SVENESIS · ASTRONOMY

My Siril Script Journey

From the Seestar to my own Python workflow

5 scripts inside the Siril product — in 7 weeks.

NAFT — Northern German Astrophotographers' Meeting

Sternfreunde Observatory Braunschweig-Hondelage

Saturday, May 2, 2026

Sven Ramuschkat

Hannover

Who am I? — and how I (re)discovered astronomy

Sven Ramuschkat

I come from IT — ever since school. Today an AI specialist, working daily with Claude by Anthropic and a lot of AWS Cloud.

THE TURNING POINT · SINCE JAN 1, 2026

I've scaled back at work — finally time again for tech, astronomy and everything I'm passionate about.

NEW SINCE 2026

Hannover Public Observatory — member of the club, regular exchange, learned a lot.

"Just grab the universe from the garden, real quick."

I got back in via the Seestar S50 and later the S30 Pro — smart telescopes deliver ready FITS files, and I wanted to understand what's inside them.

TRANSPARENT

All built with AI.

Every script you see today was built with heavy AI assistance — architecture, code, bug-hunting, even this slide deck.

Why Siril? — and how I use it

WHY SIRIL?

> **“Siril is open source, runs locally and gives me control.”**
>
> *Exactly the tool for someone who wants to know what’s going on under the hood.*

1 **Open Source**

Source code open, community active.

2 **Very powerful**

Pre-processing, stacking, stretching, photometry — all in.

3 **Scriptable**

Since Siril 1.4: Python scripts directly in the app.

From an “app I use” it became a “platform I develop on”.

MY METHOD

“I don’t just buy tools — I open up the engine bay.”

Question	What does “stretch” actually mean?
Script	Start small, make it visible.
Understand	Aha moment — the concept sticks.
Share	GitHub · Siril Repository.

Script 1: Multiple Histogram Viewer

Python · Siril 1.4+

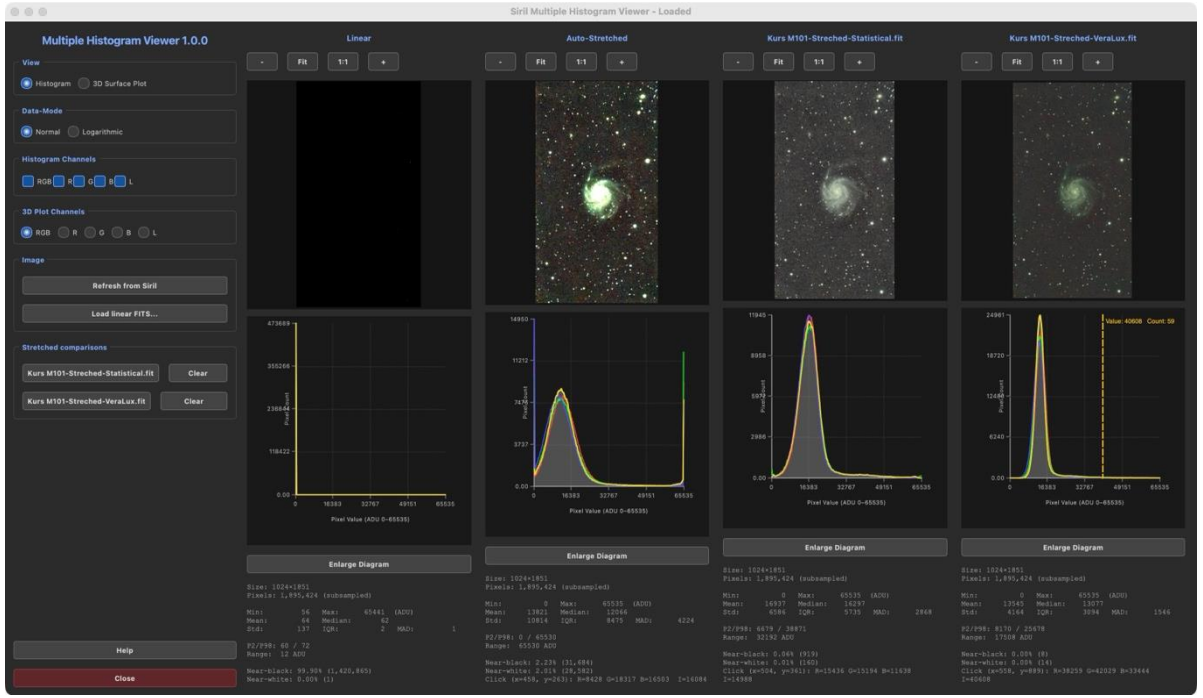
2,554

LINES OF PYTHON

✓ In the Siril repo

Repo start · Mar 14, 2026

“What does a stretch actually do to my data?”



RGB histograms side by side. Left panel: linear data. Right panels: the same data after different stretches. Below: a 3D plot of the brightness distribution.

IDEA

I wanted to understand what the different stretch methods do to the histogram — Asinh, MTF, GHS, Linear and VeraLux side by side.

APPROACH

Load a linear image, draw the histograms of several stretches side by side in parallel — including a 3D surface plot of the pixel distribution.

AHA MOMENT

Stretching isn’t magic — it’s a function. Once you understand the histogram, you understand the image.

Script 2: Gradient Analyzer

Python · Siril 1.4+

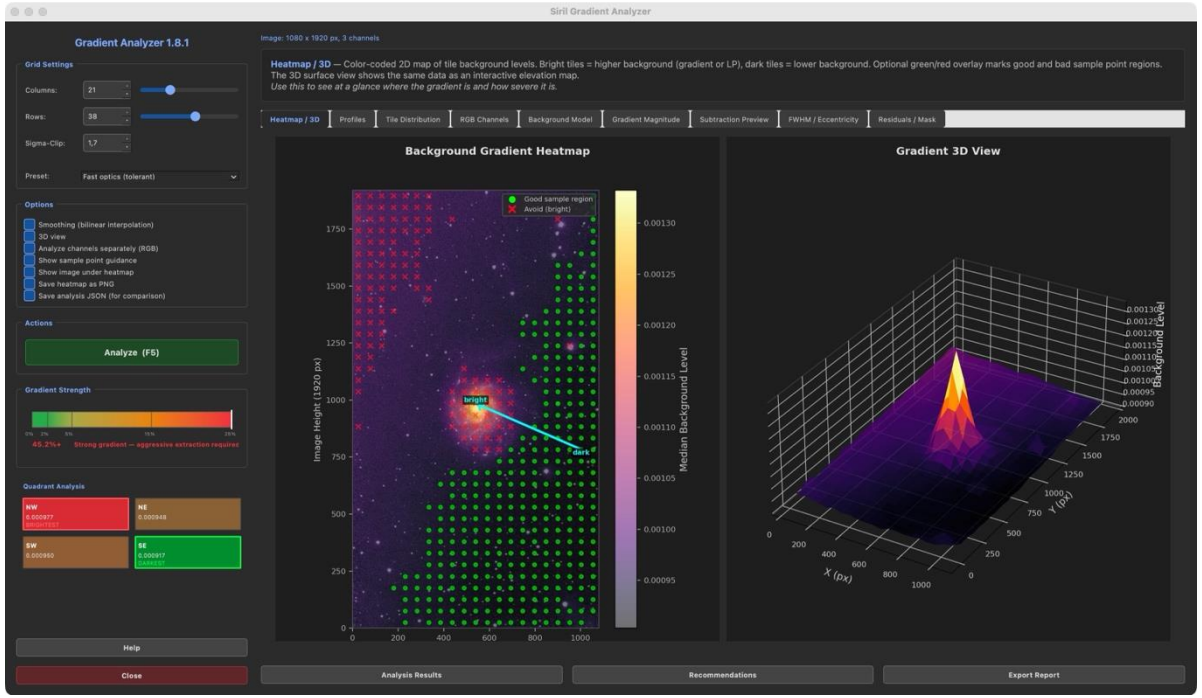
7,099

LINES OF PYTHON

✓ In the Siril repo

Mar 20, 2026

“How bright is my garden, really?”



Background heatmap, profiles along the X and Y axes, diagnostic values and a concrete recommendation for which Siril tool to use.

IDEA

I wanted to see how strongly light pollution, the Moon and oblique light skew the background — and which tool actually helps.

APPROACH

Heatmaps of the background, X/Y profiles, diagnostics, plus recommendations for which Siril tool (Background Extraction, Polynomial, RBF) fits best.

AHA MOMENT

A gradient isn’t a defect — it’s a fingerprint of your location and the night.

Script 3: Blink Comparator

Python · Siril 1.4+

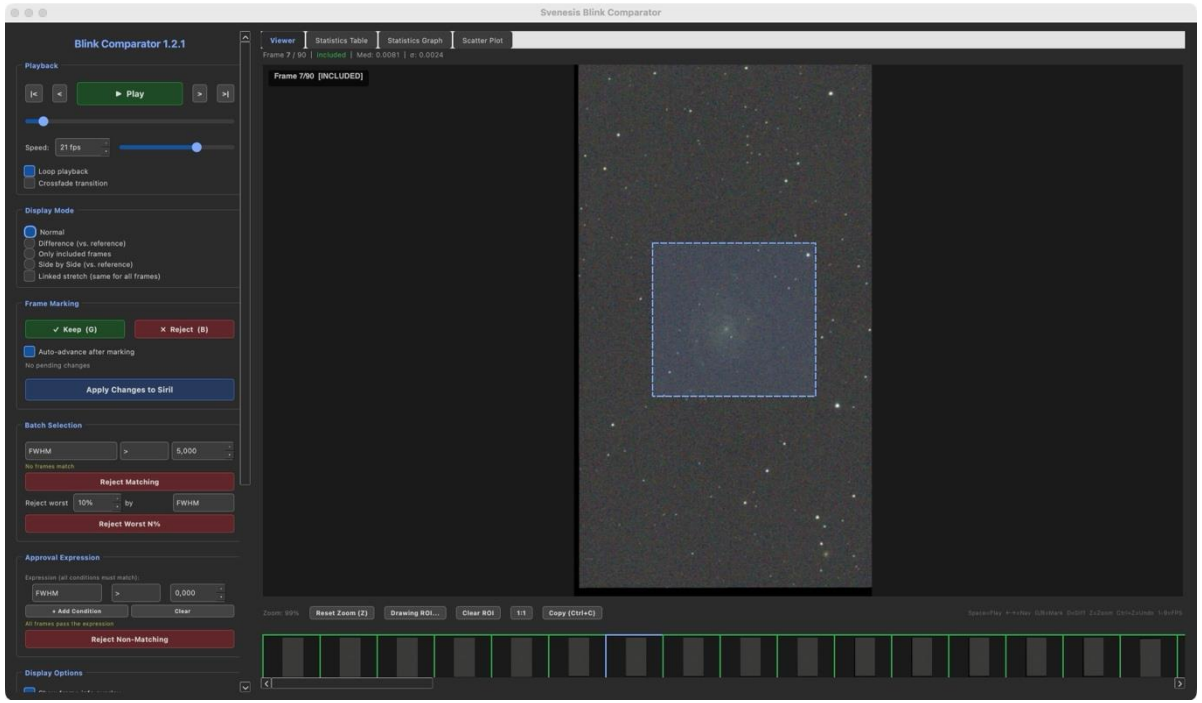
6,219

LINES OF PYTHON

✓ In the Siril repo

Mar 21, 2026

“Which frames do I throw out — and why?”



Animated viewer, sortable stats table, scatter plot, filmstrip. Rejection is non-destructive.

IDEA

Quickly blink through a folder full of FITS — spot satellites, clouds, tracking issues at a glance. Inspired by PixInsight Blink + SubframeSelector.

APPROACH

Temporary sequence in Siril, auto-stretch presets, FPS-controllable animation, sortable stats table (FWHM, roundness, background, stars).

AHA MOMENT

Bad frames don’t look bad — they change. The eye spots motion immediately.

OPEN QUESTION

Should the comparator build on Siril sequences — or be independent, scan files in the filesystem and move “bad frames” into a separate folder? I need community feedback.

Script 4: Annotate Image

Python · Siril 1.4+

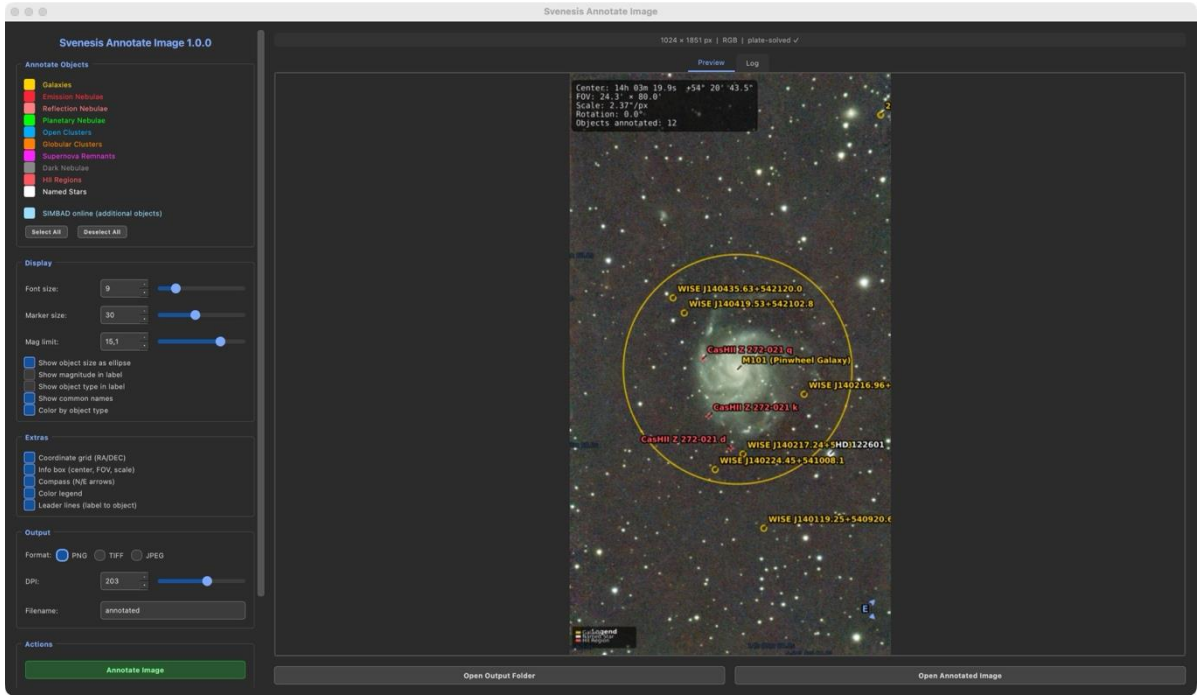
3,556

LINES OF PYTHON

✓ In the Siril repo

Mar 21, 2026 · live data from VizieR & SIMBAD

"What's actually all on this image?"



12 object types color-coded, RA/Dec grid, compass, info box, legend. Data comes live from VizieR and SIMBAD — no built-in catalogs.

IDEA

Plate-solved image → labels for galaxies, nebulae, star clusters, proper names. Inspired by PixInsight AnnotateImage.

APPROACH

Selection by object type (instead of catalog), parallel online queries (VizieR + SIMBAD), label-collision avoidance, export as PNG/TIFF/JPEG.

AHA MOMENT

An image becomes a knowledge image once the names are on it — and that's incredibly motivating to keep going.

Script 5: CosmicDepth 3D

Python · Siril 1.4+

4,308

LINES OF PYTHON

✓ In the Siril repo

Apr 18, 2026

“How far away is what, really?”

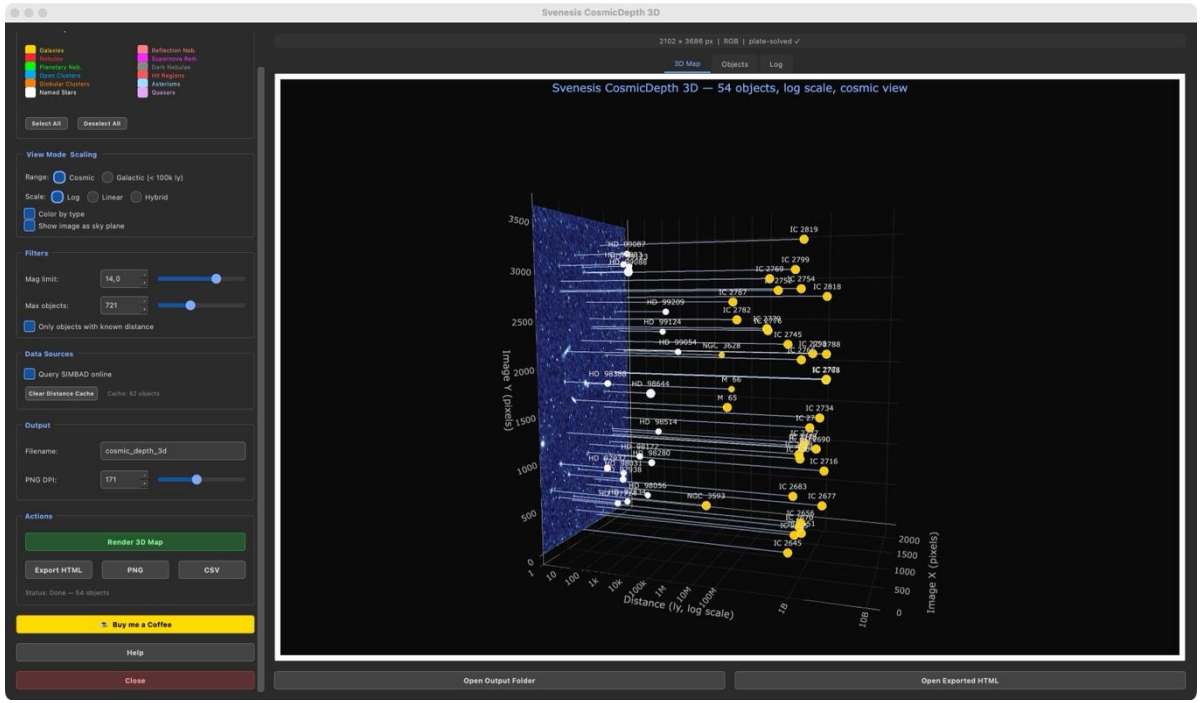


Image plane as the floor, every object on a “stick” at its real distance. Rotatable, exportable as HTML/PNG/CSV.

IDEA

The flat image gains a third dimension — each object stands on a “push-pin” at its SIMBAD distance.

APPROACH

Object list from the plate-solve, distances from SIMBAD, 3D scene with the image plane as the floor. Scale: linear, log or hybrid.

AHA MOMENT

What sits next to each other in the image can be light-years apart. It brings back humility.

Feedback from the Siril team and community

FROM THE SIRIL MAINTAINER

> *This is very cool, and although the webEngine thing is a pain (I wish pypi handled that better) the workaround you've used is helpful. Happy to merge this* 😅

AB

Adrian Knagg-Baugh

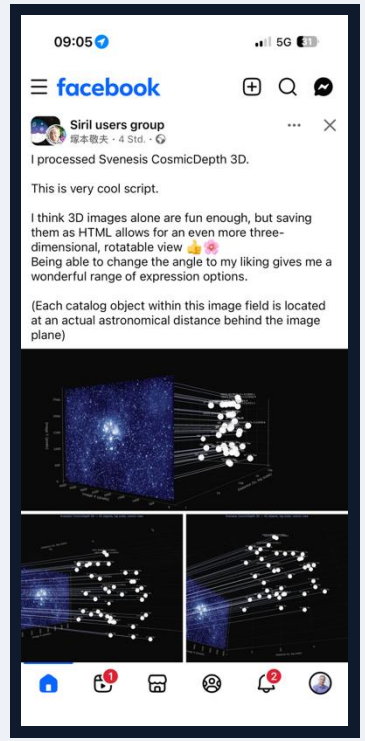
Siril Developer · Apr 20, 2026 · MR !239

From "personal learning script" to the official Siril repo — in two days.

Open source works best when both sides are up for it.

FROM THE COMMUNITY

Siril Users Group · Facebook



About CosmicDepth 3D

Work in Progress: GalacticView 3D

Python · Siril 1.4+

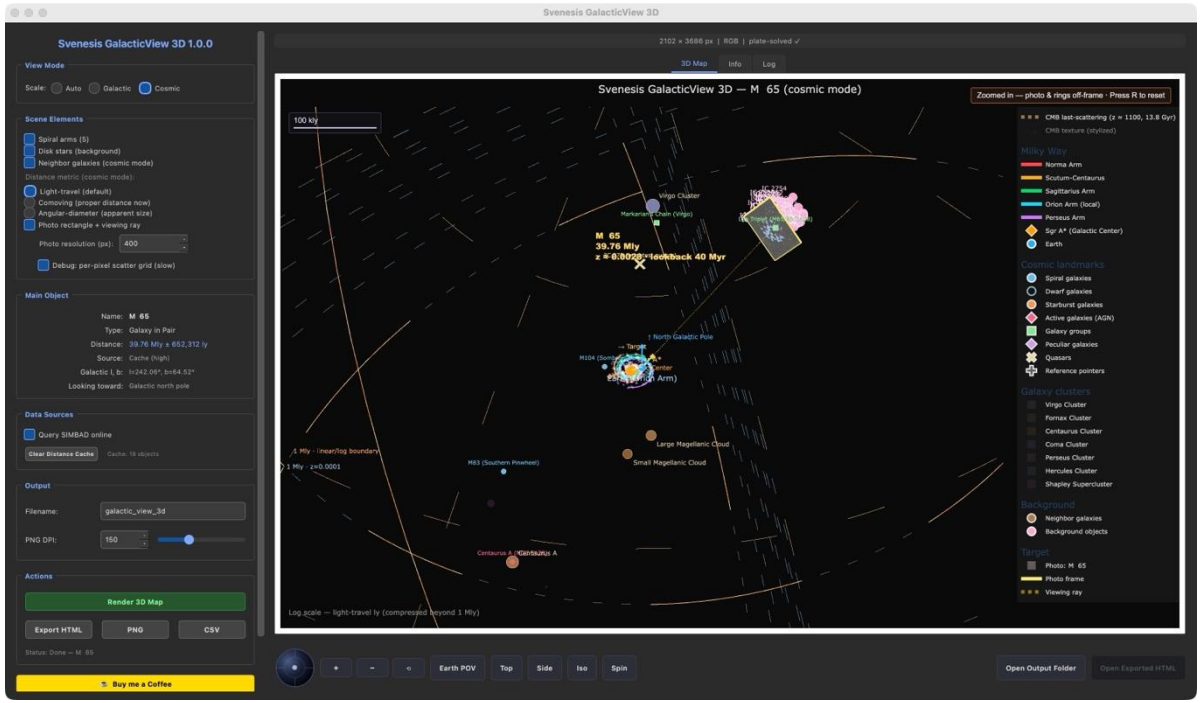
9,854

LINES OF PYTHON

Work in Progress

as of May 1, 2026

"Where does my image sit in the universe?"



Cosmic mode with M 65 as the target: Milky Way spiral arms, Earth in the Orion arm, neighbour galaxies, Virgo cluster, plus the brightest quasar 3C 273.

IDEA

I look from Earth out to the image and see the spatial context.

APPROACH

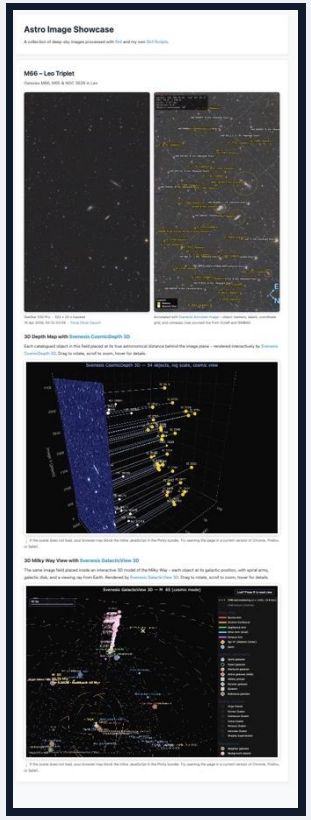
Spiral arms and stars as backdrop, SIMBAD distances, light-travel/comoving/angular-diameter metrics, photo rectangle + viewing ray.

AHA MOMENT

The image isn't the goal. The image is the start — the question "where did I just land?" is far more interesting.

My Astro Image Showcase

ON SVENESIS.ORG



svenesis.org / astronomy / astro-image-showcase

An astrophoto shouldn't just be an image — it should be experienceable. My showcase combines four views into one story:

1. **The finished photo**

   SeeStar S30 Pro, 502 × 20 s — the capture as a static image.

2. **Annotate Image → PNG with labels**

   Object markers, labels, coordinate grid, compass — data live from VizieR & SIMBAD.

3. **CosmicDepth 3D → interactive HTML**

   Every catalog object at its true distance behind the image plane. Drag · Zoom · Hover.

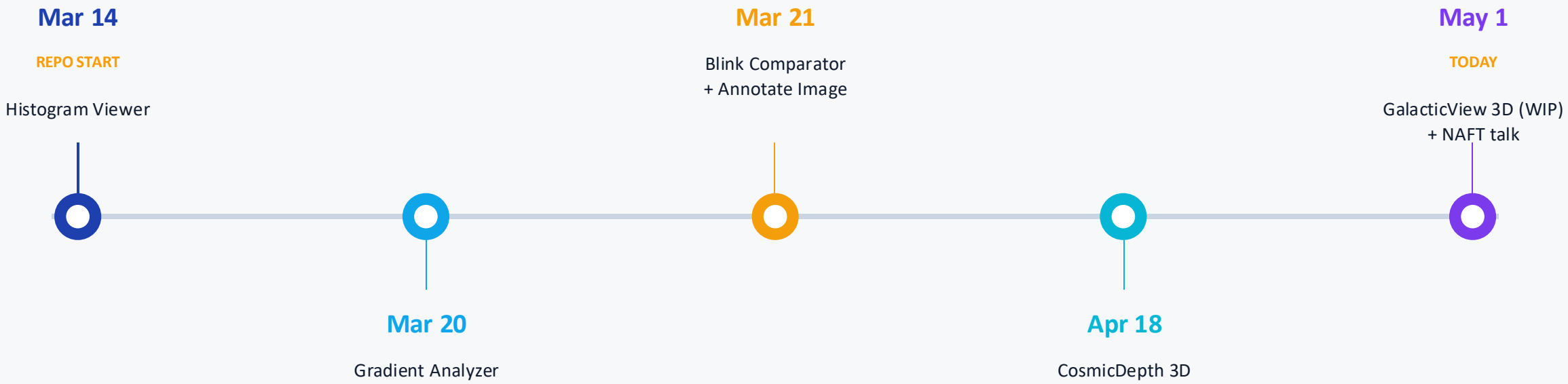
4. **GalacticView 3D → interactive HTML**

   The same field embedded in a 3D model of the Milky Way. Drag · Zoom · Hover.

From a flat image to full understanding — all views together tell the full story.

The journey on fast-forward

From repo start to today — all in roughly seven weeks.



≈ 7	5	1	100 %
Weeks	Scripts in the official repo	WIP — already 9,854 lines today	AI-assisted development

What I’ve learned

Scripts are the best textbook.

If you want to know how an algorithm works, write it. Reading isn’t enough.

AI is a first-class sparring partner.

LLMs explain concepts, suggest libraries, find bugs — and are never annoyed.

Open source works.

Siril, astropy, astroquery, matplotlib — the shoulders you stand on are impressive.

Astronomy takes patience.

The data is there. But until it becomes an image? That you don’t learn in one night.

Thank you!

Questions? Discussion?

More & all scripts to try yourself:

svenesis.org · github.com/sramuschkat/Siril-Scripts

In Siril: Scripts → Get Scripts → "Svenesis …"