

## “Peatland Topography of Ex-MRP measured with Airborne Laser Scanning Technology”

by

Dr. H.-D.V. Boehm,  
J. Frank

Kalteng Consultants, [www.kalteng.org](http://www.kalteng.org)

### Abstract

With a high-resolution **Airborne Laser Scanner (ALS)** the topography of peatlands was measured on **5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> Aug. 2007** by a helicopter to achieve a 3-dimensional Digital Elevation Model (DEM) for the CKPP Block A + B + C + E.

With this ALS-information we processed and analysed the topography of peatland with an elevation **resolution of +/-15cm and x-, y- of 0.5m** in the Ex-Mega Rice Project (Ex-MRP). The 1.5 $\mu$ m laser beam in the near infra-red with the beam divergence of 0.5mrad could **penetrate the PSF by 3% to 5% of the laser-pulses**.

The highest **peat dome** was found between rivers Kahayan and Mangkatup with **37.5m** at the track approx. -229km south of the equator. The highest **peat dome in Mawas area** between Kapuas and Mentangai river at -229km is **32m** and at -238km **29m**.

In **Block A at main channel** we get an elevation maximum of **25m** (-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. **23m**.

The **peat dome** in Block A drops down to **22m** between Kapuas and Mentangai at -261km.

**Peat Dome of Block E-Mawas and Block A, elevation calibrated to Palangka Raya Airport reference point with 25m, see figure with 6 profiles.**

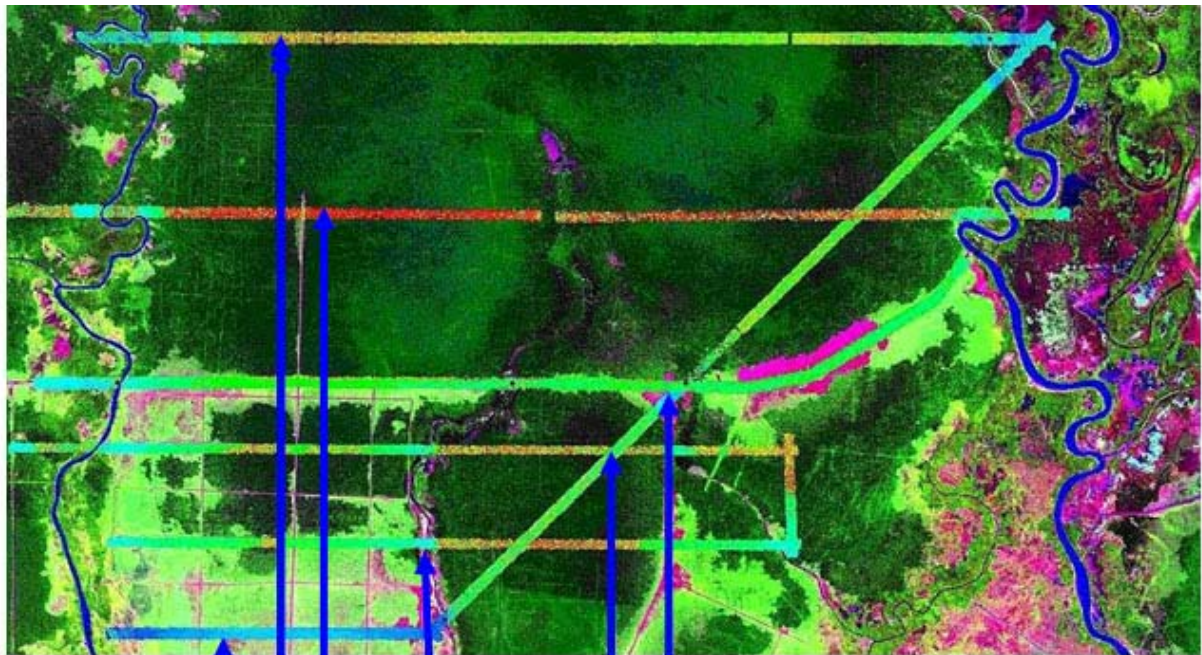
Elevation	Longitude	Latitude	Kapuas	Delta
32.0m	894.0km East	-229km South Block E-Mawas	17.5m	14.5m
29.0m	894.0km East	-238km South Block E-Mawas	17.1m	~ 12m
25.0m	889.5km East	-247km South Main Channel	16.5m	8.5m
24.2m	889.0km East	-251km South Block A, other day	16.9m	~ 7m
23.2m	889.0km East	-256km South Block A, other day	16.8m	~ 6m
22.0m	889.0km East	-261km South Block A	16.4m	~ 5.5m

The **water-level** on 5<sup>th</sup> August 10h - 11h near the main channel (approx. -247km) was **17.4m at Kahayan, 16.5m at Kapuas, 21.2m at Mentangai and 19.9m at Barito**.

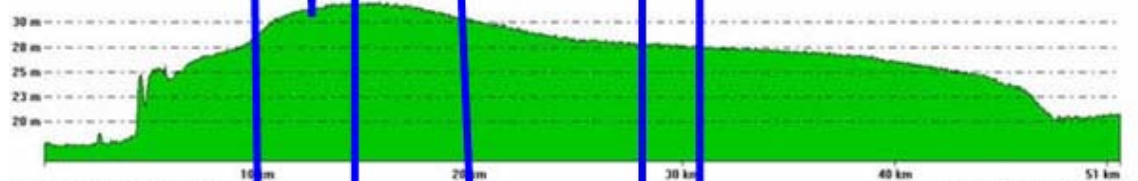
The **forest situation** has changed drastically in the so called **Block A of the Ex-MRP**. We used three Landsat images from 30.6.1991, from 16.07.2000 and the last from 05.08.2007, when we performed the ALS-flight trials on the same day over the Main Channel. We used for comparison of the Peat Swamp Forest (PSF) situation an area of 132,111ha in Block A between rivers Kapuas and Barito and South of Main Channel. These two rivers were excluded in the analysis. All PSF seems to be secondary forest. Even in 1991 the area was logged by concessions, partly heavily, Between rivers Mengkatip and Barito the land was cleared still in 1991 completely. The PSF situation of 1991 with 87,973ha was divided into 34,216ha PSF left from Mentangai to Kapuas and 53,757ha right from Mentangai to Barito respectively to Mengkatip. The rate of PSF decrease was in **16 years 4.6% per year**.

The results of PSF degradation are shown in the table below.

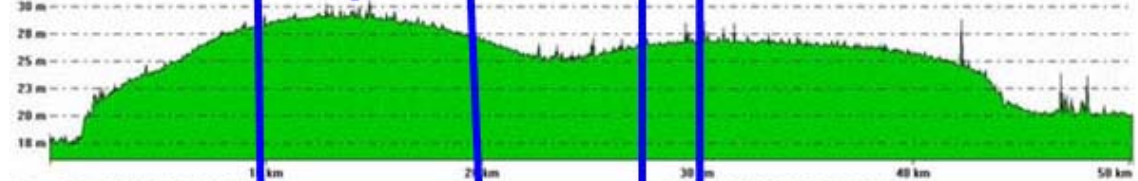
	ha	Ref. Block A	Ref. PSF 1991	Ref. PSF 2000	Rate per year
Reference area Block A	132,111	100%	-	-	-
PSF in 1991	87,973	66.6%	100%	-	-
PSF in 2000	40,306	30.5%	45.8%	100%	6% /year
PSF in 2007	23,615	17.9%	26.8%	58.6%	5.9% /year



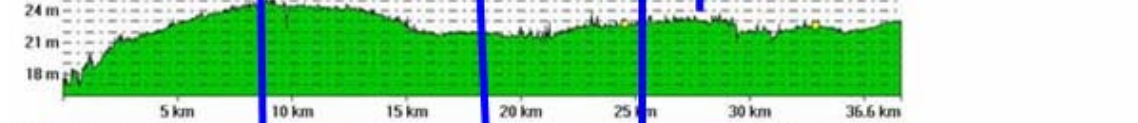
From Pos: 878866.248, -228751.271 To Pos: 929467.166, -228751.271



From Pos: 880348.605, -237963.345 To Pos: 930587.884, -238153.785



From Pos: 880256.113, -247291.233 To Pos: 916809.237, -246986.674



From Pos: 878813.225, -258845.755 To Pos: 915543.886, -258842.888



From Pos: 878178.378, -258854.421 To Pos: 914984.887, -258854.827



From Pos: 888817.128, -268842.128 To Pos: 888817.128, -268842.128

