Monitoring the logging impacts is essential to ensuring the sustainability of forest management under a certification process. Control tools need to be put in place in order to achieve these objectives. The use of remote sensing to detect canopy gaps in tropical rainforests is an attractive alternative to ground surveys, which are laborious to carry out and lack precision. In French Guiana, detection of logging-related gaps using very high spatial resolution optical satellite images produced by the SPOT 5 sensor is carried out by ONF (French National Forestry Agency). Gaps are detected using an automatic segmentation method. The principle of the automation is to model the forest’s signature and calculate a divergence between that theoretical signature and the image histogram in order to detect gaps that constitute a deterioration of forest cover. This tool has been used to assess the quality of logging operations at different scales: forests, blocks, local (one-hectare-pixels). Results show that canopy opening is quite independent from logging intensity at the blocks scale but well correlated at the local scale. The relief shows also a significant influence on the canopy degradation.

Keywords: Rainforest, remote sensing, canopy gaps, degradation, logging intensity, relief

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