Global Land Cover Mapping

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OUTLINE
- Existing global land cover data
- Trend of global land cover mapping
- On-going global land cover mapping projects
- Global Mapping Project

Satellite Data of Global Land Coverage

<table>
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<tr>
<th>Year</th>
<th>AVHRR 1km</th>
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<th>MODIS 1km-250m</th>
<th>MERIS 300m</th>
<th>GLI 1km-250m</th>
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Information sources of global land cover mapping
- existing thematic maps (before 1980’s)
- AVHRR (1990’s)
- MODIS, VEGETATION, MERIS, GLI (2000’s)
- add SAR, lidar (future)

Existing global land cover data
- IGBP-DISCOVER
  AVHRR 1992 IGBP legend
- Univ. of Maryland
  AVHRR 1992 Maryland legend
- Boston Univ.
  MODIS 2000 IGBP legend
- GLC2000 by JRC
  SPOT/VEGETATION 2000 JRC legend
Comparison of area coverage of each land cover class for 4 types of global land cover data

Common area of three land cover products (except Maryland’s data)
Trend of global land cover mapping

1. Improvement of resolution
2. Optical sensor + SAR + lidar
3. Harmonization of land cover legend
   Land Cover Classification System (LCCS) developed by FAO.
4. Development of global land cover ground truth database
5. Global mapping of individual land cover classes
6. Categorial data + percent area cover of basic land cover types

On-going global land cover mapping projects

- GLOBCOVER
  by ESA, FAO, UNEP, JRC, IGBP and GOFC-GOLD
  ENVISAT/MERIS 300m 2005
- Boston Univ.
  MODIS 1 km  IGBP 17 class periodically
- Global Mapping project phase 2
  MODIS 1 km 2003
- Africover, Asiacover, etc.
  Global Land Cover Network (GLCN) by FAO
  higher resolution based on national needs

Development of Global Land Cover Dataset in Global Mapping project

- Ground truth collection by the cooperation with National Mapping Organizations
- Legend will be defined by LCCS of FAO
- MODIS 1km 7 bands data
- Decision tree method
- Validation using ALOS (10m res.) by the cooperation with National Mapping Organizations
- Complete by 2007

Examples of Land Cover Ground Truth sites

Another product by Global Mapping project by 2007

Global estimate of percent tree cover by QuickBird data and MODIS data
QuickBird image with percent tree cover for MODIS 1km pixel area

Estimated percent tree cover by MODIS and QuickBird (tentative result)

Conclusions
- Four global land cover data are available
- Several global land cover mapping projects are going on including “Global Mapping project”
- Trends of global land cover mapping were identified
- Recommendation accumulation of global land cover ground truth data among ongoing and future land cover mapping projects

Trend of global land cover mapping
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2 Optical sensor + SAR + lidar
3 Harmonization of land cover legend
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4 Development of global land cover ground truth database
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Thank you
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