



Rubin, DESC and LSST-France news

Responsable scientifique : Johan Bregeon (LPSC)

Responsable technique : Fabio Hernandez (CC-IN2P3)

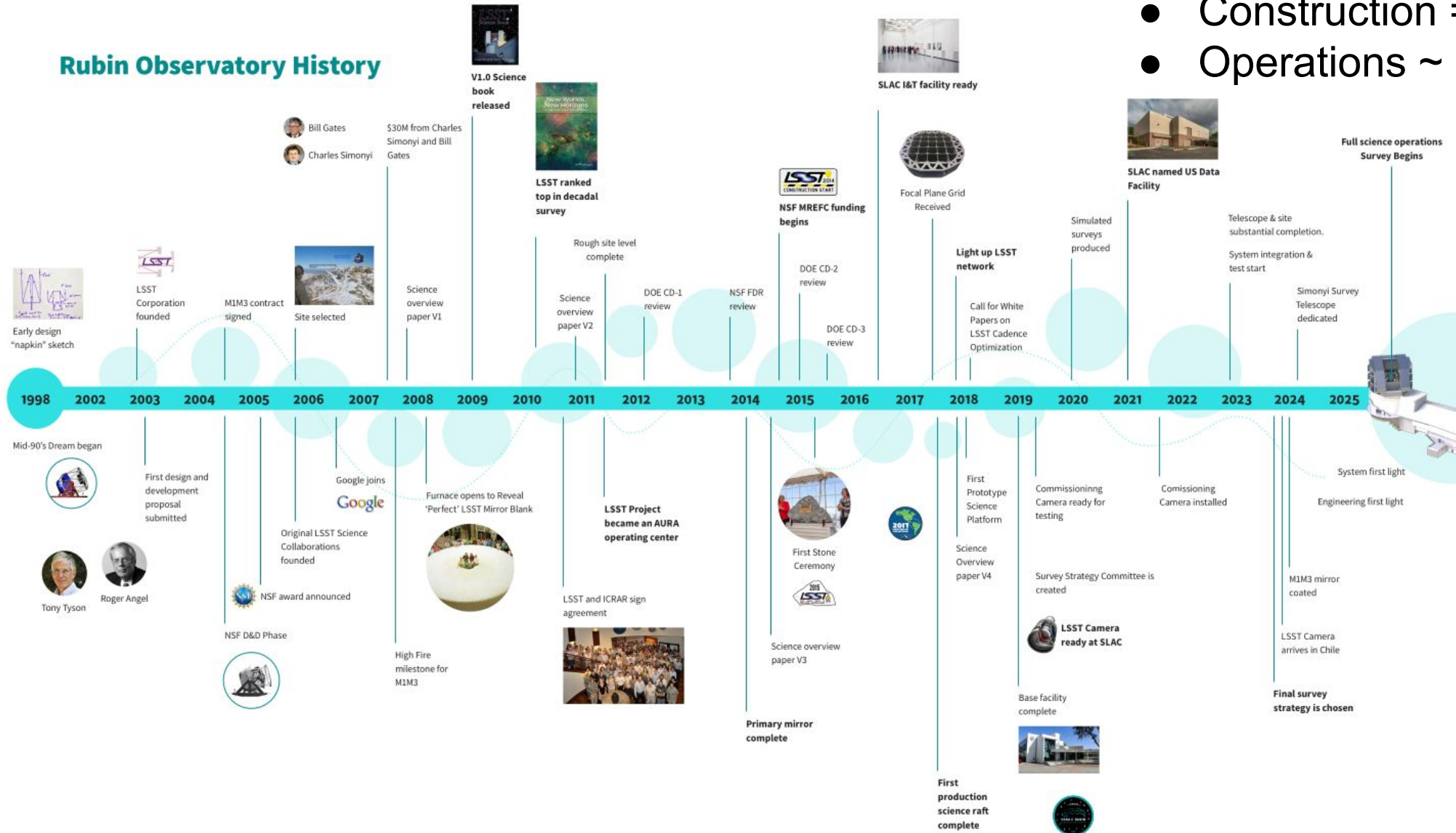
27/11/2024



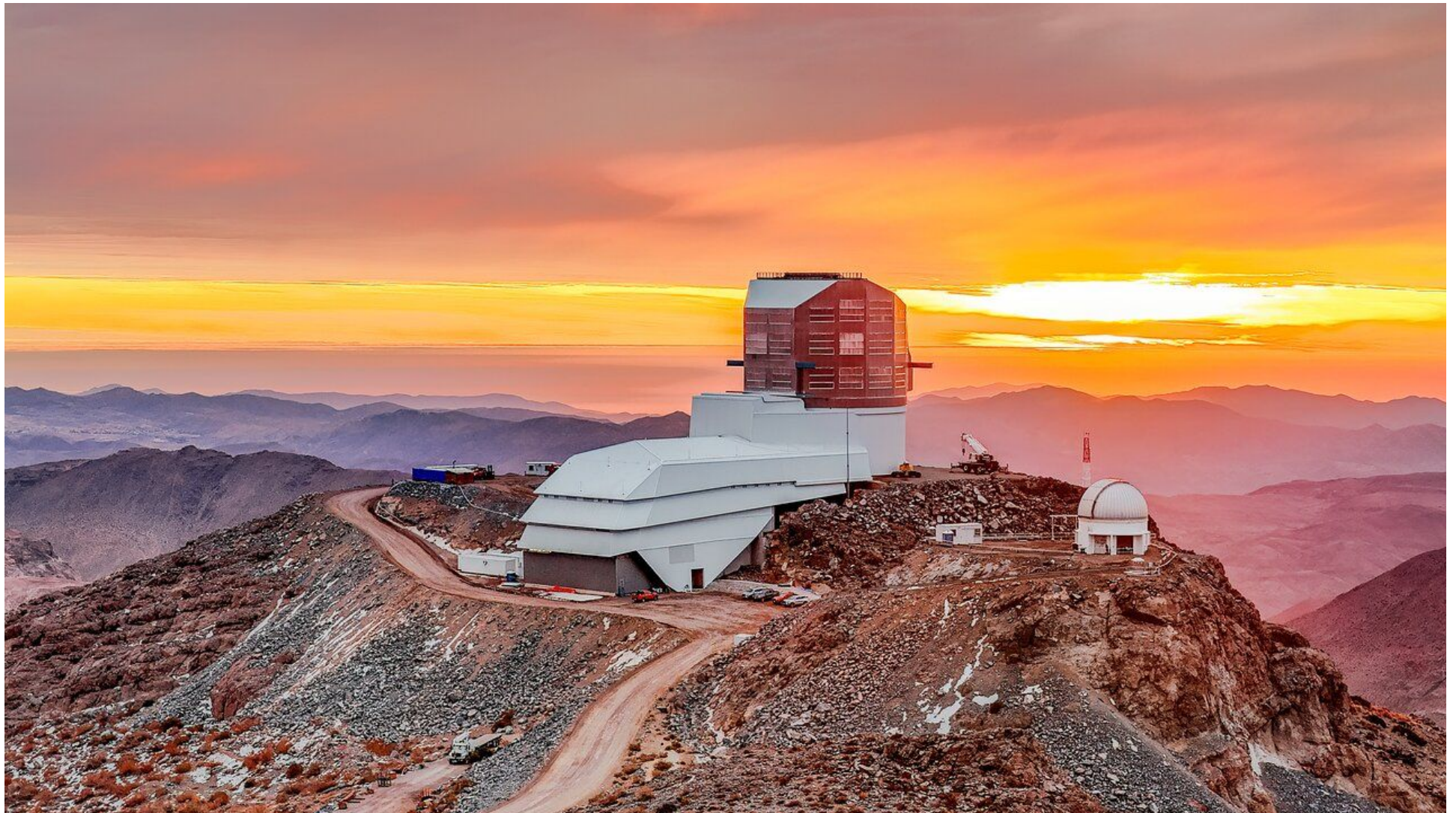
From LSST to Rubin: a 25 years story

Budget

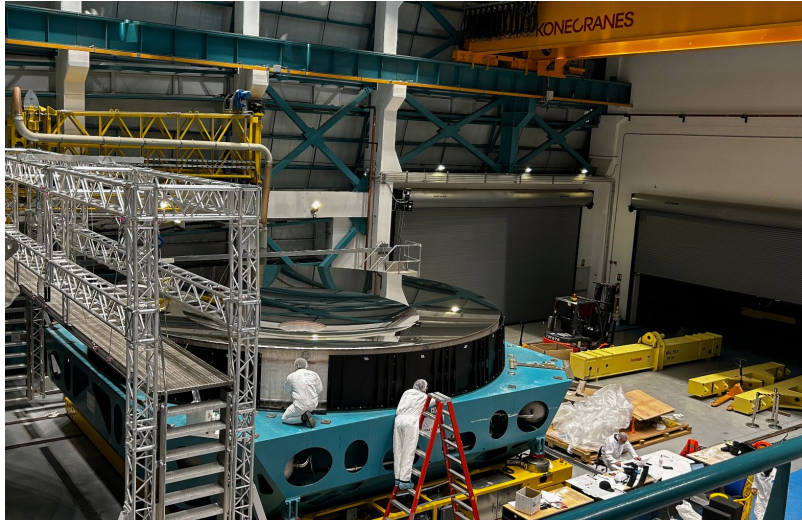
- Construction = 570 M\$
- Operations ~ 70 M\$/an



2024: The observatory construction is done!



Mirror M1M3 on the telescope in october

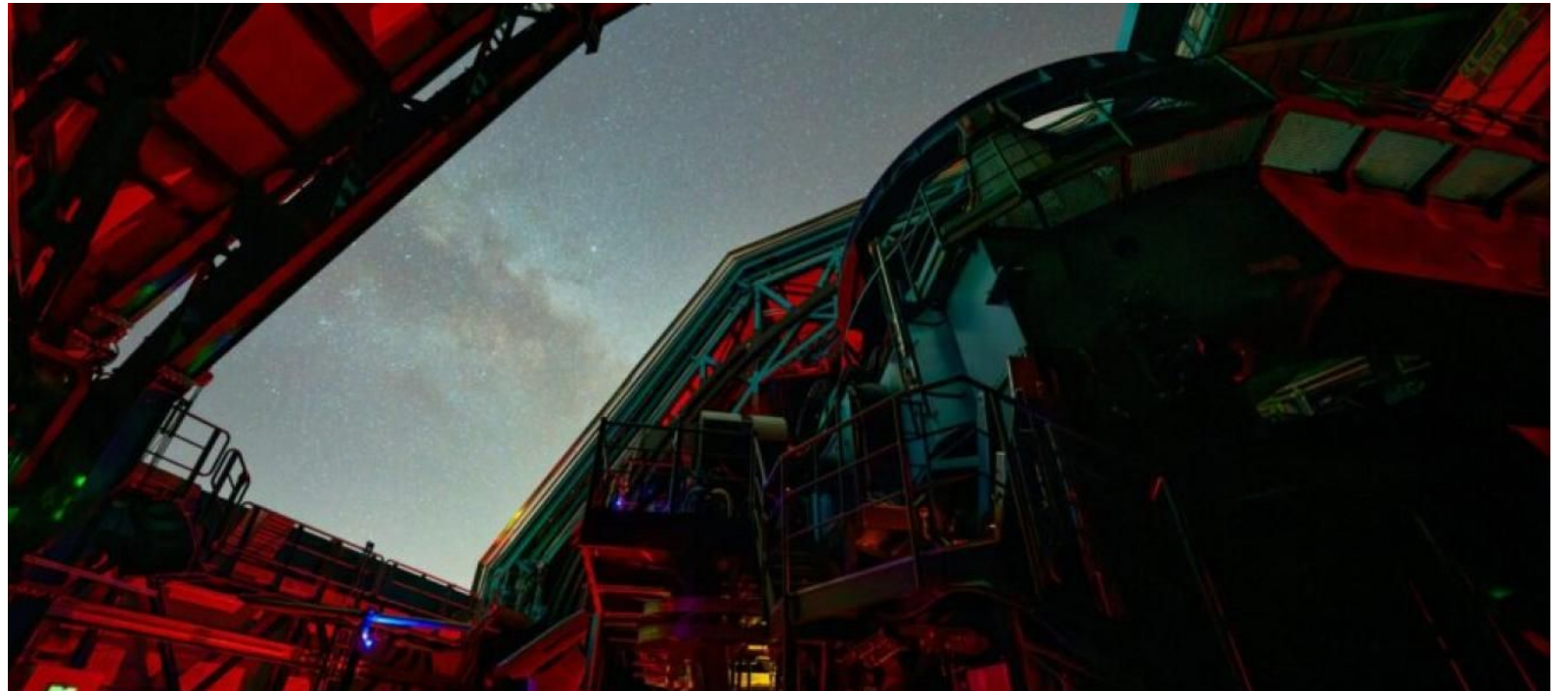
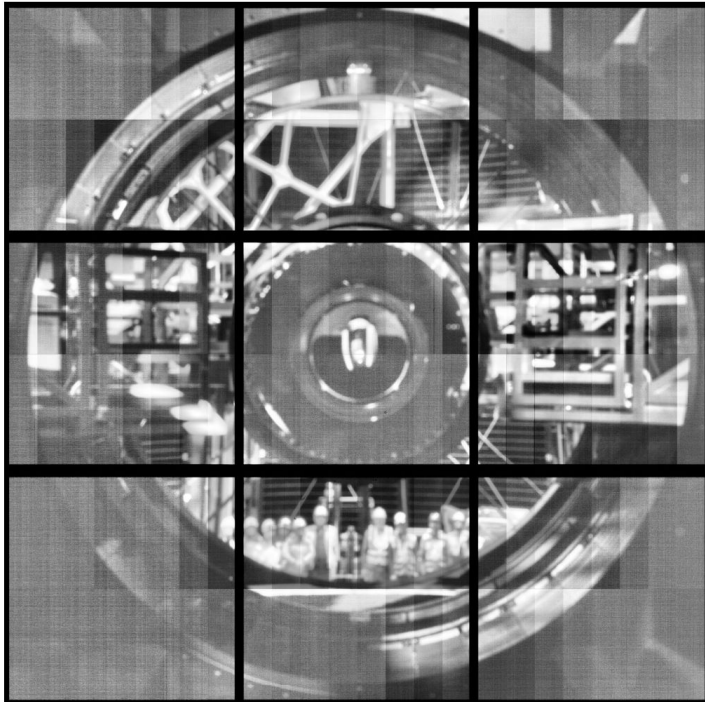


ComCam on Telescope Mount Assembly...



ComCam on-sky since October 24th, 2024

- Adaptive Optics System: very good performances (resolution below 1")
- Data Acquisition and Management is doing pretty well
- Lots of work ahead before beginning operations: *wind shield*, thermal control, ...



TMA SITCOM Performance Analysis

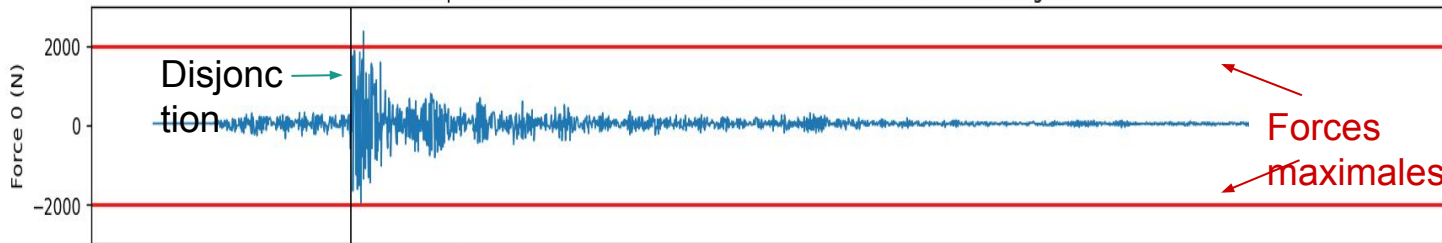
D. Boutigny and A. Jeremie from LAPP

- Mirror M1M3 + cell
- Top End Assembly (TEA)
 - Miroir M2 + cell, Caméra + M2 Hexapods, Rotator
- Telescope Mount Assembly (TMA)
- **Move a 350 t 8.4 m mirror at 10 deg/s, while keeping the optics aligned!**



Measuring earthquakes...

Earthquake 2024-09-23 02:36:50.00 - 02:38:30.00 - MTM2 ForceErrorTangent



Camera Filter Exchange System (including Loader)

- Camera on summit mid-May 2024 : full team on summit over >1 month to restart the camera.
- Camera Cold in August 2024 and starting EOTest in September.

lslst-camera.slac.stanford.edu/RestFileServer/config/Fcs/autochanger/autochanger2.properties

CCS Config files

Hello Camille Parise! [Logout](#)

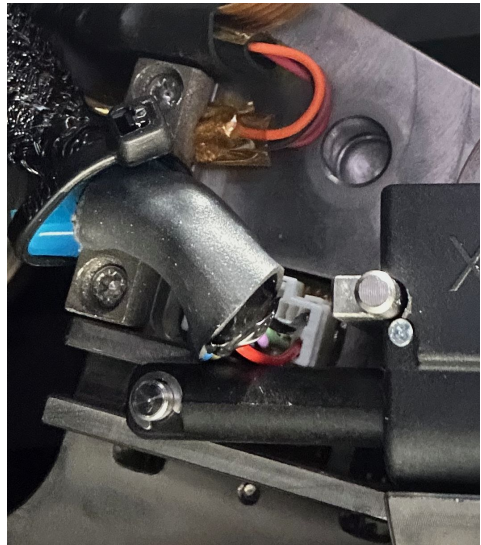
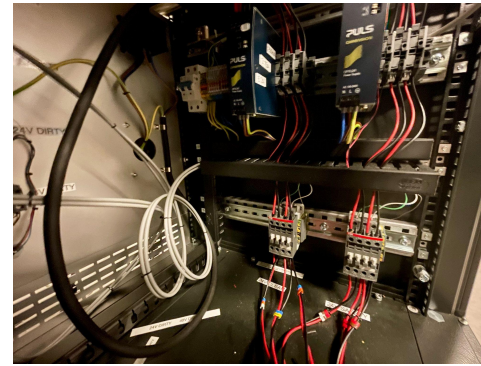
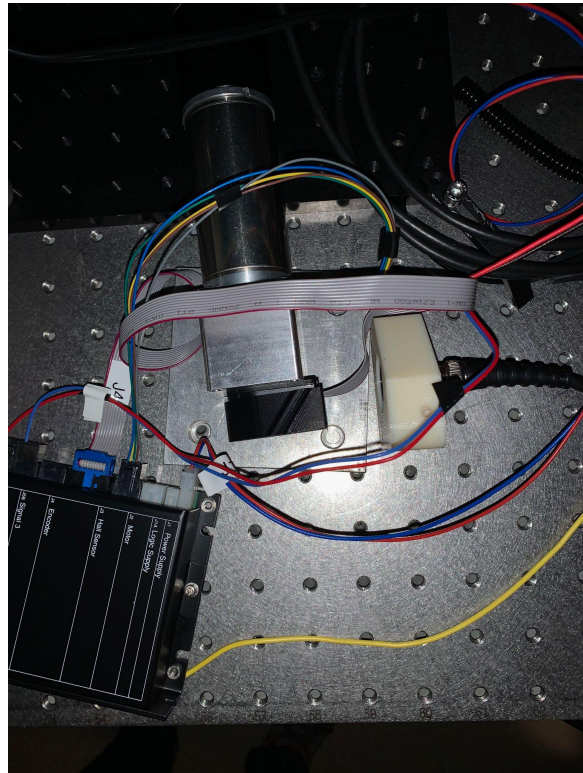
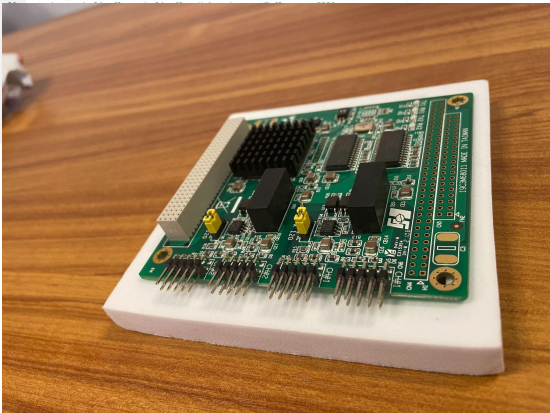
Path: [/config/Fcs/autochanger/autochanger2.properties](#)

Show Hidden

Hidden	Default	Latest	Version	Size	Date	Download	Comment
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<input type="checkbox"/>	<input checked="" type="radio"/>	<input type="radio"/>	2	2.1KiB	2024-02-23 01:53	(download)	Update removed specific value
<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	3	2.4KiB	2024-07-09 21:13	(download)	Update
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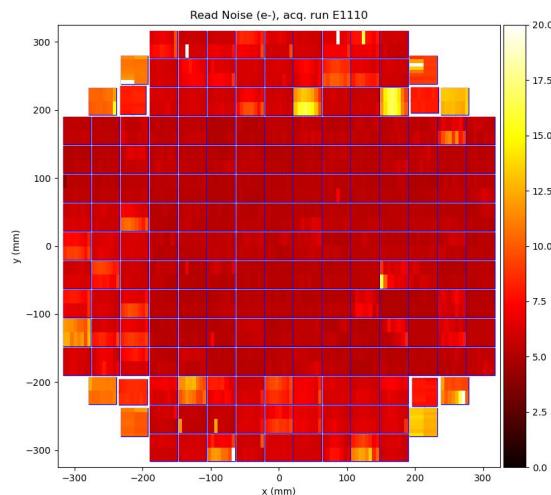
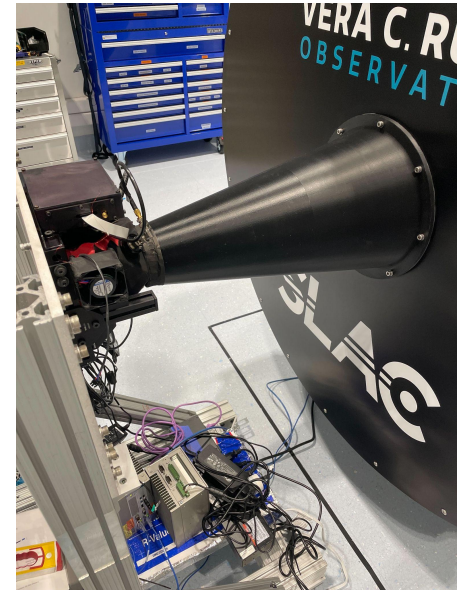
Version: (default)

```
9 autochanger/onlineClamps/onlineClampMinus/incrementCurrentToClamp = 532
10 autochanger/onlineClamps/onlineClampMinus/incrementCurrentToClamp = 380
11 autochanger/onlineClamps/onlineClampMinus/incrementCurrentToOpen = 420
12 autochanger/onlineClamps/onlineClampMinus/initialCurrentToClamp = -300
13 autochanger/onlineClamps/onlineClampPlus/currentToClamp = 4992
14 autochanger/onlineClamps/onlineClampPlus/currentToOpen = -720
15 autochanger/onlineClamps/onlineClampPlus/initialCurrentToClamp = 1800
16 autochanger/onlineClamps/onlineClampPlus/incrementCurrentToClamp = 532
17 autochanger/onlineClamps/onlineClampPlus/incrementCurrentToClamp = 300
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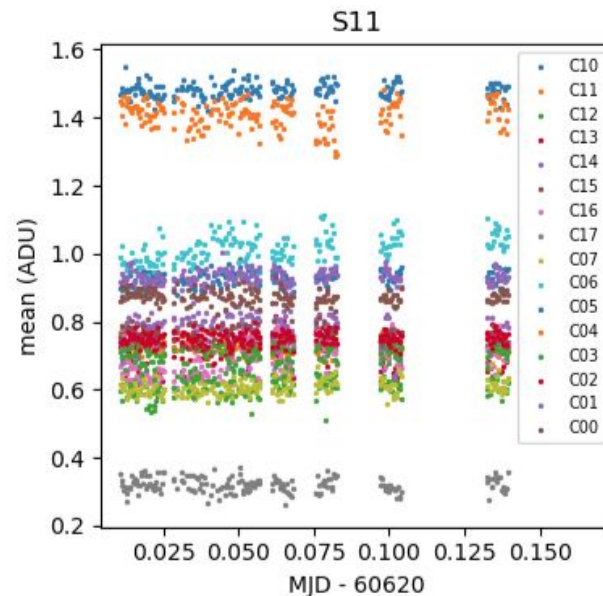


Camera Focal Plane Reverification - Run 7

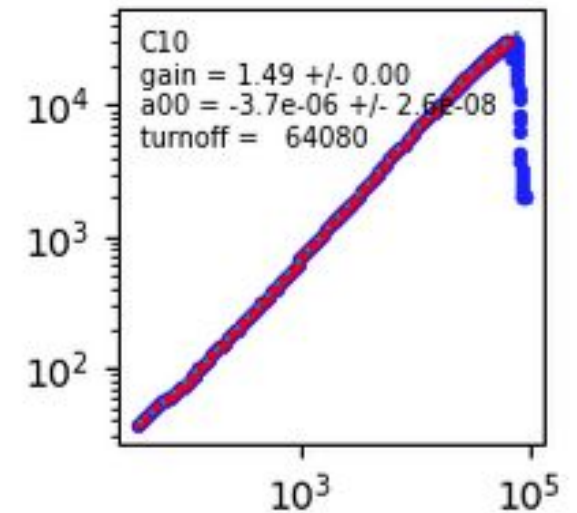
- Integration and electro-optical tests from September to end of November 2024
 - Calibrations, Photon-transfer curves, bias and gains stability, persistence, brighter-fatter
 - Performances as good as at SLAC: optimisation of the global configuration for the readout
- Data at USDF, no replication at CC-IN2P3 yet, but working on it
- Contribution to shifts on summit, to data analysis and to data processing at USDF



Readout noise



Bias stability



Photon transfer curve

Collimated Beam Projector



From Tucson to Chile: a shaky trip...
that comes to a happy end.

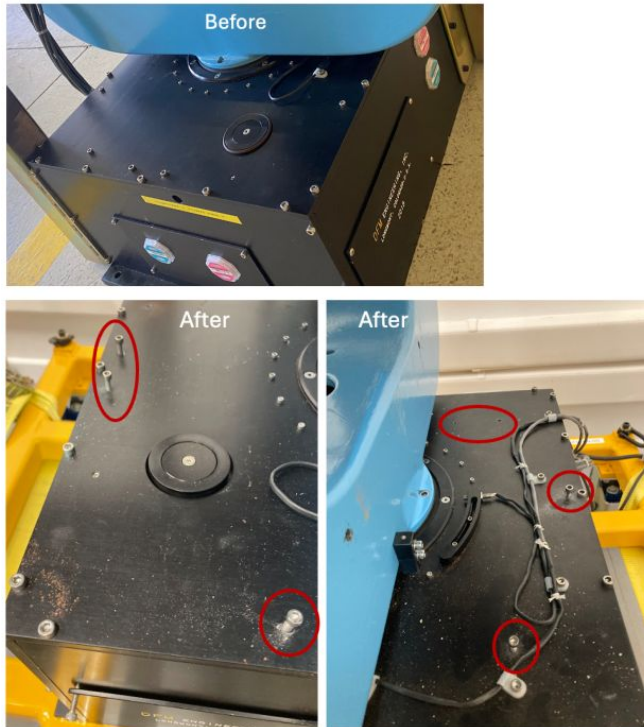


Figure 7: Before and after photos of the AZ Disk Housing screws. AZ Disk Housing screws walked out almost completely.

CBP in the
Dome ready
for testing
just now...



Rubin LSST France on Summit



- Construction and commissioning trips to Chile in 2024
 - Ingénieurs.es à SLAC : 8 personnes, 3 semaines en Février
 - Ingénieurs.es au Chili : 9 personnes, 2 semaines en Juin
 - Ingénieur au Chili : 2 semaines en Novembre
 - P. Antilogus : 3 mois Mai-Juillet + 1 mois Novembre au Chili
 - D. Boutigny : 3 mois Août - Octobre au Chili
 - J. Neveu : 1 mois Août au Chili
 - A. Boucaud : départ pour le Chili mi-Novembre
 - T. Souverin : 2 semaines en Août,
 - Y. Faris : 3 semaines en Novembre

~250 k Euros

Thank
You!

Calendar



Septembre - 30 novembre

LSSTCam re-vérification

24 octobre - 15 décembre

ComCam sur ciel

Janvier - février 2025

Intégration LSSTCam sur le télescope

Mars - mai 2025

Commissioning télescope + LSSTCam

31 mars 2025

Premiers photons

Construction Readiness Review #2 April/May 2025, Chile

19 juin 2025

Premières images LSSTCam sur le ciel

Été 2025

Commissioning sur le ciel

Construction Completeness Readiness Review #3 July/August 2025, Virtual

16 Septembre 2025

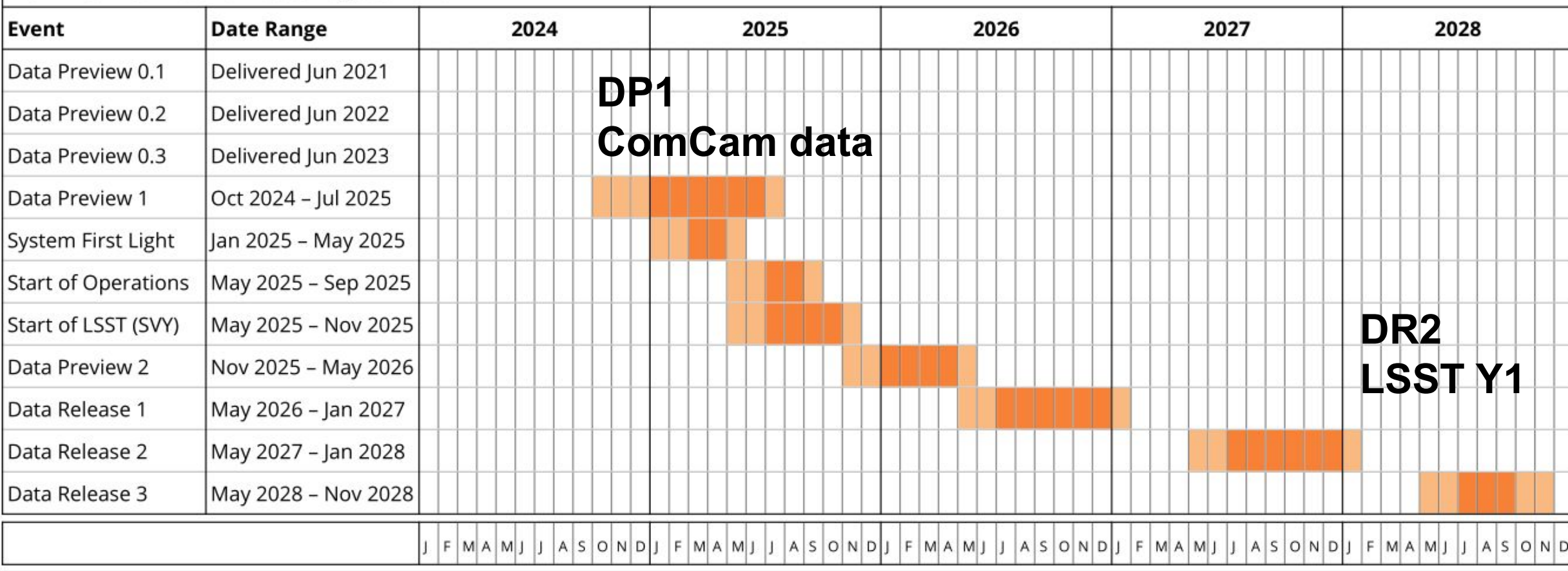
Rubin Operations Readiness Review

Novembre 2025

Début des opérations du LSST

Rubin Operations Survey and Data Release Timeline

Nominal LSST Start Date: August 2025

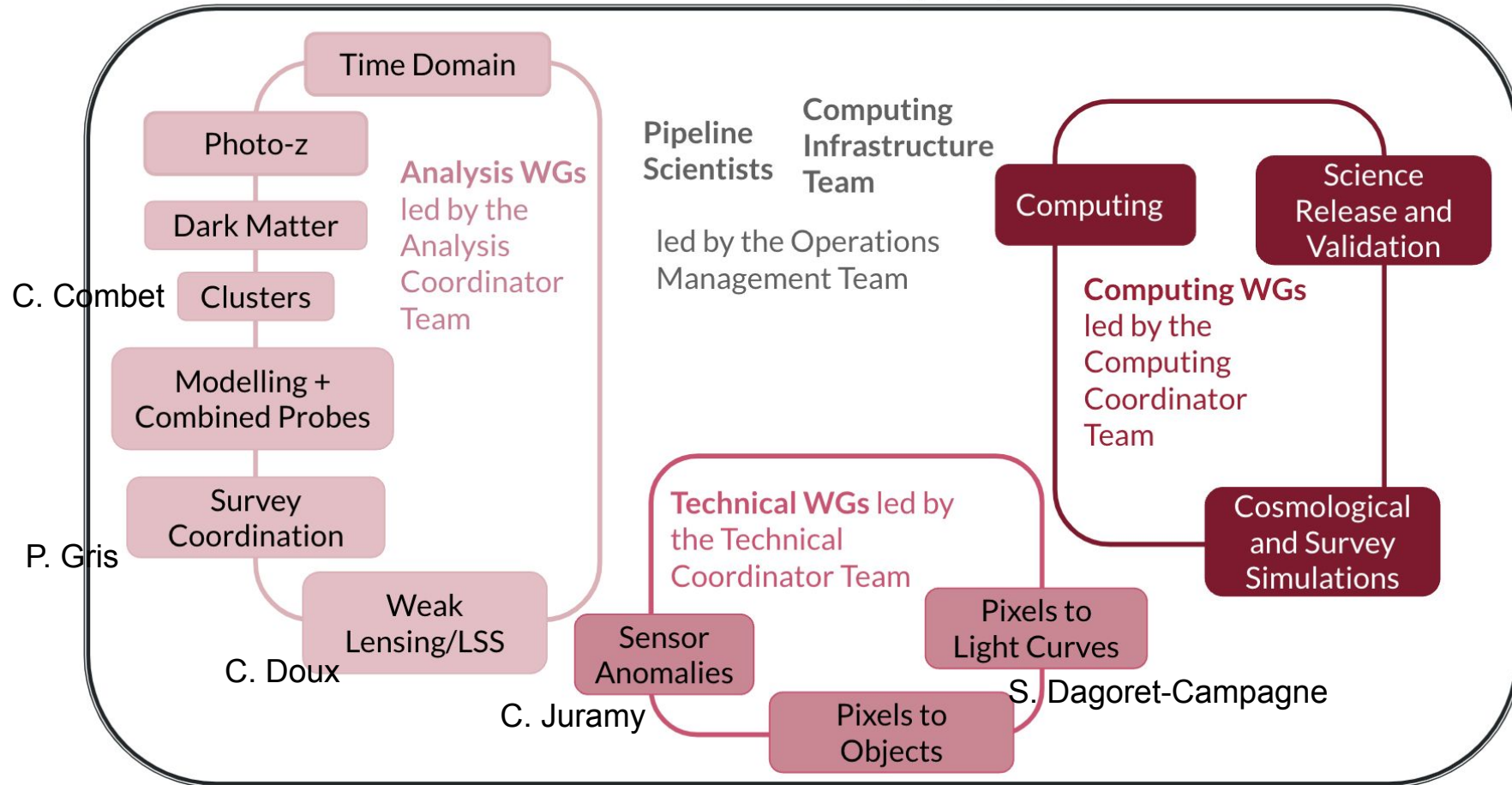


DESC News

- **Collaboration meeting in Zurich in July (~15 people from LSST France)**
- **Preparing the spokesperson election next year (October 2025)**
 - Difficulties to find candidates, calendar issues, ...
 - New “Spokesperson Sustainability Committee” to find and help potential candidates
 - first set of recommendation issued
- **Setup of the *Early Science Task Force***
- **2 new DESC Builders in France this year**
 - Marina Ricci (Jan. 2024), Michel Aguená (Sept. 2024)
- Remember to ask to become DESC Full Member if you think you are eligible

DESC working groups in 2024

DESC Management led by Spokesperson Team



DESC : Early Science Task Force



- Task force

- 10 people from the collaboration (including R. Salomon postdoc @ LAPP)

- Role

- Recommending whether or not to define a set of **Key DESC early science papers** (or to allow papers and projects to be defined via the usual DESC publication procedure);
- Suggesting ways to avoid having the early science analyses detract from **development of pipelines for the Y1 analyses (DR2)**;
- Proposing any recommended changes the **DESC publication process** for early science papers;
- Proposing methods to **manage potential conflicts**, competing papers, consistency of results and methods on Early Science data.
- **Report to DESC management**, actions and release to the collaboration

DESC responsibilities in 2024

● DESC

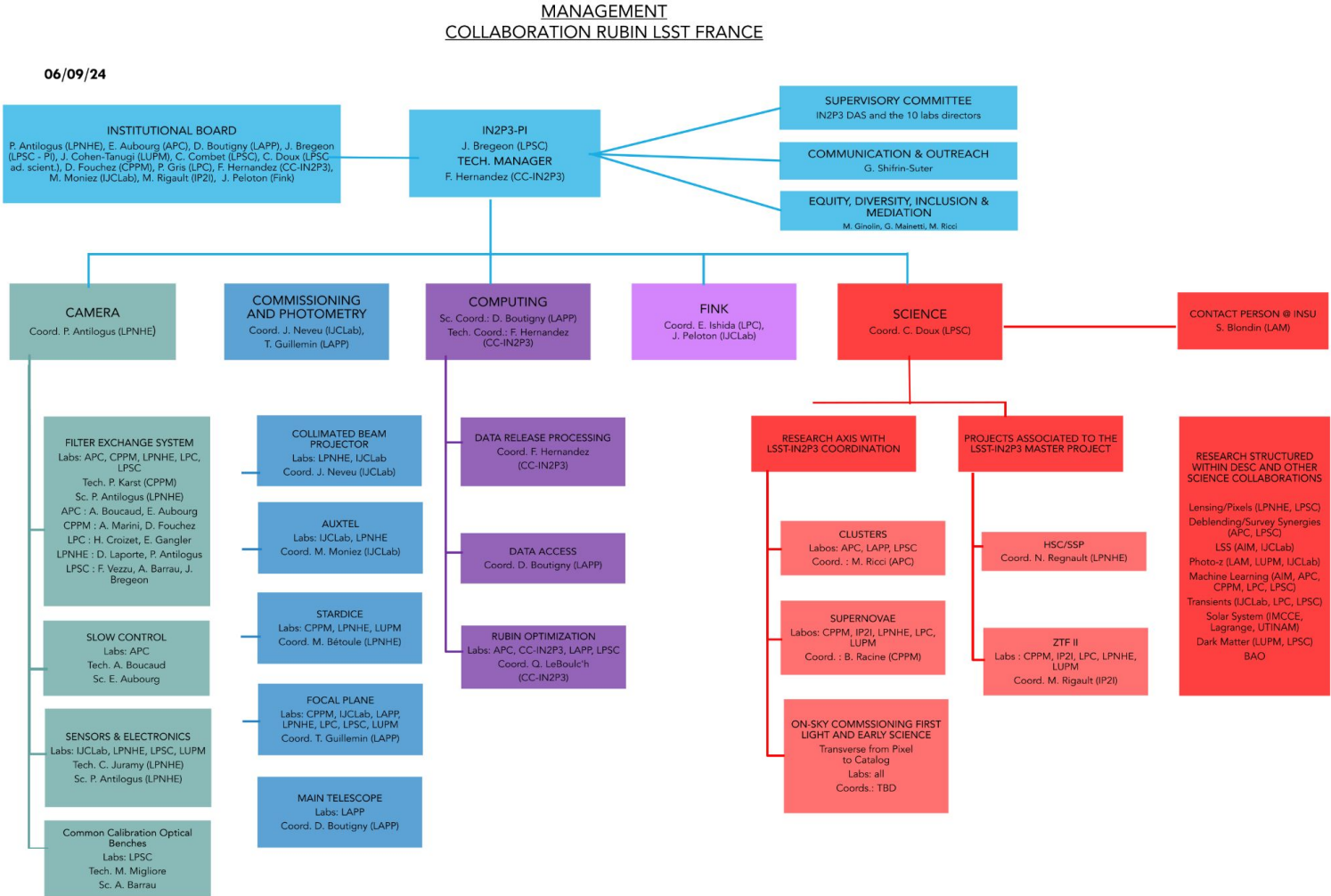
- Strong involvement in working coordination and committees (CC, MC, AC...)
- Marina Ricci chair of the Collaboration Council

● Projet Rubin

- Sylvie Dagoret-Campagne au Survey Cadence Optimization Committee (SCOC) en 2025
- too few positions... working on it

Name	Lab	Project/Science	Working Group	Function
Michel Aguena	APC	DESC	Clusters	Pipeline scientist
Pierre Antilogus	LPNHE	DESC	Advisory Committee	Chair
Pierre Antilogus	LPNHE	Rubin-Camera	Filter Exchange System	Subsystem Lead
Eric Aubourg	APC	DESC	Operations	Deputy Operation Manager
Eric Aubourg	APC	Rubin-Camera	CCS	Physicist/Subsystem Lead
Lucie Baumont	CEA	DESC	JuDO	Co-convener
Alexandre Boucaud	APC	DESC	Membership Committee	Co-chair
Dominique Boutigny	LAPP	Rubin	Users Committee	Member
Dominique Boutigny	LAPP	DESC	Data Facility Committee	Member
Céline Combet	LPSC	DESC	Clusters	Co-convener
Céline Combet	LPSC	DESC	Operations Committee	Member
Sylvie Dagoret-Campagne	IJCLab	DESC	Photometric Corrections	Co-convener
Sylvie Dagoret-Campagne	IJCLab	DESC	2023 Collaboration Council Nominating Committee	Member
Cyrille Doux	LPSC	DESC	Weak Lensing and Large Scale Structure	Co-convener
Dominique Fouchez	CPPM	DESC	Speakers Bureau	Member
Philippe Gris	LPC	DESC	Survey Coordination	Co-convener
Philippe Gris	LPC	DESC	OS&TD	Pipeline scientist
Thibault Guillemin	LAPP	DESC	Publication Board	Member
Fabio Hernandez	CC-IN2P3	Rubin Operations	Data Management	Advisor to AD Data Management - French Data Facility
Fabio Hernandez	CC-IN2P3	Rubin Operations	Rubin Inter-data facility Data Replication	Convener
Emille Ishida	LPC	Rubin	Fink	Co-lead
Claire Juramy	LPNHE	DESC	SAWG	Co-convener
François Lanusse	AIM/INSU	DESC	Collaboration Council	Member
Simona Mei	APC	Galaxy SC		Coordinator
Simona Mei	APC	Rubin	SAC	Member
Julien Peloton	IJCLab	DESC	Collaboration Council	Member
Julien Peloton	IJCLab	Rubin	Fink	Co-lead
Vincent Poireau	IN2P3	DESC	International Resource Committee	Member
Benjamin Racine	CPPM	DESC	DIA topical team	Co-lead
Marina Ricci	APC	DESC	Collaboration Council	Co-chair
Marina Ricci	APC	DESC	EDI Comittee	Ex-officio Member
Cécile Roucelle	APC	DESC		Ombud
Bruno Sanchez	CPPM	DESC	Time Domain	Co-convener
Gaëlle Shiffrin	CC-IN2P3	DESC	EDI Comittee	Observing Member

Rubin LSST France organigram



Ajustments to come

- G. Shiffrin-Sutter
- end of HSC/SSP, add LS4
- New WL/LSS axis
- Scientific Coordinator C. Doux → B. Racine
- Coordination “On-sky commissioning and early science” (?)
- Point of Contact for the Centre Pierre Binétruy

Rubin/LSST - Euclid synergies



- Discussion Rubin/Euclid à la réunion LSST France de printemps au CPPM
 - présentation premiers résultats Euclid R. Gavazzi
 - discussion ouverte sur les projets de chacun.e et les synergies possibles
- Workshop Rubin/Euclid DDP en décembre 2024 au CC-IN2P3
 - organisation jointe Rubin/Euclid France
 - fortement dirigée par C. Doux
 - focalisé sur les Derived Data Products (DDP)
 - partager l'information, favoriser les collaborations
 - identifier les besoins en organisation et en calcul
 - préparer des demandes spécifiques le cas échéant (GdR, IN2P3, CNES, ANR...)

10:00	Rubin-Euclid DDPs <i>Salle 202, CCIN2P3</i>	<i>Eric Jullo</i> 10:00 - 10:30
	Flash talks from DDP members <i>Salle 202, CCIN2P3</i>	10:30 - 10:45
	Probabilistic characterization of blending in Rubin/LSST: application to cluster lensing cosmology <i>Salle 202, CCIN2P3</i>	<i>Manon Ramel</i> 10:45 - 11:00
11:00	Joint Rubin/Euclid image deconvolution <i>Salle 202, CCIN2P3</i>	<i>Jean-Luc Starck</i> 11:00 - 11:15
	Euclid and Rubin Cluster and protocluster detection and cosmology <i>Salle 202, CCIN2P3</i>	<i>Simona Mei</i> 11:15 - 11:30
	Plenary discussions: Data processing: Rubin vs Euclid	
12:00	<i>Salle 202, CCIN2P3</i>	11:30 - 12:30
	Lunch	
13:00	<i>Salle 202, CCIN2P3</i>	12:30 - 13:45
	Parallel discussions: Science cases break-out discussions	
14:00	<i>Salle 202, CCIN2P3</i>	13:45 - 14:30
	Plenary discussions: 1-slide reports from science discussions <i>Salle 202, CCIN2P3</i>	14:30 - 14:45
	Status and current plans for Euclid and Rubin data hosting and processing at CC-IN2P3 <i>Salle 202, CCIN2P3</i>	<i>Quentin Le Bouc'h</i> 14:45 - 15:05
15:00		
	Plenary discussions: Timeline and funding	
	<i>Salle 202, CCIN2P3</i>	15:30 - 16:00

Centre Pierre Binétruy - Berkeley



- **International Research Laboratory based in Berkeley (R. Pain is the new director)**
 - unique IRL near San Francisco
 - Simona Mei appointed contact person for Rubin-LSST (Novembre 2024)
- **Goals**
 - help researchers, postdocs and students to establish and run strong collaborations
 - in particular for long duration stays for DESC collaborations
- **Ideas**
 - [inform the collaboration \(this slide!\)](#)
 - propose financial support on the LSST France budget
 - ...

Publications and PhDs!

- Publications *peer-reviewed* : 14 (dont 9 avec corresp. author IN2P3)
- Publications dans proceedings : 7 (dont 7 avec premier auteur IN2P3)
- Présentations conférences scientifiques par chercheur IN2P3 : 35
- Soutenances de thèse : 8

1. **Roman Le Montagner**, L'Univers transitoire de haute énergie à l'ère des grands relevés optiques du ciel, J. Peloton & N. Leroy, IJCLab, 30/09/2024
2. **Etienne Russeil**, Feature engineering and machine learning for 21st century astronomy , E. Ishida & E. Gangler, LPC, 18/10/2024
3. **Biswajit Biswas**, Designing Novel Machine Learning Techniques to Address the Volume and Complexity of the Rubin LSST Data: Separation of Blended Galaxies and Transients Classification in Alert Streams, C. Roucelle & E Aubourg, APC, 26/09/2024
4. **Justine Zeghal**, Neural compression and neural density estimation for cosmological inference, A Boucaud, F Lanusse, E Aubourg, APC, 30/09/2024
5. Enya Van den Abeele, Cosmologie de précision avec LSST : Développement d'un estimateur non biaisé du cisaillement gravitationnel mesuré sur des galaxies, P. Astier, LPNHE, 12/09/2024
6. **Thierry Souverin**, StarDICE : Calibration au pour mil d'une nouvelle génération de télescopes pour la mesure de l'énergie noire, P. Antilogus, LPNHE, ?
7. **Kirill Grishin** : "Les premières époques de la formation des structures", S. Mei, APC, 12/09/2024
8. **Kélian Sommer** : "Photométrie de haute précision pour les grands relevés cosmologiques ZTF et LSST : caractérisation des transmissions instrumentales et atmosphériques.", E. Nuss, B. Plez, LUPM, 10/2024

Thank
You!



Not covered here...

- EDIM - next talk
- AuxTel - parallel
- StarDICE - not this time
- Computing - next talk