

Fig S1 – New - Validating modelled surges using ERA5 (red dashed) and Holland Model using IBTrACS (red dotted) wind and pressure fields against measured data (blue): Typhoon Sally surge at tide gauge 5: Zhapo, China (inset or see Figure 1 for location), located closest to Zhapo station in the early hours of 9th September 1996 (green vertical line). Firstly (a) comparing total sea levels, and then (b) comparing surge-only water levels.

Table S1 – New - The Root Mean Square Error (m) between (a) measured (tide gauge) and modelled total water levels and (b) tide-removed measured data and modelled surge-only water levels from all the validation simulations.

Typhoon name (date)	(a) Total Water Level RMSE (cm)		(b) Surge-only Water Level RMSE (cm)	
	ERA5 data	IBTrACS data + Holland model	ERA5 data	IBTrACS data + Holland model
Maring (September 1996)	33	30	20	15
Linda (November 1997)	41	28	39	20
Mangkhut (September 2018)	42	20	36	15
Ketsana (September 2009)	40	18	34	10

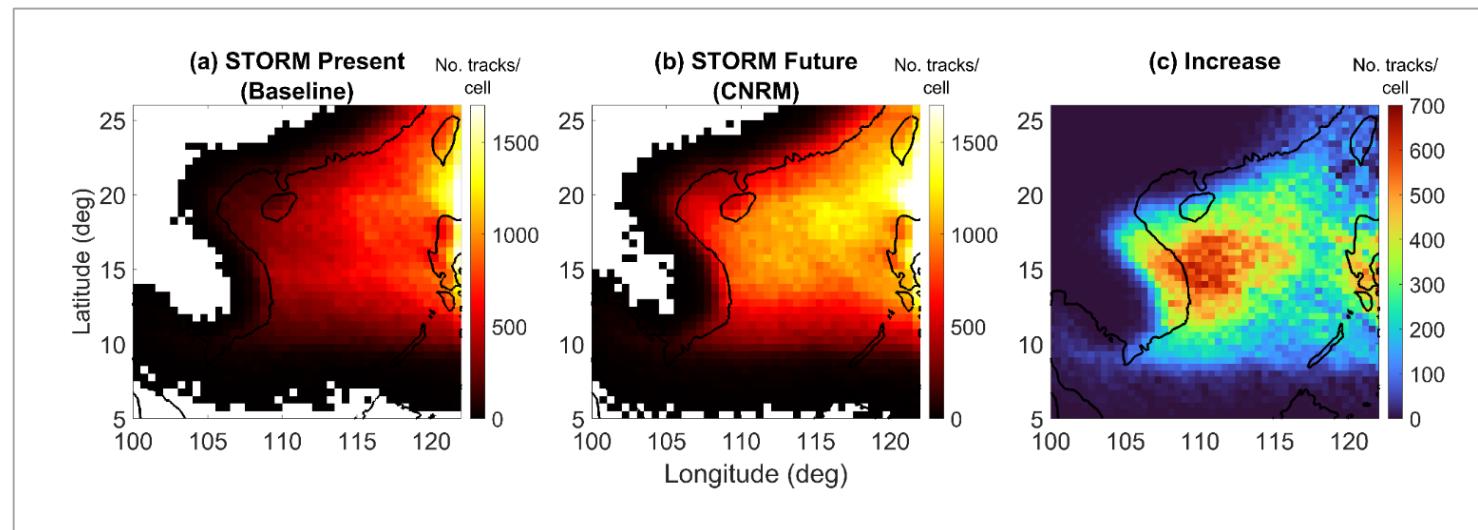


Fig 5. Revised - Left: Baseline STORM track density of Saffir Simpson Category 1+, Middle: CNRM climate model- Future STORM track density, of Saffir Simpson Category 1+, and Right: The cyclone path density difference between them (Saffir Simpson Category 1+ only - i.e. excluding Tropical Storms). Track density is the number of tracks passing through a grid cell.