

Simpósio 4. Investigação ecológica de longo prazo/Simposio 4. Investigación ecológica de largo plazo

Sp4. Poster

Using surrogate NDVI images from low cost cameras to monitor productivity in forests ecosystems

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Collecting long term series about the structure and functioning of terrestrial ecosystems is very important to quantify the impacts of global change. The photosynthetic activity, through the normalized difference vegetation index (NDVI) is a good indicator of the vegetation status. Recently, in the opposite to purchase a high cost professional camera, it is popularized the use of a low cost system consisting of two low cost cameras: one to acquire the spectral reflectance of red region, and the other to acquire the near-infrared region. This double system has some important drawbacks that must be addressed: alignment of the images from the two cameras, different exposure time, angles, etc. It is possible to overcome these issues using a single camera that gather information to calculate a surrogate of NDVI. NDVI' is calculated using the spectral reflectance in the blue and near-infrared regions. We have designed an integrated device with a No-IR camera, a single-board computer and a set of luminosity sensors. This device acquires images of NDVI' with an intra-diary frequency. In this work, we show the results of the validation process for this new approach. We took during 3 months of an area covered by natural and afforested pine stands (*Pinus sylvestris*) in Sierra Nevada. These images were compared with the information provided by the MOD13Q1 (NDVI) product of the sensor MODIS for the same study area. The validation was carried out using correlation analysis between the NDVI values of MODIS and the NDVI' values of our integrated device.