

Above average precipitation from late March continues to benefit crops and pastures

KEY MESSAGES

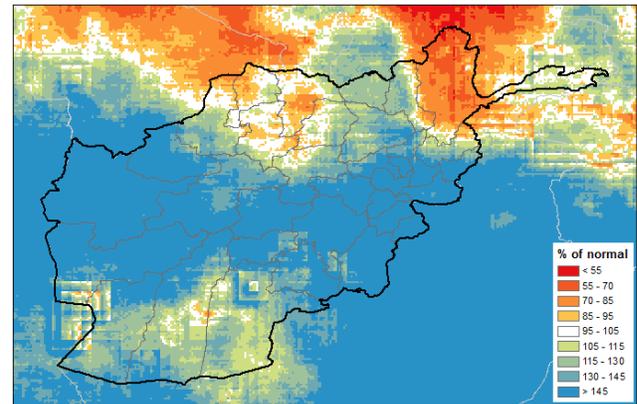
- Currently, the largest precipitation deficits, about 80 percent of normal, are present across much of Badakhshan while near- to above-average cumulative precipitation is present in the rest of the country. Above average precipitation in April eliminated much of the deficits that have been seen through most of the season in northern parts of the country.
- Rapid depletion of snow cover has begun in most basins across the country due to melting of snow. While snow water volumes in the Khulm, Shirin Taghab, Khanabad, Kokcha-Ab_i_Rustaq, and Panj basins continue to be close to or at record minimum levels, the recent heavy precipitation events have helped bring the snow water volumes closer to average or above average in the rest of the basins.
- The forecast of above-average temperature and precipitation is likely to support normal growth of irrigated and rainfed wheat in the coming months except in some northern and northeastern areas where precipitation deficits persisted throughout the season.
- The forecast of widespread heavy precipitation in the coming two weeks along with above average temperatures and saturated soil increases the risk of flash flooding across the country. These conditions are also conducive for landslides in central and northeastern parts of the country.

UPDATE ON SEASONAL PROGRESS

Precipitation anomalies:

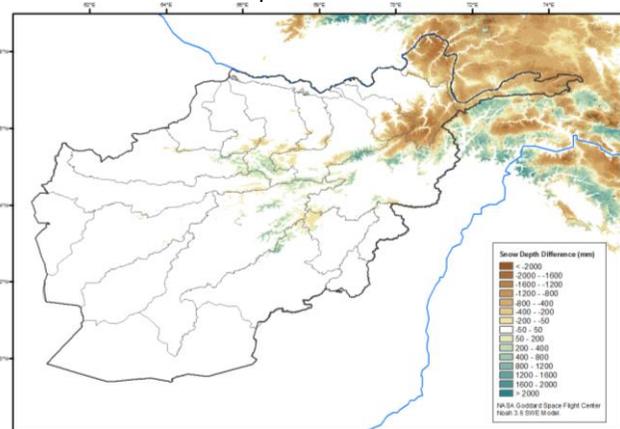
The 2019/20 winter wet season in Afghanistan started with above-average cumulative precipitation anomalies in the central, eastern, and southern parts of the country while the northern and northeastern parts of the country registered slightly below average cumulative precipitation anomalies at the end of December 2019. The northern and northeastern areas faced persistent below average cumulative precipitation anomalies through mid-March at which time precipitation deficits were as large as 70 percent of normal. The rest of the country continued to receive above average precipitation in the same period. The above-average precipitation from late March through the third week of April erased most of the cumulative precipitation deficits in the Jawzjan, Balkh, Kunduz, and Takhar provinces where precipitation is around 95 percent of normal with precipitation deficits in Badakhshan around 80 percent of the normal as of April 20 (**Figure 1**). It is important to note that, the above average precipitation from the third week of March also caused flood damages in parts of Faryab, Badghis, Ghor, Baghlan, Takhar, Badakhshan and Parwan Provinces.

Figure 1: October 1, 2019 - April 20, 2020 percent of normal (1981-2010) precipitation accumulation.



Source: USGS/UCSB

Figure 2: Snow depth difference anomaly relative to the average of 2002-2016 in mm as of April 22.



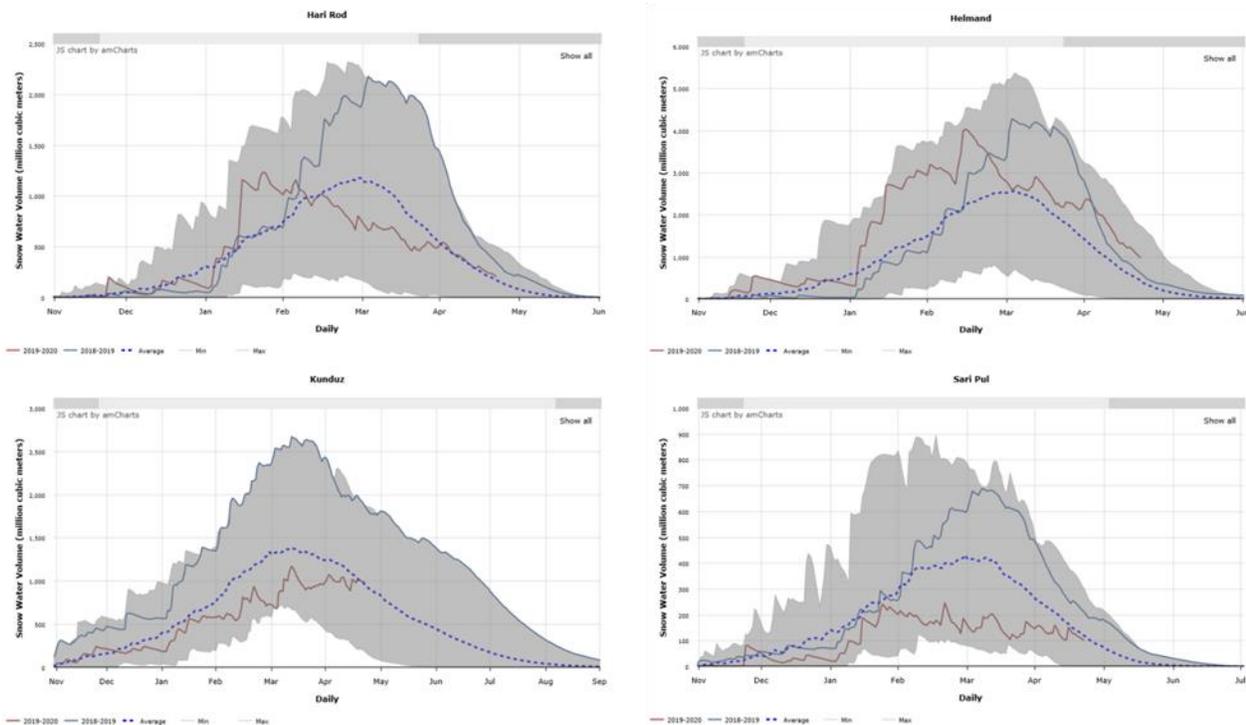
Source: USGS/NASA

Snow depth and snow water volume:

The early part of 2019/20 winter wet season saw below average snow pack development at higher elevations of northeastern and eastern parts of the country. Widespread and heavy precipitation in January however led to above average snow depths in the central and southern parts of the country while snowpack development remained below average in the north and northeast. The above average temperatures from the beginning of February through mid-March prevented the regular accumulation of snowpack. The above average precipitation from late March through the third week of April improved the snow depths at lower elevations in the eastern, central and southern parts of the country although below average snow accumulation continued at higher elevations in the eastern and northeastern parts of the country (**Figure 2**). The progressions of snow water volumes mirrored the growth characteristics of the snowpack development from early part of the 2019/20 wet season through mid-April in most basins across Afghanistan.

Figure 3 shows snow water volumes for 2019/20 in red compared to those in 2018/19 in blue in the Hari Rod, Helmand, Kunduz, and Sari Pul basins. Above-average snow water volumes can be observed in Hari Rod and Helmand basins while their absence can be observed in the Kunduz and Sari Pul basins during early part of 2019/20 winter wet season. The rapid depletion of snow water volumes due to above average temperatures from February through third week of March observed during the current season in **Figure 3** while there were above average snow water volume levels in the above basins during the same period last season. Water availability for the first crop may not be affected despite the current below average snow water levels. However, the water availability for the second season crop may be affected due to reduced seasonal snow water volumes for those basins with below average snow water volumes throughout the season.

Figure 3. Daily progression of snow water volume in million cubic meters in Hari Rod, Helmand, Kunduz, and Sari Pul basins as of April 22, 2018/19 and 2019/20.



Source: USGS/NASA

FORECAST

Precipitation:

The Global Forecast System 7-day total precipitation forecast for the week ending April 30 indicates 15 to 30 mm mild precipitation in central and eastern Afghanistan while dry weather is expected in the rest of the country. However, in the following week ending May 6, the eastern, central, and northeastern parts of the country are expected to receive 30 to 80 mm heavy precipitation (**Figure 4**).

The above average precipitation in April is expected to support normal completion of spring wheat planting and provide favorable conditions for irrigated and rain fed wheat and rangeland vegetative growth. There is a possibility that the current heavy precipitation events may cause damage to some of the crops that are due for harvest during late May-early June.

The forecast of heavy precipitation over already saturated soils is likely to increase flooding risk across the country. Based on the spatial distribution of GFS week 1 forecast, the risk of flooding is moderate to high in the downstream areas of basins from Hari Rod to Kabul (in a clockwise direction). However, Arghandab and Helmand basins also need to be closely monitored as changes in magnitude and spatial distribution for GFS precipitation forecasts are not uncommon.

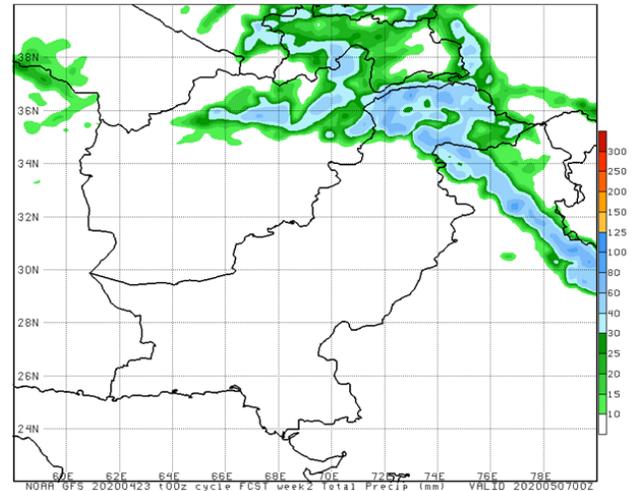
There is also an enhanced risk of landslides in the historically landslide vulnerable areas of Badakhshan, Dayakundi and Ghor due to the forecast of heavy precipitation in the first week of May.

Temperatures:

The North American Multi-Model Ensemble forecast for May-July indicates a relatively high probability of above-average temperatures in the eastern, central, northern, northeastern, and western parts of Afghanistan (**Figure 5**). The forecast of above average temperatures may subject above average evapotranspiration demands on the crop and rangeland vegetation. Except in the areas that had

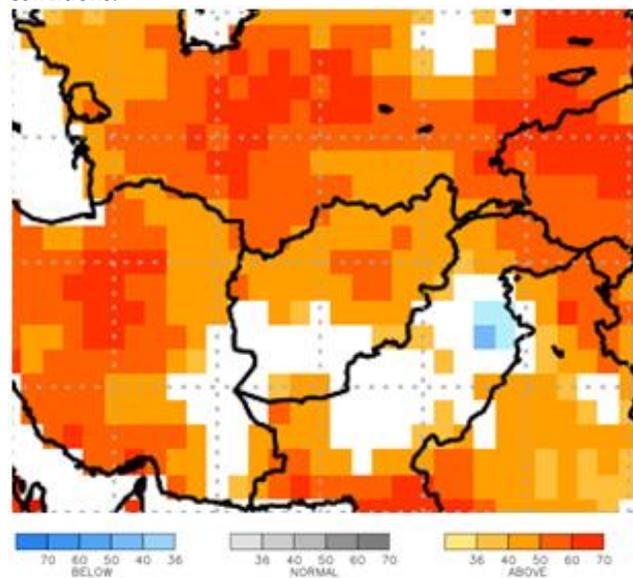
persistent precipitation deficits in the northern and northeastern parts of the country, the overly saturated soils due to heavy precipitation from the third week of March may most likely address the crop and rangeland evapotranspirative needs in the next couple of months. On the other hand, there is a need to monitor the crop and rangeland vegetation evapotranspirative needs and prepare crop water management strategies during the remaining summer months in the country.

Figure 4. The Global Forecast System 7-day forecast of total precipitation in mm for the period ending May 6.



Source: NOAA CPC

Figure 5. The North American Multi-Model Ensemble temperature (°C) forecast for May-July with April initial conditions.



Source: NOAA CPC