

Part V

CoRoT paved the road to the future

The objective of this part is to show how the knowledge acquired by the CoRoT mission translates into the future projects.

Three years before CoRoT's launch, the Canadian microsatellite MOST had shown the superiority of space to monitor micro-variations in starlight. Following this opening, CoRoT was the first space mission to really demonstrate the pioneering science that would result from ultra-precise, long duration and continuous space-based photometric measurements.

Chapter V.1 deals with the managerial and technical aspects, and shows how CoRoT, as a pioneer mission, had to invent original approaches.

The very specific programmatic framework, the very low budget and the extremely short duration of the development phase have been mastered because the CoRoT Team had to explore new horizons in terms of organization and management methods.

The CoRoT team has also determined the major technical difficulties of this new domain. It has established the first requirements, defined the first principles and trade-off, addressed and validated several sub-system concepts, and finally demonstrated the potential of these techniques.

One can now speak about a technical CoRoT “heritage”, declined in its various scientific successors such as CHEOPS and PLATO, as presented in Chapter V.2.

Chapter V.3 is a short description of these upcoming space missions designed primarily for exoplanet science, but largely open to asteroseismology and stellar astrophysics studies. These future missions, some already launched and gathering data, include Kepler-K2, a reconfigured *Kepler* mission (see Chapter ajouter V.I.5) with a mission profile very similar to that of CoRoT, the BRITE-Constellation, a group of six nanosatellites devoted to precision photometry of the brightest stars of the sky, CHEOPS, dedicated to the detailed study of a few super-Earth and Neptune-sized objects orbiting bright stars, TESS, an all sky transit survey to detect exoplanets transiting nearby stars, and finally PLATO, a super-CoRoT with a combination of scientific goals, a core program aiming at detecting and characterizing exoplanets, and a guest program dedicated to stellar and galactic astrophysics.

The coming years promise an exciting adventure to exoplanet and stellar physics researchers, and CoRoT definitely marked the start of this wonderful journey.