

Water Conference
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Water and Vortices in Trees

Abstract:

The relations between water and trees have far-reaching, unexpected aspects and consequences. The global and the local terrestrial water cycles are directly or indirectly linked to the presence of trees and forests. A more precise consideration of photosynthesis reveals that this process is not only producing biomass and oxygen, but is also the place of water synthesis. The cellular organelles responsible for photosynthesis are the chloroplasts, containing helicoidally shaped thylacoids. The newly formed water probably shows properties according to the new water-paradigma proposed by G. Pollack (2013). This must also be the case for the water absorbed in the soil and flowing upwards through capillar wood structures, forming vortices or helices at the microscopic cellular and at the macroscopic tree level. The helicoidal leaf and needle arrangements on the young shoots (phyllotaxis) follow Fibonacci-series (in the Golden Ratio); they determine the fiber arrangement in the xylem (young wood) and therefore the path of the water flow. The role of these helicioidal movements for the water temperature is discussed.

Keywords: Water cycles, photosynthesis, water synthesis, wood structure, vortices, temperature

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