1116-92-2172   **Jean F Liénard*** (`jean.lienard@wsu.edu`), 14204 NE Salmon Creek Ave, Vancouver, WA 9868.
A data-intensive model forecasting forest response to climate-related stress.

Understanding and predicting how forest distributions will respond to ongoing and anticipated climate change is a challenge with great ecological, economic, and cultural implications. However, our ability to predict how climate change will affect forests at the landscape scale is limited. Here I present a novel scaling approach based on species tolerance traits. The ongoing USDA forest inventory provides detailed records of forested plots regularly distributed across the whole US, and their geographical locations can be cross-linked with climate datasets and soil moisture maps. A data-intensive statistical analysis reveals that at the continental scale, forest shade and drought tolerances are strongly correlated with climatic variables. The newly-found relationships between tolerance and climate is used to develop, apply and evaluate a Tolerance Distribution Model (TDM). Finally, the TDM is used to forecast the response of forested areas to 17 climate change scenarios, allowing the identification of regions that are consistently vulnerable to anticipated drought-related stress. (Received September 22, 2015)