



Assessing the quality of crowdsourced in-situ land-use and land cover data from the FotoQuest Austria application

Juan Carlos Laso Bayas, Linda See, Steffen Fritz, Tobias Sturn, Mathias Karner, Christoph Perger, Martina Duerauer, Thomas Mondel, Dahlia Domian, Inian Moorthy, Ian McCallum, Dmitry Schepaschenko, Florian Kraxner, and Michael Obersteiner

IIASA, EOS-ESM, Laxenburg, Austria (lasobaya@iiasa.ac.at)

With the proliferation of mobile phones and the rise of citizen science, the question of whether citizens can be used to complement traditional land surveys, e.g. the Land Use / Cover Area frame statistical Survey (LUCAS), needs further consideration. LUCAS is the European reference dataset for land use and land cover statistics. It is produced every three years using paid surveyors to collect information on land cover and land use at more than 270,000 point locations across all EU states. LUCAS has very strict protocols on data collection and a two-step system to ensure the quality of the data collected. To complement LUCAS, IIASA has developed the FotoQuest Austria (<http://fotoquest.at/>) app, which aims to engage citizens in exploring Austrian landscapes, geo-tagging land use and land cover across the country using a simplified version of the LUCAS protocol. The app shows the location of nearby points, and once at the location, volunteers take pictures in four cardinal directions and at the point location, recording the type of land use and land cover from a list of options in the app. Implementation of the simplified protocol uses the mobile technology to record the location, the angles of inclination of the phone when taking the pictures, the compass directions and the precision of the GPS to restrict when users can take photographs. These measures were employed to ensure high quality data collection. FotoQuest Austria has been running since the summer of 2015 with more than 2500 points on the ground and more than 12500 pictures collected by volunteers. Advantages of such an approach include the collection of a denser sample and a more frequent revisit time than the 3 year update cycle of LUCAS, which may then be used to detect ongoing change. Additionally, the involvement of citizens in getting to know their surrounding landscapes is a very valuable process and can be a positive vehicle for raising awareness of possible environmental conflicts and issues. This paper compares the results from this ongoing campaign with data from LUCAS. The presentation also outlines the lessons learned and highlights the minimum requirements needed to collect high quality data from volunteers. Recommendations for use of the app to complement LUCAS surveying and its application to other domains will also be discussed.