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## 长白山的台风灾区范围及植被恢复动态——基于遥

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Title: Range of typhoon-stricken area and trend of vegetation restoration in Changbai Mountain:RS-based research

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关键词: 遥感; 台风灾区; 归一化植被指数; 植被恢复; 长白山自然保护区

Keywords: remote sensing; typhoon-stricken area; normalized difference vegetation index (NDVI); vegetation restoration; Changbai Mountain Natural Reserve

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摘要: 通过对1985年和1987年Thematic Mapper(TM)影像中提取出的归一化植被指数进行对比分析,提取了1986年长白山自然保护区内遭受台风袭击后的灾区范围,并通过比较1988年和2007年的TM影像,分析了风灾区的植被恢复过程。同时,结合该地区的地形、水文、土壤和公路数据对风灾区的植被恢复进行了驱动力分析。发现地形驱动因子与风灾区的恢复程度呈高度相关,随着高程、坡度和平地所占比例的减少,恢复程度逐渐变好;此外水文、土壤和人类活动都对风灾区的植被恢复产生一定影响,另外人工干预恢复对植被生长也起着积极的作用。研究结果可供风灾区内植被的进一步恢复和森林防火工作参考。

Abstract: This paper is intended to identify the stricken area of typhoon in 1986 by comparing the normalized difference vegetation index(NDVI) variance extracted from the Thematic Mapper(TM) imageries in 1985 and 1987 in the Changbai Mountain Natural Reserve,and to analyze the process of vegetation restoration in the area in the next 20 years after the striking by comparing the vegetation changes extracted from the TM imageries in 1988 and 2007.The forces driving vegetation restoration was also examined in the paper by utilizing the terrain,hydrology,soil,and road data of the area.Field investigation indicated that the vegetation restored slowly in this area.It was found that terrain was a key factor driving vegetation restoration.High correlation was found between the recovery degree and terrain.The recovery degree increases with the reduction

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of elevation,slope and flat-land.Besides,vegetation recovery is also affected by hydrology,soil and human activities.In addition,the restoration could be accelerated under human interference.This study provided a reference to monitoring vegetation change in typhoon-stricken area.The methodology developed in the study could also be applicable to monitoring vegetation restoration in forest-fired regions.

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## 参考文献/REFERENCES

- [1] 赵晓飞,朴龙国,刘利,等.长白山自然保护区风灾区植被恢复技术研究[J].长白山自然保护,2002,12(1):7-14.
- [2] 郑鹏,陈明俊.长白山自然保护区风灾区恢复景观问题的商榷[J].吉林林业科技,1989,8(4):17-20.
- [3] 赵晓飞,牛丽君,陈庆红,等.长白山自然保护区风灾干扰区生态系统的恢复与重建[J].东北林业大学学报,2004,32(4):38-40.
- [4] 马春林.基于植被指数NDVI的遥感信息提取[J].中国高新技术企业,2008(10):114-120.
- [5] 郑荣宝,庄剑顺,张金前.广州市土地利用与NDVI变化的关联分析[J].国土资源遥感,2008,6(2):102-108.
- [6] 刘雪华,靳强.秦岭中断南坡NDVI格局与生境质量变化研究[J].林业调查规划,2008,33(3):1-8.
- [7] Tuxen K A,Schile L M,Kelly M,et al.Vegetation colonization in a restoring tidal marsh:a remote sensing approach [J].Restoration Ecology,2008,16(2):313-323.
- [8] Jarlan L,Mangiarotti S,Mougin E,et al.Assimilation of SPOT/VEGETATION NDVI data into a sahelian vegetation dynamics model[J].Remote Sensing of Environment,2008,112(4):1381-1394.
- [9] INGRAM J C,DAWSON T P.Inter-annual analysis of deforestation hotspots in Madagascar from high temporal resolution satellite observations[J].International Journal of Remote Sensing,2005,26(7):1447-1461.
- [10] HAYES D J,SADER S A.Comparison of change-detection techniques for monitoring tropical forest clearing and vegetation regrowth in a time series[J].Photogrammetric Engineering and Remote Sensing,2001,67(9):1067-1075.
- [11] Gardner J S.Physical Geography[M].USA:Harper's College Press,1977:123,310-316.
- [12] 常禹,李月辉,胡远满,等.长白山自然保护区历史森林景观的初步重建[J].第四纪研究,2003,23(3):309-317.
- [13] 韩秀珍,马建文,王志刚.内蒙古西鄂尔多斯国家自然保护区植被的遥感分布特征及变化探测[J].地理科学进展,2003,22(1):53-59.
- [14] 候向阳,韩进轩.长白山西坡风灾干扰区的恢复和保护[J].自然资源学报,1997,12(1):29-34.
- [15] 匡文慧,张树文,张养贞,等.吉林省东部山区近50年森林景观变化及驱动机制研究[J].北京林业大学学报,2006,28(3):38-45.
- [16] 李虎,吕迅贤,陈蜀疆,等.新疆森林资源动态分析——基于RS与GIS的森林资源动态研究[J].地理学报,2003,58(1):133-138.
- [17] 梁四海,陈江,金晓媚,等.近21年青藏高原植被覆盖变化规律[J].地球科学进展,2007,22(1):33-40.
- [18] 马俊飞,吕昌河,王茜.基于MODIS NDVI时序数列的柴达木盆地土地覆盖分类研究[J].干旱区地理,2008,31(3):442-448.
- [19] 田海洋,丁勇,孙艳君.长白山风灾区更新造林方法试验[J].吉林林业科技,1994,4(2):48-49.
- [20] 万恩璞,吕宪国,王野乔,等.应用遥感信息对长白山植被覆盖的研究[J].地理科学,1989,9(4):354-361.
- [21] 徐新良,刘纪远,庄大方,等.基于3S技术的中国东北地区林地时空动态特征及驱动力分析[J].地理科学,2004,24(1):55-60.
- [22] 薛俊刚.浅论长白山保护区森林防火现状[J].森林防火,2006(1):7-9.
- [23] 于德永,郝占庆,姜萍,等.长白山典型林区森林资源景观格局变化分析[J].应用生态学报,2004,15(10):1809-1814.
- [24] Julien Y,Sobrinho J A.NDVI seasonal amplitude and its variability[J].International Journal of Remote Sensing,2008,29(17/18):4887-4888.
- [25] Pu R L,Gong P,Tian Y,et al.Using classification and NDVI differencing methods for monitoring sparse vegetation coverage:a case study of saltcedar in Nevada,USA[J].International Journal of Remote Sensing,2008,29(14):3987-4011.

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