Detecting and quantifying forest dynamics using SAR time-series data in Indonesia

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Satellite Earth Observation (EO) data allows the generation of forest disturbance maps that can improve greenhouse gas (GHG) monitoring at local and national scales, and provide information that can be used for land use planning and management. Mapping forest biomass stocks, deforestation, forest degradation and enhancement is crucial in order to determine the loss of carbon stocks due to disturbances (e.g. deforestation, fires) or the gain due to new forest or growth. Time-series observations identify decreasing or increasing trends of aboveground biomass carbon, and separate anthropogenic related changes from seasonal changes of vegetation. This is important for understanding the terrestrial carbon cycle and for supporting better forest management and policies. This study uses time-series data from L-band Synthetic Aperture Radar (SAR) JAXA's ALOS PALSAR and ALOS-2 PALSAR-2 to quantify carbon loss and gain trajectories (emission / sequestration) of existing forests in West Java (Indonesia).

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