

## **Even great ideas have limits – examining the Turc-Mezentsev and the Tixeront-Fu water balance formulas**

Vazken Andréassian and Alban de Lavenne

Irstea, HBAN, Antony, France (vazken.andreassian@irstea.fr)

A variety of models and formulas exist to represent the precipitation-flow transformation. In the recent years, simple formulas describing the long-term hydrological balance have received a lot of interest; the most widely discussed being the Turc-Mezentsev (Turc, 1954; Mezentsev, 1955) and the Tixeront-Fu (Tixeront, 1964; Fu, 1981) formulas.

Although we largely share the enthusiasm of our colleagues concerning these two formulas, we would like to examine here their limits concerning an important aspect: their inability to reproduce the observed elasticity of streamflow to precipitation and potential evaporation (Andréassian et al., 2016; Berghuijs & Woods, 2016). We discuss whether this could be due to the fact that they do not account for the seasonality, timing and intensity of precipitation, and propose simple ways to include these factors in the original formulations.

### References

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