Kaye and Laby say one cubic metre of air at 30C at sea level can hold 30.35 grams of water vapour with a latent heat of 2429.93 Joules per gram. A cubic kilometre of saturated air therefore has more energy than the 13 Megaton bomb used at Hiroshima. Numbers such as these have convinced meteorologists that we cannot control climate. But the need to prevent extreme flood events means that, however difficult the task seems, we must try.

The paper stems from a remark made by the distinguished Indian authority on monsoons PR Pisharoty that, at sea surface temperatures above 28C, the bulk aerodynamic formula based on Prandtl’s eddy process, and used by many people to predict evaporation rates, breaks down. The buoyancy of the saturated air produces rapid convection which will saturate the entire air column to heights of around five kilometres.

In calm conditions the initial slope of the sea temperature profile can be 1.5C in 0.5 metres and, even at a wind speed of 10 metres per second, the warm depth is only about 10 metres. The question is can renewable energy sources reduce the sensible heat of a thin layer but large area of ocean below Pishoraty’s trigger point?

The paper will describe three ideas. One is Latham’s suggestion for exploiting the Twomey effect to increase cloud albedo. Two uses wave motion to move surface water below the thermocline. Three is increasing stability of the lower marine boundary layer by, paradoxically, deliberately increasing the evaporating area.