



CHARACTERIZATION AND MAPPING OF MANGROVE FOREST TYPES BASED ON ALOS-PALSAR AND TOPOGRAPHY DATA IN INDONESIA

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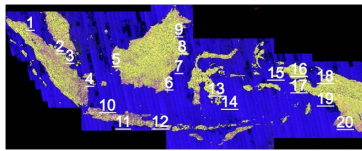
The largest areas of mangrove in Southeast Asia are found in Indonesia (almost 60% of Southeast Asia's total) which comprises about 19% of world's mangroves. Recent research found that mangroves are among the most carbon-rich forests in the tropics which containing on average 1,023Mg carbon per Hectare. Ironically, mangrove forests are threatened by land use/land cover change as well as global climate change. Rates of deforestation/conversion are among the highest of all tropical forests, far exceeding rates in upland forests. Mangrove loss of more than 50% because of industrial lumber and wood chip operations, increasing human populations, and agriculture. Field survey of mangrove biomass map in overall Indonesia is very difficult due to muddy soil condition, heavy weight of the wood and very large area.

The objectives of this research are;

1. To evaluate of several existing methods as the most appropriate method for monitoring mangrove stock in Indonesia
2. To investigate characterization of mangrove forest types based on ALOS-PALSAR in overall Indonesia archipelago
3. To generate mangrove forest map based on spectral ALOS-PALSAR and topography data in overall Indonesian archipelago

Study Area

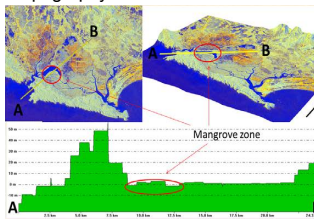
1. Monitoring and mapping mangrove forest for whole Indonesia.
2. Training sample :
20 site spreading in the Indonesian region
3. Field survey for validation :
Lampung, Segara Anakan Central Java and Subang West Java



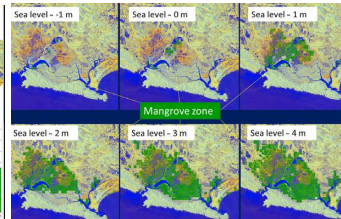
Result

Mangrove forest in Segara Anakan, Central Java Indonesia

Topography

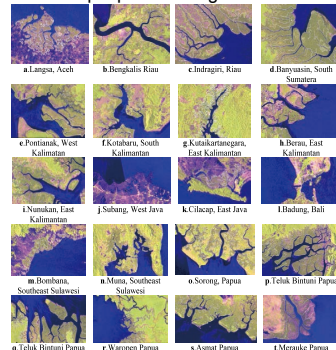


Sea level effect

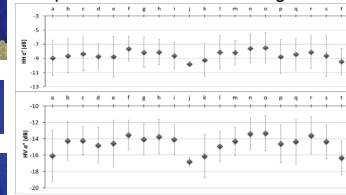


Mangrove forest in overall Indonesia

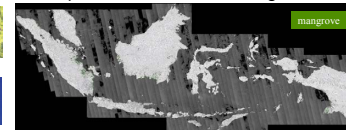
Sample plot of mangrove forest



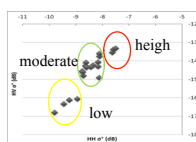
Spectral characteristics of mangrove



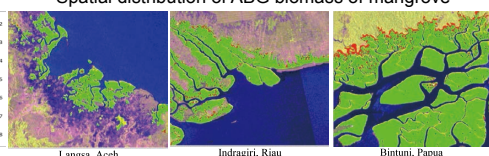
Spatial distribution of mangrove



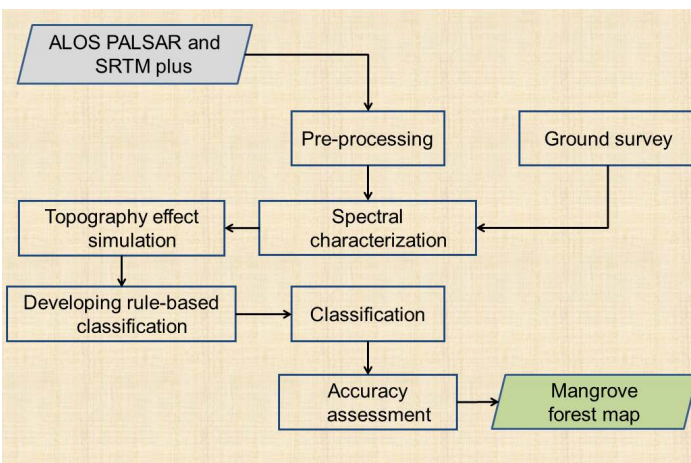
Level of ABG biomass



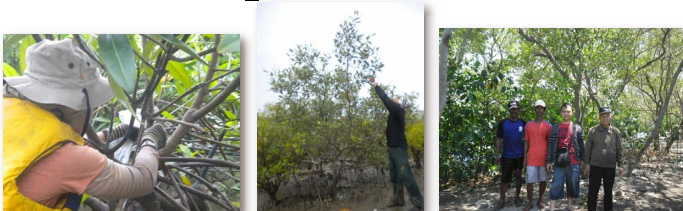
Spatial distribution of ABG biomass of mangrove



Methodology



Ground survey



Conclusion

In this research we got best combination to classify mangrove forest. The combination derived from characterization of mangrove forest on ALOS-PALSAR, topography and sea level data. Based on best combination we developed rule classification algorithm to produce mangrove map.