School of Biological, Earth and Environmental Sciences

# Summer Vacation Research Project

## Australian east coast lows in satellite wind data

**Supervisors:**

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**Project Description:**

Extra-tropical cyclones can be identified using a variety of 2-dimensional fields including mean sea level pressure, relative vorticity (e.g. at 850 hPa) and/or geopotential heights (e.g. 925 hPa). While all these fields provide appropriate characteristics and yields qualitatively similar results, they are all poorly constrained by observations, particularly over the oceans. As a consequence, results are sometimes largely dependent on the specific model used by the reanalysis product. For example, Australian East Coast Lows (ECLs) spend much of their life-time over the ocean where measurements of sea level pressure do not exist and substantial variation between different reanalysis can occur.

This project will implement an algorithm to identify ECLs using only surface wind fields as derived from satellite measurements. These results can then be used to evaluate the representation of ECLs in reanalysis products and to compare with results obtained using other meteorological fields. A number of cyclones characteristics will be used in the evaluation process such as their frequency, size and translation speed.

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