

## **Measuring Vegetation Aerodynamic Roughness Over the Amazon Basin**

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The aerodynamic roughness length ( $Z_0$ ) is an important parameter to determine the vertical gradients of mean wind speed and the conditions for momentum transfer over a vegetated or bare rough surface. Over vegetated surfaces, the aerodynamic roughness length has a simple one-to-one relationship with the rms height of the vegetation at the top of the canopy. Once this roughness length is determined for a surface, it does not change with wind speed, stability or stress. During the LBA experiment the Regional Atmospheric Modeling System (RAMS) with flexible horizontal and vertical resolution will be used in conjunction with other models to simulate the atmospheric circulation and trace gas concentration and transport at various scales. This model is suitable to determine the effect of surface roughness parameter at trace gas transport both at local level for LBA study areas and on at the regional level for the entire Amazon basin. In this paper, we present the estimation of this parameter from data fusion of several remote sensing and ground data. SRTM (Shuttle Radar Topography Mission) data at 3 arc-sec resolution, texture maps derived from JERS-1 L-band radar system, vegetation cover types are the main spatial data sets used in data fusion. A semi-empirical algorithm relating these surface parameters to the rms height of the vegetation and the aerodynamic roughness was developed. This algorithm was applied to the entire SRTM data to estimate the roughness length over the basin at 1 km resolution.

**Submetido por** Sassan Sepehri Saatchi em 18-MAR-2004

**Tema Científico do LBA:** PC (Física do Clima)

**Sessão:**

**Tipo de Apresentação:** Poster

**ID do Resumo:** 172