



KSTARS

Pilote mon Setup Ciel Profond Grand Champ

Tome 2 : Phase Utilisation

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Les principes

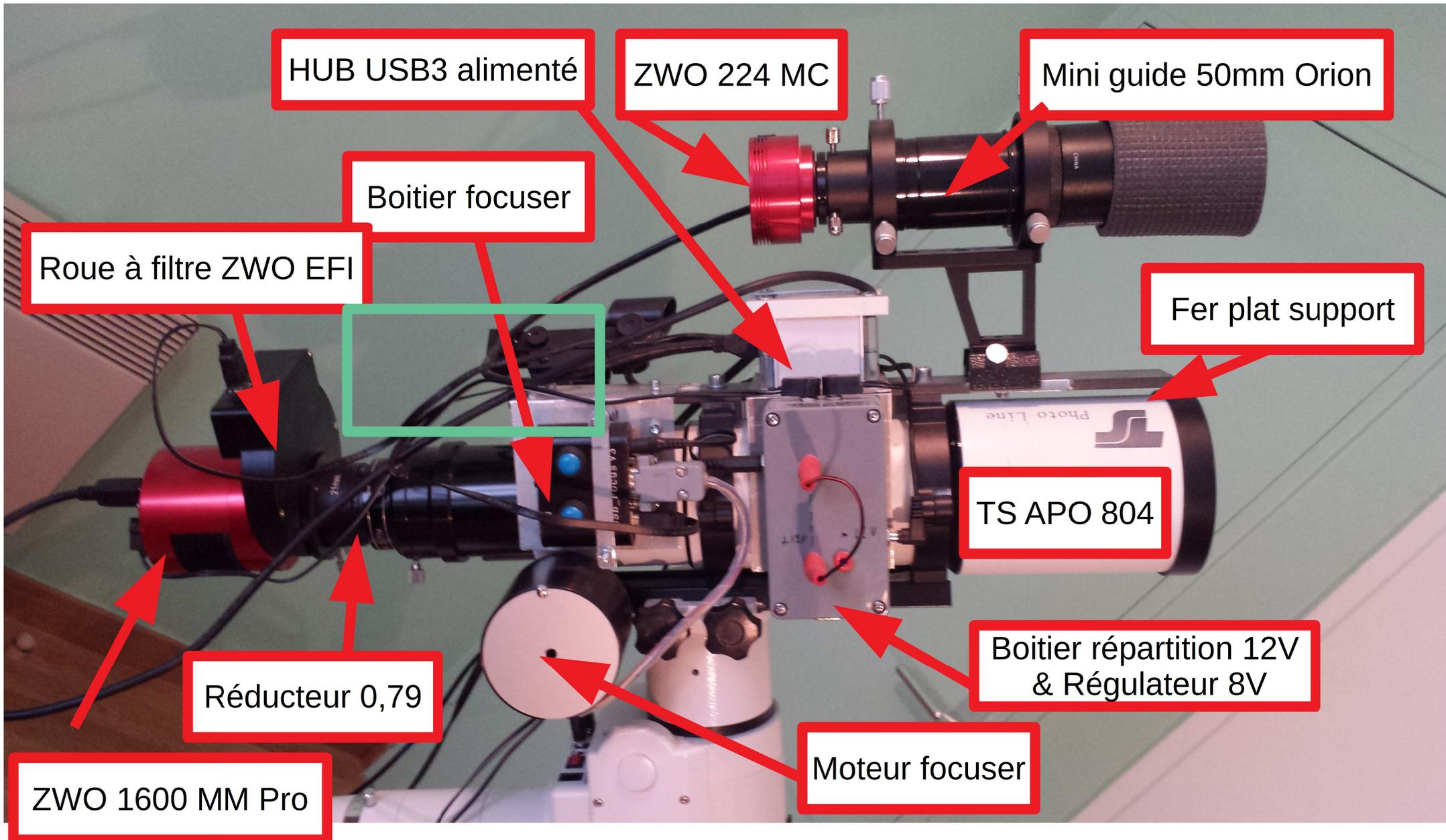
Aucune improvisation lors d'une séance d'imagerie :

- La charge utile reste en permanence assemblée,
- Tout est prévu à l'avance (ou presque!!),
- Tout est documenté,
- Tout est testé « en chambre » voire en vrai grandeur.

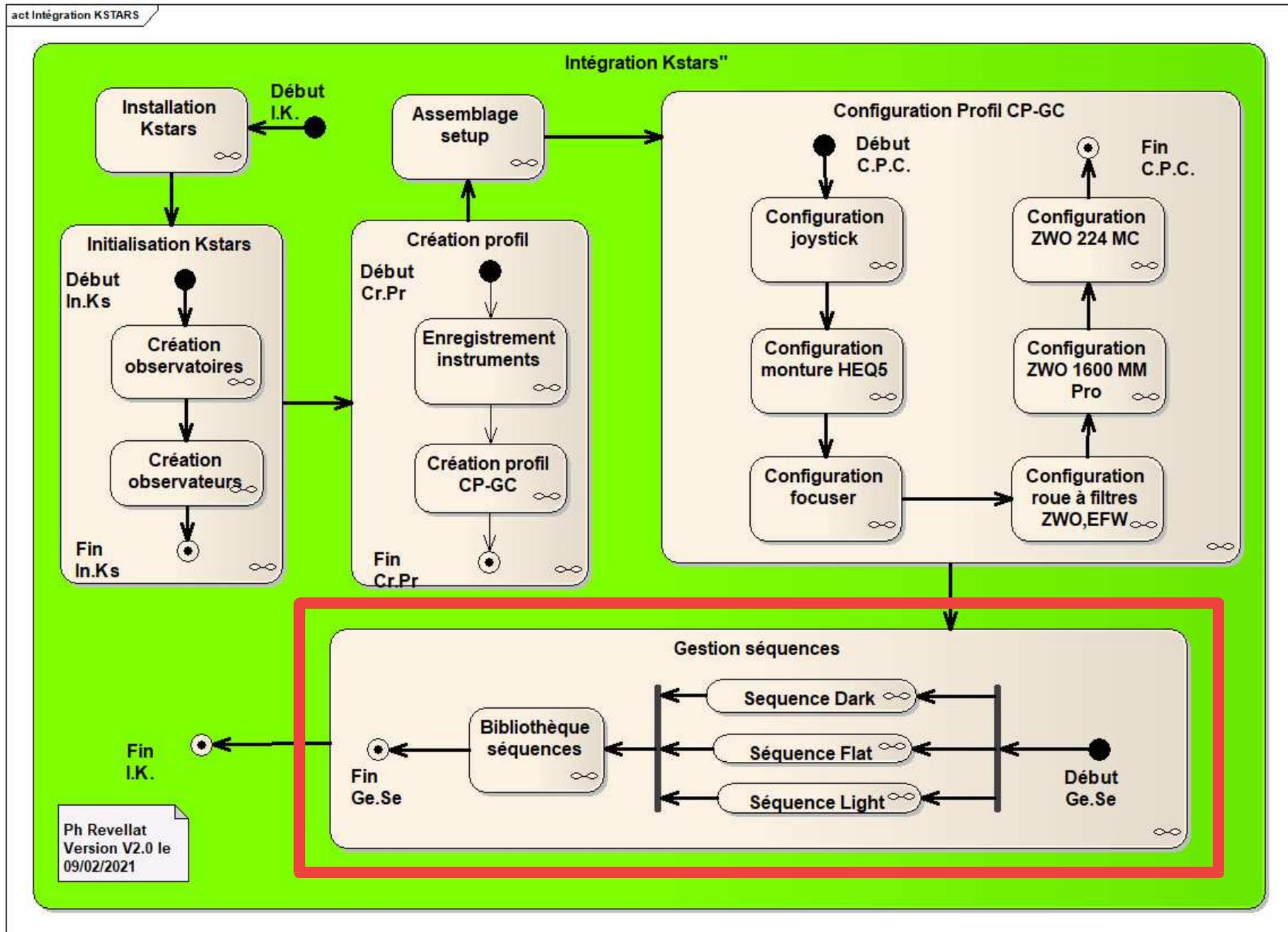
Je ne présente pas Kstars mais l'usage que j'en fait :

- Il est particularisé à mon setup,
- IL doit être adapté au votre,
- Le tome 1 présente l'intégration de KSTARS à mon setup
- Le tome 2 présente l'utilisation de KSTARS avec mon setup

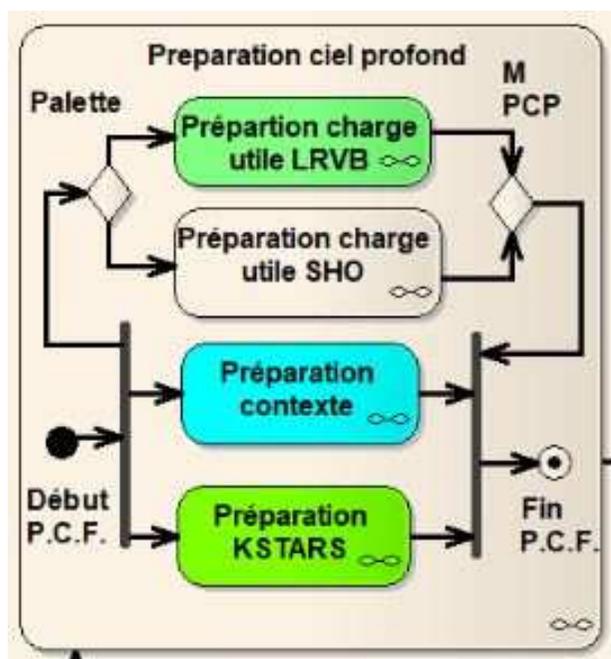
Le setup (Partie charge utile)



Intégration de Kstars au setup CP-GC



Préparation ciel profond

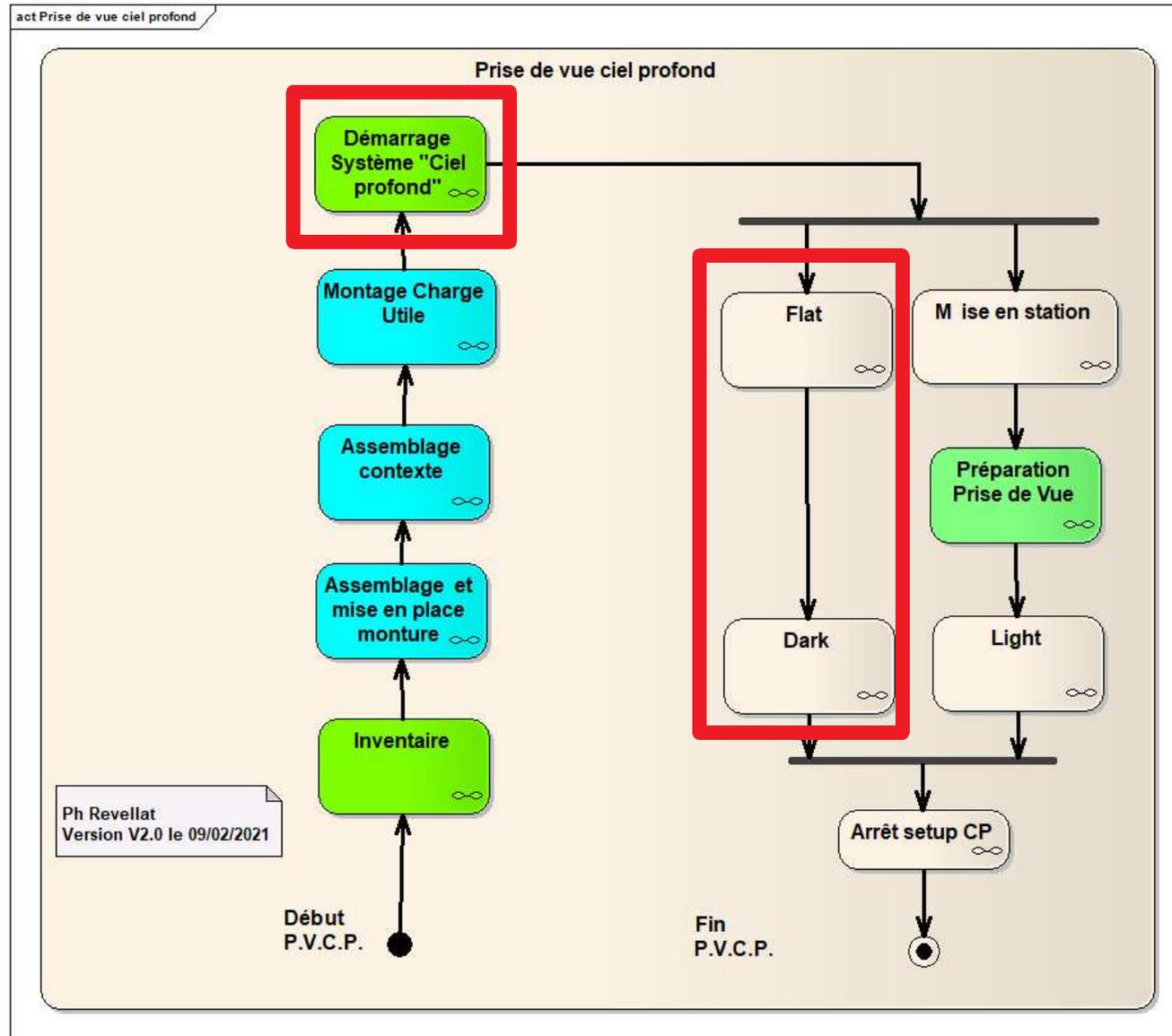


- Préparation charge utile : monter les bons filtres,
- Préparation contexte : charger les batteries et vérifier l'espace disque,
- Préparation Kstars :
 - Configurer la roue à filtre
 - Vérifier le profil
 - Créer le jeux de séquence à utiliser,
- Si approprié tester et s'entraîner.



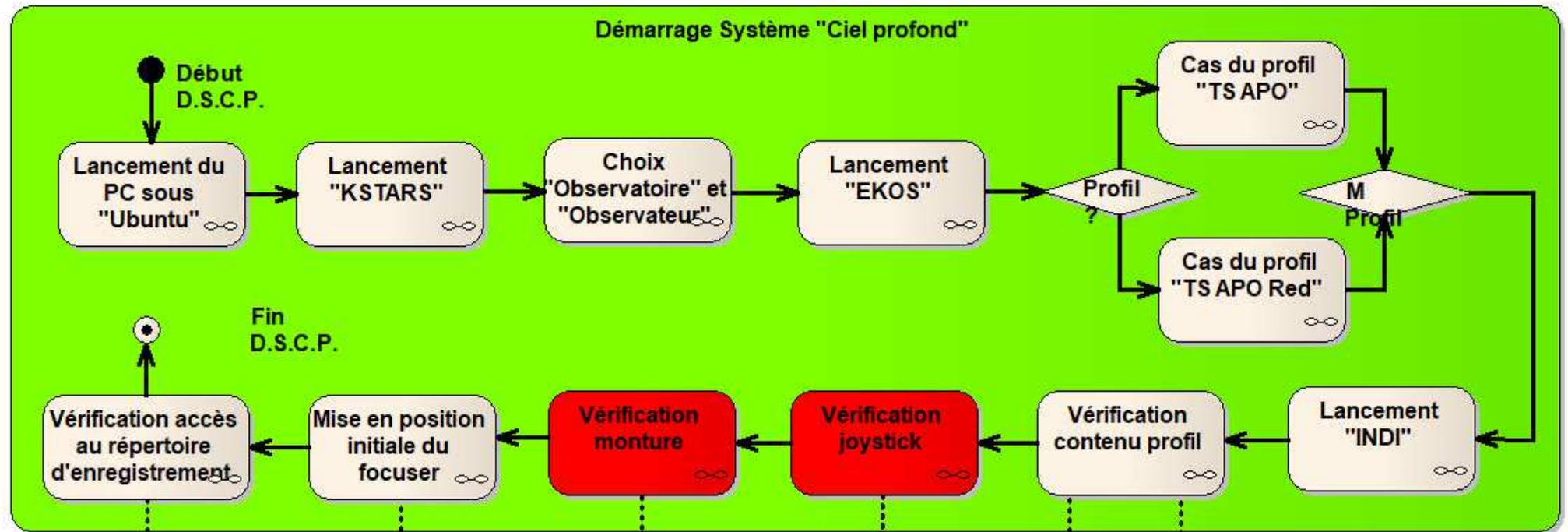
Démarrage système Flat et Dark

Prise de vue « Ciel Profond)



Démarrage système « Ciel profond »

act Démarrage Système



La position initiale du focuser est définie par le "PRESET 2"

Vérifier l'absence d'anomalie lors de la connexion de la monture

Sur l'onglet "Joystick" du contrôleur INDI, vérifier que le driver est bien le driver du joystick.

La vérification peut être :

"Compleète" = "Simple" + vérification dans les onglets du "contrôleur INDI" des champs "importants"

Vérifier que :

- le nom du répertoire prévus pour les "Light" est bien le même que celui des séquences pré-enregistrées,
- le répertoire prévu pour les "Lights" est accessible,
- que la capacité libre du disque est compatible du volume d'image prévu.

La vérification peut être :

"Simple" = vérification dans le contrôleur INDI de la présence des devices ASI 1600, ASI 224, EFW Mini, EQMOD, USB Focus V3 et joystick

Ph Revellat
V2.0 le 11/02/2021

Pointage ciel bleu et uniforme

The screenshot shows the Ekos software interface with the 'Pointage' icon highlighted. The interface includes a top toolbar with various icons, a main control area with sections for 'Résumé', 'Mount & Alignment', 'Focus', and 'Guide', and a bottom status bar with 'Options...' and 'Effacer' buttons.

Ekos - Simulators Profile — KStars

1. Select Profile
Profile: + - [Icons]

2. Start & Stop Ekos [Icons] Messages [Connecter] [Déconnecter]

3. Connect & Disconnect Devices

Résumé
Capturer
Status: Inactif

Mount & Alignment
Status: **Parked** Target:
AD: 09h 42m 55s DE: 00° 00' 00"
AZ: 89° 59' 48" AL: -00° 00' 11"

Focus
Status: Inactif HFR:
[Empty field]

Guide
Status: Inactif σ RA: σ DEC:
[Empty field]

Image: 0.0
Sequence: 0
Overall: 0.0%

[Options...] [Effacer]

Pointage ciel bleu et uniforme

The screenshot displays the 'Ekos - Simulators Profile' window in KStars. The interface is dark-themed and contains several sections for configuring a telescope simulator. At the top, a row of icons includes a wrench, a book, a graph, a camera, a magnifying glass, a green circle with a white telescope icon (highlighted with a blue box), a target, and a red target. Below the icons, the 'Telescope Simulator' section shows two sets of parameters: Aperture (mm) and Focal Length (mm), both set to 120,00 and 900,00 respectively. A 'Mount Control' button is highlighted with a red box. The 'Tracking' section has 'ON' and 'OFF' buttons. The 'Parking' section has 'Park' and 'UnPark' buttons. The 'Limites' section has sliders for 'Min. Alt' (0,00) and 'Max. Alt' (90,00), and checkboxes for 'Enable Alt Limits' and 'Enable HA Limits'. The 'Meridian Flip' section has a checkbox for 'Flip if HA >' (0,00) and radio buttons for 'Hours' and 'Degrés'. The 'Auto Park' section has a 'Park At' field set to '03:00' and a frequency of 'Every day'. A large digital display shows '00:00:00' with play and stop buttons. At the bottom, a status bar shows the message '2021-02-11T19:05:35 Telescope info updated successfully.' and buttons for 'Options...' and 'Effacer'.

Ekos - Simulators Profile — KStars

Telescope Simulator

Telescope Simulator guide scope

Aperture (mm) 120,00 Aperture (mm) 120,00

Focal Length (mm) 900,00 Focal Length (mm) 900,00

Configurations Config #1 Save Telescope Info

Coordonnées

AD 09h 42m 55s DEC 00° 00' 00"

AZ 89° 59' 48" ALT -00° 00' 11"

HA -06h 00m 01s LST 03h 42m 54s

Meridian Flip

Flip if HA > 0,00

Hours Degrés

Pier Side: West (pointing East)

Auto Park

Park At: 03:00 Every day

00:00:00

Mount Control

Tracking

ON OFF

Parking

Park UnPark

Limites

Min. Alt: 0,00

Max. Alt: 90,00

Enable Alt Limits

Max. HA (hours): 2,00

Enable HA Limits

Clear Model Clear Parking

Purge all configuration

2021-02-11T19:05:35 Telescope info updated successfully.

Options... Effacer

Pointage ciel bleu et uniforme

The image shows a screenshot of the KStars software interface, divided into two main panels: "Mount Control" on the left and "Ekos - Simulators Profile" on the right.

Mount Control Panel (Left):

- Contains a 3x3 grid of directional arrow buttons (Up, Down, Left, Right, Stop) and a "STOP" button.
- Includes a "Chercher" (Search) section with a "Click Find Icon" button and a search icon.
- Displays coordinates: AD: 09h 42m 55s, AZ: 89° 59' 48", DE: 00° 00' 00", AL: -00° 00' 11", HA: -06h 00m 01s, ZA: 89° 31' 10".
- Has input fields for "AD:" (HH:MM:SS) and "DE:" (DD:MM:SS).
- Includes a "GOTO" button, a "PARK" button, and a highlighted "UNPARK" button.
- Status: "Status: Parked".

Ekos - Simulators Profile Panel (Right):

- Contains a toolbar with icons for tools, a telescope, a camera, a magnifying glass, and a target icon (highlighted with a blue box).
- Includes "Telescope Simulator" and "Telescope Simulator guide scope" sections with fields for Aperture (mm) and Focal Length (mm).
- Has a "Configurations" dropdown set to "Config #1" and a "Save Telescope Info" button.
- Displays "Coordonnées" (Coordinates) for AD, DEC, AZ, ALT, HA, and LST.
- Includes a "Meridian Flip" section with a "Flip if HA >" field set to 0,00 and radio buttons for "Hours" and "Degrés".
- Has a "Pier Side: West (pointing East)" label.
- Includes an "Auto Park" section with a "Park At:" field set to 03:00 and a "Every day" checkbox.
- Features a "Reset" section with "Clear Model", "Clear Parking", and "Purge all configuration" buttons.
- Has a "Parking" section with "Park" and "UnPark" buttons.
- Includes a "Limites" section with "Min. Alt", "Max. Alt", "Enable Alt Limits", "Max. HA (hours)", and "Enable HA Limits" options.
- Shows a timer set to "00:00:00" with play and stop buttons.
- Bottom status bar: "2021-02-11T19:05:35 Telescope info updated successfully." and buttons for "Options..." and "Effacer".

Annotations:

- A red box highlights the "UNPARK" button in the Mount Control panel.
- A red arrow points from the "UNPARK" button to a white box containing "1°".

Pointage ciel bleu et uniforme

The screenshot shows the EQMod software interface. On the left, a red box highlights a directional control pad with arrows and a 'STOP' button. A red arrow points from this box to a red box containing '2°', which in turn points to a camera icon in the top toolbar. Another red box highlights a blue box around a telescope icon in the toolbar. A large red box in the center contains the text: '1° A l'aide des différentes commandes, pointer une zone de ciel bleu uniforme et loin du couchant'. The interface also displays telescope parameters, coordinate fields, and control buttons like 'Park' and 'UnPark'.

2°

1° A l'aide des différentes commandes, pointer une zone de ciel bleu uniforme et loin du couchant

EQMod Mount

Aperture (mm) 80,00 Focal Length (mm) 379,00

EQMod Mount guide scope

Aperture (mm) 50,00 Focal Length (mm) 162,00

Mount Control

Tracking ON OFF

Parking Park UnPark

Limites Min. Alt: 0,00 Max. Alt: 90,00 Max. HA (hours): 2,00

00:00:00

2021-02-14T14:11:15 Telescope info updated successfully.

Options... Effacer

Capture images : Onglet image

Ekos - CP GC (CielnProfond Grand Champ) Profile — KStars

Camera & Filter Wheel

Appareil photo: ZWO CCD ASI224MC FW: ASI EFW

Cooler: Allumé Éteint 23,60 22,60

Capture Settings

Exposition: 1,000000 Filtre: Luminance

Total: 1 Délai: 0

Format: FITS ISO: --

Type: Light Gain: --

Image: X: 0 Y: 0 Offset: --

Taille: O: 1304 H: 976

Regroupement de pixels: H: 1 V: 1

File Settings

Préfixe: Target

Script: Scripts Manager

Directory: /home/philippe/LHRVB-imaging-2020

Save: Locally Remote: /home/pi

File d'attente de séquences

État	Filtre	Total	Exp	Type	Bin
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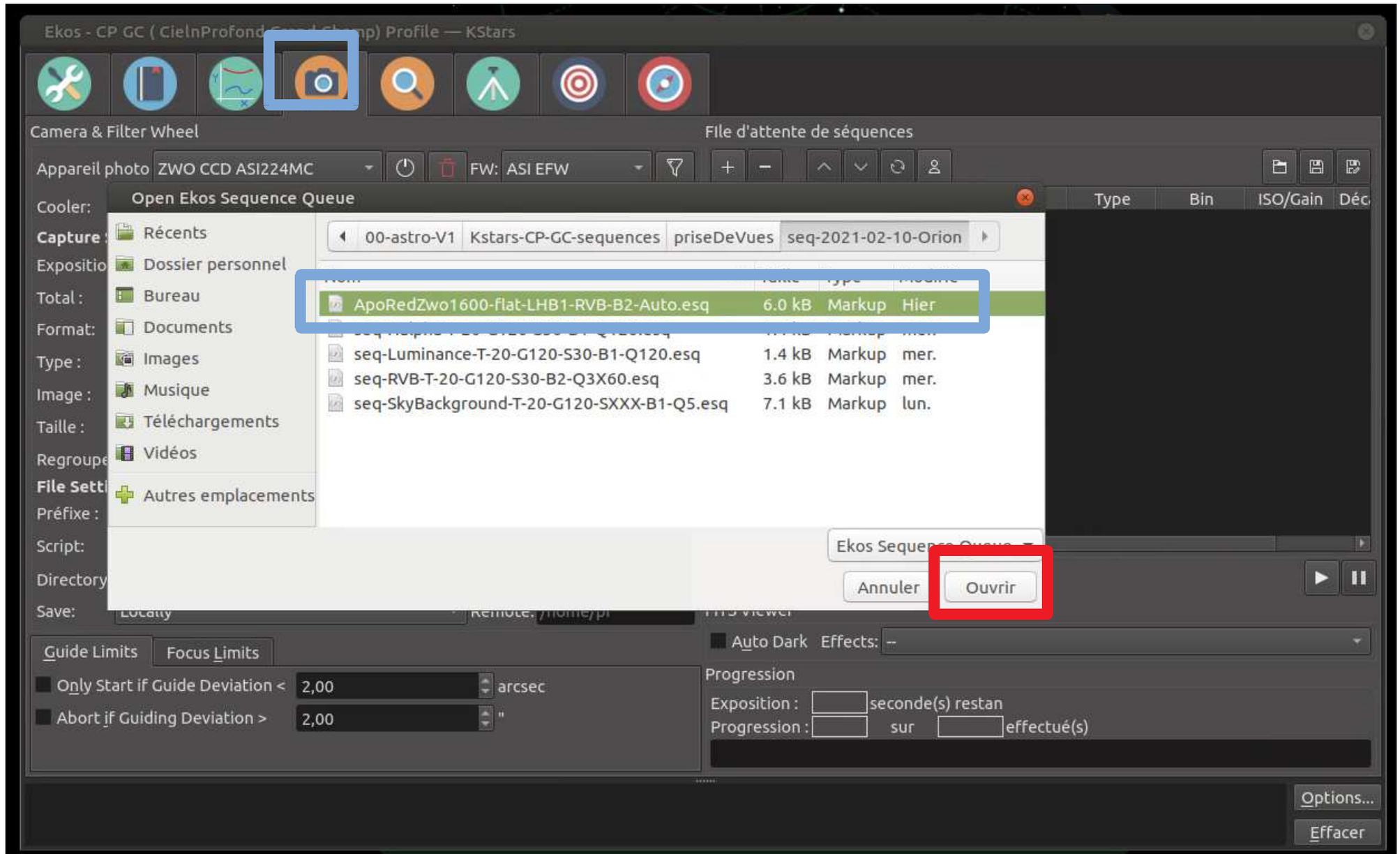
Progression

Exposition: [] seconde(s) restan

Progression: [] sur [] effectué(s)

Options... Effacer

Capture images : Chargement séquence Flat



Capture images : Séquence Flat

Ekos - CP GC (CielnProfond Grand Champ) Profile — KStars

Camera & Filter Wheel

Appareil photo: ZWO CCD ASI1600MM Pro FW: ASI EFW

Cooler: Allumé **Éteint** T° 21,50 0,00

Capture Settings

Exposition : 0,010000 Filtre : Bleu

Total : 11 Délai : 0

Format : FITS ISO :

Type : Flat Gain : 60,0

Image : X : 0 Y : 0 Offset : --

Taille : O : 4656 H : 3520 Reset Calibrer

Regroupement de pixels : H : 2 V : 2 Properties Rotate

File Settings

Préfixe : Target Filtre

Script : Scripts Manager Duration TS

Directory : /home/philippe/forFlat

Save : Locally Remote : /me/philippe/forFlat

Guide Limits Focus Limits

Only Start if Guide Deviation < 2,00 arcsec

Abort if Guiding Deviation > 5,00 "

File d'attente de séquences

	État	Filtre	Total	Exp	Type	Bin	ISO/Gain
1	Inactif	Lumina...	0/11	0,010000	Flat	1x1	60.0
2	Inactif	H Alpha	0/11	0,010000	Flat	1x1	60.0
3	Inactif	Rouge	0/11	0,010000	Flat	2x2	60.0
4	Inactif	Vert	0/11	0,010000	Flat	2x2	60.0
5	Inactif	Bleu	0/11	0,010000	Flat	2x2	60.0

FITS Viewer

Auto Dark Effects: --

Progression

Exposition : [] seconde(s) restan

Progression : [] sur [] effectué(s)

Options... Effacer

Capture images : Séquence Flat

The screenshot displays the KStars software interface, divided into several panels. On the left is the 'Mount Control' panel, and on the right is the 'Ekos - CP GC (CielProfond) Profile' panel.

Mount Control Panel: Features a 3x3 grid of directional arrow buttons (Up, Down, Left, Right, Stop) and a '1x' magnification slider. Below the grid are 'Reverse', 'Up/Down', and 'Left/Right' checkboxes. The 'Target' field contains 'Click Find Icon'. The 'AD' field shows '05h 03m 27s' and 'AZ: 00° 00' 00"'. The 'DE' field shows '90° 00' 00"' and 'AL: 48° 45' 09"'. The 'HA' field shows '-05h 59m 58s' and 'ZA: 41° 13' 58"'. The 'Status' is 'Inactif'. A red box highlights the 'PARK' button, with a red arrow pointing to it from a white box containing '1°'.

Ekos - CP GC (CielProfond) Profile Panel: Features a toolbar with icons for tools, camera, filter wheel, and other functions. The 'Camera & Filter Wheel' section shows 'Appareil photo: ZWO CCD ASI1600MM Pro', 'Cooler: Allumé', and 'Exposition: 0,010000'. The 'Capture Settings' section shows 'Format: FITS', 'Type: Flat', and 'Gain: 60,0'. The 'File Settings' section shows 'Préfixe: Target', 'Script: Scripts Manager', and 'Directory: /home/philippe/forFlat'. A blue box highlights the camera icon in the toolbar.

File d'attente de séquences Table:

	État	Filtre	Total	Exp	Type	Bin	ISO/Gain	Dé
1	Inactif	Lumina...	0/11	0,010000	Flat	1x1	60.0	
2	Inactif	H Alpha	0/11	0,010000	Flat	1x1	60.0	
3	Inactif	Rouge	0/11	0,010000	Flat	2x2	60.0	
4	Inactif	Vert	0/11	0,010000	Flat	2x2	60.0	
5	Inactif	Bleu	0/11	0,010000	Flat	2x2	60.0	

FITS Viewer Panel: Shows 'Auto Dark' and 'Effects: --'. The 'Progression' section shows 'Exposition: [] seconde(s) restan' and 'Progression: [] sur [] effectué(s)'.

Log Panel: Shows '2021-02-14T14:11:18 Cooler is on' and '2021-02-14T14:11:15 Cooler is on'.

Capture images : Séquence Dark

Mount Control — KStars

Ekos - CP GC (CielnProfond Grand Champ) Profile — KStars

Camera & Filter Wheel

Appareil photo ZWO CCD ASI1600MM Pro FW: ASI EFW

Cooler: **Allumé** Éteint T° -16,00 0,00

Capture Settings

Exposition : 0,010000 Filtre : Bleu

Total : 11 Délai : 0

Format : FITS ISO : Gain : 60,0

Type : Flat

Image : X : 0 Y : 0 Offset : --

Taille : O : 4656 H : 3520

Regroupement de pixels : H : 2 V : 2

File Settings

Préfixe : Target

Script : Scripts Manager

Directory : /home/philippe/forFlat

Save : Locally

Guide Limits **Focus Limits**

Only Start if Guide Deviation < 2,00 arcsec

Abort if Guiding Deviation > 5,00 "

Progression

Exposition : [] seconde(s) restan

Progression : [] sur [] effectué(s)

2021-02-14T14:11:18 Cooler is on

2021-02-14T14:11:15 Cooler is on

Options... Effacer

1° Si prévu, charger séquence Dark

2° Mettre le bouchon sur la lunette de l'imageur

Status: Parked

Capture images : Séquence Dark

The screenshot shows the Ekos software interface for a ZWO CCD ASI1600MM Pro camera. The interface is divided into several sections:

- Camera & Filter Wheel:** Contains icons for various functions. A red box highlights the camera icon, and a blue box highlights the camera settings panel.
- Camera Settings:** Includes fields for "Appareil photo" (ZWO CCD ASI1600MM Pro), "Cooler" (Allumé), "Exposition" (60,000000), "Total" (17), "Format" (FITS), "Type" (Dark), "Image" (X: 0, Y: 0), "Taille" (O: 4656, H: 3520), "Regroupement de pixels" (H: 2, V: 2), "File Settings" (Préfixe: Target, Script: Scripts Manager, Directory: /home/philippe/darklib/zwo1600/dark-T-15G120S60Q17B2, Save: Locally), and "Guide Limits" (Only Start if Guide Deviation < 2,00 arcsec, Abort if Guiding Deviation > 2,00 ").
- File d'attente de séquences:** A table showing the sequence capture settings.
- Sequence Capture Table:**

	État	Filtre	Total	Exp	Type	Bin	ISO/Gain	Dé
1	Inactif	--	0/17	60,000000	Dark	1x1	120.0	
2	Inactif	--	0/17	60,000000	Dark	2x2	120.0	
- Sequence Control:** A red box highlights the "Start framing (looping)" button, which is a play button icon. A red arrow points from the text "1° Lancer la séquence" to this button.
- Progression:** A blue box highlights the "Progression" section, which includes fields for "Exposition" (seconde(s) restan) and "Progression" (sur effectué(s)).

Capture images : Séquence Dark

The screenshot displays the KStars software interface, divided into two main panels. The left panel, titled "Mount Control — KStars", features a grid of directional arrow buttons (up, down, left, right) and a central "STOP" button. Below this grid are checkboxes for "Reverse", "Up/Down", and "Left/Right", followed by a "Chercher" (Search) section with a "Click Find Icon" button. The "AD:" (Right Ascension) and "DE:" (Declination) fields are set to "00° 00' 00\"", and the "Status:" is "Parked". The right panel, titled "Ekos - Simulators Profile — KStars", shows telescope simulation settings. A wrench icon in the top toolbar is highlighted with a blue box. The "Telescope Simulator" section includes fields for "Aperture (mm)" (120,00) and "Focal Length (mm)" (900,00). The "Telescope Simulator guide scope" section also shows "Aperture (mm)" (120,00) and "Focal Length (mm)" (900,00). The "Coordonnées" (Coordinates) section lists "AD 09h 42m 55s", "AZ 89° 59' 48\"", "HA -06h 00m 01s", "DEC 00° 00' 00\"", "ALT -00° 00' 11\"", and "LST 03h 42m 54s". The "Meridian Flip" section has "Flip if HA >" set to "0,00". The "Auto Park" section shows "Park At: 03:00" and "Every day". A large digital display shows "00:00:00" with play and stop buttons. A red box at the bottom center contains the text "Fin des Flats et Darks". The bottom status bar indicates "2021-02-11T19:05:35 Telescope info updated successfully." and includes "Options..." and "Effacer" buttons.

Mount Control — KStars

Ekos - Simulators Profile — KStars

Aperture (mm) 120,00 Focal Length (mm) 900,00

Aperture (mm) 120,00 Focal Length (mm) 900,00

Configurations Config #1 Save Telescope Info

Coordonnées

AD 09h 42m 55s DEC 00° 00' 00"

AZ 89° 59' 48" ALT -00° 00' 11"

HA -06h 00m 01s LST 03h 42m 54s

Meridian Flip

Flip if HA > 0,00

Hours Degrés

Pier Side: West (pointing East)

Auto Park

Park At: 03:00 Every day

00:00:00

Clear Model Clear Parking

Purge all configuration

Mount Control

Tracking ON OFF

Parking Park UnPark

Limites

Min. Alt 0,00

Max. Alt 90,00

Enable Alt Limits

Max. HA (hours) 2,00

Enable HA Limits

Options... Effacer

2021-02-11T19:05:35 Telescope info updated successfully.

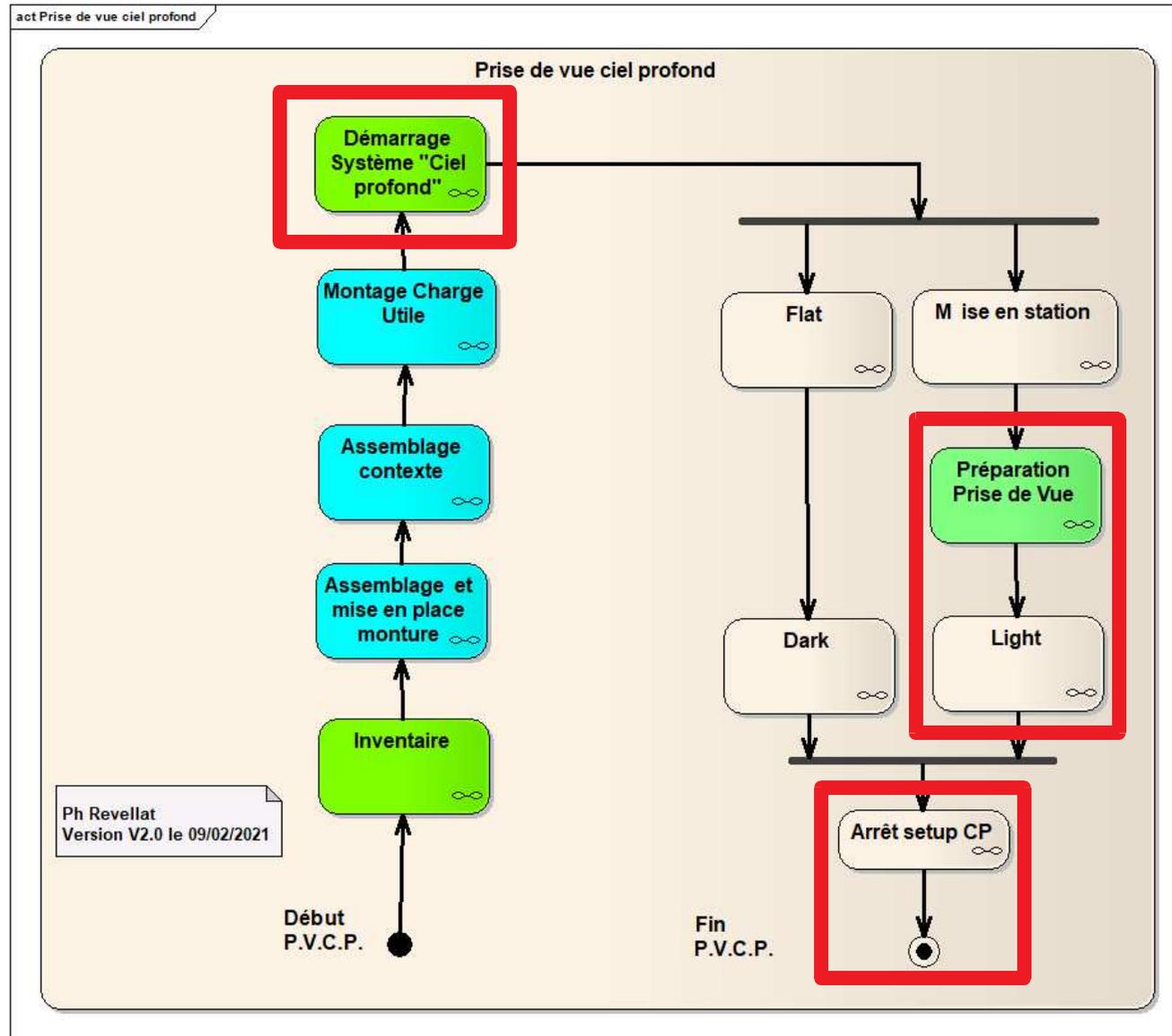
Fin des Flats et Darks



Préparation prise de vue & Lights

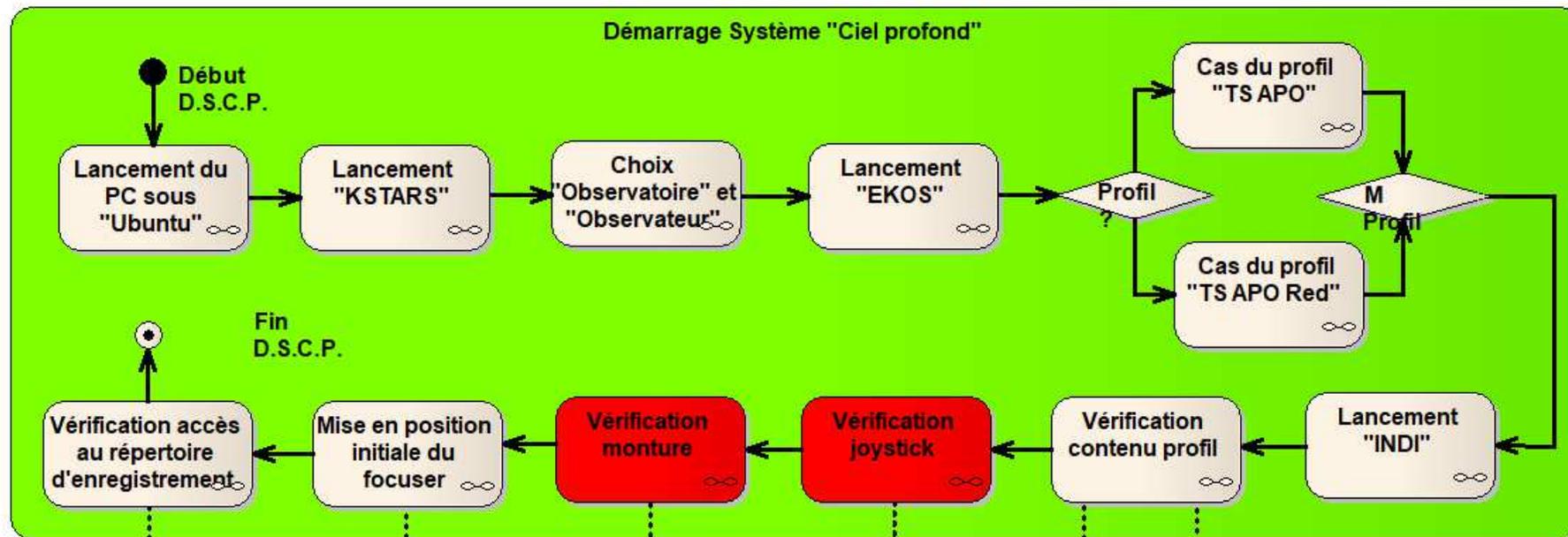
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Préparation prise de vue et Lights



Démarrage système « Ciel Profond »

act Démarrage Système



La position initiale du focuser est définie par le "PRESET 2"

Vérifier l'absence d'anomalie lors de la connexion de la monture

Sur l'onglet "Joystick" du contrôleur INDI, vérifier que le driver est bien le driver du joystick.

La vérification peut être :
"Complexe" = "Simple" + vérification dans les onglets du "contrôleur INDI" des champs "importants"

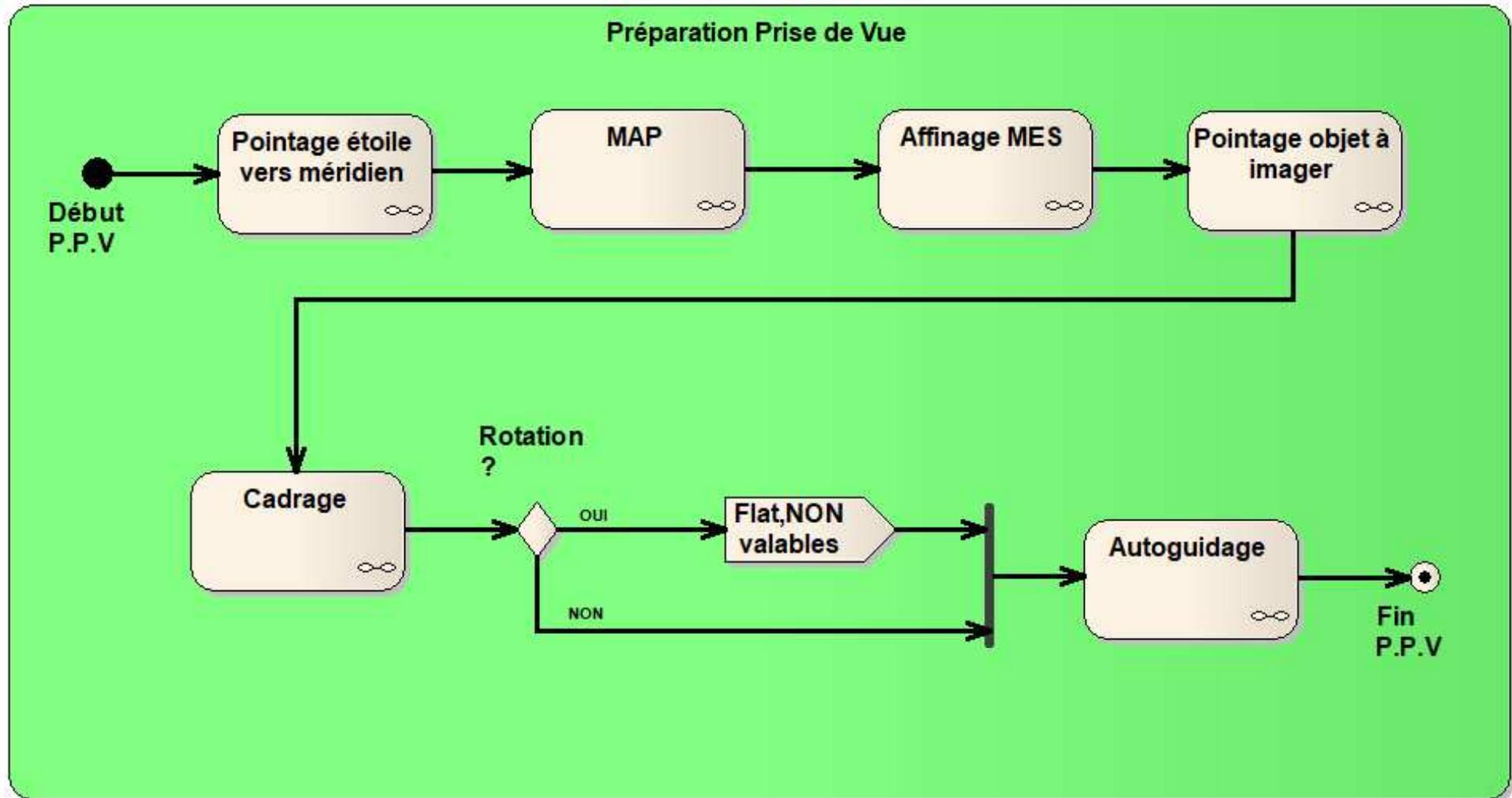
Vérifier que :

- le nom du répertoire prévu pour les "Light" est bien le même que celui des séquences pré-enregistrées,
- le répertoire prévu pour les "Lights" est accessible,
- que la capacité libre du disque est compatible du volume d'image prévu.

La vérification peut être :
"Simple" = vérification dans le contrôleur INDI de la présence des devices ASI 1600, ASI 224, EFW Mini, EQMOD, USB Focus V3 et joystick

Préparation prise de vues

act Préparation prise de vue



Version V2.0 le 11/02/21

Synthèse & contrôle

EKOS

The image shows the EKOS software interface with several components labeled in French. The labels are: Synthèse & contrôle (top left), Autoguidage (top right), Alignement (middle right), Pointage (middle), Mise au point (middle), Images (bottom middle), Déroulement (bottom left), and Planification (bottom left). The interface includes a toolbar with icons for various functions, a main display area showing a simulated telescope view, and a right-hand panel with sections for Mount & Alignment, Focus, and Guide. The Mount & Alignment section shows Status: Parked, AD: 09h 42m 55s, DE: 00° 00' 00", AZ: 89° 59' 48", and AL: -00° 00' 11". The Focus section shows Status: Inactif and HFR. The Guide section shows Status: Inactif, σ RA, and σ DEC. The bottom of the interface features three circular gauges for Image, Exposure, and Overall, all showing 0.0%.

Pointage étoile vers méridien

Ekos - Simulators Profile — KStars

2. Start & Stop Ekos 3. Connect & Disconnect Devices

Profile: Simulators **2°** Messages Connecter Déconnecter

Résumé

Capturer

Status: Inactif

Mount & Alignment

Status: **Parked** Target:

AD: 09h 42m 55s DE: 00° 00' 00"

AZ: 89° 59' 48" AL: -00° 00' 11"

Focus

Status: Inactif HFR:

Guide

Status: Inactif σ RA: σ DEC:

Options... Effacer

Image 0.0 Sequence 0 Overall 0.0%

1° Enlever le bouchon de sur la lunette de l'imageur

Pointage étoile vers méridien

The screenshot displays the 'Ekos - Simulators Profile' window in KStars. The interface is organized into several sections:

- Telescope Simulator:** Contains two sets of configuration fields for 'Telescope Simulator' and 'Telescope Simulator guide scope'. Both sets have 'Aperture (mm)' set to 120,00 and 'Focal Length (mm)' set to 900,00. A 'Mount Control' button is highlighted with a red box.
- Configurations:** Shows 'Config #1' selected and a 'Save Telescope Info' button.
- Coordonnées:** Displays celestial coordinates: AD 09h 42m 55s, AZ 89° 59' 48", HA -06h 00m 01s, DEC 00° 00' 00", ALT -00° 00' 11", and LST 03h 42m 54s.
- Meridian Flip:** Includes a checkbox for 'Flip if HA >' (set to 0,00) and radio buttons for 'Hours' and 'Degrés'.
- Auto Park:** Shows 'Park At: 03:00' and 'Every day'.
- Tracking:** Features 'ON' and 'OFF' buttons.
- Parking:** Includes 'Park' and 'UnPark' buttons.
- Limites:** Contains sliders for 'Min. Alt:' (0,00) and 'Max. Alt:' (90,00), and checkboxes for 'Enable Alt Limits' and 'Enable HA Limits'.
- Reset:** Includes 'Clear Model', 'Clear Parking', and 'Purge all configuration' buttons.
- Timer:** A central digital timer shows '00:00:00' with play and stop buttons.
- Status Bar:** At the bottom, it reads '2021-02-11T19:05:35 Telescope info updated successfully.' and includes 'Options...' and 'Effacer' buttons.

Pointage étoile vers méridien

The image shows the KStars software interface with two main panels. The left panel, titled "Mount Control — KStars", contains a directional pad with a "STOP" button, a "Chercher" (Search) section with coordinate fields (AD: 09h 42m 55s, AZ: 89° 59' 48", DE: 00° 00' 00", AL: -00° 00' 11", HA: -06h 00m 01s, ZA: 89° 31' 10"), a "Target:" field with a "Click Find Icon" button, and "GOTO", "PARK", and "UNPARK" buttons. The right panel, titled "Ekos - Simulators Profile — KStars", features a toolbar with a telescope icon highlighted in blue, "Telescope Simulator" and "Telescope Simulator guide scope" sections with aperture and focal length settings, coordinate fields (AD: 09h 42m 55s, DEC: 00° 00' 00", AZ: 89° 59' 48", ALT: -00° 00' 11", HA: -06h 00m 01s, LST: 03h 42m 54s), and "Auto Park" settings. A red box highlights the search icon in the left panel with the text "2° lancer la recherche". A white box with "1°" is located in the bottom left of the right panel. A status bar at the bottom indicates "2021-02-11T19:05:35 Telescope info updated successfully." and includes "Options..." and "Effacer" buttons.

Mount Control — KStars

Ekos - Simulators Profile — KStars

Telescope Simulator

Telescope Simulator guide scope

Aperture (mm) 120,00 Aperture (mm) 120,00

Focal Length (mm) 900,00 Focal Length (mm) 900,00

Configurations Config #1 Save Telescope Info

Coordonnées

AD 09h 42m 55s DEC 00° 00' 00"

AZ 89° 59' 48" ALT -00° 00' 11"

HA -06h 00m 01s LST 03h 42m 54s

Me

2° lancer la recherche

Hours Degrés

Pier Side: West (pointing East)

Auto Park

Park At: 03:00 Every day

00:00:00

1°

2021-02-11T19:05:35 Telescope info updated successfully.

Options... Effacer

Pointage étoile vers méridien

The screenshot displays the KStars software interface, divided into several panels. On the left is the 'Mount Control' panel, which includes a 3x3 grid of directional arrow buttons, a central 'STOP' button, and a 'Chercher' (Search) section with fields for Right Ascension (AD: 10h 57m 30s), Declination (DE: 00° 00' 00"), Hour Angle (HA: -06h 00m 01s), Azimuth (AZ: 89° 59' 48"), and Zenith Angle (ZA: 89° 31' 10"). Below these are buttons for 'GOTO', 'SYNC', 'PARK', and 'UNPARK', and a 'Status: Inactif' indicator.

The central panel is the 'Ekos - Simulators Profile' window, which contains a toolbar with various icons. One icon, representing a telescope pointing upwards, is highlighted with a blue square. Below the toolbar is a search window titled 'Chercher un objet — KStars'. This window has a search bar (highlighted with a red square) and a list of objects. The list includes objects like (1974 FV1), (1978 VC7), (1978 VF11), (1980 PB3), (1984 DE1), (1985 VY), (1986 TR6), (1986 TS6), (1986 TT6), (1986 WD), (1987 DQ6), (1988 AK), (1988 RA1), (1988 RD12), (1988 RG10), (1988 RH13), (1988 RL10), and (1988 RL13). The 'OK' button at the bottom of this search window is also highlighted with a red square.

On the right side of the interface is the 'Mount Control' panel, which shows the current coordinates (00° 00' 00" RA, -00° 00' 11" DE, 04h 57m 29s HA) and buttons for 'Park' and 'UnPark'. There are also sliders for 'Limites' (Limits) and a digital display showing '00:00:00'.

Two red boxes with white text provide instructions: '1° Choisir un objet au sud' (Choose an object in the south) is placed over the search bar, and '2°' is placed over the 'OK' button.

At the bottom of the interface, a status message reads: '2021-02-11T19:05:35 Telescope info updated successfully.' There are also buttons for 'Options...' and 'Effacer' (Clear) at the bottom right.

Pointage étoile vers méridien

The screenshot displays the KStars software interface, divided into two main panels: "Mount Control" and "Ekos - Simulators Profile".

Mount Control — KStars:

- Directional arrow keys (Up, Down, Left, Right) and a central "STOP" button.
- Buttons for "Reverse", "Up/Down", and "Left/Right".
- A search bar labeled "Chercher" with the target "Rigel" entered and highlighted by a blue box.
- Coordinates for Rigel: AD: 10h 59m 32s, AZ: 89° 59' 48", DE: 00° 00' 00", AL: -00° 00' 11", HA: -06h 00m 01s, ZA: 89° 31' 10".
- Current coordinates: AD: 05h 15m 33s, DE: -08° 10' 51".
- Type: RA/DE, AZ/AL, HA/DE.
- Buttons: "GOTO" (highlighted with a red box), "SYNC", "PARK", "UNPARK".
- Status: "Inactif".

Ekos - Simulators Profile — KStars:

- Telescope Simulator settings: Aperture (120,00 mm), Focal Length (900,00 mm).
- Telescope Simulator guide scope settings: Aperture (120,00 mm), Focal Length (900,00 mm).
- Configurations: Config #1.
- Coordonnées: AD 10h 59m 32s, DEC 00° 00' 00", AZ 89° 59' 48", ALT -00° 00' 11", HA -06h 00m 01s, LST 04h 59m 31s.
- Meridian Flip: Flip if HA > 0,00, Hours, Degrés.
- Pier Side: West (pointing East).
- Auto Park: Park At: 03:00, Every day.
- Buttons: "Clear Model", "Clear Parking", "Purge all configuration".
- Tracking: ON/OFF buttons.
- Parking: Park/UnPark buttons.
- Limites: Min. Alt: 0,00, Max. Alt: 90,00, Max. HA (hours): 2,00. Enable Alt Limits, Enable HA Limits.
- Bottom status bar: "2021-02-11T19:05:35 Telescope info updated successfully." and buttons "Options..." and "Effacer".

Pointage étoile vers méridien

The image shows a screenshot of the Ekos software interface, which is used for controlling telescopes. The interface is divided into several panels:

- Mount Control — KStars:** Located in the top left, it features a grid of directional arrows (up, down, left, right) and a central red "STOP" button. Below the grid are checkboxes for "Reverse", "Up/Down", and "Left/Right". A search bar labeled "Chercher" contains the text "Rigel". Below the search bar, the current coordinates are displayed: AD: 05h 15m 48s, AZ: 175° 33' 23", DE: -08° 10' 51", AL: 32° 58' 14", HA: -00h 15m 04s, and ZA: 57° 00' 13". At the bottom of this panel, there are buttons for "GOTO", "SYNC", "PARK", and "UNPARK", and a "Status: Tracking" indicator.
- Ekos — Simulators Profile — KStars:** The main central panel. It has a toolbar at the top with icons for various functions. The "Telescope Simulator" section shows "Aperture (mm)" and "Focal Length (mm)" set to 120,00 and 900,00 respectively. The "Telescope Simulator guide scope" section also shows "Aperture (mm)" and "Focal Length (mm)" set to 120,00 and 900,00. Below this, there are sections for "Configurations" (set to "Config #1"), "Coordonnées" (with fields for AD, DEC, AZ, ALT, HA, LST), "Meridian Flip" (with a checkbox for "Flip if HA >" and a value of 0,00), and "Auto Park" (with a "Park At" time of 03:00 and "Every day" selected). A large digital display shows "00:00:00".
- Mount Control (Right Panel):** Located on the right side, it has a "Mount Control" button, a "Tracking" section with "ON" and "OFF" buttons, a "Parking" section with "Park" and "UnPark" buttons, and a "Limites" section with "Min. Alt:" (0,00), "Max. Alt:" (90,00), "Enable Alt Limits" (checked), "Max. HA (hours):" (2,00), and "Enable HA Limits" (checked).
- Reset Section:** Located in the bottom right of the main panel, it contains buttons for "Clear Model", "Clear Parking", and "Purge all configuration".

At the bottom of the interface, a status message reads: "2021-02-11T19:05:35 Telescope info updated successfully." There are also "Options..." and "Effacer" buttons in the bottom right corner.

Mise au point

Ekos - Simulators Profile — KStars

1. Select Profile
Profile: Simulators

2. Start & Stop Ekos
3. Connect & Disconnect Devices
Connecter Déconnecter

Résumé
Capturer
Status: Inactif

Mount & Alignment
Status: **Parked** Target:
AD: 09h 42m 55s DE: 00° 00' 00"
AZ: 89° 59' 48" AL: -00° 00' 11"

Focus
Status: Inactif HFR:
Image Sequence Overall
0.0 0 0.0%

Guide
Status: Inactif σ RA: σ DEC:
Options...
Effacer

Mise au point

Ekos - CP GC (CielProfond Grand Champ) Profile — KStars

Viseur

Viseur : USBFocusV3

Steps: 14392

Start: **Auto Focus** Arrêter

CCD & Filter Wheel

CCD : ZWO CCD ASI1600MM Pro Exp: 3,000

Bin: 1x1 Gain: 120,00 ISO :

FW: ASI EFW Filtre : Luminance

Reset

Settings Process Mechanics

Étoile sélectionnée automatiquement Dark Frame

Sub Frame Box: 64 px

Full Field Annulus: 0,0 % 100,0 %

Suspend Guiding Settle: 0,00 s

Use dark frames from the library.

HFR

HFR: Stars: Relative Profile... Clear Data

2021-02-14T22:28:09 Inactif. Options... Effacer

Mise au point

Ekos - Simulators Profile — KStars

Viseur

Viseur : Focuser Simulator

Steps: 50000 50000

Start: Auto Focus Arrêter

CCD & Filter Wheel

CCD : CCD Simulator Exp: 1,000

Bin: 1x1 Gain: 50,00

FW: CCD Simulator Filtre : Red

Settings Process Mechanics

Étoile sélectionnée automatiquement Dark Frame

Sub Frame Box: 64 px

Full Field Annulus: 0,0 %

Suspend Guiding Settle: 0,00 s

Size of the subframe to constrain capture to, in pixels.

V-Curve

HFR

HFR : 3.07 Stars: 1

Relative Profile... Clear Data

Options... Effacer

2021-02-11T20:25:23 Capture complete. Select a star to focus.
2021-02-11T20:25:23 Detection complete.
2021-02-11T20:25:22 Detecting sources...

Mise au point

The screenshot displays the KStars software interface, specifically the 'Simulators Profile' window. The interface is divided into several sections:

- Top Bar:** Contains several icons, with the 'Focuser Simulator' icon (a magnifying glass over a target) highlighted by a blue box.
- Viseur (Viewer):** Shows the 'Focuser Simulator' settings. The 'Steps' field is set to 49978, and the 'Auto Focus' button is active. A 'Reset' button is also visible.
- CCD & Filter Wheel:** Displays settings for the CCD simulator, including 'Exp: 1,000', 'Bin: 1x1', 'Gain: 50,00', and 'Filtre: Red'. A 'Reset' button is located below these settings.
- Settings:** Includes checkboxes for 'Étoile sélectionnée automatiquement', 'Sub Frame', 'Full Field', and 'Suspend Guiding'. A 'Dark Frame' checkbox is also present. A tooltip for the 'Annulus' field (set to 0,0 %) explains it as the 'Size of the subframe to constrain capture to, in pixels.' The 'Box' is set to 64 px and 'Settle' is 0,00 s.
- V-Curve Graph:** A graph showing the Half Frame Rate (HFR) versus the number of stars. The y-axis ranges from 2 to 2,4, and the x-axis ranges from 49900 to 50100. The current HFR is 2,41 at 49978 steps. The graph shows a series of data points with red circles and numbers: 4, 3, 8, 5, 1, 6, 7. The current HFR value '2,41' is also displayed in red next to the star in the main viewer.
- Log:** A text box at the bottom left contains the following text: '2021-02-11T20:27:48 Focus procedure completed after 8 iterations. 2021-02-11T20:27:48 FITS reçue. HFR 2.41 @ 49 978. Delta (0.738 %) 2021-02-11T20:27:48 Detection complete.'

Affinage mise en station

Ekos - Simulators Profile — KStars

2. Start & Stop Ekos 3. Connect & Disconnect Devices

Profile: Simulators

Résumé

Capturer

Status: Inactif

Mount & Alignment

Status: **Parked** Target:

AD: 09h 42m 55s DE: 00° 00' 00"

AZ: 89° 59' 48" AL: -00° 00' 11"

Focus

Status: Inactif HFR:

Guide

Status: Inactif σ RA: σ DEC:

Image: 0.0 Sequence: 0 Overall: 0.0%

Options... Effacer

Affinage mise en station

The screenshot displays the Ekos software interface for KStars. The 'Solver Control' panel is visible, with the 'Capture & résolution' button highlighted in red. Below it, the 'Solver Action' section shows 'Nothing' selected, also highlighted in red. A '2°' label is placed over the 'Capture & résolution' button, and a '1°' label is placed over the 'Nothing' radio button. The 'Mount Model' plot in the bottom right shows a grid of dRA (arcsec) vs dDE (arcsec) with concentric circles representing the field of view. The plot is centered at (0,0) and has axes ranging from -150 to 150 arcsec. The plot shows a green circle (inner) and a red circle (outer) centered at (0,0). The text 'Mount Model' is visible at the bottom of the plot area.

Ekos - Simulators Profile — KStars

Solver Control
Capture & résolution

Solver Action
● Sync
● Slew to Target
● **Nothing**

2° 1°

AD : 05:15:47 Accuracy 30
DE : -08:10:50 Settle 1500

Solution Coordinates (JNow)
AD : DE :
Err :
Pix : Rotation :
Champ de vision : 4' x 20.3' Primary Scope
FL : 0 (900.0) F/ : 7.5 (7.5)

Plate Solve Capture Options
CCD : CCD Simulator
Exp : 1,00
Bin : 2x2 Gain : --
ISO : Dark
FW : CCD Simulator Filtre : Red

Solver Mode
● **StellarSolver** ● Distant

Solution Results Alignment polaire
The results from Astrometric Solutions from the Capture and Solve Tool, the Load and Slew Tool, and the Mount Model Tool will be displayed below.

AD	DEC	Obj Name	~	dRA	dDE
----	-----	----------	---	-----	-----

dDE (arcsec)
75
50
25
0
-25
-50
-75
-150 -100 -50 0 50 100 150
dRA (arcsec)

Mount Model

2021-02-11T19:05:35 World Coordinate System (WCS) is enabled. CCD rotation must be set either manually in the CCD driver or by solving an image before proceeding to capture any further images, otherwise the WCS information may be invalid.
2021-02-11T19:05:35 Inactif.

Options...
Effacer

Affinage mise en station

The screenshot displays the Ekos software interface for KStars. The main window is titled "Ekos - Simulators Profile — KStars". The interface is divided into several sections:

- Solver Control:** Includes buttons for "Capture & résolution", "Load & Slew...", and "Arrêter".
- Solver Action:** Includes radio buttons for "Sync", "Slew to Target", and "Nothing".
- Telescope Coordinates (JNow):** Shows AD: 05:15:47, Accuracy: 30, DE: -08:10:50, and Settle: 1500.
- Solution Coordinates (JNow):** A section highlighted with a blue box, containing fields for AD, DE, Err, Pix, and Rotation.
- Plate Solve Capture Options:** Includes settings for CCD (CCD Simulator), Exp (1,00), Bin (2x2), Gain, ISO, FW (CCD Simulator), and Filtre (Red).
- Solver Mode:** Includes radio buttons for "StellarSolver" and "Distant".
- Star Field Image:** A central image showing a star field with a blue box highlighting a specific star.
- Solution Results Table:** A table highlighted with a blue box, showing the results of the astrometric solution. The table has columns for AD, DEC, Obj Name, dRA, and dDE. The first row shows: 05:15:47, -08:10:50, Rigel (β Orionis).
- Alignment polaire:** A graph showing the alignment results, with dDE (arcsec) on the y-axis and dRA (arcsec) on the x-axis. The graph shows a green circle and a red circle, indicating the alignment error.

At the bottom of the window, there is a log window showing the following messages:

```
2021-02-11T20:35:35 Index name "/usr/share/astrometry/index-4204-02.fits" is readable; assuming single file.
2021-02-11T20:35:35 Trying to add index "/usr/share/astrometry/index-4204-02.fits".
2021-02-11T20:35:35 Index has 774400 quads and 484000 stars
```

Affinage mise en station

The screenshot displays the Ekos software interface for telescope alignment. The title bar reads "Ekos - CP-GC (CielProfond-Grand-Champ) Profile — KStars". The top toolbar contains several icons, with the target icon highlighted by a blue box. The main interface is divided into several sections:

- Solver Control:** Includes buttons for "Capture & résolution", "Load & Slew...", and "Arrêter".
- Solver Action:** Radio buttons for "Sync", "Slew to Target", and "Nothing".
- Telescope Coordinates (JNow):** Fields for AD (05:36:26), DE (-05:14:44), Accuracy (20), and Settle (1500).
- Solution Coordinates (JNow):** This section is highlighted with a blue box. It shows AD (05:27:56), DE (01:13:36), Err (135 arcsec, RA:-99 DE:-92), Pix (2.02), Rotation (73.62142), and Champ de vision (114' x 118.2').
- Plate Solve Capture Options:** Includes settings for CCD (ZWO CCD ASI1600MM Pro), Exp (10,10), Bin (1x1), Gain, ISO, FW (ASI EFW), and Filtre.
- Solver Mode:** Radio buttons for "StellarSolver" and "Distant".
- Polar Alignment Assistant:** Provides instructions for polar alignment and includes a "Polar Alignment Assistant" section with "Direction" (Ouest) and "Vitesse" (1x) settings.
- Legacy Polar Alignment Tool:** Shows alignment errors: "Erreur Az 00° 02' 44" too far west" and "Erreur Alt :". It includes buttons for "Erreur dans la mesure de l'azimut" and "Erreur dans la mesure de l'altitude".

At the bottom, a status bar displays the following information:

2021-02-24T20:44:12 Solution coordinates: RA (05h 27m 57s) DEC (01° 13' 37") Telescope Coordinates: RA (05h 28m 03s) DEC (01° 15' 08")
2021-02-24T20:44:12 Effective telescope focal length is updated to 379 mm.

Pointage objet à imager

The screenshot displays the KStars software interface. The title bar reads "Simulators Profile — KStars". The top toolbar contains several icons: a wrench and screwdriver (highlighted with a blue box), a book, a graph, a camera, a magnifying glass, a telescope (highlighted with a red box), a target, and a circular arrow. Below the toolbar, the interface is divided into several sections:

- Profile:** Set to "Simulators".
- Mount & Alignment:** Status is "Parked" (highlighted in red). Target coordinates are: AD: 09h 42m 55s, DE: 00° 00' 00", AZ: 89° 59' 48", AL: -00° 00' 11".
- Focus:** Status is "Inactif".
- Guide:** Status is "Inactif".
- Summary (Résumé):** Shows "Image" at 0.0, "Sequence" at 0, and "Overall" at 0.0%.

A red-bordered text box in the center of the main view area contains the text: "Procédure identique au pointage d'une étoile au méridien".

Buttons for "Connecter" and "Déconnecter" are visible in the top right. At the bottom right, there are buttons for "Options..." and "Effacer".

Cadrage objet à imager

The screenshot shows the Ekos software interface for a 'Simulators Profile'. The top toolbar contains several icons, with the 'Tools' icon (wrench) highlighted in blue and the 'Capture' icon (camera) highlighted in red. The main interface is divided into several sections:

- Profile:** Set to 'Simulators'.
- Résumé:** A summary section.
- Capturer:** The main control area for capturing images. It includes a 'Status: Inactif' indicator and a large preview window showing a simulated image of a planet with a red and orange surface. Below the preview are three circular gauges: 'Image' (0.0), 'Sequence' (0), and 'Overall' (0.0%).
- Mount & Alignment:** A section on the right side of the interface. It includes a 'Status: Parked' indicator and a 'Target:' field. The target coordinates are: AD: 09h 42m 55s, DE: 00° 00' 00", AZ: 89° 59' 48", and AL: -00° 00' 11".
- Focus:** A section below the mount settings, including a 'Status: Inactif' indicator and an 'HFR:' field.
- Guide:** A section at the bottom right, including a 'Status: Inactif' indicator and fields for σ RA and σ DEC.

Buttons for 'Connecter' and 'Déconnecter' are visible in the top right. At the bottom right, there are buttons for 'Options...' and 'Effacer'.

Cadrage objet à imager

The screenshot displays the Ekos software interface for astronomical imaging. The title bar reads "Ekos - CP GC (CielnProfond Grand Champ) Profile — KStars".

Camera & Filter Wheel: A blue box highlights the camera icon in the top toolbar and the "Camera & Filter Wheel" settings panel. The panel includes:

- Appareil photo: ZWO CCD ASI224MC
- Cooler: Allumé / Éteint, 23,60 / 22,60
- Capture Settings: Exposition: 1,000000; Filtre: Luminance; Total: 1; Délai: 0; Format: FITS; ISO: --; Type: Light; Gain: --
- Image: X: 0; Y: 0; Offset: --
- Taille: O: 1304; H: 976; Buttons: Reset, Calibrer
- Regroupement de pixels: H: 1; V: 1; Buttons: Properties, Rotate
- File Settings: Préfixe: Target; Script: Scripts Manager; Directory: /home/philippe/LHRVB-imaging-2020; Save: Locally; Remote: /home/pi
- Guide Limits: Only Start if Guide Deviation < 2,00 arcsec; Abort if Guiding Deviation > 2,00"

File d'attente de séquences: A red box highlights the "Start" (camera icon) and "Refresh" (refresh icon) buttons in the bottom toolbar. The table below shows the sequence queue:

État	Filtre	Total	Exp	Type	Bin	ISO/Gain	Déc

FITS viewer: Includes "Auto Dark" and "Effects" options, and a "Progression" section with fields for "Exposition" and "Progression" in seconds.

Buttons at the bottom right: Options..., Effacer

Autoguidage

The screenshot shows the KStars software interface with the following elements:

- Toolbar:** A row of icons for various functions. The 'Wrench' icon (blue box) and the 'Magnifying Glass' icon (red box) are highlighted.
- Profile:** A dropdown menu set to 'Simulators'.
- Buttons:** 'Connecter' and 'Déconnecter' buttons.
- Mount & Alignment:**
 - Status: **Parked** (highlighted in red)
 - Target: AD: 09h 42m 55s, DE: 00° 00' 00", AZ: 89° 59' 48", AL: -00° 00' 11"
- Focus:**
 - Status: Inactif
 - HFR: [Empty field]
- Guide:**
 - Status: Inactif
 - σ RA: [Empty field]
 - σ DEC: [Empty field]
- Performance Indicators:** Three circular gauges for 'Image' (0.0), 'Sequence' (0), and 'Overall' (0.0%).
- Bottom Right:** 'Options...' and 'Effacer' buttons.

Autoguidage

The screenshot displays the Ekos software interface for autoguiding. The window title is "Ekos - Simulators Profile — KStars".

Top Toolbar: A row of icons for various functions. The icon for autoguiding (a red bullseye) is highlighted with a blue box.

Left Sidebar (Control Panel): A red box highlights the "Contrôle" section, which includes buttons for "Capturer", "En boucle", "Guide", "Arrêter", and "Connecter". Below these are settings for "Subframe", "Auto Star", and "Dark". Further down are dropdown menus for "Guide" (set to "CCD Simulator Guider") and "Via" (set to "CCD Simulator"), and input fields for "Exp" (1,000) and "Bin" (1x1). There are also checkboxes for "Box" (32) and "Effets" (---), and a "Directions" section with checkboxes for AD, DEC, and Swap.

Central Live Feed: A large dark area showing a simulated star field with a red bullseye overlay.

Bottom Section:

- Guide Info:** Shows the current state as "Running". Other fields include "Portée: Guide Scope", "Guiding rate: 0,500", "P: 133.33", "Focal: 162.0", "Aperture: 50.0", "F/D: 3.2", "FOV: 104.0x77.5", and "Total RMS" and "Guide SNR" both showing "xxx".
- Drift Graphics:** A graph showing "drift (arcsec)" on the y-axis (ranging from -3 to 3) and time on the x-axis (ranging from -02:00 to -00:30). The graph displays data for RA, DE, SNR, and RMS.
- Contrôle Drift Plot:** A circular plot showing "dDE (arcsec)" on the y-axis (ranging from -5 to 5) and "dRA (arcsec)" on the x-axis (ranging from -5 to 5). It features concentric circles representing drift levels.

Status Bar: At the bottom, it shows the message: "2021-02-11T20:50:54 Calibration is cleared. 2021-02-11T20:50:54 Mount is moving. Resetting calibration...".

Autoguidage

The screenshot displays the Ekos software interface for autoguiding. The main window is titled "Ekos - Simulators Profile — KStars".

Control Panel (Contrôle):

- Buttons: Capturer, En boucle, Guide (highlighted in red), Arrêter.
- Field: 2° (highlighted in red).
- Dropdowns: Guide: CCD Simulator Guider, Via: CCD Simulator.
- Parameters: Exp: 4,500, Bin: 1x1, Box: 32, Effets: --.
- Directions: AD, DEC, Swap.
- Buttons: Connecter, Déconnecter.

Camera View: A dark field of stars with a green square box highlighting a specific star (highlighted in red). A text box next to it says "1° choisir étoile guide".

Guide Info:

- Status: Idling, Preparing, Running.
- Portée: Guide Scope.
- Guiding rate: 0,500, P: 133.33.
- Focal: 162.0, Aperture: 50.0, F/D: 3.2, FOV: 104.0x77.5.
- Guiding Delta: xxx, Pulse Length (ms): xxx, RA RMS: xxx, DE RMS: xxx.
- Total RMS: xxx, Guide SNR: xxx.

Drift Graphics: A graph showing drift (arcsec) over time. The y-axis ranges from -3 to 3, and the x-axis shows time from -02:00 to -00:30. Legend: RA (green), DE (blue), SNR (yellow), RMS (red). Axes are labeled N, S, E, O.

Drift Plot: A circular plot showing dDE (arcsec) vs dRA (arcsec). The axes range from -5 to 5. Concentric circles represent different drift levels.

Bottom Panel:

- Buttons: Options..., Effacer.
- Trace: RA, DEC, SNR, Corr, Corr, RMS.
- Slider: Max (set to 2,0).

Log:

- 2021-02-11T20:50:54 Calibration is cleared.
- 2021-02-11T20:50:54 Mount is moving. Resetting calibration...

Autoguidage

The screenshot displays the Ekos software interface for autoguiding. The main window is titled "Ekos - Simulators Profile — KStars".

Control Panel (Contrôle):

- Buttons: Capturer, En boucle, Guide, Arrêter, Connecter, Déconnecter.
- Settings: subframe, Auto Star, Dark.
- Guide: CCD Simulator Guider
- Via: CCD Simulator
- Exp: 4,500, Bin: 1x1
- Box: 32, Effets: --
- Directions: AD, DEC, Swap
- Buttons: +, -, +, -

Guide Info:

- Status: Idling, **Preparing**, Running
- Portée: Guide Scope
- Guiding rate: 0,500, P: 133.33
- Focal: 162.0, Aperture: 50.0
- F/D: 3.2, FOV: 104.0x77.5
- Guiding Delta: xxx, xxx
- Pulse Length (ms): xxx, xxx
- RA RMS: xxx, DE RMS: xxx
- Total RMS: xxx
- Guide SNR: xxx

Drift Graphics:

- Graphs: drift (arcsec) vs time, dDE (arcsec) vs dRA (arcsec).
- Legend: RA (green), DE (blue), SNR (yellow), RMS (red).
- Axis labels: N, S, E, W.
- Buttons: +, -, Max, Options..., Effacer.

Log:

- 2021-02-11T20:55:29 DEC backlash...
- 2021-02-11T20:54:49 RA drifting reverse...
- 2021-02-11T20:54:32 RA drifting forward...

Autoquidage

The screenshot displays the Ekos Simulators Profile window in KStars. The interface is divided into several sections:

- Top Bar:** Contains various icons for navigation and control. A red box highlights the 'Auto Guide' icon (a target with a red dot).
- Contrôle (Control):** A panel on the left with buttons for 'Capturer', 'Guide', and 'Arrêter'. It also includes checkboxes for 'En boucle', 'Subframe', 'Auto Star', and 'Dark'. Below these are dropdown menus for 'Guide' (set to 'CCD Simulator Guider') and 'Via' (set to 'CCD Simulator'). Further down are input fields for 'Exp' (4,500) and 'Bin' (1x1), and a 'Box' (32) dropdown. Checkboxes for 'Directions' (AD, DEC, Swap) are also present.
- Guide Info:** A section below 'Contrôle' showing the current status. The 'Running' status is highlighted with a red box. Other fields include 'Portée' (Guide Scope), 'Guiding rate' (0,500), and 'P' (133.33). A table below shows optical parameters: Focal (162.0), Aperture (50.0), F/D (3.2), and FOV (104.0x77.5). It also displays 'Guiding Delta', 'Pulse Length', 'RA RMS', and 'DE RMS'.
- Drift Graphics:** A plot window showing 'drift (arcsec)' over time. The x-axis ranges from 00:00 to 01:30. The y-axis ranges from -3 to 3. The plot shows four data series: RA (green), DE (blue), SNR (yellow), and RMS (red). The RA and DE lines are very close to zero, indicating stable guiding.
- Drift Plot:** A circular plot window showing 'dDE (arcsec)' vs 'dRA (arcsec)'. The axes range from -5 to 5. The plot shows concentric circles of different colors (green, yellow, red) representing different drift levels.
- Log Window:** A small window at the bottom left showing the following log entries:
 - 2021-02-11T20:57:19 Guidage automatique démarré.
 - 2021-02-11T20:57:19 Calibrage terminé.
 - 2021-02-11T20:57:19 DEC swap enabled.

Lights

The screenshot displays the Ekos software interface. At the top, the title bar reads "Ekos - Simulators Profile — KStars". Below the title bar is a toolbar with several icons. The icon representing a camera (the "Lights" icon) is highlighted with a red square. To its left, a wrench icon is highlighted with a blue square. Below the toolbar, the interface is divided into several sections. On the left, there is a "Résumé" section with a "Capturer" status of "Inactif" and a large dark image area. Below this are three circular gauges labeled "Image" (0.0), "Sequence" (0), and "Overall" (0.0%). On the right, there are sections for "Mount & Alignment" (Status: **Parked**, Target: AD: 09h 42m 55s, DE: 00° 00' 00", AZ: 89° 59' 48", AL: -00° 00' 11"), "Focus" (Status: Inactif, HFR: [empty]), and "Guide" (Status: Inactif, σ RA: [empty], σ DEC: [empty]). At the bottom right, there are buttons for "Options..." and "Effacer".

Lights

The screenshot shows the Ekos software interface for a ZWO CCD ASI1600MM Pro camera. The interface is divided into several sections:

- Camera & Filter Wheel:** Shows the camera model, cooler status (Allumé / **Éteint**), and filter wheel settings (FW: ASI EFW).
- Capture Settings:** Includes exposure time (0,010000), filter (Bleu), total frames (11), delay (0), format (FITS), ISO, gain (60,0), and image dimensions (4656 x 3520).
- File Settings:** Shows the prefix (Target), script (Scripts Manager), directory (/home/philippe/forFlat), and save location (Locally).
- Guide Limits:** Includes options for starting and aborting based on guide deviation.
- File d'attente de séquences (Sequence Queue):** A table listing the sequence of frames to be captured.
- FITS Viewer:** Shows the current frame being captured.
- Progression:** Displays the current exposure time and the total time required.

The sequence queue table is as follows:

	État	Filtre	Total	Exp	Type	Bin	Gain	Dé
1	Inactif	Lumina...	0/11	0,010000	Flat	1x1	60.0	
2	Inactif	H Alpha	0/11	0,010000	Flat	1x1	60.0	
3	Inactif	Rouge	0/11	0,010000	Flat	2x2	60.0	
4	Inactif	Vert	0/11	0,010000	Flat	2x2	60.0	
5	Inactif	Bleu	0/11	0,010000	Flat	2x2	60.0	

A blue box highlights the camera icon in the top toolbar, and a red box highlights the 'Append the expose duration to the prefix' button in the sequence queue table. A tooltip for this button reads: "Append the expose duration to the prefix".

Log messages at the bottom left:

```
2021-02-14T22:31:30 Cooler is off
2021-02-14T22:28:11 Cooler is on
2021-02-14T22:28:11 Cooler is on
```

Lights Luminance

The screenshot shows the Ekos software interface with the 'Open Ekos Sequence Queue' dialog box open. The dialog box displays a file list with the following columns: Nom, Taille, Type, and Modifié. The file 'seq-Luminance-T-20-G120-S30-B1-Q120.esq' is selected and highlighted in green. The 'Ouvrir' button is highlighted in red.

Camera & Filter Wheel

Appareil photo: ZWO CCD ASI224MC

Cooler: FW: ASI EFW

File d'attente de séquences

Open Ekos Sequence Queue

00-astro-V1 Kstars-CP-GC-sequences priseDeVues seq-2021-02-10-Orion

Nom	Taille	Type	Modifié
ApoRedZwo1600-flat-LHB1-RVB-B2-Auto.esq	6.0 kB	Markup	Hier
seq-nalpa-T-20-G120-S30-B1-Q120.esq	1.4 kB	Markup	mer.
seq-Luminance-T-20-G120-S30-B1-Q120.esq	1.4 kB	Markup	mer.
seq-RVB-T-20-G120-S30-B2-Q120.esq	5.0 kB	Markup	mer.
seq-SkyBackground-T-20-G120-SXXX-B1-Q5.esq	7.1 kB	Markup	lun.

Ekos Sequence Queue

Annuler Ouvrir

Options...
Effacer

Guide Limits Focus Limits

Only Start if Guide Deviation < 2,00 arcsec

Abort if Guiding Deviation > 2,00 "

Progression

Exposition : [] seconde(s) restan

Progression : [] sur [] effectué(s)

Lights Luminance

The screenshot displays the Ekos software interface for a ZWO CCD ASI1600MM Pro camera. The interface is divided into several sections:

- Camera & Filter Wheel:** Shows the camera model (ZWO CCD ASI1600MM Pro) and filter wheel (ASI EFW). The cooler is currently set to "Éteint" (Off).
- Capture Settings:** Includes exposure time (30,000000), filter (Luminance), total frames (120), format (FITS), type (Light), and gain (120,0).
- File Settings:** Shows the prefix (Neb-Orion), script (Scripts Manager), directory (/home/philippe/LHRVB-imaging-2020), and save location (Locally).
- Guide Limits:** Includes options for "Only Start if Guide Deviation < 2,00 arcsec" and "Abort if Guiding Deviation > 15,50".
- File d'attente de séquences (Sequence Queue):** A table showing the current sequence status.
- Playback Controls:** A red box highlights the play button in the bottom right corner.

État	Filtre	Total	Exp	Type	Bin	ISO/Gain	Dé
1	Inactif	Lumina...	0/120	30,000000	Light	1x1	120.0

Lights Luminance

Ekos - CP GC (CielnProfond Grand Champ) Profile — KStars

Camera & Filter Wheel

Appareil photo: ZWO CCD ASI1600MM Pro FW: ASI EFW

Cooler: **Allumé** Éteint T° -20,50 -20,00

Capture Settings

Exposition: 30,000000 Filtre: Luminance

Total: 120 Délai: 0

Format: FITS ISO:

Type: Light Gain: 120,0

Image: X: 0 Y: 0 Offset: -

Taille: O: 4656 H: 3520

Regroupement de pixels: H: 1 V: 1

File Settings

Préfixe: Neb-Orion Filtre

Script: Scripts Manager Duration

Directory: /home/philippe/LHRVB-imaging-2020 TS

Save: Locally Remote: LHRVB-imaging-2020

File d'attente de séquences

État	Filtre	Total	Exp	Type	Bin	ISO/Gain	Dé
1 In Progress	Lumina...	2/120	30,000000	Light	1x1	120.0	

Progression

Exposition: 6,00 seconde(s) restan

Progression: 2 sur 120 effectué(s)

1%

2021-02-14T22:44:05 Capturing 30,000-second Luminance image...

2021-02-14T22:44:04 Reçu une image 2 de 120.

2021-02-14T22:44:04 Download Time: 1.36 s, New Download Time Estimate: 2.35 s.

Lights RVB

The screenshot displays the Ekos software interface for a ZWO CCD ASI1600MM Pro camera. The interface is divided into several sections:

- Camera & Filter Wheel:** Located at the top, it contains icons for various camera functions. The camera icon is highlighted with a blue box.
- Appareil photo:** Shows the camera model (ZWO CCD ASI1600MM Pro) and the filter wheel (ASI EFW).
- Cooler:** A dropdown menu is set to "Éteint" (Off), with a temperature of 21,50°C and a target of -20,00°C.
- Capture Settings:** Includes exposure time (30,000000), filter (Bleu), total time (60), format (FITS), type (Light), gain (120,0), and image coordinates (X: 0, Y: 0).
- File Settings:** Shows the prefix (Neb-Orion), script (Scripts Manager), directory (/home/philippe/LHRVB-imaging-2020), and save location (Locally).
- Guide Limits:** Includes options for "Only Start if Guide Deviation < 2,00 arcsec" and "Abort if Guiding Deviation > 15,50".
- File d'attente de séquences:** A table showing the sequence of filters to be used. It is highlighted with a blue box.
- Playback Controls:** A red box highlights the play button in the bottom right corner of the sequence list area.

	État	Filtre	Total	Exp	Type	Bin	ISO/Gain	Dé
1	Inactif	Rouge	0/60	30,000000	Light	2x2	120.0	
2	Inactif	Vert	0/60	30,000000	Light	2x2	120.0	
3	Inactif	Bleu	0/60	30,000000	Light	2x2	120.0	

Lights H Alpha

The screenshot displays the Ekos software interface for a ZWO CCD ASI1600MM Pro camera. The main settings panel is highlighted with a blue box and includes the following details:

- Appareil photo:** ZWO CCD ASI1600MM Pro
- Cooler:** Allumé, **Éteint** (checked), 21,50
- Capture Settings:**
 - Exposition: 30,000000
 - Total: 120
 - Format: FITS
 - Type: Light
 - Gain: 120,0
 - Image: X: 0, Y: 0
 - Taille: O: 4656, H: 3520
 - Regroupement de pixels: H: 1, V: 1
- File Settings:**
 - Préfixe: Neb-Orion
 - Script: Scripts Manager
 - Directory: /home/philippe/LHRVB-imaging-2020
 - Save: Locally
- Guide Limits:**
 - Only Start if Guide Deviation < 2,00 arcsec
 - Abort if Guiding Deviation > 15,50

The top toolbar contains several icons, with the wrench icon (representing settings) highlighted in a red box. The 'File d'attente de séquences' (Sequence Queue) window is also highlighted in blue and contains the following table:

État	Filtre	Total	Exp	Type	Bin	ISO/Gain	Dé
1	Inactif	H Alpha	0/120	30,000000	Light	1x1	120.0

At the bottom right of the interface, a red box highlights a play button icon, which is used to start the imaging sequence.

Arrêt Kstars

The image shows two windows from the KStars software interface. The left window, titled "Mount Control — KStars", contains a grid of directional arrow buttons, a "STOP" button, and a "1x" magnification level. Below these are fields for "AD", "DE", "HA", "AZ", and "ZA" with their respective values. A "Target:" field with a search icon and a "Click Find Icon" button is present. At the bottom, there are buttons for "GOTO", "SYNC", "PARK", and "UNPARK", and a "Status: Tracking" indicator.

The right window, titled "GC (CielnProfond Grand Champ) Profile — KStars", features a toolbar with several icons. A wrench icon is highlighted with a blue box. Below the toolbar, there are buttons for "2. Start & Stop Ekos" (highlighted with a red box) and "3. Connect & Disconnect Devices". The main area shows a "Résumé" section with a "Capturer" button and a "Status: Inactif" label. A large image area displays a dark field with a red nebula and a "no entry" symbol. Below the image are three circular gauges for "Image" (0.0), "Sequence" (0), and "Overall" (0.0%). On the right side, there are sections for "Mount & Alignment" (Status: Tracking, Target: AD: 04h 47m 11s, DE: 90° 00' 00", AZ: 00° 00' 00", AL: 48° 45' 09"), "Focus" (Status: Inactif, HFR:), and "Guide" (Status: Disconnected, σ RA:, σ DEC:). At the bottom, a log shows messages: "2021-02-15T13:46:05 Le port du Guide depuis ZWO CCD ASI224MC est prêt.", "2021-02-15T13:46:05 ZWO CCD ASI224MC est connecté.", and "2021-02-15T13:46:03 Le port du Guide depuis ZWO CCD ASI1600MM Pro est prêt." Buttons for "Options..." and "Effacer" are at the bottom right.

Arrêt Kstars

The screenshot displays the KStars software interface, specifically the INDI control panel. The interface is divided into several sections:

- Mount Control (Left):** Features a 3x3 grid of directional arrows (up, down, left, right, and diagonals) and a central red 'STOP' button. Below the grid are controls for 'Reverse', 'Up/Down', and 'Left/Right', along with a magnification level of '1x'. Astronomical coordinates are shown: AD: 04h 47m 11s, AZ: 00° 00' 00", DE: 90° 00' 00", AL: 48° 45' 09", HA: -05h 56m 15s, ZA: 41° 13' 58". A 'Target:' field with a search icon and 'Click Find Icon' text is present. Below are fields for AD (HH:MM:SS) and DE (DD:MM:SS), a 'Type:' dropdown with radio buttons for RA/DE, AZ/AL, and HA/DE, and a 'Date de référence (epoch):' dropdown with radio buttons for JNow and J2000. 'GOTO', 'SYNC', 'PARK', and 'UNPARK' buttons are also visible. The status is 'Tracking'.
- Mount Profile (Middle-Left):** Shows the profile 'CP GC (CielnProfond Grand Champ) Profile'. The status is 'Status: Inactif'. There is an 'Image' window showing a value of '0.0'.
- INDI Control Panel (Center):** Titled 'Panneau de contrôle de INDI — KStars', it has tabs for 'Contrôle principal', 'Connexion', 'Options', and 'Presets'. The 'Presets' tab is active, showing a table of presets:

Presets	Position	Value	Buttons
Preset 1	10	10,000	Slider and 'Définir'
Preset 2	14393	14393,0	Slider and 'Définir'
Preset 3	12000	12000,0	Slider and 'Définir'

Below the table are 'Atteindre' buttons for 'Preset 1', 'Preset 2', and 'Preset 3'. The 'Preset 1' button is highlighted with a red box. A red-bordered text box with the text '1° Parquer le focuser' is overlaid on the interface.
- Log (Bottom):** Shows system messages: '2021-02-15T12:52:19: [INFO] Focuser reached requested position.', '2021-02-15T12:50:52: [INFO] Moving to Preset 2 with position 14393.', '2021-02-15T12:48:33: [INFO] Focuser reached requested position.', and '2021-02-15T12:47:07: [INFO] Moving to Preset 1 with position 10.' There are also 'Effacer' and 'Fermer' buttons.
- Disconnect Devices (Right):** Shows a 'Disconnect Devices' section with a 'Déconnecter' button and target coordinates: 'Target: 90° 00' 00"', '48° 45' 09"', and 'HFR:'.

Arrêt Kstars

Mount Control — KStars

Ekos - CP GC (CleinProfond Grand Champ) Profile — KStars

Panneau de contrôle de INDI — KStars

Joystick USBFocusV3 EQMod Mount ASI EFW ZWO CCD ASI1600MM Pro ZWO CCD ASI224MC

Contrôle principal Connexion Options Presets

Presets	Position	Value
Preset 1	10	10,000
Preset 2	14393	14393,0
Preset 3	12000	12000,0

Atteindre Preset 1 Preset 2 Preset 3 Définir

Target: 90° 00' 00" 48° 45' 09"

HFR: σDEC:

2021-02-15T13:00:45: [INFO] Focuser reached requested position.
2021-02-15T12:59:19: [INFO] Moving to Preset 1 with position 10.
2021-02-15T12:52:19: [INFO] Focuser reached requested position.
2021-02-15T12:50:52: [INFO] Moving to Preset 2 with position 14393.

2021-02-15T13:46:05 Le port du
2021-02-15T13:46:05 ZWO CCD A
2021-02-15T13:46:03 Le port du G

Effacer Fermer Effacer

1° Le focuser est parqué

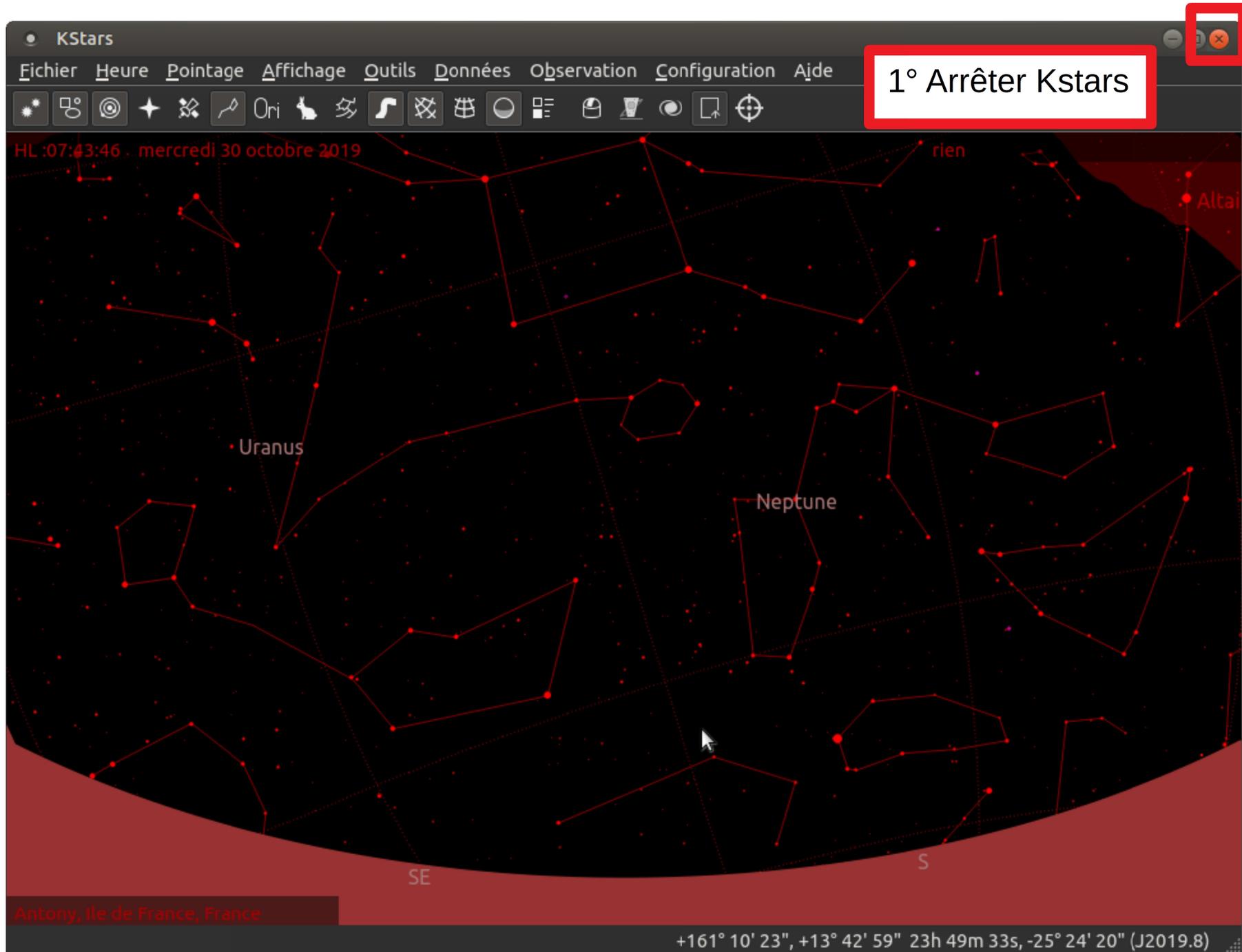
Arrêt EKOS

The screenshot shows the KStars software interface with several key elements highlighted by red boxes and numbered instructions:

- 1° Parquer la monture**: A red box highlights the **PARK** button in the bottom left corner of the Mount Control panel.
- 2° Déconnecter**: A red box highlights the **Déconnecter** button in the top right corner of the main interface.
- 3° Arrêter INDI**: A red box highlights a square stop button in the top right area of the main interface.
- 4° Arrêter EKOS**: A red box highlights a red 'X' icon in the top right corner of the main interface.

Other visible interface elements include a central toolbar with a wrench icon (highlighted by a blue box), a central display window showing a red 'X' over a star field, and various status indicators for 'Mount & Alignment' and 'Guide'.

Arrêt Kstars

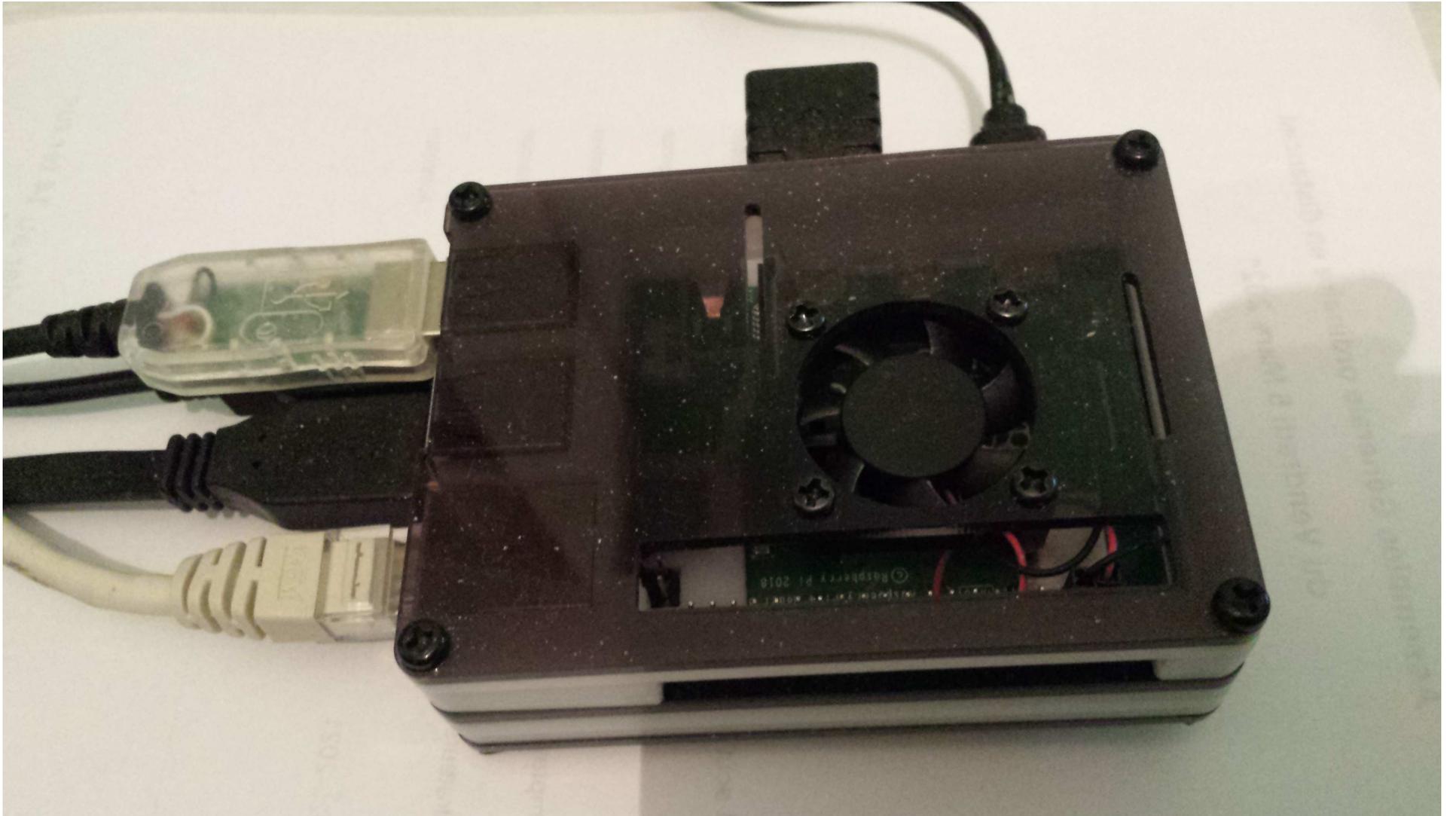




KSTARS

Le futur

Le RPI4



Kstars veille, Je dors !!!

Ekos - CP GC (CielProfond Grand Champ) Profile — KStars

Object & Sequence Selection

Target: [Empty] [Search] [Add] [Remove] [Up] [Down] [Refresh] [Reset] [Help]

J2000: AD hh mm ss.s DEC dd mm ss.s [Add] [Remove]

Sequence: [Empty] [Add] [Remove]

FITS File: [Empty] [Add] [Remove]

Priority: 10 [Up] [Down]

Profile: Par défaut [Dropdown]

Steps: Suivi Focus Aligner Guide

Nom	État	Captures	Altitude	Score	Start Time	End Time	Est. Duratio
[Empty Table]							

[Play] [Pause] Inactif

Job Startup Conditions

- ASAP
- Culmination Offset: -60 min [Dropdown]
- On: 15/02 21:48 [Dropdown]

Job Constraints

- Alt >: 0,00° [Dropdown]
- Moon >: 0,00° [Dropdown]
- Weather
- Twilight: 20:00 - 06:15

Job Completion Conditions

- Sequence completion
- Repeat for: 1 runs [Dropdown]
- Repeat until terminated
- Repeat until: 15/02/21 21:48 [Dropdown]

Observatory Startup Procedure

- UnPark Dome
- UnPark Mount
- UnCap [Play]

Script: [Empty] [Add] [Remove]

Aborted Job Management

- None
- Queue
- Immediate
- Re-schedule errors: 0 s wait [Dropdown]

Observatory Shutdown Procedure

- Warm CCD
- Cap
- Park Mount
- Park Dome [Play]

Script: [Empty] [Add] [Remove]

[Options...] [Effacer]

Remerciement

**Merci à tous ceux
qui m'ont aidé à
définir et faire
fonctionner cet
ensemble**