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Measuring rainfall to a forest canopy: an assessment of the performance of canopy level raingauges

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Abstract. Accurate rainfall measurements are crucial for water resource and environmental assessments but can be difficult to achieve in extensive areas of forest. This paper reviews the different techniques for measuring rainfall to a forest area and presents the results of a 5-year experiment comparing the catches of gauges installed above a forest canopy with those of ground level gauges outside the forest. It examines the consistency of the catches between the canopy gauges, the sensitivity of the catch to the height of the gauge rim above the forest canopy, and compares the canopy gauge catches to the 'true' rainfall in ground level gauges just outside the forest. The study shows that suitably designed and maintained canopy gauges can provide consistent measures of rainfall to a forest surface that are sufficiently accurate for most purposes and offer a preferable alternative to measurements in small clearings.

Keywords: rainfall, raingauge, forest canopy, water balance, Plynlimon

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