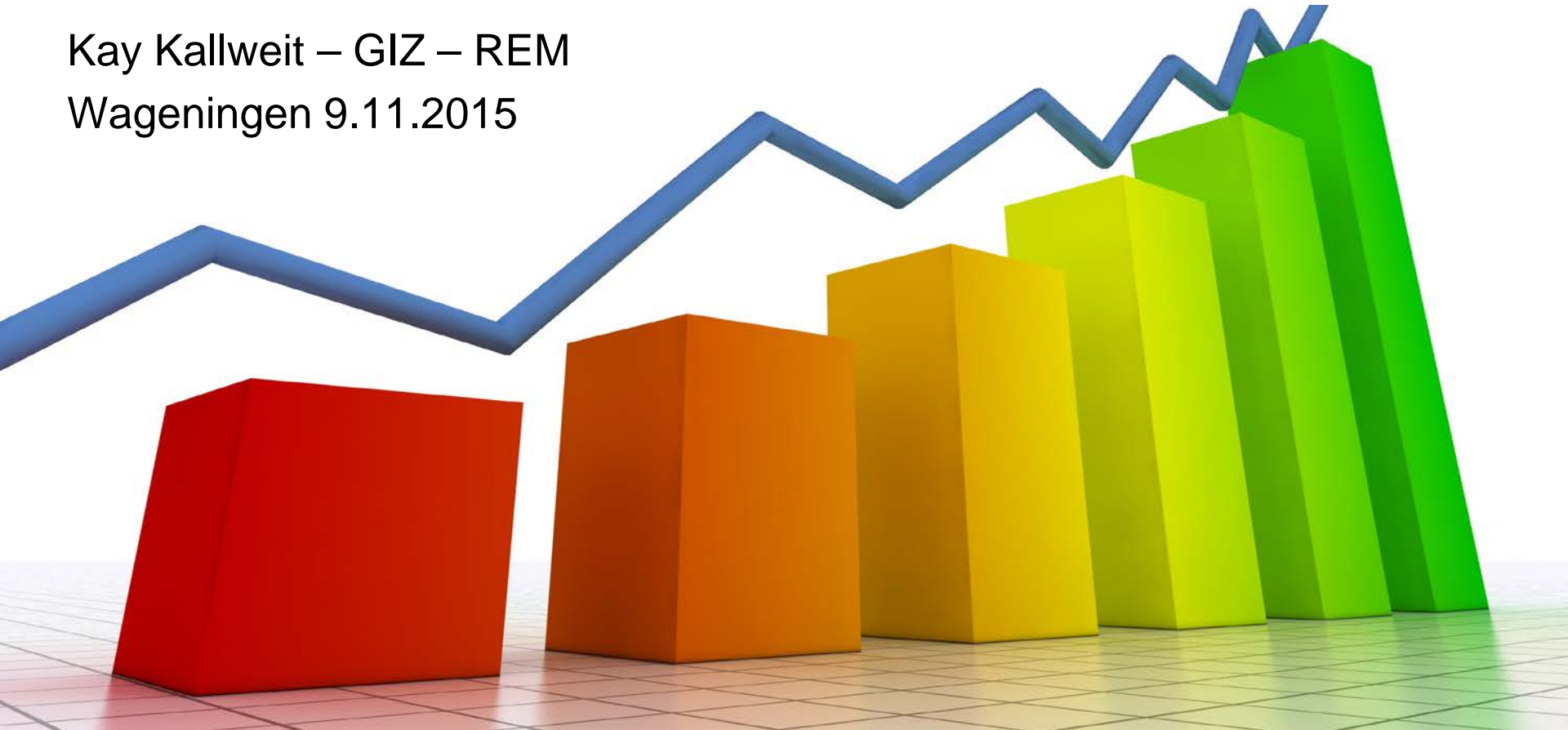# Use of global RS products – a project experience from Indonesia and a general observation for REM

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Wageningen 9.11.2015

Specifications

- **Global dataset**

  - Landsat satellite data, 30m spatial resolution

  - Forest benchmark map for year 2000

  - Annual forest loss 2001-2012

  - Forest gain -> only accumulated 2000-2012

- **Tree/forest definition**

  - All vegetation taller than 5m in height

  - Simplified forest definition

- **Forest loss definition**

  - Stand-replacement disturbance or complete removal of tree cover canopy at the Landsat pixel scale

Tier-2 assessment

- Based on Landsat data
- Object based classification and change detection
- Carbon values from literature (from Indonesian archipelago)
- Outcomes:
  - Land cover maps for all three FORCLIME districts for 1990, 2000, 2005, 2010
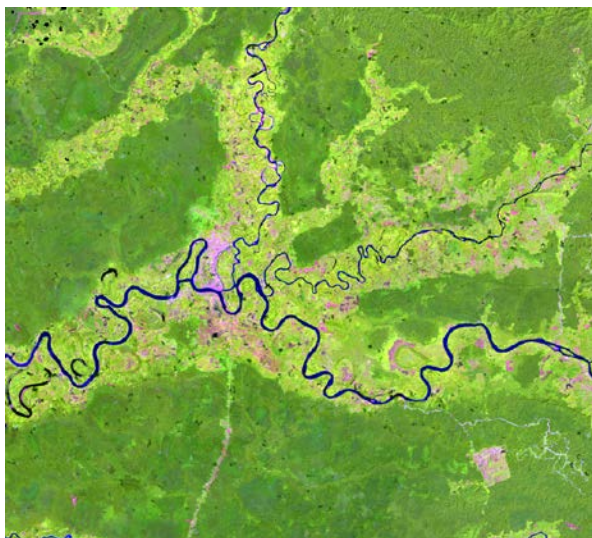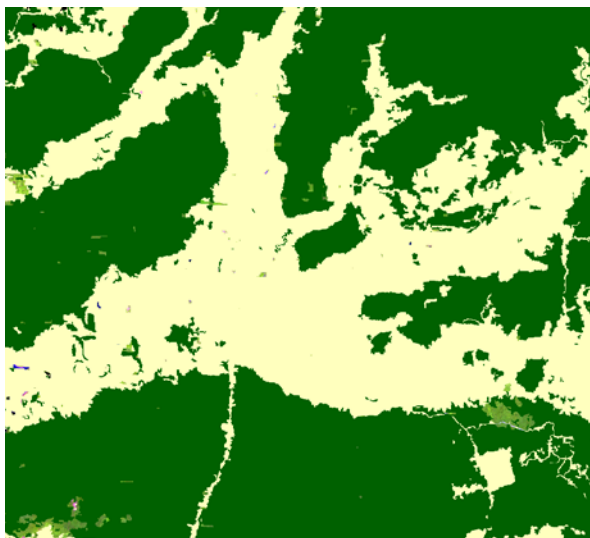 - Land cover change maps for all three districts

Limitations of UoM data

- Over-estimation forest extent -> benchmark map (2000)
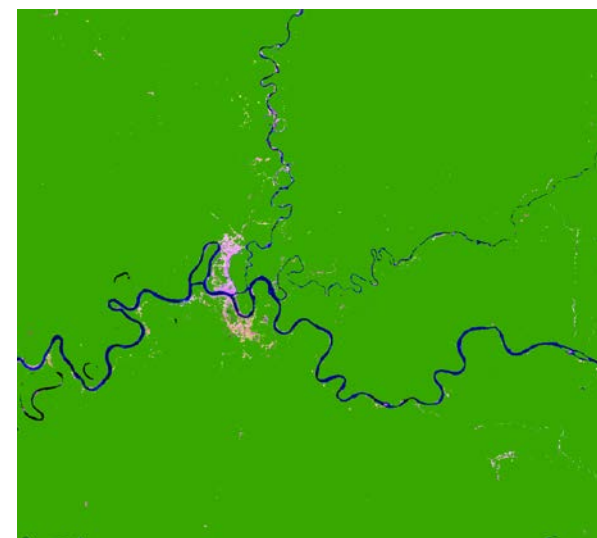 - Example Kapuas Hulu (Kalimantan Barat)

Landsat Image 2000

FORCLIME Forest Cover 2000

Hansen Forest Cover 2000

Forest
Non-Forest

Non-Forest
Forest (>= 30% Tree Cover)

Limitations of UoM data

- High deforestation on non-forest land cover classes

Kapuas Hulu	Deforestation 2005-2010 (ha)
Hansen Total deforestation	80,677
Hansen deforestation on Forest	23,227
Overestimation*	347 %
FORCLIME Deforestation	24,713

Calculated by dividing the total mapped deforestation by the deforestation mapped on forest areas

Berau	Deforestation 2005-2010 (ha)
Hansen Total deforestation	81,630
Hansen deforestation on Forest	54,491
Overestimation*	149 %
FORCLIME Deforestation	46,880

Calculated by dividing the total mapped deforestation by the deforestation mapped on forest areas

FORCLIME conclusion

- High over-estimation of forest area in benchmark map (2000)

- High deforestation outside forest land cover classes (e.g. palm oil)

- Calibration of deforestation probability threshold and forest definition not appropriate for Indonesian context – clearly also a question of amount of training samples

- Not an issue of global datasets per se but of its proper usage

Issues for results based payments

- High uncertainty is a key concern – especially underestimation of deforestation in annual change detection

- Limited methodological coherence between approaches – UNFCCC guidance too broad – particularly in respect to accuracy assessment (and acceptable uncertainty)

- Forest definition and its application in MRV is key determinant for deforestation data –global datasets working with definitions according to forest type could help to draw attention to the issue

- Global datasets, well trained for country circumstances could help to increase push for more methodological consistency and provide a check for county data – within limits (political implications)

Hopefully there will be fruitful discussions of these complex issues…