TRADITIONAL AND MODERN METHODS OF SATELLITE IMAGES PROCESSING FOR OPERATIONAL MAPPING OF FOREST COVER DISTUBANCES

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Real-time mapping of forest disturbances is important for forest management. Detection of forest stands damaged by natural or human-induced factors allows making immediate necessary management decisions. To implement such a management strategy, it is necessary to use the methods of operational mapping. With the advent of the Earth remote sensing data (RSD), which have high spatial and temporal resolution (Planet Scope and Sentinel-2), it becomes possible to implement modern operational mapping methods for forest management operations (particularly, forest disturbance detection). Since the monitoring area and the number of images sharply increases, the need for automated image processing methods also rises. This paper provides an overview of “traditional methods” for identifying forest cover disturbances (vegetation indexes, Tasseled Cap, multiband and single band change detection etc), their basis, limitations, and experience of their application in Russia and in the world. Instead, algorithm based on machine learning methods and their classification are presented. Benefits and limitations of both groups of forest disturbances detection algorithms are noted. In addition, it was found out that there is limited experience of application of machine learning algorithms for RSD processing and such kind of research is relevant.

Key words: real-time mapping, processing methods of remote sensing data, Planet Scope, Sentinel-2, machine learning.

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