

MODSNOW User Workshop

Application and setup of MODSNOW operational snow cover monitoring tool in Central Asian headwater catchments

1 Dates & Venue

Dates: 01 – 05 August 2016
Venue: Uzbek Hydrometeorological Service (Uzhydromet),
Tashkent, Republic of Uzbekistan

2 Description

Snow is an important parameter in assessing seasonal water resources in mountainous regions. Snow cover from remote sensing allows to obtain spatially distributed snow information for high-altitude remote areas which serve as natural reservoirs for water resources availability in summer months. The MODSNOW Tool, developed in the frame of CAWA Project, allows processing of remote sensing snow cover data from MODIS in an operational mode with near real time data availability (2 days delay).

The MODSNOW user workshop is dedicated to introduce this innovative tool to end-users in Central Asian hydro meteorological services. Such a tool is of great value in monitoring daily snow cover evolution in mountainous areas of Central Asia. Besides only monitoring of snow covered areas, the ready-to-use snow cover maps of MODSNOW Tool can be applied for improving seasonal water availability purposes.

The 1-week workshop will combine theoretical lectures and practical exercises with discussion sessions on the application and implementation of MODSNOW tool for user-specified watersheds in Central Asia. The program will include an introduction to snow cover data from remote sensing, an overview to MODIS snow cover maps, detailed description of MODSNOW Tool and its implementation to newly specified watersheds.

The MODSNOW user workshop is organized in the frame of CAWA project as part of the German Water Initiative for Central Asia ("Berlin Process"), which has been launched by the German Federal Foreign Office in 2008.

Language

The course will be given in Russian

Lecturer

- Dr. Abror Gafurov (GFZ German Research Centre for Geosciences)

3 Organizers

CAWa Project

"Regional Research Network Water in Central Asia"

www.cawa-project.net



Uzbek Hydrometeorological Service (Uzhydromet),

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<http://www.meteo.uz>



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4 Participation and Funding

The MODSNOW user workshop addresses dedicated employees of national hydro meteorological services of Central Asian states. Potential participants are those who are interested in the application of MODSNOW Tool in their daily tasks at hydro meteorological services.

The CAWa project provides funding for travel and accommodation expenses for the accepted participants.

5 Programme

Monday, 1 August	
	Introduction to snow cover monitoring in Central Asia
9:00-9:15	Registration
09:15-9:30	Opening of the workshop B. Nishonov, First Deputy of General director of Uzhydromet
09:30-9:45	Workshop program and goals (A. Gafurov)
09:45-10:30	Remote sensing based snow cover monitoring in Central Asia (A. Gafurov)
10:30-10:45	Coffee break
10:45-12:15	Application of MODSNOW processed snow cover data for seasonal forecasting (O. Kalashnikova)
12:15-13:45	Lunch
13:45-15:15	Download and installation of necessary open source tools (<i>practical exercise</i>) <ul style="list-style-type: none"> ▪ R-statistical programming language (including necessary libraries) ▪ Modis Reprojection Tool (MRT) ▪ Quantum GIS (optional in case ArcGIS is not available)
15:15-15:30	Coffee break
15:30-17:00	Compilation of MODIS snow cover data (exercise) <ul style="list-style-type: none"> ▪ Individual and multiple download of snow cover maps Manual processing of original MODIS snow cover data using MRT <ul style="list-style-type: none"> ▪ Single tile processing ▪ Multiple tile processing
19:30	Welcome Dinner
Tuesday, 2 August	
09:00-10:30	MODSNOW cloud removal methodology (<i>lecture</i>)
10:30-10:45	Coffee break
10:45-12:15	Pre-processing of MODIS snow cover data (single and multiple) <ul style="list-style-type: none"> ▪ Merging several tiles ▪ HDF to TIFF conversion

	<ul style="list-style-type: none"> TIFF to ASCII conversion
12:15-13:45	<i>Lunch</i>
13:45-15:15	Application of cloud removal methodology for snow cover time series (user specified basins)
15:15-15:30	<i>Coffee break</i>
15:30-17:00	Cloud removal of pre-processed snow cover data (user specified basins)
Wednesday, 3 August	
09:00-10:30	MODSNOW tool for operational snow cover monitoring (<i>lecture</i>)
10:30-10:45	<i>Coffee break</i>
10:45-12:15	<ul style="list-style-type: none"> Statistical analysis of cloud removal performance Time series analysis of snow cover maps
12:15-13:45	<i>Lunch</i>
13:45-15:15	Input data preparation for MODSNOW tool
15:15-15:30	<i>Coffee break</i>
15:30-17:00	Conditional and monthly probability computations
Thursday, 4 August	
	Independent setup of MODSNOW-Tool for new sub basins (<i>exercise</i>)
9:00-10:30	Watershed delineation and shapefile preparation
10:30-10:45	<i>Coffee break</i>
10:45-12:15	Application of data download module using ftp shell script
12:15-13:45	<i>Lunch</i>
13:45-15:15	Merging, TIFF and ASCII conversion of multiple tile modules
15:15-15:30	<i>Coffee break</i>
15:30-17:00	Cloud removal and post processing modules
Friday, 5 August	
9:00-10:30	<ul style="list-style-type: none"> Setup of MODSNOW tool as scheduled task Analysis of results

10:30-10:45	<i>Coffee break</i>
10:45-12:15	Discussion of MODSNOW Tool <ul style="list-style-type: none">▪ User needs and requirements▪ Potential application regions▪ Further development possibilities
12:15-13:45	<i>Lunch</i>
13:45-15:00	Wrap-up and closing of workshop

The preliminary programme is subject to changes.