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Background

Grégory Duveiller has a scientific background in agronomy, forestry and remote sensing. He received his M.Sc. degree in agricultural engineering from the Université Catholique de Louvain (UCL) in 2005. He then joined the UCL-Geomatics research group within the Earth and Life Institute (ELI) of the UCL to assess tropical deforestation rates in central Africa using remote sensing. In January 2011 he presented at UCL his Ph.D. thesis on the use of remote sensing for crop monitoring at multiple scales. More specifically, his research delved with bridging the methodological gap between state-of-the-art quantitative remote sensing of crops and operational crop growth monitoring at regional to global scales. After his thesis, he joined the European Commission Joint Research Centre (JRC), where he performed operational analyses of crop monitoring and yield forecasting, while, in parallel, pursuing research activities in remote sensing for crop monitoring and analysing impacts of climate change on agriculture. Since 2014 he changed research group within JRC to focus on analysing the effects of terrestrial ecosystem on climate, and climate on ecosystems. More specifically, he gathers, post-processes and analyses various land surface datasets of different biophysical variables (land surface temperature, albedo, GPP, fluorescence, etc.) for inter-comparison and validation of land surface ecosystem models in the context of assessing the biogeochemical and biogeophysical effects of land use change on the Earth system.

Activities in education

Grégory Duveiller has given the theoretical and practical lectures on Agriculture for the 2013 ESA 4th and 2015 6th Advanced Training Course in Land Remote Sensing. He has also provided training for using tools in crop growth modelling using the Biophysical Modelling Application (BioMA) framework developed in the European Commission Joint Research Centre. He has supervised MSc and PhD students in quantitative applied remote sensing. He has been as speaker in several international conferences and workshops.

Recent projects

Grégory Duveiller has contributed to the following research projects combining different aspects of Earth observation and modelling with the aim of monitoring vegetation under changing meteorological and climatic conditions:

- LUC4C Project to study the interplay between land use and climate change, assessing the net climate forcing of land use change, and the options for climate change mitigation and adaptation [2014-2017 financed by the EU FP7 programme]
- AGBIO project for “EO data-driven modelling of agricultural biomass production in Europe” JRC Exploratory project [2016-2017 financed by the European Commission DG-JRC]
- GLOBCAST Project to study the possibility of enlargement of the MARS Crop Yield Forecasting System (MCYFS) to the major agricultural regions of the world [2011-2013 financed by the European Commission DG-AGRI]
- EUROCLIMA Project to improve the knowledge of Latin American decision-makers on the problems and consequences related to climate change [2010-2012 financed by the European Commission DG-DEVCO]
- AVEMAC Assessing Agriculture Vulnerabilities for the design of Effective Measures for Adaption to Climate Change [2011 financed by the European Commission DG-AGRI]
- MOCCASIN MOonitoring Crops in Continental Climates through Assimilation of Satellite Information [2011-2013 financed by the EU-FP7 programme]
- GLOBAM Global Agricultural Monitoring systems by integration of earth observation and modelling techniques [2007-2011 financed by the Belgian Scientific Policy Office (BELSPO) under the STEREO2 programme (SR/00/101)]

Selected recent publications

- Duveiller, G.**, & Cescatti, A. (2016). Spatially downscaling sun-induced chlorophyll fluorescence leads to an improved temporal correlation with gross primary productivity. *Remote Sensing of Environment*, 182, 72–89. <http://doi.org/10.1016/j.rse.2016.04.027>
- Duveiller, G.**, Fasbender, D., & Meroni, M. (2016). Revisiting the concept of a symmetric index of agreement for continuous datasets. *Scientific Reports*, 6, 19401. <http://doi.org/10.1038/srep19401>
- Duveiller, G.**, Lopez-Lozano, R., & Cescatti, A. (2015). Exploiting the multi-angularity of the MODIS temporal signal to identify spatially homogeneous vegetation cover: A demonstration for agricultural monitoring applications. *Remote Sensing of Environment*, 166, 61–77. <http://doi.org/10.1016/j.rse.2015.06.001>
- López-Lozano, R., **Duveiller, G.**, Seguini, L., Meroni, M., García-Condado, S., Hooker, J., Leo, O. & Baruth, B. (2015). Towards regional grain yield forecasting with 1km-resolution EO biophysical products: Strengths and limitations at pan-European level. *Agricultural and Forest Meteorology*, 206, 12–32. <http://doi.org/10.1016/j.agrformet.2015.02.021>
- Löw, F., & **Duveiller, G.** (2014). Defining the Spatial Resolution Requirements for Crop Identification Using Optical Remote Sensing. *Remote Sensing*, 6(9), 9034–9063. <http://doi.org/10.3390/rs6099034>