Semiarid rangelands (savannas in Southafrica, Dehesas in Spain) are a mosaic of land uses, where extensive livestock is the main economic activity. They are highly controlled by the availability of water. The increase in **drought** intensity, duration, and frequency, changes in agricultural practices, and other socioeconomic and environmental factors precipitate their degradation.

We want to map **water consumption** and **primary production** of semiarid mosaic crop-rangelands at the optimal spatiotemporal scales, setting up an open-source cloud framework to monitor these processes' interaction in the long term and analyze system tipping points.

https://savannahwatch.cc/

https://www.uco.es/dfh/

@dfh_uco
@AndreuSwatch
@DubeTimoth

Drought in semiarid mosaic lands TACTIC

DFH Dinámica Fluvial e Hidrología
UNIVERSIDAD DE CÓRDOBA

UNIVERSITY of the WESTERN CAPE

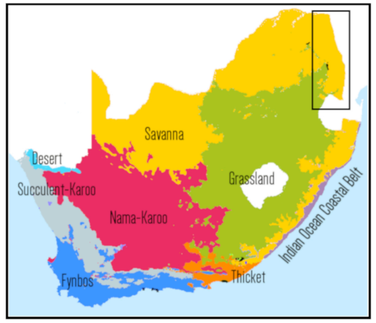
UNIVERSIDAD D CÓRDOBA

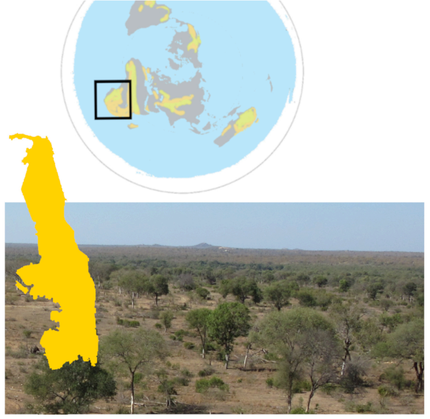
EO AFRICA

EXCELENCIA MARÍA DE MAEZTU 2020-2023

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

VEGETATION DYNAMICS & DROUGHT IN SAVANNAS





Our pilot area is the Kruger National Park in South Africa

In savanna, water soil dynamics play a key role in the distribution of functional vegetation types and their main productions. To design early warning and conservation strategies, it is necessary to know the specific characteristics of this relationship.

Through the integration of remotely sensed data into models, we can evaluate, on the one hand, the water consumed by semiarid ecosystems and their vegetation water stress and, on the other, its primary production. This information can help reduce the uncertainty associated with the administration and farmers' decision-making processes.

[1]

[2]

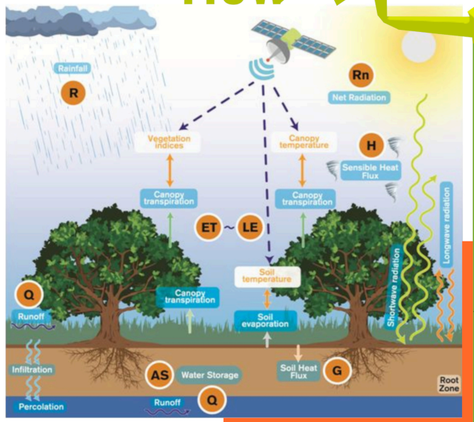
[3]

[4]

[5]

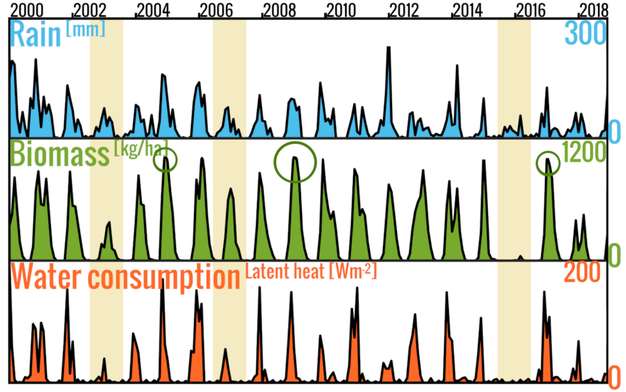
Integrating remotely sensed data in **water and energy balance** [1], [2],[3], [4] and **carbon assimilation** models [5] allows estimating actual and potential **evapotranspiration** (ET) and **net primary production** (NPP).

How



WATER STRESS

BIOMASS



More rain means more production (until it reaches a plateau when the limiting factor is not water but available energy or nutrients). We can have **production curves** for different Park areas, giving the managers a range to plan and supervise the stocking rates or animal movements.