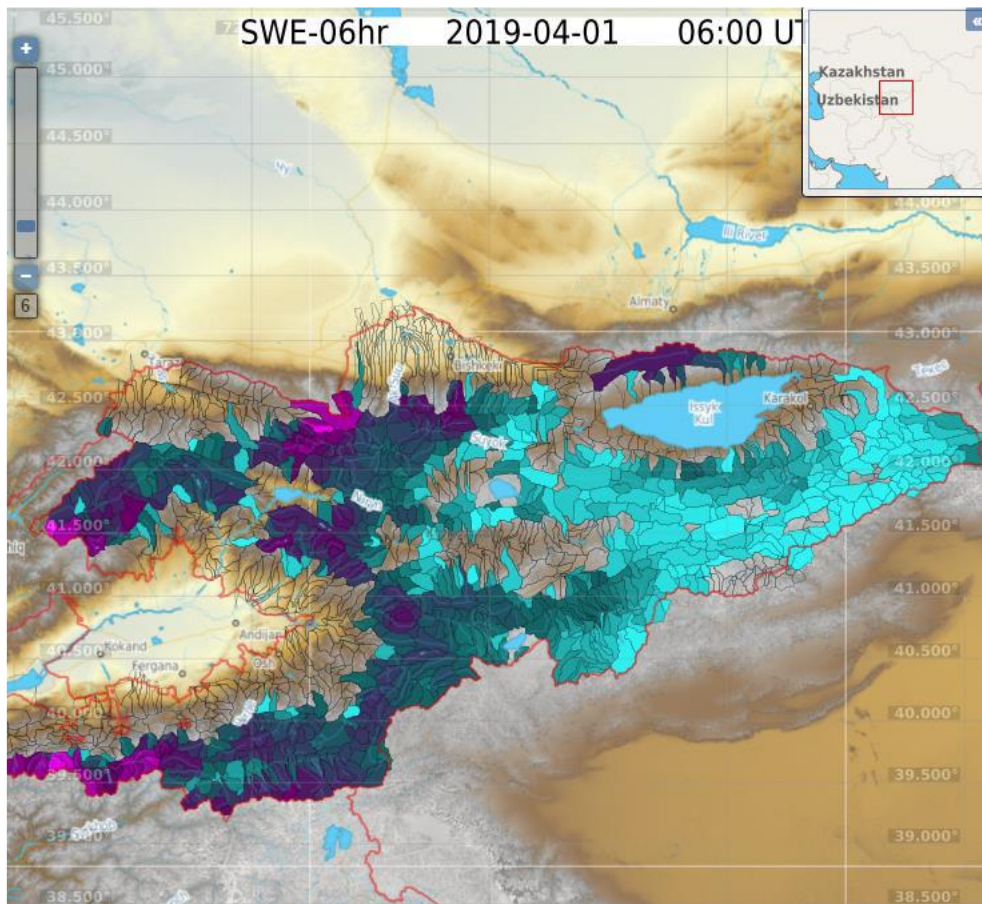# SNOW WATER EQUIVALENT (SWE)

Snowmelt provides significant volumes of water to river systems. The depth of water produced if a snow cover is completely melted on a horizontal surface is known as the snow water equivalent.

The Snow Water Equivalent (SWE) product is a direct output of SNOW-17 accumulation and ablation model in the FFGS and is estimated at 00 UTC, 06 UTC, 12 UTC and 18 UTC (Figure below).

Example of 6-hr Snow Water Equivalent product for Kyrgyz Republic

The model is forced by 6-hourly mean areal precipitation and surface air temperature. Surface air-temperature threshold parameters are used to distinguish between rainfall and snowfall events. Parameters of the model depend on terrain, land cover and its use, and the regional climate. The SNOW-17 model has two input variables, namely MAT and merged MAP, and simulates several products including SWE and MELT by using equations that solve for energy and mass balance.

Water produced by snowmelt is an important part of the annual water cycle in many parts of the world, in some cases contributing high fractions of the annual runoff in a watershed. SWE is a very important product to show available water content in each sub-basin for flash flooding.

This document was prepared by WMO-FFGS team using South East Europe Flash Flood Guidance System Forecaster Guide[1], FFGS Operational Output Product Descriptions available in the FFGS Real-Time Product Console developed by the Hydrologic Research Center and National Oceanic and Atmospheric Administration (NOAA) materials and documents.

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[1] https://www.wmo.int/pages/prog/hwrp/flood/ffgs/documents/SEEFFGS_Forecaster_Guide-Final_ES_TM-AS-PM.pdf