

1 Define settings
e.g. # years, area of interest, point per KDE

2 Construct statistics of original data
e.g. probability genesis/termination, Markov-chains

3 Compute cyclone genesis
i.e. time, location and v_{max} , c , and θ

Simulate synthetic tracks
every time step

4 Compute new location and intensity
Randomly sample the three TC variables
Intensity (v_{max}), forward speed (c) and heading (θ)

5 Compute landward decay
landward decay based on Kaplan and De Maria (1995)

6 Terminate track
a. probability, b. wind speed, c. SST

7 Validate track

Retry

8 Finalize tracks

8 Track simulation complete

9 Create temporally and spatially varying surface wind field maps
via Holland wind profile

10 Create wind swaths (extreme wind velocities)
Based on defined return periods both non-parametric and parametric (POT/GPD)

No

Yes

Yes

Yes

No