integration of heterogeneous data sources

study with designed data

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general method

• grouping to validity level of all data sources; depends on
  – accuracy (e.g. terrestrial more accurate than remote sensing)
  – comparability of classification
    IPCC GPG LULUCF / AFOLU

• loop of function with decreasing validity
  – direct assignment (no controversy)
  – interpolation A A
  – controversy decision to future
  – controversy decision to past

• interpolation A B
  – linear interpolation (virtual split of area related to point)

• extrapolation
idea

LUMs (land use matrices) can be re-constructed from available data sources
  (independent sample points; data base application; decision trees > objective, transparent; presentation Gensior&Stümer, DE NIR2012)

calculation of LUM accuracy: in reality true lum unknown

→ uncertainty assessment by general study with designed LUMs
  (1000 points; defined by start distribution and transition probabilities)

→ from each LUM various heterogeneous datasets derived
  (number of sample points; error probabilities; combinations)

→ acutally 20 LUMs à 115 data source combinations
  (> 2000 simulations)
questions

Do

• start & transition prob. of "true" LUM
• information gaps in set of data sources
• errors in data sources

affect

➾ distribution of land use classes
➾ annual change rates ?
example 1

annual data, 250 points
(4 years circular)
example 1

annual data, 250 points
example 1

annual data, 250 points
example 2

annual, 250 points, high errors
(9 to 14.2% per data source)
example 2

annual, 250 points, high errors
example 2

annual, 250 points, high errors
example 3

High transition prob.; 5 years, each with 3 data sources, 1 no errors 200 points (always same), 2 with high errors 1000 p
example 3

5 y, 3 data sources, high errors
example 3

5 y, 3 data sources, high errors
preliminary conclusions

• „only“ designed data but results of general reliability; study may be adapted to country specific values
• study on variation and sensitivity > understanding increased ; publ. in prep.
• cooperation welcome and needed
• thanks for your attention!