



# COLIBRI

- Status -



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## COLIBRI – MAIN REQUIREMENTS

|   |   |
|---|---|
| Diameter of the primary mirror                                | 1.3 m   |
| Field of View (diameter)                                      | 26'   |
| Number of simultaneous arms                                   | <ul style="list-style-type: none"> <li>• 3 arms (2 in the visible et 1 in the NIR).</li> </ul>  |
| Sensitivity (300 sec, 5 sigma, AB system)                     | <ul style="list-style-type: none"> <li>• <math>r = 22.0</math></li> <li>• <math>J = 20.0</math></li> </ul>  |
| Spectral band   | <p>Each arm has its own filter wheel :</p> <ul style="list-style-type: none"> <li>• Visible : B, g, r, i, z and y.</li> <li>• IR : J et H.</li> </ul> |
| Delay between receiving the alert and begining an observation | <30 seconds (goal: <20 seconds)   |
| Deadlines to send information to the SVOM Burst Advocate      | First information delivered to the FSC about 5 minutes after the alert reception  |



## COLIBRI – key points of the past year

- Complicated sanitary situation and weather condition very unstable @ OHP
- Delay in the building design and construction due to technical and administrative issues: telescope shipping only possible when the building ready @ Mexico
- Difficult (=almost impossible) international travels: not possible to go to OAN for the French or to OHP for the Mexicans.
- New people:
  - Simona LOMBARDO: postdoc@LAM (the new IS of COLIBRI).
  - Alix Nouvel-de-la-flèche: PhD@IRAP (on CAGIRE).

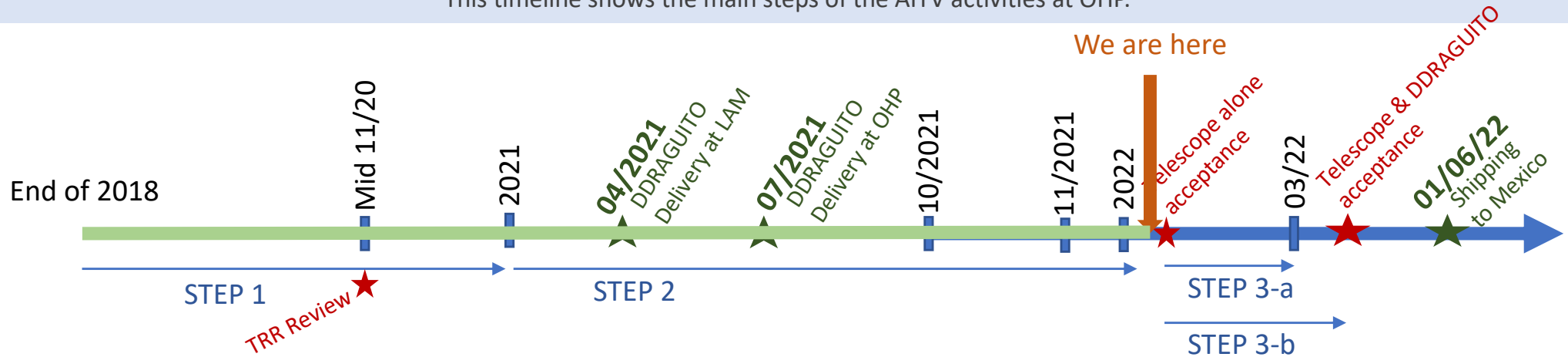


## **COLIBRI AITs/AIVs OHP**

*Telescope, OGSE, DDRAGUITO, balancing,  
software*

# COLIBRI AITV AT OHP – TIME LINE

This timeline shows the main steps of the AITV activities at OHP.



| STEP | DESCRIPTION  | Description   |
|------|--|---|
| 1    | What we need to start the integration process: <ul style="list-style-type: none"> <li>- The test platform</li> <li>- Telescope with its mirrors <b>aligned</b></li> <li>- Tools: OGSE, balancing tool, crane, test cameras...</li> </ul> | <b>DONE</b>   |
| 2    | Telescope alone validation<br>Data analysis  | <b>DONE</b> , results conclude to a bad alignment of the telescope. Some tests will be redo after the 2 <sup>nd</sup> alignment       |
| 3-a  | DDRAGUITO: <ul style="list-style-type: none"> <li>- AIT in France</li> <li>- Validation on sky</li> </ul>  | At LAM: optical alignment check <b>DONE</b><br>At OHP: Assembly and check <b>DONE</b><br>AT OHP: tests with the telescope -> November |
| 3-b  | Software validation  | Start with DDRAGUITO test   |
| 4    | Telescope dismounting, packing and shipping to Mexico  | May 2022  |

## COLIBRI AITV AT OHP – STATUS

>50 entries in the Elog, about 30 full nights done so far

The telescope is good, but alignment is more complicated than expected.

- Telescope completely alignment revised by Astelco in December.

After alignment redone.

- An optical effect identified: tests in progress to understand its origin and we begin to have more precise ideas (support from S. Guisard from ESO).



## DDRAGUITO

*Goal: reassembly, check in lab and tests on sky*



# COLIBRI – DDRAGO Status



## DDRAGUITO @ UNAM:

- Laboratory AIV @ UNAM : **OK**
- Delivered to the project in March 2021.

## DDRAGUITO @ LAM:

- Check alignment at LAM: **OK** – 3 days in June 2021

## DDRAGUITO @ OHP:

In September 2021:

- Computer and network installation at OHP: **OK**
- Camera cooling at OHP: **OK**
- Functional tests (filter wheel, sensors...): **OK**
- Cables routing inside the telescope: **OK**

## Next step:

- Balancing
- Installation on the telescope derotator
- Tests on sky

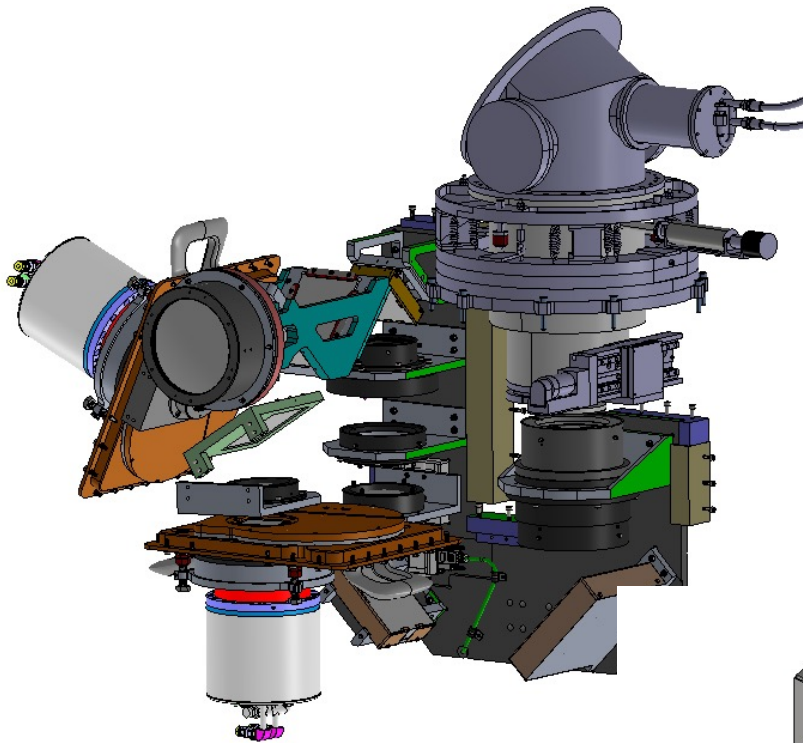
**ONLY AFTER THE FINAL ALIGNMENT OF THE TELESCOPE.  
TESTS FROM FEBRUARY TO APRIL 2022**



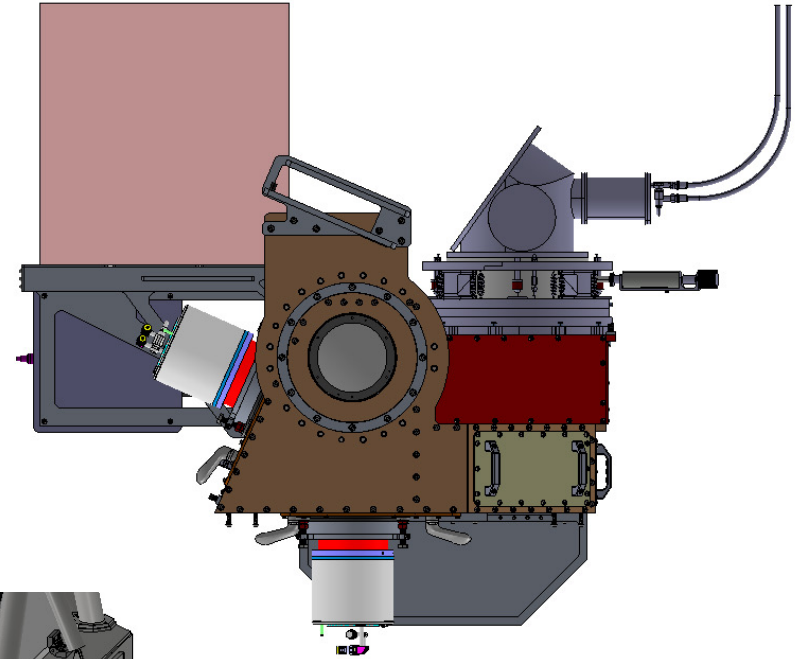


# DDRAGO STATUS AT OAN

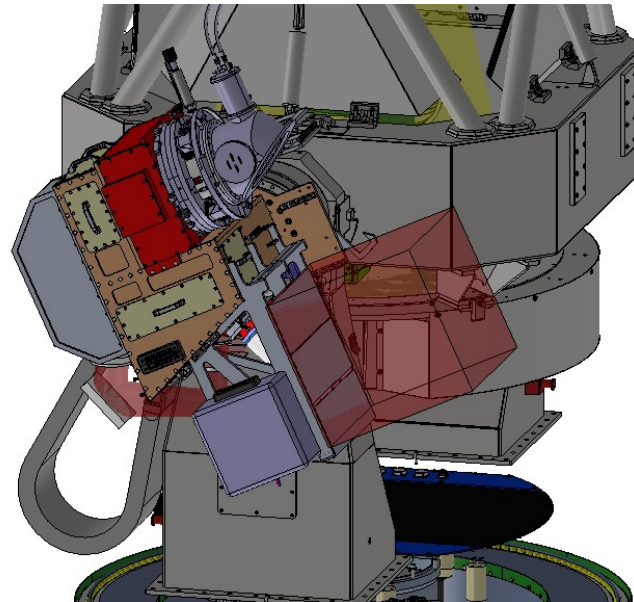
*CDR Phase*



*Complete instrument without covers*



*Complete instrument with covers*



*Complete instrument installed on the telescope*

### **DDRAGO is in the final design phase.**

#### **DDRAGO is composed of:**

- MSU: Mechanical Support Unit which carry DDRAGO, WOB and CAGIRE
- DDRAGO: Two visible channel camera: blue (band gri) and red(zy) with its close electronics
- WOB: Warm Optical Bench for CAGIRE

#### **Main point:**

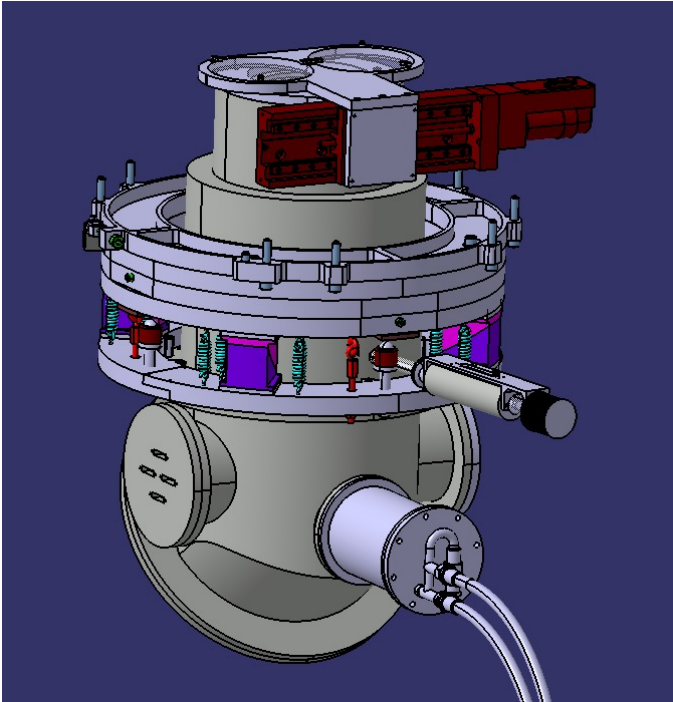
- DDRAGO optical design: finished
- Optical design of the WOB optics (L5 to L12): Last version of the design is validated with CAGIRE
- Finalization of the interfaces with CAGIRE (cryostat and close electronics)
- FEA analysis of the instrument (without CAGIRE) – results under analysis and check with optical tolerances
- Instrument control: will be validated with DDRAGUITO
- Order for 2<sup>nd</sup> CCD has been placed.

#### **Next milestone:**

- DDRAGO FDR: end March2022

# CAGIRE STATUS @ IRAP

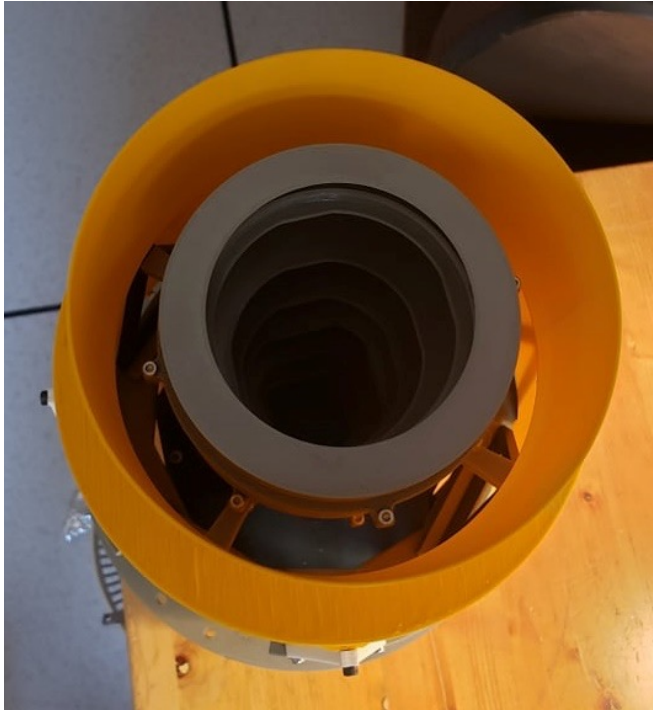
*CDR phase*



*Cryostat 3D CAD model*



*Cryostat prototype 3D print*



*Cryostat prototype 3D print*



### **Main point:**

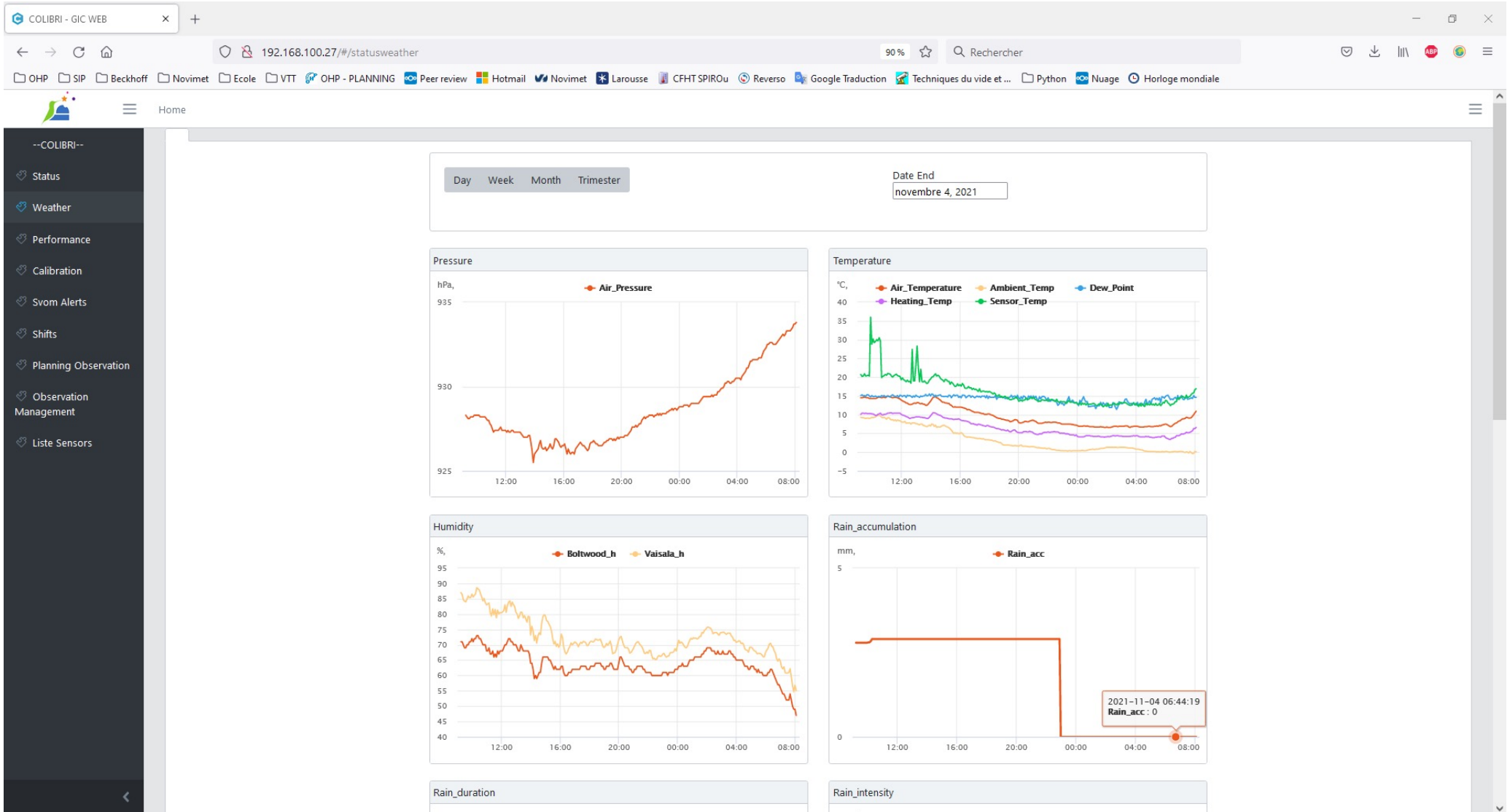
- CAGIRE had a major review on 8 July 2021
- Optical design: Last version of the design is validated with the DDRAGO team
- Lynred Detector:
  - 4 had been delivered to CEA by Lynred: 2 science and 2 engineering.
  - 1 science is really better than the other.
  - Discussion with ESA are on going to decide which one is for CAGIRE.
- AIT tools design in progress.
- Close electronics: design and integration on DDRAGO finished.

### **Next key dates**

- CAGIRE acceptance at IRAP: February 2023
- CAGIRE delivery at OAN – Mexico: March 2023

# SOFTWARE STATUS

CPPM, UNAM, LAM, OHP



### GIC & GP1 Pipeline:

- GIC / GP1 computer is installed @ OHP
- GP1 will be tested (soon) with the first image of DDRAGUITO on sky
- Meanwhile TCS running, GIC is connected with PLC and the seeing monitor

**DATABASE:** will start in 2022

### PLC: in progress

- Installation on the AIT platform @ OHP in July 2021
- Communication with TCS – **To be tested** (testing with TCS not done)
- Weather monitoring - **Done**
- UPS monitoring - **Done**
- Observatory operating mode – **Done**
- Sensors monitoring – **Done**
- Telescope controller interconnection – **To be done and tested**
- Some functionalities will be only tested at OAN (Dome, louvers, anti-intrusion...) - **To be done and tested**



# COLIBRI BUILDING AT OAN – MEXICO

> JUNE 2022





# COLIBRI – Infrastructure status

## MAIN STEPS:

- Cliff Reinforcement: design is finished, the contract is passed.
- Telescope pillar: construction finished
- Building: design finished
- Service building and AC unit design: finished
- Weather mast & Seeing monitor: in operation @ OHP, design and location @ OAN is validated

## MAIN KEY DATES:

- **Environmental permit officially delivered last week!!!**
- Building and service building construction: February to August 2022 (TBC)
- **Telescope Installation: September 2022**



## To conclude

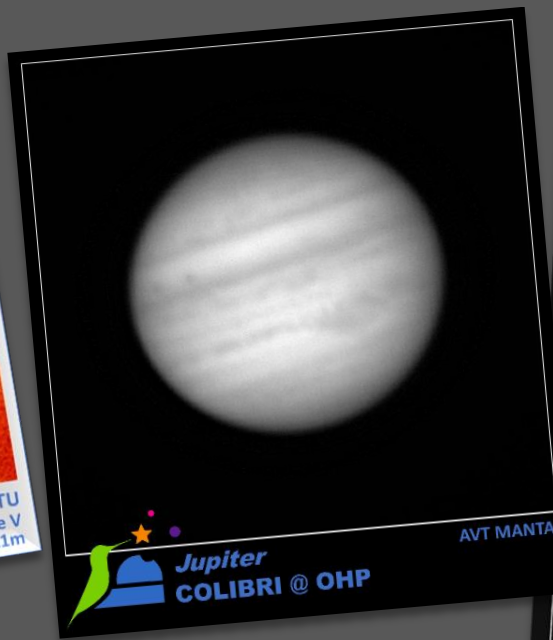
- As much as the first year of the pandemic went well, the second year is more painful.
- The performances are quite good, but we still need to understand the effect observed when the optics were realigned, but we are beginning to understand things much better.
- But we are ready to send it to Mexico as soon as the building is achieved.





**M51**  
COLIBRI @ OHP

08/05/2021 21:32TU  
SBIG ST-8300 + Filtre V  
21m



**Jupiter**  
COLIBRI @ OHP

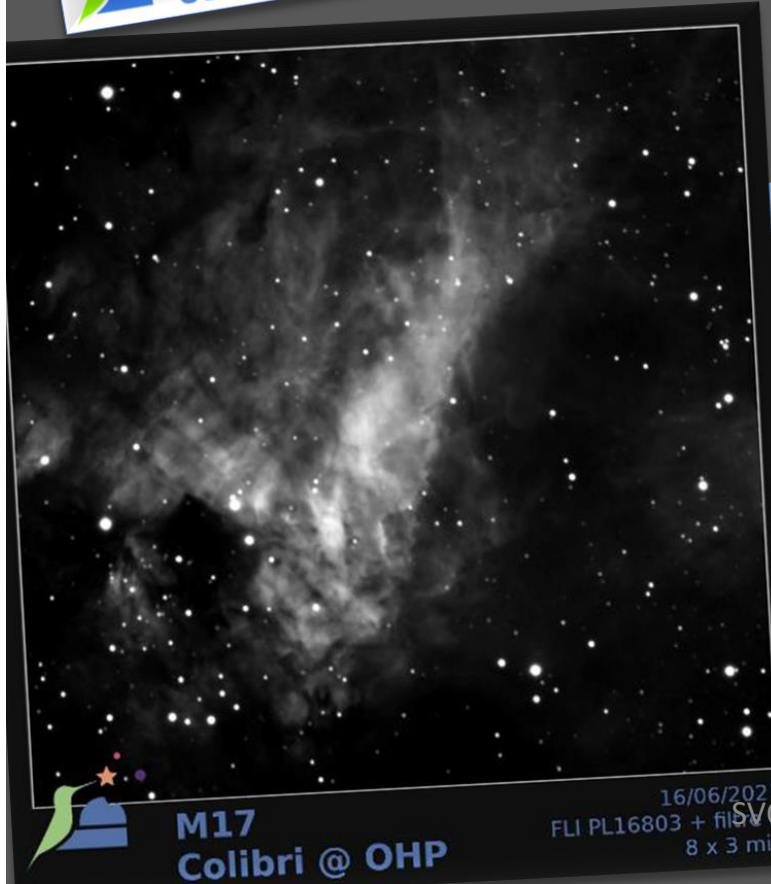
AVT MANTA



*Galaxie du feu d'artifice*  
(NGC 6946)

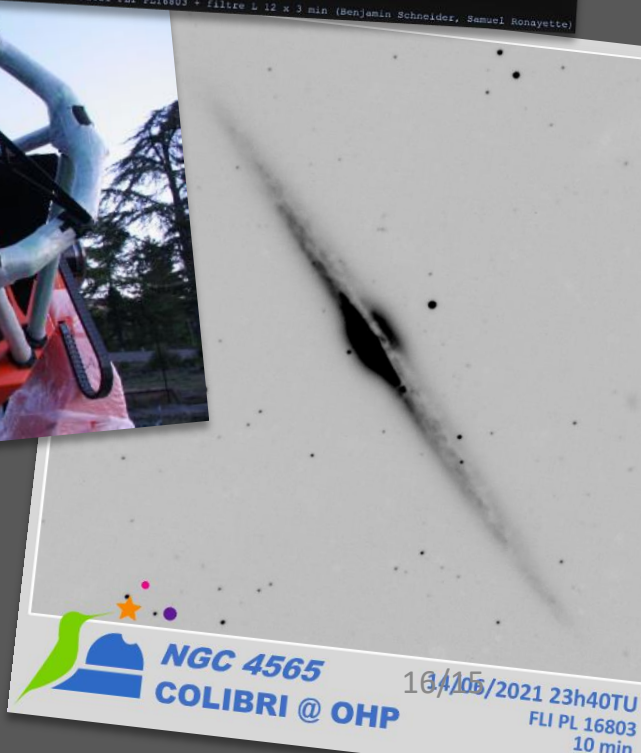
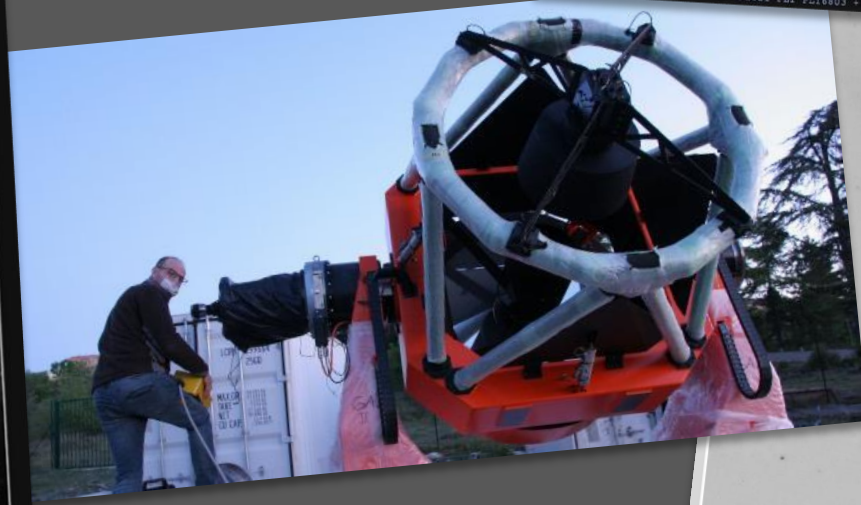
Colibri @ OHP

01/07/2021 FLI PL16803 + filtre L 12 x 3 min (Benjamin Schneider, Samuel Ronayette)



**M17**  
Colibri @ OHP

16/06/2021  
FLI PL16803 + filtre V  
8 x 3 min



**NGC 4565**  
COLIBRI @ OHP

10/10/2021 23h40TU  
FLI PL 16803  
10 min

SVOM-COLIBRI Workshop, 8-11 Nov. 2021, OHP