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ABOVE-GROUND CARBON ESTIMATED THROUGHOUT IKONOS II SATELLITE IN UPLAND FLOREST ON CENTRAL AMAZON

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Human species depends on life-support services that natural ecosystems perform, including regulating climate, purifying air and water and natural vegetation. This study aims to estimate a primary forest's above-ground carbon parameters, by correlating data from IKONOS II satellite's orbital and field survey. The biomass was obtained by indirect method by models $\ln P = -1.754+2.665x \ln(dbh)$ from trees with dbh 5-20cm and $\ln P = -1.151+2.170x\ln(dbh)$ from trees above 20 cm, both models with $R^2 = 0.91$ average and the vegetation analysis through horizontal structure. Original bands and synthetics images as Resistant Vegetation Index (ARVI), Normalized Difference Vegetation Index (NDVI), Principal Components, Tasselled Cap, vegetation proportion images from Spectral Linear Mixing Model(SLMM), and much more were used in this study. The analysis was done in 500 stands of 400 sq. m., and the biomass in stands ranges 2 - 13.45 Mg/400 sq. m. The carbon contents had gotten using the expression $C_{Carbon}= B_{dry}x0,48$. The spectral reflectance used to modelling was the average of 25 pixels, representing each stand of 400 m². The general floristic similarity detected between the hectares was about 70%, and it was concluded that floristically the samples were equal. Biomass, Carbon and satellite data were integrated using statistical procedures, by applying linear multiple regression analysis through stepwise method. The selected model was spatialized in an image adopting confidence interval from the estimated biomass, obtained with the selected model, and used to build classes. The 95% confidence interval from the estimated biomass was $343.05 + 14.9$ Mg.ha^{-1}. The highest correlation between the biomass and ARVI, SLMMVEG and NDVI digital variables are negative. Modelling showed Tessaled Cap4, and ARVI variables to be the ones that are best correlated with the carbon. The model chosen was Carbon= $6,20946-11,4924*TCap4 - 0,113293 * ARVI^2 +1824,13*TCap4^3$ (440 g.l), $R^2ajust=1,24$ and the $Syx=1,99$ Mg/400m^2.

Sessão: 41. Efeitos do uso e cobertura da terra em estoques de carbono.

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