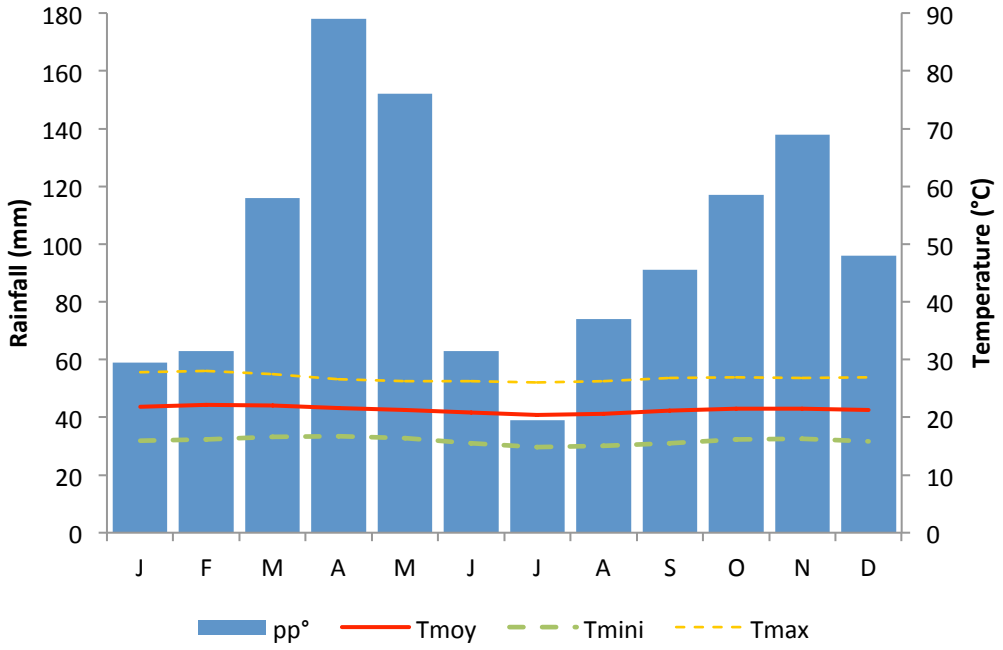
SOLUTION

Ombro-thermal diagrams

Case n°1: The region of Nkosi in Uganda

Source: http://fr.climate-data.org/location/785742/

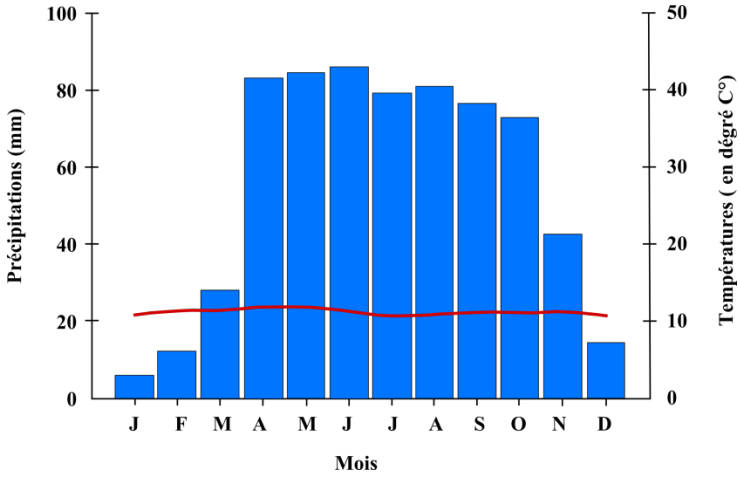
		J	F	M	A	M	J	J	A	S	O	N	D
Rainfall (mm)	RF°	59	63	116	178	152	63	39	74	91	117	138	96
Mean temperatures (°C)	MT	21.8	22.1	22	21.6	21.3	20.8	20.4	20.6	21.1	21.5	21.5	21.3



Case n°2 The Upper Chama valley

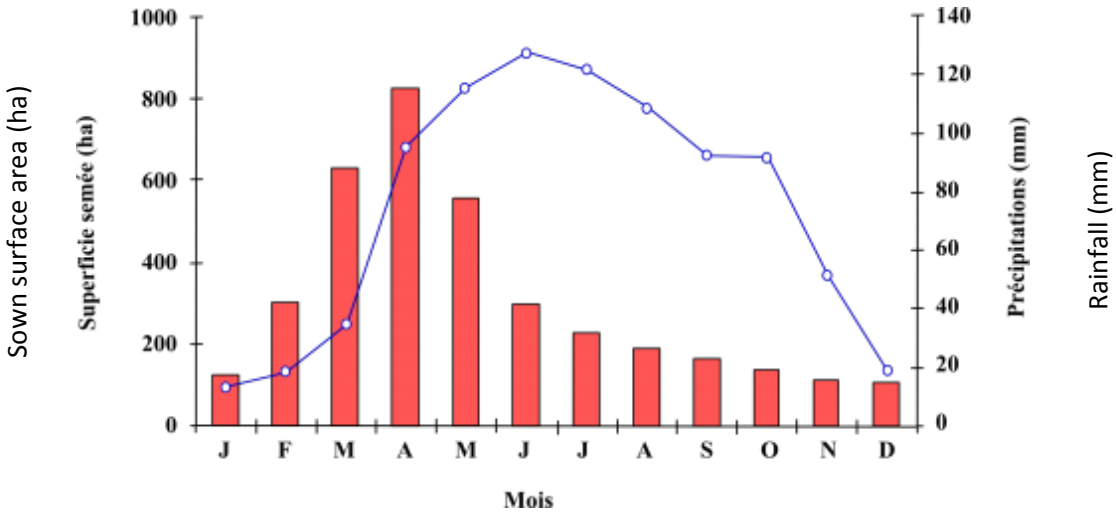
							J	F	M	A	M	J	J	A	S	O	N	D
T (°C)							10	10	10	11	11	10	10	10	11	11	11	10
RF (mm)	6	12	28	82	83	85	78	80	76		74		40	15				

Question: What hypotheses can we form on the sowing season, the length of the crop cycles, the need for irrigation or the storage of forage?



Source: **David Leroy. Alexandra Angéliaume-Descamps. Jean Marc Antoine. Frédérique Blot. Éric Maire et Anne Peltier**. « Représentations et pratiques autour de la ressource en eau des producteurs maraîchers des Andes vénézuéliennes » (*"Representations and practices around the water sources of market garden producers in the Venezuelan Andes*"). *VertigO - la revue électronique en sciences de l'environnement* [On line]. Volume 13 Number 1 | April 2013. On line from 16 April 2013. Consulted on 25 March 2016. URL : http://vertigo.revues.org/13356 ; DOI : 10.4000/vertigo.13356

[…] The growth of annual plants, sown during the first rains, was strongly dependent on the frequency and intensity of rainfall, of "what the boss sent along". Indeed, rainfall in the Upper Chama Valley is subject to significant seasonal variation, with a period of heavy rainfall (from March to October), locally called "winter", and a dry period (October to February), called "summer"; this means that the amount of water from rainfall varies throughout the year. […] It was to address this challenge of irregular rainfall that the farmers of Upper Chama developed, over the generations, a "meteoclimatic cropping system" (Peyrusaubes. 2010) based on the meticulous observation of each element of the climate. They thus "predicted" the coming year's weather thanks to meteorological observations carried out during the first days of January, according to a practise named *pinta y repinta* (de Robert. 2002), which was very similar to the *cabañuelas* practise used by the Nahuas Indians of Guerrero (Mexico) (Hemond et Goloumbinoff. 2002). For a long period of time, it was the only weather forecasting "method" available to Andean farmers. Contrary to many areas of the "Andean archipelago", irrigation was not a tradition, hence the choice of sowing drought resistant crops and adapting cropping cycles, although this meant that their farming system was vulnerable, in particular during extended periods of drought.

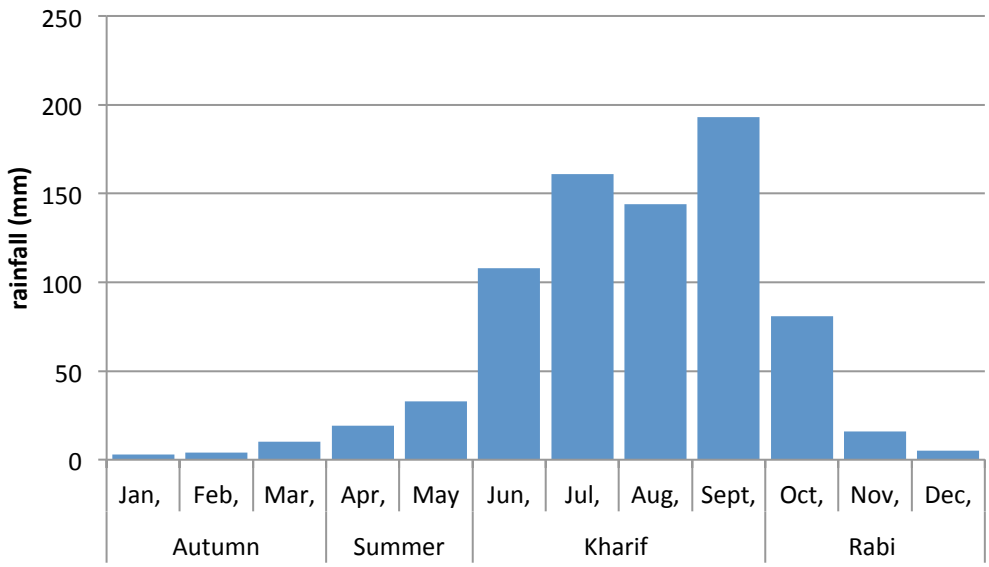


Source: "Representations and practices around the water resource of garden market farmers of the Venezuelan Andes" (Leroy et al. 2013)

Case n°3: Pluviometric diagram of Gulbarga, a district of the State of Karnataka, India

Source : http://raitamitra.kar.nic.in/agriprofile/rainfall.htm

District	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gulbarga	3	4	10	19	33	108	161	144	193	81	16	5



Question: What hypotheses can we form on the sowing season, the length of crop cycles, the need for irrigation or the storage of forage?

Agricultural productivity in Maidan is highly dependent on rainfall. In the district Gulbarga, for example, sorghum is grown either as a kharif(1) or as a rabi(2 crop). The rabi yield depends on the soil's residual moisture after the monsoon rains — therefore on the total yearly rainfall — while the kharif yield depends not only on the total rainfall, but also on its distribution throughout the year. Considering the great variability of summer rainfall distribution in the Maidan, it is not, therefore, surprising that twice the amount of farming land be used for rabi crops than for kharif crops.

(1) Period / Kharif crops: Rainfed crops that benefit from summer monsoon rains and are harvested in autumn.

(2) Period / Rabi crops: Crops harvested in spring and that have generally benefited from a rainy period that occurred outside of the summer monsoon season, at different times depending on the region of the sub-continent.

Source (Gunnell 1999) : http://www.persee.fr/doc/geo_0003-4010_1999_num_108_605_21767

Bibliography

Gunnell. Yanni. 1999. Systèmes agraires et facettes écologiques au Karnataka (Inde du Sud): portraits d'une organisation humaine autour d'un gradient bioclimatique exceptionnel/Land systems and land use in Karnataka. South India: patterns of human adaptation to a steep environmental gradient. In *Annales de Géographie*. 108:46–66. Société de géographie.

Leroy. David. Alexandra Angéliaume-Descamps. Jean Marc Antoine. Frédérique Blot. Éric Maire. and Anne Peltier. 2013. Représentations et pratiques autour de la ressource en eau des producteurs maraîchers des Andes vénézuéliennes. *VertigO-la revue électronique en sciences de l'environnement* 13.