remote sensing of kalimantan
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Airborne Laser Scanner

Central Kalimantan Peatlands Project

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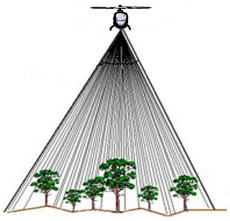

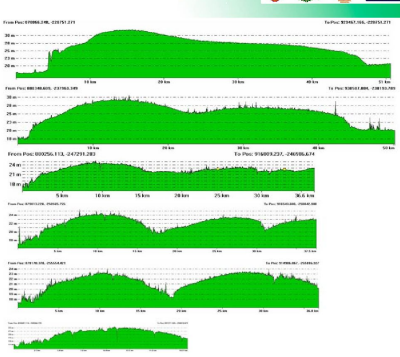

ALS-DTM Cross-Section of Block A+E-Mawas

Airborne Laser Scanning measurements for CKPP to achieve high-resolution Digital Elevation Models of Tropical Peatlands, PSF, in EX-MRP of Central Kalimantan

by
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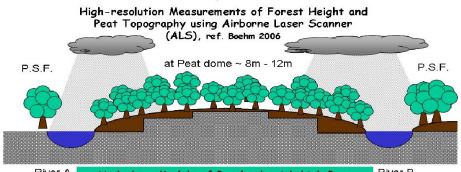
Peat Topography of Block A + E-Mawas

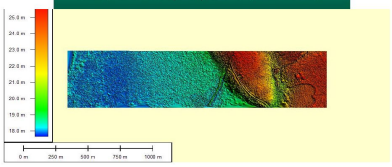
The water-level on 5th August 10h-11h near the main channel (approx. -247km) was 17.4m at Kahayan, 16.6m at Kapuas, 21.2m at Mentangai and 19.9m at Barito.
The highest peat dome was found between rivers Kahayan and Mangkatup with 37.5m at the track approx. -229km south of the equator and for the highest peat-point in Mawas area right of Kapuas with 32m.
The Mawas peat dome left from Mentangai river at -238km is 29.3m and at -229km it is 32m.
In Block A we reach an elevation maximum of approx. 25.0m at the main channel (-247km) between rivers Kapuas and Mentangai. At Mentangai River on main channel we have the lowest point of this cross-section with 21.3m. Right from Mentangai on main channel we found the highest elevation of approx. 23.0m.

- ALS has a 0.5m x 0.5m x 0.15m resolution; DSM and DTM classification-filtering was processed.
- PSF can be penetrated by 3% to 5% with ALS-technology
- ALS single tree detection is possible, see ALS-image and therefore the biomass (DSM – DTM) can be estimated
- Peat Dome and Peat Topography has been analysed with ALS for EX-MRPfor Block A + E-Mawas and additionally for Block B with total Bock E and Peatland Topographic Maps were produced, see results.
- a Hydrological model of peatland has been established with this 3-dimensional Digital Elevation Model (DEM)
- Storage of carbon amount can be measured combinded with peat drillings
- With ALS Radar-data can be calibrated,

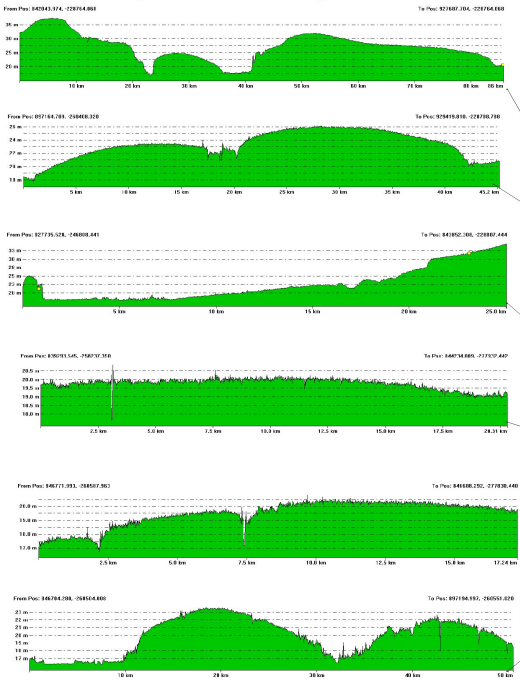
- Applications: Forest Inventory, find illegal logging channels in PSF, Flood Plain Mapping, Environmental Protection, Peat Growth and Peat Loss measurement (multi-temporal)

Proposal:

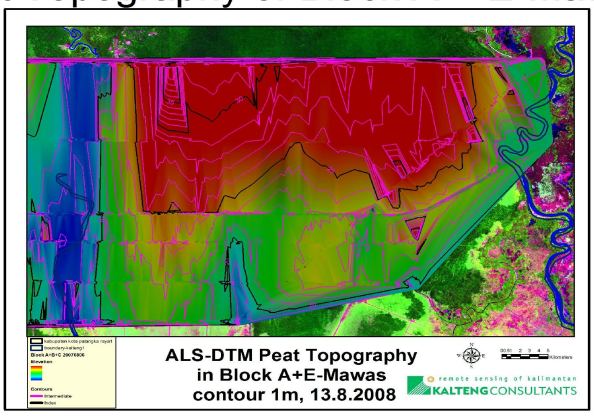




DTM882km-230km-Kapuas very left and road on higher peat land, all above figures are DTMs with a grid of 0.5km x 2km



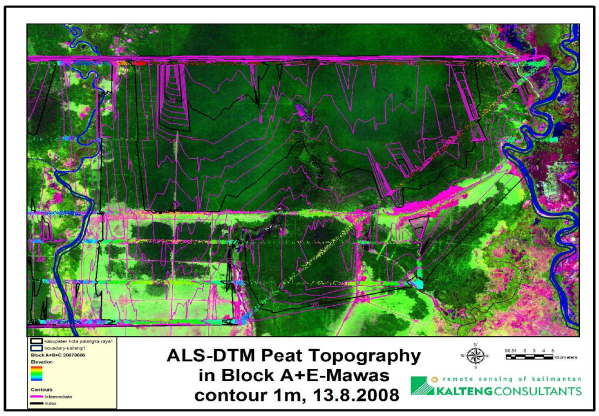
6 DTM-cross-sections of peatland profiles



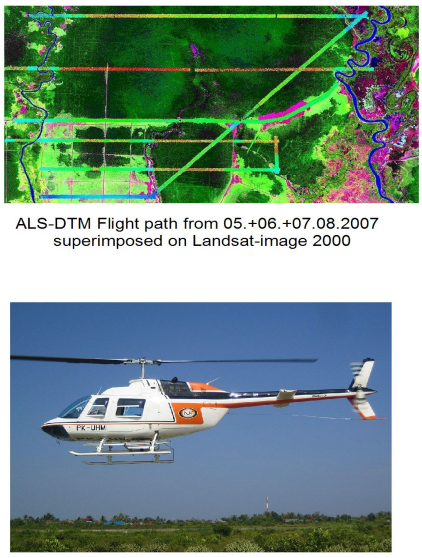
ALS-DTM-Peat Topography of Block A + E-Mawas

Peat Dome	Longitude	Latitude
32.0m	894.0km East	-230km South Block E-Mawas
29.0m	894.0km East	-238km South Block E-Mawas
25.0m	889.5km East	-247km South Main Channel
24.2m	889.0km East	-251km South Block A
23.2m	889.0km East	-256km South Block A
22.5m	889.0km East	-261km South Block A

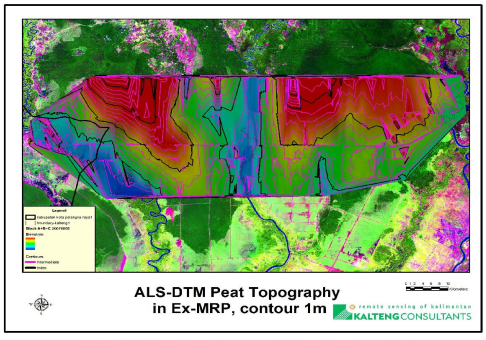
ALS-DTM Peat Dome of Block A+E-Mawas



ALS-DTM-Peat Topography
Contour-lines 1m-pink+5m-black

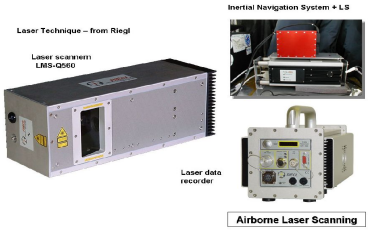


ALS-DTM Flight path from 05.+06.+07.08.2007 superimposed on Landsat-image 2000

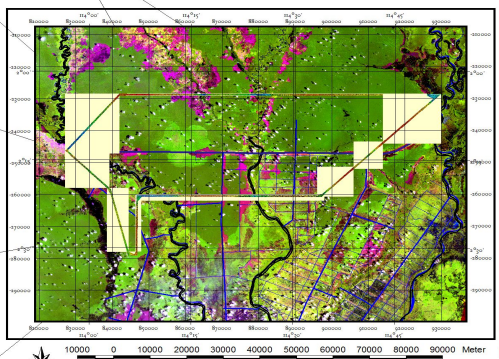


ALS-DTM-Peat Topography Block A + B + E

Bell Helicopter with the ALS equipment



Infra-red Laser Scanner with recorder and Inertial Navigation System



GIS from Kalteng with ALS-flight trial on 07.08.2007; DTM superimposed on Landsat 2003

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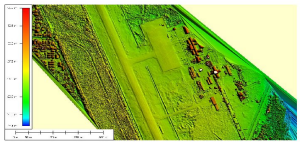

Palangka Raya airport (PKY) with runway and ground reference point of Spur 87 in an ALS-presentation

Ground refence station at PKY airport with 25.0m and DGPS