

# Global land cover validation: trends and CEOS WGCV LPV

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# Trends on global land cover mapping



- GOFC-GOLD / CEOS WGCV advocated for independent validation
- Community consensus protocols (Strahler et al., 2006, Olofsson et al., 2014)
- Increasing overall accuracies (technology, detail)
- User-orientated accuracy analysis:
  - Priority weighting (class)
  - Scope: area, pattern, ...
  - Spatial accuracy maps

# Climate modelling (ECV) community requirements and suitability of land cover validation datasets

## Requirements

## Criteria

**Statistically rigorous (accurate and precise) overall and class specific accuracy estimates**

Probability sampling

**Compatibility in combining and augmenting the samples**

Proper representation of important classes

**Flexible thematic land cover characterization**

Easily combined and augmented sampling scheme

Classification scheme and thematic detail of the legend

Hierarchical classifiers provided

**Temporal coverage**

Multi-date (1990-2000-2005-2010)

**Stability over multi-date datasets**

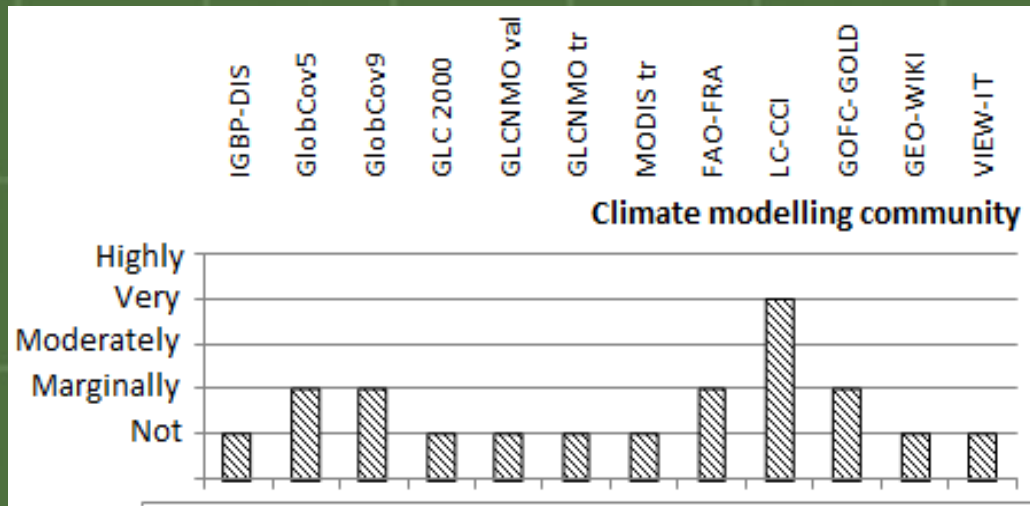
Stable multi-date sample

**Spatial resolution**

Appropriate spatial detail

**Qualify flag information available**

Verified and interpretation confidence recorded



[http://www.gofcgold.wur.nl/sites/gofcgold\\_refdataportal.php](http://www.gofcgold.wur.nl/sites/gofcgold_refdataportal.php)

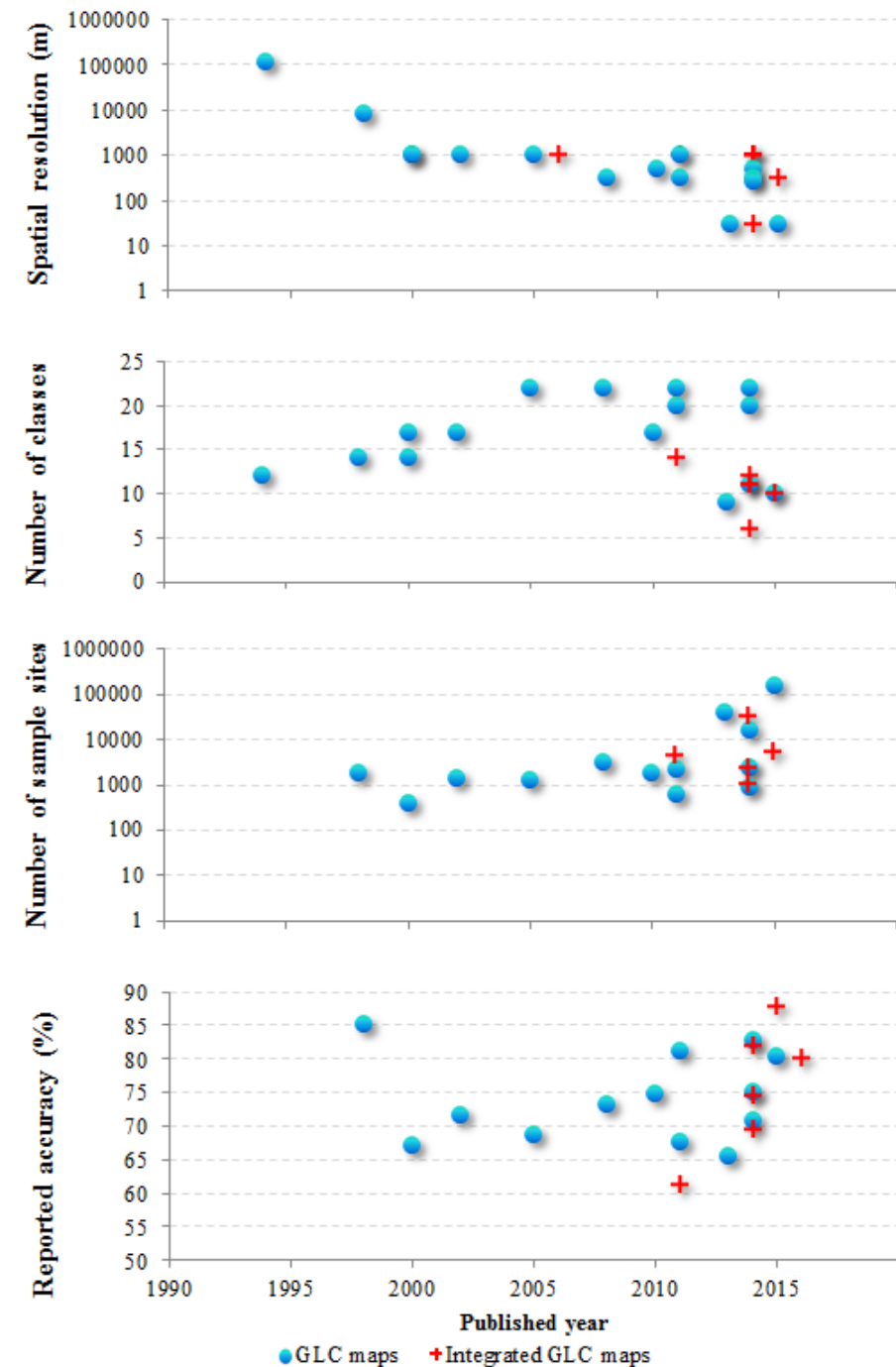
Tsendbazar et al., 2015. ISPRS Journal



**GOFc-GOLD**

## Use of reference data

- Use of reference data essential (training, validation)
- Open Source tools & data:
  - GOFC-GOLD cal/val portal
  - GEOwiki (crowd sourcing)
  - OpenForis/Collect Earth
  - ...
- Important pathway for user engagement (training, legitimacy, regional expertise, uptake)
- Use of uncertainties for estimation and continuous improvement



# Key remarks

- Reference data (for training and independent validation) are essential part of any land cover monitoring
- Increasing focus on change, higher-res, land use and routine operations
- How can we move forward as a community in validation:
  - Sampling design: several options
  - **Response design: more agreement & sharing**
  - Analysis: use and user orientation
- Guidance: on temporal accuracy and precision (smaller accounting periods and near-real time)