world congress on integrated
crop-livestock-forest systems

3ʳᵈ International Symposium on Integrated Crop-Livestock Systems
towards sustainable intensification • brasilia • brazil • 2015

Methodologies and technological innovations for low-carbon agriculture monitoring and planning for the ABC Plan governance support - Geo ABC.

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Introduction

The purpose of this abstract is to present the Geo-ABC Project which is in the process of beginning. The main project purpose is to provide monitoring methodologies and spatial indicators in support of the ABC Plan governance - *Sectorial plan for mitigation and adaptation to climate change aimed at consolidation of a low-carbon economy in agriculture* (www.agricultura.gov.br). For this the project aims to evaluate innovative methods and techniques in the area of remote sensing and spatial data integration for the detection of farming practices and agricultural production systems aligned with low-carbon agriculture policies, such as: crop-livestock- forest integration; no-tillage grains crop; agroforestry systems; reforestation. The objective is to develop integrated methods to detect complex agricultural production systems since plots level-scale until landscape-scale in order to be able to monitoring the adoption of different sustainable systems in farms system and landscapes levels. Thus, in the political context, the methodologies developed by the line of Geo-ABC research proposed will provide spatial-temporal metrics able to answer essential questions of ABC Plan governance. In the scientific context, the methods will provide inputs for studies on land use dynamics related to the lower-carbon agricultural systems adoption with different ecosystems services, like a carbon stocks and sequestration, and in this way contribute to the assessment of the effective mitigation of GHG emissions in the context of ongoing climate change. The present proposal constitutes the consolidation of cooperation: UMR TETIS/Cirad-IRSTEA-Univ. AGroParisTech, IRD/UMR Espace-Dev, UERJ/PPGMA, Embrapa, INPE, INPA - aimed at continuing the lines of research and network-building in sustainable agriculture and earth observation, bringing opportunities for the students training linked to the Universidade do Estado do Rio de Janeiro, notably, at the Programa de Pós-Graduação em Meio Ambiente – Doutorado Multidisciplinar – PPG-MA.

Methodological Outputs

The present proposal is characterized for being an exploratory methodological research project. So the methodological approach completely set constitutes one of the objectives of this work. However the main methodological outputs are as follows: (i) Methods for monitoring, in local scale, the Low Carbon Agriculture cropping systems based on remote sensing data and on field ground data;(ii) Methods for characterization and scaling up cropping system variables into cropland system (landscape level);(iii) A Protocol for monitoring the Low Carbon Agriculture cropland systems based on moderate resolution satellite images and future remotely sensed data (i.e. Sentinel-2 data), knowledge data, among others.

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Results and Conclusions

The purpose of this Abstract is just the presentation the Geo-ABC Project that is still in the early stages for this has not yet got results.