Geophysical Research Abstracts
Vol. 20, EGU2018-19788, 2018
EGU General Assembly 2018

Analysis of land use change in lowlands of Pearl River Delta (Guangdong Province, P.R. China) from 1986 to 2017

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Since the introduction of the opening-up policy and economic reforms in 1978, China has experienced a deep change in policies, which led to an explosive growth of industry, commerce, and population. Those achievements were not possible without the alteration of land use and land cover. The purpose of this study is to detect and investigate how deep these changes have been in one of the most important lowland areas of south China: Pearl River Delta (Guangdong Province). In the last 40 years, this region became one of the most important and most populated regions in China, and its commercial, financial and industrial leading role is still increasing today (Xiong et al. 2012). The dataset used in the study is made up of remote sensing imagery collected from 1986 to 2017 using Landsat TM, Landsat 8 OLI and Sentinel-2 satellites. The temporal range of the images is five years starting from 1986 until 2016, and the 2017 image was used to detect the state of play of the region, as a starting point for future studies. The first part of the study analyzes the dramatic changes in land-use patterns in the four selected study areas: each one of those areas is a 10x10 km2 square and was chosen for a peculiarity or a precise motivation. One of the areas is a clear example of land reclamation for agricultural needs, originated from the transition from rural to developed (urban, roads, industry) land use class. The development of new cities was very fast in the last 40 years, but it was not well planned and lacked coordination, and this is clearly detectable in this study. In the second part of the study, a brief analysis is performed on the social-economical issues of each of the study areas, focusing on the possible causes that have led to the current land cover in Pearl River Delta region.

Reference

Xiong, Yongzhu, Shaopeng Huang, Feng Chen, Hong Ye, Cuiping Wang, and Changbai Zhu. 2012. “The Impacts of Rapid Urbanization on the Thermal Environment: A Remote Sensing Study of Guangzhou, South China.” Remote Sensing 4 (7):2033–56. https://doi.org/10.3390/rs4072033.