

Astrophysical integrated research environment

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Abstract. Astrophysical Integrated Research Environment (AIRE), aims to integrate astrophysical data, analysis software and astrophysical knowledge into an easy-to-use Internet based environment. Therefore, astrophysicists from different institutes can constitute virtual research groups which are favorable to study some complex multi-band astrophysical phenomena. The AIRE was put into use in Center for Astrophysics, Tsinghua university in 2003. Up to now, there are 219 advanced users in this environment. Several astrophysical researches base on AIRE have generated some important published results.

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1. Basic components

The objective of AIRE is to provide an Internet based collaborative research environment for astrophysicists. AIRE has two important components to fulfill the above requirement. One is the Data Processing Center (DPC), Another is the Collaborative Astrophysical Research Project System (CARPS).

Data Processing Center a Linux based working environment which can be accessed by any java supported web browser . DPC has two notable advantages : Firstly, from traditional point of view, it is a Linux system. Almost all astrophysicists are familiar with Linux, and can do anything about astrophysical research in it. Secondly, from VO point of view, it is web-based, open and free. A user can not only obtain hard resources, like CPU time, memory and hard disk area etc, but also get the support from other users.

The CARPS provides a simple but effective way to do collaborative research. It has a HTML interface and a DPC interface. In HTML interface, a user can update part or whole documentation tree to get the latest progress of the project, or commit his/her newest work to other members of the project. All ASCII files of the project can be edited in HTML interface. The DPC interface provides more powerful functions for collaborative research, such as compile and run programs, read references, process data, model fitting, write journal papers etc..

2. Current status and future plans

The AIRE has 219 advanced users who can use both DPC and CARPS since 2003 when it was put into use. Many individual and collaborative researches were carrying out in this environment, and several of them have generated published results.

In the next step, we are going to develop Astrophysical Research Protocol (ARP) and relevant tools which is the third important component for AIRE.