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Forest fire early warning and monitoring techniques using satellite remote sensing in China

QIN Xianlin, LI Xiaotong, LIU Qian, LIU Shuchao, LI Zengyuan*

Research Institute of Forest Resource Information Techniques, CAF, Beijing, 100091, China;
State Laboratory for Remote Sensing and Information Techniques, CAF, Beijing 100091, China

Abstract: Four levels of stereoscopic forest fire monitoring have been established in China, namely, ground patrol, near-ground monitoring, aviation patrol, and satellite monitoring. Forest fire remains the main forest disaster that causes loss of forest resources, threatens the safety of forest ecological environment, and results in personal injuries. This study aims to provide technical reference for the study of forest fire early warning and monitoring technology in the new period of China. The research progress, existing problems, and development trend of forest fire early warning and fire monitoring methods with satellite remote sensing technique in the past 20 years are investigated on the basis of eight fields, namely, fuel parameter evaluation, smoke identification, active fire point monitoring, combustion dynamic monitoring of large forest fire, burned forest area identification and mapping, damage assessment of forest fire, burned forest biomass estimation, and burned vegetation recovery. The design of forest fire early warning and monitoring technology system has been discussed using the integrated information of satellite, aviation, and ground monitoring techniques to promote Chinese ecological civilization.

Key words: Satellite remote sensing technique, Forest fire early warning, forest fire monitoring, forest fire prevention

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