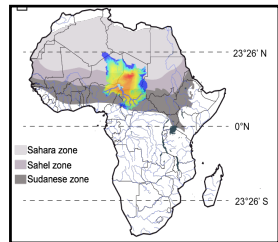


The Lake Chad hydrological cycle under current climate change

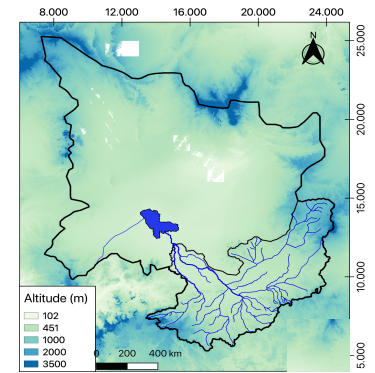
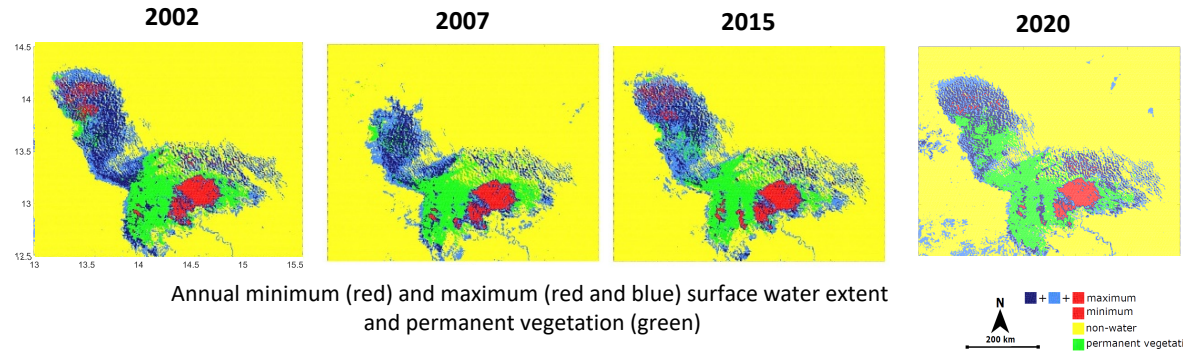
Sylvestre, F.^{1,2}, Pham Duc B.^{1,3}, Crétaux, J.F.⁴, Berge-Nguyen M.⁴, Mahamat Nour A.², Bouchez C.⁵, Frappart F.⁴, Papa F.^{4,6}

1. CEREGE, Aix-en-Provence, France; 2. University of N'Djamena, Chad; 3. University of Science and Technology, Hanoi, Vietnam; 4. LEGOS-CNES, Toulouse, France; 5. GéoSciences, Rennes, France; 6. University of Brasilia, Brazil



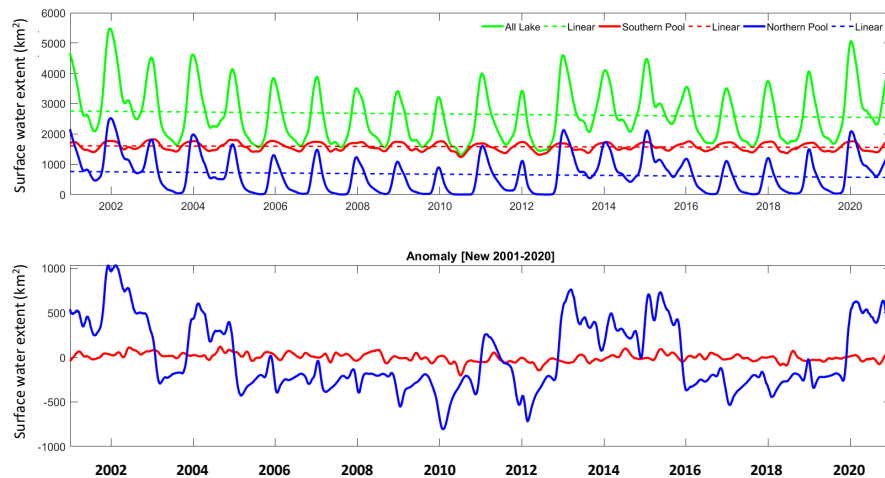
Lake Chad Basin
($2.5 \times 10^6 \text{ km}^2$)
occupying 8% of the
African continent

**A freshwater lake mainly feed by precipitation
highly variable at different scale (time and space)**



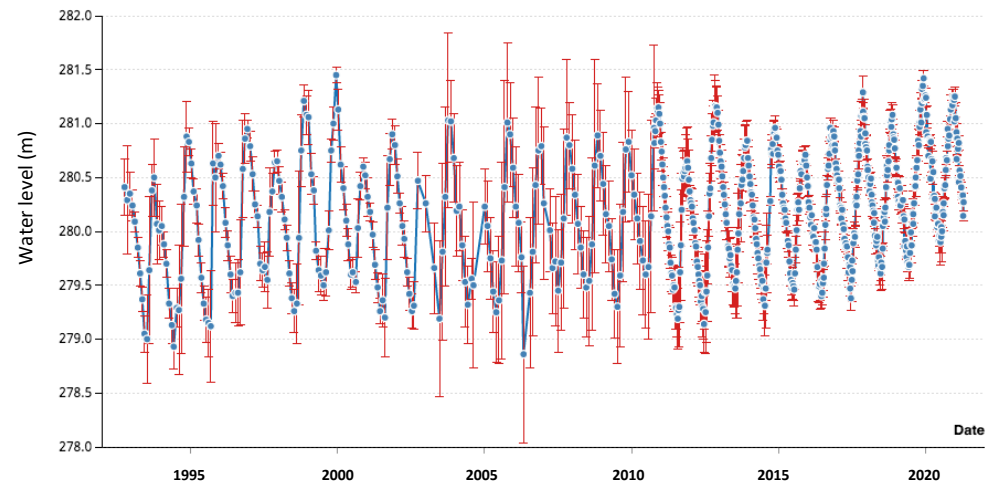
Delimitation of the
conventional basin and the
Chari-Logone catchment area
(610,000 km²)

A lake reaching 14,000 km² today compared to less than 2,500 km² during the 80's



**Surface water extent (km²) for 2001-2020
from multi-spectral MODIS images**

Time series (top) anomaly (bottom) of the northern pool (blue),
southern pool (red) and Lake Chad (green)



**Water height from satellite altimetry
HydroWEB-LEGOS/CNES**