Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11681, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11681
EGU General Assembly 2008
© Author(s) 2008

Multitemporal NDVI SPOT VEGETATION images analysis for vegetation stress monitoring

E. Savin, A. Nertan, C. Flueraru
National Meteorological Administration, Bucharest, Romania

The years 2000, 2003 and 2007 were characterised like hot, sunny and dry in all Europe. The high temperatures and lack of precipitation had significant implications upon the agricultural, water management strategy and population health. Water and thermal stress of vegetation is well known as drought phenomena affect large areas and it is difficult to monitor them by conventional systems. Romania is a drought-prone country due to its excessive temperate climate with climatic and hydrologic parameters largely deviating from normal values.

This paper presents a multitemporal NDVI SPOT VEGETATION images analysis for vegetation stress monitoring in Romania. Decadal NDVI SPOT VEGETATION products were used over the period 1998-2007.

The study was carried out on two spatial scales: a one-crop type field scale and a country scale. Thermal and water stress impact on crops are different depending on region and crop type.

In order to study vegetation stress on field scale, land use/cover map elaborated from IRS images was used. Zones of winter crops, summer crops, pastures and orchards were selected. For winter crops, the test zones are situated within the Romanian Plain. The summer crop areas are located in the Romanian Plain and on hills. Pastures and orchards are situated in the mountains.

NDVI time series were created for the three vegetation types (winter crops, summer crops and grass), while annual vegetation condition index curves together with maximum, minimum and average curves, and differences between smoothed annual VCI

values and linear regression for selected decade were computed. Multi-annual averages were computed for the whole data set. For the decades corresponding to May, June and August, difference-images were computed between multi-annual images and decadal images.