SYMPOSIUM ON NEW TECHNOLOGIES FOR FUTURE SPACE ASTRONOMY MISSIONS (A7)
Lessons Learned (5)

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SPACECRAFT STATUS AND PROGRESS FOR GAIA, THE NEXT ESA SCIENCE CORNERSTONE MISSION

Abstract

Gaia is an ESA science cornerstone mission which relies on the proven principles of ESA's Hipparcos mission to solve one of the most difficult yet deeply fundamental challenges in modern astronomy: to produce an extraordinarily precise stereoscopic and kinematic census of about one billion stars down to 20 magnitude in our Galaxy and throughout the Local Group., These data combined with astrophysical information provided by on-board multi-colour photometry will have the precision necessary to quantify the early formation, and subsequent dynamical, chemical and star formation evolution of the Milky Way Galaxy.

To achieve Gaia's ambitious mission goals, the spacecraft contains a number of novel solutions for the large astrometric and photometric optics sharing a common gigapixel focal plane, for the onboard metrology systems, for the on board instrucment data processing chains as well as for the service platform which has to ensure an utmost stable environment for science observation. Astrium has been awarded the Gaia spacecraft development end of 2005. The program has successfully completed the design and development phase and is now entering in the flight model integration and verification phase.

This paper describes the Gaia current spacecraft development status, focusing on the main design features and performances characteristics.