



Physics of Stratocumulus Top: comparison of large eddy simulations of "non-classical" stratocumulus with airborne measurements

M.K. Kopec (1), S.P. Malinowski (1), I. Jen-La Plante (1), K. Nurowska (1), and Z.P. Piotrowski (2)

(1) University of Warsaw, Institute of Geophysics, Faculty of Physics, Warsaw, Poland, (2) Institute of Meteorology and Water Management - National Research Institute, Warsaw, Poland

The POST (Physics of Stratocumulus Top) field campaign took place in 2008 near Monterey Bay. Its main goal was to investigate the physical processes that occur near the top of stratocumulus clouds, by means of high-resolution airborne measurements. Data from 17 research flights indicated that two distinct stratocumulus regimes were observed. The first one, denoted as "classical", was characterized by a shallow, strong temperature inversion accompanied by a sharp jump of humidity. Clouds below such inversion were characterized by a systematic increase of liquid water content with height and are widely discussed across the scientific literature. A second regime, denoted as "non-classical", was characterized by a weaker jump of temperature and humidity, as well as the presence of a diluted cloud top layer a few tens of meter deep, and is much less studied. Data from one of the non-classical cases (flight TO13) was used to set up large eddy simulations (LES) of non-classical stratocumulus. Results of these simulations, made with the EULAG model, will be compared to the high-resolution airborne measurements, to explain the features of the non-classical regime.