基于图像退化模型的遥感成像仿真的研究

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摘　要：分析受云雾干扰的遥感成像过程，介绍图像退化模型，在讨论云层透过率函数的基础上，提出当云雾均匀分布、渐变分布和局部云雾覆盖三种情况下的遥感成像仿真方法，解决单幅遥感图像去云雾处理算法研究中缺少参考图像的问题.给出具体的仿真步骤和实施方法.实验表明，所提出的方法运算效率高，成本低，为检验和客观评价单幅遥感图像去云雾处理算法准备具有多样云雾状态的图像数据，推动相关技术研究.

关键词：退化模型；遥感成像；去云雾处理；仿真

Study on Remote Sensing Simulation Based on Image Degradation Model

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Abstract:The remote sensing imaging process is analyzed. The image degradation model is introduced. On the basis of discussing the cloud transmission function, the method of remote sensing imaging simulation is proposed in the three cases that the clouds are evenly, gradually or locally distributed. The problem lacking reference images is solved during the studies of the cloud removal algorithms for single images. Detailed simulation procedures and implementation methods are presented. Experiments prove that the proposed method has good running efficiency and low cost. It provides large amount of images with various cloud distributions for the test and objective evaluation of cloud processing algorithms for single images, and promotes the studies on the corresponding technologies.

Key words: radiation model; remote sensing; cloud removal; simulation

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