Retrieval of land surface BRDF/Albedo by combining data from multi-satellite sensors

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Land surface reflectance is anisotropic described by BRDF (Bi-directional reflectance distribution function). BRDF is the foundation of optical remote sensing, as capturing the land surface characteristics of radiation reflection. Land surface BRDF albedo is a key parameter for energy budget, climate forecasting, and global change prediction. Current algorithms and products of BRDF/Albedo are facing some problems, such as low spatial-temporal resolution, spatial-temporal discontinuity, and products’ inconsistency, due to limited data from a single sensor.

Combing multi-sensor data provides an available way to solve the inadequate information problem when a single sensor is facing. This study will combine multi-sensor data to retrieve the land surface BRDF/Albedo, including the evaluation of the information from different sensors, the construction and assessment of the model feasible for multi-sensor data synergic retrieval, and the development of a quality-controlled inversion to further assure the retrieval quality. We conclude that combining multi-sensory data have the advantages as shortening the retrieval time, improving the accuracy, and strengthening the spatial-temporal continuity.

Friday, February 15th 3 – 3:50p FLN 2.01.20