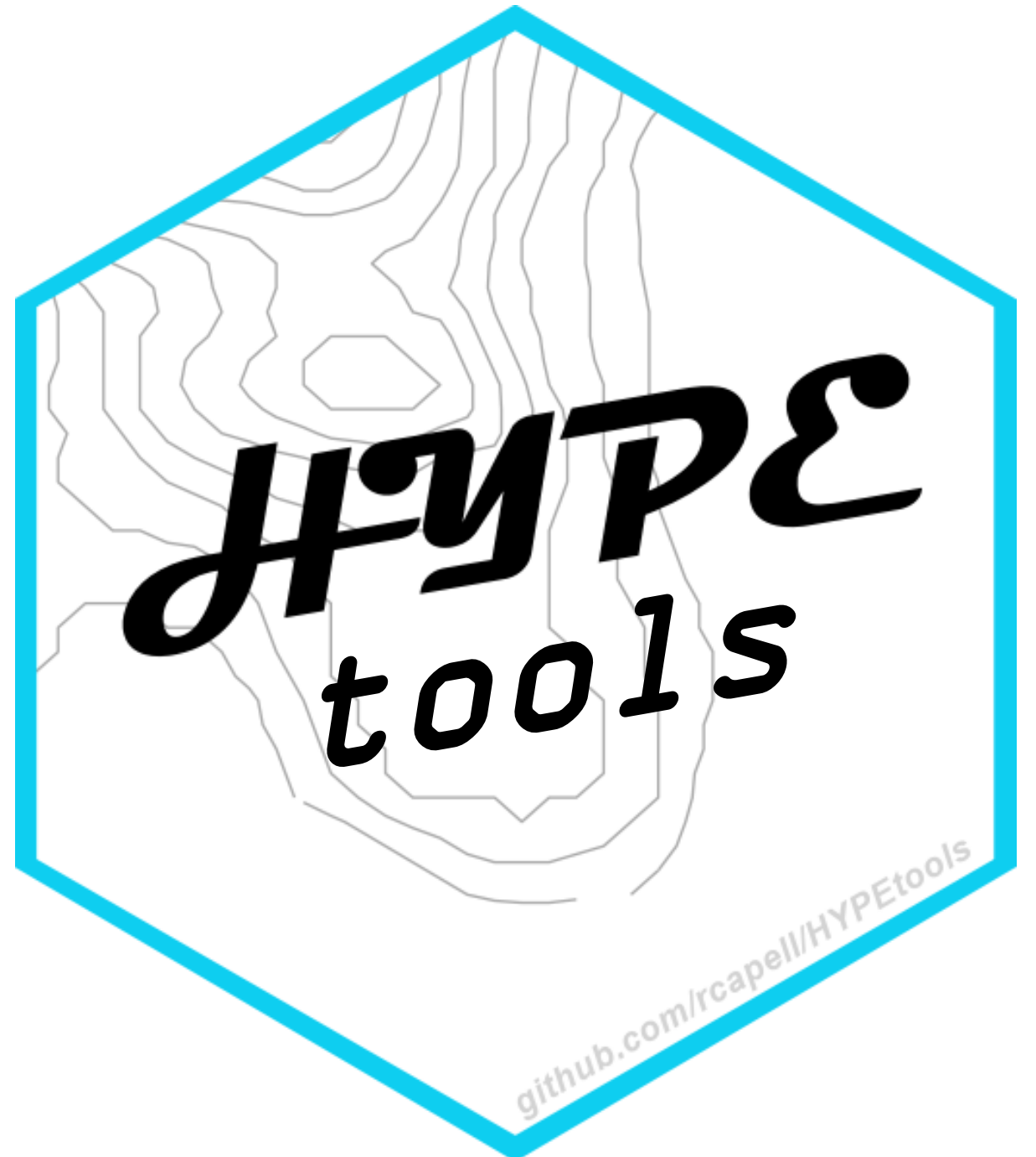




Hyping up HYPEtools, an open-source R package for analysis, visualization, & interpretation of hydrological models and datasets

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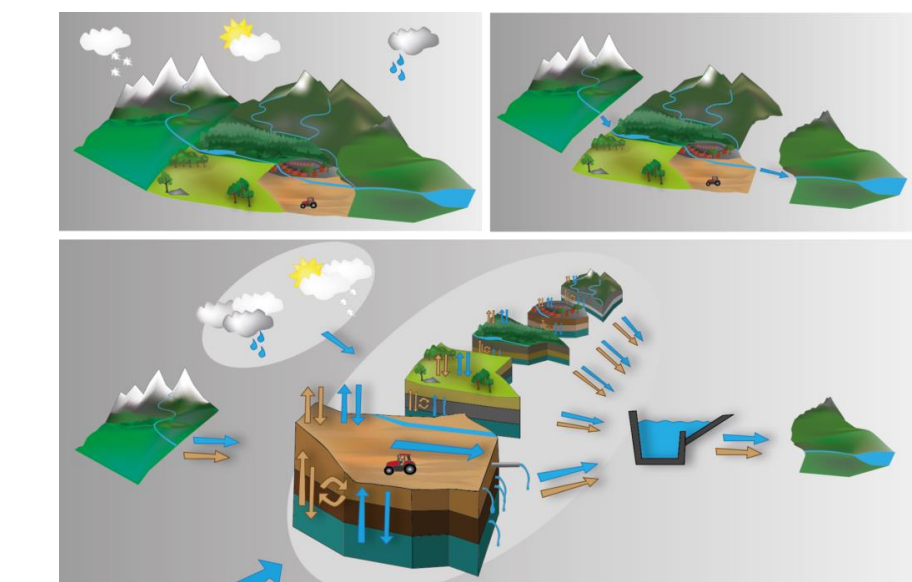
What is HYPEtools?

HYPEtools is an open-source R package for analysis and visualization of hydrological data, with tools to support the development and calibration of hydrological models

HYPEtools includes:

- Functions to simplify common data manipulation & summarization tasks
- Interactive tools for mapping, plotting & data exploration
- Interactive apps to evaluate model outputs & data across large domains
- In-built example data and tutorial vignettes to help you get started

Tested Hydrological Models



We recommend the HYPE model:

- Open-source hydrological model
- Spatially & temporally explicit
- Integrated hydrology & water quality
- Soil & Landuse Class (SLC) scheme allows for transfer of parameter values from calibrated domain to ungauged areas

Read more about HYPE at:
<http://hype.smhi.net/wiki/doku.php>

Using HYPEtools with other models & datasets:

Reformat your data to the same tabular format or adapt the open-source code to suit your needs!



Getting Started



Check out the HYPEtools code on GitHub:
<https://github.com/rcapell/HYPEtools>



Install HYPEtools in R with:
`install.packages("HYPEtools")`



Install HYPEtools in Conda with:
`conda install conda-forge::r-hypetools`



Try the HYPEtools Tutorial Vignettes from R with:
`browseVignettes("HYPEtools")`

Highlighted HYPEtools Features

File Import/Export:

BasinOutput / MapOutput

Basin ID, Date, Model Outputs, Observations

DATE	CRUN	EVAP	LIPEVAP	COUT	ROUT	SNOW	UPCPRC	SUBID	XZ001.Z001
2001-01-01	0.00	0.00	-3.74	0.00	0.00	5.09	8.89	3344	1.54
2001-01-02	0.06	0.00	-0.13	0.00	0.00	5.00	11.21	3396	0.93
2001-01-03	0.34	0.16	2.00	0.11	0.01	5.00	8.89	3407	0.94
2001-01-04	0.08	0.00	0.50	0.00	0.00	5.00	8.90	3466	3.07
2001-01-05	0.59	0.16	2.00	0.11	0.02	5.01	6.44	3558	0.54

GeoClass

SLC Class, Landuse, Soil, & Crop Info

SLC	LANDUSE	SOIL	CROPD1	CROPD2
1	1	1	1	0
2	1	1	0	0
3	3	1	0	0
4	2	1	0	0
5	2	2	0	0
6	3	2	0	0

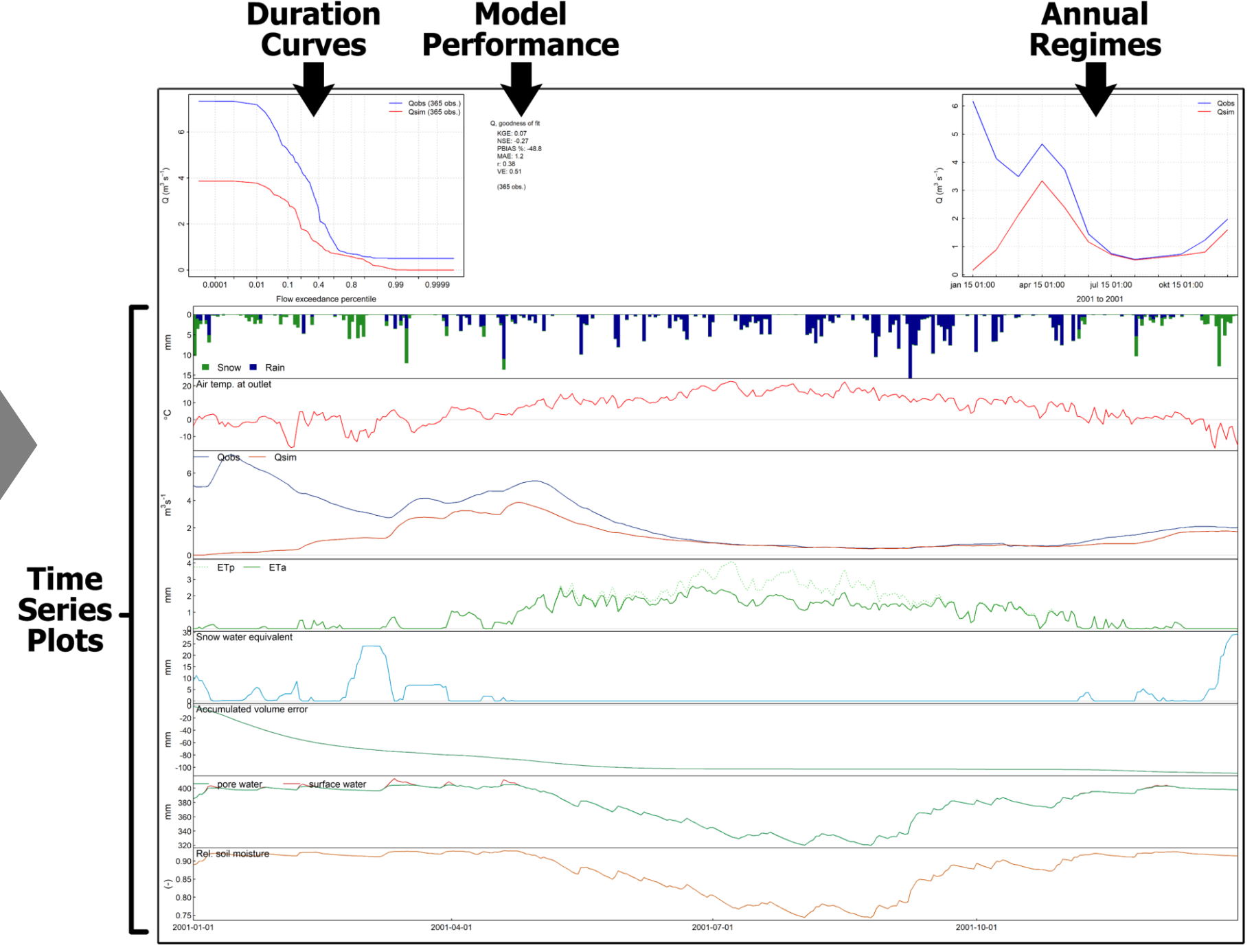
GeoData

Basin IDs, Basin Areas, SLC Fractions

SUBID	MAINDOWN	AREA	SLC_1	SLC_2	SLC_3	SLC_4	SLC_5	SLC_6
3344	3466	20126085	0.00	0.01	0.13	0.71	0.14	0.01
3396	3407	11121002	0.10	0.01	0.15	0.74	0.00	0.00
3407	3466	1055518	0.00	0.00	0.87	0.03	0.00	0.11
3466	40556	23598378	0.00	0.03	0.17	0.71	0.09	0.01
3558	3555	1543089	0.26	0.00	0.00	0.73	0.00	0.00

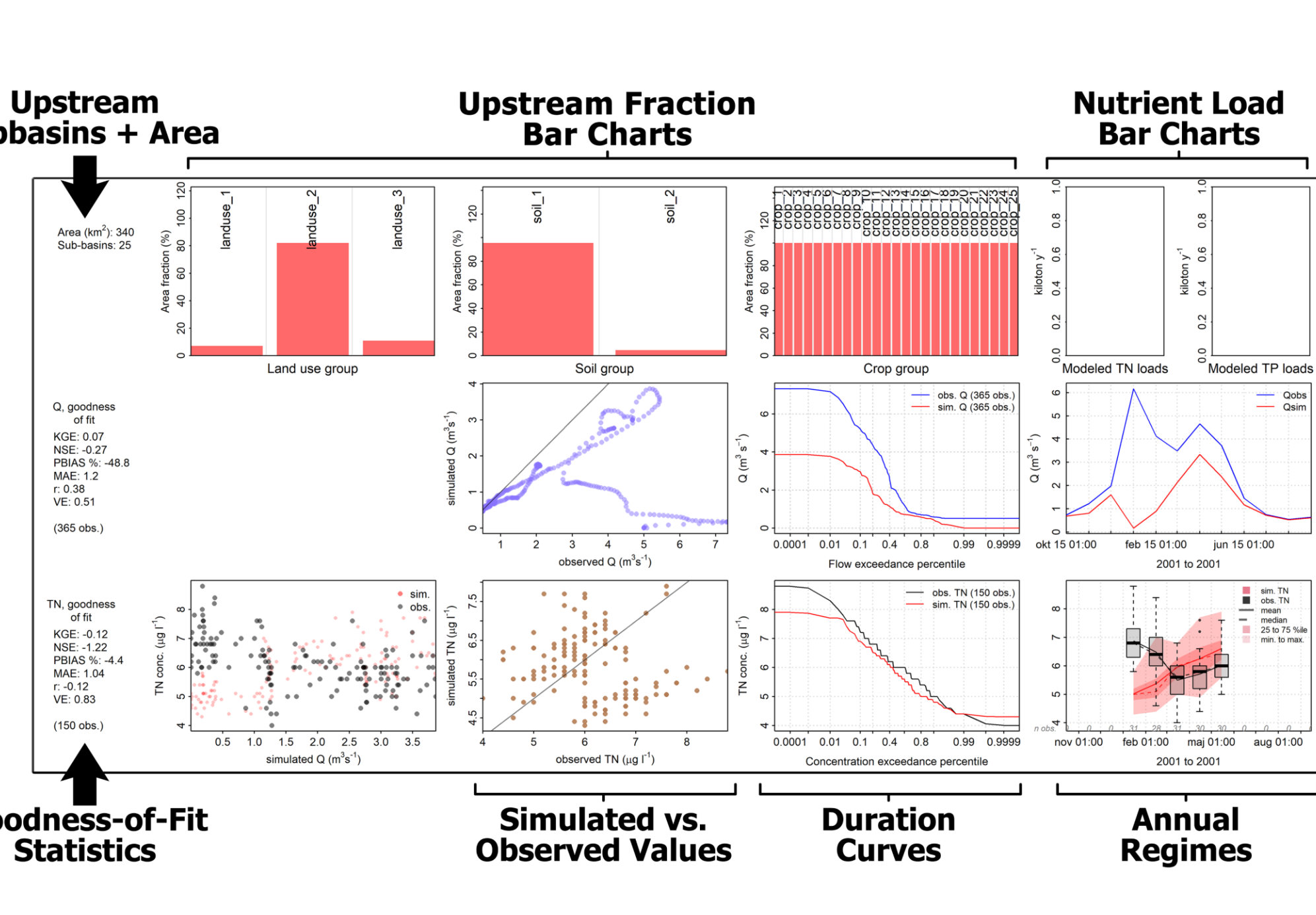
Model Dynamics Assessment:

`PlotBasinOutput(x = MyBasinOutput, gd = MyGeoData)`



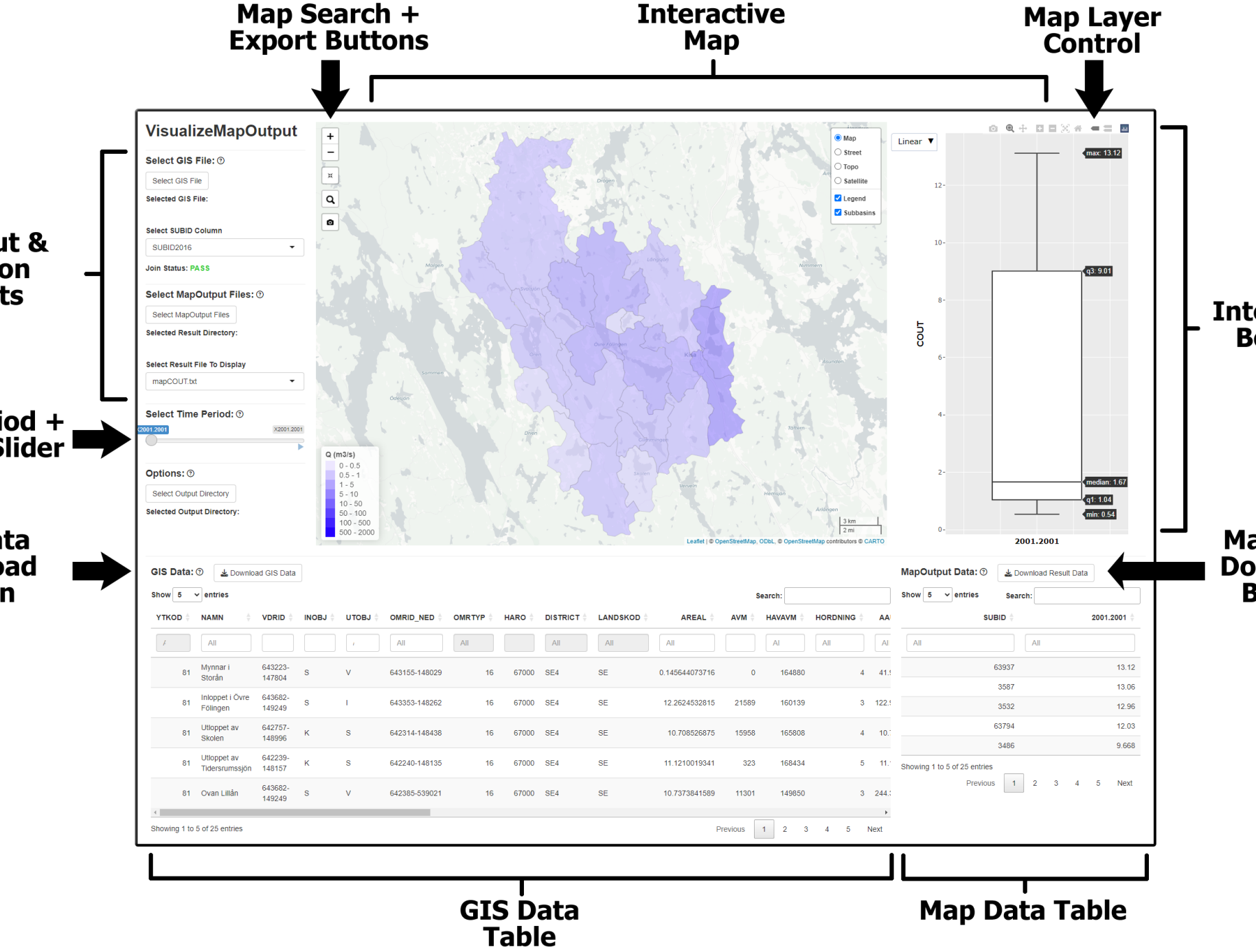
Model Performance Evaluation:

`PlotBasinSummary(x = MyBasinOutput, gd = MyGeoData, gcl = MyGeoClass)`



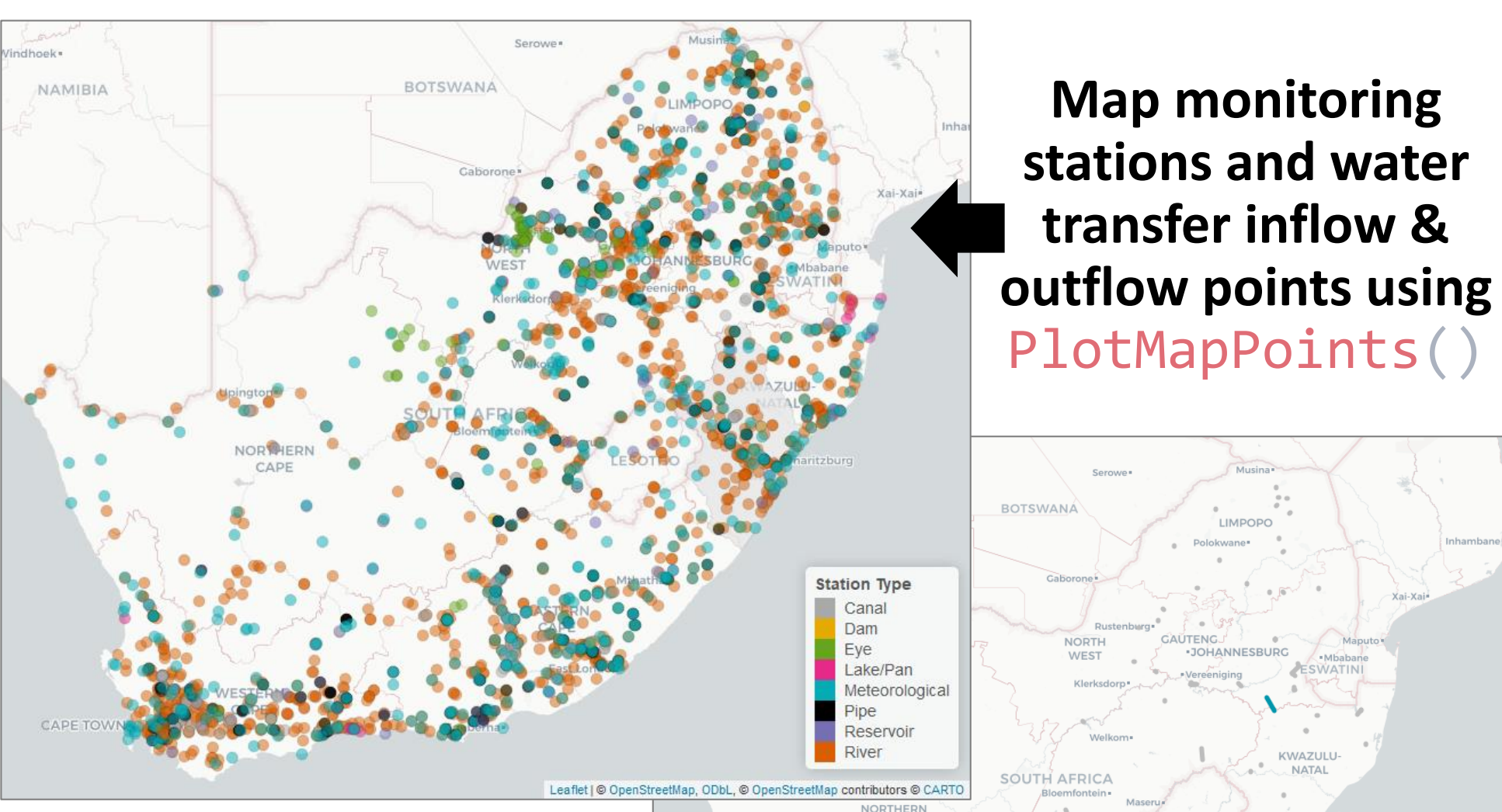
Interactive Data Exploration:

`VisualizeMapOutput(results.dir = "MyMapOutputs", map = "MyGISData.shp")`



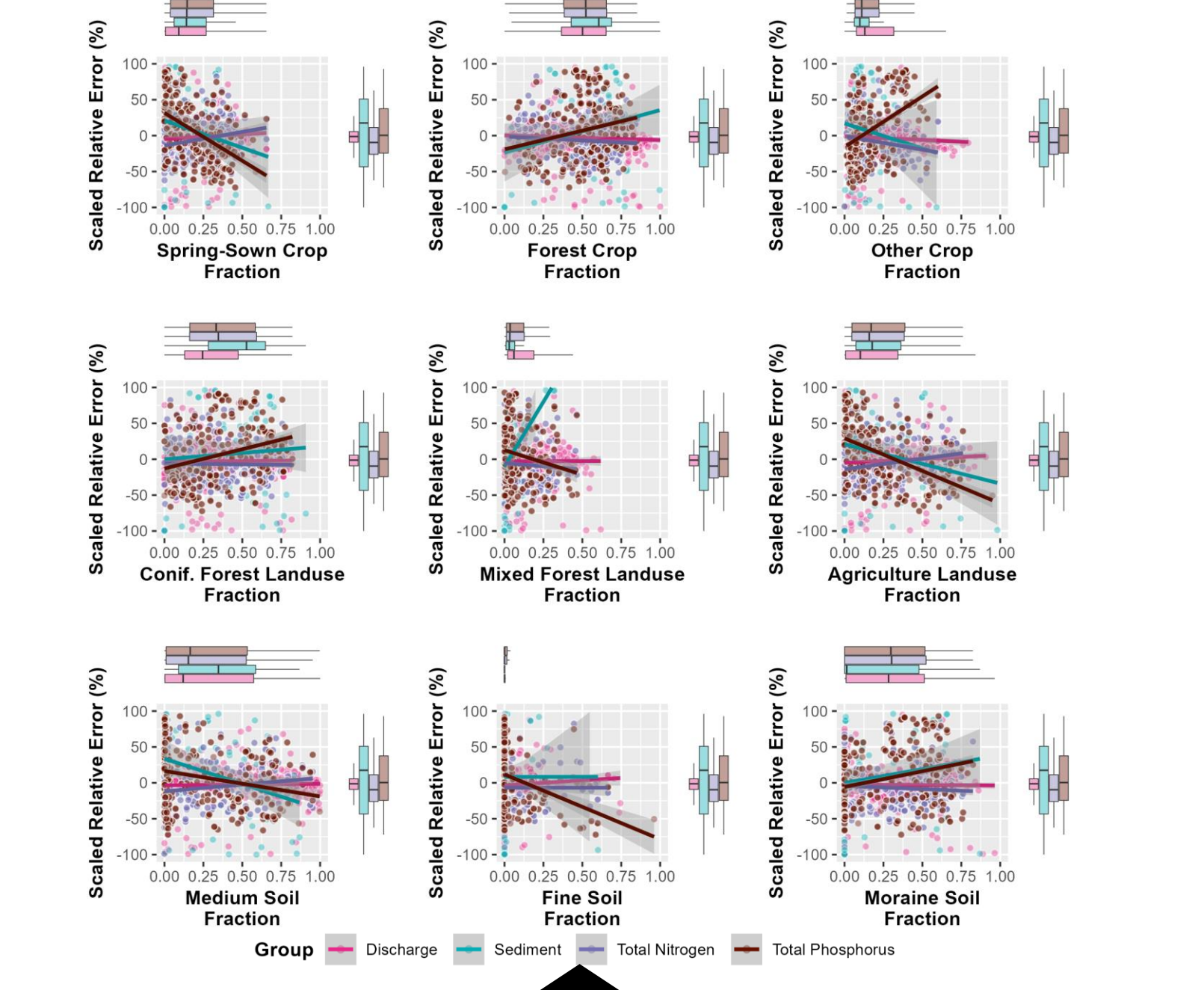
What kinds of questions can HYPEtools help to answer?

Where are there inter-basin water transfers in South Africa?



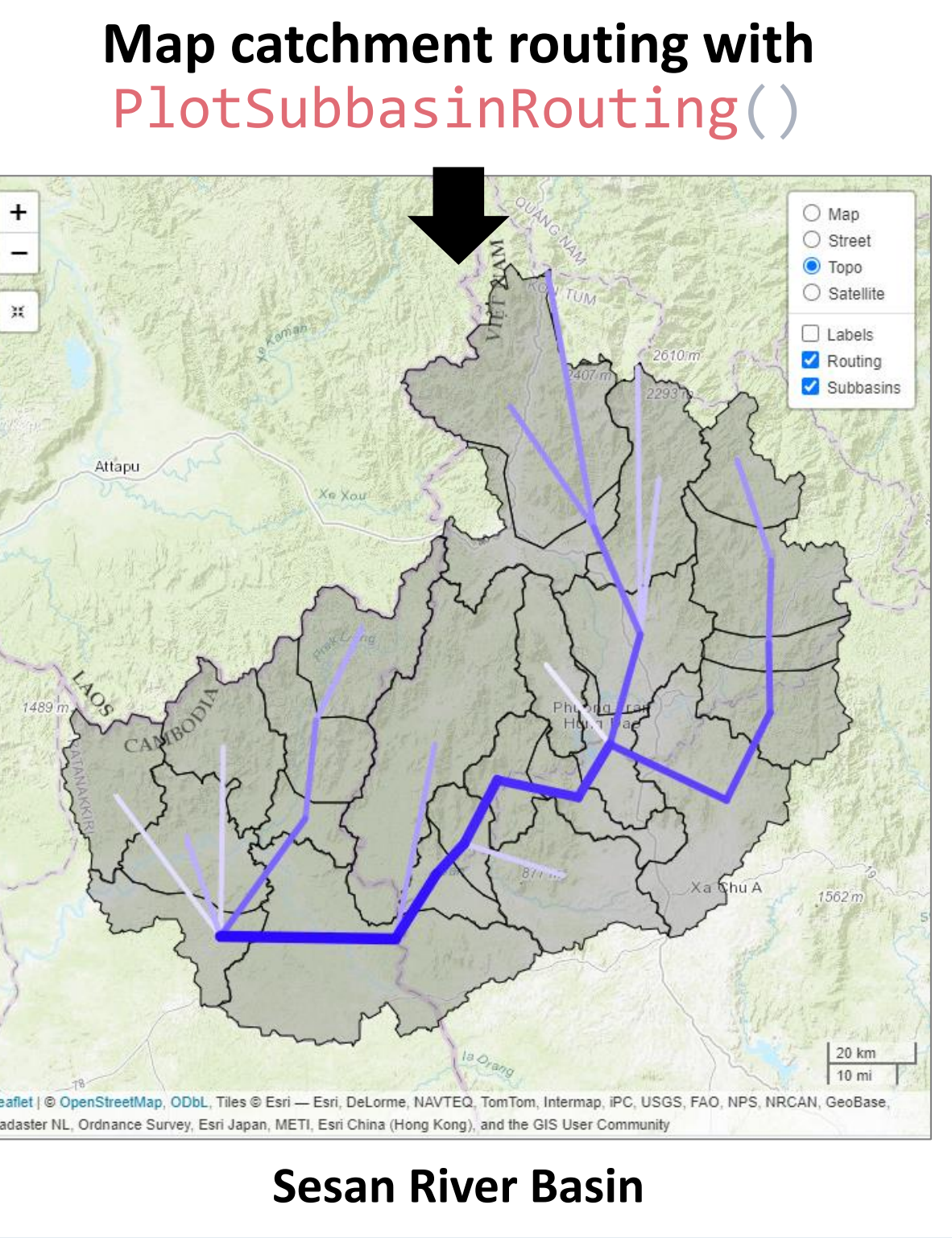
Map transfers using `MapRegionalSources()`

How do model biases vary with catchment attributes in Europe?

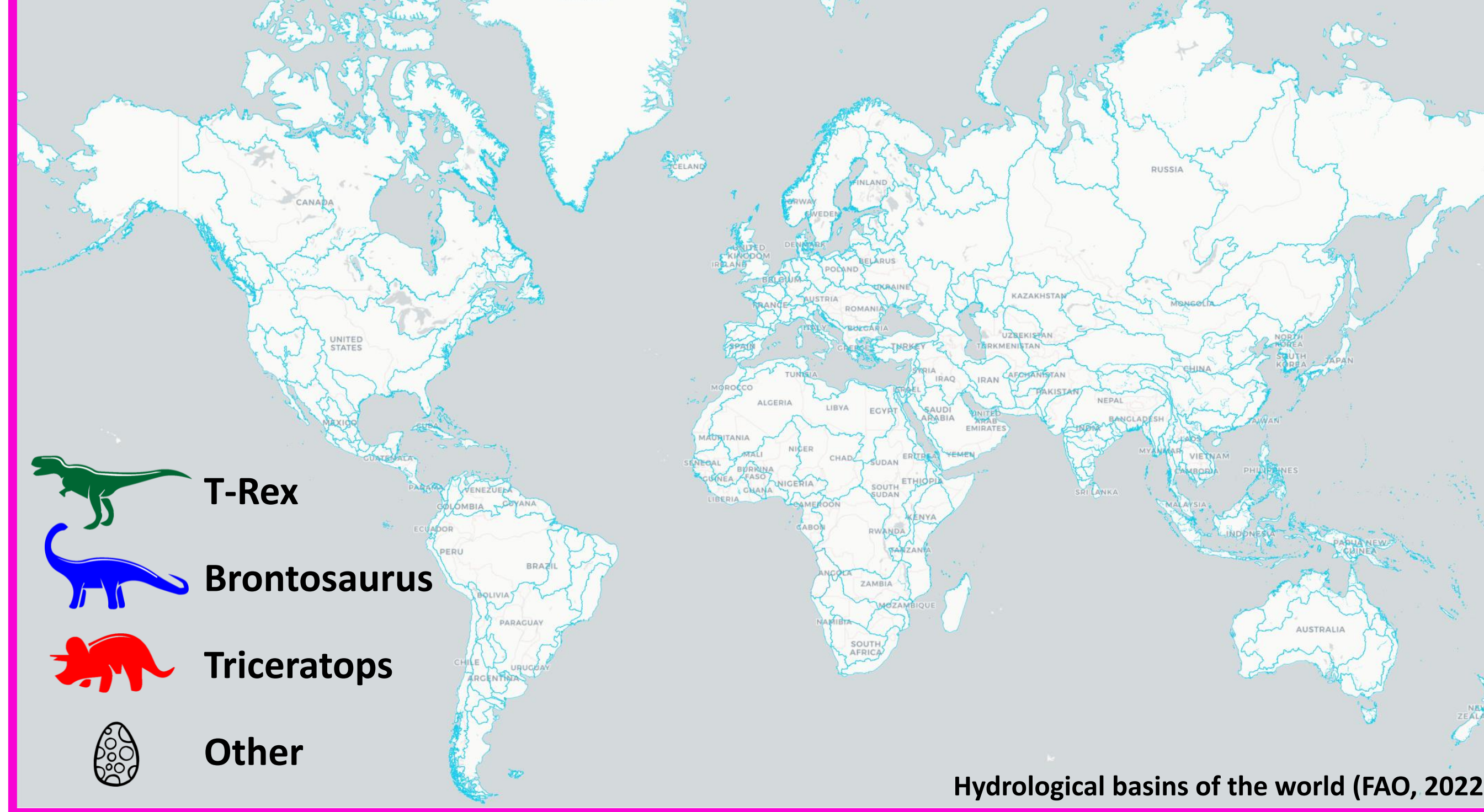


Generate evaluation plots with `PlotPerformanceByAttribute()`

What are the primary flow paths in Vietnam?



Which Basin Are You From?



Mark where you're visiting from with the color of your favorite dinosaur!

