

## Table 2:

***MHWControlGUI\_updated.m***

***MHWControlGUI\_updated.fig***

Above code uses the processed region MHW data and opens it in a GUI that calculates the size, maximum intensity etc of manually selected MHW. Data derived from the output of this function are used to populate table 2

Process raw NOAA OI data to regional subsets that contain SSTA and MHW categories (for use in the above codes):

***parallel\_process\_data\_to\_regional\_blocks.sh***

Concatenates files into continuous time series in blocks of 30o x 20o (lon x lat)

Automatically spans multiple parallel jobs, 1 for each block

***parallel\_process\_MHW\_regional\_blocks.sh***

Parallel processing of regional blocks to calculate MHW statistics using:

Uses: ***marineHeatWaves90.py***

***parallel\_process\_MHW\_regional\_blocks\_98pc.sh***

As above but uses the 98% criteria used for Table 2

Uses: ***marineHeatWaves98.py***

## Figure 3:

***summary\_fig\_detrended\_corrected.m***

Collates information for significant increases/decreases in MHW day occurrence associated with different climate indices and generates fig. 4

***summaryFig\_modesVS\_mhw\_detrended\_corrected\_aug2018.m***

Generates data for the above script. Calculates increase/decrease in marine heatwave days at each grid point and tests if the change is significant (based on Monte Carlo test)

***load\_modes.m***

Used in the above. Loads climate indices (based on the following data files):

NAO.txt

AMO.txt

nino34.txt

PDO.txt

TPI\_IPO.txt

ANino.txt

SAM.txt

MODOKI.txt

DMI.txt

NPGO.txt

***parallel\_process\_MHW\_regional\_blocks\_2degree.sh***

Calculate regional MHW statistics from raw NOAA OI SSST data for use in summary\_fig\_detrended\_corrected.m

Uses: ***regional\_MHW\_pc90\_reducedFileSize\_2degree.py***

## Figure 4:

***plot\_regional\_anomaly\_drivers\_corrected.m***

Processes data for Figure 4: MHW days associated with each mode/region

***regional\_anomaly\_drivers\_cumulative\_stats\_detrended\_corrected.m***

Generates data for above script. Calculates increase/decrease in marine heatwave days for each region and tests if the change is significant (based on Monte Carlo test)