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MEASUREMENT OF SEEING IN BOGOTÁ BY DIFFERENTIAL IMAGES MONITORING MOVEMENT

S. P. Londoño[1] and G. Pinzón[1]

The search for a suitable site for the location of an observatory in the torrid zone is a task that requires time and effort. We present a project wich aims to search such place along three phases: (1) A careful analysis of temporal series of meteorological variables available in the literature and databases (IDEAM), (2) The use of a meteorological model and satellite images in order to filter only a few places and (3) The use of the DIMM technique to determine the optical seeing in the places selected in (2). The DIMM techique is currently working with the instrumentation available at the Observatorio Astronómico at Universidad Nacional de Colombia in Bogotá.

The observation and analysis of the behavior of weather variables such as water vapor, precipitation, wind speed and relative humidity is made based on the application of a statistical model that allows us to determine what happens with time series variables using data obtained from weather stations located in different parts of Colombia by IDEAM. This analysis is being carried out presently. The next phase of the project includes the study of satellite images, considering wave lengths captured by passive sensors with the sufficient resolution to determine cloud conditions in the region.

The third stage, considers the determination of "seeing" which it is a term used in astronomy observational study to describe the effect of the atmosphere on electromagnetic radiation coming from astronomical objects distorting the images obtained by optical instruments on the ground. At this time we are getting images in the city of Bogotá to determine the "seeing" at the Astronomical Observatory with the DIMM technique. Taking these images has been somewhat difficult because Bogotá, and Colombia in general, are located at the inter tropical confluence zone, which produces cloudy skies most of the time. We are taking the opportunity of the two dry seasons during the year to obtain more images. The characteristics of the equipment used for taking images for the application of the DIMM technique is described in Table 1, and its assembly is presented in Figure 1.

TABLE 1

EQUIPMENT FOR DIMM

Equipment	Characteristics
Telescope Celestron CPC925	Schmidt Cassegrain 0.235 m aperture 2.35 m focal length
Camera Next Image	VGA 640X480 Chip CCD color 1/4″ 5.6 microns/pixel

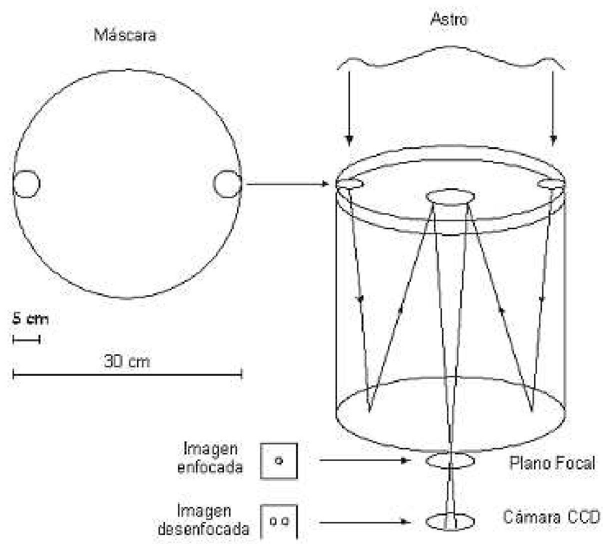

Fig. 1. Assembly for DIMM technique.

[1]Observatorio Astronómico Nacional, Universidad Nacional de Colombia, Bogotá, Colombia (splondonog@unal.edu.co).

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