LRIO

Shaping light

one ray at a time

Success Story and Lessons Learned

NTCO AGM

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- Two CREATE grants:
  - NTCO (national)
  - SMAART (local)

    Stratégie de Mesure Autonome, Agile, Robuste et Transdisciplinaire

- HiCIBaS (balloon flight in 2018 and 2023)

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Comparison

NTCO (national)

More complex:

- Solid organisation
- Regular meetings (more formal)
- AGM (try to move in different location
- Travel cost to be taken into account
- Paper work (fund transfers)

SMAART (local)

Simple organisation

- Easy to meet, same time zone
- Informal meetings
- ‘Corridor’ approbations
- Limited overhead (administrative)

Comparison

NTCO (national)

- Students across the country (can meet, make contacts…)

SMAART (local)

- Activities can be offered to all students as they are on site.

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- HiCIBaS (balloon flight in 2018 and 2023)

HiCIBaS: Stringent and result-oriented training requirements at the heart of research funding opportunities: the case of the CSA FAST program and the HiCIBaS project

Simon Thibault, Guillaume Allain, Olivier Côté, Mireille Ouellet, Deven Patel, Cédric Vallée, Denis Brousseau, Anne-Sophie Poulin-Girard

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- CSA-FAST Funding initiative + NTCO

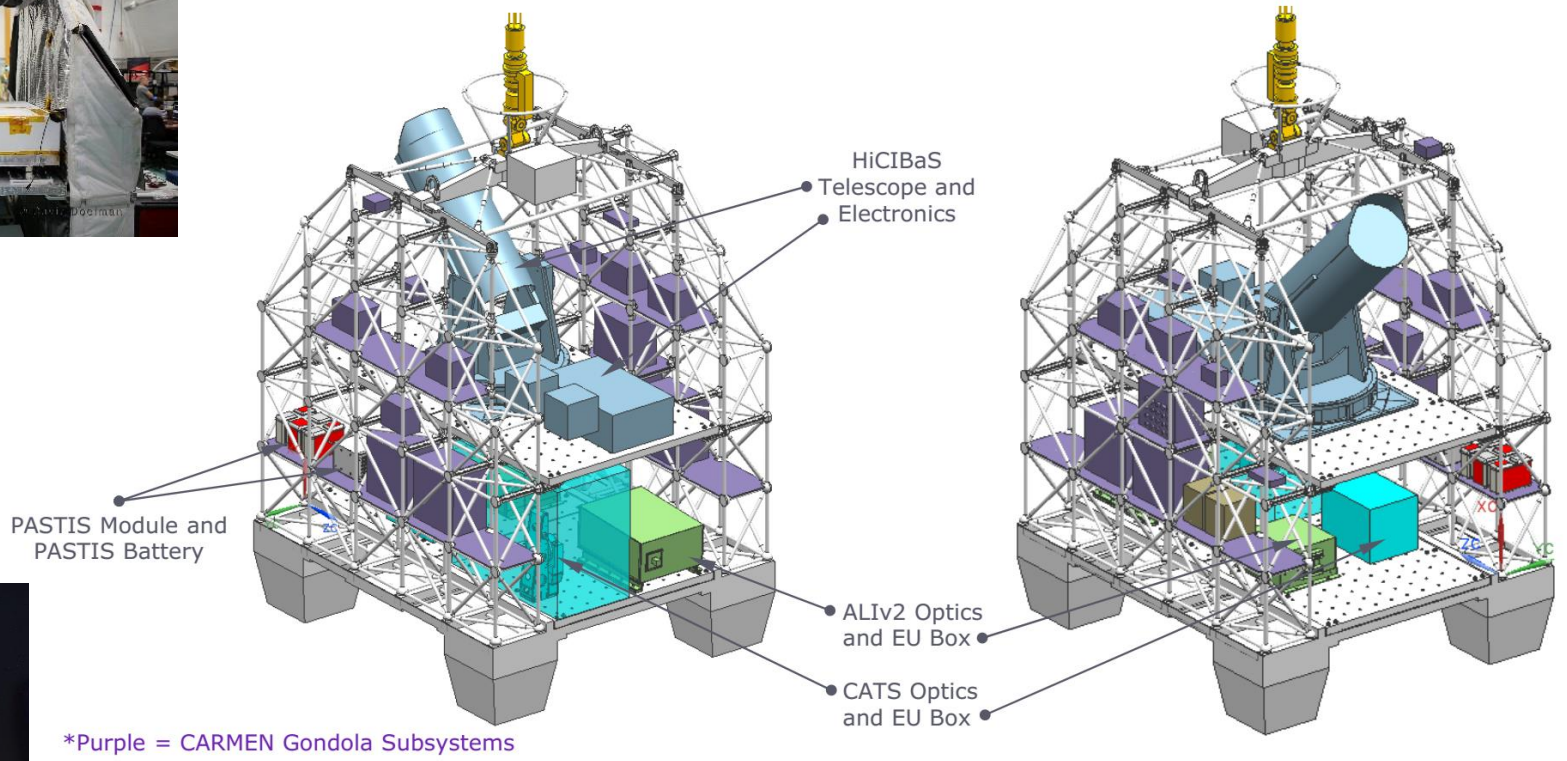
- HiCIBaS Project: one night on a balloon
  - An industrial and international collaboration for the benefits of trainees
- Training plan and outcomes
  - Acquiring new skills for the next step

- An opportunity to reach out to family, friends, and more

HiCIBaS Project: one night on a balloon

Name	**High-Contrast Imaging Balloon System (HiCIBaS)**		
Organism	Université Laval (ABB / NÜVÜ / NRC / Leiden / JPL / SETI)		
Type	Astronomy		
Description	1) Develop and test a new type of Low-Order WaveFront Sensor (LOWFS) 2) Develop and test a generic precision pointing telescope system that can be used in future missions requiring sub-milli-arcsecond level pointing (e.g. high contrast imaging missions). 3) Measure and gather data on the wavefront instabilities and errors encountered at 40 km of altitude in the visible region of the spectrum 4) Flight in space-like condition the LOWFS including a Nuvu EMCCD camera. 5) Test optical components (DM, Coronograph) for future high contrast imaging missions		
Funding	CSA FAST		
Components	Telescope et electronics box	1.6m [L] x 0.6m [l] x 1.5m [H]	225 Kg
Phase	Night Flight	Duration	4 hrs min
Profil	Constant Ceiling		

HiCIBaS Project: one night on a balloon



HiCIBaS Project: one night on a balloon

Not only did the mission allow to test instruments in space-like conditions, but it also **provided fruitful interaction between trainees and industry professionals.**

HiCIBaS has also presented an **opportunity for international collaborations** with universities and organizations.

The most significant is with the Netherlands (Universiteit Leiden, University of Groningen and SRON-Netherlands Institute for Space Research), **Dutch and Canadian students had the opportunity to visit the other institution's facilities for internships.**

Three Dutch students and a researcher also joined the Canadian team on the base before the launch, which was an opportunity for these students to get hands-on experience and to witness the launch of the project.

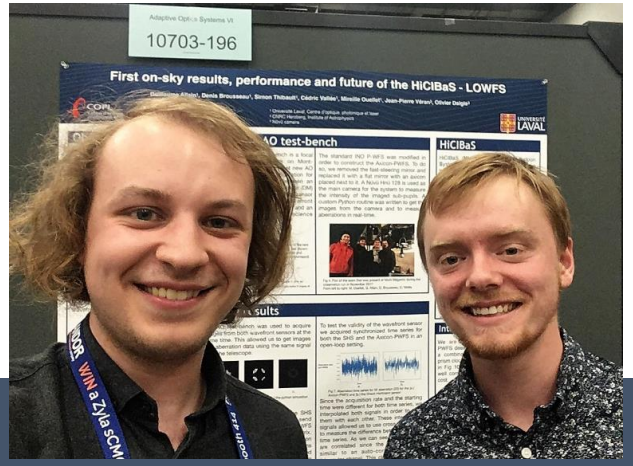
Training plan and outcomes: Acquiring new skills

From the proposal:

Professional skills	PhD1	MSc1	MSc2	MSc3	MSc4	UG1	UG2	UG3	UG4
Project management (resourcing, scheduling, compliance with budgets)	X	X	X	X	X	X	X	X	X
Industrial design	X					X	X	X	
Mechanical, optical or electrical engineering systems	X	X	X	X		X	X	X	
Payload assembly, integration, testing and operation	X			X	X			X	X
Software development		X		X	X				X
Data analysis	X			X	X				X
Interpersonal communication and leadership	X	X	X	X	X	X	X	X	X
Problem solving	X	X	X	X	X				

HiCIBaS


Photos du journal
Joyeux temps des fêtes !
Happy Holidays !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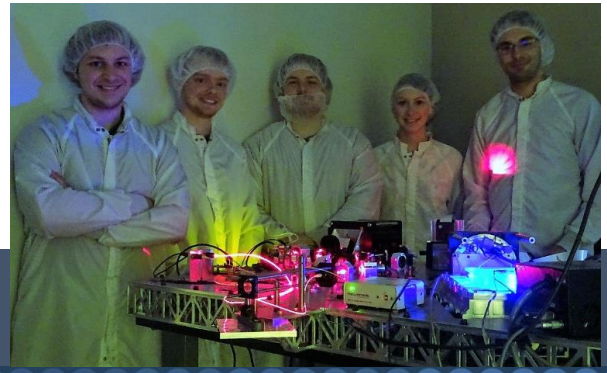
First on-sky results, performance and future of the HiCIBaS - LOWFS
HiCIBaS



QUESTIONS?