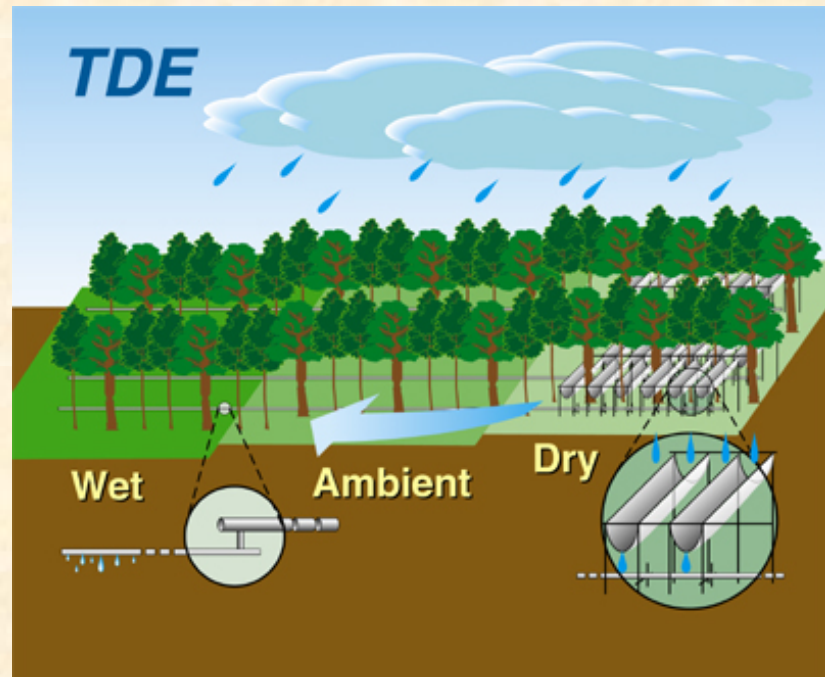


Throughfall Displacement Experiment (TDE)

Contact: Paul J. Hanson, hansonpj@ornl.gov, 865-574-5361

Sponsor: DOE Office of Science, BER (KP 12 03 01 0)

- The TDE study strives to evaluate long-term impacts of wetting or drying climate scenarios on forest ecosystem processes.
- Data from the TDE study provide quantitative input for ecosystem model parameterization and validation.
- Driver: Global environmental change.
- Unique contribution: One of the first and largest attempts to manipulate whole-forest stands at a scale relevant to existing diversity and biogeochemical cycling processes.



Throughfall Displacement Experiment (TDE)

Contact: Paul J. Hanson, hansonpj@ornl.gov, 865-574-5361

Sponsor: DOE Office of Science, BER

Changes in regional precipitation expected to result from increasing global temperatures will have a major effect on the composition, structure and productivity of forest ecosystems. In particular, the ability of individual organisms to maintain a positive carbon gain in the face of limited water supplies will dictate their long-term competitive position within the forest community. Since 1993 a catchment-scale (19,000 m²) manipulation of precipitation inputs to an upland oak forest has been conducted. This Throughfall Displacement Experiment (TDE) was initiated to identify the potential range of adjustments in physiological processes, water use, and above and below ground growth by overstory and understory species, and to evaluate changes in nutrient cycling and decomposition processes in the context of changing precipitation inputs. The results from TDE and collaborative research will yield a hierarchical integration of physiological response mechanisms into ecosystem models required for long term assessments of the influence of climate change on forest productivity, species composition, and carbon, water and nutrient cycling.

Hanson PJ, Wullschleger SD, Editors (2003) *North American Temperate Deciduous Forest Responses to Changing Precipitation Regimes*. Springer, New York, Ecological Studies Volume 166.