Geophysical Research Abstracts
Vol. 20, EGU2018-10414, 2018
EGU General Assembly 2018

The BonaRes Knowledge Portal – collecting, structuring, and visualizing knowledge on soil processes

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Soils are highly complex systems. Myriads of articles are published each year on soil processes and properties, interactions between them and management practices influencing them. The sheer mass of information and the complexity of the system make it hard to interlink and structure all this information to get a more systemic understanding of soil behavior. However, this knowledge is vital for model development to be able to predict changes in soil functions and properties in response to changes of climate or soil management.
To cope with these requirements, we develop the BonaRes Knowledge Portal and Library, a system based on a mySQL database, a soil thesaurus and state-of-the-art JavaScript-driven visualizations. By collecting condensed research results from the existing literature, organizing them, and presenting them in a structured way, we enable the user to filter and search for specific relationships, improve the understanding of the soil system and support researchers and especially modelers around the globe in finding an exhaustive amount of structured information on functional relationships and knowledge gaps in soil science. The system is fueled by a comprehensive soil literature review and currently being organized as a community effort.