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TELESCOPES AND INSTRUMENTATION

A Deep Field with the Upgraded NTT

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This colour deep image has been prepared from 4 deep images through the filters *B*, *V*, *r* and *i* obtained with the SUSI CCD imager at the ESO NTT. The image covers a 2.2 × 2.2 arcmin "empty" field centred about 2 arcminutes south of the $z = 4.7$ QSO BR 1202-0725. The four images result from the co-addition of dithered short integrations for a total of 52,800, 23,400, 23,400 and 16,200 seconds in the four bands, and the co-added images have average FWHMs of 0.84, 0.80, 0.80 and 0.68 arcsec respectively.

The data were obtained for a scientific programme approved for the ESO Period 58 and aimed at the study of the photometric redshift distribution of the faint galaxies and of gravitational lensing effects in the field. The P.I. of the proposal is Sandro D'Odorico and the Co-P.I. are J. Bergeron, H.M. Adorf, S. Charlot, D. Clements, S. Cristiani, L. da Costa, E. Egami, A. Fontana, B. Fort, L. Gautret, E. Giallongo, R. Gilmozzi, R.N. Hook, B. Leibundgut, Y. Mellier, P. Petitjean, A. Renzini, S. Savaglio, P. Shaver, S. Seitz and L. Yan. The programme was executed in service mode by the NTT team in February through April 1997 in photometric nights with seeing better than 1 arcsec. The pro-

gramme, one of the first to be carried out at the NTT after the upgrading of the hardware and software to VLT standards, was a useful test case for ESO for the operation of the upgraded telescope and for the new procedures and software packages, such as Phase II proposal preparation, service observing, data-quality control and the archiving and distribution of the data. The preparation of the co-added images and the first photometric estimates have been carried out by S. Arnouts and S. Cristiani. The 3σ limiting magnitudes in the AB system computed over an aperture of 2 × FWHMs, are 27.20, 26.93, 26.61 and 26.20 in the four bands respectively. The three-colour deep image has been prepared by R.A.E. Fosbury and R.N. Hook at the Space Telescope European Co-ordinating Facility combining the *B*, *V* and (*r* + *I*) co-added frames. The fainter objects seen in this reproduction have magnitudes ≈ 26.

The image illustrates well the capability in deep imaging at good angular resolution at a 4-m-class ground-based telescope with a relatively modest investment in exposure time. It takes advantage of the combination of good seeing and fine sampling (0.12 arcsec/pixel) of the telescope point-spread function. The limiting magnitudes are already fainter than those which can be reached in spectroscopy of continuum sources at 8–10-m telescopes. The colour image shows the crowding effect at faint magnitudes and in particular the frequent close pairing of objects of very different colours, which would lead to confusion under worse seeing conditions. Of the approximately 500 galaxies detected in this field, the largest fraction are expected to be at redshifts smaller than $z = 1$ and about 20% to be distributed at higher z, up to $z = 4$ and possibly beyond.

These data will be of value for scientific investigations beside those proposed by the authors and can be used to test data-reduction and simulation packages to be applied to other larger surveys. On these grounds the calibrated images, as well as their colour combination, will be made generally available on the ESO web site by January 1998.

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The ESO VLT – Progress Report

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The latter half of 1997 and the coming year represent certainly the most challenging time for the VLT Programme. Notwithstanding delays which occurred in some areas, the project achieved major technical progress and milestones and we are fully prepared to complete the first Unit Telescope integration on Paranal.

There has been a great deal of activity in many different areas at the ESO Paranal Observatory. Work has continued on the assembly of various components of the Telescope Structures and on the surface of the summit platform, as well as in connection with the maintenance and storage facilities near the base camp at the foot of the mountain. The Telescope Structure of the first unit is complete inside the enclosure as shown in Figure 1.

The first large unit transport to Paranal was completed successfully in July 1997. After the European Acceptance Testing, the M1 Coating Unit was shipped to Chile, see Figures 2 and 3. The installation of the unit in the Mirror Maintenance Building was finished at the end of September this year. At present the Coating Unit is being commissioned and tested. The provisional acceptance tests started at the beginning of November.

After the successful completion of the European testing by GIAT in St. Chamond, France, and a long journey from Europe to Chile, the first Very Large Telescope mirror cell (VLT M1 cell) and a concrete 8.2-m dummy mirror were unloaded in the port of Antofagasta on October 31, 1997. From here they were transported by special

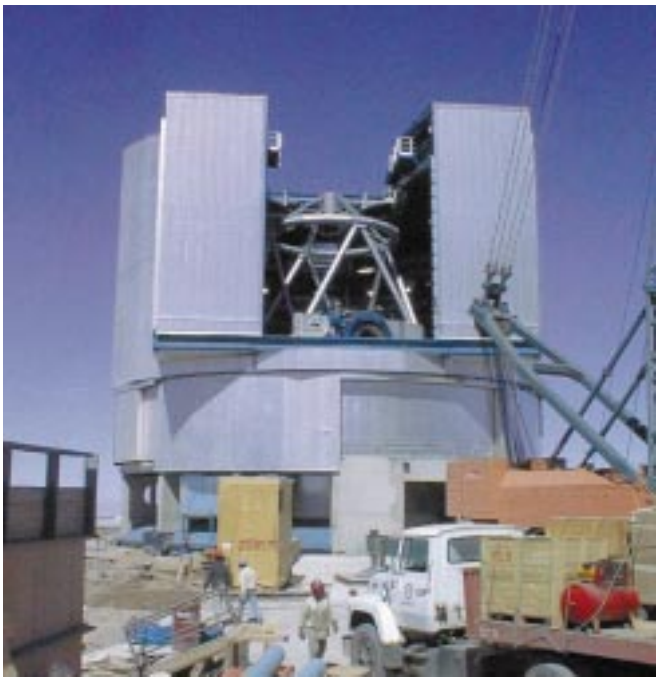

Figure 1: A recent view of Unit Telescope 1 through the open slit doors in the upper rotating part of the enclosure. ◄

Figure 2: The VLT coating plant in front of the Mirror Maintenance Building on Paranal. After removal of the upper part of the vacuum chamber, the lower part is lifted off the carriage, allowing a good view of the individual parts, including the rigid transport structure. ▼