A COMPARISION OF GLOBAL URBAN MAP 2008 WITH SOME EXISTING URBAN MAPS

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KEY WORDS: GLCNMO, land cover, mapping, urban areas, accuracy.

ABSTRACT:

Although only a small percentage of global land cover, urban areas significantly alter climate, biogeochemistry, and hydrology at local, regional, and global scales. Accuracies of urban areas in the existing global land cover data are not high. Here we present results from efforts to map the global distribution of urban areas at 500 m spatial resolution. In this study, Global Urban Map 2008 is one of 20 land cover classes of Global Mapping project GLCNMO (Global Land Cover by National Mapping Organizations) version_2. It was mapped using multi-source geospatial data of 2008 year such as Population Distribution and Density, DMSP-OLS (The Defense Meteorological Satellite Program's Operational Linescan System) nighttime lights, MODIS data and Estimate the density of constructed Impervious Surface Area (EstISA) data of 2010 year. Information from all data sources was compared with fine resolution Landsat ETM+ and Google Earth image and combined to create a final map of urban areas. The Global Urban Map 2008 produced was compared with urban areas in six known existing global maps such as (1) IGBP DISCover by the U.S. Geological Survey, (2) Global Land Cover map by the University of Maryland, (3) GRUMP (Global Rural Urban Mapping Project), (4) GLC2000 by the European Space Agency, (5) GLOBCover by the European Space Agency, (6) GLCNMO version_1 by Chiba University. Results of the comparisons showed that Global Urban Map 2008 was better than other existing maps for the purpose of urban mapping.