

Title:

DETECTING AND MONITORING COAL FIRES IN CHINA: TO WHAT EXTENT CAN MODIS REPLACE ETM+?

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Coal fires are a major problem in many coal-producing countries. While the fires themselves are often a hazard to mining activities, released gases and aerosols can impact large areas surrounding the burning coalfields. In addition, the burning process adds a significant amount of the greenhouse gas CO<sub>2</sub> to the atmosphere.

Remote Sensing has long been used as an effective and economic way to detect and monitor coal fires over large areas. For that purpose, Thermal Infrared imagery from the Landsat family of satellites has been used for several decades. In May 2003 the ETM+ sensor on board of the latest member of the Landsat group encountered a failure of one of its mechanical parts. This has reduced the usefulness of Landsat data for coal fire monitoring programs considerably.

This study investigates the possibility of using MODIS instead of ETM+ data for coal fire detection in North Central China. While MODIS' spatial resolution may look unfavorable at first, its high radiometric resolution and the increased number of thermal bands may actually be able to compensate for that disadvantage. Simple data access, a short revisiting period and routinely acquired night scenes are just a few of the other attributes that make this sensor an interesting candidate for coal fire related investigations.

In this presentation it will be demonstrated for the first time, that MODIS can be used to successfully detect coal fires. Furthermore, the extent to which MODIS products can actually replace the traditional ETM+ data in coal fire detection will be assessed.

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