Geophysical Research Abstracts, Vol. 9, 09692, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-09692

Precipitation in the Mediterranean Region: present trends and climate change

P.Lionello
University of Lecce, Italy, (piero.lionello@unile.it)

Water is a very critical issue in the Mediterranean region, because future water shortages could affect a significant fraction of the population and agriculture activities. Problems are related not only to a decline of precipitation, but also to its highly variable space and time distribution. Particularly African and Middle East countries would be particularly vulnerable to irregular or diminished future availability of water. Therefore progress in the understanding of the precipitation and water cycle processes has important environmental, societal and economical implications in the Mediterranean area, where lack of readiness and adequate adaptation strategies could result in critical situations. In the second half of the 20th century, the Mediterranean region presents a large negative trend in winter precipitation, linked to the positive phase of NAO, but somehow larger than what suggested by the positive NAO trend. There is no clear evidence of a trend in summer precipitation for the entire Mediterranean if the whole second half of the 20th century is considered, but there are suggestions of a drier summer season during the last two decades. Moreover a change of statistical distribution of precipitation events has been detected in some areas, mainly in Italy, with a percent-wise reduction/increase of the frequency of intense/weak precipitation events. Global simulations of future climate suggest increasingly drier conditions both in the wet and in the dry season (an average 20% reduction), irregular precipitation in both seasons (the interannual variability is projected to increase 40% in the dry season). This climate change signal is projected to increase with the GHG concentration. The reduced precipitation would affect most of the Mediterranean, but the North-West area in winter. Particularly critical situations appear to be the much drier summer seasons in the Ebro, Po and Croatian river basins, and the drier autumn seasons for Greek and Turkish rivers.