

Data Sources, References, and R scripts

Data Sources:

- Water Productivity (GDP per unit of water withdrawal)
<https://data.worldbank.org/indicator/ER.GDP.FWTL.M3.KD>
- Water Stress (withdrawals as % of renewable resources)
<https://data.worldbank.org/indicator/ER.H2O.FWST.ZS>
- Total Freshwater Withdrawals (billion m³/year)
<https://data.worldbank.org/indicator/ER.H2O.FWTL.K3>
- Agricultural Withdrawal (% of total withdrawals)
<https://data.worldbank.org/indicator/ER.H2O.FWAG.ZS>
- Domestic Withdrawal (% of total withdrawals)
<https://data.worldbank.org/indicator/ER.H2O.FWDM.ZS>
- Industrial Withdrawal (% of total withdrawals)
<https://data.worldbank.org/indicator/ER.H2O.FWIN.ZS>
- Population (total)
<https://data.worldbank.org/indicator/SP.POP.TOTL>
- GDP per Capita (PPP, current international \$)
<https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD>
- Private Investment in Water & Sanitation (current US\$)
<https://data.worldbank.org/indicator/IE.PPI.WATR.CD>
- Natural Disaster Impact (% of population; avg. 1990–2009)
<https://data.worldbank.org/indicator/EN.CLC.MDAT.ZS>
- Precipitation (average annual depth, mm)
<https://data.worldbank.org/indicator/AG.LND.PRCP.MM>

References:

- Clere A., & Bansal V. (2022) *Machine Learning with Dynamics 365 and Power Platform : The Ultimate Guide to Apply Predictive Analytics*. Wiley.

- Rocha, A. M. A. C., Murgante, B., Garau, C., Gervasi, O., & Misra, S. (Eds.). (2022). *Computational science and its applications – ICCSA 2022 workshops*. Springer International Publishing.
- Prevos P. (2023) * Data Science for Water Utilities : Data as a Source of Value*. RC Press
- van Delden, A., Snijkers, G., Jones, J., Sakshaug, J. W., Thompson, K. J., Bavdaž, M., Bender, S., & MacFeely, S. (2022). *Advances in business statistics, methods and data collection*. Wiley.
- Ertz, F., Burgard, J. P., & Münnich, R. (2024). Lecture notes for the course Statistical Programming with R. Trier University.
- Münnich, R., Burgard, J. P., & Ertz, F. (2024). Lecture notes for the course Elements of Statistics. Trier University.
- Krause, J. (2025). Lecture notes for the course Statistical Methods of Data Science. Trier University.
- Bergmann, R. (2025). Lecture notes for the course Data Mining. Trier University.

R scripts:

- Data Preprocessing
<https://github.com/1798bebe/Statistical-Research-with-R/blob/main/preprocessing/preprocessing.R>
- Supervised Learning
<https://github.com/1798bebe/Statistical-Research-with-R/blob/main/Supervised%20Learning%20%28Regression%2C%20Classification%29/binary%20classification.R>
- Unsupervised Learning
[https://github.com/1798bebe/Statistical-Research-with-R/blob/main/unsupervised%20learning\(PCA%2C%20clustering\)/unsupervised_learning.R](https://github.com/1798bebe/Statistical-Research-with-R/blob/main/unsupervised%20learning(PCA%2C%20clustering)/unsupervised_learning.R)
- Time-series Forecasting
https://github.com/1798bebe/Statistical-Research-with-R/blob/main/time%20series%20forecasting/time_series_forecasting.R