

# ShaRA: an open project to stimulate passion for the cosmos

Alessandro Ravagnin ShaRA Team - February 29, 2024

## The Idea

ShaRA, was founded in October 2022 from an idea that was born during the lockdown (COVID 19).

A group of 3 Astrophotographers decided to join their forces to rent the remote telescopes hosted in Rio Hurtado (Chile), to take hi-res photos of rarely imaged southern targets of the sky.



## The Idea

**In few weeks, the group growth up to 25 members becoming an international reference in the astrophotography world thanks to many publications in the magazines and the numerous awards won.**

**The possibility to take astrophotos of unknown or never imaged before targets, from a very dark sky with «big» telescopes (big for amateurs, small for astronomers), is very attractive for expert people either for the beginners.**



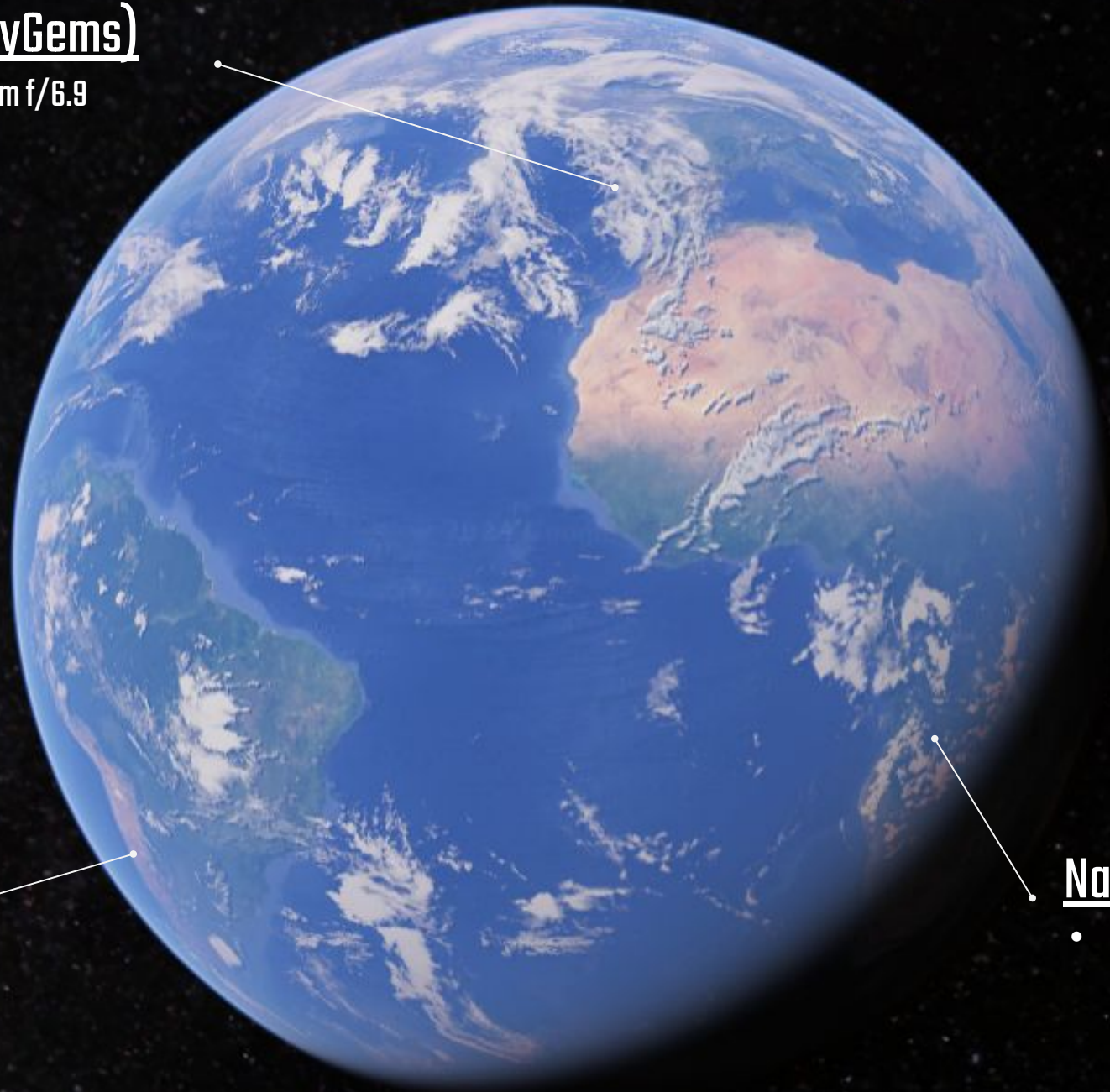
## The Idea

Light pollution is a big limitation for astrophotographers, especially those living in the major civilized cities of Europe.

*Remote telescopes can help...*

## Spain (SkyGems)

- CDK 500mm f/6.9



## Chile (Chilescope)

- RC 1000mm f/6.8 (T1)
- Newton 500mm f/3.8 (T2/T3)

## Namibia (SkyGems)

- iDK 500 mm f/6.8

# ElSauce remote Observatory

Located in Rio Hurtado, accessible thanks to the Chilescope service, an easy-to-use cloud platform to set the observing plans and retrieve the raw files

Robotic observatories with:

- 1 RC 1000mm f/6.8 (T1)
- 2 Newton 500mm f/3.8 (T2/T3)
- 1 RH200 f/3 (T5)
- 1 Nikon 100mm f/2 (T4)
  
- Astronomik filters (not photometric)
- FLI CCD cameras



## Astrophotography and research

Thanks to these dark skies, the availability of remote telescopes and the possibility of integrating hours and hours of signal with narrow-band filters, the astrophotography community is contributing to research, discovering new galactic objects.

*Image by Marcel Drechsler and his team (APY#15 overall winner)*

# The Project

**We follow a precise workflow to develop our projects, using the digital media to discuss and decide everything, working as a team.**

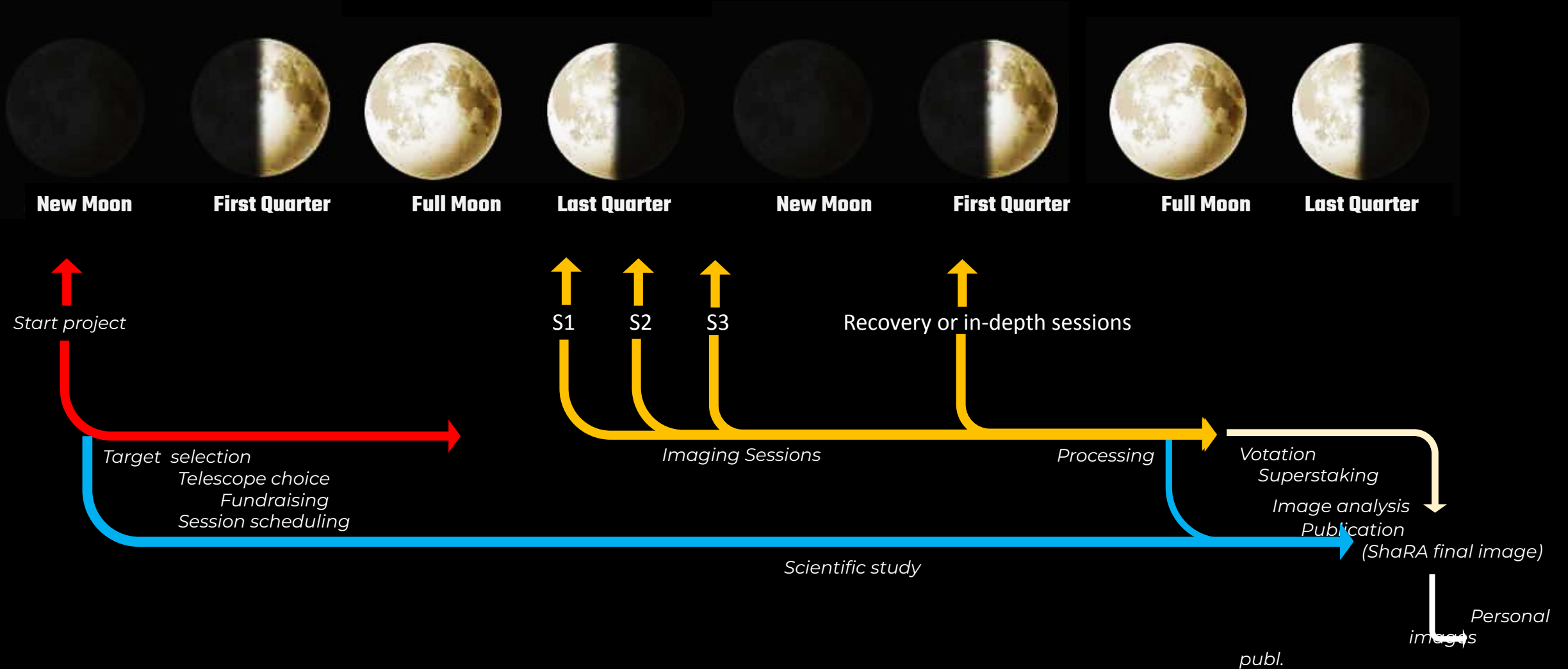
**We share our personal skills and our knowledge in image processing to grow the competencies of the team, and to create «state-of-the-art» images of the space.**

**We study the main publications related to our targets to accompany our posts/publications in the social media with scientific content and spectacular images.**

**We plan the publications in the world-wide magazines and astronomical amateur web-sites and social media groups, promoting the astronomy culture to the mass.**



# General Workflow and timings for ShaRA projects



# The first phase

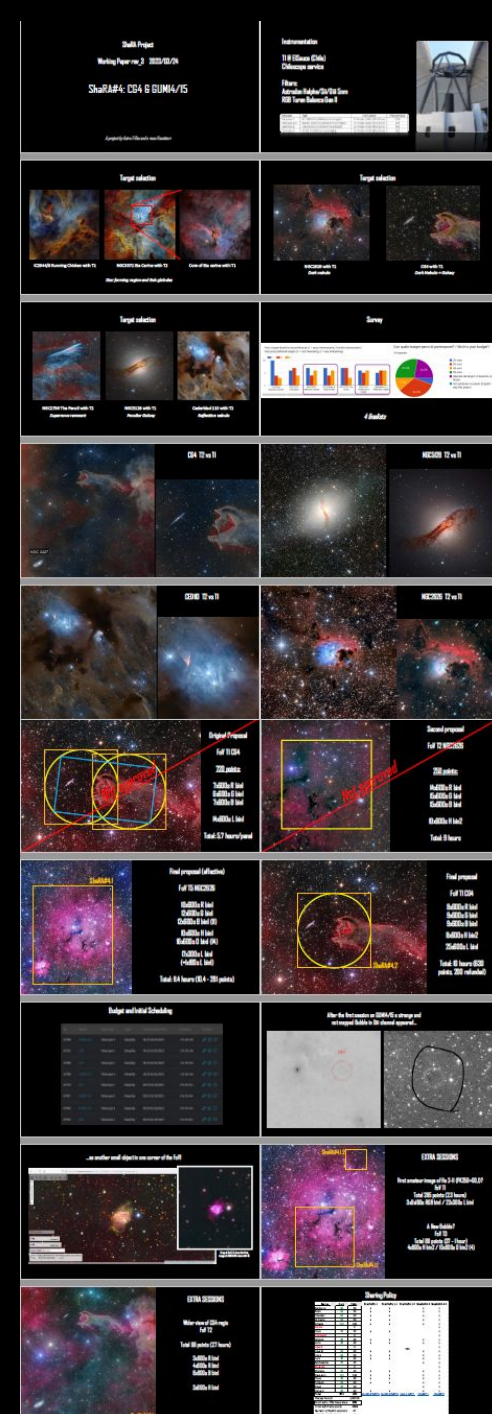
Each participant submits one or two potential targets to the coordinator

The team votes the target of the new project

The team discusses and decides the observation plan

The coordinator sets up the observation plan in the Chilescope cloud platform, after the fundraising

A working paper collects all these steps...



## The second phase

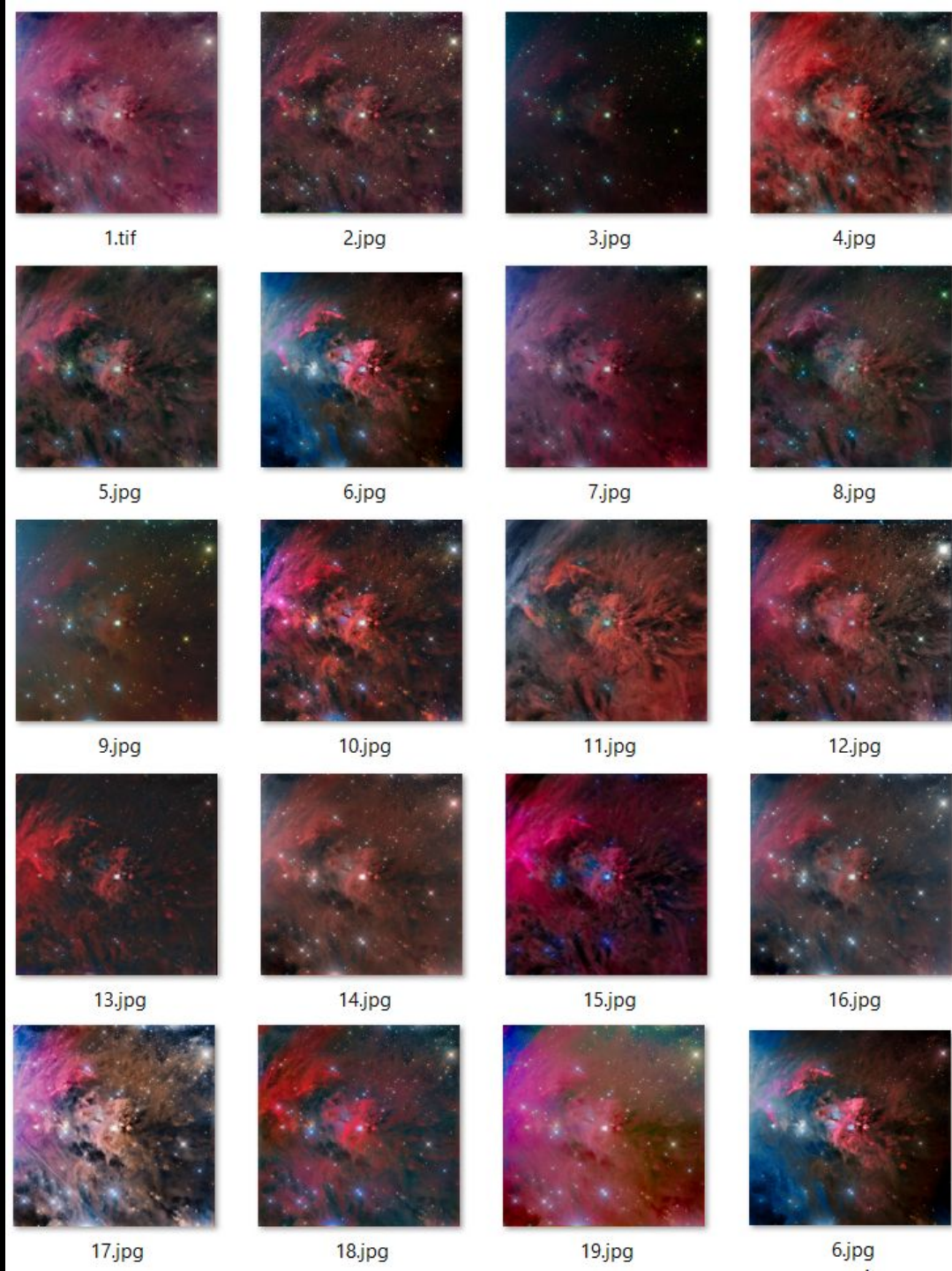
The coordinator shares the raw data files to each member of the group

Every participant processes by his own the raw files, using different tools

The coordinator collects all final images and share them within the group in a anonymous way

Every member votes the images (quality of the processing, spectacularity of the final image)

The coordinator merges all images in a weighted way using PixInsight and PixelMath tool.



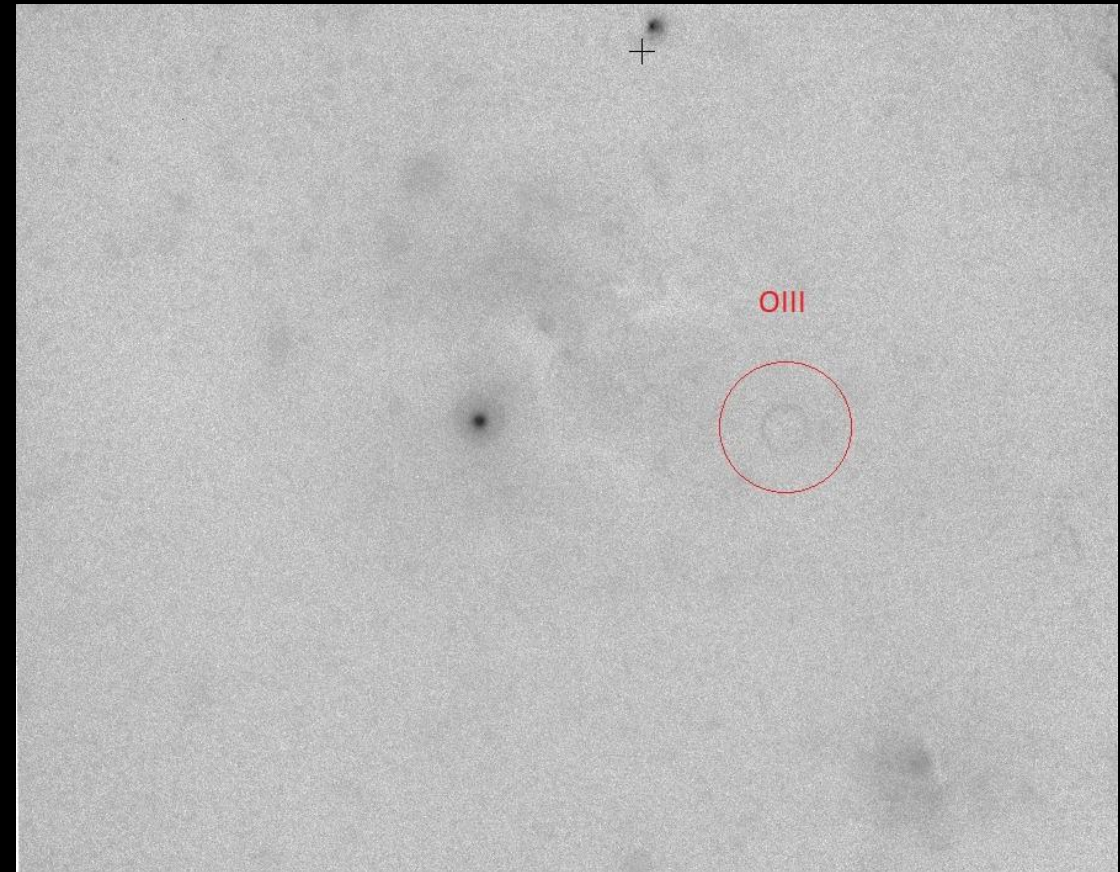
## The last phase

Every participant analyzes the final image trying to find unknown objects

We push the processing to enhance faint details, especially in starless images in the OIII channel

We check databases and professional literature for any suspicious objects

We publish the results...



# Results:

**8 projects, 14 hi-res deep images**

**Publications in the astronomy magazines**

**Strong activity in the Social Media**

**...and more!**

## ShaRA#0.1

The Dragon of Ara

T5 – RH200 f/3

Composition: H00+SH0+RGB+HSRGB0

9.7 hours of integration:

- 10 x 600s bin1 H-alpha filter
- 21 x 600s bin1 Oiii filter
- 19 x 600s bin1 Sii filter
- 3 x 300s bin1 R filter
- 4 x 300s bin1 G filter
- 9 x 300s bin1 B filter

## ShaRA#0.2

A Thousand Ruby Galaxy - M83

T1 - RC1000 f/6.8

Composition: LRGBH

7 hours of integration:

- 17 x 300s bin 1 Luminance
- 6 x 600s bin 1 R
- 6 x 600s bin 1 G
- 10 x 600s bin 1 B
- 4 x 1200s bin 1 H-alpha
- 2 x 1200s bin 1 Oiii



ShoRA#4.1:

Bubbles – GUM14/15

T5 – RH200 f/3

Composition: LRGBH



ShoRA#4.1:

The Spin Nebula - He2-11

A post-envelope planetary nebula never imaged before from amateurs and never published in RGB composition by professional researchers.



# Results

- **Publication in all major astronomy magazines:**
  - Astronomy
  - Astronomy Now
  - BBC Sky & Night
  - Sky & Telescope
  - Coelum (column)
  - Cosmo
  - Amateur Astronomy Magazine
  - Spektrum/Sterne und Weltraum
- **Hundreds of thousands of likes, shares and comments on social media (Facebook/Instagram)**
- **Awards:**
  - AAPOD2
  - AP0D Astronomia
  - Grag
  - Top Pic on Astrobin
  - Apod Daily & Sky
- **More than 20.000 readers/suffers per year of our blog**

## Looking up to the Sky!

WELCOME TO THE ASTRO T-REX WORLD, ASTRONOMY AND ASTROPHOTOGRAPHY FOR EVERYONE

Do you like astronomy and astrophotography? Follow us and enjoy our contents!! Read our weekly works or discover our two main projects.

Ami lo spazio? Ti piace stare col naso all'insù a guardare le stelle? Allora seguici e naviga tra i contenuti ed i vari progetti che realizziamo ogni giorno con infinita passione...

Clicca qui sotto per vedere i nostri progetti e le nostre fotografie o leggi gli ultimi post più sotto!

[ShaRA](#)

[FOTONICContest](#)

[Gallery](#)

### Last posts

#### ShaRA#7 closed: IRAS Vela Shell

di Alessandro Ravagnin and ShaRA Team Per il settimo progetto, il team ShaRA ha voluto cambiare leggermente le carte in tavola. Siamo sempre stati virtualmente in Cile, ma questa volta non abbiamo utilizzato un telescopio remoto in affitto (dal servizio Chilescope), ma abbiamo utilizzato un Takahashi da 160mm di diametro in un osservatorio

#### The Edge of (my) Universe (part I)

di Alessandro Ravagnin Con lo spettro di NGC1275 e la ripresa deep dell'ammasso del Perseo all'interno del quale tale galassia AGN si cela, ho iniziato il mio personale percorso al di là del nostro gruppo locale di galassie. Più lontano svolgo lo sguardo, più le cose si complicano, a causa delle enormi distanze e delle...

#### Perseus A (part II)

di Alessandro Ravagnin Premessa #1: ci eravamo lasciati con la prima parte del lavoro sul Cluster di Galassie del Perso ed una promessa di follow-up sull'indagine di eventuali emissioni H-alpha intra cluster. Il filtro H-alpha da 35nm, necessario per bilanciare il redshift dell'ammasso (che sposta la riga in questione di più di 11nm verso il rosso).

WHY WE LOOK UP WITH JENNIFER WILLIS

## COSMIC COREGULATION

BY JENNIFER WILLIS | APRIL 9, 2023 | 0



You know how being around certain people just makes you feel better, and calmer? Or maybe there's an animal companion whose presence reduces your stress and makes the world feel more manageable.

Through the magic of coregulation, someone with a natural sense of ease can share their tranquility with someone in distress, by simple proximity.

Beginning in infancy, coregulation is a natural skill that helps us build relationships, deal with powerful emotions, and manage stress.

I'd argue the same holds true for the night sky.

Stargazing helps us to connect with the natural world and align with its rhythms. When I'm not encumbered by too much equipment or letting myself get frustrated about my neighbor's porch light, taking some time to decompress under the stars dissolves much of the stress of the day. Often I don't realize how tense I am until the pressure subsides.

Studies show that your heart rate and breathing tend to synchronize with those you love when they're nearby. Pain and anxiety subside. Connection to others makes us feel safe and secure, and it's one reason therapy dogs and emotional support animals are effective.

But the reverse can also be true. I have a predisposition to reflect the moods of those around me, and to take on the tone of news and entertainment media. I don't know if that's due to empathy,

## How amateur astrophotographers captured the Spin Nebula

Astrophotographers tracked down and photographed a planetary nebula known as the Spin Nebula in the Gum 14/15 nebula complex.

By [Russell Deeks](#)

Published: September 12, 2023 at 11:37 am

A group of amateur astrophotographers managed to track down and photograph a little-known dying star named the Spin Nebula.

Teamwork makes the dream work, says the old cliché... and it's a maxim that proved true for ShaRA.

This group of astronomophotographers, through their collaborative efforts, produced the first high-resolution image of a distant [planetary nebula](#).

The group of 22 mostly Italian astronomers started the [ShaRA \(Shared Remote Astrophotograph\)](#) project as a way of pooling both their

Home ▾ Articoli pubblicati su Coelum ▾ Il Team ShaRA colpisce ancora

[ARTICOLI PUBBLICATI SU COELUM](#)
[ARTICOLI E RISORSE ON-LINE](#)
[ASTROFOTOGRAFIA](#)

## Il Team ShaRA colpisce ancora!

 Di [redazione.coelum](#) - 17 Maggio 2023 - Letto 1.529 volte - 2


Immagine finale di GUM14/15 ottenuta dalla fusione dei singoli contributi. Credit: @ShaRATeam



Tempo di lettura: 2 minuti

ShaRA#4 (part I)

### Proposta 1: Bubbles&Bubble

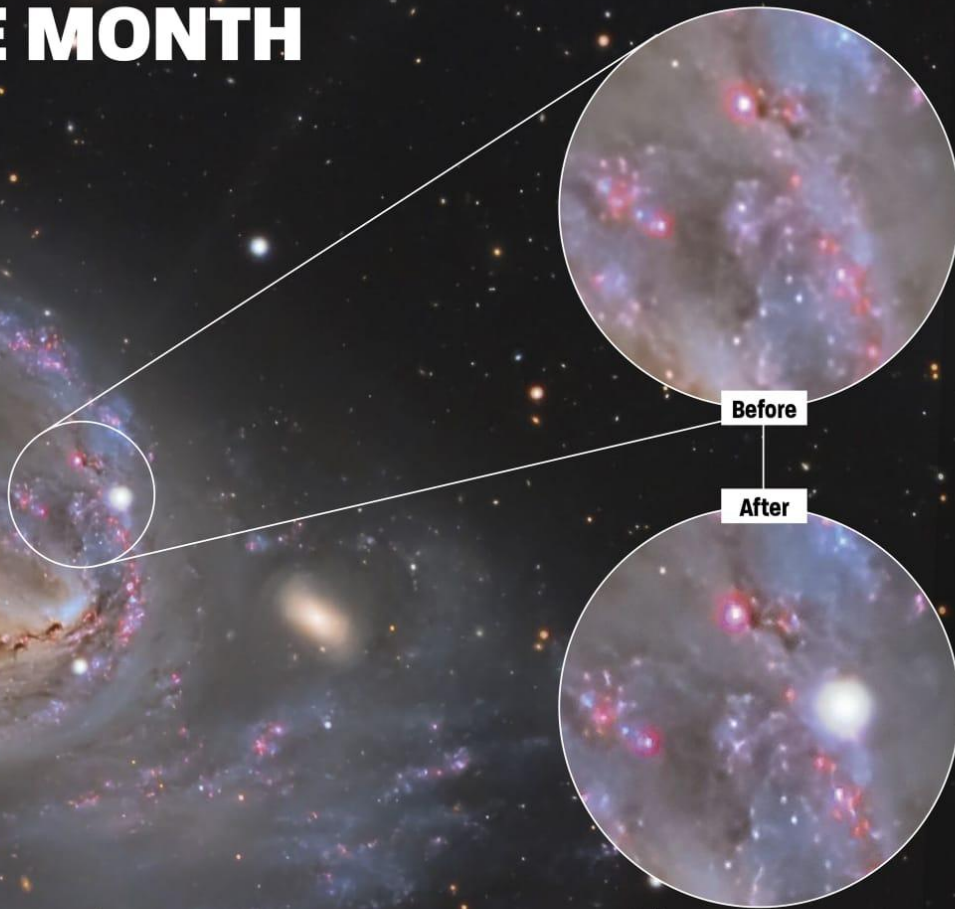
 by [Alessandro Ravagnini](#), [Andrea Iorio](#) & [ShaRA Team](#)

Continua il lavoro frenetico del team ShaRA che in questi mesi ci stupisce con produzioni eccezionali. A fare la differenza la modalità "squadra" e la capacità di lavorare coordinati, dalla scelta di ambiziosi soggetti alla composizione finale pesata in base all'impegno di ciascuno e dei voti. Insomma un complesso e delicato meccanismo ma che rappresenta per un unico in Italia.

Coelum ha scelto di collezionare i successi di ShaRA team dedicando uno spazio fisso. Se avete perso le puntate precedenti le trovate in Coelum 258 e Coelum 261.

Nuovo e difficilissimo target per questa nuova puntata: GUM14/15 ma la sfida è stata

# PICTURE OF THE MONTH



## Southern supernova

On 9 September, Supernova 2023rve blasted out in NGC 1097, a fantastic barred spiral galaxy in Fornax. Six days later, on 14 September, Massimo Di Fusco and Alessandro Ravagnin (ShaRA Team, Deep Sky Chile) used an ASA 500mm, f/3.8 reflecting telescope and an FLI PL16803 camera (with Astrodon LRGB/Ha filters) part of Telescope Live's equipment at El Sauce Observatory, Rio Hurtado, Chile, to image the supernova.

## Nik Szymanek says...

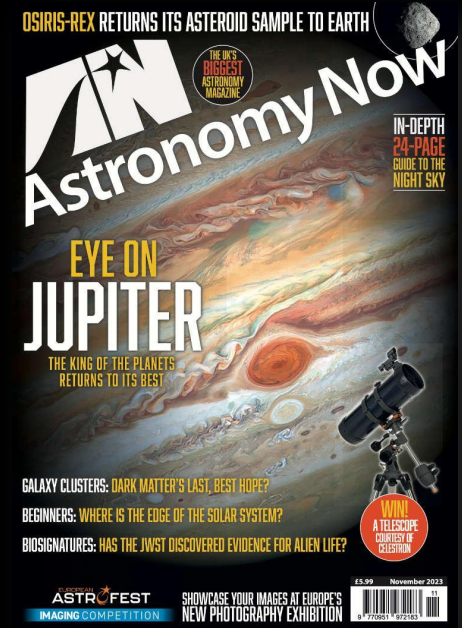
If I were asked which is my favourite galaxy in the Southern Hemisphere sky it would be a difficult choice between two prime contenders, namely NGC 1365 and NGC 1097. These are both prominently barred spirals that are full of gorgeous detail and are archetypal representatives of this class of galaxy.

On 9 September 2023, a bright new type-II supernova was discovered in a spiral arm of NGC 1097, enhancing the galaxy's appearance even further. Sadly, this galaxy is far out of reach from our northern perspective, as it lurks in the constellation of Fornax (the Furnace).

This month's winning entry is a wonderful image of NGC 1097 and supernova taken from Chile by Massimo Di Fusco and Alessandro Ravagnin (ShaRA Team, Deep Sky Chile) and combines datasets taken with two very different telescopes, both located at the El Sauce Observatory. Older, pre-supernova data, acquired using the AZA 1000 (1-metre) telescope, were expertly combined with new data taken with an ASA 500mm f/3.8 reflecting telescope. The imagers have helpfully supplied close-ups of the area containing the supernova, giving before and after views.

I have been fortunate enough to use these telescopes for my work with Telescope Live and can attest to the remarkable image quality. Recent work included processing images of the galaxy and supernova with a Planewave 600mm telescope at the same observatory.

NGC 1097 contains a wealth of detail, but most obvious is the curious and extremely bright ring surrounding the nucleus. The nine-hour exposure set has captured rich detail in the spiral arms and showcases the many glowing HII regions found there. Also well on show are the distinct stellar populations that inhabit the spiral arms (young blue stars) and the bar (much older red stars). Careful perusal will show myriad faint background galaxies captured with the fast optics of the ASA 500 telescope (my all-time favourite telescope!).

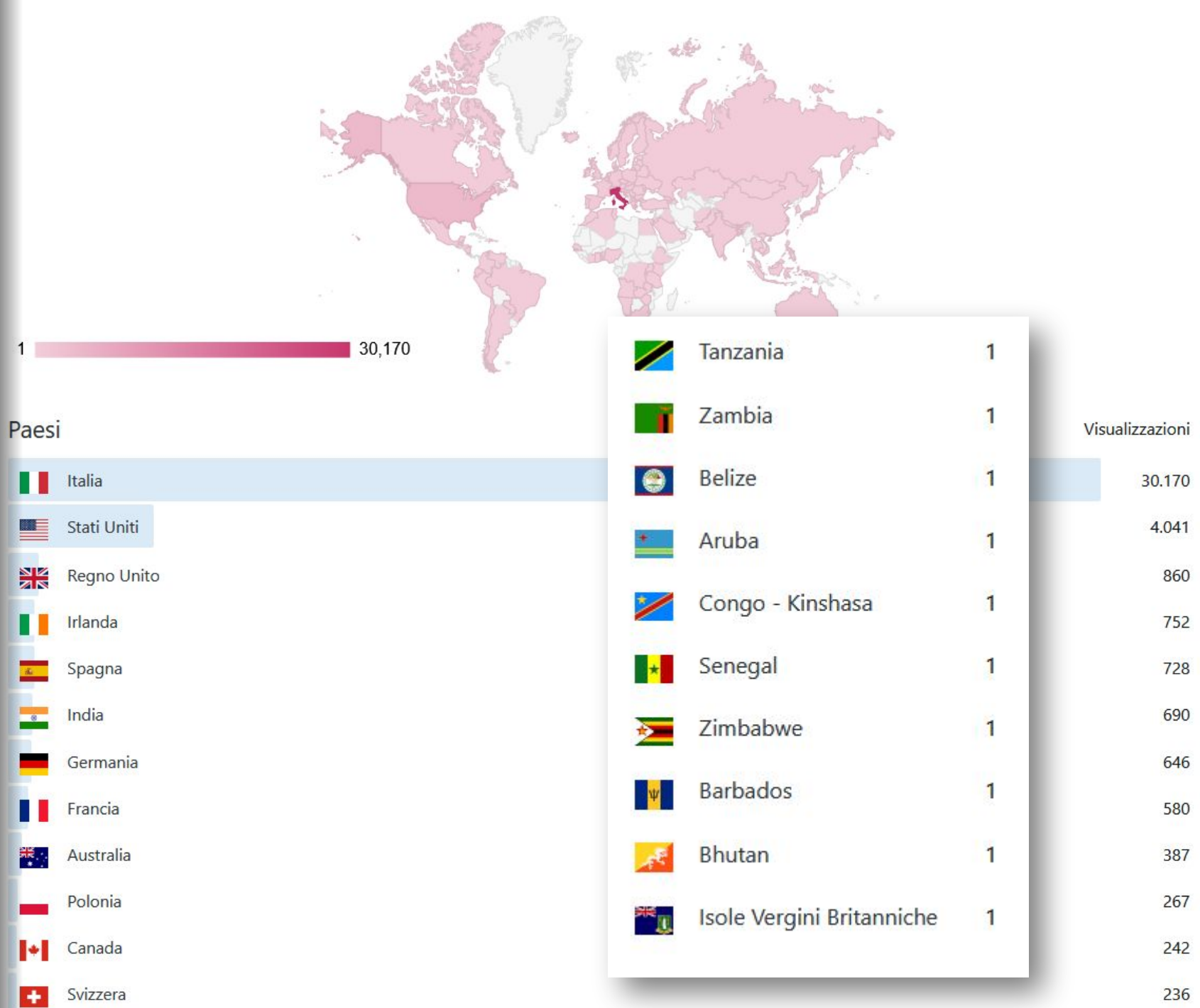


*Issue November 2023: NGC1097 with  
Type II Supernova SN2023rve*

# Results

Our blog, in 3 years of activity, obtained these results:

- 45.000 visualizations
- Readers from 134 countries
- 120 posts (not only ShaRA projects) with 35.000 written words



## ShaRA@Party

First «physical meeting»  
held in Asiago Pennar and  
Cima Ekar, hosted by  
DFA-UNIPD and INAF

*(Asiago - October 28, 2023)*



# ShaRA@School

First «lessons»  
held in 02/2024: 6  
classes (130  
students) of third  
year middle  
school in San  
Giuseppe and  
Cassola (VI)



**Explained to the students the opportunities offered by the Remote Telescopes:**

- **No initial investments required**
- **Not particular skills required to start imaging activities**
- **Availability of great sky and instruments**

**Private Robotic observatory in Romano d'Ezzelino:**

- **Corrected SC 280mm f/10**
- **115mm f/8 triplet**
- **Cooled CMOS mono cameras**
- **Low res spectrograph**
- **Filters for astrophotography**





## Private Robotic observatory in Romano d'Ezzelino:

- Corrected SC 280mm f/10
- 115mm f/8 triplet
- Cooled CMOS mono cameras
- Low res spectrograph
- Filters for astrophotography

What is it possible to do with a similar telescope, located below a light polluted sky?

Artistic photos, but also something else, close to the research! Or, research! Some examples below.



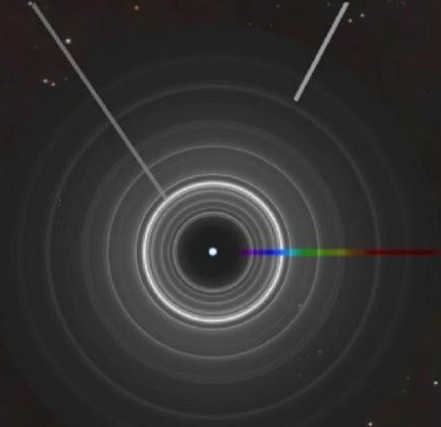


Detection of fast blinking of Crab Pulsar...



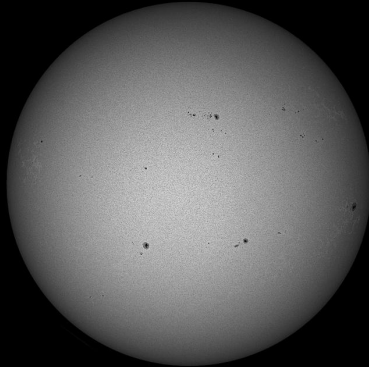
He II

H-alpha

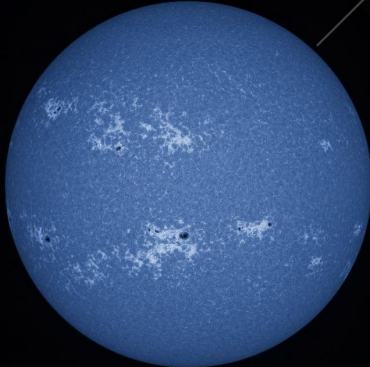
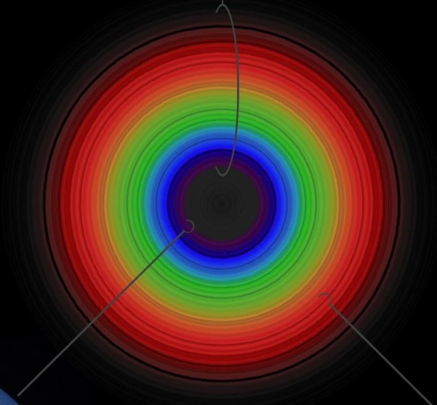


Spectrum of Wolf-rayet stars

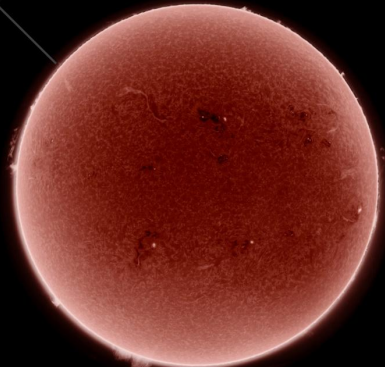
# Solar Spectrum



Visible Light  
(Photosphere)



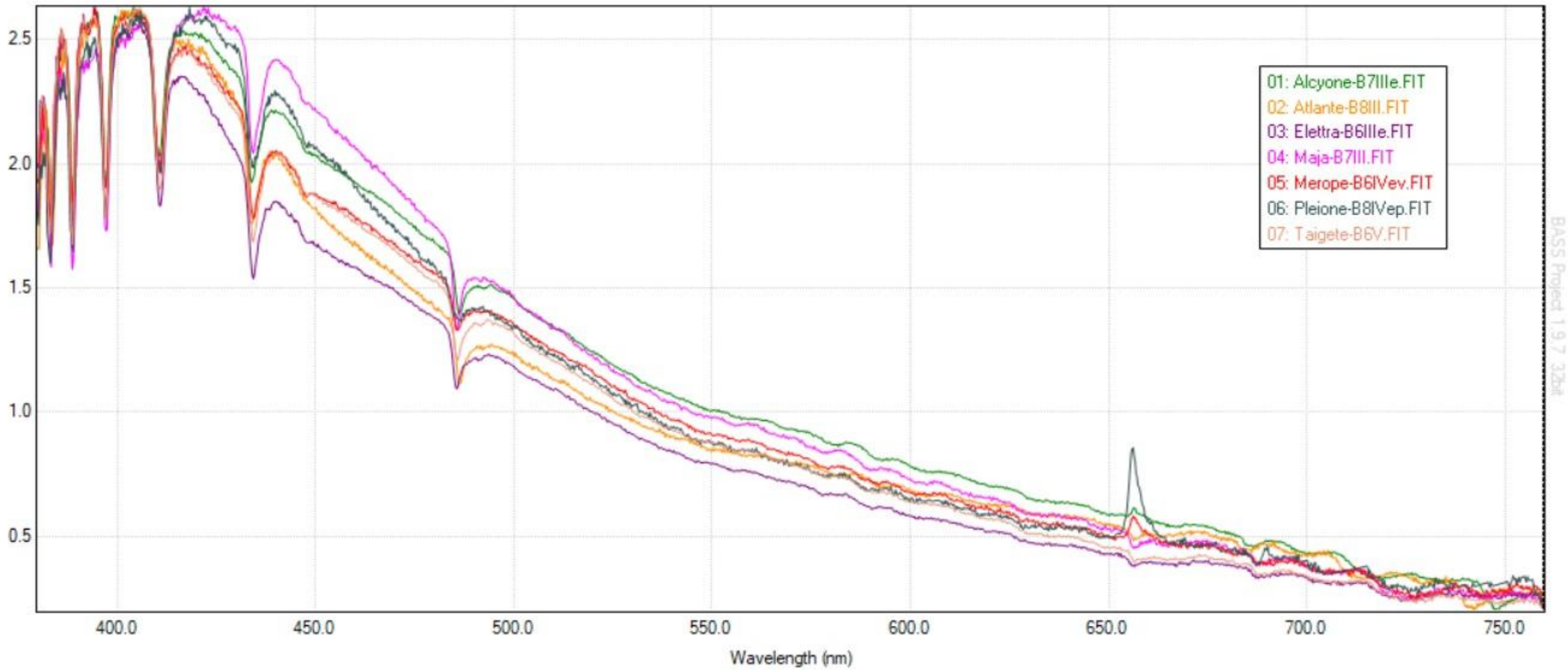
Calcium K-line (3933.7Å)



H-alpha (6562.8Å)



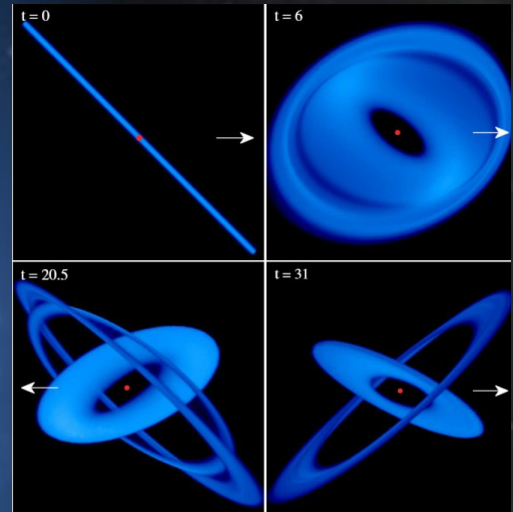
Spectrum of the Sun and monitoring of Chromosphere evolution

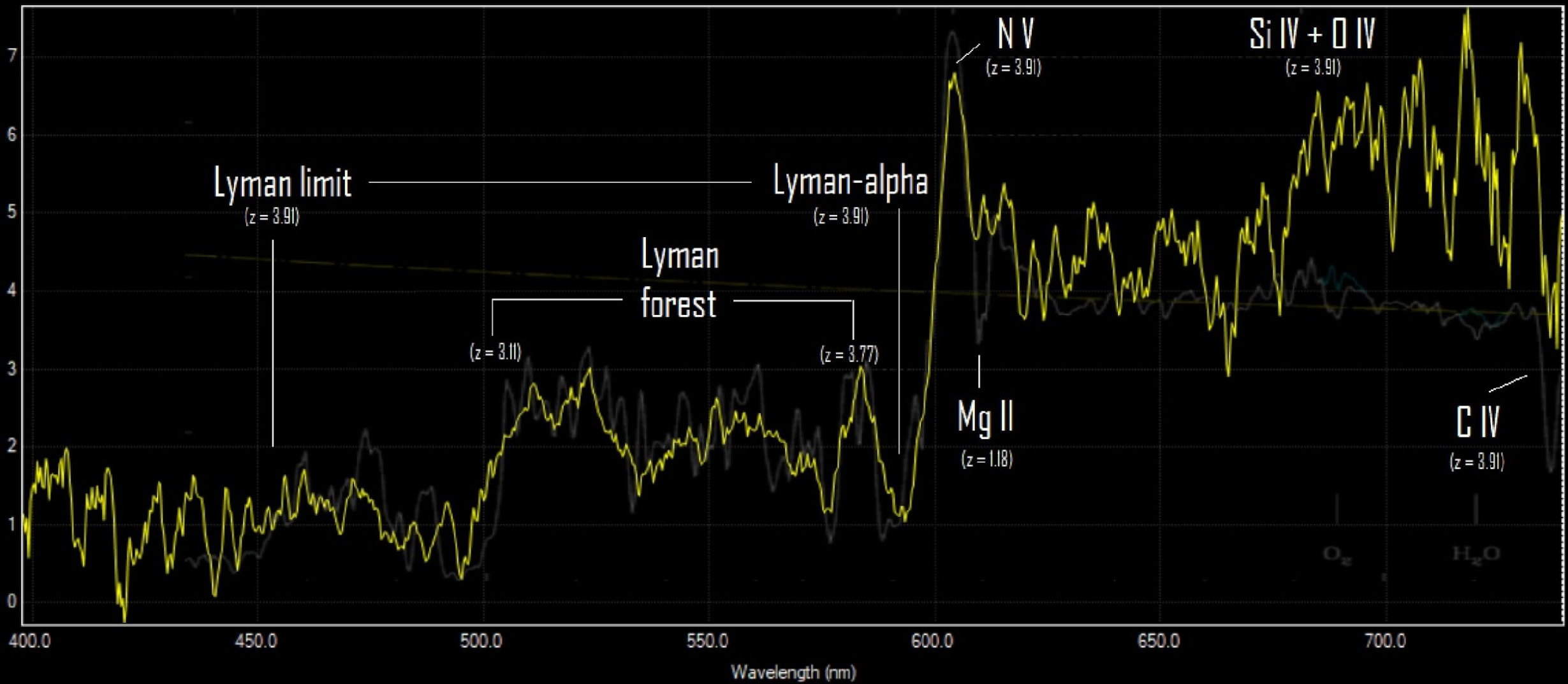


BASS Project 197 3264

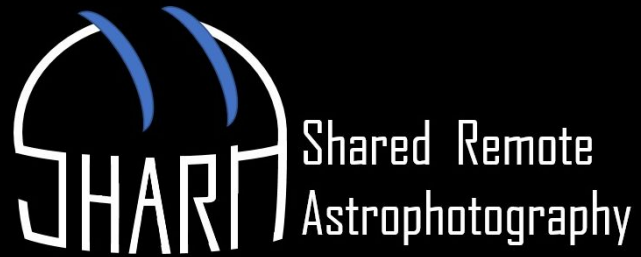
Spectrum of Be stars

Generation of artistic images with GenAI tools,  
starting from professional astrophysical models  
(example: model of Pleyone, Be star)





Spectrum of distant Quasars



Thank  
you!!!