

Evaluate the eco-effectiveness of grain for green project of China using a satellite ground albedo

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The Chinese government started working on the problem of soil erosion, but achieved little due to its failure to deal with the link between grain production and deforestation. In order to make a land of green where humans and nature harmoniously co-exist, the government has initiated a programmed to help restore ecological balance in the western region by turning low-yielding farmland back into forest and pasture. The aim of the project, called Grain for Green (started in 1999), is to improve watershed conditions, enhance biodiversity, and conserve natural resources. In order to evaluate the eco-effectiveness of Aggrain for green projectAh, our study using satellite based ground albedo, comparative ground albedo of before(1995) and after (2004) execution of a grain for green project. The albedo is an important quantity in climate theory. It is defined as the ratio of the total reflected irradiance to the incident irradiance ($\text{Albedo} = \text{total reflected} / \text{total incident}$). The albedo of earth surface features, such as barren soil and vegetation, is an important index that defines land-cover features. If land surfaces have no vegetative cover, soil properties determine the amount of solar radiation absorbed or reflected. It is possible to compare the difference of the rate of vegetation cover of earth surface using an albedo. We evaluated the influence of two land-cover features (barren soil and grassland, farmland after moving and forest) on surface albedo using Landsat TM, ETM+ data and Terra/ASTER data.