利用衛星反演日射量之長期資料探討與農作物生長關係
The Relationship between Satellite Retrieved Insolation and Crop Growth

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摘　　要

光輻射與溫度、濕度、氣流條件、二氧化碳、水分和養分一樣，是植物生長的基本要素。光輻射與植物生長的關係大致可以分為光合作用(Photosynthesis)與光形態發生(photomorphogenesis)兩方面。光輻射的光譜特性、強度、照射時間、明暗週期等是相互關聯的，光輻射的作用程度也因植物種類和生長階段而異。

自然界的光源主要是來自太陽，本研究根據胥（2015）及鄭等（2017、2021）之地表日射量反演方法，運用地球同步衛星的遙測資料反演求得日射量，建置臺灣地區日射量網格資料庫，紀錄長期且全面性日射量的變化以探討與農作物生長的相關性。

關鍵字：日射量、農作物、向日葵系列衛星

Abstract

Light radiation, temperature, humidity, airflow conditions, carbon dioxide, water and nutrients are the basic elements of plant growth. The relationship between light radiation and plant growth can be roughly divided into two aspects: the photosynthesis and the photomorphogenesis. The spectral characteristics, intensity, irradiation time, light-dark cycle, etc. of light radiation are interrelated, and the degree of effect of light radiation also varies with plant species and growth stages.

Most of the light radiation in nature comes from the sun. In this study, we retrieved insolation by using the geostationary satellite remote sensing data and the surface insolation retrieval algorithm, and built a database of grid insolation data in Taiwan. Use the long-term and comprehensive changes in insolation in the database to explore the correlation with crop growth.

Key words: Insolation,Crops、Himawari-8,MTSAT-1R,MTSAT-2