



Nonstationary influence of ENSO and NAO on precipitation over Romania

C. Boroneant and M. Ionita

National Meteorological Administration, Sos. Bucuresti-Ploiesti 97, 013686 Bucharest, ROMANIA (Email: boroneant@meteo.inmh.ro; Fax: +40 21 2307762)

We investigate the influence of El Nino-southern oscillation (ENSO) and North Atlantic oscillation (NAO) variability during winter (represented by the NINO3,4 and NAO indices, respectively) on precipitation anomalies over Romania. First, we analyze the seasonal precipitation anomalies during winter and spring at 14 stations in connection with the large-scale circulation over the Atlantic-European sector during the period 1900-2000. Then, we examine the ENSO-precipitation relationship from a 21-year running correlation for all stations. Three periods with relatively stable ENSO-precipitation relations can be identified: 1900-1925 when most of Romanian stations exhibit weak negative correlation indices with NINO3,4 temperatures ($r = -0.2$); 1931-1956 when the correlation is positive ($r=0.2$ to 0.6) and 1987-2000 when the correlation is again negative ($r = -0.2$). The running correlation between NAO and precipitation anomalies in Romania shows negative correlation at all stations but the correlation is mostly significant during the periods 1931-1956 and 1987-2000 ($r = -0.4$ to -0.8). We analyze also the sea-level pressure composites over the Atlantic-European sector associated to warm/cold ENSO events, positive/negative NAO phases and simultaneous ENSO/NAO events generating precipitation anomalies over Romania, and try to explain the physical mechanisms responsible for the corresponding patterns.