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ABSTRACTS OF CONTRIBUTED PAPERS

IMPLEMENTATION OF WRF METEOROLOGICAL MODEL FOR THE PARANAL OBSERVATORY: FIRST STEPS

A. Chacón,[1] M. Curé,[1] and H. Beltrami[2]

One of the most important necessities in astronomical observatories, for operation and acquisition of good quality data, is the operation of efficient meteorological tools able to forecast in detail the atmospheric conditions in short and medium term. The European Southern Observatory (ESO) has several tools to produce such forecasts but the data gridding and temporal resolutions are low. For this reason the Astrometeorology group initiated a study to implement the WRF meteorological model over Paranal Observatory. The aim of this implementation is to find better meteorological parameterizations and forecast of the meteorological variables in high resolution. The evaluation of the model's performance will be made by comparing with meteorological data from Paranal weather station. In parallel, together with the Environmental Sciences Research Center (ESRC), a long-term study is in development to understand the evolution of the atmosphere over Paranal. This study is developed using the WRF model and the millennia simulations of the Earth's climate from the general circulation model ECHO-G.

[1] Universidad de Valparaíso, Chile.
[2] Environmental Sciences Research Center, St. Francis Xavier University, Canada.

COMMISSIONING ALMA

D. Fulla[1]

ALMA (Atacama Large mm/sub-mm Array) is the state-of-the-art radiotelescope under construction at the 5000 m high plateau of Chajnantor in Chile. It is aimed to probe the universe at millimetre and submillimetre wavelength radiation (0.3 to 9.6 mm) to investigate mainly the cool Universe, molecular gas and dust, star formation, proto-planets, galaxies, cosmology etc. ALMA will consist initially of 66 high-precision antennas. The main array will have fifty antennas of 12 meters in diameter, acting together as an interferometer and a compact array (ACA) of four 12-metre and twelve 7-metre antennas. The antennas can be spread across the desert plateau over distances from 150 meters to 16 kilometers, which will give ALMA a variable angular resolution and sensitivity. The commissioning of ALMA started at the beginning of 2010. ALMA's construction is expected to be completed around 2012 but early scientific observations with a partial array will begin by the end of 2011.

[1] Atacama Large Millimeter Array (ALMA), Chile.

AN OVERVIEW OF SOME EXPERIMENTS IN THE CONTEXT OF THE E-ELT SITE TESTING

G. Lombardi[1]

Dedicated experiments have been executed during the E-ELT Site Testing campaigns both at Paranal Observatory and at sites. The goal of the experiments was to test and/or reveal peculiar features of the sites in particular for what concerns the properties of the Surface Layer. A general overview of the observational procedures and the data analyisis is then presented.

[1] European Southern Observatory (ESO), Chile.

ATMOSPHERIC TURBULENCE CHARACTERIZATION WITH A MOBILE FIBER-BASED NEAR-INFRARED HETERODYNE INTERFEROMETER

E. A. Michael[1]

We develop a fully fiber based scheme for a near-infrared heterodyne interferometer. Currently, laboratory-based setup and testing is performed, after which we will target bright stars using 20 cm Meade amateur telescopes in flexible baselines. We propose to use this type of transportable interferometer to characterize atmospheric density fluctuations on different scale lengths and times. While the final goal would be to correct out those fluctuations to obtain a flat phase front, the measurement results could be used to probe and refine atmospheric turbulence models.

[1] Universidad de Chile, Chile.

THE THIRTY METER TELESCOPE SITE TESTING DATABASE

R. Riddle[1]

The Thirty Meter Telescope (TMT) site testing campaign was one of the most comprehensive campaigns ever undertaken for the placement of a telescope. The campaign consisted of five candidate sites, each with several instruments placed on the mountain to test various atmospheric and meteorological parameters. The resulting data set is immense. During the site testing campaign, a database was created to manage the data as it was gathered, giving the TMT site testing team the ability to monitor the progress of the campaign and ensure the validity of the data. At the conclusion of the TMT sit testing campaign, the database was made public.

[1] California Institute of Technology, USA.

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