



Effect of typhoon disturbance on soil respiration dynamic in a tropical broadleaves plantation in southern Taiwan

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Global forests contain 69% of total carbon stored in forest soil and litter. But the carbon storage ability and release rate of warming gases of forest soil also affect global climate change. Reforestation is one of the best solutions to mitigate warming gases release and to store in soil. Typhoon is one of the most hazards to disturb forest ecosystem and change carbon cycle. Typhoon disturbance is also affect soil carbon cycle such as soil respiration, carbon storage. Therefore, the objective of this study is to clarify the effect of typhoon disturbance on soil respiration dynamic in a tropical broadleaves plantation in southern Taiwan. Fourteen broadleaved tree species were planted in 2002-2005. Twelves continuous soil respiration chambers was divided two treatments (trench and non-trench) and observed since 2011 to 2014. The soil belongs to Entisol with over 60% of sandstone. The soil pH is 5.5 with low base cations because of high sand percentage. Forest biometric such as tree high, DBH, litterfall was measured in 2011-2014. Data showed that the accumulation amount of litterfall was highest in December to February and lowest in June. Soil respiration was related with season variation in research site. Soil temperature showed significantly exponential related with soil respiration in research site ($p < 0.001$). However, soil respiration showed significantly negative relationship with total amount of litterfall ($p < 0.001$), suggesting that the tree was still young and did not reach crown closure.