Modelling Tropical Cyclones in the West Pacific

Supervisors: Professor Ralf Toumi (r.toumi@imperial.ac.uk) and Dr Ian Macadam (UK Met Office)

Department: Physics

Tropical cyclones are one of the most dangerous natural hazards. There are many aspects of tropical cyclones that remain poorly understood. We are working with the UK Met Office to improve the modelling of this hazard particularly for the Philippines which is very vulnerable. Your research will aim to answer some of these questions:

1. What will be projected climate change of typhoon frequency, intensity, size, track, rainfall for the Philippines?

2. What is the down-scaling uncertainty using different regional climate models?

3. Can we parameterise the cold wake ocean negative feedback which is missing in the regional model?

4. What are the most damage relevant meteorological variables and indices?

5. How can we correct biases in regional climate model tropical cyclone outputs?

6. How important are different tropical cyclone tracking schemes to the results?

7. What are the benefits of higher model resolution?

To answer these questions you will be using UK Met Office regional climate model outputs and the existing fully coupled atmosphere-ocean regional and tropical cyclone model already running at Imperial.

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