VolkswagenStiftung

Postdoctoral Fellowship für Murodjon Sultanov "OPtimization of Crop Modeling using synthetic high-resolution time series (OPCM)"

Initiative: Zwischen Europa und Orient - Mittelasien/Kaukasus im Fokus der Wissenschaft

Ausschreibung: Postdocs „Umwelt, natürliche Ressourcen und erneuerbare Energien“

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Water mismanagement and climate change jeopardize sustainability of agriculture in the world's arid zones such as those in the Aral Sea Basin. There, rural population is growing and both, rural livelihoods and food crop production need to be sustained to achieve the UN-SDG 2 (ending hunger, achieve food security and improved nutrition and promote sustainable agriculture). One valuable information for national and regional management in the ASB is the information about the wheat yields expected at the end of the season. Regression analysis between remote sensing data together with harvest information as conducted in the LaVaCCA project funded by Volkswagen Foundation 2015-2018 may allow to predict the crop yields in early stages, however with a comparably low accuracy and for local conditions only. In LaVaCCA, also a light use efficiency (LUE) model was tested for yield modeling, but on the scale of MODIS data (250m) and in a retrospective view only. This project OPCM aims at the optimization of a LUE model for yield predictions of winter wheat, with Sentinel-2 data and synthetic time series at the scale of ~30 m pixel resolution. A LUE-model based on R-statistical software and a C-library for data fusion (generation of high-resolution time series) will be utilized and adjusted. The inclusion of climate model data provided by the European Centre for Medium-Range Weather Forecasts (ECMWF) is proposed. The applicant will cooperate with the German project partner in the field of yield modeling, data fusion, and utilization of gridded meteorological data. GIS and remote sensing courses are foreseen. The output can support the national crop-monitoring program of Uzbekistan. The project will increase the knowledge about key geographical technologies in Central Asia, e.g. for calculating key indicators in the SDG framework.

Projektbeteiligte

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Es werden die Institutionen genannt, an denen das Vorhaben durchgeführt wurde, und nicht die aktuelle Adresse.