

## **Vegetation Classification Based on Wetland Indicator Using Remote Sensing and Field Survey (Case Study: International Alagol Wetland)**

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**Receive date:** 2014/10/14

**Acceptant date:** 2015/05/26

### **Abstract**

Many wetland plant species have a wide range of tolerance to changing hydrological conditions and they may also be seen in non-wetland areas. Therefore, an index called “wetland indicator plants” has been defined to classify wetland plants based on their need to water and their distribution in wet areas. Plant identification and generation of wetland vegetation map are important aspects of delineating wetland ecological boundaries. The international Alagol Wetland located in Turkmen plain; North of Golestan Province has a special place in the semi-arid plateau of Iran, and is one of the breeding sites of migratory and resident birds. This wetland’s water body is changeable during the year and the soil can be seen in gradients from totally saturated to only wet in short periods, with the vegetation changing accordingly. Plant communities undergo distinct changes in species composition as one move along the wetness gradient from the center of a wetland to its edge, and into adjacent terrestrial areas. In this study, a preliminary vegetation map was prepared using NDVI index. Then, the dominant plants as indicators of wetlands were sampled and identified. Finally, using a mixture of unsupervised (ISOCLUST) and supervised classification (MAXLIKE) methods, seven classes were identified of which three classes were related to the wetland indicator plants. Wetland vegetation classification is useful in ecological boundary determination and helps in resolving conflicts of wetland protection and other land uses in the periphery of the area.

**Keywords:** Wetland indicator plants, Vegetation Mapping, NDVI, Classification, ISOCLUST, MAXLIKE.