

Dear Christine (Editor),

Please find attached our revised version of the manuscript **hess-2019-600: X Water Worlds and how to investigate them: A review and future perspective on in situ measurements of water stable isotopes in soils and plants.**

We invested substantial efforts in including the many useful and constructive comments provided by Youri Rothfuss (Rev.#1), an anonymous reviewer (Rev.#2) and Erik Oerter (short comment). We would like to thank them once again in helping to improve this manuscript. All changes made are in accordance to our responses to the reviewers which we provided earlier.

The most prominent changes we summarize as follows:

- Changed the manuscript title (New: 'In situ measurements of soil and plant water isotopes: A review of approaches, practical considerations and a vision for the future');
- Included new chapter on physically based isotope-enabled modeling (chapter 4 in new version) and a corresponding table (table 2); this section was prepared by a new co-author (K. Kühnhammer)
- Added Glossary defining the main terms used throughout the review
- Revised Figure 1 (minor changes)
- Updated literature to current (2020), checked for consistency in isotope terminology

We believe that the revised version provides a thorough overview on the status quo and current forefronts of in situ measurements and their application. We look forward to hear your opinion,

Kind regards,

Kathrin Kühnhammer, Maren Dubbert and Matthias Beyer