ICP Forests   LRTAP
Long-range Transboundary Air Pollution

PROJECT INFORMATION

Project title:	**Applying the hydrological equilibrium concept to predict steady-state leaf area index for water-limited ecosystems**
Project ID:	122
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PROJECT DESCRIPTION

Hypothesis

Optimal steady-state leaf area index (L_{opt}) and its anomaly according to climate change can explain drought-induced tree mortality.

Neumann et al. (2017) proposed that tree mortality in Europe can be very well explained and thus predicted by satellite-derived net primary production. As near real-time as the satellite-derived data are, it cannot predict events in the far future (i.e. more than one year). Moreover, it seems beneficial to be able to identify key factor(s) and the relative impacts so that potential die-back events and vulnerable regions can be determined early enough for proper management.

Method

The analysis will use simple linear model to investigate: (i) whether L_{opt} and its anomaly can explain forest mortality; (ii) assess each climate factor for their impact.

Area of interest

The area of this study is southern Spain and Portugal where evergreen forest and shrub dominate and water limitation is common.

Other data source

The model will require climate data which are obtained from WorldClim (http://www.worldclim.org/current).

References

Neumann, M., V. Mues, A. Moreno, H. Hasenauer, and R. Seidl (2017), Climate variability drives recent tree mortality in Europe, *Glob. Chang. Biol.*, (January), 1–10, doi:10.1111/gcb.13724.