

A Hybrid Contextual Fire Detection Algorithm Using MODIS Imagery

Abstract:

There is active interest in the development of algorithms for global wildland fire detection using satellite sensors such as the Moderate Resolution Imaging Spectroradiometer (MODIS). We describe a contextual fire detection algorithm for global fire detection using MODIS imagery. This algorithm is a hybrid of our pattern recognition approach incorporating the Mahalanobis distance, the MODIS fire detection algorithm, and the MODVOLC algorithm. The hybrid algorithm takes advantage of the strong points of each algorithm and circumvents the weaknesses to maintain high fire discrimination capabilities, adaptability to different geographic areas and observation conditions, and relatively simple mathematics. The algorithm was tested using MODIS images obtained for different parts of the world at different times. The results display the flexibility of the new algorithm in having a high detection probability and low false alarm rate.

Bio:

Ying Li is a Ph.D. candidate at Rochester Institute of Technology. She received the B.S. degree from the University of Science and Technology of China, Hefei, China, in 1997, and the M.E. degree from the same university, in 2000.