The CoRoT Legacy Book

DOI: 10.1051/978-2-7598-1876-1.c020

Part II

The CoRoT legacy data

This part is dedicated to the data. It describes how the observations were planned and performed, how the data were processed and finally where data are archived.

The first chapter shows how it has been possible to manage a reasonable mission, taking into account the scientific objectives and the mission constraints. It presents how the scientific specifications have been translated in the observation programme and its successive runs. It describes the observations from all aspects: selection criteria (scientific and operational), tools, implementation, global results and specific results. It shows also how scientists and engineers in charge of the operations at CNES and in the laboratories have adapted the major principles to the results of the first observations and to the instrument in flight.

The second and third chapters deal with the final processing of the data. The second chapter describes the data building, the correction philosophy and the latest algorithms used to generate the legacy CoRoT data delivered to the community. The impacts of several instrumental and environmental effects on the data are described, and the choices made for the correction algorithm developments are detailed. The first steps of the corrections are applied to the effects (either instrumental or environmental) which are understood and can be modelled on both bright stars and faint stars light-curves. An optional step is possible in the faint stars field thanks to the large number of light-curves, and a simple exposure-based algorithm able to remove residual instrumental effects that were not possibly modelled, is described in details in chapter 3.

The fourth chapter describes the format and content of the scientific data. It aims to give the maximal information to handle the data so that they can still be used many years from now!

All data are provided with several levels of corrections; the levels of corrections are available as different extensions in a single FITS file. The data with the highest level of corrections (called N2 data) are on purpose easy to handle and should be used as first choice. Less corrected data (called N1) are available on request but they require a deep understanding of the instrument and the observation conditions to be scientifically helpful. They should be looked at only for specific purposes as instrumental studies, need for 1s sampling data, check of unexpected behoviors in the N2 data...

The fifth chapter indicates where and how the data are archived.