

EGU22-1556, updated on 09 Aug 2022

<https://doi.org/10.5194/egusphere-egu22-1556>

EGU General Assembly 2022

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Trait-network reveals the adaptation strategies of plants

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Multi-traits covariation and plant trait-network have become a hot issue in the current research. The adaptation of plants to environmental changes depends on the coordinated changes of multiple traits, and ecosystem processes and functions also rely on the combined effects of multiple traits. Recent studies show that the combination of traits in different organs of plants has great potential to study the adaptation strategies of plants to their environment, but such assertions have not been proven on a larger scale. For exploring plant adaptation strategies worldwide, we collected 268680 trait records with environmental background information from TRY database after pre-processing, including 4 taxonomic traits and 22 continuous traits from different organs of 25014 species. In this research, we consider species as basic units, as they are the units for responding to environmental change and ecosystem management. This presentation mainly covers the adaptation strategies embodied by different plant trait-network and the main environmental factors that drive the change of plant trait-network. Revealing the interdependence of plant traits could not only advance our understanding of the adaptive strategies of plants, but also helps to optimize the vegetation dynamic models. At the end, this presentation will prospect for potential and ideas for research on plant trait-network for vegetation model improvement and ecosystem management measures.