Over the past 50 years the area of the tropical warm-pool - defined as the region of ocean with sea-surface temperature (SST) above 28°C - has increased by 50%. However, a recent hypothesis due to Hoyos & Webster argues that over the same period, the region over which latent heating dominates over radiative cooling in the atmosphere - the so called 'dynamical warm-pool' (DWP) - has remained relatively constant. Instead, it is the intensity of the latent heating that has increased - by some 15%. The DWP hypothesis is investigated using a regime based analysis of ISCCP global cloud data. This method allows the tropical atmosphere to be described as a discrete number of convective and non-convective weather states with different latent heating characteristics.

While, the relatively small number of years for which the data is available, and calibration problems with the ISCCP data itself limit the strength of conclusions that can be drawn, preliminary results support the DWP hypothesis. There is no evident increase in extent of the regions where convective regimes dominate, despite some change to the distribution of SSTs. Additionally there appears to be a shift toward the most strongly convective regime in areas that are already convective, thus implying an intensification of latent heating in these regions.