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Understanding and attributing the Euro-Russian summer blocking signatures

P. M. Ruti (1), A Dell'Aquila (1), and F Giorgi (2)

(1) Energy and Environmental Modeling Unit, ENEA, Roma, Italy (paolo.ruti@enea.it, 00390630484072), (2) ICTP, Trieste, Italy

Understanding the low-frequency variability of the atmosphere is of crucial importance for determining impacts on surface climate, such as heat waves, drought and intense rainfall events. The Northern Hemisphere climate features the blocking events as a relevant ingredient of the atmospheric variability both in winter and summer. Atmospheric mid-latitude blocking is a long-lasting (more than 5 days) anomalous flow pattern whose horizontal extension ranges between the cyclonic and planetary-wave scale. In particular, in this work we focus onto summer blocking events over Euro-Russian region. This kind of events can be related with the summer heat waves.
A comprehensive analysis of the main characteristics of summer Euro-Russian blocking events as represented in global Reanalyses as well as in atmospheric simulations of the Climate of the 20th Century Clivar project will be here presented. The question if recent summer blocking events over Europe can be attributed to anthropogenic forcing has not been fully addressed. The availability of ensembles of long climate simulation with natural and all forcing (including anthropogenic effects) allows us to determine if there is a significant difference between natural and anthropogenic induced summer blocking events and if this signature can be detected in surface temperature.