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The role of satellite derived Vegetation Health Index and Aridity Index in agroclimatic zoning

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Agriculture is a primary economic activity which is highly dependent on environmental conditions. The agroclimatic potentialities of agricultural areas have to be assessed in order to achieve sustainable and efficient use of natural resources in combination with production maximization. In this paper, the role of two satellite derived indices in agroclimatic zoning is presented. Aridity Index (AI) and Vegetation Health Index (VHI) are important for defining zones where plant growth is limited by water availability. AI represents climatic aridity and is used to determine the adequacy of rainfall in satisfying the water needs of the crop while VHI represents agricultural drought and is used to express the presence of moisture and thermal stress affecting crop growth and finally yield. Also, the pattern of combining the categories of the indices in order to comprise new classes indicating water limitations or availability is investigated. The satellite data that are used are from NOAA/AVHRR platform. The study area is the aquatic district of Thessaly, located in Central Greece. Since the definition of Water Limited Growth Environment (WLGE) areas will be further used in agroclimatic zoning, the two indices are computed on monthly time step for twenty successive years, for the hydrological years from 1981 to 2001. The final product is a thematic map representing WLGE zones for the area under investigation.