Federal Ministry of Education and Research

Innovative Development Agency of the Ministry of Higher Education, Science and Innovation

Young Scientist School 2023

Climate Impact Assessment on Water Resources in Uzbekistan: Implications to agriculture and hydropower sectors

1 Dates & Venue

Dates: 24 – 26 July 2023
Venue: "Green Hall", National Research University TIIAME,
39 Kari Niyaziy Street, Tashkent 100000, Uzbekistan

2 Description

The Young Scientist School covers lectures and practical exercises in the field of climate change and water resources of Uzbekistan. Lecturers from renowned universities such as the Humboldt University, TIIAME National Research University and National University of Uzbekistan as well as research centres of Helmholtz Association such as the German Research Centre for Geosciences (GFZ Potsdam) and Centre for Environmental Research (UFZ Leipzig) will give lectures on climate circulations and change as well as the impact of warming climate on water resources in the country. The workshop will consist of theoretical background information on physical processes of hydrology and water formation as well as practical exercises in using modern tools and modelling techniques in managing water resources in times of climate change in Uzbekistan.

Language
The courses will be given in English; hence the knowledge of English language is a prerequisite to participation.

Lecturers
- Prof. Abdulkhakim Salokhiddinov (TIIAME National Research University)
- Dr. Stefan Geyer (Department of Catchment Hydrology, UFZ Leipzig, Germany)
- Mr. Phillip Schuster (Geography Department, Humboldt-University Berlin, Germany)
- Dr. Gulomjon Umurzakov (National University of Uzbekistan, Tashkent, Uzbekistan)
- Dr. Abror Gafurov (Hydrology Section, GFZ German Research Centre for Geosciences, Potsdam, Germany)
- Mr. Alexander Georgi (Geography Department, Humboldt-University Berlin, Germany)
- Dr. Akmal Gafurov (Hydrology Section, GFZ German Research Centre for Geosciences)

3 Organizers

Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences Hydrology Section, Potsdam, Germany	HELMHOLTZ CENTRE POTSDAM GFZ GERMAN RESEARCH CENTRE FOR GEOSCIENCES
Humboldt University to Berlin Berlin, Germany	
UFZ Helmholtz Centre for Environmental Research Leipzig, Germany	UFZ HELMHOLTZ Zentrum für Umweltforschung
Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIIAME) National Research University (NRU)	TIIAME Tashkent Institute of Irrigation and Agricultural Mechanization Engineers
National University of Uzbekistan named after Mirzo Ulugbek	
Hydrometeorological Research Institute (NIGMI) under the Hydrometeorological Service of Uzbekistan (Uzhydromet)	

Contact to the organizers:
Astrid Krahn, GFZ German Research Centre for Geosciences, *krahn@gfz-potsdam.de*

4 Preliminary Programme

Monday, 24 July	
Welcome and Opening *Session head: Abror Gafurov, GFZ German Research Centre for Geosciences* *Venue: TIIAME NRU, Conference hall*	
8:30	Registration
9:00	Opening of the event and moderation ▪ Dr. Abror Gafurov, CLIMWATER Project Coordinator, GFZ Potsdam Welcome speeches ▪ Prof. Bakhodir Mirzaev – Rector of TIIAME National Research Universtiy (NRU) ▪ Dr. Caroline Milow, Green Central Asia Coordination, GIZ Tashkent ▪ Mr. Olimjon Tuychiev – Head of the Agency for Innovative Development of the Ministry of Higher Education, Science and Innovation ▪ Representative from the Ministry of Water Resources (TBC)
9:30	Overview and objectives of the CLIMWATER Project *Dr. Abror Gafurov*
10:00	Questions and answers
10:30	*Coffee break*
Water resources in Uzbekistan: needs and challenges *Session head: Prof. Abdulkhakim Salokhiddinov*	
11:00	Lecture: Water resources of Uzbekistan in times of climate change
12:00	Discussion
12:30	*Lunch*
Modeling future runoff contribution in glacierized catchments *Session heads: Phillip Schuster, Alexander Georgi, Humboldt-University Berlin*	
13:30	Introduction to Climate Modelling
14:30	*Coffee break*
15:00	Glacio-hydrological modelling and the MATILDA tool
16:00	Discussion
17:00	Summary of day 1
Tuesday, 25 July	
Monitoring of water resources using MODSNOW in Uzbekistan *Session head: Abror Gafurov, GFZ German Research Centre for Geosciences*	
9:00	Introduction into MODSNOW water resources monitoring system
10:00	Question and answers
10:30	*Coffee break*

11:00	*Hydrological forecasting exercise using MODSNOW*
13:00	*Lunch*
14:00	Introduction into modelling snow water equivalent (SWE)
15:30	*Coffee Break*
16:00	Estimation of water formation in the Chirchik River Basin (exercise)
17:00	Summary of day 2
Wednesday, 26 July	
Groundwater resources *Session head: Stefan Geyer, UFZ Leipzig, Gulomjon Umurzakov, National University of Uzbekistan*	
09:00	Introduction to Groundwater Resources and Climate change
10:00	Introduction to Groundwater Resources of Uzbekistan, an environmental and operational overview
11:00	*Coffee Break*
11:30	Groundwater Resources and Tracer Hydrology Methods (Tracer, Isotopes, residence times…) with exercises and a short Introduction to "TracerLPM Software"
13:00	*Lunch*
Glacio-hydrological modeling – Hands-on *Session heads: Phillip Schuster, Alexander Georgi, Humboldt-University Berlin*	
14:00	Quickstart in MATILDA glacio-hydrological modeling tool
14:30	MATILDA – Group Projects
16:00	*Coffee Break*
16:30	Group Presentations and Discussion
17:30	Workshop Summary