

Assessment of Drought in Regions of Pakistan using NDVI in Relation to Different Rainfall Regimes

Minha Naseer¹, Dr Bushra Khalid¹

¹ *International Islamic University Islamabad, Pakistan*

NDVI is a useful tool for large scale and long term monitoring of land degradation and droughts. This paper illustrates the correlation between NDVI and rainfall patterns for the drought conditions between time periods of December 2011 to July 2012 in Pakistan. Rainfall data for 77 stations was obtained from Pakistan Metrological Department, Islamabad. Images of MODIS, MOD13Q1 (16 day composite NDVI) were obtained from Global Agricultural Monitoring (GLAM) Project for the period 3 December 2011 to 28 July 2012. Software R for windows was used to figure out correlation among different precipitation patterns and NDVI. Stations were classified as Q1, Q2, Q3 and Q4 according to the amount of rainfall received. Q1 (low rainfall), Q2 (moderate rainfall), Q3 (high rainfall) did not show significant difference in their correlation but the difference was significant in case of Q4 (areas with high rain fall). The study was focused on four provinces of Pakistan and it shows area with extreme and high rainfall were in Punjab and KPK while Baluchistan and Sindh received less rainfall. Detailed analysis revealed that NDVI and rainfall patterns have a strong relation and NDVI is a good indicator of drought conditions. It can show water stress and vegetation health thus an efficient tool for timely monitoring dry conditions.

Key words: droughts, NDVI, rainfall, composite.