



# The development characteristics of remote sensing classification technology in the Study of vegetation classification

Wangjin<sup>1</sup>

<sup>1</sup> Eerduosi Environmental Protection Center monitoring station, Erdos, Inner Mongolia 017000

**Abstract:** Summary Remote Sensing technology evolving , The applies to vegetation classification studies with the following features : one , Remote sensing data from low-resolution to high resolution ; second , data from the single time Single-source remote sensing classification to multi-phase , Multi-source information fusion development ; Third ,category The method develops from a single classification method to a composite taxonomy ; Fourth , from based on meta category to object-oriented classification direction .

Keyword: Vegetation Classification of remote sensing technology

## 1. Preface

The Development of remote sensing technology provides an update to the study of vegetation distribution , more Diverse analysis means . The development of remote sensing technology is mainly reflected in several aspects : page 1, null resolution increased . 2008 Year U.S. commercial satellite GeoEye -1 has 0.41m Space resolution , to increase satellite data from kilometer resolution to 1 m with under ; second , time resolution increases continuously . First land resources satellite revisit week period Day ,now IKONOS revisit cycle 1.5-3 Day , QuickBird to 1-6 Day ,GeoEye-1 to 2-3 Day ; Third , from multispectral remote sensing to high spectral distance Sense Development . Remote sensing data for the earliest terrestrial resources satellite only 4 band , now load hyperspectral imager EO-1 satellite hyperspectral data to reach band , LEWIS small satellite his Spectrometer band can reach 384 . terrain Information Rich show up , the is particularly significant in the classification and dynamic detection of vegetation .

2. Research status of remote sensing vegetation classification technology in foreign countries for the past more than 30 years , different space , radiation , spectral and time resolution Remote sensing data applied to all walks of life , Remote Sensing technology rapid development . where , vegetation Topic Information Extraction and classification are still remote sensing applications \_ Important research Directions . Many classification methods and techniques have been applied and developed in vegetation classification . foreign Remote sensing applications are older than domestic , back in 20th century 60-70 age, foreign scholar to start using aerial photographs to study certain vegetation types . Enter age, satellite data starts to apply to land use / cover „extraction of vegetation type . Snyder to 1980 Year consolidated RBV and MSS Remote sensing data , sorted by , get to Soviet City land use chart . tuckeretal. uses the NOAA radar data to non- The state of vegetation coverage classification , and dynamically monitor Month vegetation Dynamics features . Enter age, Foreign Scholars apply remote sensing data to vegetation more Add diversity . face complex terrain , same thing anomaly and same spectral foreign body phenomenon significantly , then , Adding a taxonomy of multi-source geographic information begins to gradually replace pure spectra feature classification technology . franklinetal. in Canada Yokon Land utilization for area The class incorporates the digital elevation model , Improved mountain classification Precision ,duncanetal. analyzes spectral obfuscation of vegetation in semiarid regions, and in the New Mexico area The line applies . nemanietal. uses the NOAA / AVHRR data divides vegetation into irrigation Wood and grassland , Wetland Snow , The coronary layer of rough forests, smooth crops , into multiple source information , the establishes a recognition rule based on remote sensing , to classify vegetation by Results and vegetation map results - to . eiumnohetal. Tropical Landscapes in Thailand are divided into class

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added DEM make classification precision increased 15-20%. gergek in near AngolaMountain Select a study area to

use ETM + Data and digital elevation model , to gradient Gradient and other geographic information into the vegetation classification process in the study area , The classification precision increases 10%. Similar research has grown in recent years. , But for remote sensing Data and technology new requirements continue to appear . with SPOT, QuickBird , IKONOS -2, GeoEye -1 resource satellites for high spatial resolution, such as, into application , The appearance of high resolution data greatly improves the precision of vegetation classification , And for The technology of vegetation classification from the integration of Multi-Source information terrain data gradually to the face to the Extraction of vegetation information for elephants . hurdetal. uses the ETM + Data , applies an object-oriented The method detailed classification of wetland vegetation along the Long I. Strait in northeastern United states. laliberteetal. Incorporating decision tree methods into object-oriented classification methods for drought grazing Field Meadows category , Precision reached 80%.

### **3. Research Progress of remote sensing vegetation classification technology in China**

While extensive application of remote sensing techniques for vegetation-related research by foreign scholars, , Domestic scholars are also actively engaged in the study of remote Sensing vegetation classification , and get a results . at low-resolution large-scale remote sensing vegetation research ,NOAA/AVHRR and EOS / MODIS data is widely used . Liu Jiyuan etc (1998 ) use NOAA/ AVHRR Data tests on vegetation classification in Helan mountain area ; Li Junxiang etc ( % ) use AVHRR , NDVI Collection of time series data into remote sensing images , pass Past principal component analysis methods , classifying vegetation in eastern China , gets a more High classification accuracy . Remote Sensing vegetation Classification in medium resolution ,MSS , TM , ETM + data is the most commonly used medium-resolution multispectral data source , vegetation Information for easy extraction , classification methods are gradually developed into Sort methods for multi-source information . Shihujian etc (1995) use TM data and aviation phase piece data , based on spectral characteristics DEM on Sichuan Panzhihua Area vegetation Division class , Average classification precision up to 90% Liu Weiguo (1998) uses the TM image Knot Geographic knowledge of vegetation distribution classification of vegetation in Helan Mountain area , System Graph Precision by traditional method 72% To 81%. go to century, High -altitude commercial satellites with a wide range of applications , SPOT, IKONOS, QuickBird, GeoEye -1 satellite data such as began to be gradually applied to the study of vegetation spatial distribution , Our scholars on the basis of foreign scholars ' study , Also started by the like Meta class approach to the development of object-oriented taxonomy . Zhang Xueru etc ( + ) benefit extraction of high altitude shrub vegetation in ding Yue County by object-oriented method ,classification precision up to 84%; Tri Yijiao etc (2013 ) Apply Object-oriented vegetation classification methods to the West Liao River valley Plain Zhang Triping etc ( a ) in five-point gutter trial zone IKONOS data is combined with DEM Vegetation Classification , and three-dimensional display of , gets a good classification of fine degree and display effect .

### **4. Epilogue**

Overall look at , application and development of remote sensing technology in vegetation classification there are mainly the following Several features : page 1, Remote sensing data from low-resolution to high resolution ; second , data from single phase , Single-source Remote Sensing classification to multi-phase , Multi-source information fusion development , terrain , Texture information more and more integrated into vegetation classification ; third , category The method develops from a single classification method to a composite classification method , often procedure using a variety of methods , To meet the characteristics of vegetation distribution in different regions ; Fourth, The develops from a meta taxonomy to an object-oriented category .

### **References**

1. Tri Yijiao , hosted , Zhao Lijuan . vegetation information based on object-oriented and spectral features extract and analyze [J] . Ecology Report , 2013,33 (3): 867-875.
2. Shihujian , Sun Xing and , Chong . Research on extraction methods of vegetation type information in mountainous regions [J]. Land and resources remote sensing ,1995(3):34-39.

3. Li Junxiang , Da Liangjun , Wang Yujie . Is based on the NOAA - AVHRR in Data Remote Sensing classification of vegetation in eastern China [J]. Plant Ecology newspaper ,2005,29 (3): 436- 443.
4. Liu Jiyuan , Zhuang-Generous . Is based on the GIS A study on the comprehensive classification of vegetation in northeastern China by [/J]. Journal of Remote Sensing ,1998, 2 (4): 285-291.
5. Liu Weiguo , Kang Jianhua . Knowledge acquisition under GIS support and its application in remote sensing Image application of vegetation classification [J ]. Journal of Remote Sensing , 1998,2 (3): 234-240.
6. Zhang Triping , New Jianming , Dong Jianjun . based on | Konos vegetation for data cartography and vegetation space pattern - take five-minute gutter test area for example [J]. Ecology report ,2012,26 (2): 449-456.
7. Zhang Xueru , Liu Linshan , ytterbium Lithium etc . Is based on the ENVI ZOOM Object-oriented High altitude shrub vegetation extraction - for example [J]. Geographic and geographic Information section Learn ,2010,26 (4):104-108.