



## **Extreme Drought events comparison using PDSI and SPI indexes.**

I. Bordi (1), K. Fraedrich (2), M. Petitta (1) and **A. Sutera** (1)

(1) Department of Physics, University of Rome "La Sapienza", P.le Aldo Moro 2 00185 Rome, Italy (marcello.petitta@roma1.infn.it), (2) Meteorologisches Institut, Universität Hamburg, D-20146 Hamburg, Germany

In the present paper we will compare the statistics of extreme as deduced from the monthly Palmer Severity Drought Index (PSDI) and The Standardized Precipitation Index (SPI) both for dry and wet periods.

The data to compute the two indices are extracted from NCAR/NCEP archive and from the NASA Goddard Institutes for Space Study and they span a period of about 100 years (Dai, A., K. E. Trenberth, and T. Qian, 2004: A global data set of Palmer Drought Severity Index for 1870-2002: Relationship with soil moisture and effects of surface warming. *J. Hydrometeorology*, 5, 1117-1130). We found that, while the SPI has a Gaussian distribution, the PSDI departs significantly from a Gaussian distribution for the presence of significant skewness and kurtosis. This allows to compare the statistics of extremes for two different stochastic processes having different distribution. Next we considered also the spatial distribution of the extreme events over different regions of the world.

The authors are grateful with the anonymous referees for accepting their paper.