RevMexAA (Serie de Conferencias), **41**, 1–2 (2011)

SUMMARY OF THE ASTRONOMICAL SITE TESTING DATA IN CHILE CONFERENCE

A. C. Otárola,[1] M. Curé,[2] J. Marín,[3] and M. Sarazin[4]

1. MOTIVATION

In the period 2009–2010 the Board of Directors, and the ESO Council responsible for the Thirty Meter Telescope (TMT) and European Extremely Large Telescope (E-ELT) projects, respectively, decided on the site for the final installation of their telescope projects. Both projects conducted an extensive international site testing campaign to monitor the meteorological, and atmospheric conditions, at sites of potential interest for the deployment of these large aperture telescopes, designed to operate in the visible and infrared spectral bands. The site testing campaigns, that extended for several years (2004–2008), include locations in Africa, Europe, North America and South America. While the TMT project opted for the 13N site near the summit of the Mauna Kea volcano in the State of Hawaii (USA), the E-ELT was decided to be deployed at the summit of the Cerro Armazones, a site tested as part of the TMT site testing campaign, in Northern Chile.

Shortly after the TMT Board of Directors decided the final site for the TMT project, the decision was taken to release all the data that resulted from the studies of the candidate locations in Chile, Mexico and Hawaii; as well as the publication, in the peer review literature, of all relevant results from the analysis of the data. The public announcement of the release of the TMT database took place with occasion of the 215th meeting of the American Astronomical Society (AAS) held in Washington, DC in January 2010.

As a way to further disseminate the results of the studies, and answering to a request from the Chilean Commission for Science and Technology Research (CONICYT), TMT and ESO decided to sponsor the realization of a conference in Chile to share its database and the results of the analysis of the data with the scientific community.

In Chile the Astro-Meteorology Group, lead by Prof. Dr. Michel Curé, at Universidad de Valparaíso, has developed a strong know-how in the use of global and mesoscale meteorological models (Sarazin 2011), with application in the forecasting of meteorological and atmospheric conditions at astronomical observatories operating in Chile. The accurate forecasting of atmospheric integrated water vapor and turbulence, is an important tool to support the effective allocation of the observing time in a queue scheduling observing mode. Contributing this way to maximize the scientific output of astronomical observatories. Therefore, it was natural to look for the local organization of this conference with the help of the scientific staff of the Astro-Meteorology Group at Universidad de Valparaíso, a task that was enthusiastically accepted and that resulted in the *Astronomical Site Testing Data in Chile Conference*.

The *Astronomical Site Testing Data in Chile Conference* was held in Valparaíso, Chile in December 1–3, 2010. This was attended by 60 scientists from 21 local and international research centers including universities, and astronomical observatories. The conference counted with a good participation of local and international undergraduate and graduate students. The topics presented in 25 scientific talks and 9 posters covered site testing databases, atmospheric sounding and results of data analysis, mesoscale modeling and forecasting of humidity and atmospheric seeing, as well as instrumental design for the monitoring of atmospheric turbulence and precipitable water vapor. This conference also presented the opportunity for TMT and ESO to share the definition, modeling and results of their Site Merit Functions that helped ranking the tested sites based on the best matching of the site conditions and the science goals of the projects. The conference counted with the participation of Dr. René Garreaud (Universidad de Chile) and Dr. Simon Radford (California Institute of Technology) as invited speakers, and the welcome remarks from Dr. Massimo Tarengui (ESO), Dr. Gary Sanders (TMT), Dr. Nikolaus Vogt (Universidad de Valparaíso and Dr. Mónica Rubio (CONICYT).

[1]TMT Observatory Corporation, 1111 South Arroyo Parkway Suite 200, Pasadena, CA 91105, USA (aotarola@tmt.org).
[2]Universidad de Valparaíso, Gran Bretaña 1111, Valparaíso, Chile (michel.cure@uv.cl).
[3]Universidad de Valparaíso, Gran Bretaña 644, Valparaíso, Chile (julio.marin@meteo.uv.cl).
[4]European Southern Observatory, Av. Alonso de Córdova 3107, Santiago, Chile (msarazin@eso.org).

An important outcome of this conference was the interest of the participants to support the share of databases result of site testing studies, and of the operation of astronomical observatories. This topic was already presented for the discussion in the *Comprehensive Characterization of Astronomical Sites Conference* held in Kislovodsk, Russia in October 4–9 (2010) and organized by the Sternberg Astronomical Institute of Moscow University and the IAU Working Group *Site-testing Instruments*. Few months after these two conferences, the site-testing community as already reacted providing the web links to the databases kept by many research centers worlwide. The portal web-site that keeps all this information is found at: `http://project.tmt.org/~aotarola/ST`.

It is the hope that the sharing of the databases will foster the collaboration of studies on the temporal and spatial variability of the relevant atmospheric parameters, as well as provide real observations of the state of the atmosphere, at a given place and time, to support the efforts of atmospheric modeling and instrument design.

All information including the list of participants, conference program and presentations are available through the conference's website: `http://www.dfa.uv.cl/sitetestingdata/index.htm`.

2. SCIENTIFIC ORGANIZING COMMITTEE

The Scientific Organizing Committee was integrated by: Drs. Tony Travouillon & Matthias Schöck (TMT Observatory Corp.), Marc Sarazin (European Southern Observatory), Diana Pozo (Universidad de Valparaíso), Andrei Tokovinin (National Optical Astronomy Observatory), and Juan Cortés (Atacama Large Millimeter Array).

3. LOCAL ORGANIZING COMMITTEE

The Local Organizing Committee was integrated by: Prof. Dr. Michel Curé, Dr. Angel Otárola (TMT Observatory Corp.), Arlette Chacón, Dr. Julio Marín, Omar Cuevas, Josselyn Ortiz and Moira Evans.

REFERENCES

Sarazin, M. 2011, The Messenger, 143, 56