

## Improvement of wild fire detection algorithm for arctic region

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Wildfire emits carbon into atmosphere for 1.7 to 4.1GtC/yr in entire earth (IPCC AR4). This amount corresponds to one quarter to one half of anthropogenic greenhouse gas emission. Especially wildfire in arctic and sub-arctic region has a tendency of increasing; in 2007, a huge tundra fire in Alaska burned for 100 Thousand hectares and wild fires burned for 15 million hectares in entire Russia federation. These regions have very low population density and satellite observation is suitable for estimation of burned area of wild fire. On the other hand, tundra fires or peat fires are difficult to detect and less accurate because of its small sized and less intensive combustion.

Therefore, author attempted to improve MOD14 MODIS wild fire detection algorithm for better accuracy. Improved algorithm utilize more sophisticated statistical test than original MOD14 algorithm. Improved algorithm was validated with wild fire observations by pilots of international commercial flights, because it is difficult to get fire location dataset in some area of arctic region. As a result, the proposed algorithm detects 30% more hotspots than original MOD14 algorithm. Author still attempts to improve fire detection for less intensive and small fires.