

Data treatment at the François Arago Center (FACe)

Cécile Cavet

APC Scientific Board - 20/11/2017



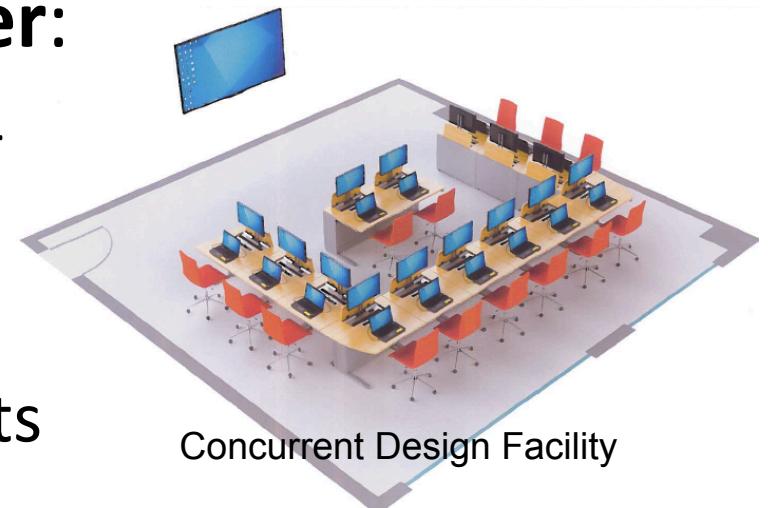


FACe

2136548032	110375	2135448002	1417980131	1921045781
48715464531	657057862	221546021	108622086321	40242262513
233172	379	198	648	369
121546021	008	000	000	000
6546921	1457980132	045	412547980	
1334754	611	548	640	1065781
1714754	721	672	640	1065781
1846457980051	795	478	052	741
07541	116	057	000	000
0314	066	570	9512451653	24046124592
344395051	000	000	42215460	101862

François Arago Centre

- **Data analysis center for space missions:**
 - APC platform since 2010.
 - Location: Biopark but moving to Condorcet and IPGP in 2018.
- **Expertise and resource center:**
 - Offices, meeting rooms, video-conference rooms, computing room, CDF.
 - Staff: IT service + space projects



Concurrent Design Facility



FACE's core team



- Project scientist: Cécile Cavet.
- Project manager: Michèle Detournay.

Name	Position	Other projects
Cécile CAVET	IR	Euclid, LISA, ComputeOps
Michèle DETOURNAY	IR	Euclid, CTA
Martin SOUCHAL	IE P7	Euclid, LISA, ComputeOps, ASR
Sébastien ZAPPINO	AI P7	Euclid, ASR
Delphine LEYRIT	BIATOSS P7	Service administratif
Ludovic DAVILA	TCN	Service administratif



Skills

47554610375	217654892	041	145790131	21400232031
2347	21141	359	259	458
65489200	143757000	050	412542	10000000000
1234567890	143757000	045	412542	10000000000
7548	40200	715	531	578
58956	219131021	147	366	821
0314	71146151	006	579	42213460
				10382

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- Interface with the CC-IN2P3.
- IT:
 - Data analysis.
 - Collaborative platforms.
 - Distributed computing: cluster, cloud/container, Big Data.
- Training, skill transfer:
 - WS time series in June and December 2016.
 - ...

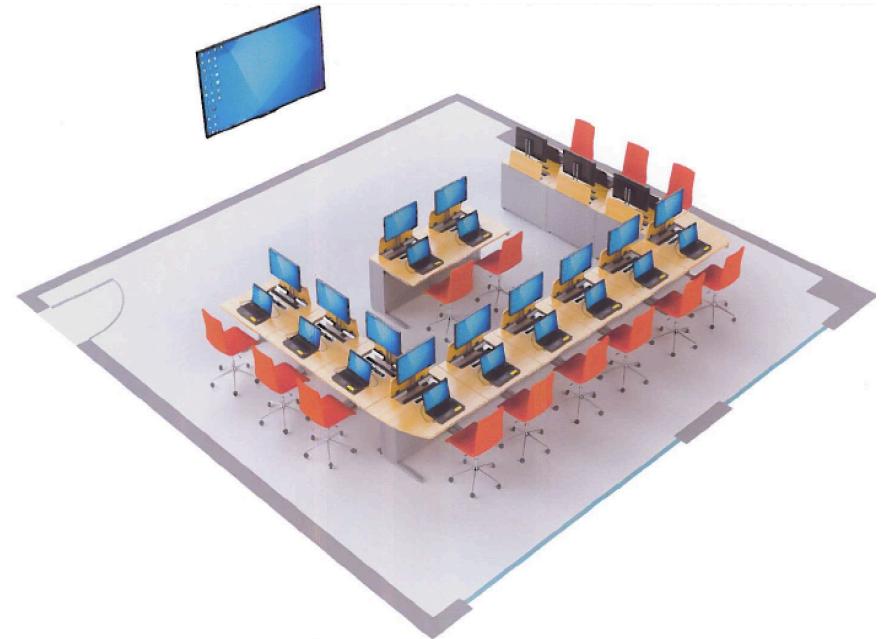
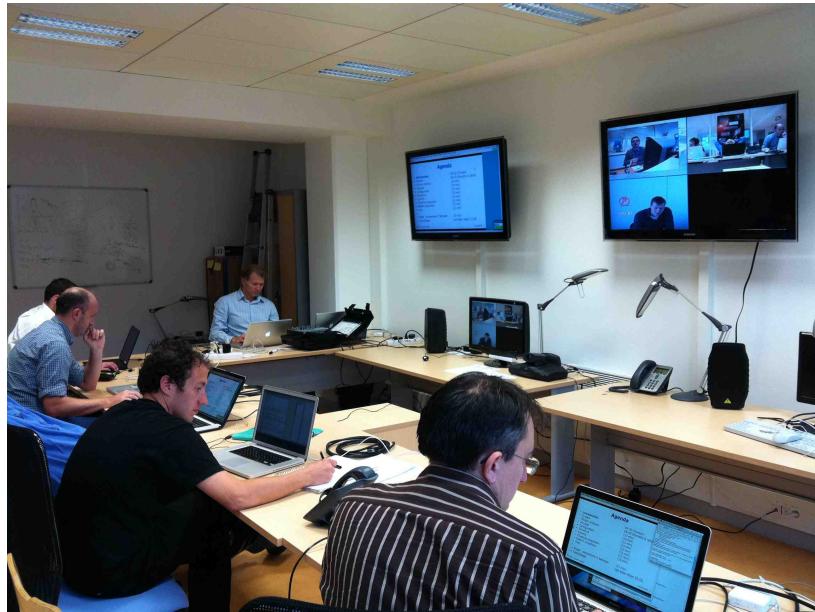




Concurrent Design Facility

François Arago Centre

- Since 2011.
 - Coordination and collaboration with CNES, ESA, NASA, and other major international partners.
 - Network of computers, multimedia tools and software.
 - LISA-Pathfinder data challenges, LISA-PF analysis and LISA re-definition.



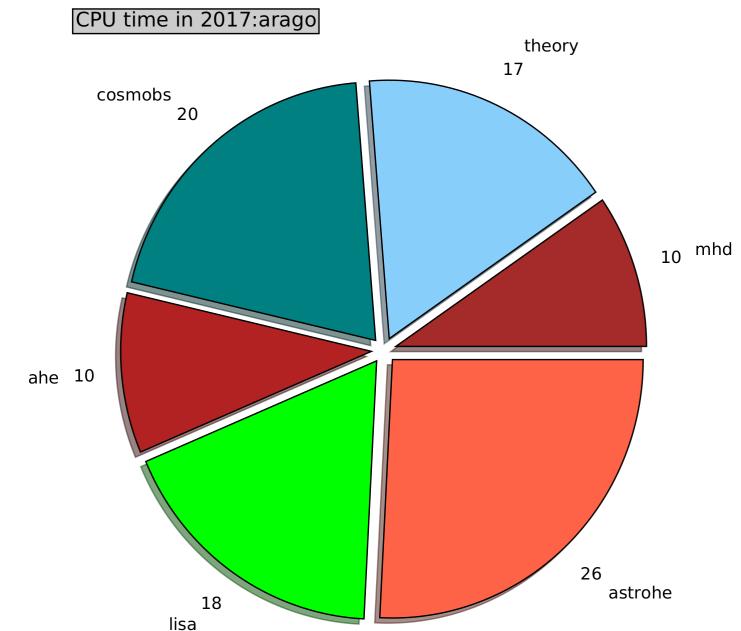


APC cluster

4755440375	2136544892	1457980311
2347	369	458
6548920357	1457980311	4125457
4754	661	548
8457	795	478
0734	116	057
0734	066	576

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- **Parallel computing cluster:**
 - Since 2012.
 - Resources:
 - 28 nodes, 620 cores.
 - Storage: 80 TB.
 - Users:
 - *AHE, LISA/LISAPathfinder, simulation...*
 - Importante upgrade in 2018: DANTE project.

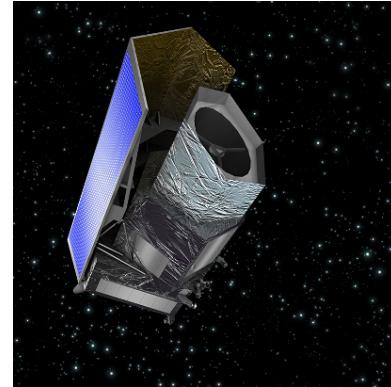
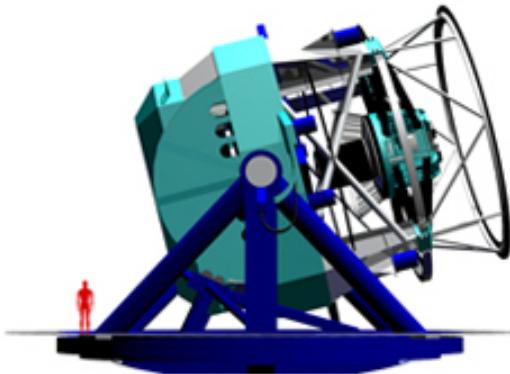
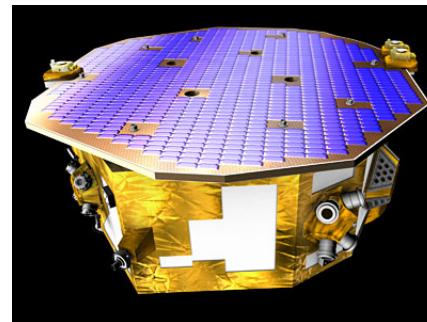




Scientific and technical projects

2136548932	110375	2135454002	1457980131	1921045791
42715464531	657057862	221546021	108622086321	
23317	375	645	369	140241252813
12451	100	100	100	100
6546921	006	006	006	412547980
12135	1457980131	1457980131	1457980131	1457980131
133	611	540	640	1065781
171	721	571	640	1065781
184	785	478	652	741
185	330	330	000	1000411
124	116	057	000	9512451653
0314	006	570	42215460	101862
344	000	000	000	1228122813

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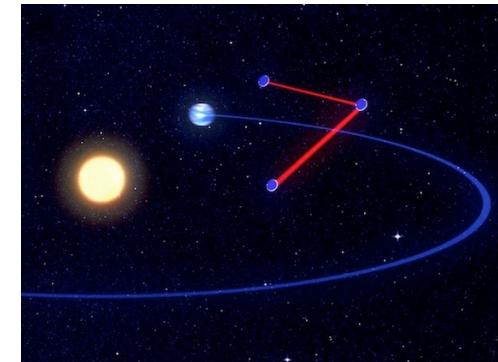
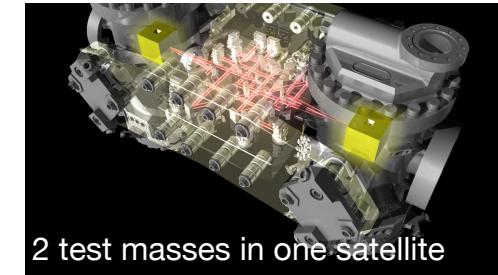
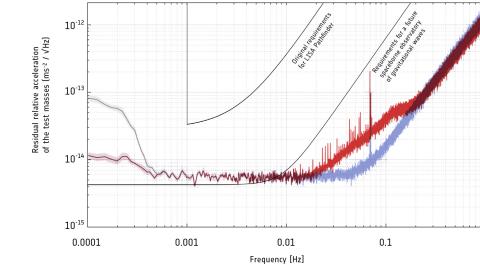


Scientific projects

2136544852	110375	2135545802	1457790131	1921045791
48715464531	657057862	221546021	108622086321	10241252613
23312	379	198	648	369
12134	1008	707	31985	412547980
6546921	1457980132	045	19810198541	10241252613
13754	611	548	640	1065781
7271	388	388	640	1065781
8457989851	795	478	052	741
07541	116	057	000	9512451653
03141	066	570	42215460	101862
3443951	000	000	000	000

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- **LISA Pathfinder:** 2015 – 2017
 - Success.
 - Complementary Data Centre: CDF.
 - Data analysis: APC cluster.
- **LISA:** 2034
 - Proto-Data Processing Center (DPC):
 - Hybrid cluster/cloud infrastructure study with CNES.
 - Continuous integration platform.
 - LDC: Web site for sharing simulation data.
 - DPC: phase A will start in 2018.



=> **The FACe will host and provide support to the LISA's DPC.**



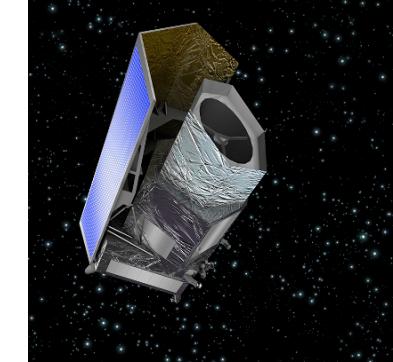
Scientific projects

2136344832	110375	2135540802	1457980131	1921045791
48715464531	657057862	221546021	108622086321	
23312	375	645	369	12412525183
121354	1008	1008	1008	1008
6546921	1457980132	045	4125479890	
121354	611	640	1065781	798 13
134754	721	748	748	748 0227
134754	795	478	052	741 29
6457980851	336	336	336	336 0841
1240754	116	057	000	9512451653 046124592
03141	006	570	42215460	101862
3407980851	000	000	000	000 0228

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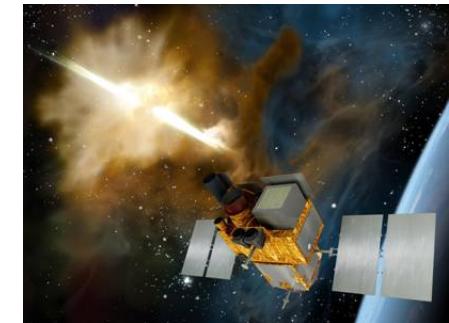
- **Euclid:** 2020

- CODEEN continuous integration platform: migration on cloud@CC-IN2P3 at the end of 2017.
- External data simulation:
 - ground-based telescopes (DES, KiDS)
 - LSST => agreement between LSST/Euclid for common analysis in 2018.



- **SVOM:** 2020

- Data analysis of the French Science Center (FSC): Eclairs pipeline development.



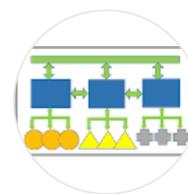
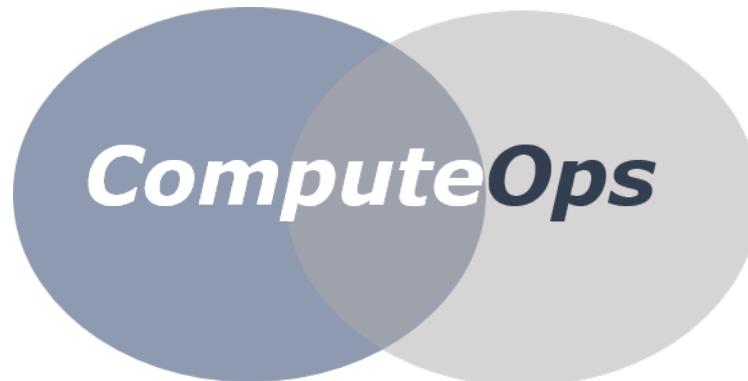


Technical projects

4	7554610273	2137054892	14579831
2347	359	289	458
6552	100	100	369
65520	1457982	045	61024
4714	651	543	548
8457	795	478	052
0754	056	057	241
	006	006	14802

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- **LabEx UnivEarthS**: cloud processing, visualisation, data distribution.
 - Since 2012.
 - Strong link with GRIF, FG-cloud...
 - **ComputeOps**: study on containers for HPC.
 - IN2P3 project proposal.
 - Members: **APC, LPNHE, LLR** and other IN2P3.



CodeursIntensifs



DANTE project



- **MULTI DATA ANALYSIS AND COMPUTING ENVIRONMENT FOR SCIENCE**
 - In 2018.
 - A scientific instrument.
 - A center of innovative and multidisciplinary expertise.
- Joint efforts of APC/IPGP:
 - UnivEarthS LabEx , Space Campus, USPC CoMue.
 - CIRRUS plateform.
 - Linked with the P2IDS.
- Upgrade of APC cluster:
 - HPC cluster: infiniband network connection.





Conclusion and perspective

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- APC platform which provides expertise and resources.
- Projects: Euclid-CODEEN, LISA-DPC, SVOM-FSC => multi-project skills
 - Data analysis.
 - Continuous integration platforms.
 - Distributed computing: CC-IN2P3, cluster, cloud.



Conclusion and perspective

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2136548932	110375	2135548802	1417980131	1921045781
48715464531	657057862	221546021	108622086321	
123142	379	198	648	369
233142	379	198	648	369
123142	379	198	648	369
6546921	008	008	045	4125479890
123142	1457980132	1457980132	045	4125479890
134	611	540	640	1065781
4754	611	540	640	1065781
123142	721	540	640	1065781
8457980891	795	478	052	741
123142	795	478	052	741
07541	116	057	000	046124592
03141	066	570	42215460	101862
340142	000	000	000	000

- **Moving out of the FAcE => have to handle all the parameters.**
 - DANTE:
 - Parallel cluster resources.
 - Multi-disciplinary entry point.
 - FAcE will host the LISA's DPC:
 - Strong constraint until ~2040.

Questions ?





Annexe

2136548032	110375	2135648082	1417980131	1921045781
031		6570578682	2215460221	108622086321
48715464531				1402412625183
145145464531				
233142		375	198	648
121342		375	198	648
6546921		008	008	412547980
121342		1457980132	045	1921045781
131	4754	611	548	648
171	4754	611	548	648
184	645798088151	795	478	052
185	645798088151	795	478	052
124	07541	116	057	008
0314	07541	116	057	008
340	07541	008	008	008
340	07541	008	008	008

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