

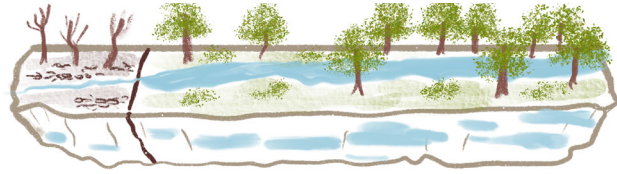
# IS DROUGHT REALLY THAT RARE?

Drought is here defined such that it occurs 20% of the time. But how often is a region such as the Dutch province of Gelderland in drought conditions?

## DROUGHT PER VARIABLE

Drought can occur in each of the five depicted variables. It is important to understand how and where drought occurs in each variable, in order to better estimate the impacts of droughts (in e.g. agriculture, shipping, and drinking water supply). Observation points for all variables are scattered around the province. A variable is considered to be in drought conditions when a substantial part of these points (>20%) is classified as a drought. Following this drought definition, each variable is in drought conditions for far more than the expected 20% of the time. This can be explained by spatial differences within Gelderland.

20%



% OF TIME IN DROUGHT CONDITIONS

PRECIPITATION



27%

SOIL MOISTURE



38%

VEGETATION



30%

GROUND WATER



37%

SURFACE WATER



37%

## SIMULTANEOUS DROUGHT

When determining how often at least one variable is in drought conditions, we see that the entire province is in drought conditions for 73% of the time. This percentage decreases when more simultaneous droughts are considered. Only when three to four variables are simultaneously in drought conditions, the actual drought occurrence matches the definition. Drought in all five variables is rare, and mainly occurred during the dry summers of 2018 and 2019. The fact that at least one variable is in drought conditions for the majority of the time can be explained by both the spatial differences and the typical response time of each variable. These results highlight the importance to have clear communication about the scientific definition of drought and the actual impacts of droughts.

NUMBER OF VARIABLES IN DROUGHT CONDITIONS

1



73%

2



46%

3



28%

4



17%

5



5%

