



# REPORT ON ESTA ACTIVITES

## WHAT'S NEW SINCE CW10?

### FUTURE WORK

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## NEWS

- ESA-SP/CNES Publication [⇒](#)
- Announcement of a Workshop in Porto [⇒](#)

## PRESENTATIONS

- Andy Moya: Report on Task2 (Step1b) and future work
- Anne Thoul: Liège database of models for  $\beta$  Cephei stars

## DISCUSSIONS

- Publication of a dedicated journal volume on ESTA Work
- Initiating Task3 on model comparisons with diffusion

# ESA-SP/CNES PUBLICATION

## BOOK TITLE : "The CoRoT Mission"

### AUTHORS: The CoRoT Community

#### I. Introduction

#### *Part A General framework*

II. High accuracy stellar photometry, III. Space Projects, IV. Antarctica

#### *Part B The CoRoT mission*

IV. Scientific objectives for a minisat : CoRoT, V. General presentation of CoRoT

VI. Extraction of the photometric information, VII. General organisation

#### *Part C The scientific programme*

VIII. Evaluation of the scientific performances

IX. Ground-based observations (preparation and follow-up)

X. The observing programme: mission profile, the fields to be observed

XI. Tools

XI.1 The ESTA group

XI.2. Data analysis tools

XI.3. Classification of variables

XI.4. The instrument model

XI.5. Light curve simulators (sismo)

XI.6. Light curve simulators (exo)

#### *Part D The CoRoT story*

XII. The different points of view, XIII. The activities of the partners

XIV. A tribute to F. Bonneau and JP Lefaire, XV. Lessons.....Conclusions

# COROT/ESA/CNES PUBLICATION “The CoRot Mission”

## ESTA contribution

### Chapter XI- Tools for the interpretation

Paper submitted in April (see [astro-ph/0605685](https://arxiv.org/abs/astro-ph/0605685))

Title:


REPORT ON THE COROT EVOLUTION AND SEISMIC TOOLS ACTIVITY

27 Authors

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# ESA-SP/CNES Publication

## REPORT ON THE COROT EVOLUTION AND SEISMIC TOOLS ACTIVITY

1. INTRODUCTION
2. NUMERICAL TOOLS FOR ESTA
  - 2.1 Stellar internal structure and evolution codes
  - 2.2 Stellar oscillation codes
3. TASK 1: INPUTS FOR MODEL COMPARISON
  - 3.1 Input physics for the codes
  - 3.2. Initial parameters of the models
4. TASK 1: RESULTS OF THE COMPARISON
  - 4.1. Global parameters and evolutionary sequences
  - 4.2. Internal structure
  - 4.3. Seismic properties
5. TASK 2: FREQUENCY COMPARISON
6. REFERENCE GRIDS
7. CONCLUSIONS AND PERSPECTIVES 

**Joint ESTA and HELAS Workshop on**  
**Solar/Stellar Models and Seismic Analysis Tools**

**PORTO, 20-24 November 2006 (TBC)**

**FUNDS from the European network HELAS**

## Joint ESTA and HELAS Workshop on Solar/Stellar Models and Seismic Analysis Tools

Workshop will mainly focus on tasks 2 and 3:  
should include presentations + actual work

- preliminary work on task3  $\Rightarrow$  July to November 2006
- first results to be presented in Porto
- go on with the work during the Porto Workshop

Proceedings publication as a dedicated volume  
Astrophysics and Space Science, Springer  
will include all work performed under ESTA

## PUBLICATION of a DEDICATED JOURNAL VOLUME on ESTA WORK

### AIMS

registrate and describe the tools available for CoRoT

### CONTENTS

papers on evolution tools, seismic tools, CoRoT grids, comparisons

A4 format, 2 columns

TOTAL : ~200 pages (but should be a maximum)

### SCHEDULE

papers should be ready before Porto Workshop



# TABLE OF CONTENTS of DEDICATED JOURNAL VOLUME on ESTA WORK

## PRELIMINARY... DETAILS TO BE DISCUSSED AT CW10

EVOLUTION CODES: 7 papers, ~<10 pages each

ASTECC, CESAM, CLÉS, FRANEC, GENECC, STARROX, TGEC

SEISMIC CODES: 8 papers, ~<5 pages

ADIPLS, FILOU, GRACO, LOSC, NOC, OSCROX, POSC, ROMOSC

GRIDS of MODELS: ~3-4 papers, ~ <8 pages each

Grids from CLÉS/Liège, CESAM-ADIPLS/Meudon-Rennes, CESAM/Porto

beta Cephei model/frequency grids from CLÉS/LOSC/MAD codes

COMPARISONS: ~ 3 papers, ~ <16 pages each

contents/number of papers to be discussed here

small number with all the comparisons ?

shorter papers on specific aspects ? 

# TASK3: MODEL COMPARISONS WITH DIFFUSION

## SCHEDULE

June 2006, CW10, Nice

Define the cases and diffusion options

July-October 2006

Start task3

November 2006

Present first results at Porto Workshop

## TASK3: MODEL COMPARISONS WITH DIFFUSION

Microscopic diffusion: two possible formalisms

Burgers (1969)

Michaud & Proffitt (1993)

Cases:

$M=1.0 M_{\odot}$  ;  $M=1.1 M_{\odot}$  ;  $M=1.3 M_{\odot}$

middle of main sequence, end of main sequence, subgiant branch

initial composition:  $Y=0.27$ ,  $Z=0.017$

other physical inputs remain unchanged