

Application of MODIS data and the Vegetation Condition Index in the assessment of agricultural drought in Santa Catarina

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Observation of in situ parameters can evidence the occurrence of agricultural drought, as well as vegetal canopy characterization data, like vegetation indexes. These indexes are product of remote sensing and a important tool that can cooperate for the management of drought socioeconomic effects. In this paper, it was related yield drop data of corn caused by agricultural drought with the Vegetation Condition Index (VCI), calculated from Enhanced Vegetation Index images, during the period of january 2002 to december 2015, in the state of Santa Catarina/ Brazil. Images of the vegetation index and graphs of relation between yield and the VCI were generated. The harvests with lower values were obtained in 2004, 2008 and 2011, whereas the best values were obtained in the harvests of 2002, 2006, 2007, 2009 and 2010. The variance of VCI values corresponded to the corn yield in almost all microregions and most of the period evaluated. The crop shortfall occurred only below VCI 0,633. The coefficient of determination between yield and VCI were 0,58. The use of EVI for calculating the VCI was satisfactory, once that it evidenced the most severe cases of agricultural drought in the microregions evaluated.