Geophysical Research Abstracts
Vol. 12, EGU2010-1877, 2010
EGU General Assembly 2010

An interaction between sea breezes and cumulonimbus clouds over Istria during summer months

Maja Telisman Prtenjak, Karmen Babić, and Petra Mikuš
Faculty of Science, University of Zagreb, Department of Geophysics, Zagreb, (telisman@irb.hr)

In this study, we first tried to determine a climatological relationship between a sea breeze on the coast and a cumulonimbus cloud over the Istrian peninsula. Their relationship was analyzed by the available standard measurements at two stations: Pula-airport and Pazin during summer months (from June to September) for the period 1997-2006. For this purpose, the surface wind measurements, the air and sea surface temperatures, as well as cloudiness and their interrelationships were analyzed. The analysis showed that the cumulonimbus developed more often in certain meteorological conditions. Those were: (1) sea breeze speed at Pula-airport in the range of 3 - 5 m s-1, (2) maximum temperature difference between the sea and land at Pula-airport around 4 °C, and (3) maximum air temperature in Pazin in the range of 25 to 31 °C. In average, the nighttime and early morning land breeze was weaker and the air temperature was higher on days with the cumulonimbus when compared to the same features on days without the cumulonimbus at Pula-airport.
In the second part of this study, the satellite images from the period 2000-2006 obtained by the geostationary satellites Meteosat 7 and 8 were used. The main goal was to detect the spatial distribution and temporal development of the chosen cumulonimbus events (30 of them). Two characteristic places of the cumulonimbus development were noted: the northern and the southeastern part of the Istrian peninsula. The cumulonimbus would usually form between noon and 2 p.m., lasting in general 3 to 5 hours and disintegrating between 4 and 5 p.m. local time.