

Multifrequency Data Analysis Software on STARLINK

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Although the STARLINK project was set up to provide image processing facilities to UK astronomers, it has grown over the last 12 years to the extent that it now provides most of the data analysis facilities for UK astronomers.

One aspect of the growth of the STARLINK network is that it now has to cater for astronomers working in a diverse range of wavelengths. Since a given individual may be working with data obtained in a variety of wavelengths, it is most convenient if the data can be stored in a common format and the programs that analyse the data have a similar 'look and feel'. What is known as 'STARLINK software' is obtained from many sources; from STARLINK funded programmers; from astronomers; from foreign projects such as AIPS; from generally available shareware; and from commercial sources when this proves cost effective. This means that the ideal situation of a completely integrated system cannot be realised in practice. Nevertheless, many of the major packages written by STARLINK application programmers and by astronomers do use a common data format, based on the Hierarchical Data System, so that interchange of data between packages designed separately from each other is simply a matter of using the same file names. For example, an astronomer might use KAPPA to read some optical spectra off a FITS tape, then use CCDPACK to debias and flat field the data (it is easy to set up an overnight batch job to do this if there is a lot of data), then use KAPPA to have a quick look at the data and then use Figaro to reduce the spectra.

It is useful to divide data analysis packages into wavelength specific packages, or even instrument specific packages, and general purpose ones. Once the instrumental signature has been removed from some data, any appropriate general purpose package can be used to analyse the data. For example, the ASTERIX package deals with X-ray data reduction, but after dealing with all of the X-ray specific processing, an astronomer may well want to find the brightness of objects in a given frame. Since ASTERIX uses the standard STARLINK data format, the astronomer can use PHOTOM or DAOPHOT II to measure the brightness of the objects. Although DAOPHOT was written with optical astronomy in mind, it is useful for analysing data from several wavelengths. The ability of DAOPHOT II to handle non-standard point spread functions can be especially useful in many areas of astronomy.