Integration of 3party processing packages in a satellite reception system

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The recent development in satellite data reception systems have made available a multitude of free processing packages for various processing levels. Satellite owners and operators often promote the use of their data by distributing processing software either directly or through cooperating research institutes and universities.

Software packages such as IMAPP for TERRA/AQUA, SeaDAS for SEAWIFS/TERRA/AQUA, AAPP for NOAA/METOP are well known to the community for low-level processing of the science data from the given satellites. I Addition we have software packages such as IAPP, ICI and MODIS-DB algorithms implementations for higher level processing.

The benefits of this policy are many; rapid on-site processing, more cost effective systems, and common calibration and interpretation guides promote the cooperation between satellite data users and facilitates further research for application specific algorithms.

The shortcomings of these sw packages are the often cumbersome operations. Several independent systems are needed for antenna scheduling and tracking, for data reception, for level 0 processing and for higher level processing.

We will in these paper present methods utilizing freely available software packages in combination with a flexible monitoring and control system capable of integrating all units into an autonomous ground station for reception, processing and distribution of data.

The core of these methods is a Station Control System (SCS) which provides external interface, logistics services and scheduling capabilities. A graphical user interface (GUI) against the SCS fully exploits all it's possibilities. Through its interface the SCS can be monitored and controlled remotely by multiple monitoring systems.

The software packages are controlled by the SCS trough an interface script that starts the application, deliver the parameters and handle the output. All software packages can be run independent but the SCS is also equipped with a high-level flexible instruction language to control the work flow. The instruction language specifies a chain of commands (jobs) to be executed by the system according to a set of rules. In this way output from one application can be used to trig execution of a subsequent application.

Logistic information written by the software packages to the standard output are translated by the interfacing script and sent to the SCS for monitoring.

Auxiliary data needed by software packages are handled by a rolling archive mechanism. The rolling archive is set up in such a way that old files are automatically deleted once a defined maximum disk quota is used.