



Mesoscale flows and climate variability

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Thermally driven mesoscale flows, in particular the sea breeze, and their importance for the climate of a mid-latitude island is assessed by observations from Iceland and numerical simulations over idealized and real topography. Subsequently, an extended summertime period is simulated with surface conditions that correspond to current climate as well as surface conditions that are plausible in a future warmer climate with increased vegetation. A change in the albedo and the Bowen ratio results in changes in the sea breeze, leading to mean temperature changes whose magnitude is more than half the predicted temperature increase in the 21st Century by some GCMs.