

*First crop season of 2019/20 has concluded favorably despite mid-season precipitation deficits*

**KEY MESSAGES**

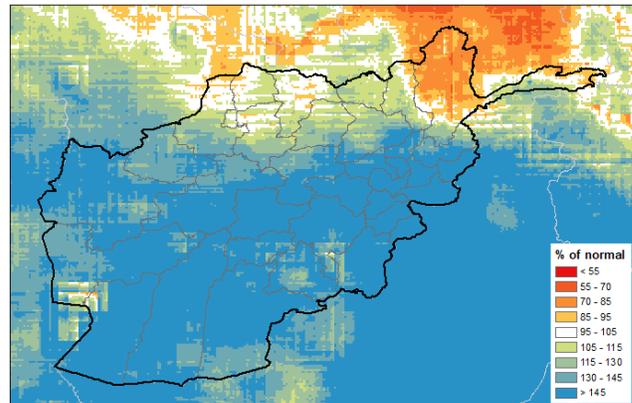
- Cumulative precipitation at the conclusion of the 2019/20 wet season indicates average to above average totals across the country except in Badakhshan province where it is about 90 percent of normal.
- Snowpack development has been below average at higher elevations in the eastern and northeastern parts of the country throughout the 2019/20 season. On the other hand, there was above average snow accumulation at lower elevations in eastern and central parts of the country during the same period.
- By the end of the 2019/20 wet season, the eastern, southern, and southwestern basins yielded average to above average snow water volumes while the northern and northeastern basins yielded below average snow water volumes.
- The above average precipitation and humidity during April-May led to widespread wheat yellow rust in eastern and southern parts of the country which later spread to northern parts of the country. Below average wheat yields are expected in the areas that are severely affected by the disease.

**UPDATE ON SEASONAL PROGRESS**

**Precipitation anomalies:**

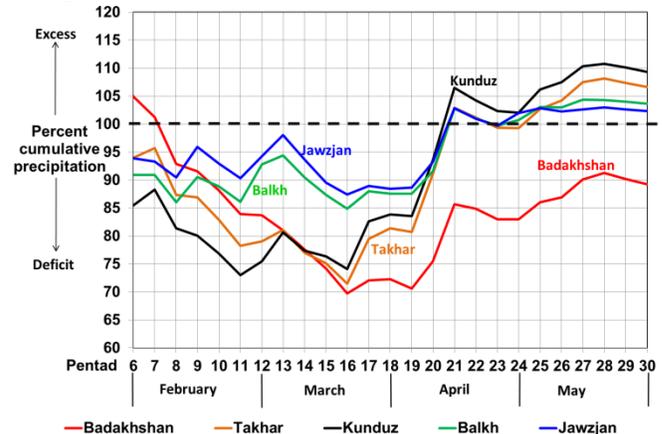
Overall, Afghanistan received above average precipitation from October through mid-December 2019 which facilitated timely completion of winter wheat planting. Above average precipitation totals continued until the end of the 2019/20 wet season in the central, eastern, and southern parts of the country, which led to healthy growth of wheat. On the other hand, northern and northeastern parts of the country faced persistent precipitation deficits from January through mid-March. Rainfed wheat was affected by moisture stress in parts of northeastern Afghanistan as precipitation deficits averaged as large as 75 percent of normal by mid-March. However, above average precipitation from late-March through mid-April not only eliminated the precipitation deficits seen in the northern parts of the country but also helped wheat during its grain hardening stage. As of May 31, above average precipitation totals have been observed across the country except in the Badakhshan province where average totals were about 90 percent of normal (Figure 1).

**Figure 1:** October 1, 2019 – May 31, 2020 percent of normal (1981-2010) precipitation accumulation.



Source: USGS/UCSB

**Figure 2:** Percent cumulative precipitation anomalies in Jawzjan, Balkh, Kunduz, Takhar, and Badakhshan provinces relative to the average of 1981-2010 as of May 31.



Source: USGS/UCSB

**Figure 2** depicts the progress of cumulative precipitation as a percent of normal in the Jawzjan, Balkh, Kunduz, Takhar, and Badakhshan provinces from February 1 through May 31. By mid-March, average precipitation anomalies around 75 percent of normal were observed in Kunduz, Takhar, and Badakhshan provinces while those in Jawzjan and Balkh provinces were around 85 percent of normal. The above average precipitation from late March through mid-April had eliminated the precipitation deficits in the Jawzjan, Balkh, Kunduz, and Takhar provinces.

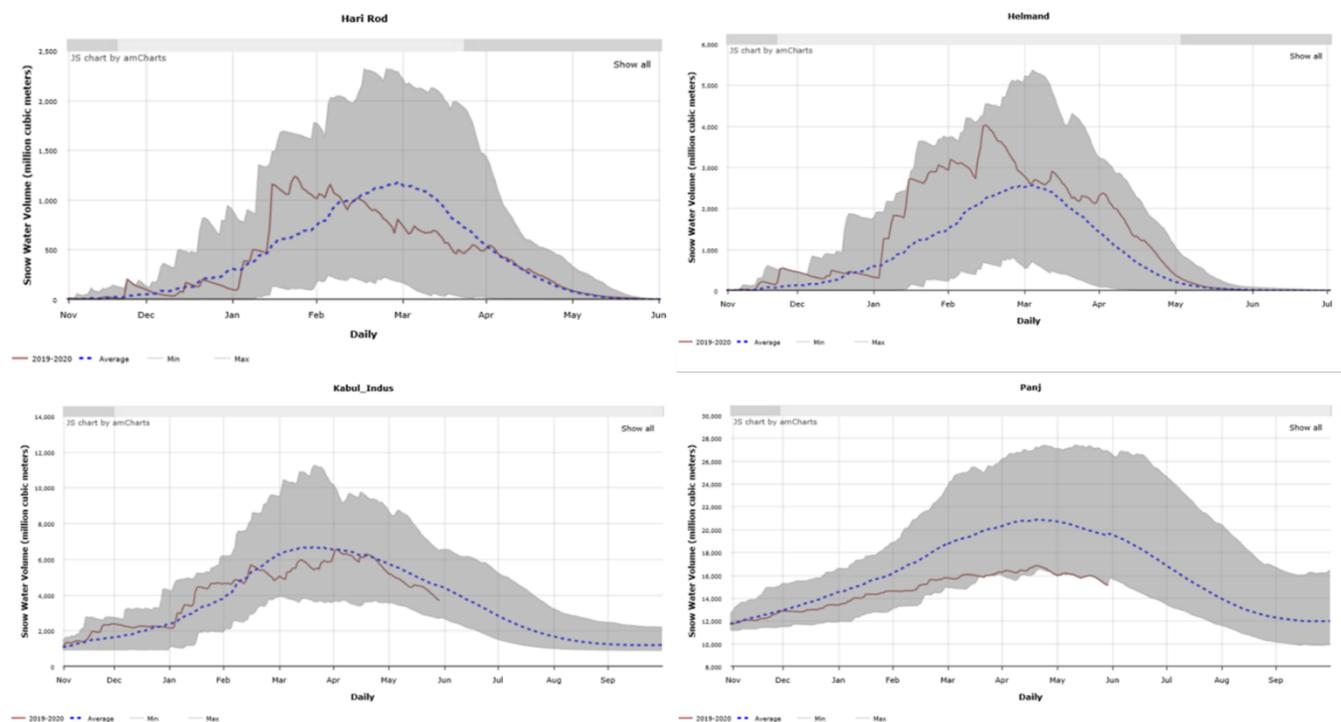
Ground reports indicate that the wheat yellow rust was first observed in parts of eastern Afghanistan during late March-early April. Usually, this disease is limited to localized areas in eastern Afghanistan; however, the above average humidity and precipitation during April-May widened its spread to southern and northern parts of Afghanistan. Ground reports indicate below average yields in localized areas that have been severely affected by the disease.

**Snowpack and snow water volume:**

Snowpack development was consistently below average at higher elevations in the eastern and northeastern parts of the country from mid-December 2019 through end of 2019/20 wet season. Widespread and heavy precipitation in January led to significant buildup of snowpack in the central, eastern, western, and southern basins, most of them showing above average snow water volumes by the end of January. Heavy precipitation in the first half of February brought above average snow to middle and lower elevations in the central, eastern, and southern basins in the country. On the other hand, above average temperatures from the beginning of February through mid-March prevented normal accumulation of snowpack at higher elevations and also led to early start of snowmelt. Consequently, the above average snow water volumes observed in most of the basins by the end of January rapidly shifted to below average by mid-March. The above average precipitation from late March and April partially improved the snowmelt water availability especially at lower elevations in the eastern, central, and southern parts of the country, while the snow water volumes remained at record minimum levels in most of the northern and northeastern basins of the country (**Figure 3**).

Widespread and heavy precipitation in March and April led to flash flooding in parts of central, eastern, northern, and western Afghanistan, and disruption of harvesting in localized areas of eastern Afghanistan. Further, heavy rains in late April also caused landslides in the historically landslide-vulnerable areas in Badakhshan, Dayakundi, and Ghor provinces.

**Figure 3.** Daily progression of snow water volume in million cubic meters in the Hari Rod, Helmand, Kabul, and Panj basins as of May 29.



Source: USGS/NASA

**FORECAST**

**Precipitation:**

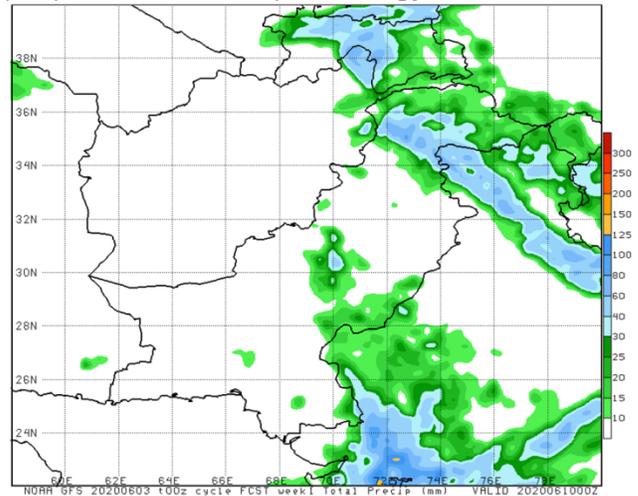
The Global Forecast System 7-day total precipitation forecast for the week ending June 10 indicates up to 80 mm of heavy precipitation over higher elevations in the northeastern parts of Afghanistan (Figure 4). Dry weather is expected across the country except up to 80 mm precipitation in parts of eastern Afghanistan in the following week ending June 17.

Harvest of the first crop is almost complete in the eastern and southern parts of the country. The forecast of above average precipitation through early June is expected to support adequate water availability for planting and early emergence of the second crop in June and July.

**Temperatures:**

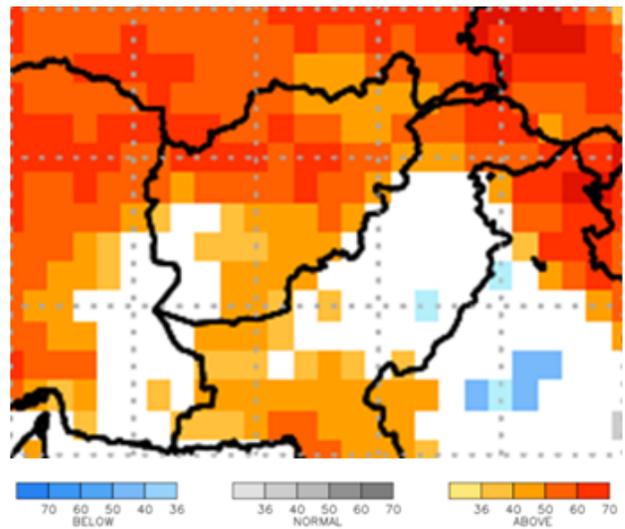
The North American Multi-Model Ensemble forecast for July-September indicates a relatively high probability of above-average temperatures across most of Afghanistan in the July-September period (Figure 5). The forecast of above average temperatures from July to September is likely to assist healthy growth of the second crop, providing extra heat energy during the critical flowering and grain hardening stages. On the other hand, above average temperatures and below average water availability in parts of northern Afghanistan could impact the second crop production during July through September.

**Figure 4.** The Global Forecast System 7-day forecast of total precipitation in mm for the period ending June 10.



Source: NOAA CPC

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



Source: NOAA CPC