
Date: 03/12/2021

Venue: Cobrex Monthly Telecon

Presents: Sophia Stasevic, Eric Stadler, Antoine Chomez, Florian Fillipot, Nadege Meunier, Anthony Boccaletti, Damien Alibert, Christian Wilkinson, Olivier Flasseur, Hanae Belaouchi, Stephane Bergeron, Anne-Marie Lagrange, Julien Milli

Actions (03/12/2021) - to be updated

#	WP	Description	Who	Deadline	Status
1	0	Communication: website rajouter les étudiants ds equipe	ABO	Jan 7th	
2	0	Communication: Create UGA cloud and migrate Google Drive for Cobrex	GCH	Jan 7th	
2	1	Converger choix des seuils	ACH	Jan 7th	
3	1	Blindtest: astrometry: to be checked.	GCH	Feb 4th	
4	1	Blindtest: PACO upper limit	OFL	Jan 7th	
5	1	check again the schedule for F400.	ACH, GCH	Jan 7th	
6	1	Converge on SW 1.2 strategy	AML, MLA, PDE, ABO, GCH	Dec 5th	
7	1	Estimer objets, taille inputs GPI dans le CDC	JMA	Dec 5th	
8	2	SPIFFIER: Need to check if Fitsheaders have changed	AML	Dec 5th	

9	3	EXOREM: check evolution of the spectra, not continuous over %?	BJA	Dec 5th	
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Notes (03/12/2021):

Preliminary agenda:

1. Avancement des WPs
2. Communication
3. Update blind tests SHINE
4. List of actions
5. Monthly presentation (Christian)

1. WP updates

WP0

- Sophia arrived at IPAG.
- Cobrex meeting at Meudon: cannot do it face to face. Hope we will be able to do it in Corsica in May/June.
- Meetings: 1-week class on Exoplanets. Participation of several people from Cobrex. Decided to keep physical meetings btw students for regular updates. Next one is in January in Meudon about exoplanet spectroscopy. A few days meeting
- Journal club started

WP1

- Stephane: COBREX DC status updates (see slides)
- Antoine: 50 datasets (30 stars).
IRDIS:
5 days for IRDIS, 10 datasets/day. Spectral prior.
F150: 350 datasets: 35 days (ADI and ASDI).
F400: 3 months!
24 new detections above 5sigma (7 in the IFS FoV). Characterization, Characterization should not impact the complete computing time,
IFS:
PACO spectral robustness,
F150: 12 weeks for IRDIS + IFS for F150.
- small additional samples welcome
- ***ideas for programs in March
- Gael @view of new programs. Full view of F400 SPECAL candidates (IFS PCA Padova, IRDIS: SPECAL PCA?). Proposal: focused on the follow up of interesting targets. strategy : second epoch or snapshot survey (cf YSES)? depends on the separation. 5 min. redetect first and then focus.

WP2:

- ERIS-SOM: design almost ready.
- Political situation to be solved with Rob Ivison, possibility to go to STC.
- Minimize ESO resources. SW implementation: (A. Baruffolo - 2 weeks) AND HW implementation (inside deware, remove from Cassegrain, have to dismount). After that root the cable. Install. (1 week / 2 weeks). Wait for maintenance operation. Have to talk with MPE.

WP3:

- Disk. Sophia just arrived :)

WP4:

- Christian talk

2. Communication

. Communication website: review the communication tools. mailing list, slack, website. alternatives: googledrive (GAFA), wiki (possible at LESIA? may be not), cloud at UGA. Better to use cloud at UGA, but have to make sure that everybody can access it. Check the size. **Action Gael (-)**.

3. Update blind tests SHINE

See: slides,
blind tests:

- astrometry: to be checked. **Action Gael**
- Adapt PACO to handle upper limits. **Oliver**
- Pending actions for the blindtest. **Gael**
- check again the schedule for F400. **Action GCh and ACh.**

3. List of actions

. reviewed and updated

4. Monthly presentation (Christian)

Notes (08/11/2021):

Preliminary agenda:

6. Avancement des WPs
7. Update blind tests SHINE
8. Update website etc
9. Update Journal Club COBREX (Antoine et Olivier)

10. AOB

1. WP updates

WP0

Volunteers for the organisation of dec/Jan meeting

WP1 (Stephane)

COBREX for Mac: OK since Oct, 26th

Installation also available for the SPHERE client. doc to be updated.

Group Management available in COBREX and now in the SPHERE client as well

New kind of workspace: recipes workspace

Pending Actions: batch operations, recipe creation and update

Q @ Work on batch scheduler: update codes. Big steps. Stability on the grid: solved.
In progress.

Johan:

GPI archive downloaded. 1.6 Terab (700 Gb data + calibration).

MesoPSL server. cannot guarantee we can upload the hard drive.

Find another server at LESIA. will start calib recipes.

Plan B with IPAG/Calc4 ? situation at IPAG under discussion.

Damien: need to make space (***)Antoine)

WP1 (Antoine)

Presentation next meeting. Action

WP2

Pandemic crisis + Gravity + => No ressources left in Paranal.

ERIS schedule: commissioning S1 2022. SVT summer 2022. Pb vibrations NIX.

ERIS-SOM: ESO should provide a list of all she needs from us.

Mickael: Need to publish soon the SINFONI results. Hanae starts to work on SINFONI's data.

We should prepare for SVT. Mickael: Need to check if Fitsheaders have changed (Action AML)

MBo: many pbs with cube reconstruction. Fundamental issues to be corrected. Link with new student on PIC (slicers)

WP3

Cristian: reading; on going work on exoris + exorem to converge together.

Presentation next meeting.

Philippe: the evolution of the spectra is not continuous over C/O. ***Action for Benjamin + CW.

WP5

Scattered disk+ disk FMCMC. forward modeling. Sophia started.

2. Update blind tests SHINE

Hard deadline to share blindtest results was on Oct 30th, 2021.

Currently results from Spical shared by Philippe (April) & PACO IRDIS and IFS received last mid-October. No feedback from Faustine for ANDROMEDA. Recent feedback for TRAP from Matthias for IRDIS and IFS. Telecon foreseen in SHINE to debrief report. To be discussed also during the next Cobrex Telecon. Action: Gael present results.

Working now on the implementation of the results to share the report asap.

3. Update website etc?

Feedback?

To be seen at the Next meeting.

Communication : next meeting

4. Update Journal Club COBREX (Antoine et Olivier)

Ok. Being organized by Antoine & Olivier.

5. List of actions

Updated

Next Telecon: Dec 3rd, 3pm (CET)

Notes (08/10/2021):

Preliminary agenda:

1. New Cobrex PhDs students welcome,
2. WP0
3. WPs updates & ERIS status,
4. Communication: website (external/internal), slack, mailing list...
5. List of actions

1. New Cobrex PhDs students welcome,

New students:

Christian Wilkinson (PhD4, BCh, SMa, AML), 2/9/2021: lava planets 1000-4000K; 3 yrs Meudon

Antoine Chomez (WP1, AML, PDE, MLA, GCH), 1/20/2021; 1st yr IPAG, 2nd and 3rd yrs at LESIA

Hanae Belaouchi (WP2, MBo, AML, GCH, FCha), 1/10/2021; 1st yr IPAG, 2nd and 3rd yrs at LESIA
Soon: *Sophia Statsevich* (WP3, JMI, JMa, ABo, AML), 1/11/2021; 1st yr IPAG, 2nd and 3rd yrs at LESIA

2. WP0

- . Antoine: Will take care with the other students to organize journal Clubs, bi-monthly. **ACTION**
- . Julien: Interesting article: new data processing algorithm (stat. auto-RSM), Carle-Henri Dalquix with Faustine.
- . AML: small PSL/OCAV workshop still foreseen. Week exoplanets with Johan for students and OCAV (22-26/11/2021). Before Exosytem II.
- . **ACTION** still on for the Cobrex Workshop Dec/Jan.

3. WPs updates

Cobrex-DC

- . Stephane: Cobrex DC. Client improvement and possibility to organize with workspaces. No need to pre-install java for installation.
<http://cobrex-dc.osug.fr/cobrex-server/>
- . AML: No difficulties to define group/workspace if external solicitations
- . Need beta testers for Mac.
- . Antoine: start working on IFS and a-priori spectral. Working also on the centering of HD206. Test for both modes IFS-YJ and YJH. Start working also on MESS2.

GPI

- . Johan: GPI not so much progress. Pre-reduced GPI data (from DRP) not public. Must be done by us. Proposal meso-PSL accepted to reduce/analyse the data.
- . AML: no automatic sorting. Only on the fly. Question for Philippe: can run an automatic sort?
- . Philippe: goal to run a convert including a sorting. Problem of scaling, but should be ok.
- . Johan: keep the initial calendar for pre-reduction by the end of this year.

WP2 - IFU

Dvlopment of techniques of inversion for detection (clouds, abundances, P-T profiles)
Ready to exploit ERIS (with/wo SOM). Search for planets and characterize them.
Spectral inversion code available: FORMOSA.

New developments:

1. to estimate P-T profiles as output for FORMOSA; also distributions on particule in clouds. To be included in FORMOSA. Can be used for Cobrex for spectral conversion.

2. Random forest approach, supervised ML technique. Go from a few hours to a few seconds to get the inversion. Important aspect for Hanae.

Add developments needed:

- New methods to go beyond MM, Likelihood based approach.
- Detection limits

Next steps: implementation P-T box, Random forest.

Hanae PhD-2 work:

- top-priority on SINFONI transition disk survey,
- then detection limits
- Others aspects:
 - piste Ruffio ?
 - limites de detection?
 - synergie EXACT (ERC A Charlotte); Mathilde (LESIA) ?
 - continuer dev code formosa: intégrer le travail de Pierre dans le code.
 - consolider le travail de Nathan
 - rapports isotopiques: snellen
 - intégrer le travail de Pierre ds Formosa

ERIS: on sky in early 2022. SVT soon (spring). Must be ready to reduce / analyze SV data.

Q: development not foreseen by ESO for ERIS pipeline?

AML: **ACTION:** verifier si modifs pipeline de SPIFFIER

ERIS-SOM

. AML: Good meeting with ESO 3 weeks ago.

. ESO: want to wait for comm to decide, particularly validation by Paranal.

. AML: hope to get a feedback before Xmas. important to hire manpower on the project. Eric went to MPE to check ERIS status?

. AML: must wait for the opportunity to open SPIFFIER to place a mask. Situation not optimal but must be ready. Risky aspect that cannot open it. possible strategy is to wait for Xmas and ESO feedback, and decide to go directly to STC of April 2022.

4. Communication: website (external/internal), slack, mailing list...

Need feedback on Slack, mailing list, and Website (external and internal): Wiki or php?

Action for Gael/Anthony to remind access to communication tools.

Action for all to test them, particularly intranet (php)

Action Anthony: rajouter les étudiants ds equipe

Conclusion during next monthly telecon

AML: Goodies: housses ordi + autocollants; bloc notes; T shirt.

Preliminary agenda for Friday (03/09/2021):

#	Description	Who	Deadline
1	Organization of journal clubs by student/post-docs	Students/Post-docs	1 Oct
2	find date/location for meeting	ABo	1 Oct
3	CDC: Need some beta testers to test the client (MLa)	MLa	1 Oct
4	CDC: Meeting to decide how to manage groups (SBo)	SBo	
5	PACO: organize telecon with Olivier. Necessary before systematic reduction	ACh	1 Oct
6	F400 Blindtest: MLa, clarify PACO files description with GCh, share final PACO results	MLa	1 Oct
7	F400 Blindtest: GCh, share conclusions next Cobrex meeting	GCh	1 Oct
8	GPI: evaluate the volume of GPI data for COBREX DC and provide Damien and Stephane with the ncs inputs on the GPI queues	JMa	1 Oct
9	RDI: présentation travaux Yuchen	JMu	10 Sept
10	Dvlpmt ML: Associer Théo aux reunions Cobrex	OFI	1 Oct
11	Comm: Site web interne & externe	ALL	1 Oct
12	Présentations: Présentation Formosa pour la telecon mensuelle d'octobre?	AMI	1 Oct

Preliminary agenda:

1/ brief WP0 update (Anne-Marie)

2/ WP1: COBREX DC update (Damien or Stephane)

PACO update (Antoine, 40')

GPI update (Philippe or Johan)

3/ WP2: Random forest & atmospheres (Mickael or Pierre)

- List of actions

1/ brief WP0 update (Anne-Marie)

Next meetings:

- Special meeting 10/9: Yuchen (WP3) and Gaston (WP2)
- Regular meeting: Oct 1st

Gael: Add. item on intern/extern communications

AML: WP0 slides

dvlpmts during summer COBREX DC and ERIS

Preparatory work during summer:

- Christian Wilkinson (PhD4, BCh, SMa, AML), 2/9/2021: lava planets 1000-4000K; 3 yrs Meudon
- Antoine Chomez (WP1, AML, PDE, MLA, GCH), 1/20/2021; 1st yr IPAG then LESIA
- Hanae Belaouchi (WP2, MBo, AML, GCH, FCha), 1/10/2021; 1st yr IPAG then LESIA
- Sophia Statsevich (WP3, JMI, JMa, ABo, AML), 1/11/2021; 1st yr IPAG then LESIA

Coming:

- Post-docs hiring strategy; 1/ GPI data 2/, connection with Gaia
- Bi-monthly meeting (journal clubs)
ACTION: Organization of journal clubs by student/post-docs
- Small workshop in Dec/Jan? ABo: could be possible for a "meeting" of 50 persons
ACTION: ABo, find date/location for meeting
- Reporting (financial)

2/ WP1 activities

COBREX DC update (Damien or Stephane)

Slides by Stéphane; Need to test the Cobrex client;

Careful with the Java version. Install the latest version: version 11.

User can create groups but not share them.

Work in progress: Make recipe creation easier; Work on the data sharing among WSs.

ACTIONS:

- Need some beta testers to test the client (MLa)
- Meeting to decide how to manage groups (SBo)

PACO update (Antoine, 40')

Goal: Analyze SPHERE datasets (100To) Presentation on datacentrisation of PACO on Cobrex-DC. 2 instruments, 6 configurations, 60 options

Tests: operation & signal (detection threshold, spectral a-priori)

Workflow works for IRDIS. Rapid reduction for 50 stars. Manual: 2 months. Workflow: 15 days (could be divided)

Detection threshold. Massive injection. Potential test to be done for the inner part for TPR and FPR determination. Still some discussion to define best strategy for threshold and the use of a-priori information.

ACTION: ACh, organize telecon with Olivier. Necessary before systematic reduction.

SPHERE+ Blindtest update (Gael)

PACO results received 2 weeks ago for 3 targets (5 still missing).

Started to implement the results for IRDIS/IFS. Still some issues connect candidates with extracted spectra. In discussion with Maud. No results from ANDROMEDA.

Seems relatively clear that SPECAL and PACO must be used for F400. Blindtest made for characterization, not so much detection. Detection performances, check:

<https://ui.adsabs.harvard.edu/abs/2021arXiv210105080C/abstract>

Hope to get the final PACO results these coming days, and the PACO results implemented for the next telecon.

ACTIONS:

- MLa, clarify PACO files description with GCh, share final PACO results
- GCh, share conclusions next Cobrex meeting

Need to access WP3 results for characterization. How to proceed.

GPI update (Philippe or Johan)

The studies done by Johan and Philippe this summer show that it is more efficient to reduce GPI data offline. Up to the reduced cubes (not recentered). From there, we switch to COBREX DC which will do a convert. Johan takes care of the reduction. Possible to have all the reduction before the end of the year.

ACTION: evaluate the volume of GPI data for COBEX DC and provide Damien and Stephane with the ncs inputs on the GPI queues (Action Johan).

2/ WP2: Random forest & atmospheres (Mickael or Pierre)

Presentation Yuchen et Gaston/Mickael le 10/09 à 15:00.

Next regular meeting Oct, 1.

Preliminary agenda for Friday (02/07/2021):

1. status CDC (WP1, Damien A., Philippe D., Stéphane B., Antoine C.)
2. status blindtest (Gael C., Philippe D., Maud L.)
3. status ERIS (WP2, Eric S., Anne-Marie L.)
4. Various: Cobrex F2F meeting & website
5. AOB
6. Actions
7. Spectroscopy of substellar companions WP1 (Pierre K.)

1. status CDC (WP1, Damien A., Philippe D., Stéphane B., Antoine C.)

. Stéphane: COBEX server installed

Software en place; 500 process qui tournent

Coté client, travail pour améliorer le client pour Cobrex. Peut se connecter au serveur Cobrex, en production depuis le 20 mai 2021;

MAJ documentation pour installation du client pour avoir accès telechargement/doc

Mise en place des workspaces avec organisation par groupe; simplification du partage; exemples: groupe PACO, RDI... (avec sous-groupes); Travail sur les aspects partage utilisateurs; But: version beta dispo pour fin Juillet et en production à la rentrée (**ACTION**).

. Philippe: Possibilité de travailler de manière efficace à plusieurs; Mission claire entre SPHERE-DC et Cobrex-DC; Essentiel avec l'arrivée des étudiants en thèse et post-doc. Travail de Stéphane essentiel.

2. Point PACO (Antoine)

. Pas de grosses évolutions du coté technique

. Gros détail à régler concernant le seuil de détection

. Et aussi a priori spectro sur les aspects PACO ASDI; choix à mettre en place assez rapidement

. Philippe: coté PACO; cela marche comme on souhaite, mais questions scientifiques pour savoir comment utiliser PACO pour les aspects détections et a priori spectro.

AML: date pour lancer en IRDIS-ADI les 30 étoiles tests?

Antoine: retard, sera lancé en Juillet (possiblement d'ici 15 jours)

AML: deux actions à prévoir:

1. Réduction des données GPI; réunion lundi avec Philippe, Anne-Marie, Johan, Stéphane, Damien; Philippe: regarder ce qui passe ; idées claires problèmes et aspects non-problématiques; avoir idées développement et calendrier.
2. RDI?
Julien: doit commencer avec Yuchen en Aout (fin Juillet).
Retour pour prochaine réunion Cobrex. (**ACTION**)

Olivier: Avance tjs sur les approches d'apprentissage. Travail sur pb stabilité. Injection avec SNR = 3-15. Mise en place de différents critères pour consolider le processus.

Travail avec Théo en thèse à l'INRIA pour mettre en place une approche en apprentissage par patch pour avoir un comportement plus localisé.

AML: Théo, inclure dans Cobrex?

Olivier: A voir avec Julien, mais pas forcément indispensable; lui poser la question (**ACTION**)

AML: Collaborations en cours suite à SPOT (GSCOP à Grenoble; Adrien Combazar), spécialiste sur optimisation; travail détection sources par patch à partir des cartes SNR; besoin de croiser les techniques.

Olivier: séjour sur Grenoble 3-4 jours par mois.

3. status blindtest (Gael C., Philippe D., Maud L., ...)

Slides:

<https://docs.google.com/presentation/d/1HhdYhBud2R6mJZ3jnY6ehIN3-hzGejpfOxrenm835Hk/edit?usp=sharing>

Circuler Rapport début Septembre (**ACTION**)

4. status ERIS (WP2, Eric S., Anne-Marie L.)

. ERIS+ new name: ERIS - SOM - Spiffier Occulting Mask.

. Eric: Orientation du masque à vérifier.

- . Julien: Echange coté performances ERIS+ et SPHERE+ pour le science case sources faibles/rouges; Sr de 50% jq R = 19. Synergie rapidement entre designs (quel champ).
- . Julien: Independant, pas forcément besoin corono ERIS.

5. Various: Cobrex F2F meeting, website, F2F meeting

- . Meeting à la rentrée: PhD1, 2, 3 et 4 (1er Novembre).
- Face 2 face meeting en Novembre. A répéter chaque année. (Data a figer pour debute septembre)

- . Site web interne & externe.
- Reprendre site/commentaires (**ACTION**)

- . Recrutement: 2 post-docs
 - Gaia: outils des objets connus, MESS2, et sorties Gaia
 - GPI: depend du travail sur Cobrex-DC

- . Prochaine reunion Septembre 3,

- . Simon: presente code inversion FormosA.
- Octobre? (**ACTION**)

7. Spectroscopy of substellar companions WP1 (Pierre K.)