首页 中文首页 政策法规 学会概况 学会动态 学会出版物 学术交流 行业信息 科普之窗 表彰奖励 专家库 咨询服务 会议论坛

首页|简介|作者|编者|读者|Ei(光盘版)收录本刊数据|网络预印版|点击排行前100篇

# 基于ARSIS策略的SAR影像与多光谱遥感小波融合

## Multi-spectral and SAR?wavelet fusion based on ARSIS strategy

| 作者 | 单位 |
| --- | --- |
| 李卫国1 | 1.江苏省农业科学院农业经济与信息所，南京，210014； |
| 蒋 楠1,2 | 1.江苏省农业科学院农业经济与信息所，南京，210014； 2.中国矿业大学环境与测绘学院，徐州，221116 |
| 熊世为1 | 1.江苏省农业科学院农业经济与信息所，南京，210014； |

中文摘要：

　　针对南方多云多雨、光学遥感数据不易获取的特点，在江苏省宝应县设置了区域试验，探索了ENVISAT/SAR影像与HJ-1A星多光谱遥感融合的模式与效果。基于ARSIS策略，利用Mallat小波变换和波段间交互构造模型IBSM，对SAR影像和HJ-1A/CCD影像进行小波分解与低频、高频系数重构，然后通过小波逆变换得到信息融合影像。针对低频与高频影像的不同区域特征使用不同的融合规则，以增强融合过程的自适应性。对融合影像进行了主观与相应的定量评价，并与PCA变换、IHS变换等传统方法进行比较。最后，利用GPS矢量样点提取了小波融合前后影像的波段值与NDVI信息，对融合效果做了进一步的分析与说明。结果表明，小波融合、IHS变换、PCA变换影像光谱扭曲度平均值分别为0.1016、0.3261、1.2772，其中小波融合方法的值最小。三者的信息熵平均值分别为14.7015、11.8993和13.2293，以小波融合方法的值最高。说明小波融合方法在提高空间分别率的同时，较好的增强了光谱保持能力，信息解译效果明显优于PCA变换和IHS变换2种方法。

英文摘要：

　　Because of cloudy and rainy weather in south China, optical remote sensing images often can't be obtained easily.?With the regional trial results in Baoying, Jiangsu province, the fusion model and effect of ENVISAT / SAR and HJ-1A satellite multispectral remote sensing images were explored in this paper. Based on the ARSIS strategy, using the wavelet transform and the interaction between the band structure models (IBSM), ENVISAT satellite SAR and the HJ-1A satellite CCD images wavelet decomposition, and low/high frequency coefficient reconstruction were progressed, and the fusion images through the inverse wavelet transform were obtained. In the light of low and high-frequency images have different characteristics in different areas we took different fusion rules which can enhance the integration process of self-adaptive. the PCA transformation, IHS transformation and other traditional methods were compared by subjective and the corresponding quantitative evaluation. The bands and NDVI values around the fusion with GPS samples were extracted,? analyzed and the fusion effect was explained. The results showed that the spectral?distortion of wavelet fusion, IHS transform, PCA transform images were 0.1016, 0.3261 and 1.2772, respectively and entropy were 14.7015, 11.8993 and 13.2293, respectively, the wavelet fusion was the highest. The method of wavelet maintained good spectral capability, and visual effects while improved the spatial resolution, the information interpretation effect was much better than other two methods.

查看全文　　下载PDF阅读器

关闭