

A hybrid Land Cover Dataset for Russia: a new methodology for merging statistics, remote sensing and in-situ information

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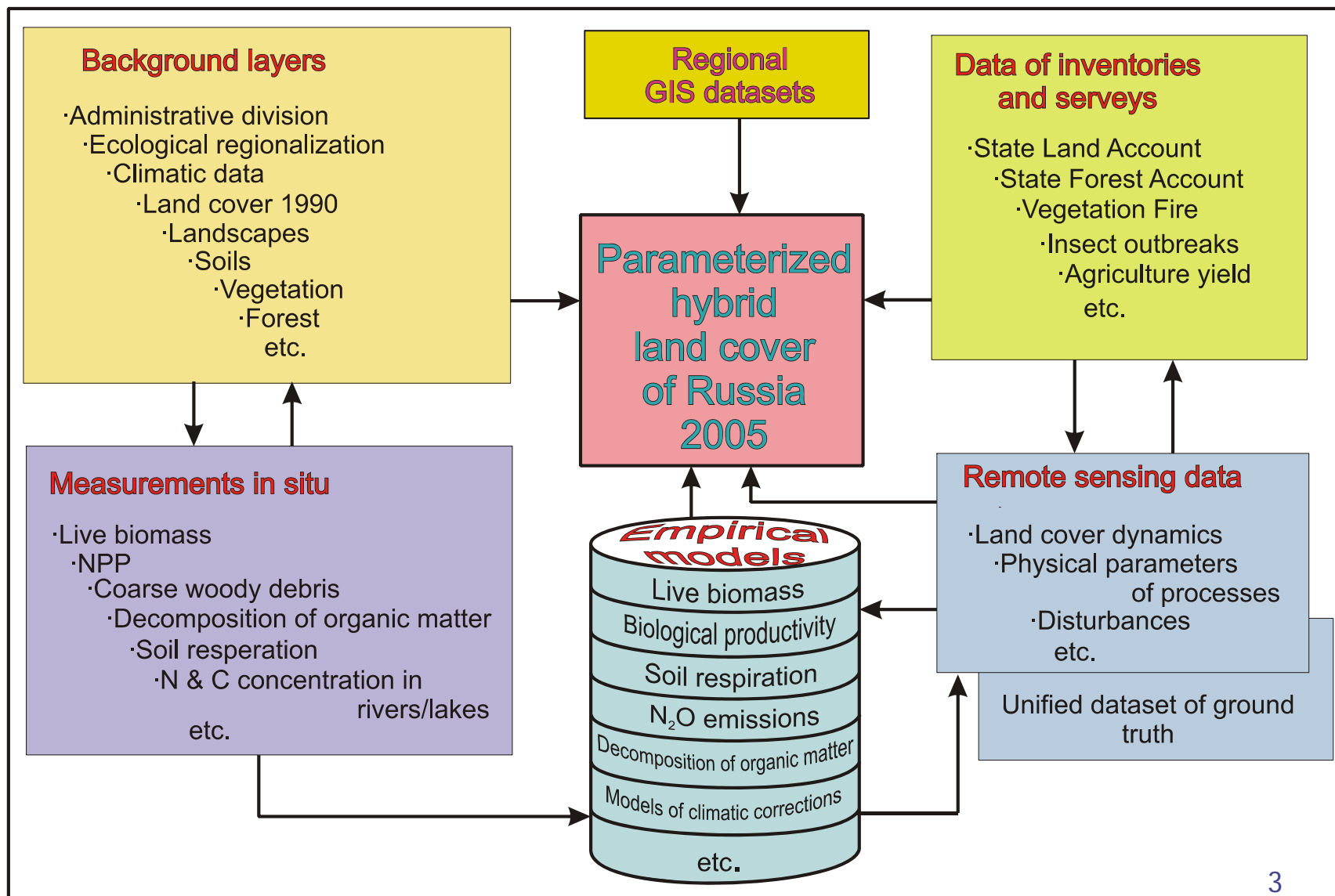
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The overall objective is development of information base for the verified Terrestrial Biota Full Greenhouse Gas Account for Russia

- ◆ **Key words: Full, Verified, Uncertainty**
- ◆ Full: ALL ecosystems, ALL processes, ALL biophysical elements continuously in time
- ◆ Verified: (1) reliable and comprehensive assessment of uncertainties; (2) possibility to manage uncertainties
- ◆ Uncertainty is an aggregation of insufficiencies of outputs of the accounting system, regardless of whether those insufficiencies result from a lack of knowledge, intricacy of the system, or other causes

Structure of the Integrated Land Information System



“Basic” layers of the Hybrid land cover



GIS

- Administrative division
- Forest enterprises
- Bioclimatic zones
- Vegetation (1:4 Mio)
- Soil (1:2.5 Mio)
- Rivers/lakes & roads/railways (1:1 Mio)



Remote sensing products (1 km resolution)

- GLC2000 – Global Land Cover
- VCF - Vegetation Continuous Field
- Vegetation Fire (AVHRR & LANDSAT by A.I. Sukhinin)



Statistics

- State Land Account (by 87 administrative units)
- State Forest Account (by 1914 forest enterprises, 86594 records)
- Disturbances in forests (by administrative units)

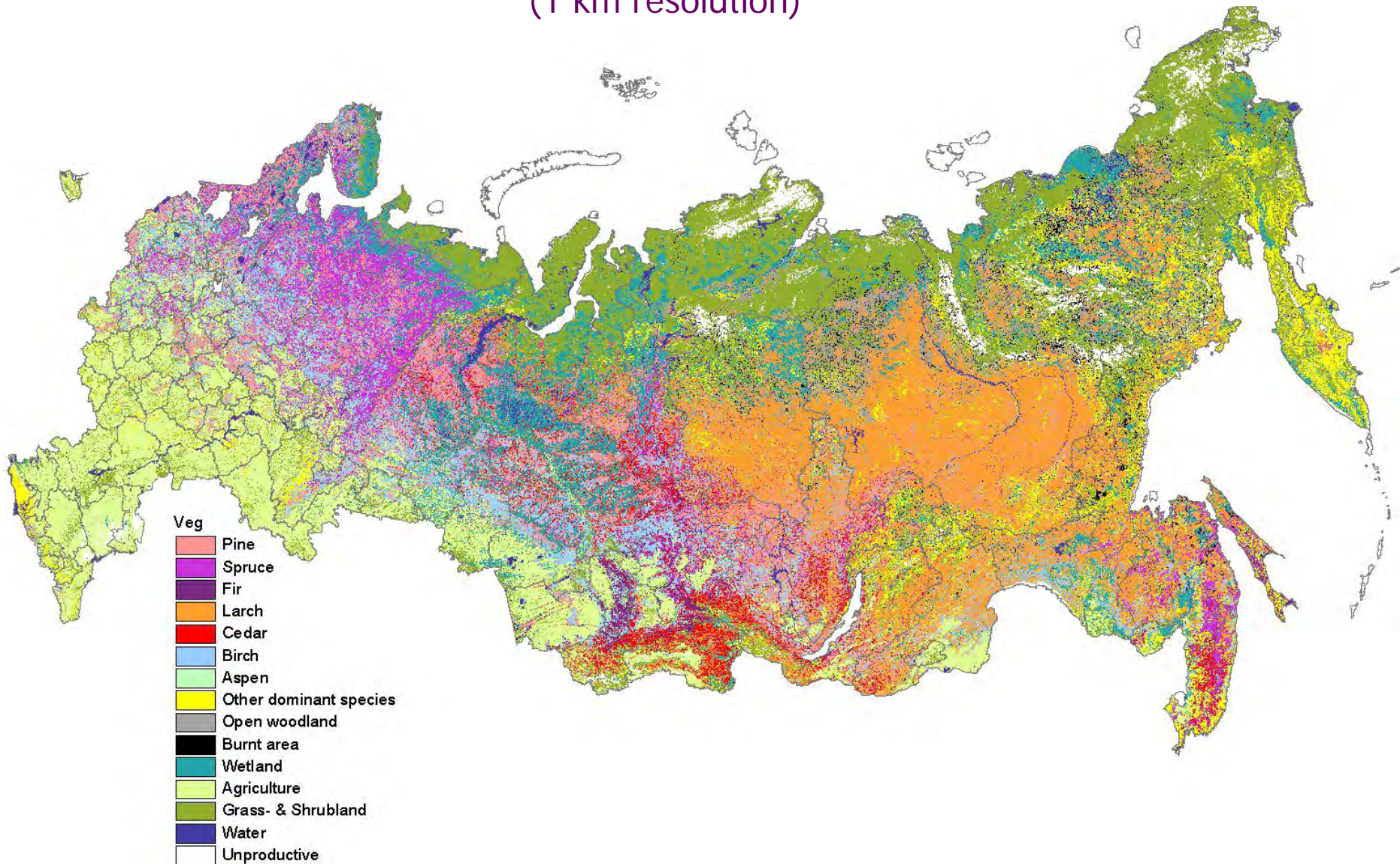


Models

- Live biomass
- NPP
- Respiration
- etc.

Hybrid land cover 2005 – vegetation classes

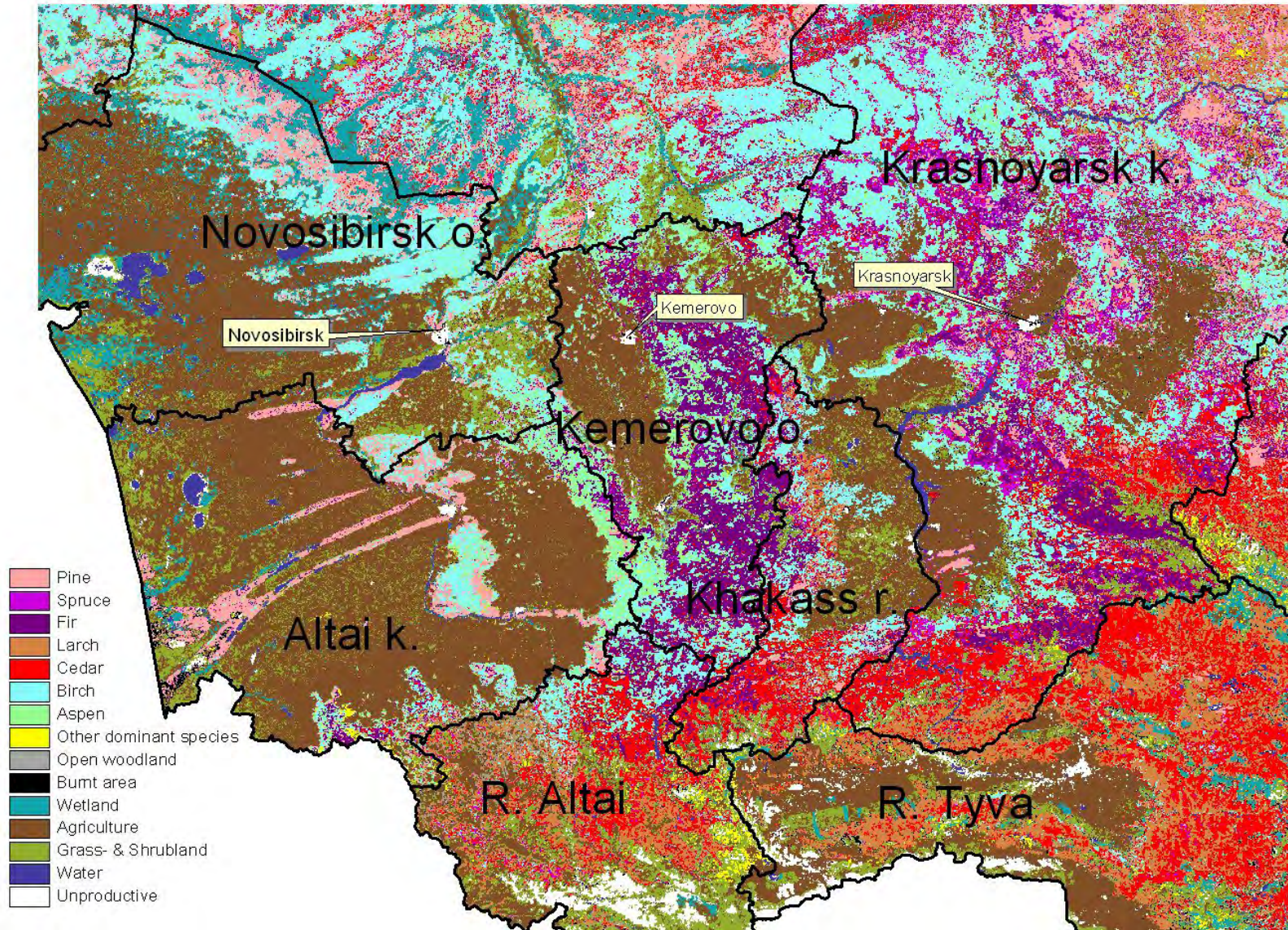
(1 km resolution)



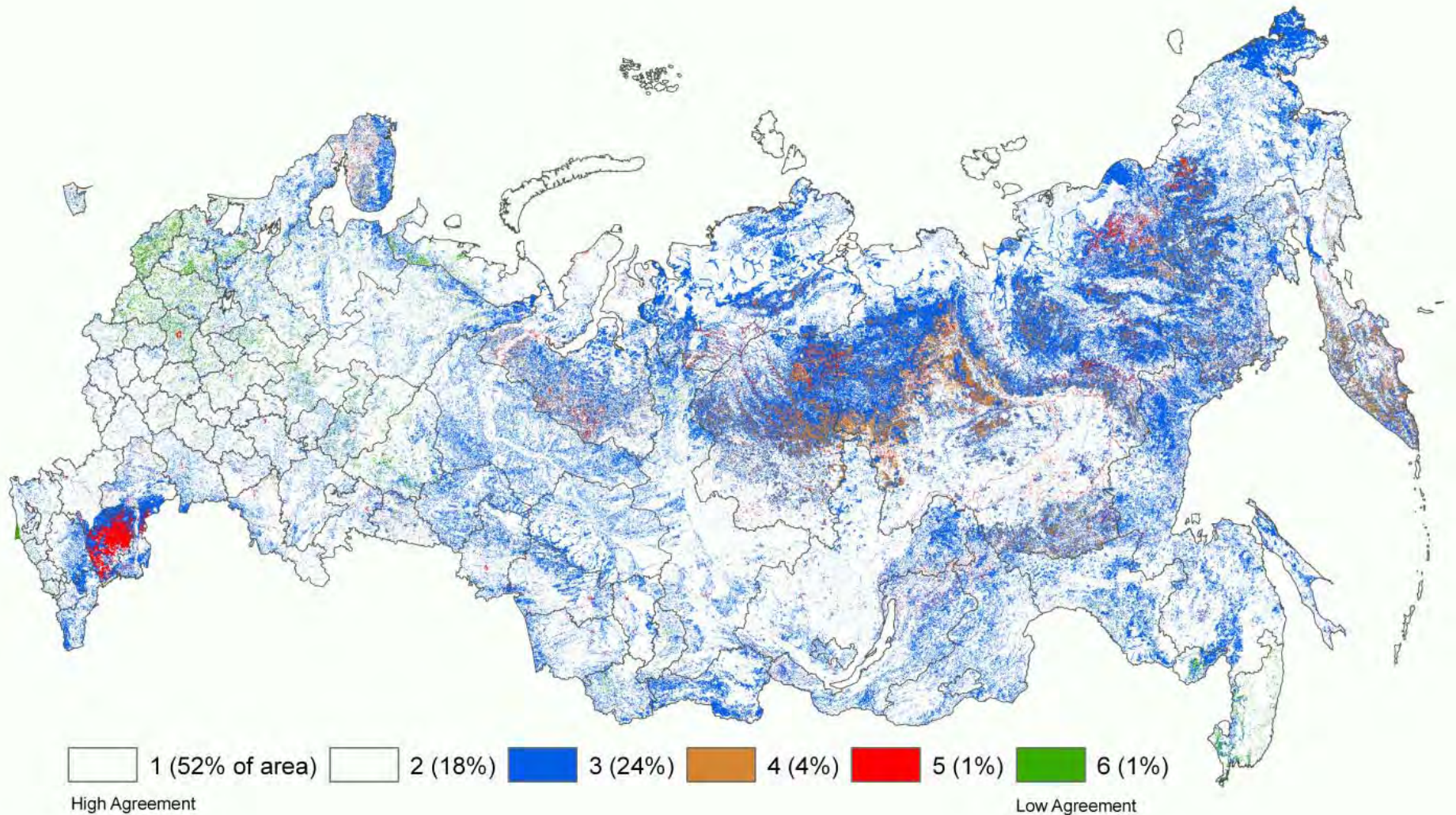
The Land Cover vegetation classes

- ◆ **Forest** (86613 units with detailed information about tree species, age class, growing stock, etc.)
- ◆ **Open woodland** (32 classes by main tree species and regions)
- ◆ **Agriculture** (arable land, hayfield, pasture, fallow, abandoned arable by 87 admin. units)
- ◆ **Wetland** (8 classes by 83 regions/zones)
- ◆ **Grass- & Shrubland** (about 50 classes)
- ◆ **Burnt area**
- ◆ **Water**
- ◆ **Unproductive**

Hybrid land cover 2005 –South of Siberia

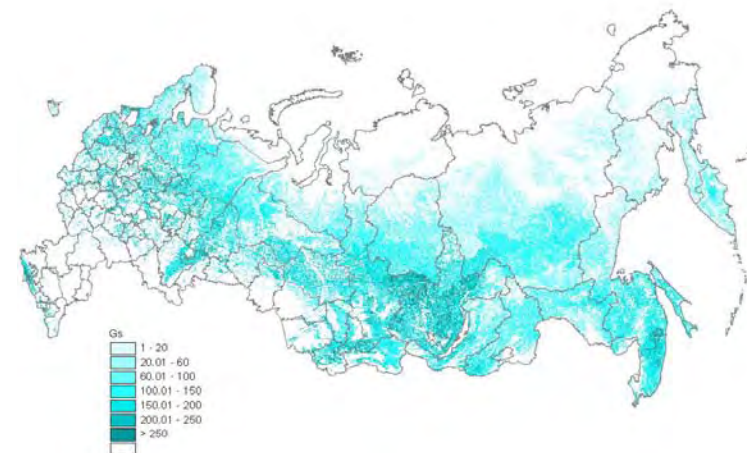
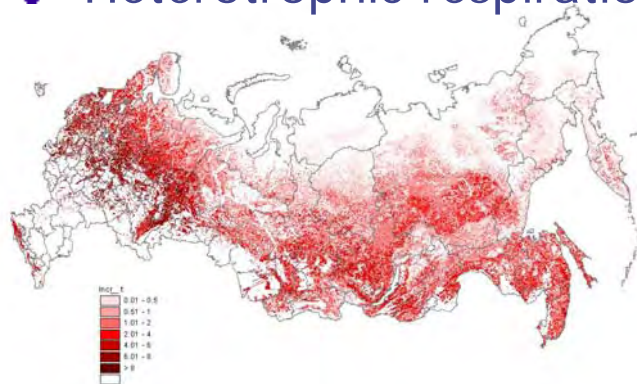


Agreement/confidence classes of the hybrid land cover map (1 & 2 omitted for clarity)

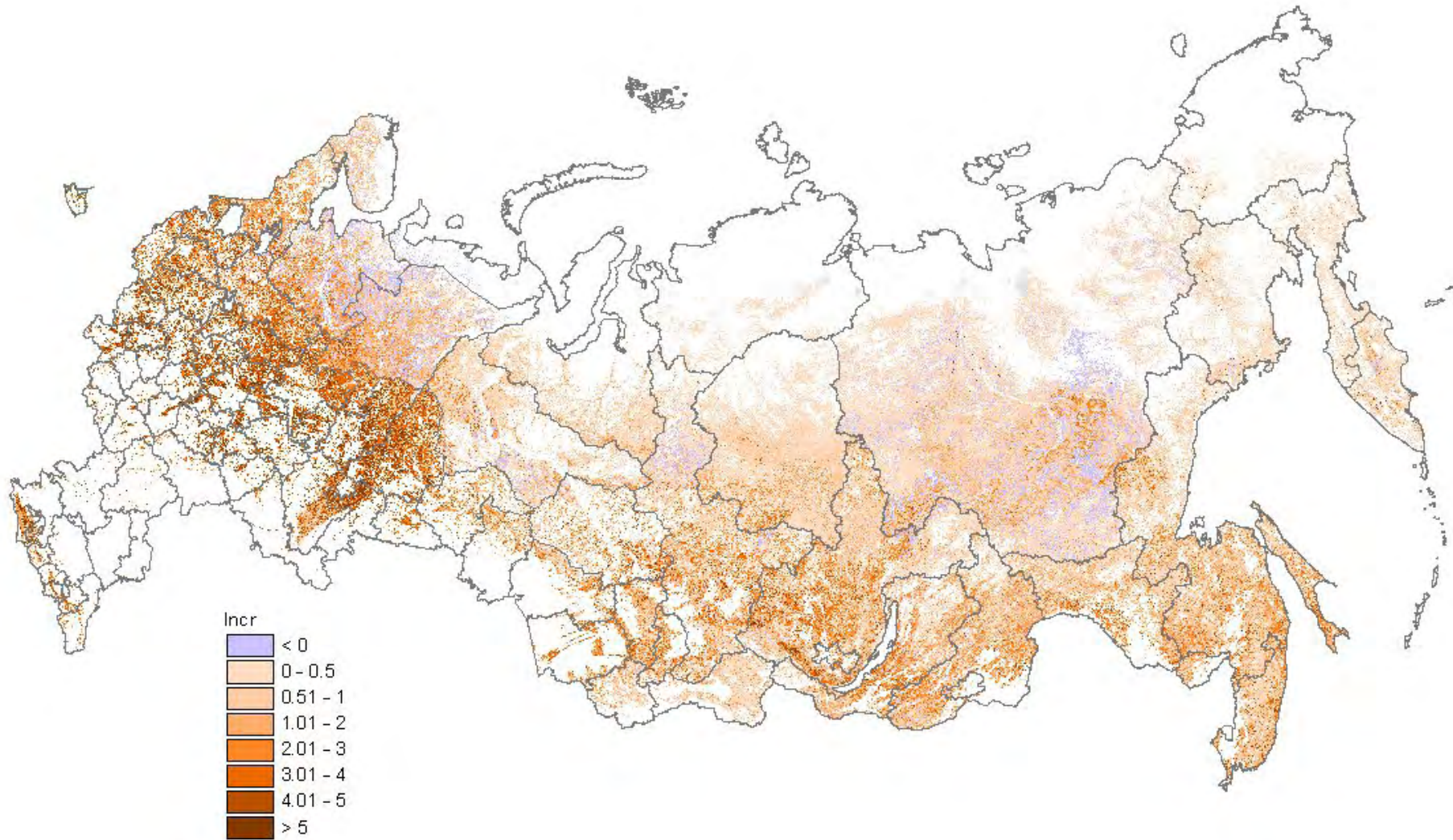


Indicators of forest productivity and carbon budget components

- ◆ Live biomass (by 7 fractions)
- ◆ Growing stock
- ◆ Growth and Mortality
- ◆ Coarse woody debris
- ◆ Net Primary Production (by 6 fractions)
- ◆ Heterotrophic respiration



Net Current Growth, $\text{m}^3\cdot\text{year}^{-1}$



Tasks for future

- ◆ Further validation
- ◆ Parameterization of other vegetation classes
- ◆ Full carbon and nitrogen account (2005)
- ◆ The same for the past (1980-2005)
- ◆ The same for the future

Thank you for your attention

