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Wildfire monitoring utilizing multiple satellites

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Wildfire is not only one of the severe cause of forest degradation, but also ineligible source of GHGs. It emits CO2 as much as 1/4 to 1/2 of GHG emission by fuel combustion. For certain portion of wildfire are ignited by human, wildfire is important in terms of human controllable climate change as well as natural disaster. Although wildfire burns several km^2 in maximum in Japan, some wildfire ignited by a lightning burn more than $1000km^2$ (corresponds to one half of entire Tokyo) in Boreal forest. Because it is difficult to fight against strong intensity, it is important to extinguish wildfire in early stage or monitoring precise location. To achieve such sophisticated fire suppression, a wildfire monitoring system to detect small wildfire utilizing multiple satellites from micro satellite to large satellites. Also, a wildfire alert system to push needed wildfire information to firefighter is indispensable for social implementation for efficient wildfire suppression. Therefore, author developed wildfire detection algorithms for coming satellites including UNIFORM/VOL, GCOM-C1/SGLI and ALOS2/CIRC. an as well as improved wildfire detection algorithm for existing sensors MODIS and Terra/ASTER. Utilizing these algorithms, author also implemented wildfire alert system for peat-land fire in Indonesia. This technology will be used in Southern part of Africa in near future.

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