

### S05.P.13

#### **Patterns of tree turnover across an elevational gradient in the Brazilian Atlantic forest**

Scaranello MAS<sup>1</sup>, Vieira SA<sup>2</sup>, Alves LF<sup>1</sup>, Camargo PB<sup>3</sup>, Santos FAM<sup>1</sup>, Martinelli LA<sup>3</sup>, Joly CA<sup>1</sup> - <sup>1</sup>UNICAMP - Departamento de Biologia Vegetal, <sup>2</sup>UNICAMP - Núcleo de Estudos e Pesquisas Ambientais, <sup>3</sup>USP - Centro de Energia Nuclear na Agricultura / Laboratório de Ecologia Isotópica

Understanding tree mortality and recruitment process in tropical forests is crucial as those processes ultimately influence forest structure, composition and carbon cycle. Recent studies have suggested that tree mortality and recruitment increase when terrain becomes steeper. Here we assessed tree mortality, recruitment and turnover - the rate with which tree die and recruit into a population - across an elevational gradient (50 to 1100 m a.s.l.) in the tropical Atlantic forest to test the hypothesis that tree turnover increase with slope and altitude. We tagged, mapped and measured all trees with diameter at breast height (1.30m or above any buttress)  $\geq 4.8$  cm in 11 one-hectare plots, and a new census was carried out after 2 years. We used as surrogate of slope the difference between the minimum and maximum elevation values within 1- ha plot (elevational range at plot scale). To assess the relative contribution of slope and elevation to tree turnover, we run a hierarchical regression. The annual mortality rate ranged from 0.6 up to 2.6 % year<sup>-1</sup> and annual recruitment rate ranged from 0.5 up to 1.7 % year<sup>-1</sup>; turnover varied from 0.5 up to 2.1 % year<sup>-1</sup>. We observed that slope is a strong predictor of tree mortality and turnover, whereas altitude does not significantly improve the model. Annual tree mortality and turnover decreased with the increase of slope. The relationship between tree mortality and slope was size-dependent, as reported in previous studies in the Amazon forest. Our results challenge previous report of higher mortality in steep slopes.