



Synergistic analysis of global land cover data sets indicating areas of loss in Russians agriculture between 1992 - 2001

M. Urban (1), M. Herold (2)

(1) Institute for Geography, Friedrich-Schiller University Jena, (2) GOF-C-GOLD Land Cover project office, Friedrich-Schiller University Jena, (marcel.urban@uni-jena.de / Phone: +49-3641-948888)

Declining agriculture has been reported in Russian agriculture areas resulting in changes of vegetation pattern. Changes in these areas are a reason for the current socioeconomic situation in Russia, caused by the transformation process. Global land cover data sets with one kilometer spatial resolution developed in 1992/93 and 2000/01 (GLCC, UMD, GLC2000, MODIS) were used to distinguish the changes. A harmonization of the legend for each data set was necessary to logically combine the multiple and multitemporal land cover types and evaluate area changes of the agriculture in Russia. The synchronization of the legends for each data set allowed creating successions land cover types and reflecting loss of agricultural areas. Land cover classes like forests, grasslands and shrublands appear to be the primary findings in this change detection. The results illustrate that the use of these global land cover data sets were applicative for this study. The synchronization of the legends for each data set is essential due to the differences between these global land cover maps. The multi-temporal comparison of the data shows discrepancies caused by differential accuracy and legends of the global land cover data sets. Statistics from the United States Department of Agriculture and Russian Oblast Statistics were utilized to validate or evaluate the results. The comparison of the statistics and the outcome of the change detection show trends of congruence by using a statistical parameter like the coefficient of determination. The results confirm that the main changes observed were from agricultural areas to vegetation types including forests, herbaceous plants and shrubs.