



Damage and loss assessment on rubber trees caused by typhoon based on high-precision remote sensing data and field investigation

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Forest dynamics are highly relevant to land hydrology, climate, carbon budget and biodiversity. Damage and loss assessment of forest caused by typhoon is essential to the understanding of ecosystem variations. Combination of high-precision remote sensing data and field investigation is critical to the assessment of forest damage loss. In this study, high-precision remote sensing data prior to and after typhoon from IKONOS, QuickBird, unmanned aerial vehicle (UAV) are used for identifying rubber tree disturbance. The ground truth data of rubber tree damage collected through field investigation are used to verify and compare the results. Taken the forest damage induced by typhoon Rammasun (201409) in Hainan as an example, 5 damage types (overthrown, trunk snapped below 2m, trunk snapped above 2m, half-overthrown, and sheared) of rubber trees are clearly interpreted compared with field investigation results. High-precision remote sensing data is then applied to other areas to evaluate the forest damage severity. At last, rubber tree damage severity is investigated with other typhoon hazard factors such as wind, topography, soil and precipitation.