



## **The AFTER project: filling the gap for regional climate modeling over the Central Asia CORDEX domain**

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The interdisciplinary research project AFTER, funded by the ERA.Net RUS PLUS program, started in 2018. The aim of AFTER is to investigate the “Impacts of climate change and climate extremes on Agriculture and Forestry in the Europe-Russia-Turkey Region”. To meet this goal, regional climate information at high resolution is essential. Although various high-resolution climate experiments are currently available for Europe and Turkey (e.g. EURO-CORDEX or Med-CORDEX), Russia and Central Asia are covered by only a few and low-resolution simulations. There is a need for a consistent set of climate projections over Europe, Russia and Turkey to complete the research objectives of AFTER. Therefore, the CORDEX Central Asia (CAS-CORDEX) domain, which encompasses the region of interest, is selected. To enlarge the available climate data over the CAS-CORDEX domain we follow the CORDEX-CORE protocol and run two RCMs at a resolution from 25 km up to 12.5 km: ALARO-0 (RMIB-UGent) and REMO (HZG-GERICS). Moreover, for both models we carry out ERA-Interim as well as coupled model intercomparison project 5 (CMIP5) driven simulations using the representative concentration pathways (RCPs) 2.6, 4.5 and 8.5. The first results on the evaluation of the ALARO-0 (RMIB-UGent) and REMO (HZG-GERICS) models will be presented. More specifically, inter-model comparison results with respect to high-quality observational station data for Latvia, Russia, and Turkey will be given. This allows for an accurate estimation of local climate information together with their uncertainties, that in turn will be used as input to study the impact of climate change on forest ecosystems, phenological processes of the crops and quality and quantity of the crop yields.

Finally, in collaboration with stakeholders of the agriculture and forestry sectors for the selected regions, the best available climate data will be translated into tailored information required for the formulation of adaptation and mitigation strategies. The forthcoming scientifically based assessment with multiple risks of observed and future climate change for agriculture and forestry that will result from this research project is crucial since the effects of climate change in both sectors are already felt in this region.