

## **Mapping Forest Hurricane Damage Using Automated Feature Extraction**

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Both private and public forest land management plans often stipulate the pre-suppression removal of downed woody debris related forest fuels to reduce wildfire risk. However, identifying and mapping these debris areas is a time consuming and expensive proposition. This cost is exacerbated in regions where forest fuel conditions can be significantly changed by severe weather events, such as hurricanes and ice storms. In September of 2003, Hurricane Isabel caused major damage to hardwood and coniferous forest stands in and around Petersburg National Battlefield (PETE), in eastern Virginia. Overnight forested landscapes were dramatically altered (over 1,500 hours expended in wildfire related tree removal in PETE to date). In this study the use of automated feature extraction remote sensing techniques to quickly and accurately identify the post hurricane forested areas where significant tree damage and potentially increased wildfire risk occurred was investigated. Using true color digital aerial photography flown in March of 2004, affected forest stands were mapped using Visual Learning System's Feature Analyst object oriented classifier. Feature Analyst was able to accurately map 90% of the downed woody debris areas. This debris data layer enabled local officials to appropriately allocate their limited mitigation resources by focusing removal efforts on the areas of high wildfire risk. The feature extraction protocol developed in this study appears to generate significant time savings in identifying and cataloging fire fuel related danger and in guiding the wildfire mitigation techniques.

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