32m/s) more than two quadrants 03 40 >63 knots (>32m/s) 04 50 Extra-tropical (no gales) 05 51 Extra-tropical (with gales) 05 52 Extra-tropical (max wind unknown) 05 60 Dissipating (no gales) 06 70 Subtropical cyclone (non-frontal, low pressure system that comprises initially baroclinic circulation developing over subtropical water) (no gales) 07 71 Subtropical cyclone (non-frontal, low pressure system that comprises initially baroclinic circulation developing over subtropical water) (with gales) 07 72 Subtropical cyclone (non-frontal, low pressure system that comprises initially baroclinic circulation developing over subtropical water) (max wind unknown) 07 80 Overland (no gales) 08 81 Overland (gales) 08 91 Tropical Cold-cored – Monsoon Low (with surrounding gales away from centre) 09
96	BOM_WIND	(same)	knots	This is the estimated maximum mean wind around the cyclone – that is in the vicinity of the centre.
97	BOM_PRES	(same)	mb	Central pressure of the cyclone
98	BOM_TNUM	(same)		
99	BOM_CI	(same)		
100	BOM_RMW	(same)	nmile	This is the mean radius (from the system centre) of the maximum mean wind.

#	Column/ Variable name	Shapefile name	Units	Description
101	BOM_R34_NE	(same)	nmile	This is the mean radius (from the system centre) of the extent of winds; gale-force (17m/s) or above. The four sectors show the mean extent in the respective quadrant centred on the cardinal point. Northeast quadrant
102	BOM_R34_SE	(same)	nmile	This is the mean radius (from the system centre) of the extent of winds; gale-force (17m/s) or above. The four sectors show the mean extent in the respective quadrant centred on the cardinal point. Southeast quadrant
103	BOM_R34_SW	(same)	nmile	This is the mean radius (from the system centre) of the extent of winds; gale-force (17m/s) or above. The four sectors show the mean extent in the respective quadrant centred on the cardinal point. Southwest quadrant
104	BOM_R34_NW	(same)	nmile	This is the mean radius (from the system centre) of the extent of winds; gale-force (17m/s) or above. The four sectors show the mean extent in the respective quadrant centred on the cardinal point. Northwest quadrant
105	BOM_R50_NE	(same)	nmile	These are the mean radius (from the system centre) of the extent of winds; storm-force (25m/s) or above. Northeast quadrant.
106	BOM_R50_SE	(same)	nmile	These are the mean radius (from the system centre) of the extent of winds; storm-force (25m/s) or above. Southeast quadrant.
107	BOM_R50_SW	(same)	nmile	These are the mean radius (from the system centre) of the extent of winds; storm-force (25m/s) or above. Southwest quadrant.
108	BOM_R50_NW	(same)	nmile	These are the mean radius (from the system centre) of the extent of winds; storm-force (25m/s) or above. Northwest quadrant.
109	BOM_R64_NE	(same)	nmile	These are the mean radius (from the system centre) of the extent of winds; hurricane-force (33m/s) or above. Northeast quadrant
110	BOM_R64_SE	(same)	nmile	These are the mean radius (from the system centre) of the extent of winds; hurricane-force (33m/s) or above. Southeast quadrant
111	BOM_R64_SW	(same)	nmile	These are the mean radius (from the system centre) of the extent of winds; hurricane-force (33m/s) or above. Southwest quadrant
112	BOM_R64_NW	(same)	nmile	These are the mean radius (from the system centre) of the extent of winds; hurricane-force (33m/s) or above. Northwest quadrant
113	BOM_ROCI	(same)	nmile	The estimated mean radius of the outermost closed isobar (1-hPa spacing).
114	BOM_POCI	(same)	mb	Environmental pressure in which the cyclone is embedded
115	BOM_EYE	(same)	nmile	Mean radius of the cyclone eye.

#	Column/ Variable name	Shapefile name	Units	Description
116	BOM_POS_METHOD	BOM_POS_FL		This indicates the tools that were used to derive the centre location of the system. ADAM Code Method to derive position NULL Default - unknown 1 no sat, no rad, no obs 2 no sat, no rad, obs only 3 Sat IR/Vis; no clear eye 4 Sat IR/Vis; clearly defined eye 5 aircraft radar report 6 land-based radar report 7 Sat IR/Vis & rad & obs 8 report inside eye 10 Sat- Scatterometer 11 Sat- Microwave 12 Manned Aircraft Reconnaissance 13 UAV Aircraft Reconnaissance
117	BOM_PRES_METHOD	BOM_PRS_FL		This code may need to be expanded to handle new systems in the future, and also to differentiate between pressure-wind relationships used to derive the central pressure. ADAM code Method WMO Code NULL Unknown or N/A 1 Aircraft or Dropsonde observation 1 2 Over water observation (e.g. buoy) 2 3 Over land observation 3 4 Instrument – unknown type 5 5 Derived Directly from DVORAK 4 6 Derived from wind via a P-W equation 5 7 Estimate from surrounding obs 5 8 Extrapolation from radar 5 9 Other 5
118	NADI_LAT	NAD_LAT	deg north	Cyclone latitude from RSMC Nadi, Fiji
119	NADI_LON	NAD_LON	deg east	
120	NADI_CAT	NAD_CAT		Nadi assigned category
121	NADI_WIND	NAD_WIND	knots	
122	NADI_PRES	NAD_PRES	mb	
123	WELLINGTON_LAT	WEL_LAT	deg north	Cyclone latitude from TCWC Wellington

#	Column/ Variable name	Shapefile name	Units	Description
124	WELLINGTON_LON	WEL_LON	deg east	
125	WELLINGTON_WIND	WEL_WIND	knots	
126	WELLINGTON_PRES	WEL_PRES	mb	
127	DS824_LAT	DS8_LAT	deg north	Cyclone latitude from dataset 824
128	DS824_LON	DS8_LON	deg east	
129	DS824_STAGE	DS8_STAGE		TC - Tropical cyclone
130	DS824_WIND	DS8_WIND	knots	
131	DS824_PRES	DS8_PRES	mb	
132	TD9636_LAT	TD6_LAT	deg north	Cyclone latitude from NCEI dataset TD9636
133	TD9636_LON	TD6_LON	deg east	
134	TD9636_STAGE	TD6_STAGE		This field gives an estimate of the highest winds occurring in the storm at the time and location indicated. The entire storm was coded as to the highest stage reached for some of the earlier years. 0 - Tropical disturbance (1969 onward) 1 - depression < 34 [some variation in definition for S Indian] 2 - Storm 34-63 [with some variation in definition for S Indian] 3 - point where wind reached 64 knots [except N Indian where it is wind 43-47 knots] 4 - Hurricane > 64 [except in N Indian, Wind > 48] 5 - Extratropical 6 - Dissipating 7 - Unknown Intensity or doubtful track
135	TD9636_WIND	TD6_WIND	knots	Estimated highest wind speed at the time indicated. These estimates are subjective and must be interpreted with caution.
136	TD9636_PRES	TD6_PRES	mb	
137	TD9635_LAT	TD5_LAT	deg north	Cyclone latitude from NCEI dataset TD9635
138	TD9635_LON	TD5_LON	deg east	
139	TD9635_WIND	TD5_WIND	knots	
140	TD9635_PRES	TD5_PRES	mb	
141	TD9635_ROCI	TD5_ROCI	nmile	Size. (Radius of system)
142	NEUMANN_LAT	NEU_LAT	deg north	Cyclone latitude from C. Neumann Souther Hemisphere dataset
143	NEUMANN_LON	NEU_LON	deg east	
144	NEUMANN_CLASS	NEU_CLASS		EX - Extratropical TC - Tropical MM - Missing
145	NEUMANN_WIND	NEU_WIND	knots	

#	Column/ Variable name	Shapefile name	Units	Description
146	NEUMANN_PRES	NEU_PRES	mb	
147	MLC_LAT	(same)	deg north	Cyclone latitude from M. Chenoweth dataset
148	MLC_LON	(same)	deg east	
149	MLC_CLASS	(same)		Storm classification EX - Extratropical HU - Hurricane LO - Low MH SD - Subtropical depression SS - Subtropical storm TD - Tropical Depression TS - Tropical Storm TW WV - Open Wave
150	MLC_WIND	(same)	knots	
151	MLC_PRES	(same)	mb	
152	USA_GUST	(same)	knots	Gust reportd by the USA_AGENCY.
153	BOM_GUST	(same)	knots	This is the estimated maximum wind gust around the cyclone – that is in the vicinity of the centre based on open terrain estimate
154	BOM_GUST_PER	BOM_GUSTP	seconds	This is the period of the gust used when measuring max wind gusts. This parameter will only be used when receiving data in WMO format that is not based on 3-sec gusts. All Australian based data should be based on 3-sec gusts.
155	REUNION_GUST	REU_GUST	knots	Maximum Wind Gust
156	REUNION_GUST_PER	REU_GUSTP	seconds	Gust Period
157	USA_SEAHGT	(same)	ft	Wave height for radii defined in SEARAD
158	USA_SEARAD_NE	USA_SEA_NE	nmile	Radial extent of seas (as defined in SEAHGT) extending from storm center to the Northeast.
159	USA_SEARAD_SE	USA_SEA_SE	nmile	Radial extent of seas (as defined in SEAHGT) extending from storm center to the Southeast.
160	USA_SEARAD_SW	USA_SEA_SW	nmile	Radial extent of seas (as defined in SEAHGT) extending from storm center to the Southwest.
161	USA_SEARAD_NW	USA_SEA_NW	nmile	Radial extent of seas (as defined in SEAHGT) extending from storm center to the Northwest.
162	STORM_SPEED	STORM_SPD	knots	Translation speed of the system as calculated from the positions in LAT and LON
163	STORM_DIR	(same)	degrees	Translation direction of the system as calculated from the positions in LAT and LON. Direction is moving toward the vector pointing in degrees east of north [range = 0-360 deg]