

遥感应用

城市航空影像的阴影检测和阴影消除方法研究

摘要:

阴影是城市航空遥感影像的基本特征之一,阴影的存在影响地物边缘的提取、建筑物的识别和影像的配准等,因此,阴影检测和阴影消除在城市遥感中具有重要意义。本文主要介绍了一种高分辨率城市航空影像的阴影检测和阴影消除方法,在阴影检测过程中,分别对影像RGB色彩空间中的G通道和HIS色彩空间中的亮度通道进行阈值选择检测出阴影区域,然后对这两种阴影检测结果进行与运算得到最终的阴影区域并标记出来。对所标记的阴影区域,根据Retinex理论选择合适的尺度对其进行增强处理,由于阴影区域的地物信息进行增强时阴影边界也有所增强,因此需要对阴影边界进行模糊化处理。试验表明,该方法能较好的检测出阴影区域,而且对阴影区域的地物恢复效果较好。

关键词: 阴影检测 阴影消除 边界检测

The Study on Shadow Detection and Shadow Elimination in the Urban Aerial Image

Abstract:

Shadow is one of the basic characteristics in urban remote sensed imagery. It affects the extraction of object's edge, identification of objects and registration of images, so shadow detection and shadow elimination have a great importance in urban remote sensing. In this paper, a kind of method has been introduced for shadow detection and shadow removal in high resolution urban aerial image. During the process of shadow detection, the shadow called color shadow is detected by threshold of the G channel in RGB image and another kind of shadow called intensity shadow is detected by threshold of intensity channel in HIS image. Then the two kinds of shadow are grouped finally. The method of multiple scales Retinex is chosen to help eliminate the shadow. The objects in shadow areas have become bright, but another problem generated is that the shadow edge has also become clear. Then what we need to do is to blur the shadow edge. The experiment shows that this method can detect most shadow areas and the effect of recovering objects in shadow areas is well.

Keywords: shadow detection shadow elimination edge detection

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通讯作者:

作者简介: 鲍海英|女|1986年生|南京大学国际地球系统科学研究所研究生|主要研究方向是遥感图像分析。

作者Email: bhy5928@163.com

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