PlanStax — The options of the interface

A quick description of every setting (lists, tick boxes, sliders, values and buttons) of the four processing tabs — Alignment, Selection and stacking, Wavelets and Finishing — then of the display, of saving, of the EXIF metadata, of the watermark, and of the "Batch processing" and "Assemble a mosaic" windows. This document describes version 1.5. The ranges and default values are those of the interface. The settings of the four tabs are saved in the presets (Presets menu) and used by the batch processing.

The workflow follows RegiStax 6: tabs 1 and 2 produce the raw stack from the video; tabs 3 and 4 then work on that image, with an immediate preview. The "Do all" button (F5) chains analysis, reference, alignment points, alignment, selection and stacking with the settings of the first two tabs.

1. 1 · Alignment

This tab defines how the frames of the video are analysed, which reference frame is built, and how the alignment points are placed and then tracked from one frame to the next.

"Source" group

Option	Type	Range · default	Function and purpose
Source name	Text	—	Recalls the open video or image series, its number of frames and its format.
Bayer matrix	List	Automatic (from the file) · None (mono) · RGGB · GRBG · GBRG · BGGR	Tells how to demosaic a colour video from a Bayer sensor. "Automatic" reads the file header (SER). Force a pattern if the colours are wrong or the header is missing (AVI), or choose "None" to process the video in monochrome. Changing the value reloads the video.
First frame	Value	1 to the number of frames — default 1	Number of the first frame of the sequence to process: the frames before it are left aside, without even being read. With "Last frame", limits the processing to a part of the video: a cloudy passage to leave out, the rotation of the planet over a long capture, an unusable start or end. It belongs to the video opened: presets do not store it. Changing the value drops the analysis and the points.
Last frame	Value	1 to the number of frames — default: the last one	Number of the last frame of the sequence to process: the frames after it are left aside. The text under the two fields recalls the number of frames of the sequence. On the command line: --first and --last.
← frame shown	Button	—	Next to each of the two fields: copies the number of the frame shown under the picture into it. Browse the video with the bar under the picture up to the start (or the end) of the sequence wanted, then click.

"Object" group

Option	Type	Range · default	Function and purpose
Type	List	Automatic · Planet (disc on a black background) · Surface (Moon, Sun) — default: Automatic	Tells PlanStax what it is looking at. In Planet mode, the global alignment follows the centre of the disc and frames where the planet touches the edge can be left out. In Surface mode (Moon, Sun, landscape), the global alignment uses the whole frame, relying on the stable areas, and frames touching the edge are kept. "Automatic" decides from the best frame.
Noise robustness	Value	0 to 5, step 0.25 — default 1.5	Smoothing (sigma in pixels) applied before measuring the sharpness of each frame. Increase it for noisy videos (high gain, low light) so that noise is not counted as detail and does not distort the ranking of the frames. Also used for the local quality measurement at each point.
Leave out unusable frames	Tick box	ticked by default	Leaves out, before anything else, the nearly black frames (empty field, cloud), those with abnormal colours (frame badly transmitted by the camera, shifted Bayer matrix) and, for a planet, those where the object reaches the edge (tracking, wind). These frames are used neither for the reference nor for the stack, and the percentage of tab 2 is counted on the remaining frames. A frame the file cannot give (video cut short, damaged frame) is always left out, whether the box is ticked or not, without ending the processing.
Reference frames	Value	0 (auto) to 500 — default auto	Number of best frames averaged to build the reference frame on which everything is aligned. "auto" takes 10 % of the usable frames, between 3 and 50. More frames: less noisy but slightly softer reference; fewer frames: sharper but noisier.

"Alignment points" group

The points are placed on a regular grid covering the object, on the reference frame. Each point is then tracked individually in every frame (multipoint alignment), which corrects the local distortions caused by seeing. Equivalent to "Set alignpoints / Estimate" in RegiStax.

Option	Type	Range · default	Function and purpose
Spacing	Value	8 to 400 px — default 30	Distance between two neighbouring points of the grid. Smaller: more points, finer correction but longer computation. Corresponds to "Dist" in RegiStax.
Box size	Value	8 to 400 px — default 35	Side of the square area compared around each point to measure its displacement. A large box is more robust to noise but less local; a small box follows small details better but loses track more easily. Corresponds to "Alignbox size".
Search radius	Value	1 to 100 px — default 10	Largest local displacement searched around each point, on top of the global shift. Increase it when seeing is strong or when points "lose track"; reduce it to speed up and avoid false matches.
Min. brightness	Value	0 to 255 — default 30	No point is placed where the mean brightness of the box is below this threshold (sky background, dark limb). Corresponds to "Low intensity".

Option	Type	Range · default	Function and purpose
Max. brightness	Value	0 to 255 — default 255	No point is placed where the box is brighter than this threshold (saturated areas, with no usable detail). Corresponds to "High intensity".
Edge margin	Value	0 to 500 px — default 20	Minimum distance between a point and the edge of the frame. Avoids areas that leave the field when the image moves. Corresponds to "Matrix edge".
Maximum number	Value	1 to 5,000 — default 500	Cap on the number of points. Beyond it, only the points whose area holds the most detail are kept.
Minimum detail	Value	0 to 100 % — default 5 %	Leaves out areas without structure: a point is kept only if the detail of its box reaches this percentage of the detail of the best box. Avoids placing points on uniform areas where nothing allows a displacement to be measured.
Place the points	Button	—	Builds the reference if needed, then places the grid of points with the settings above. The text under the button gives the number of points placed and the reasons for the zones left out (too bright, too dark, without detail, beyond the maximum). On the picture: Ctrl + click adds a point, Shift + click removes one, the wheel zooms, dragging moves the view. The points added by hand stay in place when the grid is placed again (a setting changed, the button clicked again), as long as their box fits in the frame.
Align	Button	—	Starts the alignment of every frame: global shift of each frame onto the reference, then displacement of each alignment point with sub-pixel refinement. The result is summarised under the button.

2. 2 · Selection and stacking

This tab brings together the former "Selection" and "Stacking" tabs. It first chooses how many frames, among the usable frames ranked by quality, will enter the stack ("Limit" in RegiStax): this setting takes effect at once, the number of frames kept and the curve are updated without aligning again. It then sets how these frames are combined into one raw image ("Stack" in RegiStax), with three additions: the local selection per point, the enlargement and, for planets, the centred crop.

"Keep the best frames" group

Option	Type	Range · default	Function and purpose
Method	List	Percentage · Number of frames · Minimum quality — default: Percentage	How the cut-off is set. Only the field matching the chosen method is active, the other two are greyed out.
Percentage	Value	0.1 to 100 %, step 5 — default 80 %	Share of the usable frames to keep (frames left out automatically by tab 1 do not count). For a planet, 20 to 50 % is common; for a short or steady video, more.
Number	Value	1 to 1,000,000 — default 100	Fixed number of best frames to keep, whatever the total. Handy to compare videos of different lengths.
Minimum quality	Value	0 to 100 %, step 5 — default 50 %	Keeps every frame whose quality reaches this percentage of the best frame's quality. The number kept then depends on the seeing: many frames under a steady sky, few under a turbulent one.

"Quality of the frames" group

Option	Type	Range · default	Function and purpose
Quality curve	Clickable graph	—	Plots the quality of every usable frame, from the best (left) to the worst (right), normalised to the best, with the current cut-off. A click on the curve moves the cut-off and automatically updates the value of the current method (percentage, number or quality). A sharp break in the curve is a good place to cut.
Summary	Text	—	Gives the number of frames kept out of the number of frames of the sequence (and the percentage), as well as the number of frames left out automatically and why: empty or too dark, abnormal colours, planet cut by the edge, unreadable.
Bar under the image	Browsing slider	—	Lets you browse the video, in chronological order or from the best to the worst frame, to judge by eye where to place the cut-off. Once the stack is made, the "Show" list, under the picture, chooses between the frames of the video and the stack (see "Under the picture").

"Stacking" group

Option	Type	Range · default	Function and purpose
Local selection	Value	1 to 100 %, step 5 — default 100 %	For each alignment point, keeps only this percentage of the frames kept above, the sharpest ones at that very place. Turbulence does not degrade the whole frame at the same time: at 50 %, each zone is made of its own best frames. At 100 %, the same frames are used everywhere, as in RegiStax. A low value gives a sharper but noisier image.
Enlargement	List	1× (original size) · 1.5× · 2× · 3× — default 1×	Resamples the frames during stacking ("drizzle"-like effect) to produce an image larger than the video. Useful when the sampling is a little short for the telescope's resolution or to ease fine processing; the image and the computing time grow accordingly.
Even out the brightness of the frames	Tick box	unticked by default	Brings each frame to the median brightness of the frames kept before stacking it. Makes up for changes of transparency during the capture (veils, haze, thin clouds) which would otherwise weight the stack unintentionally.
Weight by quality	Tick box	unticked by default	Gives each frame a weight proportional to its quality (global, and local for each point) instead of an equal weight. The best frames count more; useful when a high percentage of frames is kept.
Crop around the planet	Tick box	unticked by default	Planets only: the stack is limited to a square centred on the disc. The computation needs less memory, and the images have the same size and the same centring from one video to the next, ready for an animation. No effect on a surface (Moon, Sun, landscape), which has no disc to centre on: the text under the "Stack" button says so.
Side of the square	Value	0 (auto) to 20,000 px, step 16 — default auto	Side of the crop square, in pixels of the video (before enlargement). "auto" takes the disc and a 20 % margin. Set a value to get exactly the same image size over a whole series of videos. The square never exceeds the frame. Active when the box above is ticked.

Option	Type	Range · default	Function and purpose
Settings changed since the stack	Warning	—	An orange message, above the "Stack" button, that appears when a setting of tabs 1 and 2 or the sequence has changed since the stack shown: the image on screen no longer matches the settings. It goes away after a new stack, or if the settings come back to their values.
Stack	Button	—	Starts the stacking with the settings of tabs 1 and 2 (aligns first if needed). The result, the number of frames stacked and, where it applies, the side of the crop square are shown under the button; the raw image becomes the basis of tabs 3 and 4.
Save the raw stack…	Button	—	Saves the stacked image as it is, without wavelets nor finishing (16-bit TIFF, PNG, FITS…). Use it to process the image in another program or for a mosaic assembled later.

3. 3 · Wavelets

The stacked image is split into six detail layers, from the finest (layer 1) to the coarsest (layer 6), plus a residual. Each layer can be amplified (sharpening) and cleaned (denoising) before being recombined. With every sharpening at 0 and denoising at 0, the image is returned unchanged. The preview is immediate at every change.

"Method" group

Option	Type	Range · default	Function and purpose
Scheme	List	B3-spline "à trous" (linear) · Gaussian — default: B3-spline	Smoothing filter that separates the layers. "B3-spline à trous" is the classic scheme (the "linear" of RegiStax): each layer is derived from the previous one. "Gaussian" smooths the image directly at each scale: slightly softer rendering, fewer artefacts on sharp transitions.
Progression	List	Dyadic (1, 2, 4, 8…) · Linear (1, 2, 3, 4…) — default: Dyadic	How the scale grows from one layer to the next. "Dyadic" doubles at each layer and covers a wide range of sizes. "Linear" concentrates the layers on fine and medium details, for a more gradual adjustment of small structures.
Size of the 1st layer	Value	0.25 to 8 px, step 0.25 — default 1 px	Scale, in pixels, of layer 1; the others follow from it according to the progression. Increase it if the image was enlarged (2×, 3×) or is oversampled, so that layer 1 does not work on noise alone.
Apply to	List	RGB channels · Luminance only — default: RGB channels	"RGB channels" sharpens each colour channel. "Luminance only" sharpens brightness only and leaves colour untouched: chrominance noise is not amplified, colours stay smooth.

"Layers" group (six identical lines)

Option	Type	Range · default	Function and purpose
Layer n	Tick box	ticked by default	Enables the layer. Unticked, the layer is skipped during recombination: its details vanish from the image, which amounts to smoothing it at that scale. Its controls are then greyed out.

Option	Type	Range · default	Function and purpose
Sharpening	Slider	0 to 100, step 0.5 — default 0	Strength of the layer's boost: 0 = layer untouched, 100 = strongest. The range is adapted to each layer (the maximum gain decreases from layer 1 to layer 6): the same setting gives a comparable effect on every layer, and the progression is gentle near 0 for fine control. Start around 30 to 50 on layers 1 to 3.
Gain	Display (×n)	read only	Gain actually applied to the layer, computed from the sharpening (for example ×33.3). This is the value saved in presets, which lets you compare it from one preset to another.
Denoising	Value	0 to 1, step 0.05 — default 0	Removes, in this layer, the details weaker than a threshold proportional to the measured noise of the layer (soft thresholding). 0 = no denoising. Use mostly on layers 1 and 2, where noise concentrates, when sharpening brings it out.
Reset the layers	Button	—	Returns the six layers to neutral (enabled, sharpening 0, denoising 0) as well as the method (B3-spline, dyadic, 1 px, RGB).

Landmarks: layers 1-2 = fine detail (and noise); layers 3-4 = medium structures (belts, craters); layers 5-6 = large structures and overall contrast.

4. 4 · Finishing

Last corrections applied to the image after the wavelets (except the RGB alignment, applied before). Equivalent to the "Functions" menu of RegiStax. Order of application: RGB alignment → wavelets → colour balance → black/white point → gamma → brightness/contrast → saturation → orientation.

"Histogram" group

Option	Type	Range · default	Function and purpose
Histogram	Graph	—	Distribution of the levels of the processed image, one curve per colour channel, on a logarithmic scale (a planet is mostly black sky). Under the graph: the share of values at black and the share clipped to white, in orange as soon as it exceeds 0.1 %. Clipped white means burnt highlights: lower the sharpening of the wavelets or raise the white point. Updated at every change of a setting of tabs 3 and 4.

"Colour alignment (atmospheric dispersion)" group

Option	Type	Range · default	Function and purpose
Automatic RGB alignment	Button	—	Measures, on the stacked image, the shift of the red and blue channels relative to green (phase correlation then refinement to a hundredth of a pixel) and fills the four fields below. Corrects the colour fringes caused by atmospheric dispersion when the object is low over the horizon.
Red x / y	Values	−30 to +30 px, step 0.1 — default 0	Shift applied to the red channel, horizontally (x) and vertically (y), to superimpose it on green. Adjust by hand if the automatic result is not perfect.

Option	Type	Range · default	Function and purpose
Blue x / y	Values	−30 to +30 px, step 0.1 — default 0	Same for the blue channel. Green is the reference and does not move.

"Colour balance" group

Option	Type	Range · default	Function and purpose
Automatic balance	Button	—	Computes the red, green and blue gains that make the object neutral on average (mid-grey on the object, green as the reference) and sets the sliders. A good starting point, to be corrected by eye for a naturally coloured planet.
Red / Green / Blue	Sliders	0.2 to 3, step 0.01 — default 1	Multiplier of each channel. 1 = unchanged; larger strengthens the colour, smaller weakens it. Corrects a cast due to the sensor, the filter or the atmosphere.
Saturation	Slider	0 to 3, step 0.01 — default 1	Intensity of the colours: 0 = black and white, 1 = unchanged, beyond that colours are boosted (beware of colour noise).

"Levels" group

Option	Type	Range · default	Function and purpose
Black point	Slider	0 to 0.5, step 0.005 — default 0	Level brought to black: everything below becomes black. Darkens the sky background and removes the residual veil of the stack.
White point	Slider	0.3 to 1.5, step 0.005 — default 1	Level brought to white. Below 1, the image is stretched towards the highlights (brighter, more contrasted); above 1, it is darkened, which recovers headroom on burnt-out areas.
Gamma	Slider	0.2 to 3, step 0.01 — default 1	Mid-tone curve. Above 1, the half-tones are brightened without touching black or white; below 1, they are darkened.
Brightness	Slider	−0.5 to +0.5, step 0.005 — default 0	Shifts every level uniformly towards light (positive values) or dark (negative values).
Contrast	Slider	0.2 to 3, step 0.01 — default 1	Stretches (above 1) or compresses (below 1) the levels around mid-grey.
Automatic stretch	Button	—	Puts the black point just under the darkest pixels and the white point just over the brightest (0.5 % and 99.95 % percentiles of the image after wavelets), to use the whole dynamic range without burning the highlights.

"Orientation" group

Option	Type	Range · default	Function and purpose
Rotation	List	0° · 90° clockwise · 180° · 90° anticlockwise — default 0°	Quarter turns of the final image, lossless and without resampling. To put north up or match the orientation of a map.
Fine rotation	Slider	−90 to +90°, step 0.1 — default 0	Precise rotation by tenths of a degree (positive = clockwise), applied last. The image is enlarged so that nothing is cut off: the corners stay black. Straightens a terminator, a limb or a horizon.
Horizontal mirror	Tick box	unticked by default	Flips the image left-right, for example to compensate for a star diagonal.

Option	Type	Range · default	Function and purpose
Vertical mirror	Tick box	unticked by default	Flips the image top-bottom.
Reset the finishing	Button	—	Returns every setting of the tab (RGB alignment, balance, saturation, levels, orientation) to its neutral value.

5. Display, saving and general commands

What depends on no tab: the bars under the picture, the saving of the result, the EXIF metadata, the watermark, and the behaviour shared by all the settings. Nothing of what follows is stored in the presets.

Under the picture

Option	Type	Range · default	Function and purpose
Frame bar	Slider + number + list	Chronological order · By quality (best first)	Browses the frames of the video. On the right: the number of the frame, its rank, its quality, whether it is kept, left out automatically (and why) or outside the sequence. Shown when the picture shows the frames of the video.
Show	List	Frames of the video · Stacking	In tab 2, once the stack is made: chooses what the picture shows. "Frames of the video" to check the selection, "Stacking" to see the result. After a stack, the picture switches to the stack by itself.
Display gamma	Slider	0.2 to 8, logarithmic scale — default 1	Brightens (above 1) or darkens the picture shown, to aim at a very faint object — a satellite of a planet — and place a point on it by hand. Acts on the frames of the video and on the reference, in tabs 1 and 2. It only acts on the display: the alignment, the stack and the saved image do not change.

Saving (File menu)

Option	Type	Range · default	Function and purpose
Save the image… (Ctrl+S)	Command	16-bit TIFF · 16-bit PNG · 32-bit float FITS · 16-bit FITS · JPEG	Saves the result, wavelets and finishing included. The format is the one chosen in the list of the save window: the file takes its extension, even if the name offered bore another one. The last format chosen is offered the next time. The file is written in the background. The watermark chosen in the Watermarks menu is blended in, and the EXIF metadata are written (TIFF, JPEG, PNG): see below.
Save the raw stack… (Ctrl+Shift+S)	Command	—	Saves the stack without wavelets or finishing, like the button of tab 2. The EXIF metadata are written to it, but never the watermark.
File name in WinJUPOS format	Menu option	unticked by default	Planets: the name offered when saving starts with the time of the video (middle of the stacked sequence, universal time), as WinJUPOS reads it: 2026-11-14-2134_5-jupiter.tif for 21 h 34.5 min. For time-stamped SER videos; greyed for a video without a time (AVI, MP4, series of images) and for a surface.

Option	Type	Range · default	Function and purpose
Time and settings (planets)	Automatic	—	For a planet, the time of the video is written to the header of FITS files (DATE-OBS), and a "name_reglages.json" file is written next to the processed image: the settings used, the video, the sequence, the number of frames stacked and the time. That file loads as a preset. Nothing of the kind for a surface. The time also goes to the EXIF metadata of TIFF, JPEG and PNG files, this time for a surface as for a planet (see "EXIF metadata").
Unsaved result	Question	Save… · Do not save · Cancel	Asked before closing PlanStax, opening another video or another image, or changing the Bayer matrix, when the result on screen has not been saved since the last stack or the last change of wavelets or finishing. "Save…" writes the file, then does what was asked.

EXIF metadata (File → EXIF metadata…)

Chooses what PlanStax writes to TIFF, JPEG and PNG images, when saving from the window, in the batch processing, in mosaics and on the command line. These choices are kept from one session to the next (file exif.json, next to the presets), not in the presets. A FITS file has no EXIF: it keeps its header (DATE-OBS).

Option	Type	Range · default	Function and purpose
Write EXIF metadata to the images saved	Tick box	ticked by default	Unticked, the images are written without any metadata, as before version 1.5, and the fields below are greyed out. On the command line: --no-exif.
Author	Field	empty by default	Name written to the EXIF field "Artist". Left empty, it is not written. On the command line: --author, which replaces it for that command.
Copyright	Field	empty by default	Rights notice written to the "Copyright" field. Left empty, it is not written. On the command line: --copyright.
Software (PlanStax and its version)	Tick box	ticked by default	Writes "PlanStax 1.5.0" to the "Software" field.
Capture date and time, in universal time	Tick box	ticked by default	For a time-stamped SER video: the time of the middle of the frames of the sequence, for a planet as for a surface (field "DateTimeOriginal", with the milliseconds and the zone +00:00). For a mosaic: the middle of the interval its images span. Nothing is written for a video without a time (AVI, MP4).
Description: video and number of frames stacked, or list of the images of a mosaic	Tick box	ticked by default	Field "ImageDescription": "jupiter.ser — 81 frames stacked out of 200"; for a mosaic, the list of the images assembled and the interval of the captures.
Keep the camera, author and copyright of the original images	Tick box	ticked by default	An image opened for the wavelets (Ctrl+I), a series of photographs or a mosaic keep the make and model of the camera of their original images, and their author and copyright if the fields above are empty: what you typed wins. For a mosaic, only what all its images agree on. The time of an image comes from its EXIF, otherwise from DATE-OBS (FITS), from the "name_reglages.json" file or from a name in WinJUPOS format.
Example	Text	—	Shows, for a mosaic of three images, the fields as they will be written with the current choices.

Option	Type	Range · default	Function and purpose
File → Read the EXIF of an image…	Command	TIFF · JPEG · PNG	Shows the metadata a file holds: author, copyright, software, description, capture time, camera. To check an image that was saved.

Watermark (Watermarks menu)

Lays a signature or a logo on the image saved: a black-and-white image (TIFF, PNG, JPEG or BMP) put in the "filigranes" folder, next to "input" and "output". The drawing is the tone the border of that image has least of — white strokes on black, or black on white — and the background becomes transparent; a transparent PNG is taken as it is. The watermark chosen, its position and its settings are kept from one session to the next.

Option	Type	Range · default	Function and purpose
None · name of an image	List	the images of the "filigranes" folder — default: None	Chooses the watermark. The pointer becomes a cross: the next click on the image places it. "None" removes it.
Click on the image	Behaviour	—	Places the watermark, centred on the point clicked. It can then be dragged with the mouse. What the window shows is what will be saved; "Before / after" (B key) hides it.
Place with a click on the image	Command	—	Brings the cross pointer back, to place the watermark elsewhere with a click.
Size	List	10 · 15 · 20 · 25 · 30 · 40 · 50 % of the width of the image — default 25 %	Width of the watermark, in proportion to that of the image: it keeps the same place and the same weight from one image to the next, whatever their size.
Opacity	List	25 · 40 · 60 · 80 · 100 % — default 60 %	At 100 %, the drawing covers the image; below, the image shows through.
Tone	List	White (black sky) · Black (bright surface) — default: White	Colour the drawing is laid in: white on a sky background, black on a bright surface (Moon, Sun).
Open the watermarks folder	Command	—	Opens the folder in the file explorer, to put your images there. The list of the menu is read again each time it opens.
Saving	Automatic	—	The watermark is blended in by "Save the image…" (Ctrl+S), never into the raw stack. The batch processing and the assembly of mosaics lay none: open the image or the mosaic (Ctrl+I), place it, save.

Settings: mouse, preview and presets

Option	Type	Range · default	Function and purpose
Mouse wheel	Behaviour	—	In the tabs and the windows, the wheel scrolls the panel. It changes a slider, a value or a list only once that setting has been clicked: scrolling a tab no longer alters the setting passed over. On the picture, the wheel zooms, in proportion to the scroll.
Double click on a slider	Behaviour	—	Brings the slider back to its neutral value: sharpening 0, colour gain 1, gamma 1, fine rotation 0°…

Option	Type	Range · default	Function and purpose
Preview of large images	Behaviour	beyond 3 Mpx	When zoomed into a large image, a change of wavelets or levels is first computed on the part in view, to follow the slider without waiting; the rest of the image follows as soon as the sliders rest. The result is the same as computing the whole image. Only without rotation or mirror.
Presets → name of the preset	Command	—	Loads a preset. The analysis and the points of the video opened are lost only if the alignment settings change: a preset that differs only by its wavelets or finishing applies at once to the image shown.
Presets → Save the current settings… / Delete a preset	Commands	—	Saves the settings of the four tabs under a name (a question before a preset of the same name is replaced), or deletes a preset after confirmation.

6. Batch processing (File → Batch processing…, Ctrl+L)

Processes every video of a folder in one go and writes one image per video in an output folder, under the name of the video ("Jupiter 21h04.ser" → "Jupiter 21h04.tif"). The settings applied are those of the four tabs (main window or preset): set one video by hand first, wavelets included. A video in error is reported without stopping the others. The window stays open beside the main window, which remains usable during the processing. Two videos of the same name (jupiter.ser and jupiter.avi) each give their image (jupiter_ser, jupiter_avi). For a planet, the "name_reglages.json" file of the settings used is written next to each image. The images receive the EXIF metadata chosen in File → EXIF metadata…; the batch processing lays no watermark.

Folders and settings

Option	Type	Range · default	Function and purpose
Videos to process	Field + Browse… + Open	default: "input" folder next to PlanStax	Folder holding the videos (SER, AVI, MP4…) to process. The folder is watched: a video dropped while the window is open appears in the list at once. "Open" shows the folder in Explorer.
Images produced	Field + Browse… + Open	default: "output" folder	Folder where the final images, the raw stacks and the mosaic are written. Created if missing.
Settings	List	Current settings of the main window · Preset "name"	Set of settings applied to each video: those shown in the main window when the batch starts, or a saved preset. The choice is remembered.
Format	List	16-bit TIFF · 16-bit PNG · 32-bit float FITS · JPEG — default: 16-bit TIFF	Format of the images written. 16-bit TIFF or PNG keep the whole dynamic range; FITS for astronomy software; JPEG (8-bit) for direct sharing.
Bayer matrix	List	Automatic (from the file) · None (mono) · RGGB · GRBG · GBRG · BGGR	Matrix forced on every video of the batch, for those of a colour camera that do not tell theirs (AVI, some SER). "Automatic" lets each file tell its own. On the command line: batch --bayer.

"Save" group

Option	Type	Range · default	Function and purpose
Processed image (wavelets and finishing)	Tick box	ticked by default	Writes, for each video, the complete image: stack, wavelets and finishing of the chosen settings.
Raw stack (suffix "_brut")	Tick box	unticked by default	Also writes the stack without wavelets nor finishing, with the suffix "_brut". Ticked and greyed out automatically when the mosaic is requested, because the mosaic starts from the raw stacks.
Automatic RGB alignment for each colour video	Tick box	ticked by default	Measures and corrects the atmospheric dispersion separately for each colour video (like the button of tab 4), instead of using the fixed shifts of the settings.
Planets: file name in WinJUPOS format	Tick box	unticked by default	The name of each image starts with the time of its video (middle of the capture, universal time), as WinJUPOS reads it: 2026-11-14-2134_5-jupiter.tif. For time-stamped SER videos of planets; the other videos keep their name. On the command line: --winjupos.
Skip the videos already processed	Tick box	ticked by default	A video whose image already exists in the output folder is marked "Already processed" and skipped: you can add videos and start again without redoing everything. Untick to recompute all.
Assemble the images into a mosaic (Moon, Sun, landscape…)	Tick box	unticked by default	At the end of the batch, the overlapping images are assembled into "mosaique.tif" (or mosaique_1, mosaique_2… if there are several sets). Wavelets are applied image by image, but levels and colours only once to the whole mosaic, after equalisation.
Crop the mosaic to remove the black parts	Tick box	unticked by default	The assembled fields do not form a rectangle: the surround of the mosaic stays black. Ticked, the mosaic of the batch is limited to the largest rectangle entirely covered by the images. Active when the mosaic is asked for.

List, progress and buttons

Option	Type	Range · default	Function and purpose
List of videos	Table with boxes	Video · Size · State	One line per video found, with a box: untick the videos to leave aside (the choice is kept when the list is read again). The state says: To process, Already processed, Waiting, In progress… %, then the result (frames stacked, points, duration, files written) or the error. A warning points out a video stacked without any alignment point (check Min./Max. brightness).
Progress bars	Display	—	The first one follows the current step of the current video (analysis, alignment, stacking…), the second one the overall progress of the batch ("Video 3 / 12", then "Mosaic"), with the time left estimated from the size of the videos already processed.
Journal planstax-lot.log	File	in the folder of the images	Each batch adds a dated line per video to it: what was done or, in case of error, the full detail of the error, of which the table only shows the first line.
Start	Button	—	Starts the processing of the ticked videos "To process", then the mosaic if it is ticked. The settings of the window are frozen during the batch and remembered for the next time. At the end, a sound and the taskbar icon tell you.

Option	Type	Range · default	Function and purpose
Cancel	Button	—	Stops the batch at once; the images already written are kept.
Refresh	Button	—	Reads the video folder again and updates the list.
Open the folder of the images	Button	—	Opens the output folder in Explorer.
Close	Button	—	Closes the window (asks for confirmation if a batch is running).

7. Assemble a mosaic (File → Assemble a mosaic…, Ctrl+M)

Assembles overlapping images into a single one (Moon, Sun, landscape filmed in several fields), whether they come from the batch processing or from another program. There is nothing to set: the images are recognised and placed automatically, whatever the shooting order, field rotation is compensated, brightness and colours are evened out from one image to the next and the seams are blended. Plan about 25 % overlap and the same settings for all images. The mosaic inherits the EXIF metadata of its images (time at the middle of the captures, list of the images, shared camera); to sign it with a watermark, open it in PlanStax afterwards.

Inputs and options

Option	Type	Range · default	Function and purpose
Images to assemble	Field + Browse… + Choose images…	default: "output" folder	Either a folder, all of whose images are taken; or a selection of images picked one by one ("Choose images…"), possibly from different folders. The mosaic is saved in the images' folder.
Raw stacks ("_brut" images) rather than the processed images	Tick box	unticked by default	In folder mode, takes the "_brut" files instead of the final images. Tick it to redo a mosaic from the stacks, then apply a processing chosen in the list below. Greyed out when images are picked one by one.
Processing	List	None: assemble the images as they are · Wavelets and finishing of the current settings · Wavelets and finishing of the preset "name" — default: None	For raw stacks: applies the wavelets to each image, then the levels and colours only once to the whole mosaic (a sky burnt out in one image and not in its neighbour would leave visible areas). You can thus adjust one image by hand, then redo the whole mosaic without stacking the videos again.
Format	List	16-bit TIFF · 16-bit PNG · 32-bit float FITS · JPEG — default: 16-bit TIFF	Format of the mosaic file. Large mosaics are written as tiled TIFF, band by band, to fit in memory: beyond 64 Mpx, a mosaic asked for in another format is saved as TIFF, and the report says so.
Name of the mosaic	Field	default: mosaique	File name of the mosaic, without extension. Change it to keep a mosaic already made (whole and cropped, for instance). If a file of that name exists, PlanStax asks before replacing it.
Crop the mosaic to remove the black parts	Tick box	unticked by default	The assembled fields do not form a rectangle: the surround of the mosaic stays black. Ticked, only the largest rectangle entirely covered by the images is kept. On the command line: --crop.

Result and buttons

Option	Type	Range · default	Function and purpose
List of images	Table with boxes	Image · Size · State	One line per image, with a box: untick the images to leave aside. After the assembly, the number before each name is the one drawn on the assembly map, and the state says whether the image was placed or left aside and why (unticked, no overlap found, same field as another image).
Preview (assembly map)	Zoomable picture	—	Reduced mosaic with the outline and number of every image placed, to check the layout at a glance. The wheel zooms, dragging moves, a double click shows the whole map again. The same map is saved next to the mosaic ("mosaique_carte.png"). If the images make several mosaics, a list above the map chooses the one shown.
Report	Text	—	Summary of the assembly: images placed and left out, paths of the files written, warning if the mosaic is too large to be reopened in PlanStax.
Assemble	Button	—	Starts the assembly of the ticked images (at least two). The progress is shown in the bottom bar.
Cancel	Button	—	Stops the assembly under way at once; a previous mosaic of the same name stays untouched.
Open in PlanStax (wavelets)	Button	active up to 50 Mpx, with no processing applied	Loads the finished mosaic into the main window to apply wavelets and finishing. Disabled if a processing was already applied (the wavelets would be applied twice) or if the mosaic is too large for memory: then choose a processing in the list.
Open the folder	Button	—	Opens the images' folder in Explorer.
Close	Button	—	Closes the window (asks for confirmation if an assembly is running).

The orientation of the finishing (quarter turns, mirrors, fine rotation) also applies to the mosaic: the images are placed directly in the rotated frame, without a second resampling.