

# Clustering sea-states with K-means

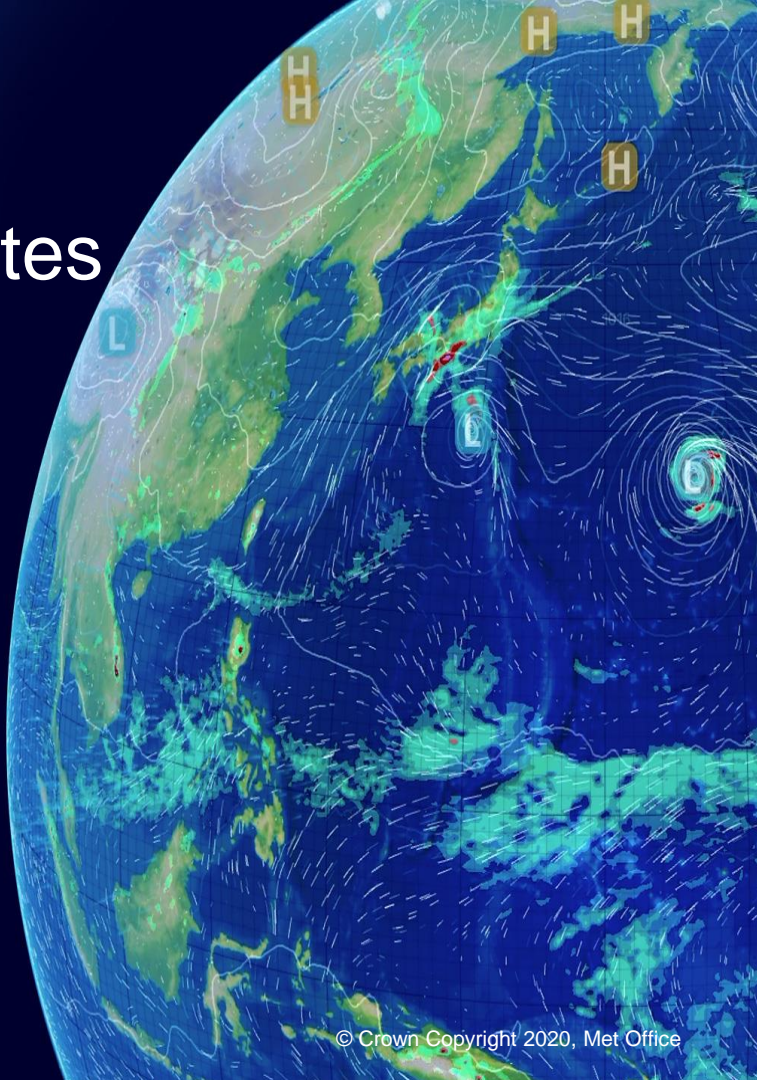
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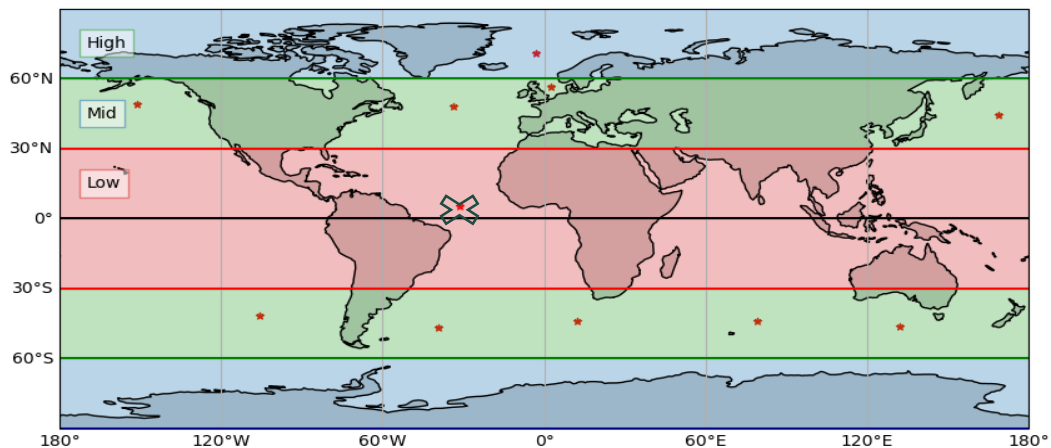
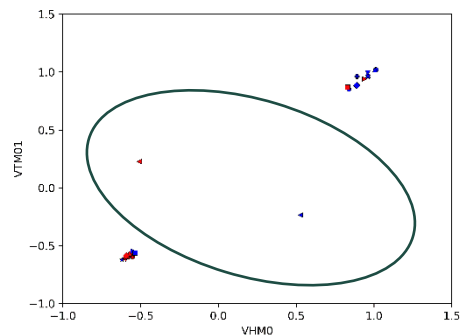


# Motivation

- Saving the 2D spectra for each grid point requires high memory usage and in cases is impossible
- However, needed for many applications
- Partitions are used for saving the information and reconstructing the 2D spectra
  - Looking to better label seas and swells from a topographically partitioned output

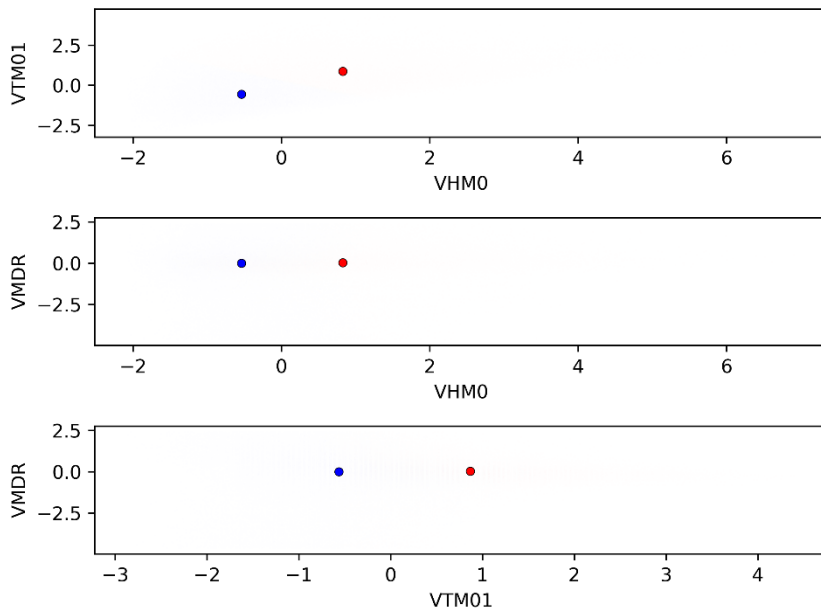
# K-means clustering based on HC data

- Use of hindcast data from different locations
- Mainly in mid and high latitudes, while checking also low latitudes
- Parameters: Hs (VHM0), mean period (VTM01), Wave direction (VMDR) – scaled

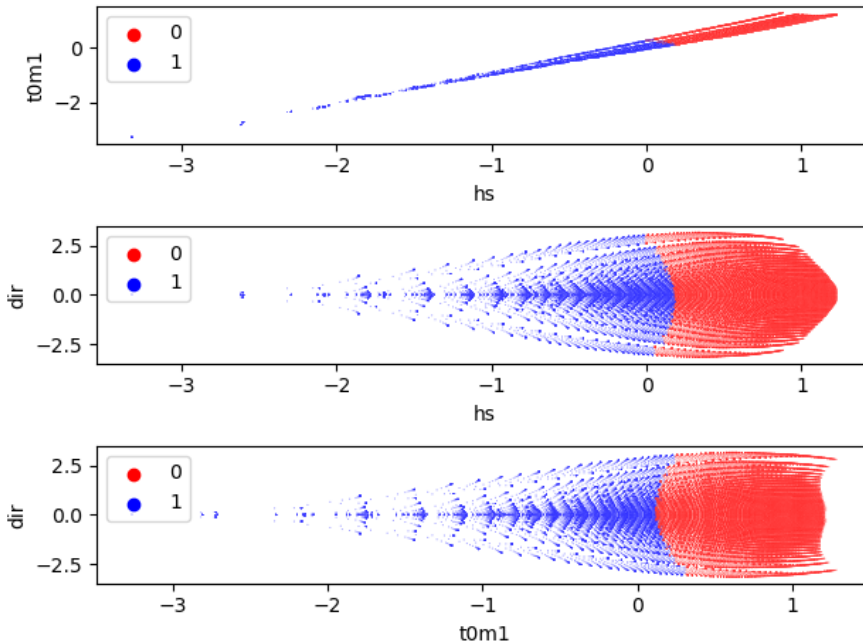


# Training real data

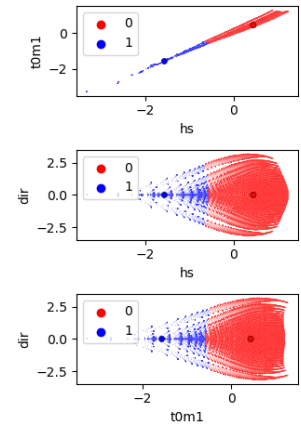
Combine all (good) locations and find clusters/centroids



# Predict clusters of idealised/bathtub conditions



Example:  
10 m/s wind speed  
Fixed point  
10 km domain



*Example when training and predicting on idealised conditions for comparison*

# Next step...

- Refining input parameters
  - Direction was a risk...Location influenced
  - What parameters are useful for the swell/sea classification?
  - Which ones helpful, but location influenced
  - Example

Option 1	Hs	Tmean	
Option 2	Hs	Tmean	Directional Spread
Option 3	Hs	Tmean	Steepness
Others	(suggestions?)		

Thank you!

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