Geophysical Research Abstracts
Vol. 15, EGU2013-13530, 2013
EGU General Assembly 2013

Drought risk assessment of food security in a regional climate model perspective

Sandro Calmanti (1), Tinebeb Yohannes Gelassie (1), Joanna Syroka (2), Grigory Nikulin (3), and Colin Jones (3)
(1) ENEA, UTMEA-CLIM, Italy, (2) UN World Food Programme, NY, Usa, (3) Rossby Center, SMHI, Sweden

We test the potential added value of high-resolution dynamical downscalings of climate simulations for impact studies in the sector of food-security.
We use the risk assessment platform – Africa RiskView (ARV) - developed by the office of Climate and Disaster Risk Solutions of WFP as the underlying impact model.
As a test, retrospective case, we consider the ERA-Interim reanalysis and three downscalings performed by Swedish Meteorological and Hydrological Institute (SMHI) at three different horizontal resolutions (44Km, 22Km and 11 km). Aim is to compare the outcome of the impact model under different climate forcings with a unique historical record of humanitarian interventions maintained by WFP.

The analysis shows a consistent picture in which coarser donwscalings imply a downgrading of the predicting skills of the impact model with respect to the driving glabal scale data. Some skill is recovered at intermediate horizontal resolution and finally the 11-Km resolution downscaling shows a predicting skill that is in line with that of the rainfall observations is routinely adopted at WFP for monitoring and early warning.

Building on the calibration described above, we perform a climate change stress test using model simulation included in the CORDEX database.