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AFGHANISTAN Seasonal Monitor

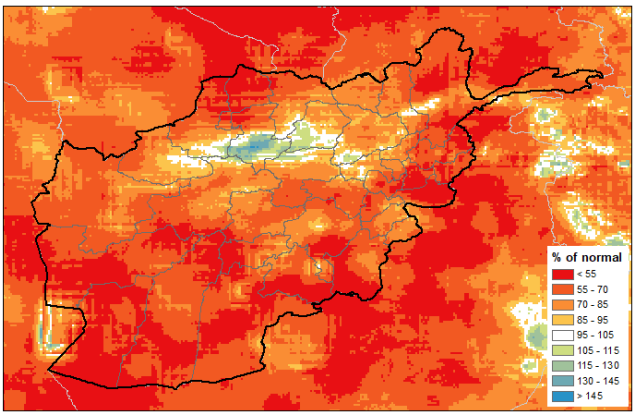
March 4, 2021

Below-normal precipitation and snow water volumes persist despite mid-February precipitation

KEY MESSAGES

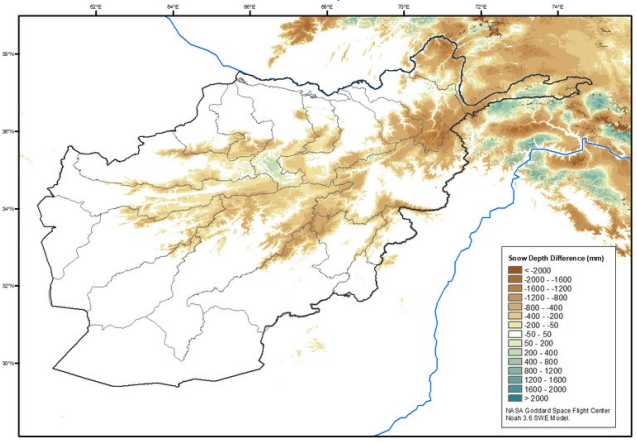
- Well-distributed precipitation was observed across northeastern, northern, central, and eastern parts of the country during the latter half of February. This partially eased the dry conditions prevalent since January. However, as of February 28, significant below-normal cumulative precipitation conditions persisted across the country.
- As of March 2, snow depths at higher elevations continue to be well below normal. As a result of precipitation during the second half of February, some positive snow depth anomalies are observed in localized central and northeastern parts of the country.
- Snow water volumes continue to be below normal across the country as of March 2. However, some marginal improvement in snow water volume levels is seen in northern, northeastern, and central basins due to precipitation received during the second half of February.
- Late-February precipitation and anticipated precipitation through mid-March is likely to facilitate spring wheat cultivation in areas that received sufficient precipitation since mid-February. However, lack of normal snowpack development during winter and current record minimum snow water volumes across various basins may adversely affect crop development.
- Above-average temperatures and below-average precipitation are expected from March to May 2021 due to the prevailing La Niña conditions.
- Given expectations for below-average snowpack development, the risk of flooding and landslides during spring months is expected to be lower than usual. However, localized flooding is still possible due to storms.

Figure 1. October 1, 2020 - February 28, 2021 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 March 2, 2019



Source: *USGS/NASA*

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UPDATE ON SEASONAL PROGRESS

Precipitation anomalies:

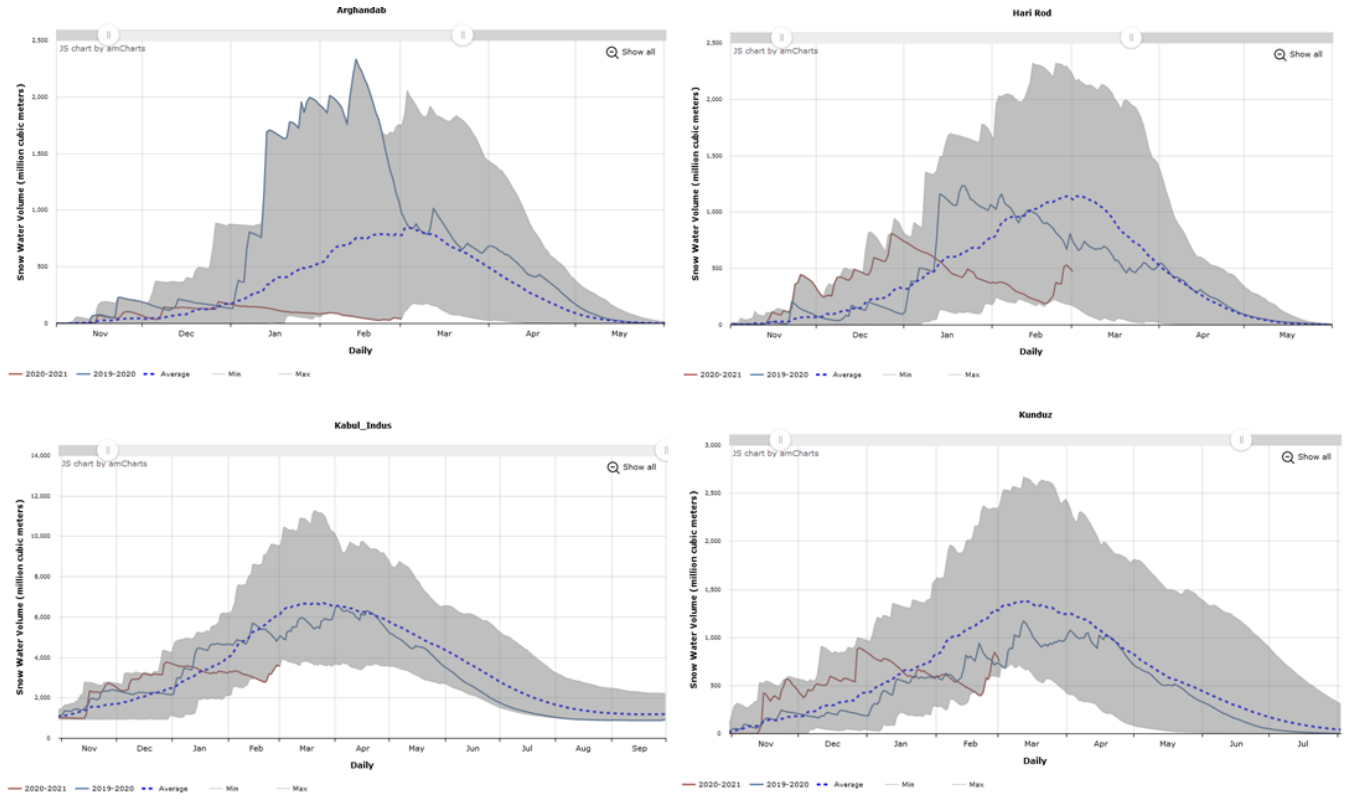
Cumulative precipitation from October 1, 2020, to February 28, 2021, has been below average across most of the country (**Figure 1**). Recently, steady precipitation in parts of the central, northern, and northeastern regions since mid-February partially eased dry conditions prevalent since January and provided sufficient moisture conditions for timely planting of spring wheat. However, cumulative precipitation deficits continue to worsen in the eastern, southeastern, southern, and southwestern parts of the country. As of February 28, average cumulative precipitation by province was below 50 percent of normal in Farah, Nimroz, Helmand, Kandahar, Zabul, Paktika, Nuristan, Nangarhar, Laghman, Nuristan, and Jawzjan.

Snow depth and snow water volume:

As of March 2, positive snow depth anomalies are observed in some lower and medium elevation areas of central, northern, and northeastern regions. (**Figure 2**). Similarly, noticeable improvements in snow water volumes (SWV) have been observed in northern parts of the country. On the other hand, snow water volume levels remain at record minimum levels in southern and southwestern parts of the country

Figure 3 highlights the SWV comparisons of 2019/20 and 2020/21 in Arghandab, Hari Rod, Kabul, and Kunduz basins as of March 1. At the same time of the 2019/20 season, SWV in Arghandab basin was normal, while it is currently at record minimum levels; SWV in Kabul basin was around 60 percent of normal in 2020 while it is currently at record minimum levels; SWV in Hari Rod basin was around 75 percent of normal in 2020 while it is currently slightly less than 50 percent of normal; SWV levels in Kunduz basin are at near record minimum levels in both 2020 and currently (**Figure 3**).

Figure 3. Comparison of daily snow water volume progression in million cubic meters in Arghandab, Hari Rod, Kabul, and Kunduz basins as of March 1 during 2019/20 and 2020/21



Source: *USGS/NASA*

FORECAST

Precipitation:

Figure 4 shows the Global Forecast System (GFS) 7-day and 14-day total precipitation forecasts during the week ending March 11 (left panel) and the week ending March 18 (right panel). During the week ending March 11, 20 to 30 mm precipitation is expected over lower and middle elevations in the central, northern, northeastern and eastern parts of the country while up to 80 mm precipitation is expected over higher elevations in the eastern and northeastern parts of the country. Dry weather conditions are expected in rest of the country.

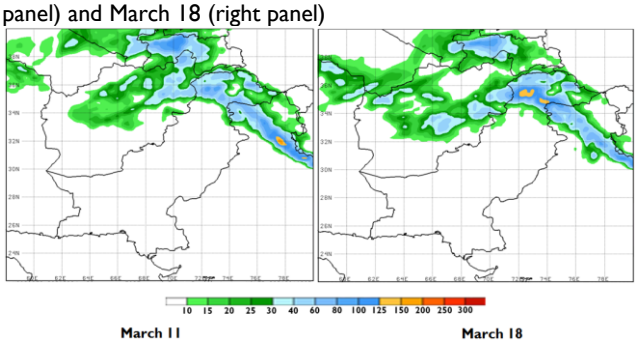
During the week ending March 18, 20 to 80 mm precipitation is expected in higher elevations of northeast, eastern, southeastern, central, northwestern, and northern parts of the country. Dry weather is expected to continue in southwestern parts of the country.

Precipitation received during the reporting period to date along with the anticipated precipitation through mid-March will likely facilitate land preparation and planting of the spring wheat in areas that receive sufficient precipitation. Further, the snow water volumes are expected to improve across various basins where precipitation is received, supporting irrigated wheat which will be at vegetative growth stage later during this month.

Temperatures:

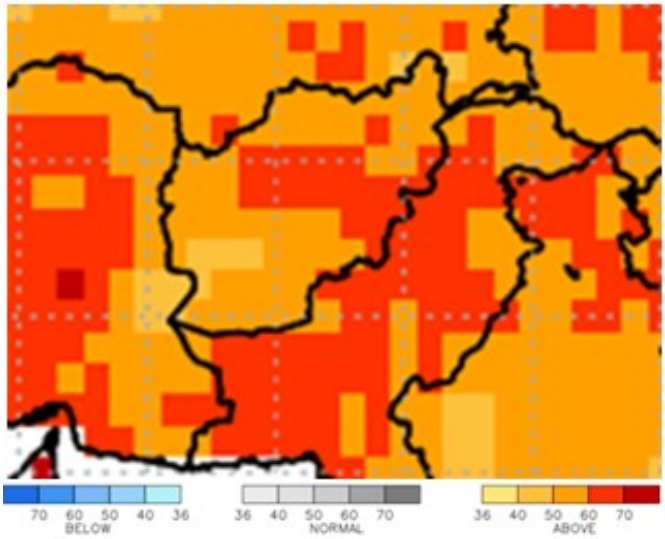
The North American Multi-Model Ensemble (NMME) forecast for March-May with February initial conditions indicates high probability of above-average temperatures across the country (**Figure 5**). The above-average temperatures have already led to below-normal snowpack development due to rapid snowmelt in most basins across the country. The first crop cultivation, especially in the south and southwestern parts of the country, may be vulnerable to temperature and moisture stresses. Further, rainfed crop production and rangeland vegetation conditions are likely to be affected by the below-average precipitation and above-average temperatures in the coming months.

Figure 4. The Global Forecast System (GFS) 7-day and 14-day forecasts of total precipitation for the periods ending March 11 (left panel) and March 18 (right panel)



Source: *NOAA CPC*

Figure 5. The North American Multi-Model Ensemble (NMME) temperature (°C) tercile probability forecast for March-May with February initial conditions



Source: *NOAA CPC*