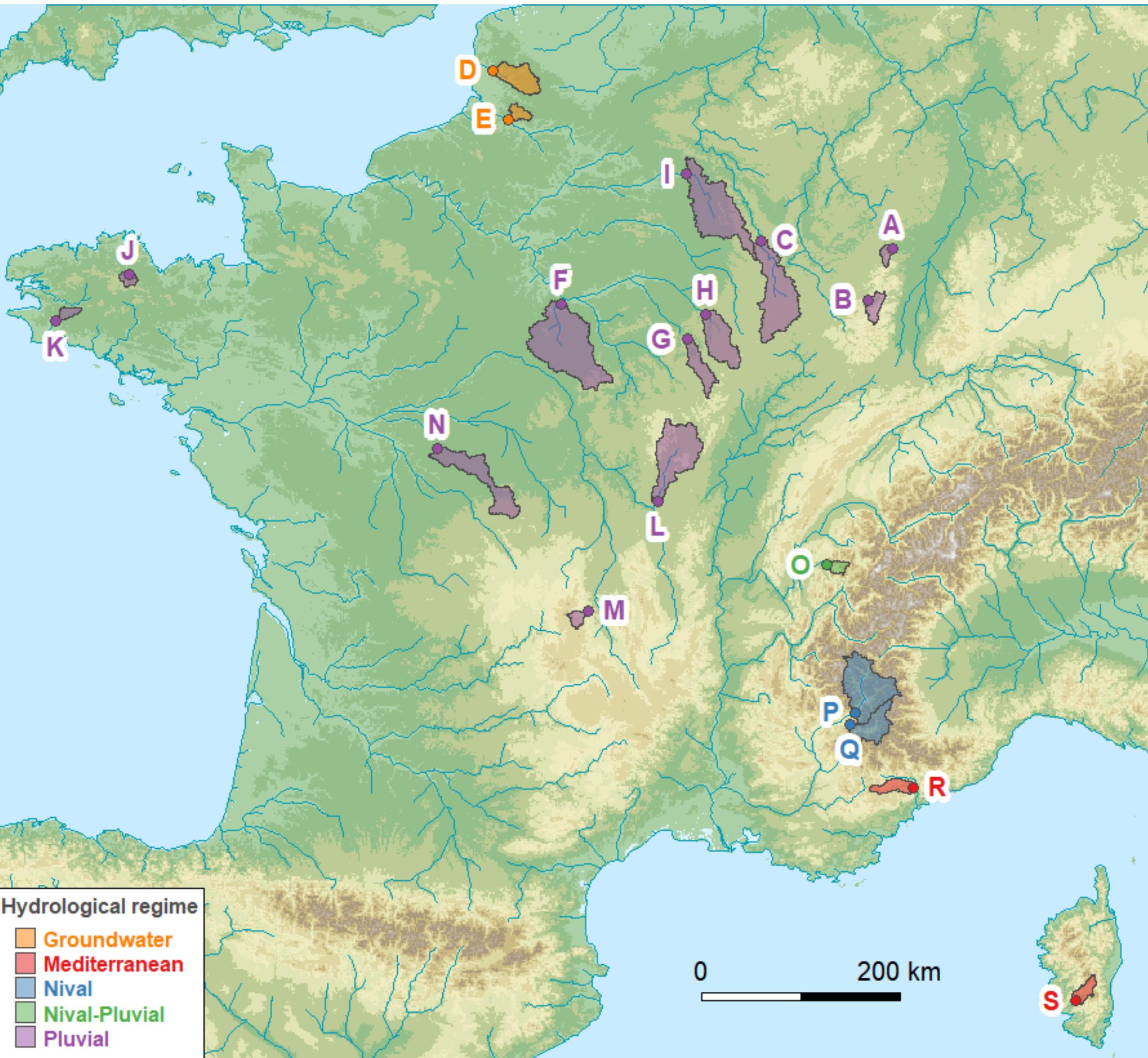


# PVL

## Grundlagen Hydrologie

# 16 französische Einzugsgebiete

in verschiedenen  
hydroklimatischen Regionen



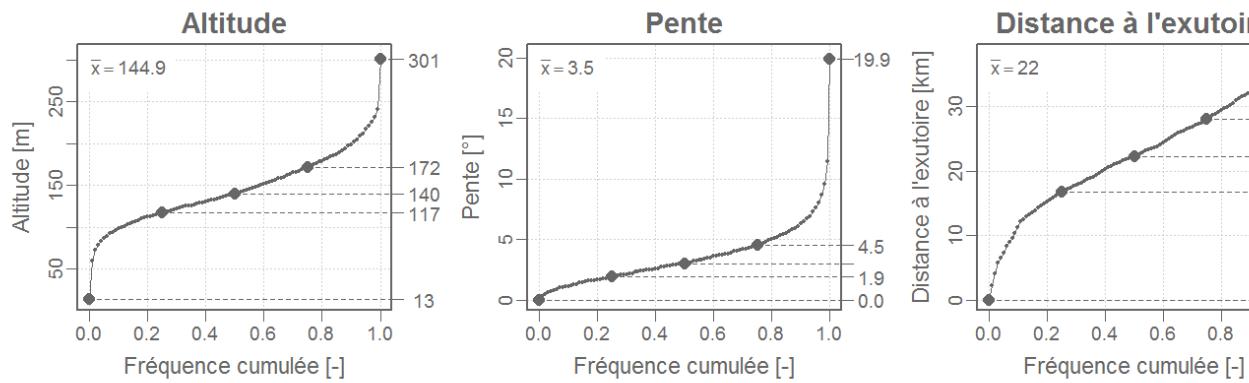
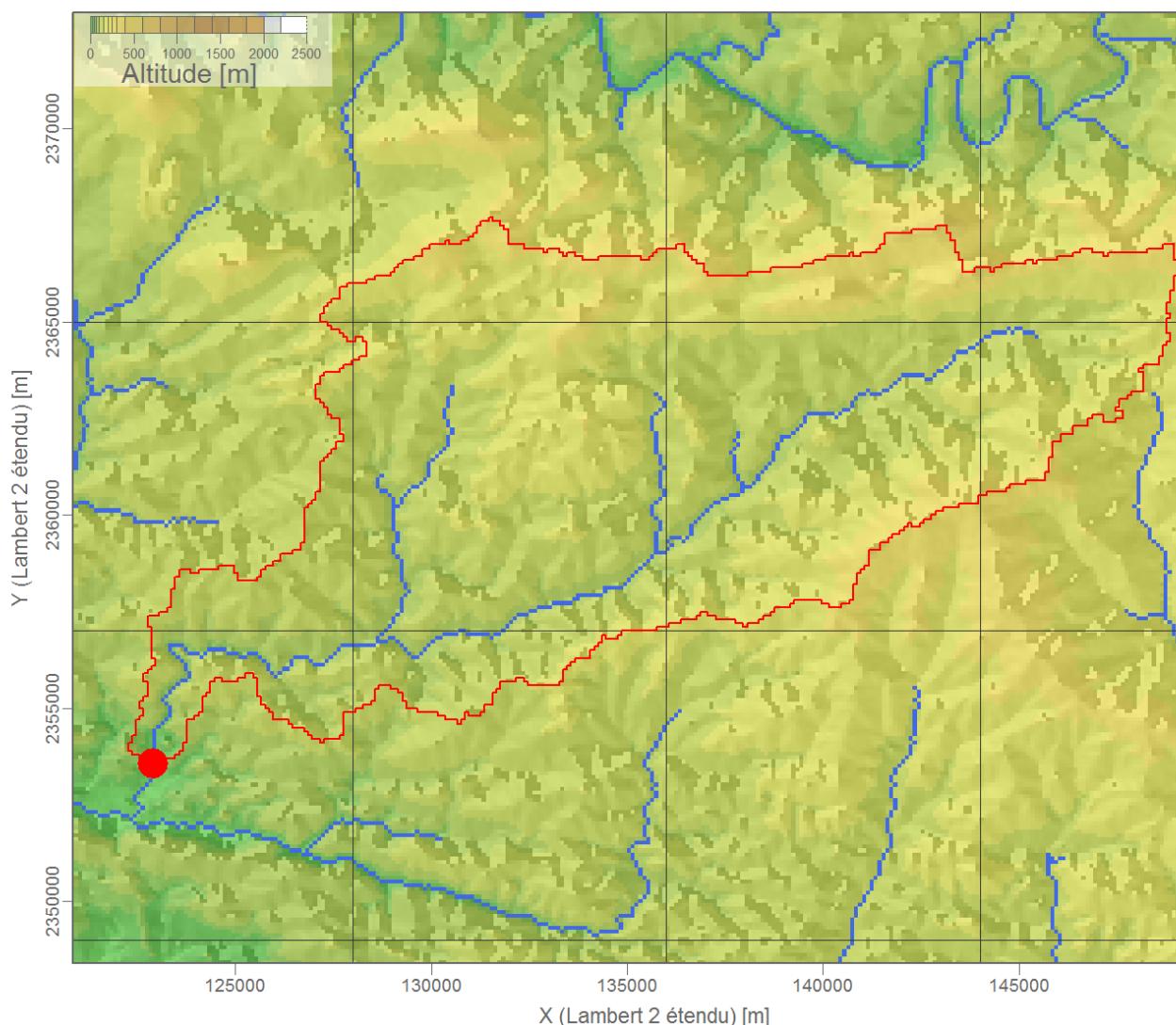
- Wähle 2 EZG aus und charakterisiere sie hinsichtlich ihrer hydrologischen Eigenschaften
- Nutze airGR um diese EZG zu modellieren.
- Genaue Aufgaben, Links und R-Code in airGR\_PVLR

# Die Syntheseblätter

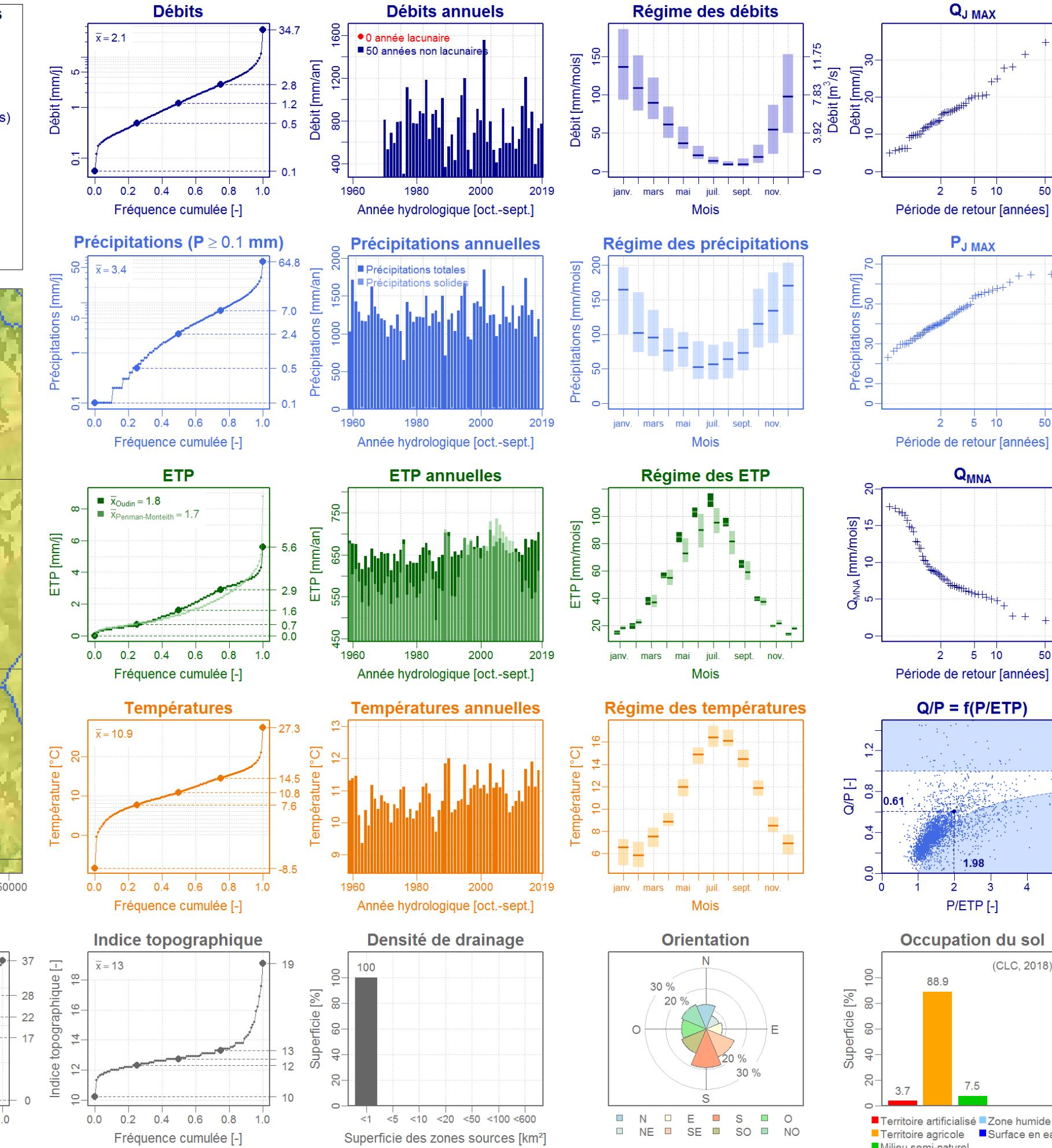
Überblick für jedes der EZG



Superficie : 203.1 (205) [km <sup>2</sup> ]	Gestionnaire : DREAL Bretagne
X = 173954 (173955)	
X = 122913 (122915)	
Altitude : 14 (8) [m]	
Y = 6790863 (6790820) [m ; Lambert 93]	
Y = 2353549 (2353506) [m ; Lambert II étendu]	
Type	Source
Débit	Banque HYDRO
Climatique	SAFRAN (Météo-France)
MNT 100 m	SRTM (NASA)
Date extraction Banque Hydro	
Débit	Période
Précipitations (totales / solides)	1969-2019
ETP (Penman-Monteith / Oudin)	1958-2019
Température	2011
Taux de lacune des débits	2020-01-14
Valeurs extrêmes de la série	PdTemps
QJX <sub>max</sub>	Journalier
PJX <sub>max</sub>	Journalier
QMNA <sub>min</sub>	-
	Unité
mm/j (m <sup>3</sup> /s)	mm/an (m <sup>3</sup> /s)
mm/j	mm/an
mm/mois	mm/mois
	%
	°C
	2000-12-13
QJX <sub>max</sub>	2011-12-15
PJX <sub>max</sub>	1989-09
QMNA <sub>min</sub>	



Équipe HYDRO, UR HYCAR, INRAE, Antony  
Conception : Brigode, P. - Génot, B. - Lobligeois, F. - Delaigue, O.  
Contact : olivier.delaigue@inrae.fr  
Version : 2020-08-04



- Lage/Karte
- Zusammenfassung
- Abfluss
- Niederschlag
- Verdunstung
- Temperatur
- Topographie

# Die Syntheseblätter

Überblick für jedes der EZG



## J4211910 - L'Odet à Ergué-Gabéric [Tréodet]

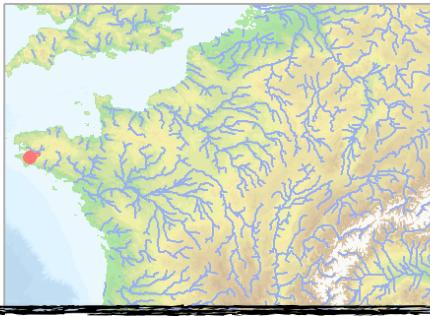
Gestionnaire : DREAL Bretagne

Superficie : 203.1 (205) [km<sup>2</sup>]  
X = 173954 (173955)  
X = 122913 (122915)

Altitude : 14 (8) [m]  
Y = 6790863 (6790820) [m ; Lambert 93]  
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INRAE (Banque Hydro)  
INRAE (Banque Hydro)  
INRAE (Banque Hydro)

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Version : 2020-08-04



Type  
Débit  
Climatique  
MNT 100 m  
Date extraction  
Banque Hydro

Débit  
Climatique  
MNT 100 m  
Date extraction  
Banque Hydro

Source  
Banque HYDRO  
SAFRAN (Météo-France)  
SRTM (NASA)

Période  
1969-2019  
1958-2019  
2011  
2020-01-14

PdTemps  
Journalier  
Journalier  
-

Unité  
mm/an (m<sup>3</sup>/s)  
mm/an  
mm/an  
°C

Unité  
mm/an (m<sup>3</sup>/s)  
mm/an  
mm/an  
°C

Unité  
mm/an (m<sup>3</sup>/s)  
mm/an  
mm/an  
%

## Moyennes interannuelles

Débit	752 (4.84)
Précipitations (totales / solides)	1249 / 8.743
ETP (Penman-Monteith / Oudin)	615 / 660
Température	10.9
Taux de lacune des débits	0

## Valeurs extrêmes de la série

QJX <sub>max</sub>	34.7 (81.6)	mm/j (m <sup>3</sup> /s)	2000-12-13
PJX <sub>max</sub>	64.8	mm/j	2011-12-15
QMNA <sub>min</sub>	2.1	mm/mois	1989-09

jährl. Mittelwerte

Q, P, ET, T, Lücken

Tagesmax. Q, P

Monatsmin. Q

Citation : <https://doi.org/10.15454/UV01P1>

Lage/Karte

Zusammenfassung

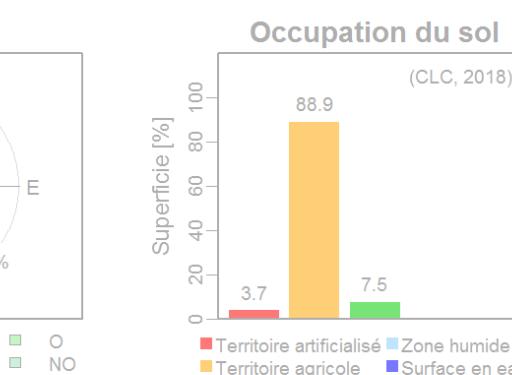
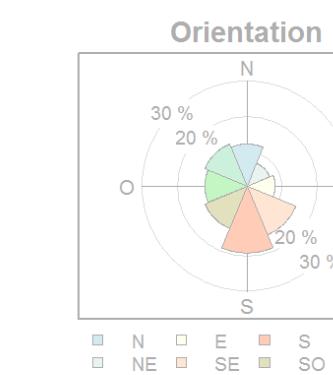
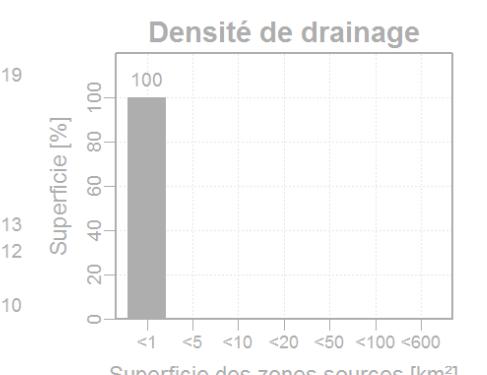
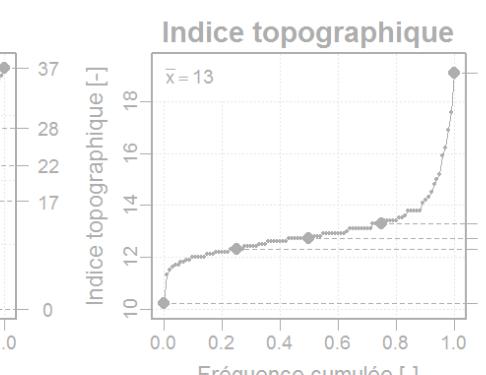
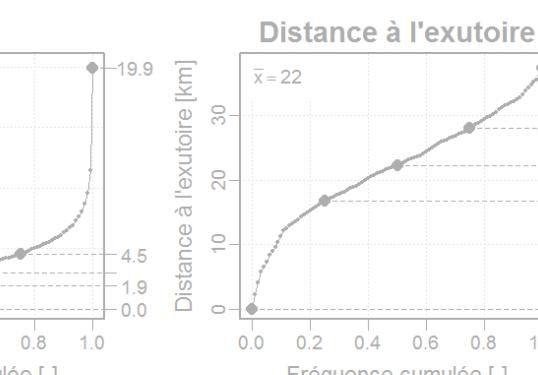
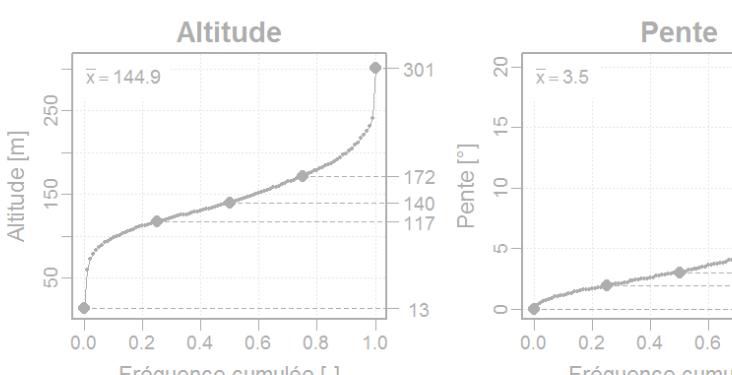
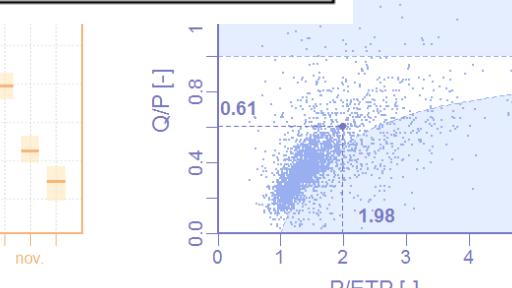
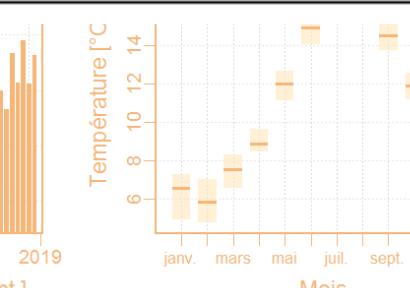
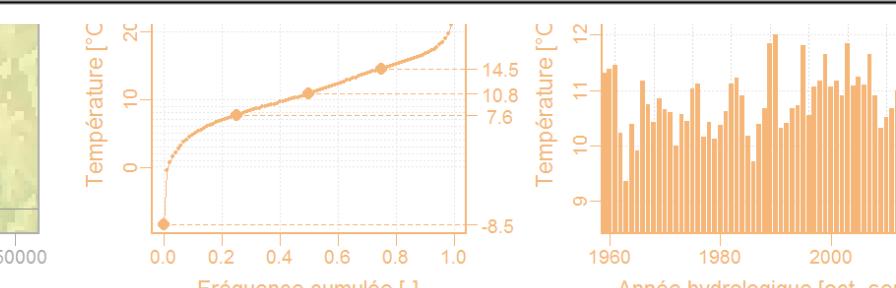
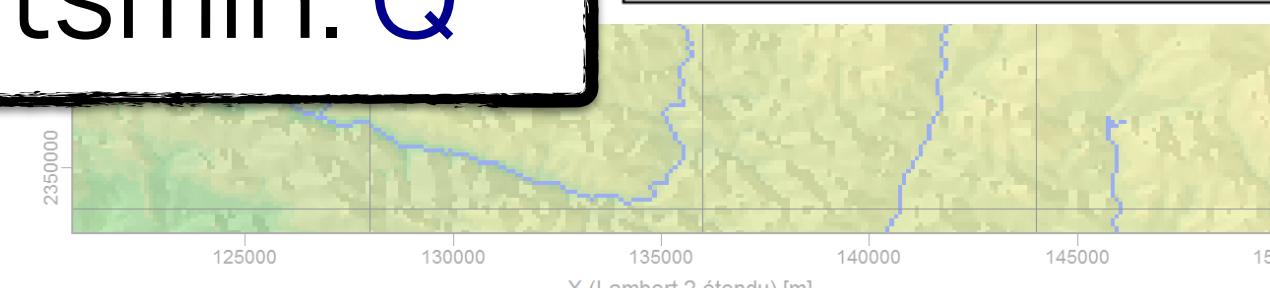
Abfluss

Niederschlag

Verdunstung

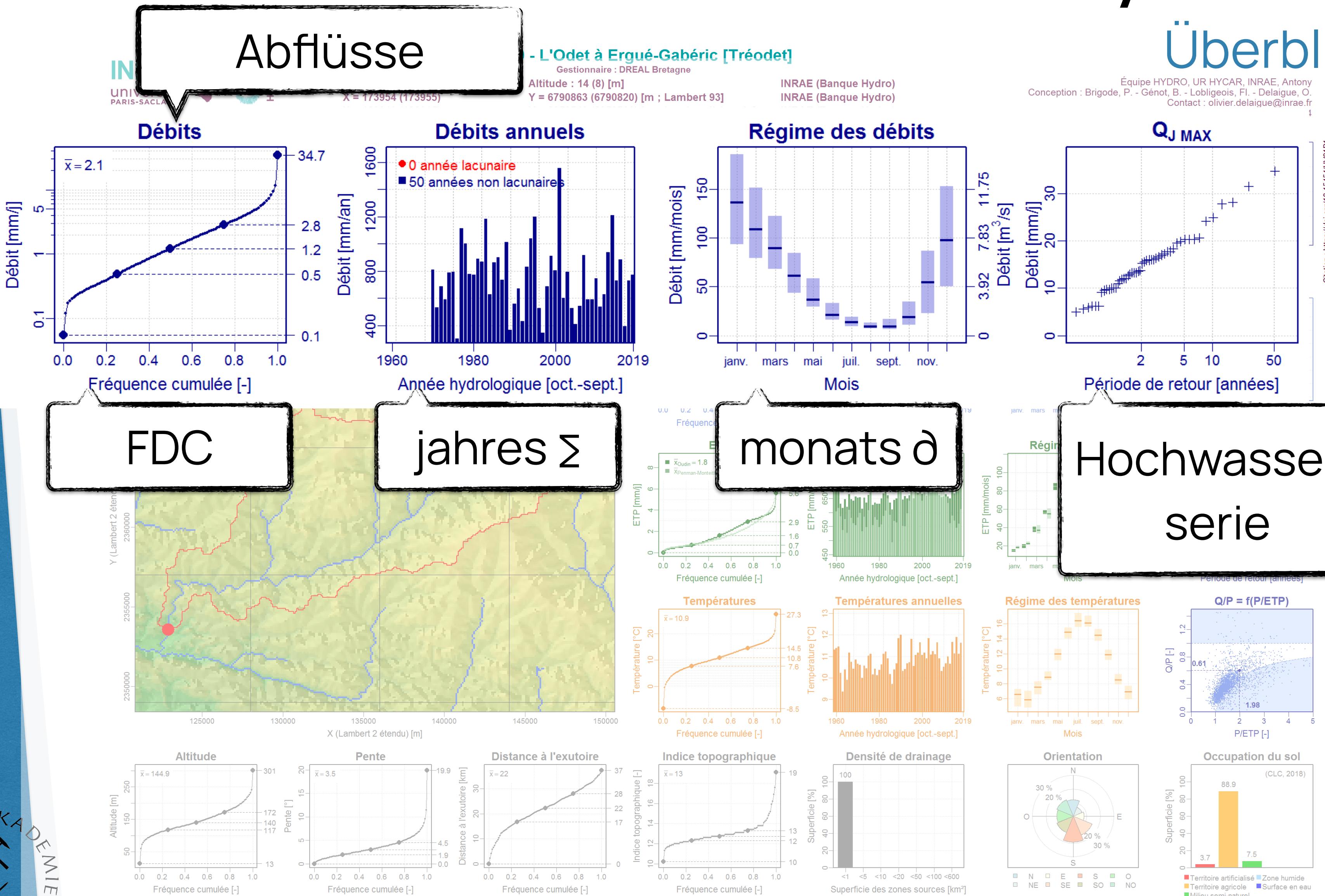
Temperatur

Topographie



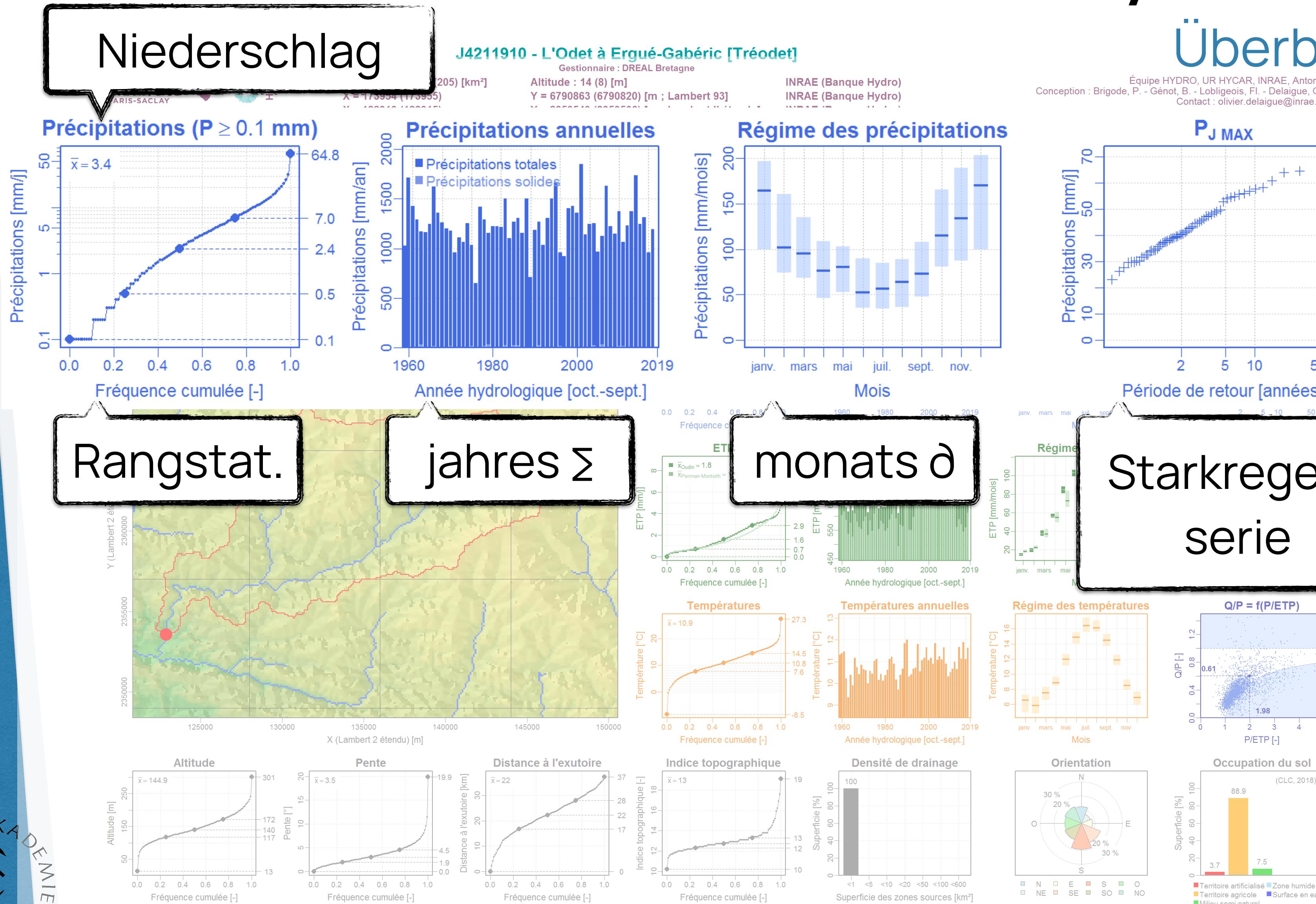
# Die Syntheseblätter

Überblick für jedes der EZG

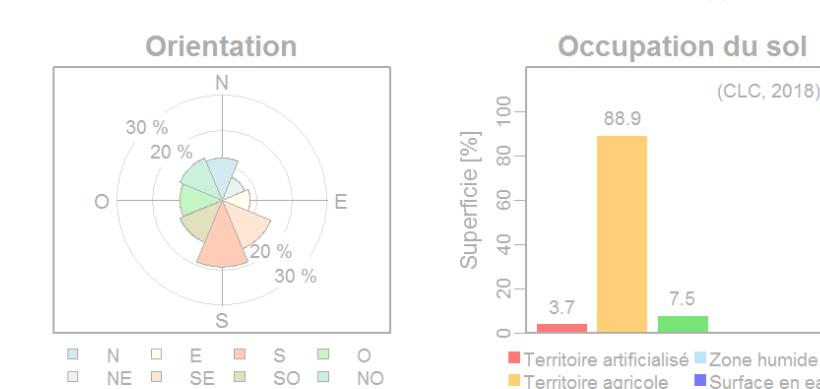
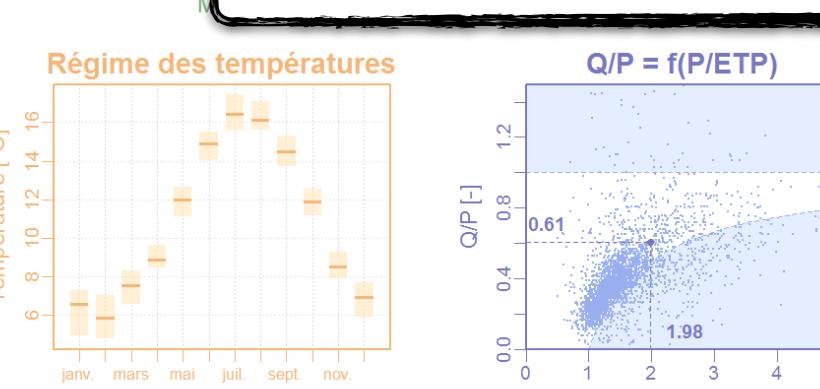
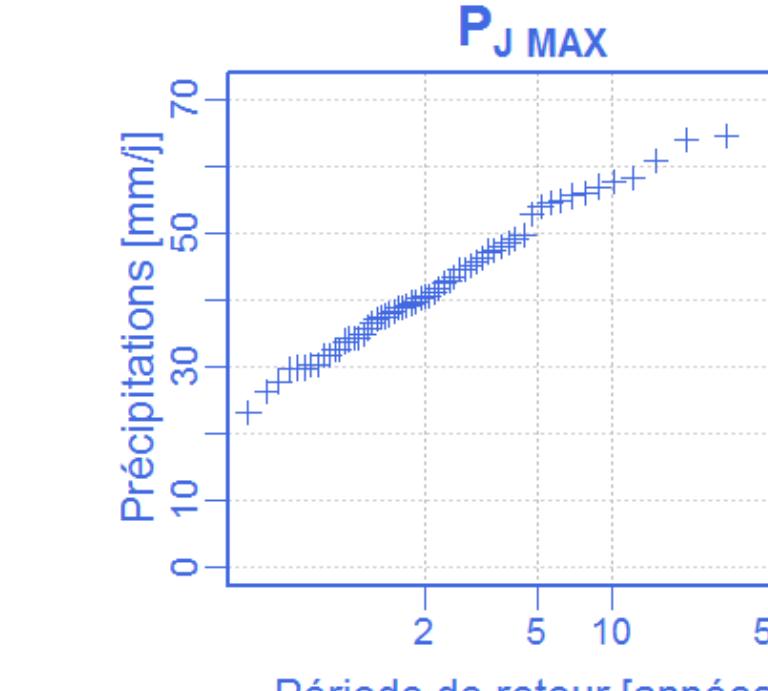


# Die Syntheseblätter

Überblick für jedes der EZG



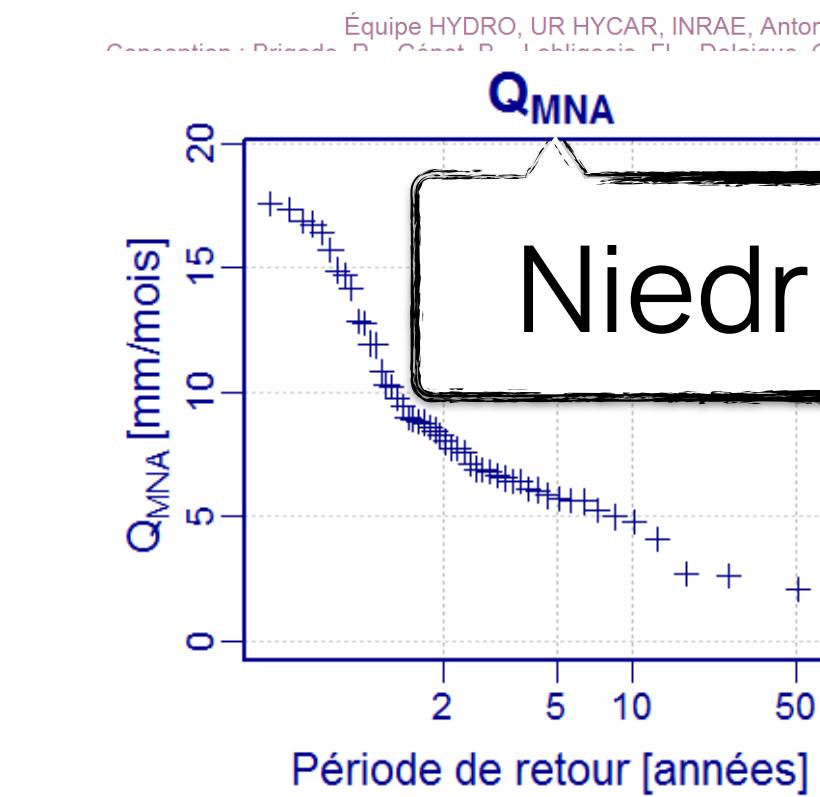
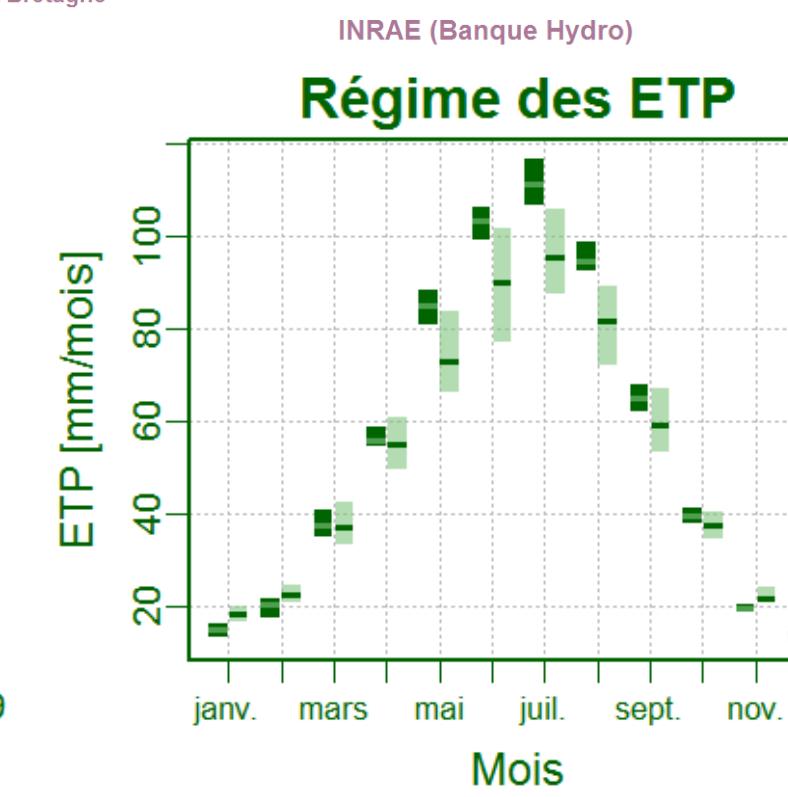
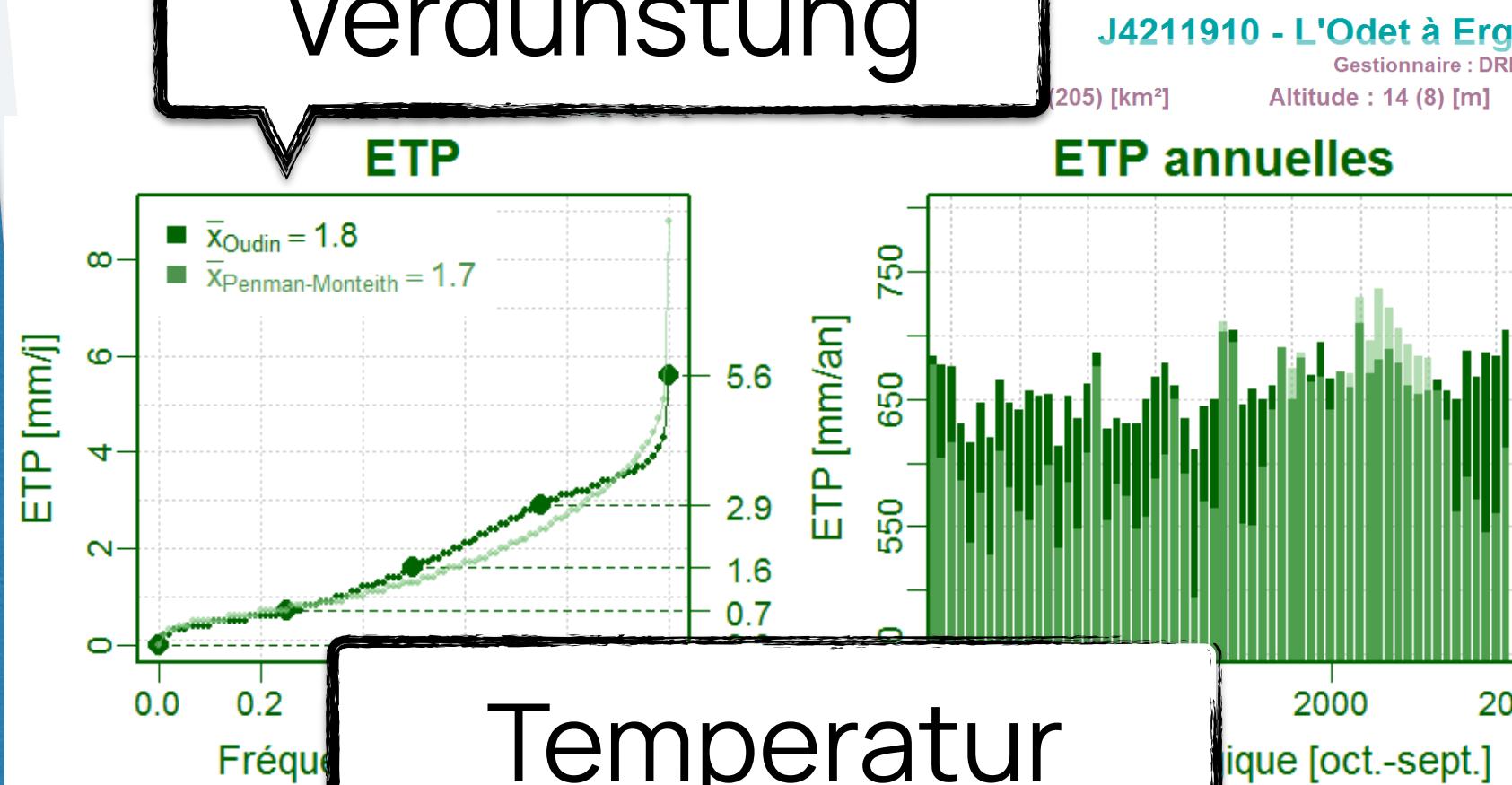
Équipe HYDRO, UR HYCAR, INRAE, Antony  
Conception : Brigode, P. - Génot, B. - Lobliqueis, F. - Delaigue, O.  
Contact : olivier.delaigue@inrae.fr



# Die Syntheseblätter

Überblick für jedes der EZG

Verdunstung



Arte

- Zusammenfassung

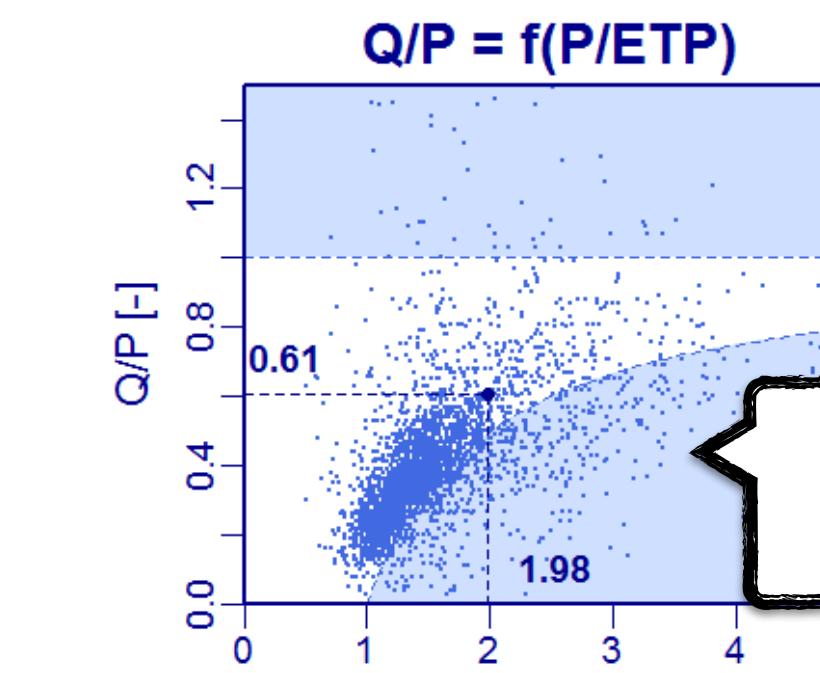
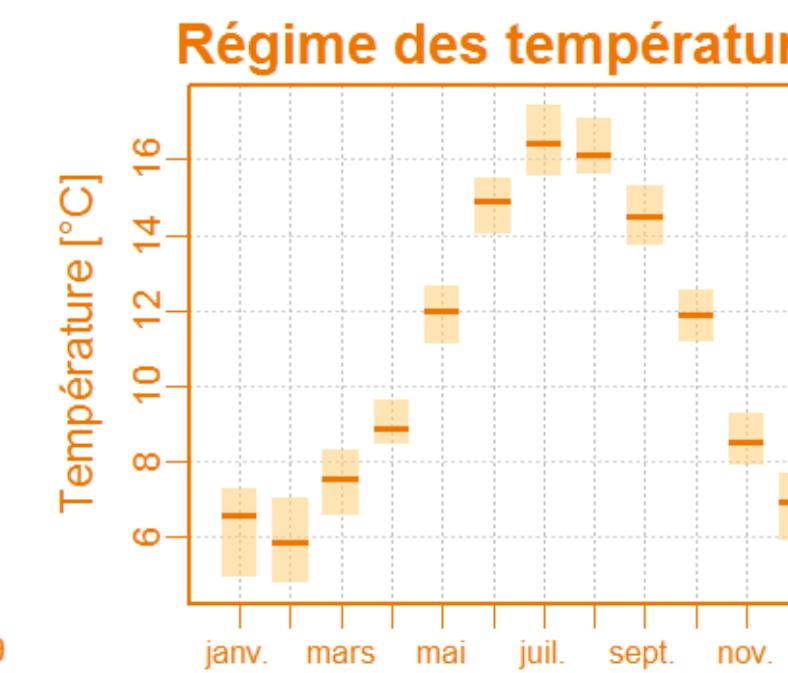
- Abfluss

- Niederschlag

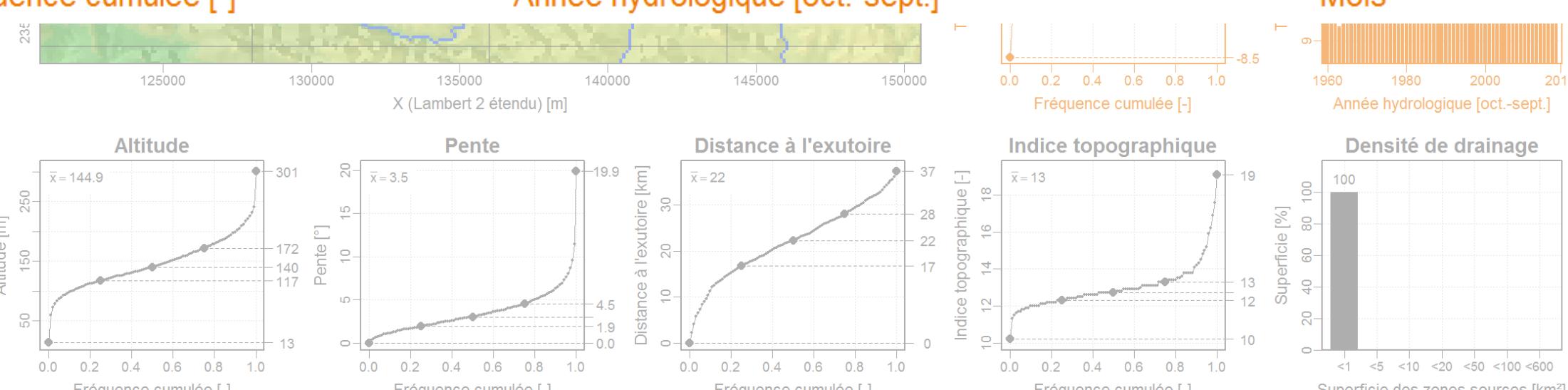
- Verdunstung

- Temperatur

Budyko



Graphie



# Die Syntheseblätter

Überblick für jedes der EZG



## J4211910 - L'Odet à Ergué-Gabéric [Tréodet]

Gestionnaire : DREAL Bretagne

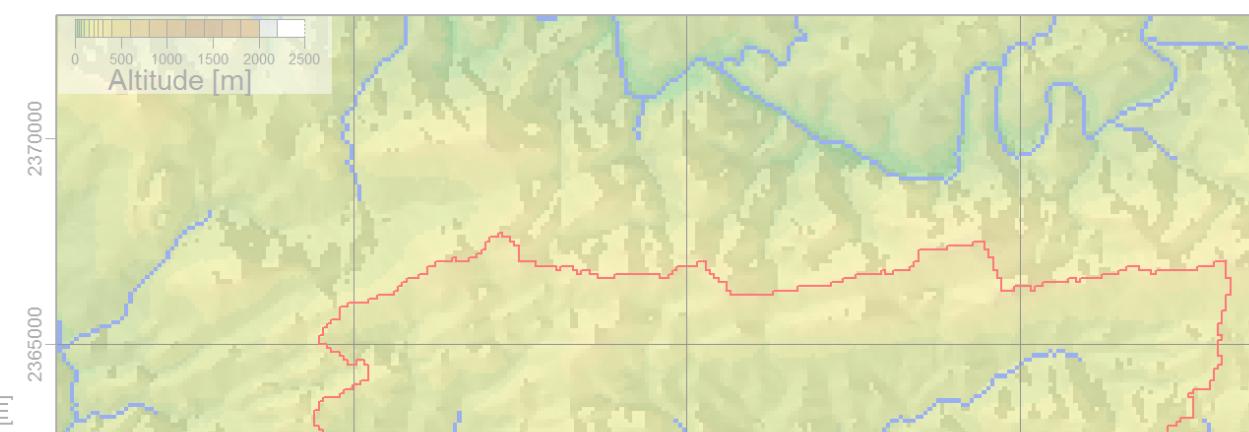
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INRAE (Banque Hydro)  
INRAE (Banque Hydro)  
INRAE (Banque Hydro)



Type	Source	Période	PdTemps	Débit
Débit	Banque HYDRO	1969-2019	Journalier	
Climatique	SAFRAN (Météo-France)	1958-2019		
MNT 100 m	SRTM (NASA)	2011		
Date extraction Banque Hydro		2020-01-14	-	
<b>Moyennes interannuelles</b>				
Débit				752 (4.84)
Précipitations (totales / solides)				1249 / 8.743
ETP (Penman-Monteith / Oudin)				615 / 660
Température				10.9
Taux de lacune des débits				0
Valeurs extrêmes de la série				
QJX <sub>max</sub>		2000-12-13	mm/j (m <sup>3</sup> /s)	34.7 (81.6)
PJX <sub>max</sub>		2011-12-15	mm/j	64.8
QMNA <sub>min</sub>		1989-09	mm/mois	2.1



topogr.  
Höhen

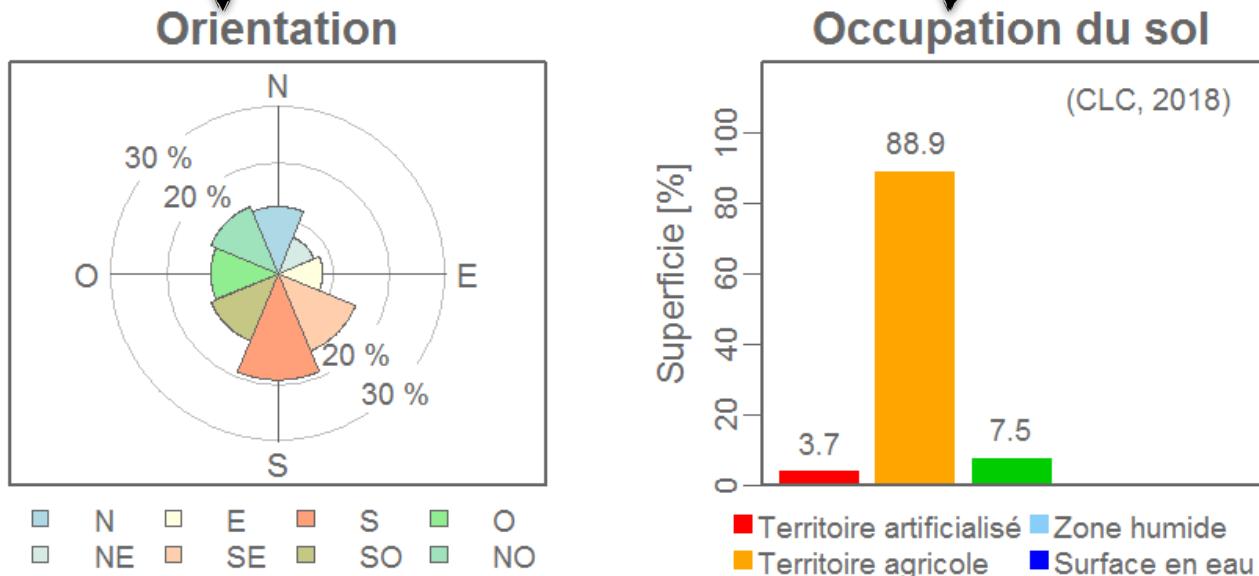
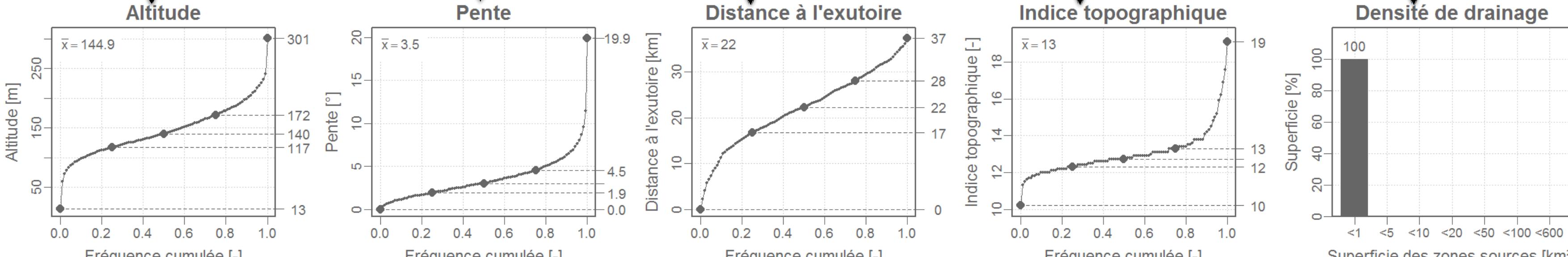
Hang-  
neigung

Entfernung  
zu Pegel

Topogr.  
Wetness I

Dichte d.  
Gericke

Land-  
nutzung



- Lage/Karte
- Zusammenfassung
- Abfluss
- Niederschlag
- Verdunstung

- Exposition

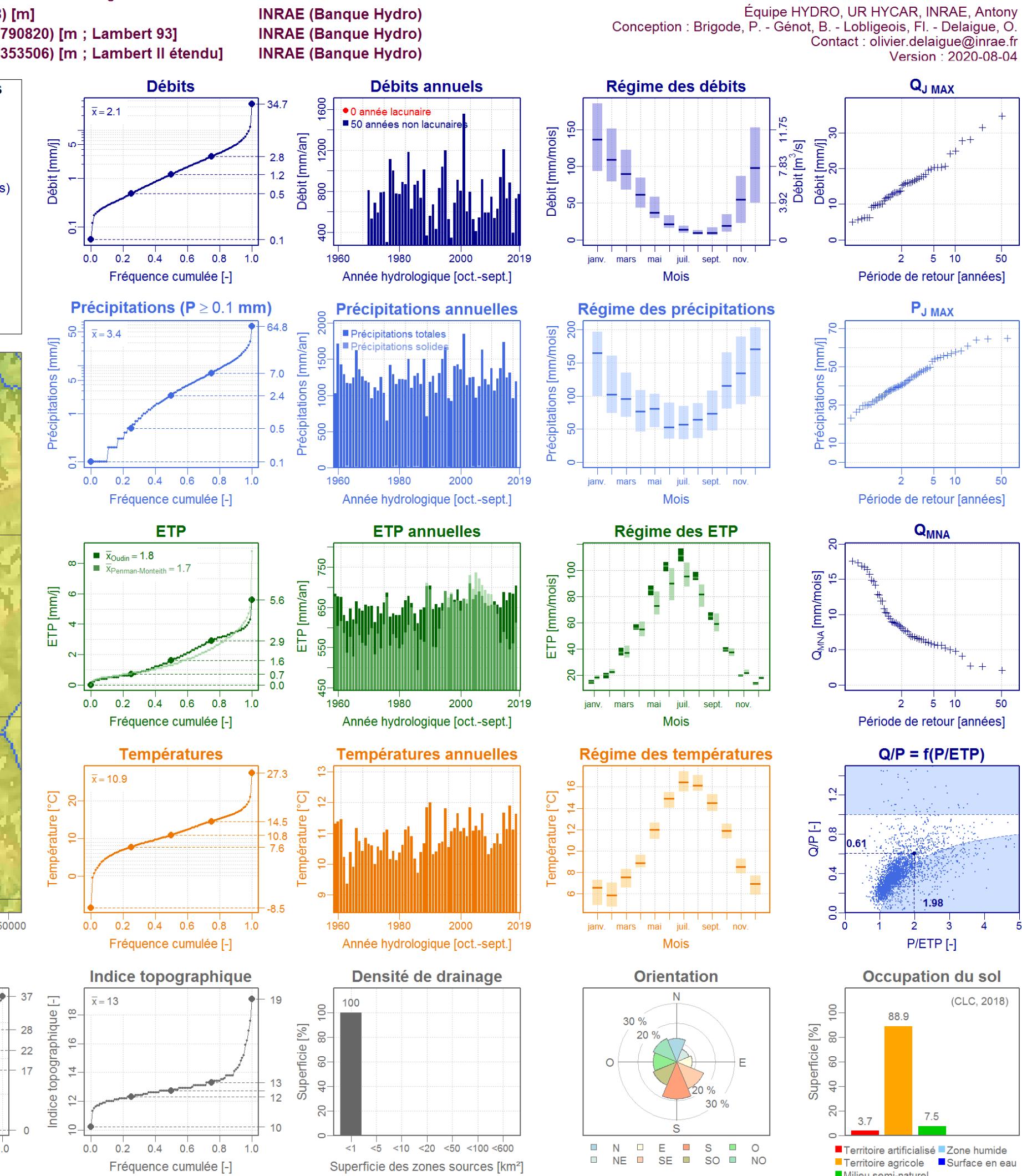
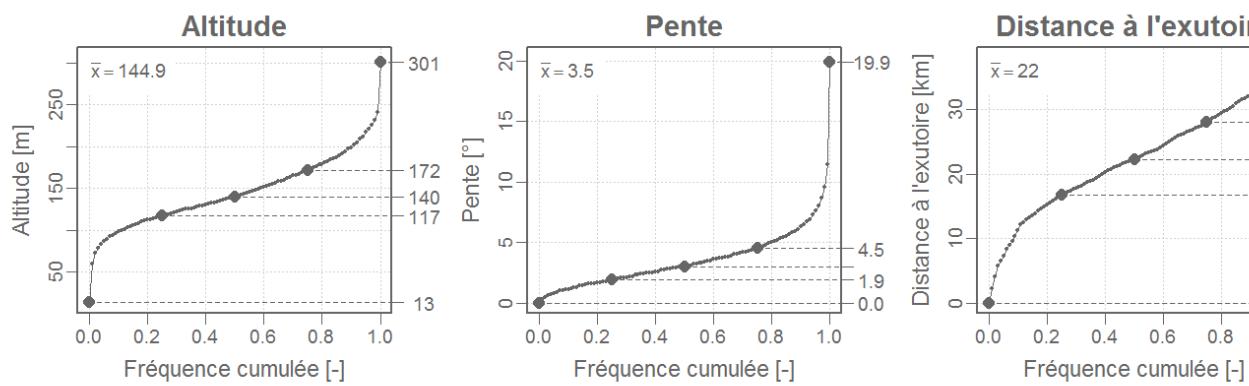
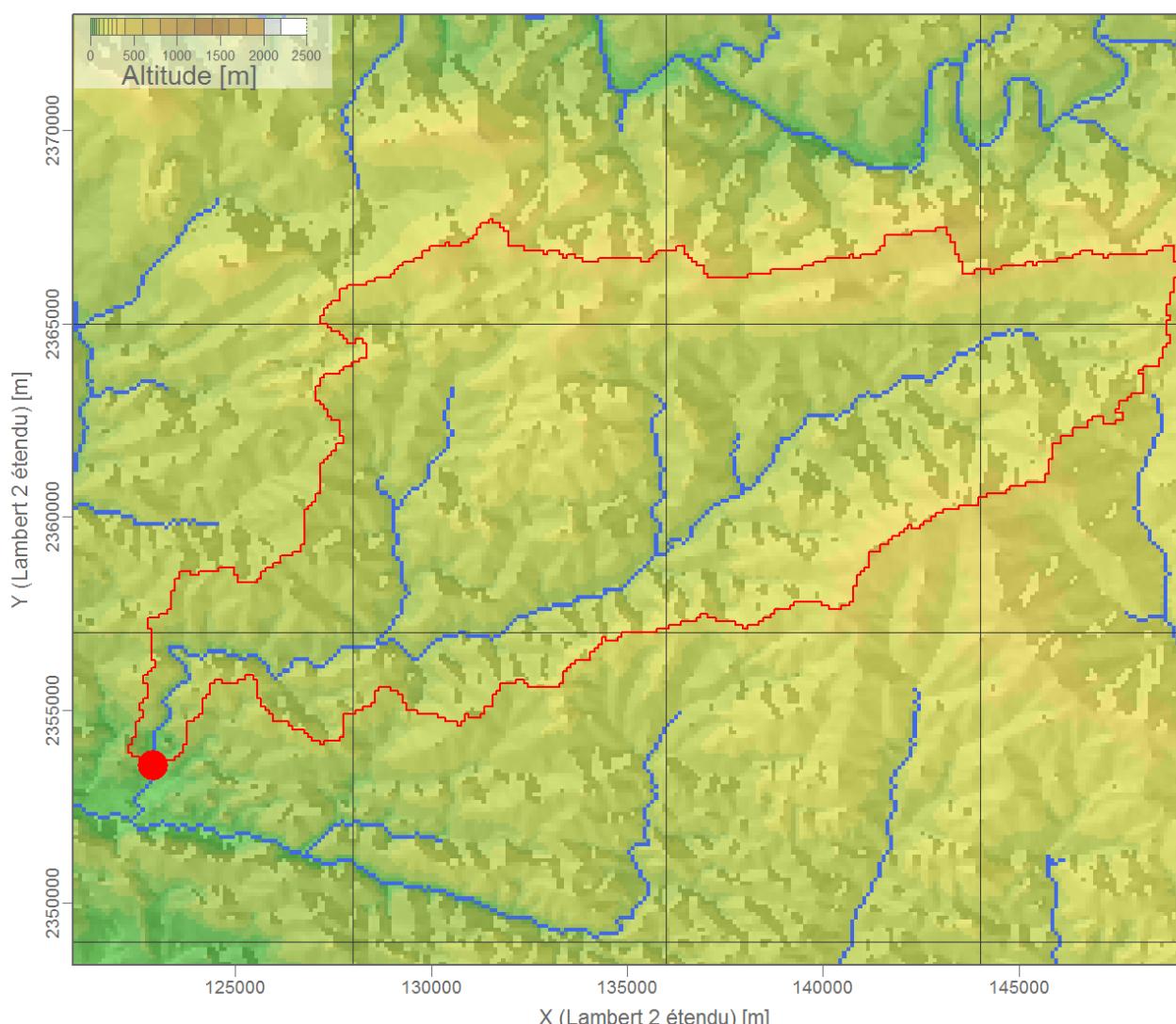
- Landnutzung

# Die Syntheseblätter

Überblick für jedes der EZG



Superficie : 203.1 (205) [km <sup>2</sup> ]	Gestionnaire : DREAL Bretagne
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Type	Source
Débit	Banque HYDRO
Climatique	SAFRAN (Météo-France)
MNT 100 m	SRTM (NASA)
Date extraction Banque Hydro	
Moyennes interannuelles	
Débit	Période
Précipitations (totales / solides)	1969-2019
ETP (Penman-Monteith / Oudin)	1958-2019
Température	2011
Taux de lacune des débits	2020-01-14
Valeurs extrêmes de la série	PdTemps
QJX <sub>max</sub>	Journalier
PJX <sub>max</sub>	Journalier
QMNA <sub>min</sub>	-
	Unité
34.7 (81.6)	mm/an (m <sup>3</sup> /s)
64.8	mm/an
2.1	mm/C
mm/j (m <sup>3</sup> /s)	%
2000-12-13	
2011-12-15	
1989-09	



- Lage/Karte
- Zusammenfassung
- Abfluss
- Niederschlag
- Verdunstung
- Temperatur
- Topographie

# airGR mit RStudio

wie schon bekannt – aber nun auf dem eigenen Rechner

```

RStudio
Project: (None)

drought_response.Rmd Untitled11* r_skript.r rgant.R airGR_carlsfeld.R airGR_PVL.R carlsfeld > Addins

Environment History Connections Tutorial
Import Dataset 107 MiB
Global Environment
dE6 7305 obs. of 5 variables
dH0 7305 obs. of 5 variables
dH1 7305 obs. of 5 variables
dJ6 7305 obs. of 5 variables
dJ1 7305 obs. of 5 variables
dJ4 7305 obs. of 5 variables
dK1 7305 obs. of 5 variables
dK2 7305 obs. of 5 variables
dK7 7305 obs. of 5 variables
dV1 7305 obs. of 5 variables
dX0 7305 obs. of 5 variables
dX1 7305 obs. of 5 variables
dY6 7305 obs. of 5 variables

Files Plots Packages Help Viewer Presentation
R: Metadata and daily time series of catchment-scale... Find in Topic
R Script

Console Terminal Background Jobs
R 4.2.2 ~/Documents/TUBAF/teaching/hydropedology/uebung/hydropedology_lab/modelling_project/
> mY6 <- Y643401001$Meta
>
> # Start the airGR shiny app
> ShinyGR(ObsDF = list("B" = dA6, "C" = dB2, "D" = dE5, "E" = dE6,
+ "F" = dH0, "G" = dH1, "I" = dH6, "J" = dJ1,
+ "K" = dJ4, "L" = dK1, "M" = dK2, "N" = dK7,
+ "O" = dV1, "P" = dX0, "Q" = dX1, "R" = dY6),
+ ZInputs = list(median(mA6$HypsoData), median(mB2$HypsoData), median(mE5$HypsoData), median(mE6$HypsoData),
+ median(mH0$HypsoData), median(mH1$HypsoData), median(mH6$HypsoData), median(mJ1$HypsoData),
+ median(mJ4$HypsoData), median(mK1$HypsoData), median(mK2$HypsoData), median(mK7$HypsoData),
+ median(mV1$HypsoData), median(mX0$HypsoData), median(mX1$HypsoData), median(mY6$HypsoData)),
+ HypsoData = list(mA6$HypsoData, mB2$HypsoData, mE5$HypsoData,
+ mH0$HypsoData, mH1$HypsoData, mH6$HypsoData, mJ1$HypsoData,
+ mJ4$HypsoData, mK1$HypsoData, mK2$HypsoData, mK7$HypsoData,
+ mV1$HypsoData, mX0$HypsoData, mX1$HypsoData, mY6$HypsoData),
+ NLayers = 5,
+ SimPer = c("1999-01-01", "2018-12-31"),
+ theme = "United")
Loading required package: shiny

```

Source

Delaigue, O., Brigode, P., Andréassian, V., Perrin, C., Etchevers, P., Soubeyroux, J.M., Janet, B. and Addor, N. (2022). CAMELS-FR: A large sample hydroclimatic dataset for france to explore hydrological diversity and support model benchmarking. 11th edition of the IAHS Scientific Assembly. International Association of Hydrological Sciences, Montpellier, 29 May - 3 Jun. 2022. [hal-03687235](https://hal-03687235)

- Pakete laden
- Shiny app starten
- wer lieber coden will:  
<https://hydrogr.github.io/airGRteaching/>

<https://posit.co/downloads/>