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Minutes of the 46th Scientific Committee

*Held at Institut d'Astrophysique de Paris, Salle du Conseil
on February 8th 2013*


Prepared by:	Annie Baglin	
Accepted by:	The SC members	

MODIFICATIONS OF THE DOCUMENT

Ed.	Revs.	Date	Modifications	Visa


REFERENCE DOCUMENTS

Reference	Title of the document
SC46-DR1-OV.pdf	CoRoT mission status
SC46-DR2-MD.pdf	News from the CEST
SC46-DR3-MO.pdf	Ageing of the instrument
SC46-DR4-SC.pdf	Some examples of some remaining work
SC46-DR5-AG.pdf	Collaboration with Apogee, Structure and evolution of the Milky Way
SC46-DR6-AB.pdf	Summary of the observations
SC45-DR7-EM.pdf	Where are we in the seismology field
SC45-DR8-EP.pdf	GB observations of seismo targets in December 2012 and January 2013
SC45-DR9-RA.pdf	Present status of CW11

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DIFFUSION:

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Participants:

All members except :

Artie Hatzes, replaced by Eike Guenther, Daniel Rouan and Heike Rauer

1. Mission status

Olivier V. describes the anomaly, which occurred on November 2nd 2012 at the precise time 20h 10m 11s. The two TM links 1553 and AS16 stopped sending informations. (see SC46-DR1-OV.pdf)

A new attempt to start the instrument will be planned quite soon, and probably at the end of next week.

2. Recent results

2.1. From the exoplanet search programme

MD presents the last results (see SC46-DR2-MD.pdf)

The last discoveries increase the number of confirmed and characterized planets to 32.

The papers are in preparation and the drafts should be ready at the time of the CW

The PASTIS software is now operational. It is more powerful than BLENDER as it is a purely Bayesian approach and takes into account the Radial Velocity measurements, the high resolution images and the barycenter measurements when they exist.

The reobservation of CoRoT 7b shows a less active star, and a slightly shallower transit.

A new release of EXODAT will be ready very soon with also a new data base interface. The catalog of reference is yet based on PPMXL and covers the complete CoRoT eyes.


* The “megapaper” is almost ready and presents all the candidates detected in all the Exoplanet runs. The candidates have been analyzed with a single software. Their parameters are thus derived in an homogenous way. Their planetary likelihood is assessed through different flags and compared to results achieved by follow-up observations.

It counts 3440 candidates in the 19 first runs, (false detection being excluded)

* Tristan G. recalls that, as discussed by Moutou et al. (2013, submitted to Icarus), some of CoRoT's exoplanets are key to a better understanding of planet formation, structure and evolution and star-planet interactions. Here are a few examples

- With ages below 500 Ma, CoRoT-2b, 18b and 20b are among the youngest exoplanets known thus far - their detection in spite of the high activity of the parent stars is evidence that CoRoT's sensitivity and the follow-up effort from telescopes on the ground are enabling us to discover key objects that would otherwise be missed..

- With its large radius, CoRoT-2b turns out to be the planet that is most difficult to explain from a theoretical point of view and has been the subject of many studies (Gillon et al. 2010, Guillot & Havel 2011, Schröter et al. 2011...etc.). CoRoT's ability to measure both the exoplanets properties and in most cases the stellar spins offers the possibility to study the star-planet interactions and the effect of tides.

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- One system, CoRoT-11, is particularly intriguing: It is a rare case of a close-in exoplanet (4 days orbital period) with a star that is spinning faster (in 1.7 days). This system is thus key to understand how planets form, migrate and interact tidally with their star (Lanza et al. 2011, Moutou et al. 2013).

- An homogeneous reanalysis of the light curves by Parviainen et al. (2013) has led to the detections of new secondary transits: this helps us to understand planetary atmospheres, and also may help solving the CoRoT-11 puzzle.

- New, non-transiting, massive planets and brown dwarfs may also be discovered by measuring modulations of the light curves with the companion's orbit (Faigler & Mazeh 2011).

This demonstrates that the work on CoRoT's exoplanets needs to be pursued very actively.

2.2. In seismology

More and more advance works with advanced modeling and physical interpretation are coming out, stimulated by and using CoRoT (and Kepler) data, e.g.:

* Comparison of evolutive sequences including momentum transfer rotationally induced from PMS to RG, with splitting measurements (Kepler...); Marques, Goupil, Lebreton et al. 2013 A&A 549. It concludes that momentum extraction is presently insufficient in the modeling, but could be taken care of by higher horizontal coef of turbulence.

* 'Studying stellar rotation and convection', 2013 Eds Goupil et al. Lecture notes in physics 865: from School 'Tides in Astronomy and Astrophysics', 2009 in Cargese

Chap 9: Connexion between stellar oscillations and convection, Belkacem and Samadi

* Constraining magnetic-activity modulations in three solar-like stars observed by CoRoT and NARVAL : Mathur, S.; García, R. A.; Morgenthaler, A.; Salabert, D.; Petit, P.; Ballot, J.; Régulo, C.; Catala, C. 2013, A&A...550A..

* Differential population studies using asteroseismology: solar-like oscillating giants in CoRoT fields LRC01 and LRA01 : Miglio, A.; Chiappini, C.; Morel, T.; Barbieri, M.; Chaplin, W. J.; Girardi, L.; Montalbán, J.; Noels, A.; Valentini, M.; Mosser, B.; and 5 coauthors. Proceedings of 40th Liege International Astrophysical Colloquium 'Ageing low-mass stars: from red giants to white dwarfs

* Gamma Doradus pulsation in two pre-main sequence G Dor discovered by CoRoT : Zwintz, K.; Fossati, L.; Ryabchikova, T.; Kaiser, A.; Gruberbauer, M.; Barnes, T. G.; Baglin, A ; , A&A accepted.


About publications on their way:

* HD 52265 to PNAS; Gizon et al. ...since last time, four positive referee reports; changes made, wait...

* dScu HD 174966 resubmitted: Garcia Hernandez et al.

* HD 43587; Patrick B. proposes a draft by early March,

* Red Giants : work under progress on the 4 giants in NGC6633 (observed in Summer 2011)

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2.3. In stellar physics (except seismology)

WW presents some works on abundances analysis, in particular on Red Giants. He also mentions the RR Lyrae group, and the reanalysis of 4 CP stars.

Some theoretical work is being done on the influence of the metallicity on the blue border of the instability strip of Delta Scuti and Gamma Doradus pulsators

But he also stresses the lack of manpower.

Konstanz Z reports on the development of the former PMS thematic team which successfully organized a multi-wavelength campaign (largely published). The CoRoT cluster observations address pulsation, stellar activity, magnetism and rotation and groups specializing on these phenomena have developed. As to some extent different physics is involved in the mentioned phenomena the communication between members is not perfect and hopefully can be improved during CSW11, in particular the communication with other CoRoT observers working on similar aspects of targets outside NGC 2264.

AB mentions the paper on rotation in NGC2264, the search for magnetic activity in spectropolarimetry on 3 solar like CoRoT targets, and interferometric measurements of stellar radii on stars hosting planets from both CoRoT and Kepler.

3. Data

3.1. Evolution of the pipe-line of corrections

MO indicates that due to the ageing of the instrument the dark current has become important and has now to be corrected (see SC46-DR3-MO.pdf). The method to correct it is now almost ready, and the correction will be included in the next version of the pipe-line.

3.2. Some problems to be solved


SC presents some of the curious events sometimes found in the data, which have to be explained.(see SC46-DR4-SC.pdf).

3.3. Data Distribution

FB says that everything is OK; nobody claims!

But, as proposed already, it is stressed that it is important to inform clearly the users about the version they are retrieving, and the associated corrections. It is proposed to post a pdf file describing the versions, and also to find a way to describe the version at the moment of the download.

FB also says that following a request of some users, the data will be available also in ascii format.

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4. Management

4.1. List of CO-Is

At SC 45, the proposition to increase the list of Co_Is was discussed., At the request of the last SC, AB sent the present list to all SC members.

Though it seems that everybody agrees on the idea to soften the old rules, a vivid discussion starts on the modification of the criteria defining a Co-I and it became clear that we would not reach an agreement immediately.

Action SC46-1: each SC members is asked to prepare propositions of new Co-Is, and eventually suppression of former Co-Is who do not work on CoRoT data anymore for the next SC.

Following a question by Juan Cabrera, it is confirmed that, being a member of the SC, he is evidently a Co_I.

4.2. Collaboration with APOGEE

AG presents the status of the discussion with the APOGEE team (see SC46-DR5-AG.pdf), and the scientific interest to combine APOGEE data on the on spectroscopic survey, with the seismic parameters (though their interpretation in terms of mass and radii are contested by Ian!).

The SC agrees with the project of collaboration, and encourages the RG group to conclude asap the negotiations.

AB indicates that the RG group has also contacts with the HERMES project, at AAT, dedicated to galactic archaeology. The SC encourages also this collaboration.

5. How the data have been used yet?

Are they still data which have not been exploited? If yes, why?

5.1. Recall of the pointings and observed targets

The table already presented at SC45 has been updated (see SC46-DR6-AB.pdf).


5.2. The exoplanet detections and characterisations

The re-analysis of the candidates has provided a list on "unresolved" candidates that have been the subject of a new screening. Some are currently observed from the ground but it is expected to get follow-up observations nearly complete by the end of summer 2013. If some valuable candidates still remain worth re-observation, then we will have the possibility to apply for telescope time, though the Large programme on Harps is over.

Concerning the planet program, efforts should be put on :

- * the correction of hot pixels that appear as the main potential limitation to the transit detection.

- * a robust and automate estimate of the contamination factor in white light but also on

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colors.

* the spectral classification of the stellar population in the exoplanet field. It is still needed to better quantify the quality of the existing spectral classification and to investigate how it could be improved. This is important for statistical analysis of the planet population in the CoRoT fields.

Claire M. informs the SC that the CoRoT data will very soon join the Planet Hunter site, after many efforts!

5.3. The stellar physics programme

5.3.1. In the seismology field (coordinator Eric M.)

Eric presents the updated status of the analysis and interpretations of the seismology targets (see SC46-DR7-EM.pdf).

There is at least a 2 years delay between the release of the data and the first interpretations. Some secondary targets are not in hands. How to exploit the “negative detections” which have anyway a scientific content?

EP presents the status of the ground based observations of the seismology targets (SC46-DR8-EP.pdf). He stresses that the Large programs are over and now new observations will be possible only on specific projects.

5.3.2. In the exoplanet field (coordinator Werner W)

Werner W. informs that work is in progress to have a list of activities, as complete as possible.

A discussion starts about the complementary observations needed to exploit at maximum the CoRoT data, in the different domains.

It is proposed to list the existing observations, and the missing ones.

Gérard V. proposes to contact the LAMOS team to examine possibilities of observations of CoRoT targets.


Eike Guenther accepts to coordinate a discussion on that subject in Tenerife.

Message from the SC

This rapid survey shows that even if CoRoT would not observe anymore, there is still a lot of work to be done, both on the improvement of the data and on their interpretation.

So the SC asks all the funding agencies to continue their support for the exploitation of all the CoRoT data, and the necessary complementary observations.

6. CoRoT Week 11

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6.1. Present status of the registration, general organisation

It will be held in Tenerife (La Laguna) on March 19 to 22.

Roi Alonso presents the organisation.

It is confirmed that it will be more a workshop than a Symposium, with a lot of time dedicated to discussions. It has to be widely open.

There are already 71 registrations

The CW meeting is organized in 6 sessions of half a day.

* There will be an excursion, on the afternoon of Wednesday, 20th March, with two alternatives

* alternative 1: Visit at Teide Observatory, and tour of Mt. Teide National Park, with an optional short hike.

* alternative 2: A guided tour of the historic centre of La Laguna, which is a UNESCO world heritage site, and whose layout provided the model for many colonial towns in the Americas.

* On 21th of March, evening: Conference dinner, at the Restaurante Isla del Lago in Puerto de la Cruz.

* On Saturday 23rd March, full day: A hike down the Barranco de Masca, with a return to Los Gigantes by boat.

6.2. Discussion on the programme and scientific organisation

The preliminary program posted on the web page is discussed, and the relative duration of the different sessions.

As usual, with no parallel sessions, it will be extremely difficult to have all the subjects in 3 days, and probably Friday afternoon will be needed.

Coordinators, in charge of organising the different topics are nominated. Their role will be the find a speaker for a short (15min) introductory talk and select 2 or 3 proposed contributors. They will also have to make sure that all the major aspects are covered, and can fill gaps by asking contributions if needed.

For 1: Annie B

For 2: Marc O and Sylviane C

For 3.1 Magali and the CEST


For GB surveys of the exofield: Eike Guenther

For 3.2,3,4: Eric +.....

For 4: nothing has been decided!

7. Next SC

It is recalled that we will have an SC meeting in Tenerife, before CW 11, on Monday 18th.

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8. Actions

8.1. From the preceding SCs

SC28-4	Document on corrections	SC, MA, AB	Dec 2008	
SC41-4	Update the list of builders, CO-Is, SC members	AB	Next SC	
SC43-2	Upgrade of the web page	PB, FB	Next SC	
SC44-2	Propose an improvement of the Wikipedia paper	AN	asap	
SC44-4	Organize the test of the different methods for contaminants detection	MO	asap	

8.2. From this SC

SC46-1	Propositions of new Co-Is, and eventually suppression of former Co-Is	all	Next SC	
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