The Daisy Model Newsletter
Department of Plant and Environmental Sciences
University of Copenhagen

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1 The Daisy code, v. 7.1.0

The Daisy version 7.1.0 is the latest official release. Compared to Daisy 7.0.7 the installation process changed back to normal, making it possible, again to have and run multiple Daisy versions through visual studio, textpad ect.

See this guide for installation and configuration for textpad.

Daisy 7.1.0 includes several new functionalities making it possible to simulate the fate of PFAS:

- Calculation of the air-water-interface area and sorption to this interface.
- The possibility to add chemicals, other than N, to the precipitation as wet deposition.
- Standard parameterization for several PFAS in the PFAS.dai file in the "lib"-folder.
- Examples of PFAS simulations including deposition, the air-water interface adsorption and relevant logs in the PFAS-sample.dai in the "sample"-folder.

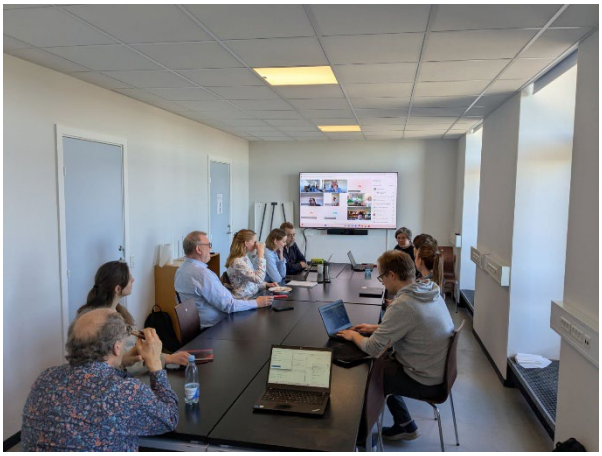
For additional information on simulating the fate of PFAS in agricultural soils with Daisy see the newly released Appendix 6.1 of the technical documentation.

2 Courses

The PhD-summer course "**AgroEnvironmental Modelling with Daisy**" will run from 25th-29th August 2025 at University of Copenhagen. It covers the main processes in Daisy and an introduction to the new features for N_2O and PFAS simulations. See the course description at Copenhagen Universities PhD. course catalog for flyer for more info an sign up through the course catalog for more information and enrolment. Please spread the information to whom it might be relevant.

3 Daisy user meetings

This spring Camilla Jakobsen, Laura Delhez and Tobias Klöffel have presented on their work using Daisy for PFAS, energy fluxes (including SVAT-SSOC) and N_2O modelling, respectively. The presentation can be found at Lunch meetings – University of Copenhagen.



In the autumn we will continue with the meetings the first Wednesday of the month from 12.30-13.30 both physically (Thorvaldsensvej 40, Room T532) and online (write daiys.ku.dk for a link), starting with a presentation on bare soil evaporation by Simon Fill Svane, KU, on 3rd of September.

If you would like to present a project or have ideas for subjects for the lunch meetings, please write to daisy.ku.dk.

4 The Technical documentation

Chapter 7 on Nitrogen dynamics including Appendix 7.1 on ammonium sorption is now available. In addition, a new appendix (6l.1) documenting simulations of PFAS, deposition and the air-water interphase is available.

This marks the finalization of all the chapters documenting the process description of the Daisy Model and thus a major milestone in the continued use and availability of Daisy.

5 Recent article where Daisy have been used

Reimer et al., 2025, evaluated the short- and long-term effect of urban waste fertilizers compared to mineral and animal manures on yield, nutrient dynamics and potentially toxic element accumulation based on the CRUCIAL field experiment. They used Daisy to evaluate the detailed N and C balances for the different fertilizer treatment, especially focusing on N loss pathways such as leaching, volatilization, denitrification, surface runoff and N_20 emissions. They found that the models predicted N losses on 34-55 % of supplied N, with leaching being the main loss pathway (14-41 % of input). Losses were highest for compost, followed by deep litter, manure, sewage sludge, human urine, mineral fertilization, and slurry.

Liu et al. (2025) investigated the relationship between root traits and N losses based on a literature review and evaluated how these were described in the four process-based models: APSIM, Daisy, DNDCv.CAN and DSSAT. For all four models they tested the sensitivity of selected root parameters on N losses. For Daisy the effect of *Maximal root/shoot ratio*, *Penetration rate parameter of root*, *Conversion efficiency of root* and *Fraction of assimilate for growth to root* was tested for one growing season of spring barley at Foulum. In general Liu et al. (2025) found higher changes in N losses due to changes in root traits reported in literature (50% changes) compared to effects shown in the models (max 18.6 % change). Thus, they suggest to include new functions in the process-baes models to link root traits with key N-cycling processes.

6 References

Liu, H., Grant, B., Smith, W., Porter, C., Cammarano, D., Vogeler, I., Hoogenboom, G., Pullens, J.W.M., Olesen, J.E., Bindi, M., Semenov, M.A., Abrahamsen, P., Rötter, R.P., Kumar, U., Abalos, D., 2025. Towards an Improved Representation of the Relationship between Root Traits and Nitrogen Losses in Process-Based Models. https://doi.org/10.2139/ssrn.5129351

Reimer, M., Möller, K., Magid, J., Bruun, S., 2025. Urban waste fertilizer: effects on yield, nutrient dynamics, and potentially toxic element accumulation. Nutr. Cycl. Agroecosystems 1–22. https://doi.org/10.1007/s10705-025-10401-z