



Global Land Project 2nd Open Science Meeting

Land Transformations: between global challenges and local realities

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NUMBER	TITLE	AUTHORS	COUNTRY
0937	Dynamic of sugarcane harvested areas in São Paulo state, Brazil, over the last two decades	Bruno Schultz, Antônio Roberto Formaggio, Clement Atzberger, Alfredo José Barreto Luiz, Elizabeth Goltz, Marcio Pupin Mello	Brazil
<p>Sugarcane plantations in São Paulo State play an important role in the Brazilian production. Around 20% of the state area is planted with sugarcane. São Paulo State has 645 municipalities distributed over 15 mesoregions, eleven of which grow sugarcane to produce sugar and ethanol at an industrial scale. The remaining mesoregions (<i>Vale do Paraíba Paulista</i>, <i>Metropolitana de São Paulo</i>, <i>Litoral Sul Paulista</i> and <i>Macro Metropolitana Paulista</i>) do not produce significant sugarcane due to relatively unfavorable environmental conditions. Over the last two decades, this crop has had a considerable expansion in all the 11 mesoregions that cultivate sugarcane in São Paulo State. However it is important to understand the dynamic of this expansion over the mesoregions, since factors such as land prices, economic attractiveness, subsidies and tax incentives, input prices, proximity to the receiving plant and environmental liabilities influence the spatial distribution of sugarcane within the state. Thus, this paper aims at analyzing the spatial dynamics of sugarcane expansion in São Paulo State over the last two decades. To achieve this, we evaluated historical data from IBGE (Brazilian Institute of Geography and Statistics) of sugarcane harvested areas from 1990 to 2010. Historical data from 1990, 1995, 2000, 2005 and 2010 were used as input to an agro-dynamic model proposed by Garagorry and Chaib Filho (2008), which calculated for each year a center of gravity based on the sugarcane harvested area for all municipalities within each mesoregion. Eventually, the 11 mesoregions were used to calculate the center of gravity of the state for the five mentioned years. The results showed that sugarcane moved from the middle mesoregion of <i>Piracicaba</i> in 1990 to <i>Ribeirão Preto</i> in 2000 and then to <i>São José do Rio Preto</i> in 2010. In two decades the sugarcane harvested area in São Paulo doubled, with major contributions from mesoregions located in the Northwest of the state. Indeed, <i>Piracicaba</i> mesoregion, for instance, has traditionally cultivated sugarcane in São Paulo, but when sugarcane started to be economically more attractive than citrus and livestock, several other mesoregions located in the Northwest of the state (e.g., <i>São José do Rio Preto</i>, <i>Araçatuba</i> and <i>Presidente Prudente</i>) expanded their sugarcane areas. This expansion in the Northwest of the state moved the center of gravity of sugarcane harvested areas from the center to the Northwest portion of the state. In fact, the expansion of sugarcane in São Paulo occurred mainly in the mesoregions located in the Northwestern of the state, even though traditional mesoregions such as <i>Piracicaba</i> and <i>Araraquara</i> did not decrease their sugarcane cultivation.</p>			