

Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 1

## **Minutes of the 25th Scientific Committee**

Held at Paris Observatory, September 24th and 25th 2007.

Prepared by par:	Annie Baglin	
Accepted by:	The SC members	

### MODIFICATIONS OF THE DOCUMENT

Ed.	Revs.	Date	Modifications	Visa
1				

### REFERENCE DOCUMENTS

See next page



# Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

### COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 2

### REFERENCE DOCUMENTS

Reference	Title of the document
SC25-DR1	Project status by P. Laudet
SC25-DR2	News from the instrument by Michel Auvergne
SC25-DR3	Eric
SC25-DR4	Some preliminary results from the exo channel P. Barge
SC25-DR5	The N0-N1 pipeline by R. Samadi
SC25-DR6	Evaluation of the N1 sismo LC from Ira01 F. Baudin
SC25-DR7	Evaluation of Exo N1 data by M. Ollivier
SC25-DR8	The Alarm mode Pierre Barge
SC25-DR9	N2 data from the sismo side F. Baudin
SC25-DR10	Exopipe by Laurent Jorda
SC25-DR11	Evolution of the onboard software and of the correction chains by Michel Auvergne
SC25-DR12	The N0-N1-N2 production chains by S. Chaintreuil
SC25-DR13	Delivery of N1 test data L. Jorda
SC25-DR14	AP short runs in the anticentre A. Baglin
SC25-DR15 a, b, c	The differrent pointings by Eric M
SC25-DR16	Seismology ground based observations C. Catala
SC25-DR17	FU observations in the exoplanet programme Magali D.
SC25-DR18	Drift or not drift by Annie Baglin
SC25-DR19	3 <sup>rd</sup> CoRoT Brazil workshop
SC25-DR20	Corot symposium CNES contribution JL Counil



Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 3

## **DIFFUSION:**

G. ALECIAN	OPM	X
	9-1-1	
M. AUVERGNE	OPM/LESIA	X
A. BAGLIN	OPM/LESIA	X
P. BARGE	LAM	X
C. CATALA	OPM/LESIA	X
M. DELEUIL	LAM	X
M. FRIDLUND	RSSD/Estec	X
R. GARRIDO	IAA/Spain	X
T. GUILLOT	OCA	X
E. JANOT-PACHECO	Sao Paulo University	X
L. JORDA	LAM	X
E. MICHEL	OPM/LESIA	X
A. NOELS	IA Liege	X
M. OLLIVIER	IAS	X
H. RAUER	DLR Berlin	X
D.ROUAN	LESIA	X
I. ROXBURGH	QMW London	X
J. SCHNEIDER	OPM	X
G. VAUCLAIR	OMP	X
W. WEISS	IA Vienna	X
J-L. COUNIL	CNES	X
P. LAUDET	CNES	X
T. LAM-TRONG	CNES	X
C. IMAD	OPM/LESIA/secretariat	X



Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 4

### **Participants:**

G. Alecian, M. Auvergne, A. Baglin, P. Barge, , J-L Counil, M. Deleuil, M. Fridlund, R. Garrido, T. Guillot, E. Janot-Pacheco, ,L. Jorda, P. Laudet, E. Michel, A. Noels, M. Ollivier, P. Barge, H. Rauer, D. Rouan, I. Roxburgh, J. Schneider, G. Vauclair, W. Weiss.

Non-attendees: C. Catala, E. Michel and JL Counil on Tuesday

## 1 Project status at CNES

Philippe L. (SC25-DR1) recalls that the satellite has been flying now for 271 days and that everything is OK onboard.

In the ground segment, on which 20 people are working at CNES, the early difficulties seem to be overcome now. The major concerns are the two secondary antennas at Alcantara, and Vienna.

## 2 Preliminary results since the last SC

### 2.1 From the instrument

Michel A. (SC25-DR2) focuses on the effects that were not foreseen.

The radiation flux is higher than expected, and the difference is not yet understood. The position of the SAA computed from CoRoT is slightly displaced with respect to the model. The period without eclipses during the long run shows very unpolluted data. In particular, the forest of orbital harmonics disappears completely. So M.A. stresses that an effort will be made to correct the role of the eclipses.

The density of hot pixels evolves as predicted since the first measurement during the commissioning

## 2.2 In the seismology field

Eric M. (SC25-DR3) shows some N0 data over 90 days from LRc01 The first sequences of uninterrupted observations for 90 days ever obtained! The detection of oscillations in solar like stars seem confirmed. Classical pulsators are nicely varying!

## 2.3 In the exoplanet field,

Pierre B. (SC25-DR4) presents the result of the detection, using a preliminary version of the alarm pipeline

On 10000 light curves treated up to now 20 candidates have been found; 2 are completely confirmed; 5 definitely rejected.



## Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 5

The first object is a planet found inside the periodic variations of its parent star. The other, could be a brown dwarf with an unexpected high density or a very massive rocky planet.

### 2.4 Public relation activities, Evolution of the embargo rules

The SC feels a strong need for some announcement at the public and institutional levels. This is independent of the scientific publications.

After some discussion it is proposed to organise an event (press release, press conference...TBD) at the end of the first long run.

The subject will be essentially on the quality of the data but on very few scientific results. After a short discussion at the end of the meeting, it is decided to update the data which can be presented (see zsection 5.5.1.).

### Action SC25-1: A.B, before Friday October 5<sup>th</sup>

Circulate a project for the content of a press conference based on the idea that CoRoT has now achieved the longest continuous observation of thousands of stars with a very high precision. And that most stars are variable

## 3 Data corrections, and data distribution

## 3.1 The corrections pipe-lines

### 3.1.1 The N0->N1 pipe-lines: content of the first version

Reza Samadi (SC25-DR5) presents the first version V1.1 of the N0-N1 pipeline, being now used to produce the data (see the presentation of Sylviane C. SC25-DR12).

He shows that jitter corrections are important only for faint stars.

The treatment of the background and of the hot pixels presently implemented will have to be refined in new versions.

## 3.1.2 Validation of the N0-N1 pipe-line

In the seismology field,

Frederic Baudin (SC25-DR6) presents the evaluation of the V1.1 version, released only very recently.

For the moment the duty cycle is 90% essentially due to SAA crossing. But the data exist in these "holes" and will be treated differently. So the duty cycle will be significantly increased.

In the exoplanet field (SC25-DR7) Marc Ollivier presents a first step of the evaluation of the present version called V0.2. He shows that there are still difficulties in the coloured information probably related to apparent discontinuities, which have to be corrected. It is decided to have a meeting rapidly to decide the final content of the V0.2 version



## Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 6

### Action SC25-2: MA? AB?:

Organise a meeting or a teleconf to propose the necessary modifications of the V0.2 version and its implementation, with the LAM group, Heike R., the LESIA/IAS group ands Rafa G.

#### 3.1.3 Alarm mode

Pierre. B.( SC25-DR8) explains how the alarm mode has been working using the N0 data roughly corrected manually.

The Alarm mode needs homogeneous data as rapidly as possible, but not too sophisticated corrections. So he proposes to have a specific and independent N0-N1 alarm chain, producing "N1-Alarm" data used only by the alarm software, to be implemented ASAP at LAM or at CNES.

J. Schneider remarks that there are less planets discovered by the alarm mode than expected from Radial velocity surveys. Is there an explanation?

The initial list of targets for the Alarm mode is selected as the ones for which planet detection is easier: small radius, low temperature, and bright stars.

The AP programme is allowed to add to this list 2x50 stars selected by them (see 5.1)

### **3.1.4** The N1->N2 pipe-lines:

The content of the first versions of the chains, and the planning for their implementation are presented by Frederic B. for the seismology field (SC25-DR9), and by Laurent J. for the exoplanet field (SC25-DR10).

In this field the treatment of imagettes will be done at ESTEC by Malcolm F. and collaborators.

### 3.1.5 . Evolution of the Flight software and of the pipe-lines

Michel A. presents a new version of the onboard software, which will be able to correct from the hot pixels onboard. As usual it is specified by LESIA and developed by DLR, and will be uploaded after the next run LRa01, and would be working already for SRa01.

He proposes to present at the next SC an overview of the evolution of the global correction chains.

Action SC25-3: MA present at the next SC the foreseen evolution of the correction chains.

## 3.2 Production and delivery to the users

Sylviane C. (SC25-DR12) presents the status of the production at LESIA for the different chains She also presents a planning compatible with the delivery of the data of the first run on December 1<sup>st</sup>, of SRc01 in January and of LRc01 later on.

After some discussions, the SC proposes to deliver LRc01, as rapidly as possible, before SRc01, which has a lower scientific impact, contradicting slightly the rules for the delivery.



## Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 7

This means that 2 or 3 month will delay the delivery of SRc01 data.

As recalled by A.B., it has been proposed that for long runs the delivery could be in two steps, the first half and then the total.

As presented at the last SC by Frederic B. the archive is ready to receive these data.

### Test data for the exoplanet Co-Is

As accepted at SC 23, it is now possible to provide the Exo Co-Is (in fact the members of the CEST) with 1000 light curves over 15 days of LRc01 during the quiet period without eclipses. Sylviane C. says that the production is finished and that the N1 data will be delivered to IAS during this week.

The Sc accepts also that AP proposers are allowed to access these data.

Laurent Jorda is the contact person to access these data. As they are protected, he will distribute passwords on request.

Eduardo J. recalls that on behalf of the AP group working on rotation, he would like to obtain 2 months data for test.

As this does not seem possible presently, he accepts to use also these 15 days as a first step.

## 4 The Observing programme

### 4.1 4.1 Lessons learned

From the instrument, as MA already said, there is a need to focus on unexpected effects as hot pixels, jitter due to eclipses, but we know that the stray light is not a severe problem,

Eric M. says that we have learned that CoRoT can detect oscillations in solar type stars and get interesting light curves on classical pulsators even down to 9.5 magnitude. This confirms that the selection process is correct and does not need to be modified.

Pierre B. and Magali D. confirm that the selected fields are appropriate.

### 4.2 LRa01

The seismology selection is confirmed (see bloc 1571 in CoRoTsky).

The exobasket is not finished because we were waiting for the new release of the data base (made last week!), including a more precise spectral classification for part of the targets and new targets for the APs.

The AP specific targets contain 3 variables, a few O stars, Dolitze 25, a few EBs and some young stars ands debris disks.

### 4.3 Choice of SRa01

As decided at SC24 (Action SC24-2) we have to make priorities among the 3 accepted proposals. AB (SC25-DR14) explains that since the early propositions and their upgrade during the phase B,



Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 8

there has been a few complementary news.

Concerning HD 46375, the two teams who proposed this programme have joined. They stress that it would be interesting to observe also with Spitzer. But that the cold phase of Spitzer will stop in one year and the last proposals are due November16th. It would be an important point to announce that it will be observed by CoRoT simultaneously. It is also stressed that this observation is risky, as the albedo of hot Jupiters seems low.

This field allows to observe 5 O stars in the same field and to perform the Core programme proposal on this topic.

Concerning the SdB run, the priority made by the SC on KPD 0629-0016 is confirmed by the proposers and they also indicate that the star has been observed in photometry for 39 hours this winter, and that 4 to 6 periods have been detected (results already published). This very rare object will extend the domain of observation of CoRoT. To increase the quality of the photometry, an imagette could be used instead of a classical template.

For the NGC2264 proposal, it seems now possible to observe a few of the bright components at the limit of saturation by using imagettes and then obtaining very good photometry.

The SC stresses the quality of the three proposals. He confirms that they all have to be observed and he faces a strong difficulty ranking their date of observation.

So he decided to have an open vote, asking each member to decide his first choice, e.g.; observed next winter, and give the reasons for this choice.

NGC2264 is chosen as first, HD 46375 second and KPD0629-0016 as third.

### 4.4 LRc02

The proposed position (SC24-DR15a) has not yet been completely evaluated. Michel A. stresses that the roll angle remains high and that a more precise evaluation is needed to decide of its feasibility.

Action SC25-4 MD, EM, MA, AB Prepare a more precise study of the position of Lrc02

### 4.5 SRc02

This Run is in principle devoted to the seismology core programme

Eric M. (SC25-DR15b) recalls the preceding propositions and their ranking at the last SC.

\* The HD 183324 run centred on the lambda Bootis (bloc 1305.5 of CoRoTsky) was not selected for SRc01 due to its position at the beginning of the season. It could be reconsidered, as it remains a good field for seismology.

\* Eric M. presents the second choice centred on the unique Delta Scuti star with a very low Vsini



## Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 9

HD 1745232 (bloc 1409.3 in CoRoTsky).

It also contains

- -a lambda Boo target type not yet existing in the present observationnal programme),
- HD 175640 catalogued as HgMn star; the stellar type has been confirmed after this meeting.
- \* Magali D. informs the SC that the FU group has made an application for ESPADONS to detect the magnetic field in the system of the confirmed planet discovered in LRc01. If this proposal is successful, the CEST may propose a short run at the beginning of the summer period, repointing in the region of the field of LRc01.

Action SC25-5: MD, EM, WW, next SC

Study the proposal of reobserving the region of LRc01 for SRc02

### 4.6 LRa02

The action SC24-7 (EM):'evaluation of the position of LRa2 proposed by the EWG', is closed. EM (SC25-DR15c) checked the position and concluded that it was, by mistake, too far to even include our principal target HD 52265: a solar-like candidate with a known planet around it. But Action SC24-8 (MD) asking to provide an evaluation of proposed position(s) based on minimum magnitude of non-contaminated stars,histograms of contamination, and magnitude distribution, is still open

Presently the sismo position is extremely constrained, but the stellar density in the exofield does not seem optimal. The choice of the targets inside this field is not yet completely decided. So it seems that no major modification would occur. The SC considers that the position proposed by EM is the nominal one (block1338.5 in Corotsky).

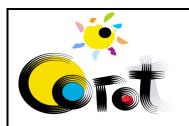
### 4.7 Ground based observations status

Claude C. who was not able to attend has send a short presentation (SC25-D16). It shows that the preliminary programme is in principle completed and that follow up activities based on ESO large programme and other telescopes are going on well. The campaigns are organised by Ennio Poretti.

The publication policy associated to these observations follows these rules:

- Papers of type I follow-up: papers independent of the CoRoT data = detection of modes, identification, frequencies, amplitudes; or = detection of magnetic fields, mapping of the fields, measurements of stellar parameters (example Prot, inclination). The authors of these papers are people presenting the applications + observers + those who have reduced and interpreted the data
- Papers of type II: same as those of CoRoT, in which both CoRoT data and FU data are exploited for a modelling: same rules as CoRoT.

<u>Data release:</u> It has been said that we would follow the same strategy as for the preparation data, protected during one year then public. But none of these data are yet available on GAUDI.



Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

**Page: 10** 

Magali D. presents the extended Follow-up work done during the summer (SC25-DR17) By the FU exoplanet team, leading to the results presented before.

### 4.8 Drift of the orbital plane

AB presents the evolution of the situation concerning the present position of the orbital plane and its drift, the observed stray light, the thermics as understood through the thermal model, and the field selection (SC25-DR18).

It is decided to maintain the drift at the previous speed of 4° per year, starting at the end of the winter period, in march 2008.

### 5 General business

## 5.1 Data rights document

A.B presents the upgrade of the document as required at SC24 (Action SC24-12) including the Copyright and some corrections in the language thanks to Ian. The applicable version is now 6.1 from September 2007 and will be available on the web very soon.

## **5.2** Document on the AP system

Following action SC24-9, Werner W presents a version of a document which could be untitled "Management of the Additional programme in the exo field", which will be edited as an official and applicable document.

It describes how AP targets are to be included on the Exosky database, and how AP targets can be included in the Alarm list.

As on this last topic, some clarification seems to be needed among the AP proposers, it is suggested to have some discussions in the APWG group to obtain a final agreement

**Action 25-6** WW, next SC: present a final version of "Management of the Additional programme in the exo field",

### **5.3 Publications**

All the SC members stress the need to publish as rapidly as possible.

There is a general agreement to say that the first paper should be the description of the instrument in-flight. It is under the responsibility of Michel A. and will be signed by the project team. It will include also some analysis of the signal properties of the light curves.

Action SC25-7: MA proposes a summary of the performances paper at the end of October



Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 11

Magali D. Is in favour of publishing very rapidly the results of the first confirmed planets. The agreement among the SC members is not reached yet. The SC waits for a clear position of the CEST.

Concerning the seismology programme, the pressure does not exist, so there is some time to publish the first results.

Magali informs the SC that a paper on EXODAT is almost ready.

The question is raised by Ian R. whether it is correct to publish results before the official data release to the Co-Is. The SC approved this as a one-off for this case only and that we would reconsider this problem in the future.

## 5.4 Cooperation

What should be the answer of Beichmann's who proposes to start discussions to include public CoRoT data in the NSTED archive?

After some discussions, it is decided to answer positively saying that we are ready to start discussions, and to define a possible return for CoRoT.

**Action SC25-8** AB, next week: prepare a draft of a letter to Beichmann and circulate it among SC members

## 5.5 Meetings

### 5.5.1 Report on the summer meetings,

Many presentations have been done, and received a very positive return. But every body is waiting for more results, and publications.

The list of these meetings will be published on the web page.

### Action SC25-9: AB Put the list of meetings on the web page ASAP

For the next meetings it is proposed to upgrade the booklet by

-Number of candidate transits

Focus on small planets

More info on the instrument

Classical pulsators

Follow-up activities

### Action SC25-10 AB Upgrade the booklet, end of October



Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

**Page: 12** 

### 5.5.2 Meeting of the CO-Is/GI

AB has proposed to hold it on December 10<sup>th</sup> at CNES HQ in Paris, salle de l'espace.

The meeting will last one day, with an in house buffet to encourage discussions....

It is decided to have extended discussion time. It will last from 9AM to 6 PM

The programme will contain only

- Presentation of performances
- -Presentation of the pipelines of correction
- -Rights and duties of the CO-is, presentation of the official document
- Data access

CO-Is who will be unable to attend can be represented by a member of their team, who will be their official representative (confirmed by a signed form)

### 5.5.3 3rd CoRoT Brazil meeting

Eduardo J. present to project of the next CoRoT Brazil meeting in November There will be a technical session, and a presentation of the ground segment, as well of the data access.

Contact CoRoT@dfte.ufrn.br and soon on the web page.

### 5.5.4 Jenam 2008

How CoRoT should be presented at this meeting?

Werner W. proposes to held a session on "Space Photometry" (or similar) with the goal to discuss problems encountered in the 2 active space photometry missions COROT and MOST and what to learn for coming missions, like BRITE, KEPLER and PLATO. However, this session (Jenam is in Vienna from Sept. 8 to 12) should not compete with the big Corot conference in November......

It is suggested to propose a general lecture to present and publicize CoRoT.

### 5.5.5 First CoRoT symposium in late 2008

Following the presentation by JL Counil (SC25-DR20) announcing that it will be the CNES symposium in 2008, AB recalls the other participants: HELAS as HELAS III, CNRS, Observatoire de Paris, ESA?

It will be an open meeting gathering 200 to 300 people.

The OC should include representative of all these parties.

A first meeting will be held soon to define the organisation.

SC favours 5 days

The publication policy is not clear yet and will be discussed at the next SC.

Malcolm F. informs the Sc that he has received an offer of Planetary and Space Science to give an issue in 8 - 12 Months and 2-3 guest editors.

It is preposed to revisit this issue in the context of the conference next SC or possibly to get an issue with papers.

Ian R. proposed using another conference proceeding organisation as Astrophysics ans Space



Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 13

Science.

## 6 . General management of the SC

## 6.1 List of CO-Is,

No evolution since SC24

### **6.2** Evolution of the teams

Ian Roxburgh presents new members for his Team on the Core programme and on the Additional programmes: Yvonne Elsworth, Bill Chaplin and G. Verner

## 6.3 Next SC meeting.

After the CO-Is meeting on December 11th at CNES HQ

### 7 Actions

### Actions from SC 19.

SC19-1	Document	on	the	observing	AB	July 1st	
	programme						

#### **Actions from SC22**

SC22-4	send a message to all coordinators	M. A.	Asap	
	and CNES to obtain this information		_	
	on project team			

### **Actions from SC24**

SC24 -7	Evaluation of the position for LRa2 proposed by	EM	Postponed
	the EWG, next SC		to SC 26

### **Actions from SC25**

SC25 -1	Circulate a project for the content of a press	AB	October	
	conference based on the idea that CoRoT has		5th	
	now achieved the longest continuous observation			



# Minutes of the 25th Scientific Committee

Author: Annie BAGLIN

Reference:

### COROT.LESIA.07. 017 Version: 1

Date: 3/10/2007

Page: 14

SC25-2	Organise a meeting or a teleconf to propose the	MA, AB?	October	
	necessary modifications of the V0.2 version and		5th	
	its implementation, with the LAM group, Heike			
	R., the LESIA/IAS group and Rafa G.			
SC25-3	Foreseen evolution of the correction chains	MA	SC26	
SC25-4	Prepare a more precise study of the position of	EM, MD,	SC26	
	Lrc02	MA, AB		
SC25-5	Study the proposal of reobserving the region of	MD, EM,	SC26	
	LRc01 for SRc02	WW,		
SC25-6	Present a final version of "Management of the	WW	SC26	
	Additional programme in the exo field"			
SC25-7	Propose a summary of the performances paper	MA	October	
			30th	
SC25-8	Prepare a draft of a letter to Beichmann and	AB	Week 40	
	circulate it among SC members			
SC25-9	Put the list of meetings on the web page	AB	ASAP	
SC25-10	Upgrade the booklet,	AB	October	