EMS Annual Meeting Abstracts,
Vol. 6, EMS2009-138, 2009
9th EMS / 9th ECAM

9th EMS Annual Meeting
9th European Conference on Applications of Meteorology
High resolution meteorology
- applications and services

Water balance components and climate change in Croatia

V. Vucetic

Meteorological and Hydrological Service of Croatia, Zagreb, (vucetic@cirus.dhz.hr)

The openness of the continental part of Croatia towards the north and the separation of the Pannonian flatland from coastline by relative high mountain barrier of the Dinaric Alps produce a continental, mountain and Mediterranean climate in Croatia. Climate change has become an important issue for agriculture in recent years since agricultural production is highly sensitive to weather and water scarcity and consequently to climate change. The special problem with drought and difficulties in water supply and water management exist in the eastern and southern Croatia in the summer. The soil with karst porous base and unsuitable annual distribution of precipitation amount make the mid-Adriatic coast and islands the driest region in Croatia. Therefore, the main goal is to research the secular variations of water balance components using the Palmer method in the most vulnerable dry region in Croatia vs. wet region. The results have been established the intensity of regional impact of climate change on regime of precipitation, evapotranspiration and soil moisture. The increase in potential evapotranspiration and decrease in runoff and soil water content were observed in both regions which mostly became significant in the 1980s. However, contrary linear trends (negative in the dry region and positive in the wet region) were noticed in actual evapoptranspiration, moisture loss from the soil and recharge. The reason of that is a significant and faster decrease in annual precipitation and deficit of rainfall in dry region than in wet region in warmer season. Thus, combined influence of precipitation and air temperature affects the decrease in soil water content and runoff that it could have negative consequences on vegetation and agricultural production, particularly in the driest and most vulnerable region in Croatia – in the mid-Adriatic area.