PROS: An IRAF Based System for Analysis of X-ray Data

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PROS is an IRAF based software package for the reduction and analysis of x-ray data. The use of a standard, portable, integrated environment provides for both multi-frequency and multi-mission analysis. The analysis of x-ray data differs from optical analysis due to the nature of the x-ray data and its acquisition during constantly varying conditions. The scarcity of data, the low signal-to-noise ratio and the large gaps in exposure time make data screening and masking an important part of the analysis.

PROS was developed to support the analysis of data from the ROSAT and Einstein missions but many of the tasks have been used on data from other missions. IRAF/PROS provides a complete end-to-end system for x-ray data analysis:

(i) A set of tools for importing and exporting data via FITS format. In particular, IRAF provides a specialized event-list format, QPOE, that is compatible with its IMAGE (2-D array) format.

(ii) A powerful set of IRAF system capabilities for both temporal and spatial event filtering.

(iii) Full set of imaging and graphics tasks.

(iv) Support for general image manipulations, and coordinate conversions - including World Coordinate System (WCS).

(v) Specialized packages for scientific analysis such as spatial, spectral and timing analysis. These consist of both general and mission specific tasks.

(vi) Complete system support including ftp and magnetic tape releases, electronic and conventional mail hotline support, electronic mail distribution of solutions to frequently asked questions and current known bugs.

We will discuss the design philosophy, architecture and development environment used by PROS to generate a portable, multi-mission software environment. PROS is available on all platforms that support IRAF, including Sun/Unix, VAX/VMS, HP, and Decstations. It is available on request at no charge.