



Big earth-observation data analytics for modelling pan-tropical land-use change trajectories for newly deforested areas

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Global land use monitoring is important to the Sustainable Development Goals (SDGs). The latest advances in storage and manipulation of big earth-observation data have been key to developing multiple operational forest monitoring initiatives such as FORMA, Terra-i and Global Forest Change. Although the data provided by these systems are useful for identifying and estimating newly deforested areas (from 2000), they do not provide details about the land use to which these deforested areas are transitioned. This information is critical to understand the biodiversity and ecosystem services impact of deforestation and the resulting impacts on human wellbeing, locally and downstream. With the aim of contributing to current forest monitoring initiatives, this research presents a set of experimental case studies in Latin America which integrate existing land-change information derived from remote sensing image and aerial photography/ground datasets, high-temporal resolution MODIS data, advanced machine learning (i.e. deep learning) and big data technologies (i.e. Hadoop and Spark) to assess land-use change trajectories in newly deforested areas in near real time.