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TECHNICAL BULLETIN ON THE HYDROLOGICAL SITUATION IN THE LAKE CHAD BASIN

I. CHARI BASIN

1.1 RAINFALL SITUATION

The first decade of October 2019 was marked by a slight strengthening of the Saint Helena Anticyclone and a slight weakening of the Azores. This strengthening of the Saint Helena Anticyclone has resulted in the near-stationary maintenance of the Inter Tropical Convergence Zone (ITCZ) on average around the 16th parallel north throughout the decade.

As a result of this, weak, moderate to heavy rainfall activities were observed in south of the 14th parallel north, also in the Sahelian and Sudanian zones of the basin. The rains were generally low both in the south and in the Sahelian part.

Despite this situation, the Sudanese zone has experienced heavy floods. This area will still receive heavy rains in October as the end of the 2019 rainy season will be late as announced by the 2019 seasonal forecast. (**Meteo-CHAD**)

1.2 HYDROLOGICAL SITUATION

As a result of the rainfall situation described above, the hydrological situation in the Chari Basin is characterized by a low flow compared to that of 2012 (year considered as very wet) since the beginning of the rainy season as observed in N'Djamena TP station (Figure 1). Thus, on the 21st of October 2019, the Chari reached a water level height of 665 cm whereas at the same date in 2012 the water level of Chari observed was 762 cm which is equivalent to 1 meter difference. This situation observed on the Chari is of course clearly higher to that of 2017 during the same period which was

464 cm. The Chari has not yet reached its peak which mean an additional volume of flow is expected to fill the deficit observed compared to the situation of 2012.

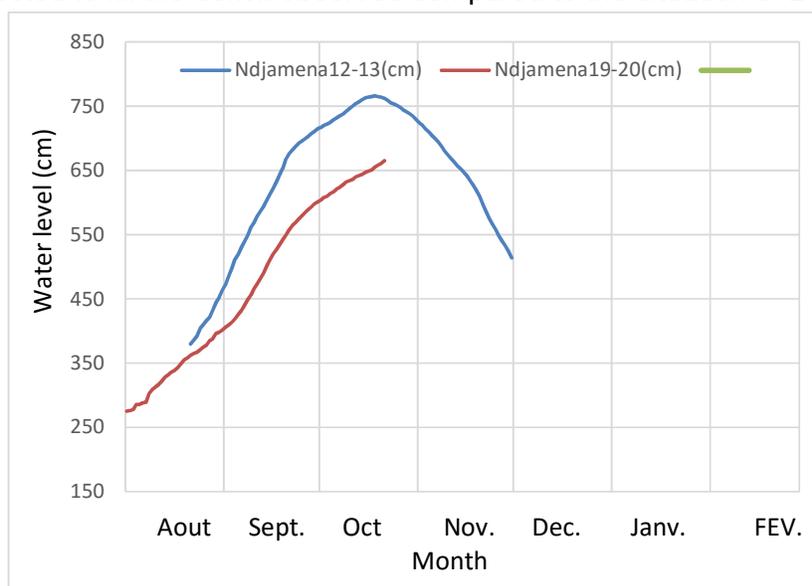


Figure 1: Comparative water level tendency of the Chari in 2012 and 2019

II. THE KOMADUGU YOBE BASIN

2.1 HYDROLOGICAL SITUATION

Unlike the situation in the Chari basin, the Komadugu Yobe has experience a sudden and rapid increase of water level which is even higher compared to that of the year 2012, known as very humid of the last ten years (figure 2). This part of the basin has recorded an exceptional hydrological situation which leads water level reach above the alert threshold value (449 cm) on the 17th of October 2019 to reach a water level height of 521cm which is 72 cm increase above the alert value. The maximum peak flow recorded in 2019 at the Bagara Diffa hydrometric station was 523 cm observed on the 21st, 22nd and 23rd of October. This situation has caused significant material damage and displaced persons in the Diffa area in Niger, including 200 households in Chétimari, 822 households in Diffa and 2 819 in the commune of Mainé and about 23 000 people affected by the disaster (Source: National Assembly of Niger communiqué date of 19th October 2019).

As a result of this flood on Komadugu Yobe cumulated with the spill of the southern basin that began on October 21st 2019, the northern basin of the Lake will probably fill up. This situation may have a positive impact on the socio-economic activities of local residents.

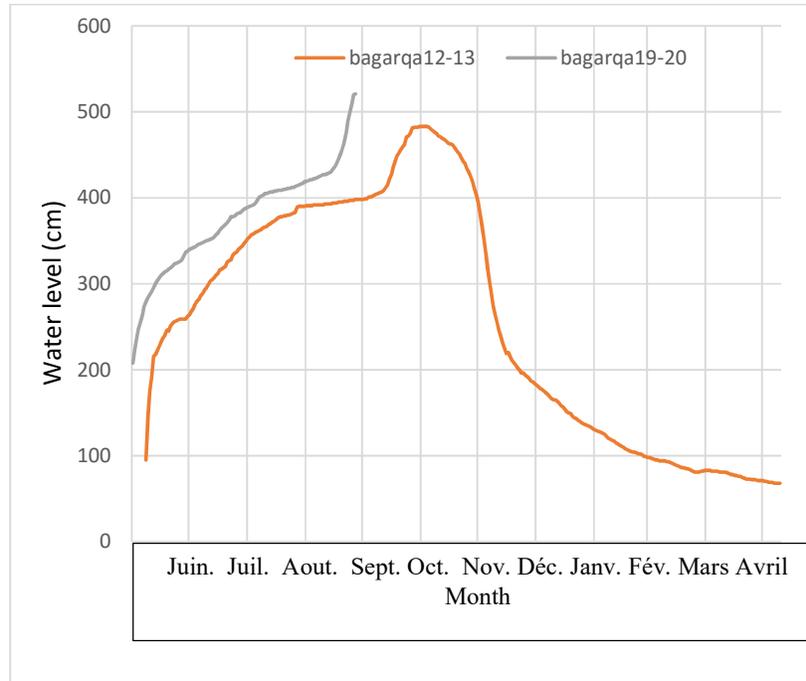


Figure 2: Comparative water level tendency of the Komadugu Yobe in 2012 and 2019

SITUATION DU LAC

As a result of what happens in the Lake Chad tributaries, the situation of the lake will likely improve. As of 21st of October 2019, the lake has reached a water level of 280.54 m, which is already above the height of the great barrier that separates the south and north basin of the Lake. The southern basin and Komadugu Yobe are filling the northern basin (Figure 3). Knowing that the time of concentration is not reached, we can affirm that the lake will be able to reach its average state in 2019.

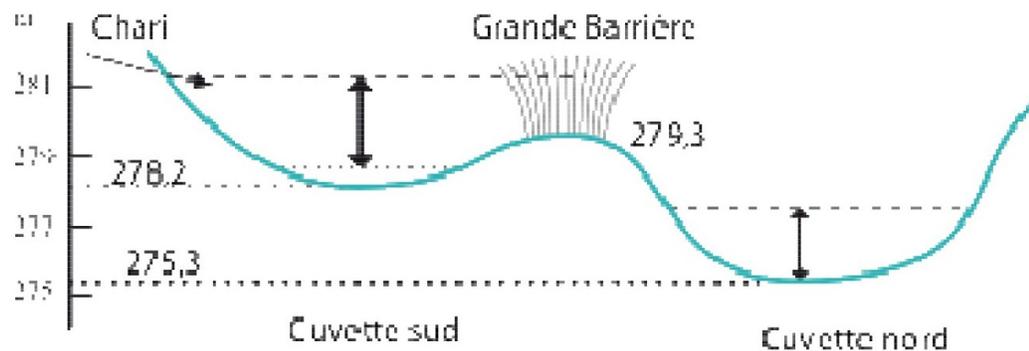


Figure 3 : Comparative tendency of the bottom of the south and north basin of the Lake

In line of the above, the inflow into the Lake is estimated as at today 21st of October 2019 as follow:

- (i) Chari: 945 m³/s
- (ii) Komadugu Yobe: 51.77 m³/s

This is equivalent to a total of about 997 m³ / s corresponding to a volume of water of: 15.5 billion cubic meters

Conclusion

The hydrological year 2019 is characterized by a normal situation in the Chari and Logone sub-basins, but above normal in the Komadugu Yobe sub-basin causing significant damage and displaced in the region of Diffa in Niger. The Lake Chad Basin Commission in collaboration with the Directorate General of Water Resources of Niger is closely monitoring the situation to inform the relevant authorities.