but this technique will revolutionize the exploitation of the next-generation telescopes, such as the ESO VLT, and, in many cases, compete with observations carried out by telescopes deployed in space.

A scientific-technical paper, describing the first adaptive optics results, is expected to appear soon in *Astronomy & Astrophysics*.

Acknowledgements

The design and construction of this system is the product of a three-year effort, involving a collaboration between the European Southern Observatory (ESO), Observatoire de Paris, the Office National d'Etudes et de Recherches Aérospatiales, and LASERDOT.

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Astronomical Observations With the NTT During Commissioning

M. TARENGHI, ESO

It was with particular pleasure and emotion that I received the first astronomical images obtained with the NTT from Chile. As the NTT Project Manager it was satisfying to see that the work of many – both inside and outside ESO – had converged to produce an instrument whose performance was even better than expected. As an astronomer it was fascinating to see new details of objects which are being explored by many of us with other telescopes but at lower resolution.

The illustrations of 4 images (Figures 1–4) are spectacular examples of the possibilities of the new telescope.

It is important to understand the value and limits of these observations obtained during the commissioning phase of the NTT which represents a complex and delicate period for a new telescope.

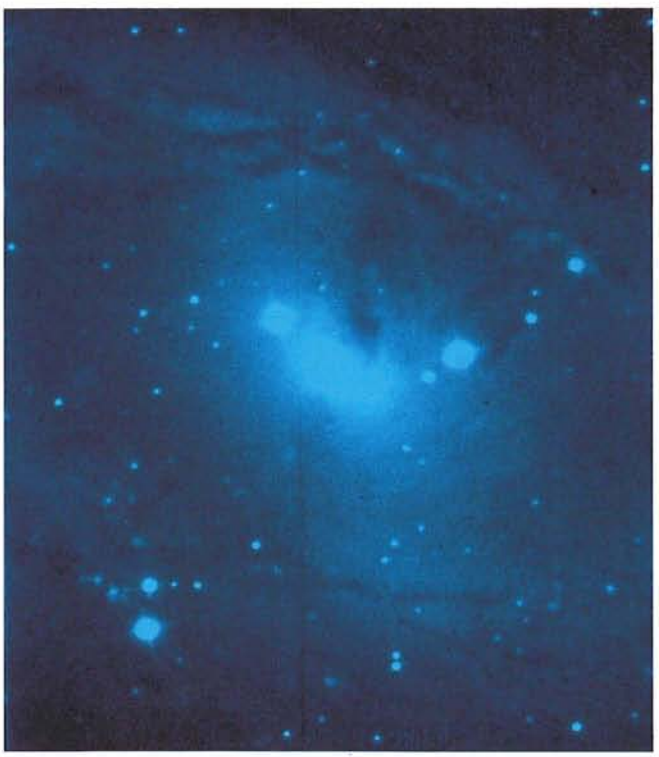

Figure 1: *NGC 6300. The short exposure of only 30 seconds of this SB galaxy shows dust features in the inner part and on the nucleus that resemble the horse head in the Orion nebula. Seeing is 0.7 arcsec.*

Figure 2: *NGC 681. An edge-on dust spiral.*

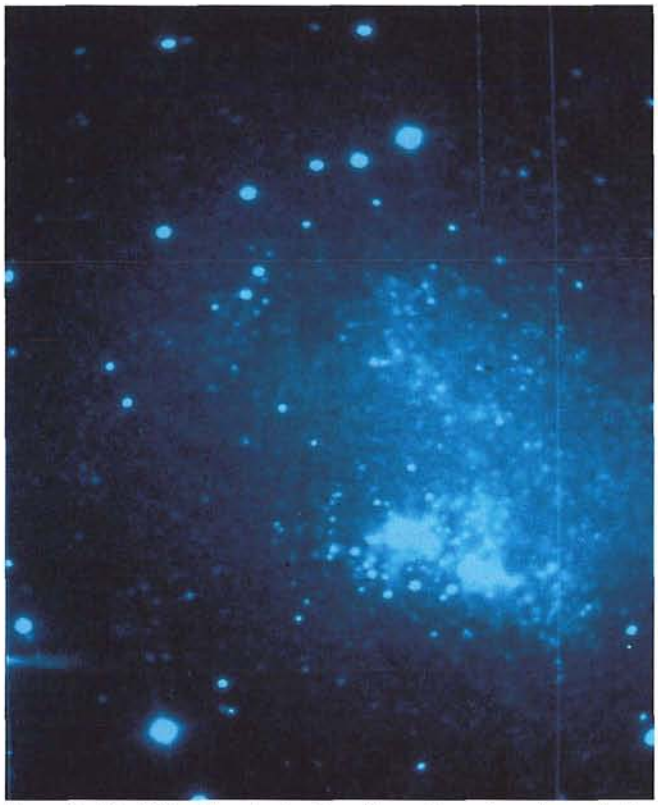

Figure 3: *IC 4662. Magellanic Cloud type irregular galaxy at the distance of 4 Mpc studied with ESO telescopes in 1983 by M. Rosa and G. Schnur. Evidence of violent star formation activities was detected. The galaxy is resolved in this NTT image which shows very clearly the two giant HII regions embedded in a super association. Seeing 0.65 arcsec.*

Figure 4: *NGC 613. The spectacular bar spiral SBb in which – thanks to the high resolution in this NTT picture – one can detect the detailed structure of dust filaments. Two major dust lanes extend along the bar into the nuclear region.*

All images were obtained without the adapter/rotator, therefore without the on-line active optics system. Moreover the modifications of the support system with the activation of the three fixed points was not implemented. Except for the region around the zenith, the optical quality was not optimal and we expect to be able to guarantee perfect images all over the sky only with the full implementation of the adapter/rotator and its image analyzer.

In the course of the last months many experiments have been performed on the seeing of the NTT. Studies of the behaviour of the rotating building, its flaps and windscreen, clearly indicate the advantages of this new design and the importance of the flaps to the point that the observer will be discouraged to operate the NTT with the flaps closed.

The commissioning work is proceeding actively and the adapter/rotator No. 1 was mechanically and electronically installed on the NTT in October. During the month of November the modifications of the fixed points were started and the implementation of the image analyser and guiding system initiated. For the second half of December the NTT will perform in its complete configuration with EFOSC 2 at the Nasmyth focus.

The 9 months from the first light obtained on 23 March to the first deep exposure seems at first sight to be very long but the complexity of the NTT and the need to cope with a seeing better than that forecast required greater tuning.

The first visiting astronomer is expected mid-January and we are impatient to receive constructive criticism to make even greater improvements on the NTT. In April 1990 the second adapter/rotator will be implemented and May/June will see the integration of EMMI. It will be commissioned during the European summer.

I would not like to complete this report without taking the opportunity to thank all those who have observed with the NTT in this critical period, for their unrelenting passion and understanding for the inevitable number of difficulties and conflicts between technical necessity and astronomical dreams.

The First Observations With the NTT

J. MELNICK, ESO

1. Introduction

The NTT was used for astronomical observations during two runs in May and August 1989. Both the telescope and the instrument (EFOSC2) worked remarkably well during both runs, so there was ample time for astronomical observations.

EFOSC2 was bolted onto the telescope without the instrument rotator/adapter and this meant that for most positions on the sky the exposure times could not exceed a few minutes.