International Ultraviolet Explorer (IUE) Mission - Summary

The International Ultraviolet Explorer (IUE) was launched successfully on 26 January 1978, from Cape Canaveral, Florida. The satellite was developed to provide a general facility for observing ultraviolet (UV) spectra of astronomical sources over the wavelength range from about 1150 A to 3200 A. The project has been a joint undertaking in which the US National Aeronautics and Space Administration (NASA) provided the spacecraft, the optical and mechanical components of the scientific instrument, the US ground observatory and spacecraft control software; the UK Science Research Council (SRC) in collaboration with University College London (UCL) provided the television cameras used to record the spectroscopic data; and the European Space Agency (ESA) provided the solar arrays and European ground observatory. The image processing software was developed jointly by NASA and the SRC’s Appleton Laboratory. The satellite was been placed in geosynchronous orbit over the Atlantic Ocean and was operated for 16h each day, for NASA sponsored observers, from the US ground observatory located at the Goddard Space Flight Center (GSFC) near Washington, D.C., and for the remaining 8h by ESA, for ESA and UK sponsored observers, from the European ground observatory located near Madrid.

A synchronous orbit had other advantages. Because the Earth subtends an angle of only 17 degrees the unconstrained area of sky is much greater than for low orbits and, as its movement along the ecliptic is at the diurnal rate, the occurrence of occultations was infrequent. Consequently, over large portions of the sky, neither long exposures nor the observation of variable phenomena needed to be periodically interrupted. A penalty was that in synchronous orbit observations were normally made in full sunlight so the telescope had to be baffled to ensure adequate rejection of stray sunlight and earthlight. The offset guiding system could be influenced, however, and relatively bright guide stars were needed near the Earth’s limb.

The IUE mission was terminated on Sept 30, 1996 at 18:42 UT after a life span of 18 years, 8 months, 4 days, 1 hour and 6 min.