



Wet season water distribution in a tropical Andean cloud forest of Boyacá (Colombia) during the dry climate of El Niño

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Fog has been demonstrated as the only source of moisture during the dry climate of El Niño in the tropical Andean cloud forest of Boyacá region in Colombia, yet its importance for the forest is virtually unknown. We assessed fog water distribution during the wet season inside the forest and outside in a practically deforested area. Water intercepted by plant was measured at different vertical stratus. Soil moisture in the first centimetres was also measured. During the anomalous drier wet season there was lack of rainfall and the total recorded cloud water was lower compared with the same period during the previous year. Our results indicated that the upper part of the forest mass intercepts most of the fog water compared with lower stratus when the fog event starts. However upper most stratus became rapidly drier after the event, which is explained because water is released to the atmosphere due to high heat atmosphere-leaves interface fluctuations caused by wind and solar radiation, flows towards a different water potential and drips from the leaves. Low amount of fog dripped from tree foliage into the soil, indicating a large water storage capacity of the epiphyte and bryophyte vegetation. Despite the small amount of throughfall, understory vegetation and litter remained wet, which might be explained by the water flowing through the epiphyte vegetation or the high capacity of the understory to absorb moisture from the air. Soil water did not infiltrate in depth, which underlines the importance of fog as water and cool source for seedling growth and shallow rooted understory species, especially during drier conditions.