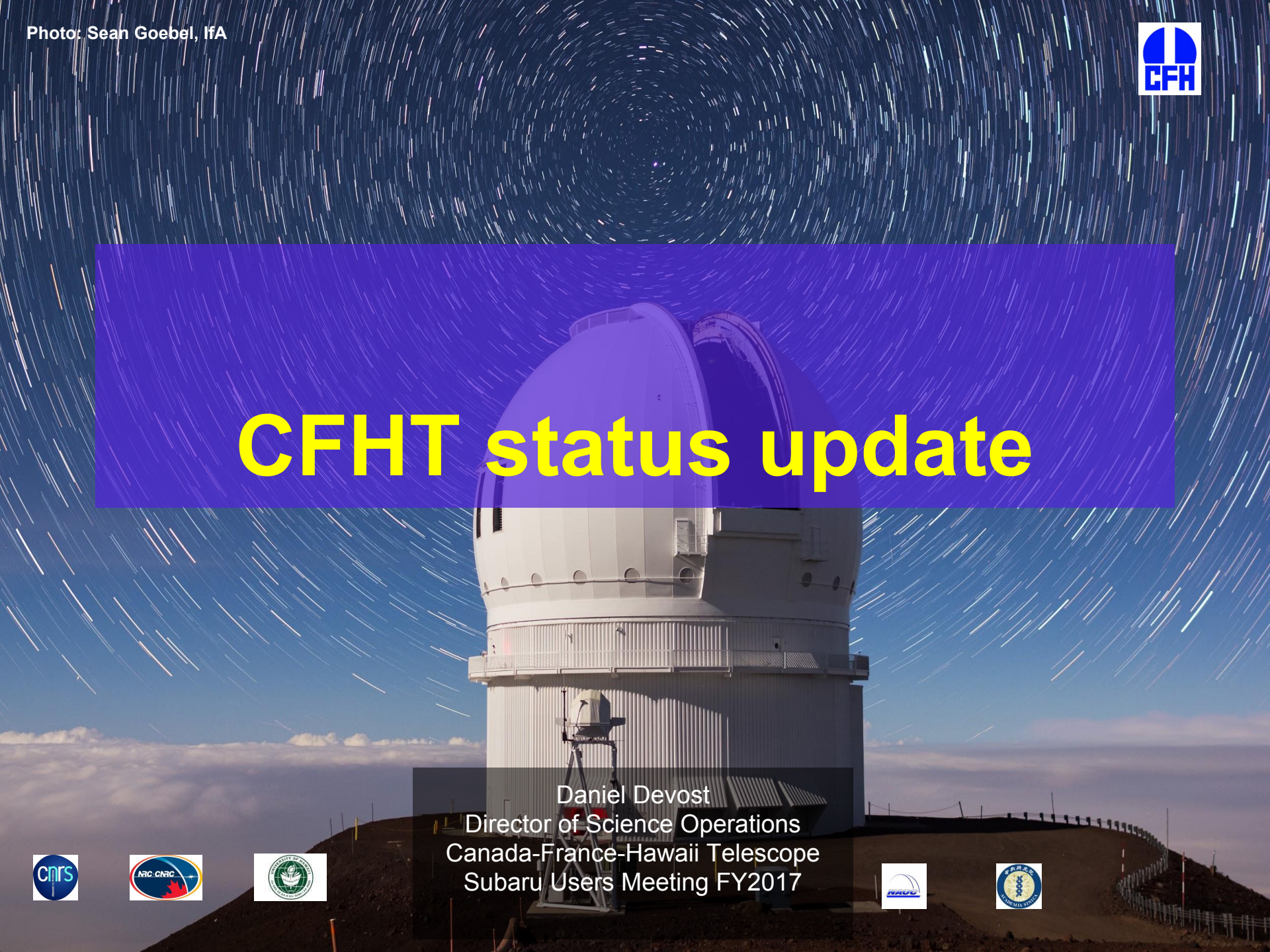

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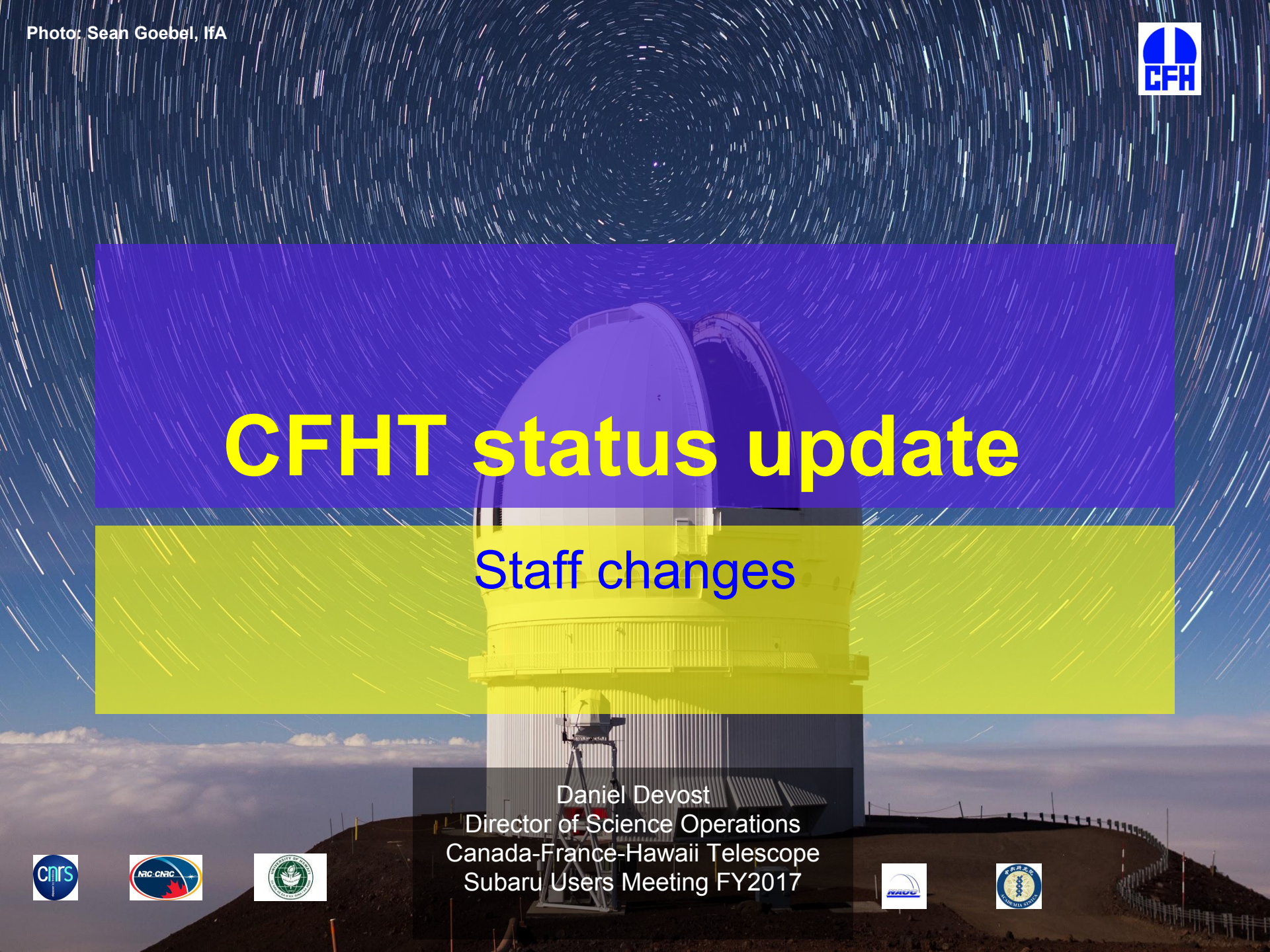

CFHT status update

Staff changes

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Photo: Sean Goebel, IfA

CFHT status update

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Director of Science Operations
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CFHT status update

Current instrumentation
Partner status
Publications
Science Highlights
Development update

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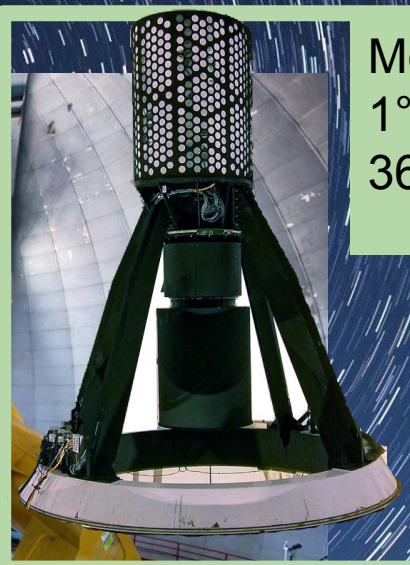
Current instrumentation

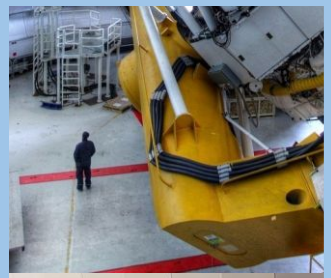
Photo: Sean Goebel, IfA

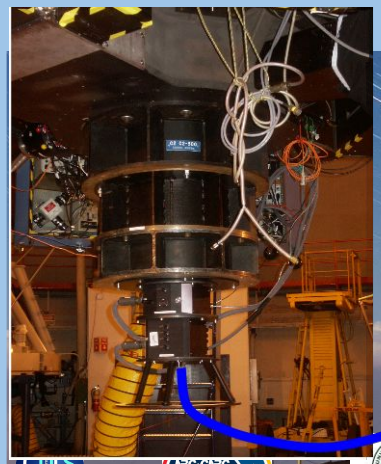
WIRCam
20'x20' NIR imager
128 Mpix

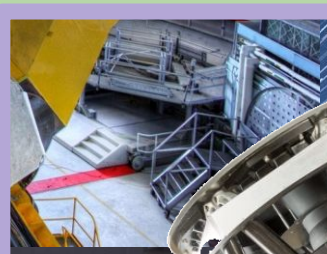


MegaCam
1° x 1° optical imager
360 Mpix

ESPaDOnS
High resolution (65-80k)
fiber fed
spectropolarimeter







SITELLE
11'x11' Imaging
3D FTS.

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Canada-France Hawaii T
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Current instrumentation

Photo: Sean Goebel, IfA

WIRCam
20'x20' NIR imager
128 Mpix

MegaCam
1° x 1° optical imager
360 Mpix

- MegaCam readout time was improved by about 7s.
- A timing system was added June 2017 to record the absolute times when the shutter opens and closes during an exposure. The system is synchronized to NTP with an absolute accuracy of 10 msec.
- ESPaDOnS two amps mode is now the default.
- SNRQSO is now the default mode for MegaCam and ESPaDOnS.

ES
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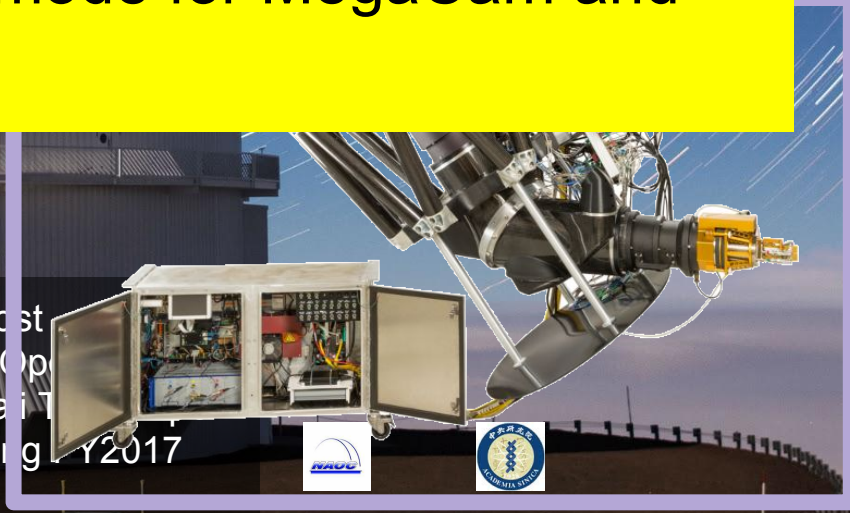

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GRACES

A unique instrument involving two Observatories on Maunakea.

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Photo: Sean Goebel, IfA

GRACES access time

Director of Science Operations
Canada-France-Hawaii Telescope
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Partner status

ASIAA
NAOC
LNA

Daniel Devost
Director of Science Operations
Canada-France-Hawaii Telescope
Subaru Users Meeting FY2017

Photo: Sean Goebel, IfA

-Associate partner since 2001- Oldest CFHT associate partner with access to up to 20 nights per year.
-MOU valid until 2019.
-Participated in the development of WIRCam and are now developing the guide camera and systems for SPIRou

-Can request up to 30 nights per year.
-MOU valid until 2018. The TAP money has run out and they are funding the program through NAOC. Other sources of financing are being sought.
-One of the MSE partners providing in kind contributions.

-MOU is expired and the status is still uncertain. They are still interested in getting time from CFHT.
-The MOU was revised and send to LNA in May.
-LNA participates in the fiber development with SPIRou.

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Publications

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Photo: Sean Goebel, IfA

Yearly number of publications.

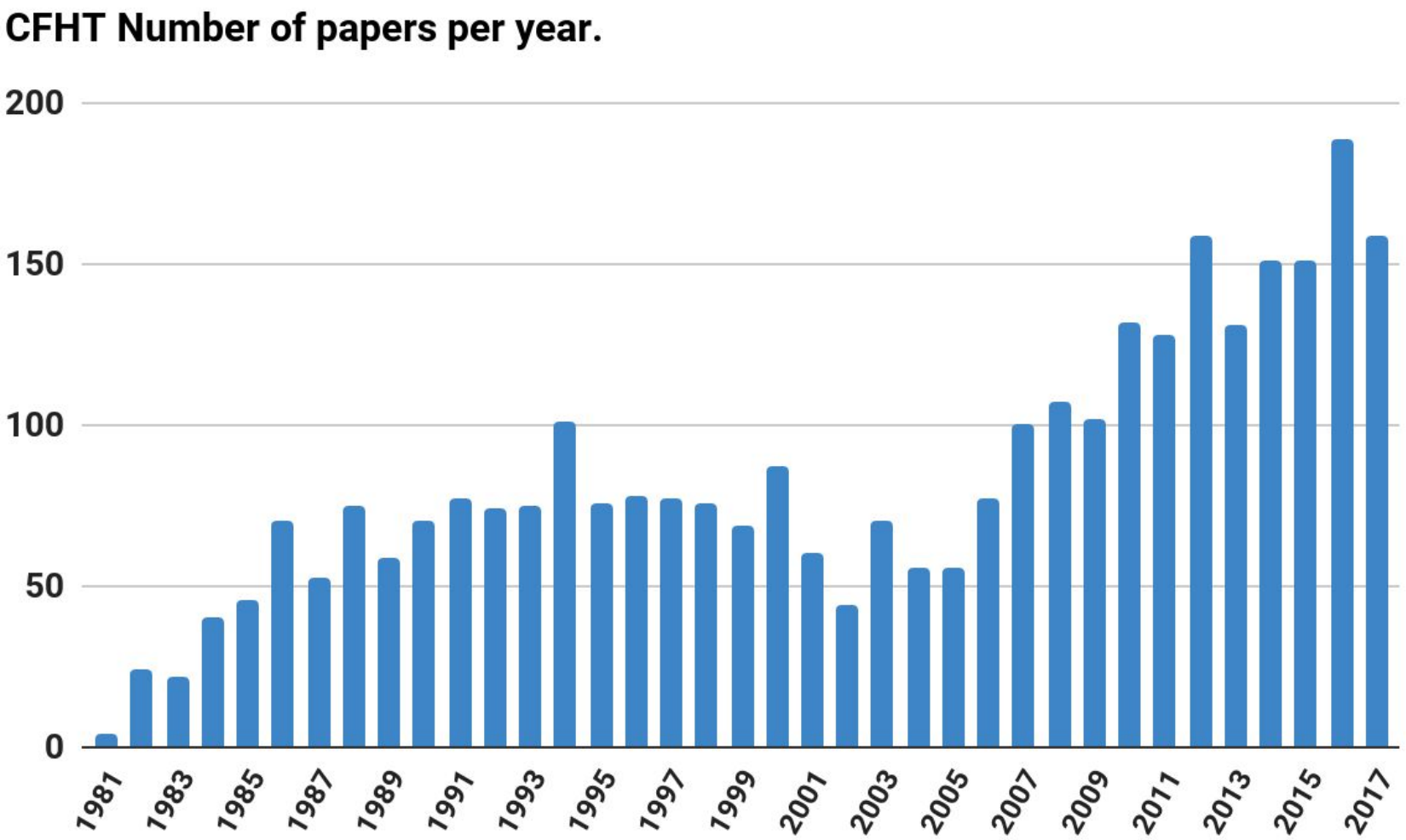
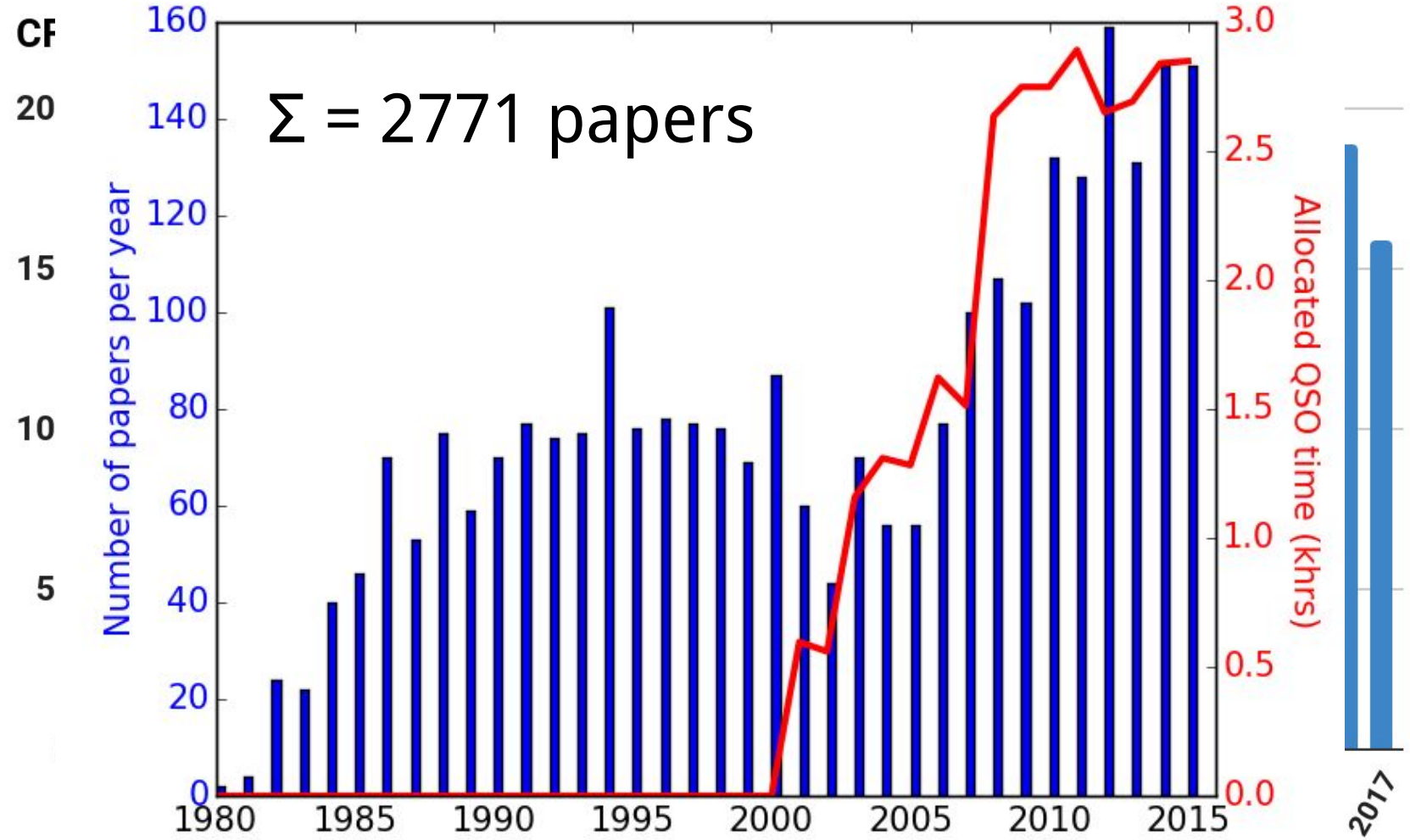


Photo: Sean Goebel, IfA

Yearly number of publications.



Science highlights

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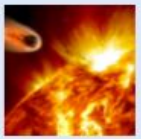

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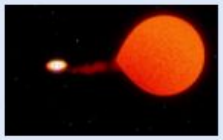

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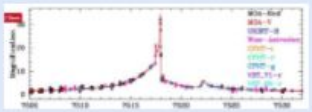

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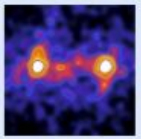

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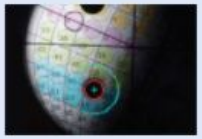

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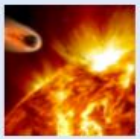

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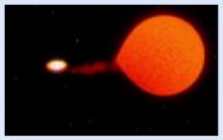

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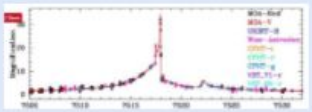

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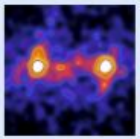

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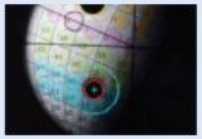

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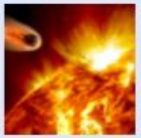

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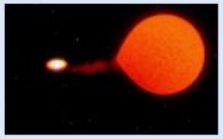

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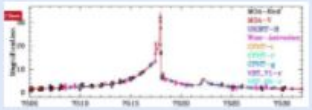

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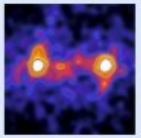

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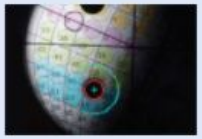

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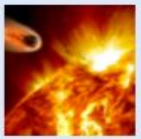

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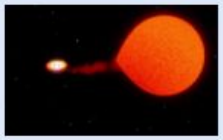

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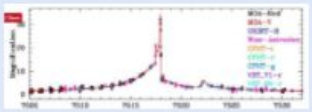

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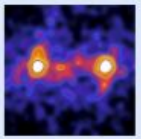

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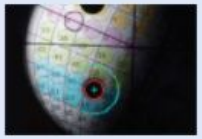

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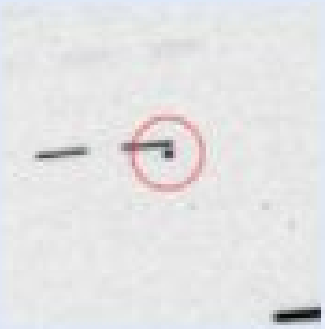

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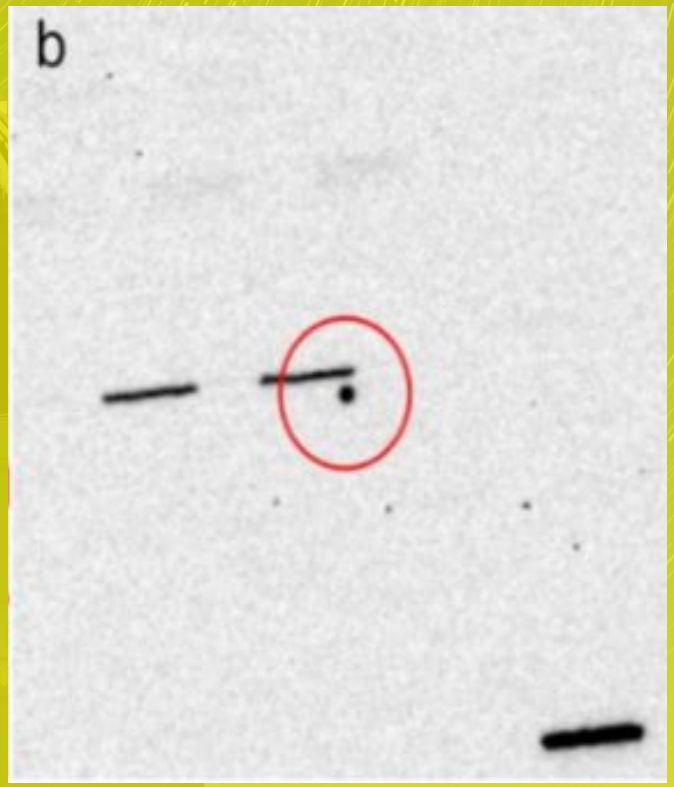
‘Oumuamua

Follow-up observations using CFHT on October 22nd allowed the first calculation of the eccentricity of the object and a first estimation of its color.



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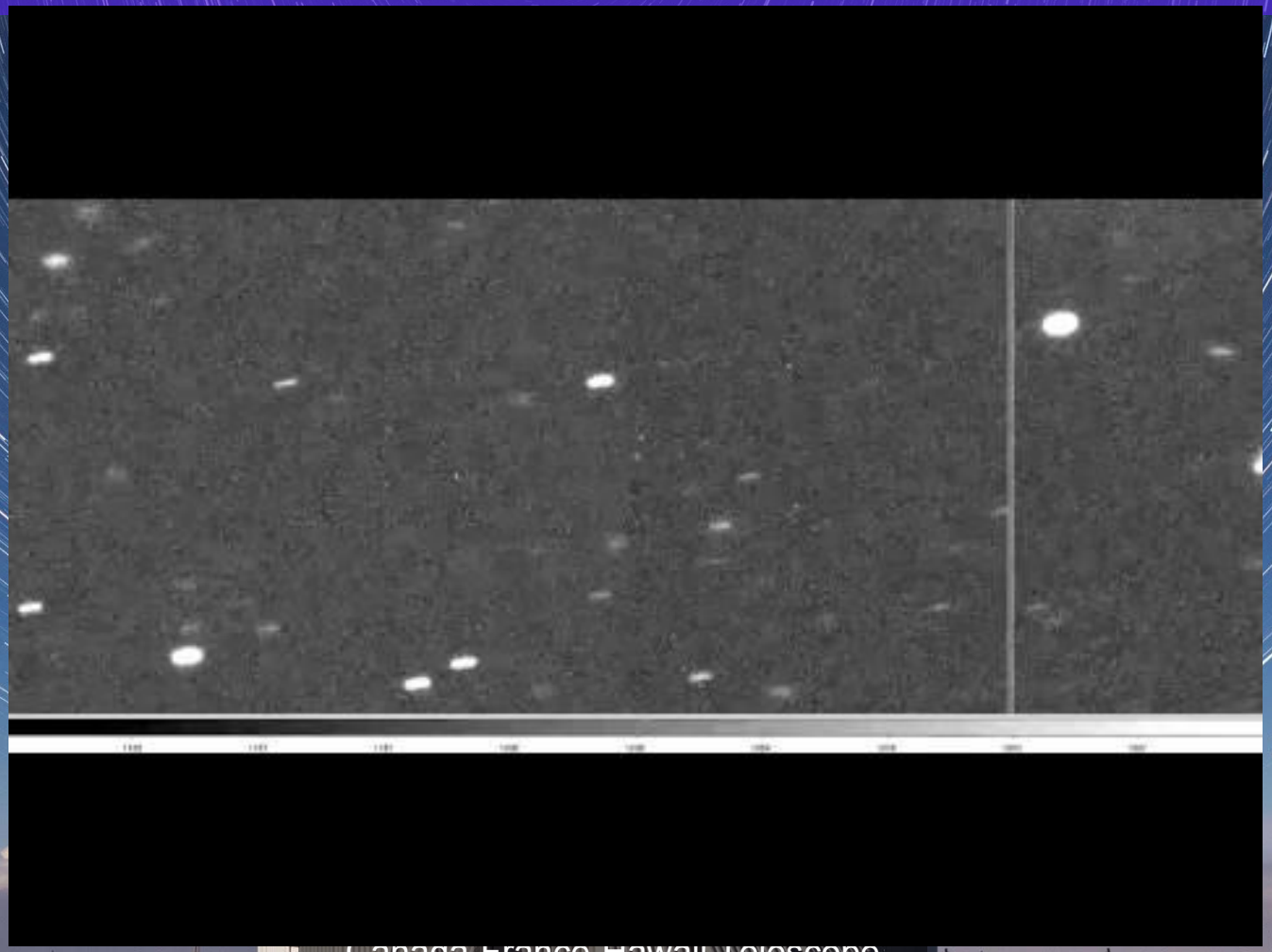
‘Oumuamua

Movie by R. Wainscoat.



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Dynamical masses of Ultra Cool Dwarfs

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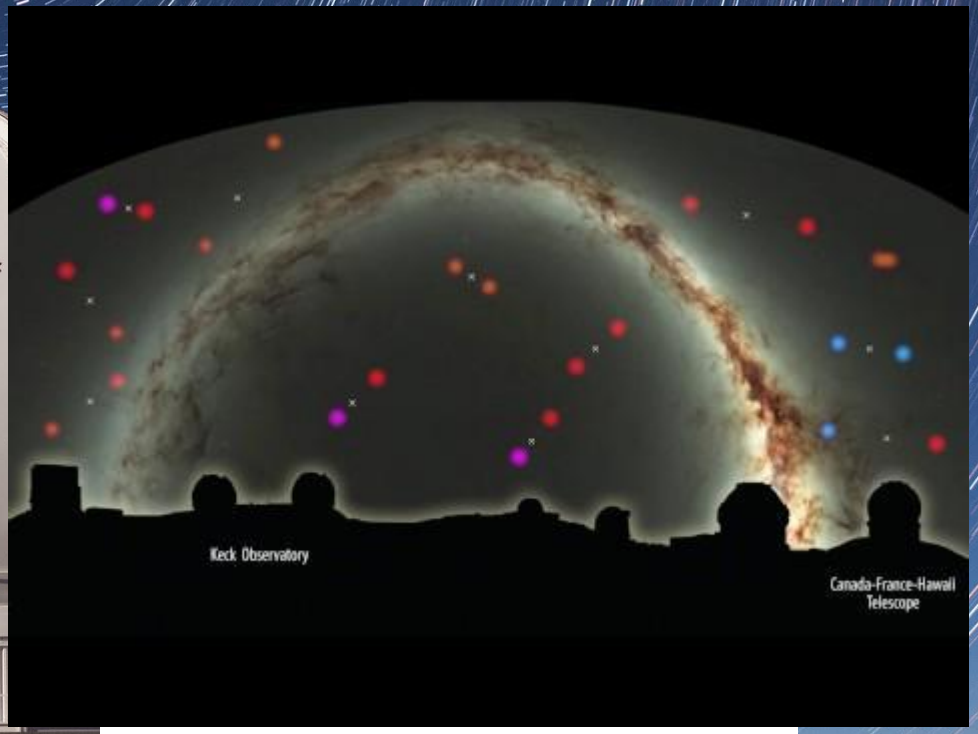
Dynamical masses of Ultra Cool Dwarfs

- A decade long program of astrometric monitoring of Ultracool M7-T5 dwarfs with CFHT WIRCam, W.M. Keck Observatory and HST.
- Measured 38 precise individual masses spanning 30–115 M_{Jup}.
- They determine a substellar boundary that is ≈70 M_{Jup} in mass (≈L4 in spectral type).



Dupuy & Liu, 2017, APJS, in press.

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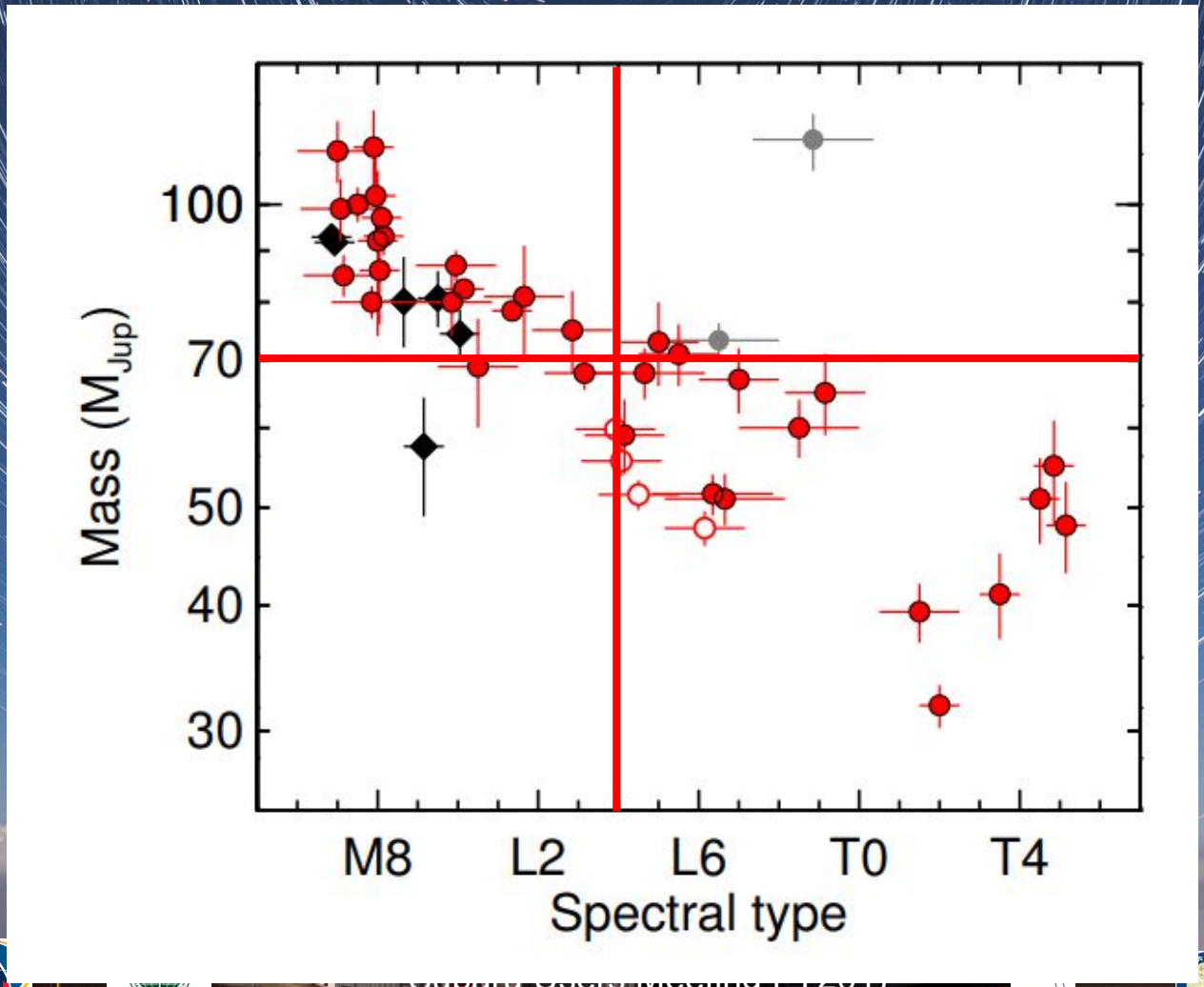

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Meridional winds on Venus.

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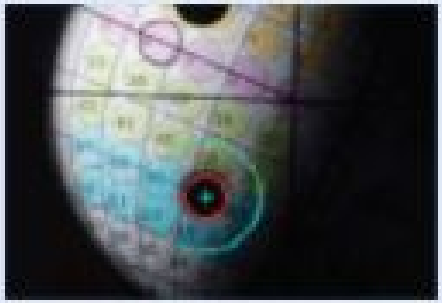
Meridional wind on Venus detected for the first time in both hemispheres



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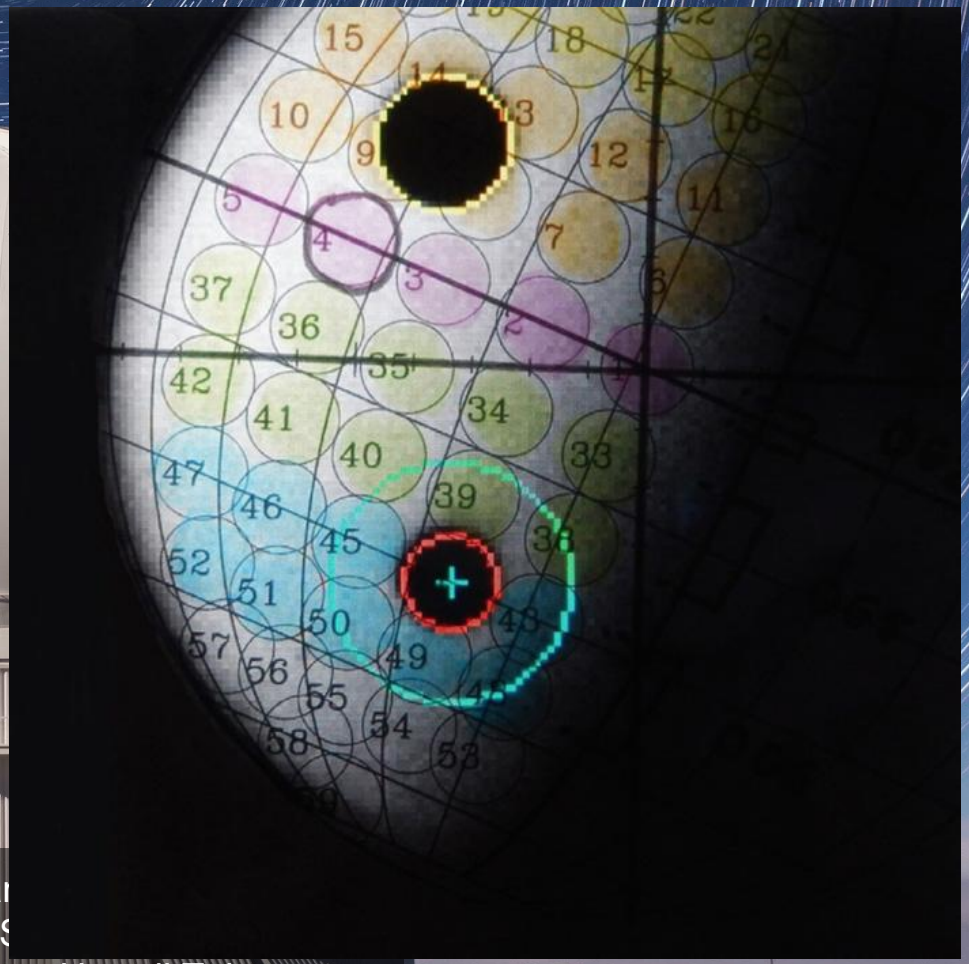
Meridional winds on Venus.

First measurement of the Meridional winds on both hemisphere of Venus.

Measurements of the Solar light Doppler shift were made in 2014 during **day time** observing at CFHT.



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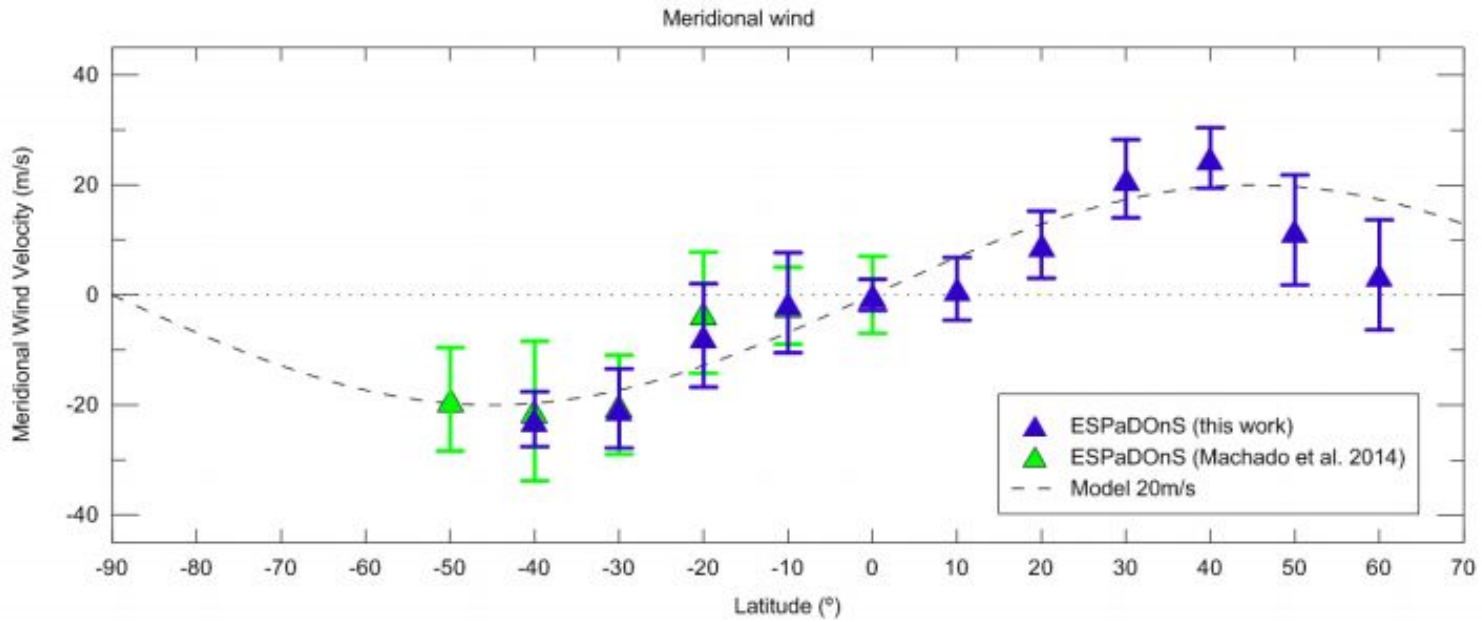

Measurements of the Meridional winds of Venus across both hemispheres using ESPaDOnS. This is the first evidence of circulation between the equator and the poles of Venus. Plot from Machado, P., et al, EPSC2017-472, 2017.

Development

SPIRou
MSE

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SPIRou

France

IPAG
Aix Marseille université
Université Joseph Fourier GRENOBLE
iAP
île de France Demain s'invente ici
Institut Pythéas Observatoire des Sciences de l'Univers Aix Marseille Université
LAM Laboratoire d'Astrophysique de Marseille
OHP
Observatoire Midi-Pyrénées
l'Observatoire de Paris
irap astrophysique & planétologie
OSUG
Université Toulouse III Paul Sabatier
cnrs

Brazil

UFRN Universidade Federal do Rio Grande do Norte
UFMG
LNA

Canada

Université de Montréal
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ia instituto de astrofísica e ciências do espaço

Université de Genève Faculté des Sciences

PI Jean-François Donati, IRAP, Toulouse France.
Co-PI René Doyon, Université de Montréal, Canada.

Photo: Sean Goebel, IfA

SPIRou science requirements

A high resolution spectropolarimeter capable of observing from Y to K in one single shot at a resolution of 75000.

Radial velocimetry down to 1 m/s is targetted.

Circular and linear polarimetry.

S/N~100 on stars with J~12 and K~11 in 1 hr.

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Director of Science Operations
Canada-France-Hawaii Telescope
Subaru Users Meeting FY2017

Photo: Sean Goebel, IfA

The instrument.

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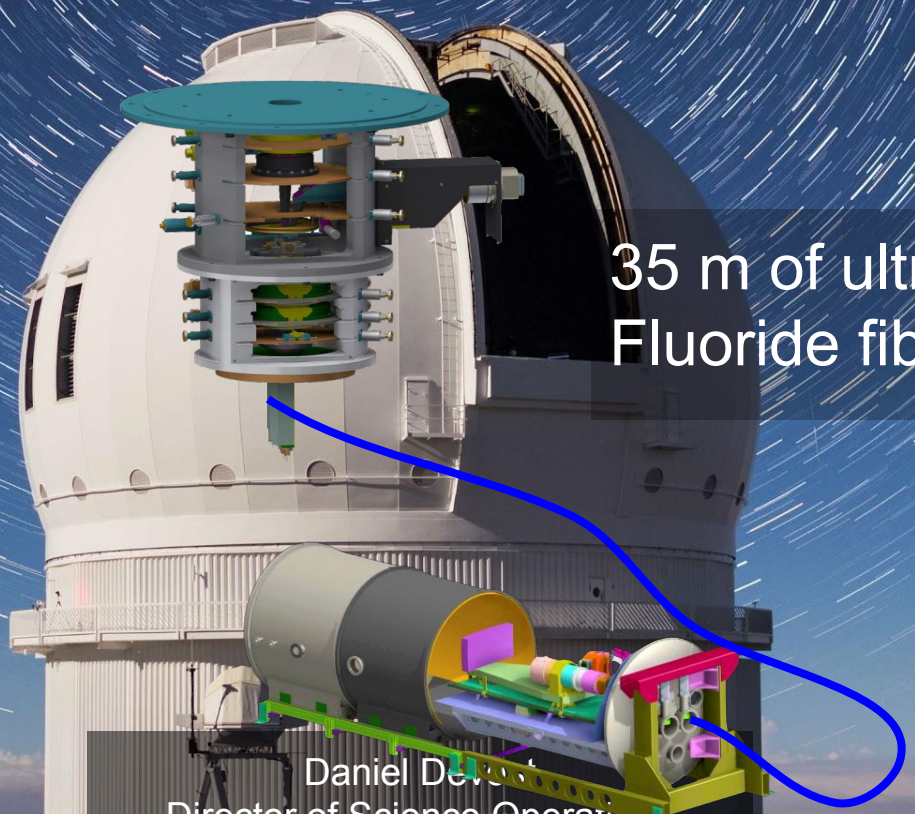
Director of Science Operations
Canada-France-Hawaii Telescope
Subaru Users Meeting FY2017

Photo: Sean Goebel, IfA

The instrument



35 m of ultrapure
Fluoride fiber link

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Photo: Sean Goebel, IfA

Pre-ship Review

We had the pre-ship review in November of this year.

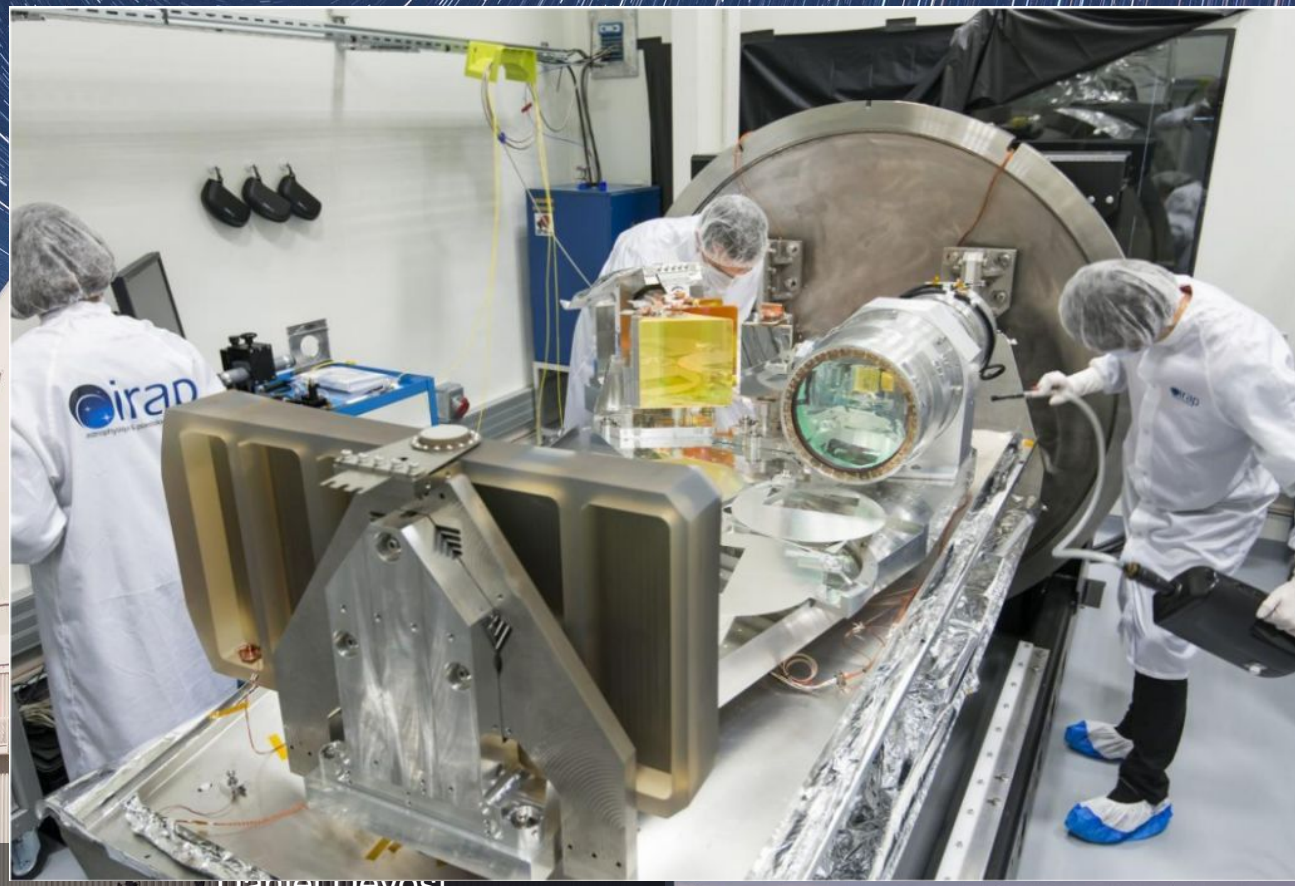

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Photo: Sean Goebel, IfA

Pre-ship Review

We had the pre-ship review in November of this year.

The instrument was cleared to be shipped to Hawaii.

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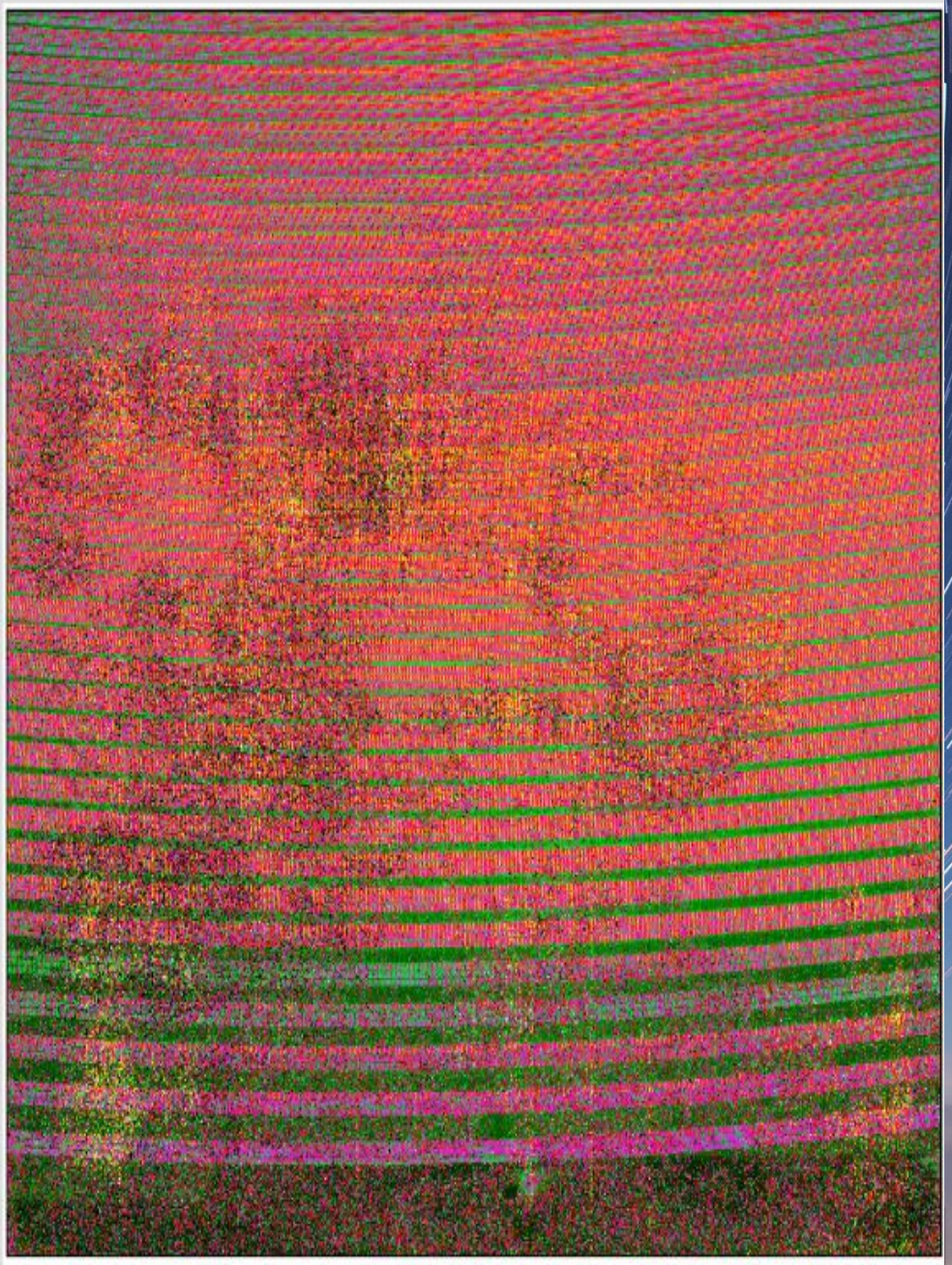
Photo: Sean Goebel, IfA

Pre-Ship Review

Testing is performed on an H2RG while the instrument will use and H4RG (15 μm pixels).

The H2RG covers most of the spectral range with gaps. However, this was enough evaluating instrument parameters.

The H4RG will be integrated in Hawaii.



Da
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Canada-Fran
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Photo: Sean Goebel, IfA

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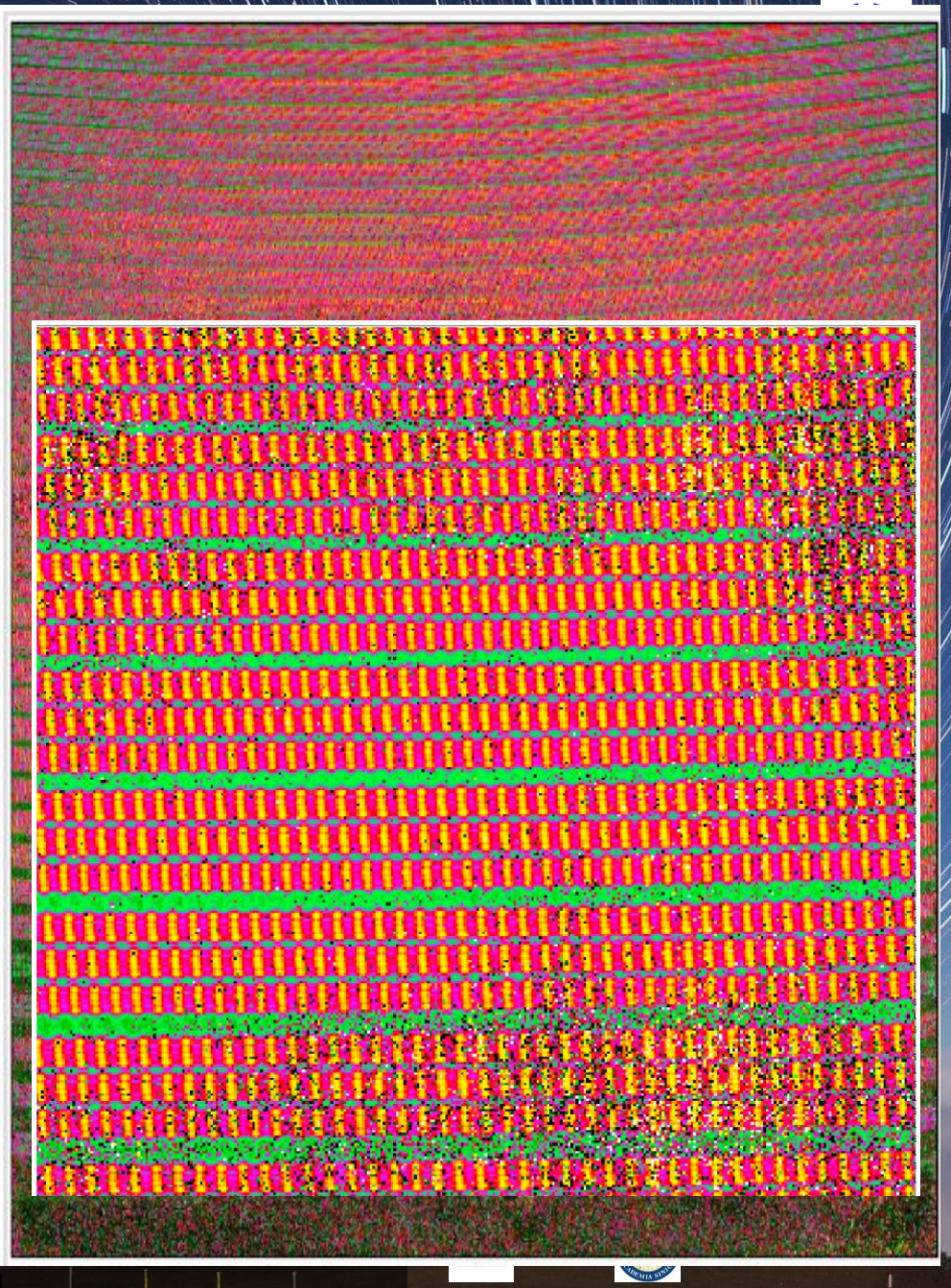

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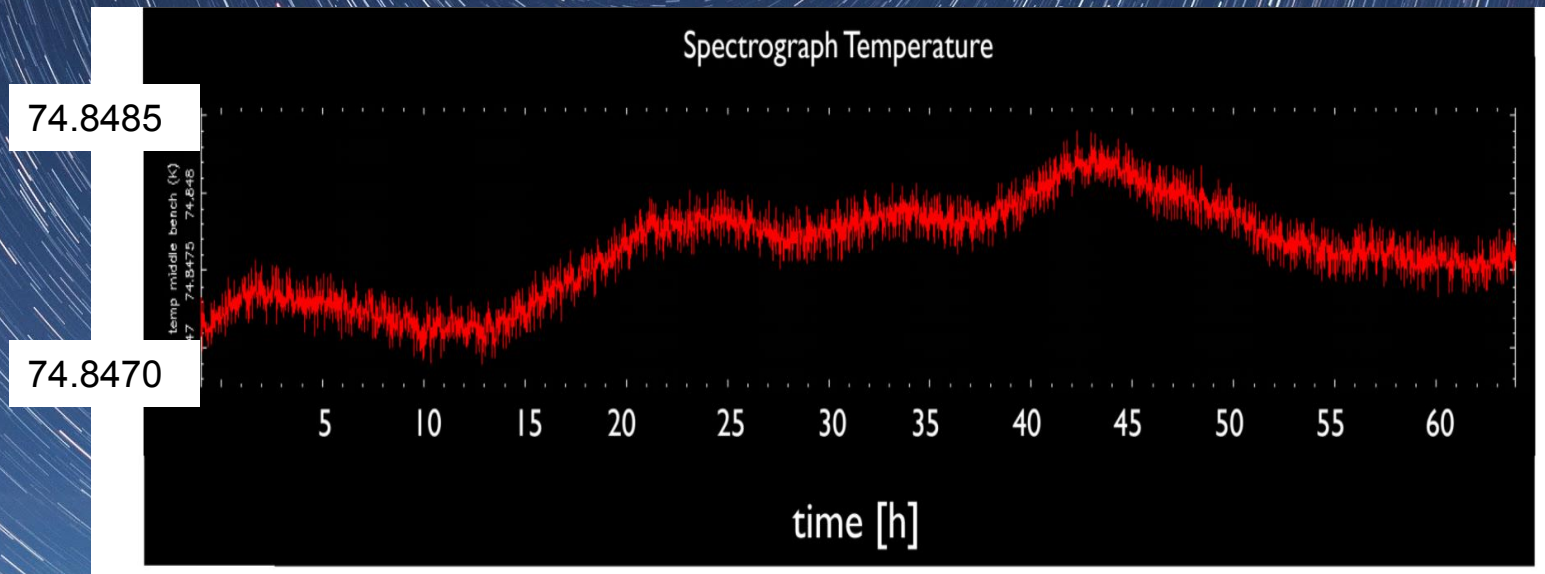
Photo: Sean Goebel, IfA

Pre-ship testing.



Thermal stability is meeting the specs (1.6 mK) at 0.31 mK. Data taken from 3 temperature sensors during 70 hrs.

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Photo: Sean Goebel, IfA

Pre-Ship Review

Artificial Star, ISU plate and Cass ADC

Cassegrain unit (with Rhombs)

Spectro + Detector.

Spec

Multiply above curves

Purple corrected for AS resp.

Flat field with AS

Director
Canada-F
Subaru

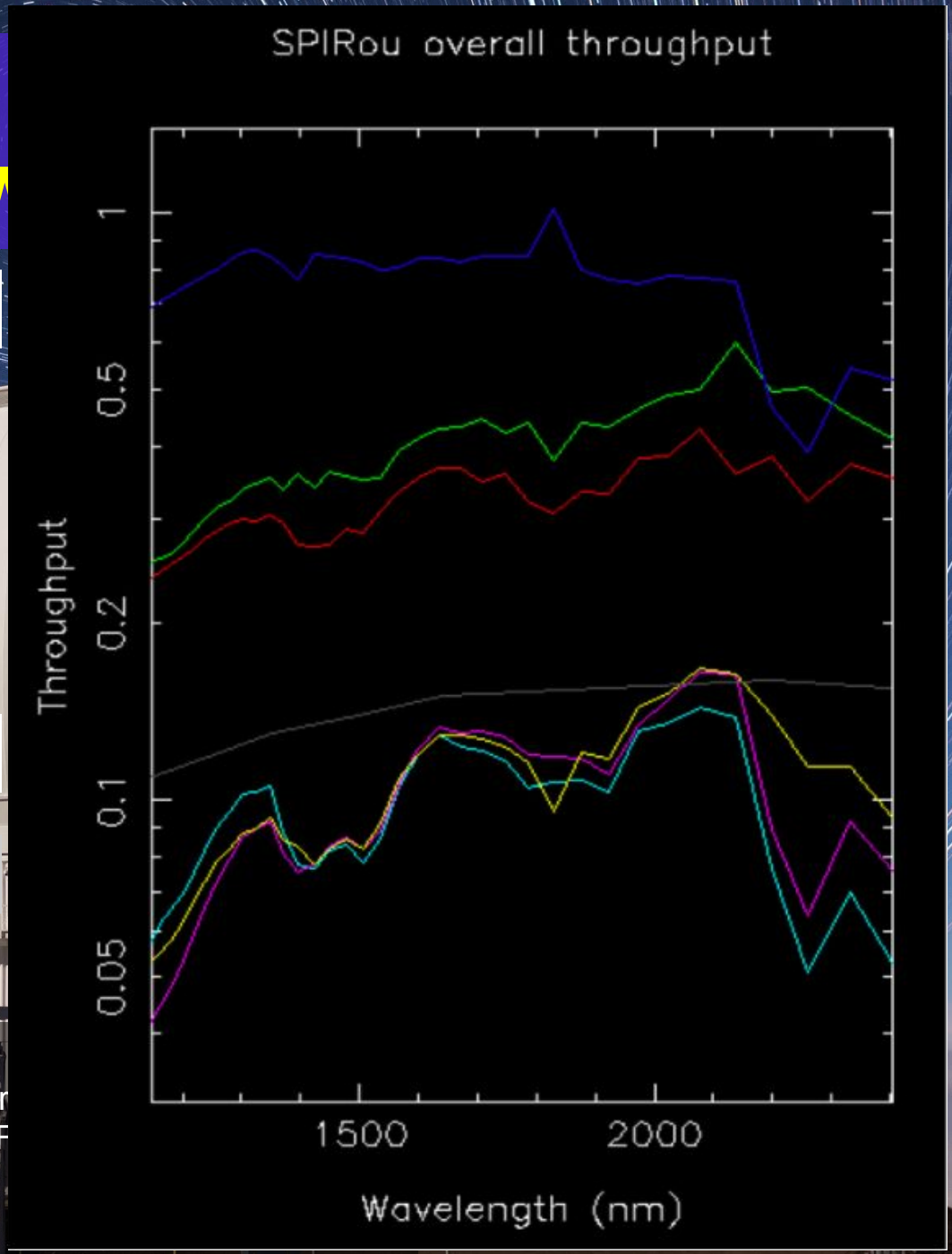

Photo: Sean Goebel, IfA

SPIRou schedule.

- SPIRou had been shipped and is scheduled to start arriving on January 21st.
- 15 nights of bright time is scheduled during the 2018A semester for commissioning.
- Science Verification should occur late in 2018A - early 2018B.
- Operations for Large Program should start mid-2018B and while normal operations are planned to start in 2019A.

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Photo: Sean Goebel, IfA

Large Program call.

- We are currently having a call for Large Programs for all instruments for the 2018B to the 2022A semesters.
- At least 300 nights will be allocated to SPIRou.
- 100 nights will be allocated to the other instruments.

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Photo: Sean Goebel, IfA

The Maunakea Spectroscopic Explorer

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Photo: Sean Goebel, IfA

The Maunakea Spectroscopic Explorer

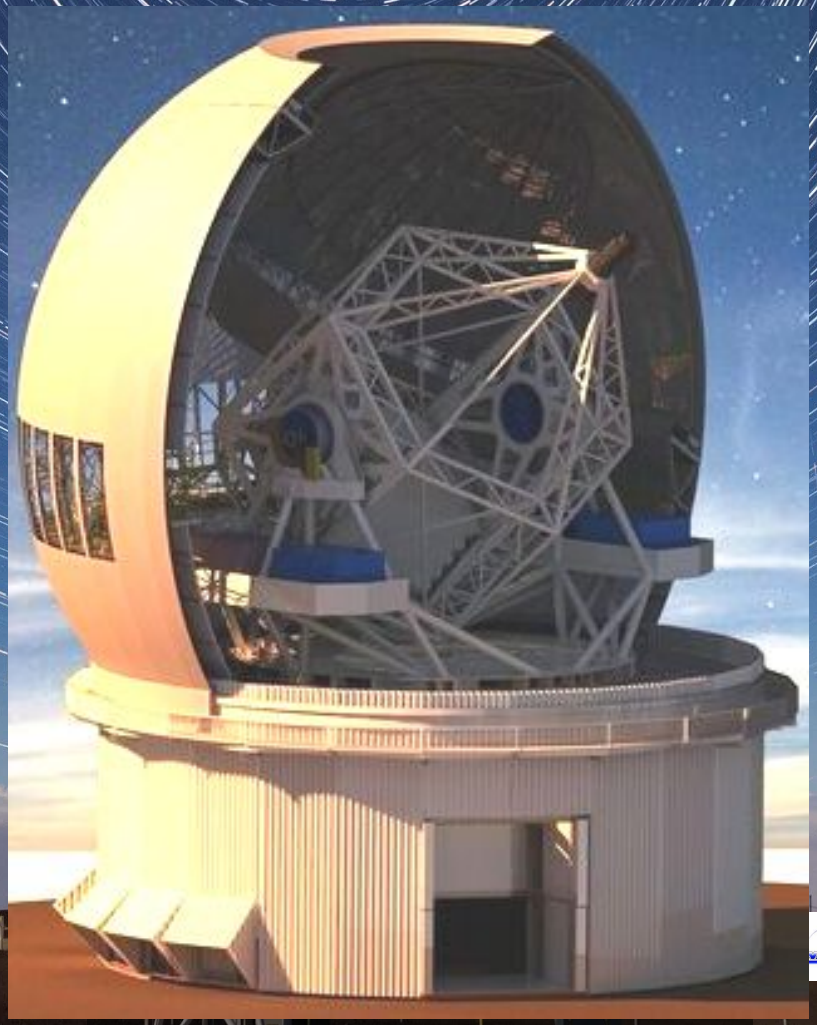


Photo: Sean Goebel, IfA

The Maunakea Spectroscopic Explorer

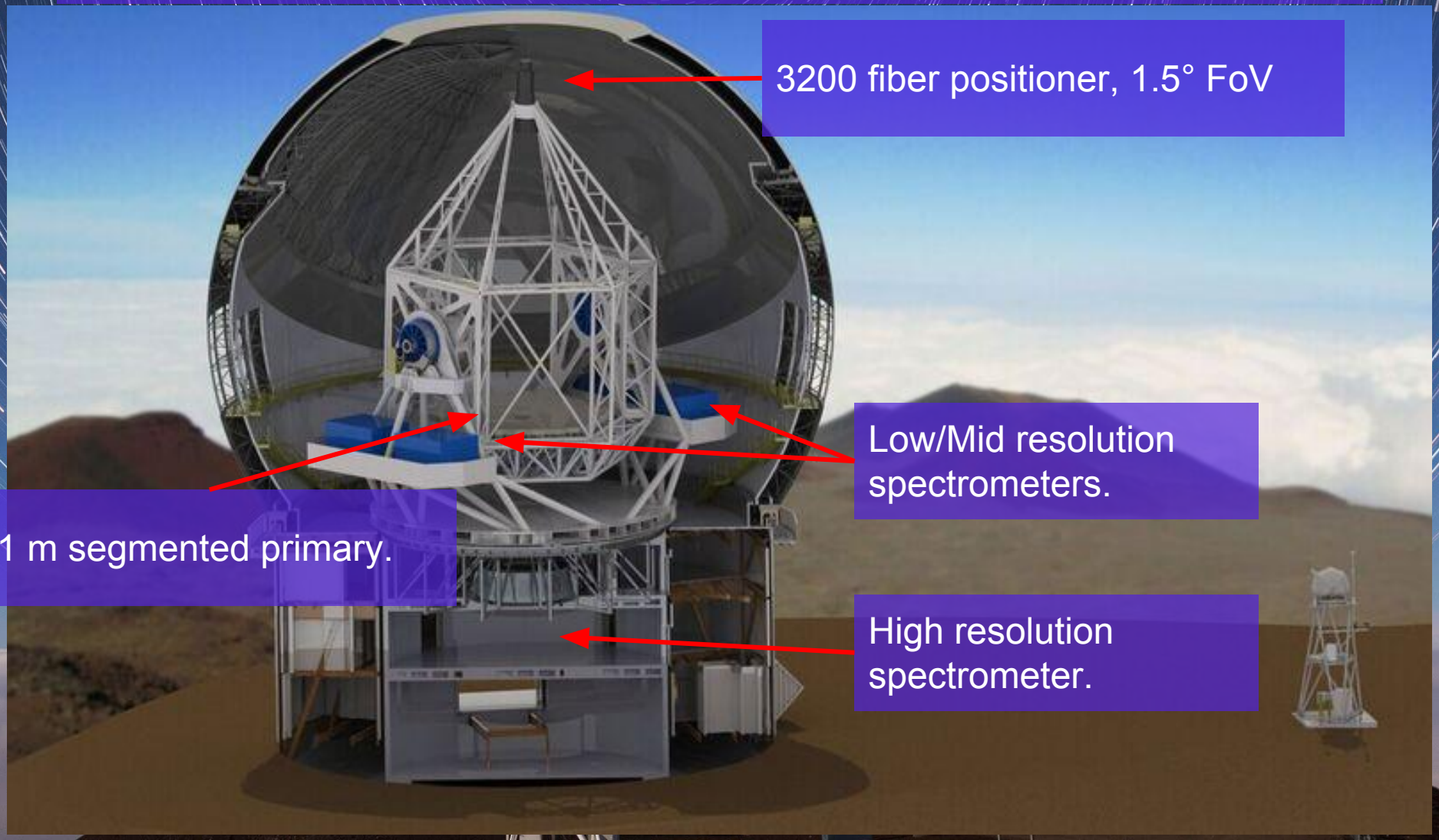
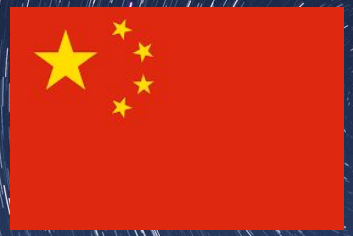


Photo: Sean Goebel, IfA



MSE collaboration

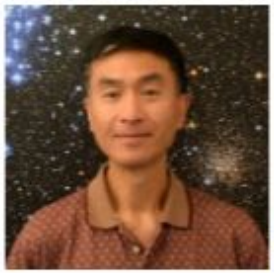
Photo: Sean Goebel, IfA

MSE Project office

Project Manager
Rick Murowinski (Contract)

Project Scientist
Alan McConnachie (NRC)

Project Engineer /
Deputy Project Manager
Kei Szeto (CFHT Staff)



System Scientist
Nicolas Flagey (CFHT Staff)

Deputy Project Engineer
Alexis Hill (CFHT Staff)

System Engineer
Shan Mignot (GEPI)

Segmented Mirror
Specialist
Eric Williams (Contract)

Notable Support

Derrick Salmon
(CFHT)

Will Saunders
(AAO)

Peter Gillingham
(AAO)

Photo: Sean Goebel, IfA

MSE Current schedule.

Preliminary

Milestone	Date
Subsystems' CoDRs	End of June '17
System CoDR	September '17
Baseline Design and Cost approved	December '17
Prospectus Available	January '18
Master Lease renewed (earliest date)	April '19
Construction Proposal Review	April '19 +
Begin CFHT Deconstruction	Nov '21 +
Science Commissioning	Mar '26 +
Full Operations	Aug '26 +

Photo: Sean Goebel, IfA

MSE papers.

https://arxiv.org/abs/1606.00043

Maunakea Spectroscopic Explorer

The Detailed Science Case for the Maunakea Spectroscopic Explorer:

The Composition and Dynamics of the

01.01.00.003.DSN
Version: A

Status: *Exposure draft*

2016-05-27

https://arxiv.org/abs/1606.00060

Maunakea Spectroscopic Explorer

A concise overview of the Maunakea Spectroscopic Explorer

Version 1.0, 2016-05-27

Alan W. McConnachie[1,2] (MSE Project Scientist)
Science Team Contributors: Carine Babusiaux[3], Michael Balogh[4], Elisabetta Caffau[3], Pat Côté[2], Simon Driver[5], Aaron Robotham[5], Else Starkenburg[6], Kim Venn[7], Matthew Walker[8]; *Project Office Contributors:* Steven E. Bauman[1], Nicolas Flagey[1], Kevin Ho[1], Sidik Isani[1], Mary Beth Laychak[1], Shan Mignot[3], Rick Murowinski[1], Derrick Salmon[1], Doug Simons[1], Kei Szeto[1], Tom Vermeulen[1], Kanoa Withington[1]

Photo: Sean Goebel, IfA

MSE reviews

Subsystem	Dates and Location	Performing Entity
Telescope Structure	3/16 – 3/17, Bilbao Spain	IDOM Spain
Enclosure	3/27 – 3/28, Port Coquitlam Canada	Empire Dynamic Structures Canada
High Resolution Spectrograph	4/26 – 4/27, Waimea	NIAOT, China
Fibre Transmission System	5/9, Waimea	NRC-HAA Canada
Fibre Positioner System (X2)	5/10 – 5/11, Waimea	USTC China and AAO Australia
Top End Assembly	Week of 5/29 (TBC), Meudon	GEPI and INSU-DT, France
Low-Moderate Resolution Spectrograph	Week of 5/29 (TBC), Lyons	CRAL, France

Photo: Sean Goebel, IfA

MSE reviews

Systems review currently happening in Waimea

Level 1

- Observatory Architecture
- Operations Concept
- Observatory Requirements

System Budget and Derivation

- Sensitivity Budget
- Observing Efficiency

Calibration

- Sky Subtraction Requirements Analysis
- Spectrophotometry Requirements Analysis.

Compliance matrix

Risk register.

Photo: Sean Goebel, IfA

Looking toward MSE future.

CDR work is nearly completed and we look toward 2018 transition to seek greater contributions from MSE partners and are looking for new partners.

The MSE PO (CFHT) remains funded and is the sustaining core MSE staff, still managing/coordinating work overall.

In the meantime extensive efforts are underway at CFHT to lay the groundwork for the Master Lease renewal and resolve the conflict over Maunakea in a meaningful and lasting way…

Photo: Sean Goebel, IfA

Merci!