

The European Science Data Archive for the Hubble Space Telescope

R. ALBRECHT^{1,2}, F. PASIAN^{1,3}, F. OCHSENBEIN⁴, B. PIRENNE¹, A. RICHMOND^{1,5},
G. RUSSO^{1,6}, C. VUERLI^{1,3}

¹ Space Telescope European Coordinating Facility, ESO

² Affiliated with Astronomy Division, Space Science Department, ESA

³ On leave from Osservatorio Astronomico, Trieste, Italy

⁴ European Southern Observatory

⁵ Now at Space Telescope Science Institute, Baltimore, USA

⁶ Now at Dipartimento Scienze Fisiche, University Naples, Italy

Introduction

In the framework of the cooperation between NASA and ESA on the Hubble Space Telescope (HST) project the archiving of the science data have always been ranked high in priority. Not only will it be very difficult to apply for and obtain observing time on HST (as those who participated in the first round of observing proposal submission can confirm), the utilization and optimum exploitation of these very expensive data sets can only be achieved through archival research. This has been demonstrated through the very successful de-archival programmes operated by the IUE data archive.

Initially HST data will be archived at the ST Science Institute (STScI) in the Data Management Facility (DMF) on optical disks. As these disks are being produced, a second copy is made and is shipped to the ST European Coordinating Facility (ST-ECF) immediately. This means that the ST-ECF will get a full copy of the HST archive immediately after the observations are carried out. The implication of this is that the ST-ECF had to build a near identical archive with equivalent data retrieval capabilities and security measures: as is well known, HST data will nominally remain proprietary for a period of one year after the end of the respective observing programme, with some exceptions.

The HST Science Data Archive of the ST-ECF was designed and implemented in collaboration with ESO and with the STScI. Realizing that during the projected life time of more than 15 years it would not be possible to maintain hardware compatibility, emphasis was placed on a design which would allow software and data compatibility even on different hardware configurations.

The logical configuration of the two archive facilities (DMF at STScI and Science Data Archive at the ST-ECF) was designed during 1985, and mapped into available hardware. Initially the two hardware architectures were similar, but this changed as time passed. The soft-

ware elements were identified, and STScI and ST-ECF agreed to assume responsibility for the development of the various parts of the system; in addition, site-specific utilities were developed in both places. Around 1987 the Canadian Astronomy Data Centre (CADC) at Dominion Astrophysical Observatory decided to build a similar archive and participated in the development through discussions and collaboration.

It should be noted that the DMF at the STScI is considered to be an interim facility. Its functions will be taken over by the Data Archive and Distribution

System (DADS), which is currently in the early planning stages. This changeover is expected to occur not earlier than 1993. As far as the ST-ECF is concerned, the Science Data Archive is the European HST archive during the lifetime of the mission. Interface control documents have been negotiated to make sure that continued data transfer will be possible.

Archive Requirements

The HST will produce formidable amounts of data, with more to be ex-

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c/o Christina Stoffer at ESO, Karl-Schwarzschild-Strasse 2, D-8046
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