The ST-ECF After the Launch of HST

S. DI SEREGO ALIGHIERI, ST-ECF

One month after the launch of the Hubble Space Telescope (HST) the excitement is high among us at the Space Telescope European Coordinating Facilitiy (ST-ECF). We were able to follow the launch and the deployment of HST in real-time on the NASA "select" television channel, projected on the big screen in the ESO Auditorium and we are now closely monitoring the activities during the current Orbital Verification (OV) phase (an engineering check-out of HST).

With little surprise to those aware of the complications of the HST, a number of problems in the operation of the telescope have emerged and are under detailed examination. For example, the range of orientation of the high-gain antennae, which provide the high-speed data link to the ground via the relay satellites, is limited to 91 % of the whole sky by a cable harness. The effects of this limitation on the efficiency of the telescope can be made negligible by a proper scheduling of the observations. Considerable efforts are also being devoted to achieve a reliable procedure for pointing the HST. Successful guide-star acquisitions have been obtained, leading to a stable "fine lock", the most precise tracking mode of HST. Nevertheless, these successes are intermixed with failures to acquire guide stars, which have caused considerable disruption in the OV schedule.

On the positive side, all instruments have been turned on and are performing according to specifications or better, the Wide Field Camera has obtained the first images (with still warm CCDs) and the focus of the telescope is improving slowly but steadily. We are trying to keep the interested scientists informed about the progress with the HST by posting information from various sources on our HST bulletin board, which can be accessed from the outside by logging in into the captive account STINFO on the ESOMC1 Vax computer (no password needed). We are also answering questions concerning HST e-mailed to ESOMC1::STDESK (on SPAN) or to STDESK@DGAESO51 (on Bitnet).

Our direct involvement with HST data will grow in a couple of months, when OV will be completed and the engineers will hand over the telescope to scientists, so to speak, for the Science Verification (SV), a phase lasting about five months during which the performances of the instruments will be calibrated on celestial targets. SV is the responsibility of the teams that have developed the instruments and many of us will be closely collaborating with these teams in the effort of understanding the in-orbit performance of the instruments. In order to convey the results of this work to those European astronomers who are directly involved with HST data, we have set up three Special Interest Groups, connected with the Wide Field and Planetary Camera, the Faint Object Camera and the two spectrographs.

After SV the HST will finally start the scientific observations with the first one-year cycle of programmes already allocated to the instrument teams (the so-called Guaranteed Time Observers) and to the General Observers. If you wish to apply for HST observing time during the second cycle, look forward to the Announcement of Opportunity which will be issued by the Space Telescope Science Institute in Baltimore around the end of May 1990, with a proposal deadline no earlier than 15 November 1990.

PROFILE OF A KEY PROGRAMME

A Wide-Angle Objective Prism Survey for Bright Quasars

D. REIMERS, Hamburger Sternwarte, Universität Hamburg, F. R. Germany

Quasars are the most luminous objects in the universe which – not to speak about a growing interest in understanding these luminous active nuclei of galaxies themselves – can be used as light sources that probe the intervening matter at large cosmic distances early in the history of the universe. However, the number of known QSOs, in particular at high redshifts, which are sufficiently bright for detailed follow-up observations is extremely small. So, e.g., although several thousand QSOs are known at present, the only high-redshift QSO sufficiently bright for the short-wavelength camera of the IUE satellite, and as such a prime (accepted) target for the Hubble Space Telescope, was discovered only in 1988 by the Hamburg Quasar Survey with the Calar Alto Schmidt (HS 1700 + 6416, V = 16.1, z = 2.72, Reimers et al., 1989).

One of the reasons for the rareness of such objects is that pure UV excess surveys like the Palomar Green Survey do not find QSOs with $z > 2.2$ and that because of the low surface density of such objects, wide-angle multicolour or objective-prism Schmidt surveys are necessary. A further more practical requirement is the ability to process a larger number of Schmidt plates on a reasonable time scale, i.e. quick search methods are needed.

Bright quasars ($V < 17$) can be used for multiwavelength studies of the quasar phenomenon itself. At sufficiently high redshifts, quasars with absorption lines can be observed at high resolution (~0.2 Å), e.g. with CASPEC, as a tool to study the intervening matter with the aim to learn about large-scale structure, evolution of galaxy halos and galaxies, and chemical evolution of the universe. It has turned out that a spectral resolution of 10^5 may be required to resolve narrow absorption-line systems. Fairly bright QSOs will therefore be required even for the VLT, and here is one of the long-term goals of this Key Programme: to provide a sample of high redshift QSOs for detailed absorption-line studies with the VLT.

A further motivation comes from the finding of J. Surdej and collaborators – cf. the ESO Key Programme on gravitational lenses (Surdej et al., 1989) – that the success rate of finding gravitational lense effects is particularly high in high-luminosity quasars (HLQ) with M_v