

ASTROCLOUD: AN AGILE PLATFORM FOR DATA VISUALIZATION AND SPECIFIC ANALYZES IN 2D AND 3D

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Nowadays, astronomers commonly run their own tools, or distributed computational packages, for data analysis and then visualizing the results with generic applications. This chain of processes comes at high cost: (a) analyses are manually applied, they are therefore difficult to be automated, and (b) data have to be serialized, thus increasing the cost of parsing and saving intermediary data. We are developing AstroCloud, an agile visualization multipurpose platform intended for specific analyses of astronomical images (<https://astrocloudy.wordpress.com>). This platform incorporates domain-specific languages which make it easily extensible. AstroCloud supports customized plug-ins, which translate into time reduction on data analysis. Moreover, it also supports 2D and 3D rendering, including interactive features in real time. AstroCloud is under development, we are currently implementing different choices for data reduction and physical analyzes.

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SITE TESTING IN COLOMBIA : IDENTIFICATION OF THE LEAST-WORST PLACES FOR OPTICAL TELESCOPES

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With the aim of identifying a set of least-worst sites for astronomical observations in Colombia we used a novel algorithm for the computation of the number of clear nights over an extended region covering Colombia and the western part of Venezuela. This algorithm compares the brightness temperatures of five years of GOES images with reference temperature values obtained from long-term records of monthly temperatures at ground and at heights of 8, 9 and 10 kilometers. Our predictions were validated with cloud cover information from the log-books of the *Observatorio Nacional de Llano del Hato* in Venezuela.

Short and sporadic expeditions to four of those sites were also done from 2013 to 2015 in order to conduct measurements *in-situ* of temperature and humidity along the night, seeing, sky brightness and atmospheric extinction using basic instrumentation. The final conclusions have been derived solely on the basis of the actually visited sites. It was found that at *Cañón del río Nevado* the *Seeing* during the nights was more stable with $rms = 0.59''$ and then a suitable and extended region (of almost 30 km) for the location of optical telescopes aimed to enhance astronomy research and outreach in the country.

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