

Application of Fuzzy Sets in Problems of Identification of Vegetation Based on Remote Sensing Data

A. I. Strykov, *Cand. Sci. (Engineering), contact@spacecorp.ru*
Joint Stock Company "Russian Space Systems", Moscow, Russian Federation

N. P. Morozov, *Cand. Sci. (Engineering), contact@spacecorp.ru*
Joint Stock Company "Russian Space Systems", Moscow, Russian Federation

Abstract. The article presents a method of thematic processing of high-resolution satellite images. The method of identification of vegetation with the use of decoding features of objects represented by fuzzy is considered. Thematic interpretation using fuzzy sets is carried out by a method called "voiting on a set of criteria". In contrast to the classical methods of statistical processing (Mahalanobis, etc.), involving the normal distribution of the values of the spectral characteristics of objects, "voiting on a set of criteria" allows to identify objects with an arbitrary law of distribution of the values of the spectral characteristics represented by fuzzy sets, and to increase the reliability of the thematic interpretation results.

The method is implemented and tested in the form of a software package using data from the Russian remote sensing spacecraft "Resurs-P" and "Kanopus-V". The technique can be used for space monitoring of agricultural vegetation, solving environmental problems, etc.

Keywords: identification of objects, decoding characteristics, fuzzy set, spectral characteristics, feature set, "voting on a set of criteria" method