Supplementary material of "Classification of North Atlantic and European extratropical cyclones using multiple measures of intensity"

Joona Cornér, Clément Bouvier, Benjamin Doiteau, Florian Pantillon, Victoria A. Sinclair

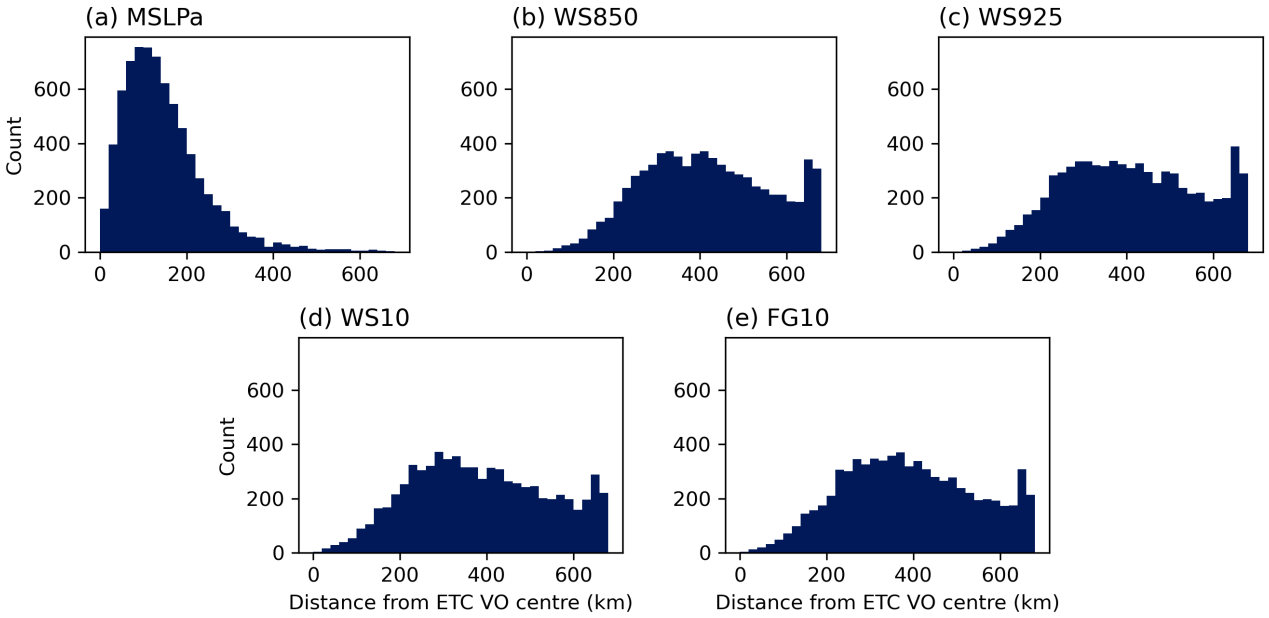

Figure S1: Distance of intensity measure extrema from ETC VO centres determined with TRACK.

Seed / n	S1		S2		S3	
	Mean	Variance	Mean	Variance	Mean	Variance
4	0.00	0.00	0.00	0.00	0.00	0.00
5	0.72	0.24	0.72	0.23	0.72	0.24
6	0.81	0.76	0.78	0.78	0.78	0.77

Table S1: Mean and variance of cluster labels repeated with different number of clusters n and different seeds to create 1000 GMM test samples. The numbers on the average columns represent the stability scores described in Sect. 3.3. The reference seed is kept the same every time.

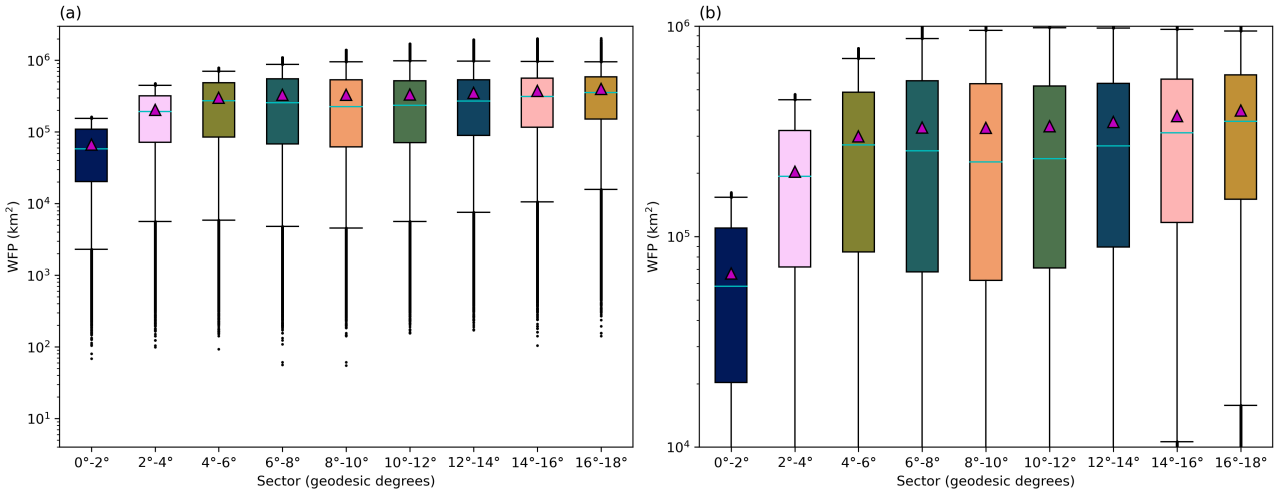

Figure S2: Wind footprint contribution to total wind footprint from circular sectors around ETC VO centre. Boxes extend from the first to the third quartile, whiskers are at 5th and 95th percentiles, cyan lines show the mean and magenta triangles the median. Panel (b) is a zoomed in version of panel (a) which shows the full extent.

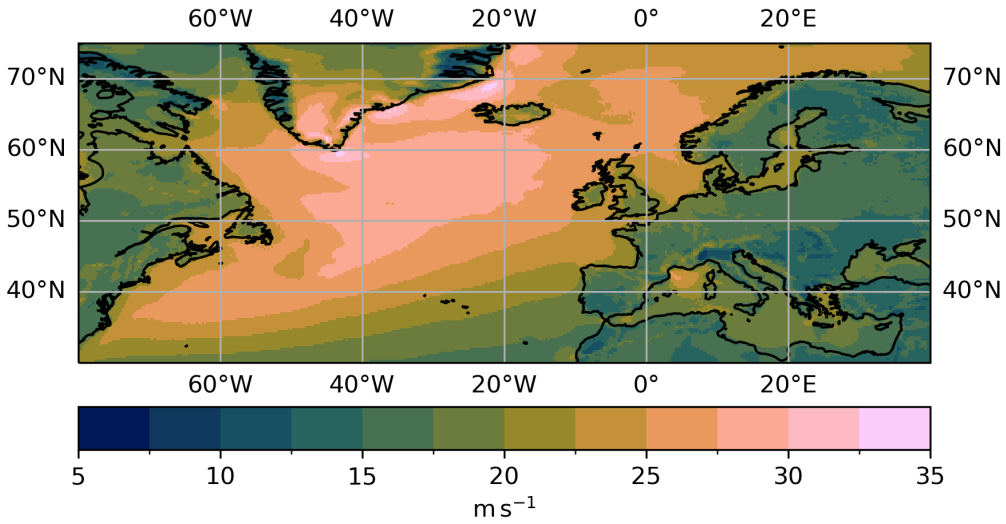

Figure S3: Climatological values of the 98th percentile of 10 m wind gust for the period October 1979–March 2022.

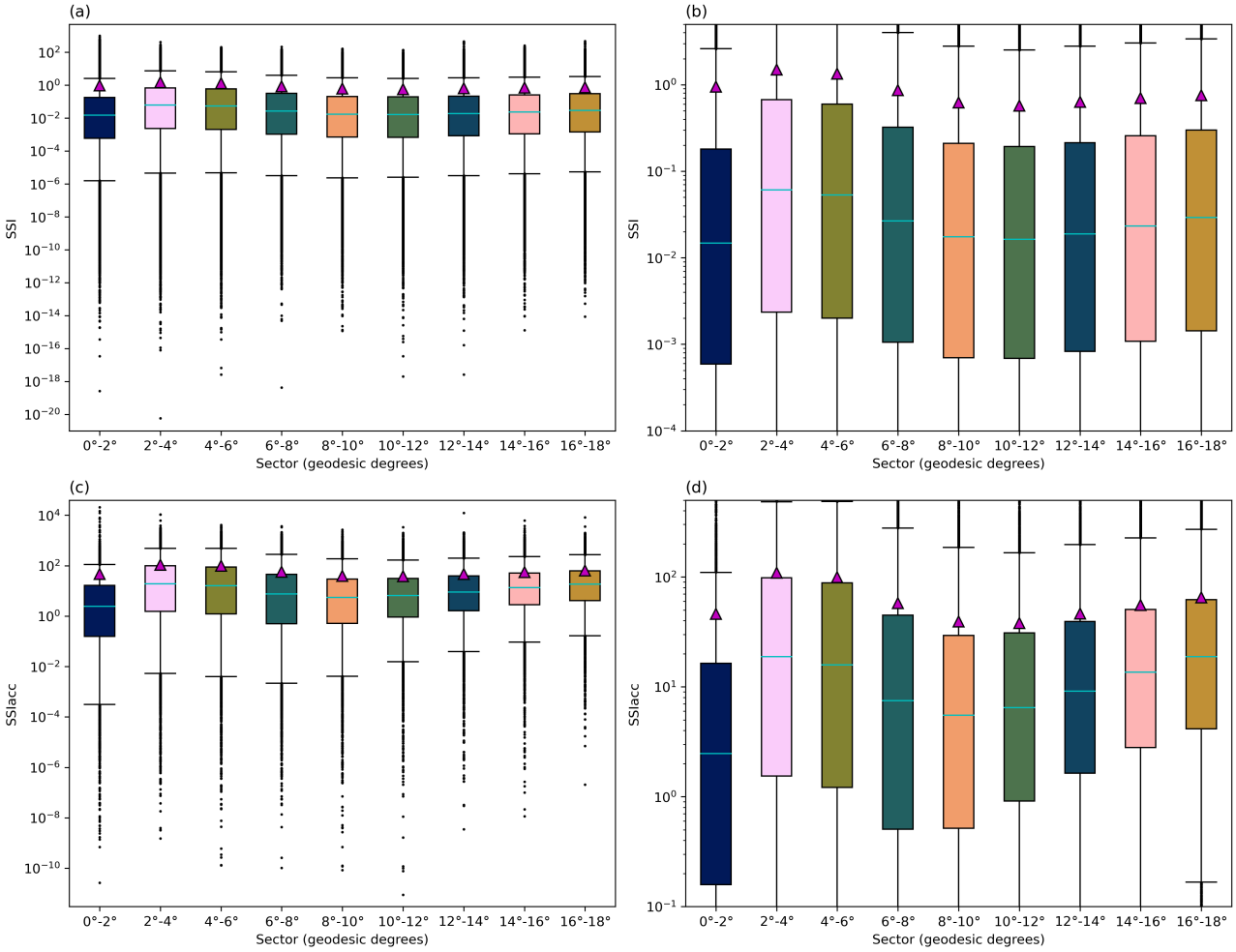

Figure S4: Storm severity index contribution to total SSI from circular sectors around ETC VO centre. Boxes extend from the first to the third quartile, whiskers are at 5th and 95th percentiles, cyan lines show the mean and magenta triangles the median. Panel (b) is a zoomed in version of panel (a) which shows the full extent of SSI, and panel (d) is a zoomed in version of panel (c) which shows the full extent of SSIacc.

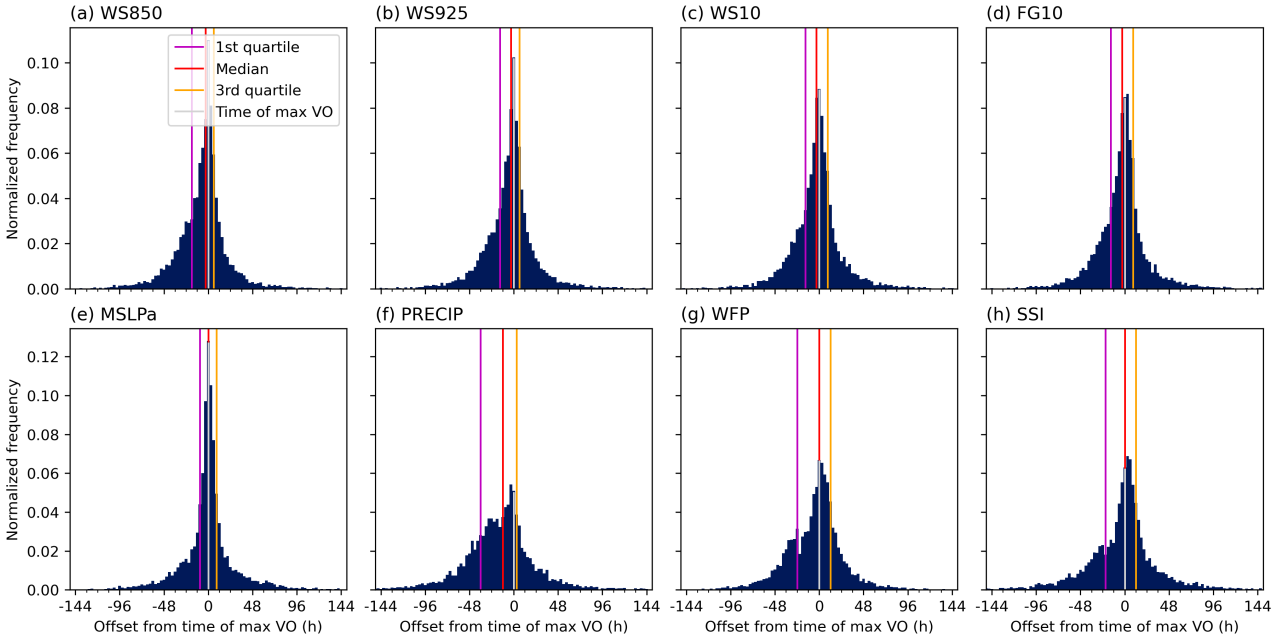

Figure S5: Occurrence time of extreme value of intensity measures along the ETC track w.r.t. time of maximum VO. Negative values indicate that the extreme value is reached before and positive values after time of maximum VO.

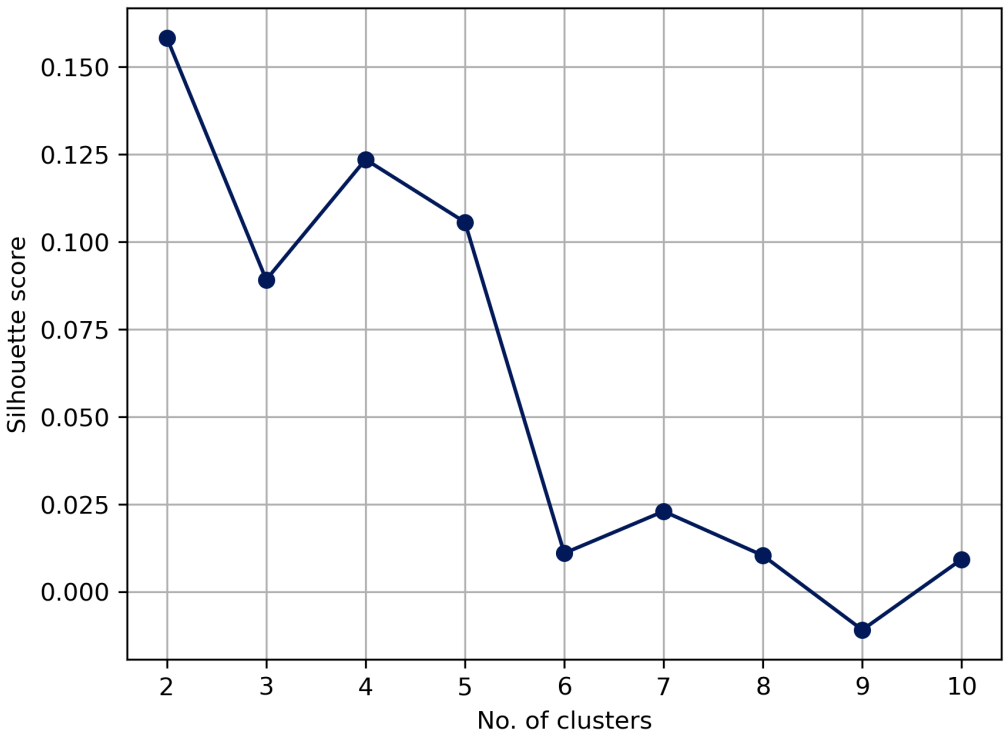

Figure S6: Silhouette score as a function of number of clusters in the GMM cluster analysis.