Modeling Mediterranean Forests Dynamics using an Individual-Trait-Based Simulator (TFS).

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There is currently an effort to replace the use of plant functional types with traits continua in the next generation of vegetation dynamics models. This study presents the application of a new individual and trait based forest dynamics model (TFS) at Mediterranean Forest. Four key functional characters are used to express different life strategies in the model that represent a continuum of fast to slow plant economics. These functional traits are leaf dry mass per area (MA), leaf N and P concentrations (NL, PL) and wood density (DW). TFS has originally been developed for tropical forests and in this study is parameterised for different forest types found in Greece along altitudinal gradients. In particular data from approximately 500 individual trees at 50 different sites ranging from 350 to 1650 m asl are used 1) to force the model with site specific trait distributions and 2) to define associations between leaf maximum carboxylation Vmax and electron transport rate Jmax with MA, NL and PL. The model is applied at four different forest types and it is validated against field observations of gross and net primary productivity. Overall and adequate model performance is observed.