



# KSTARS

## Pilote mon Setup Ciel Profond Grand Champ

Tome 2 : Phase Utilisation

Philippe Revellat 2021

# Les principes

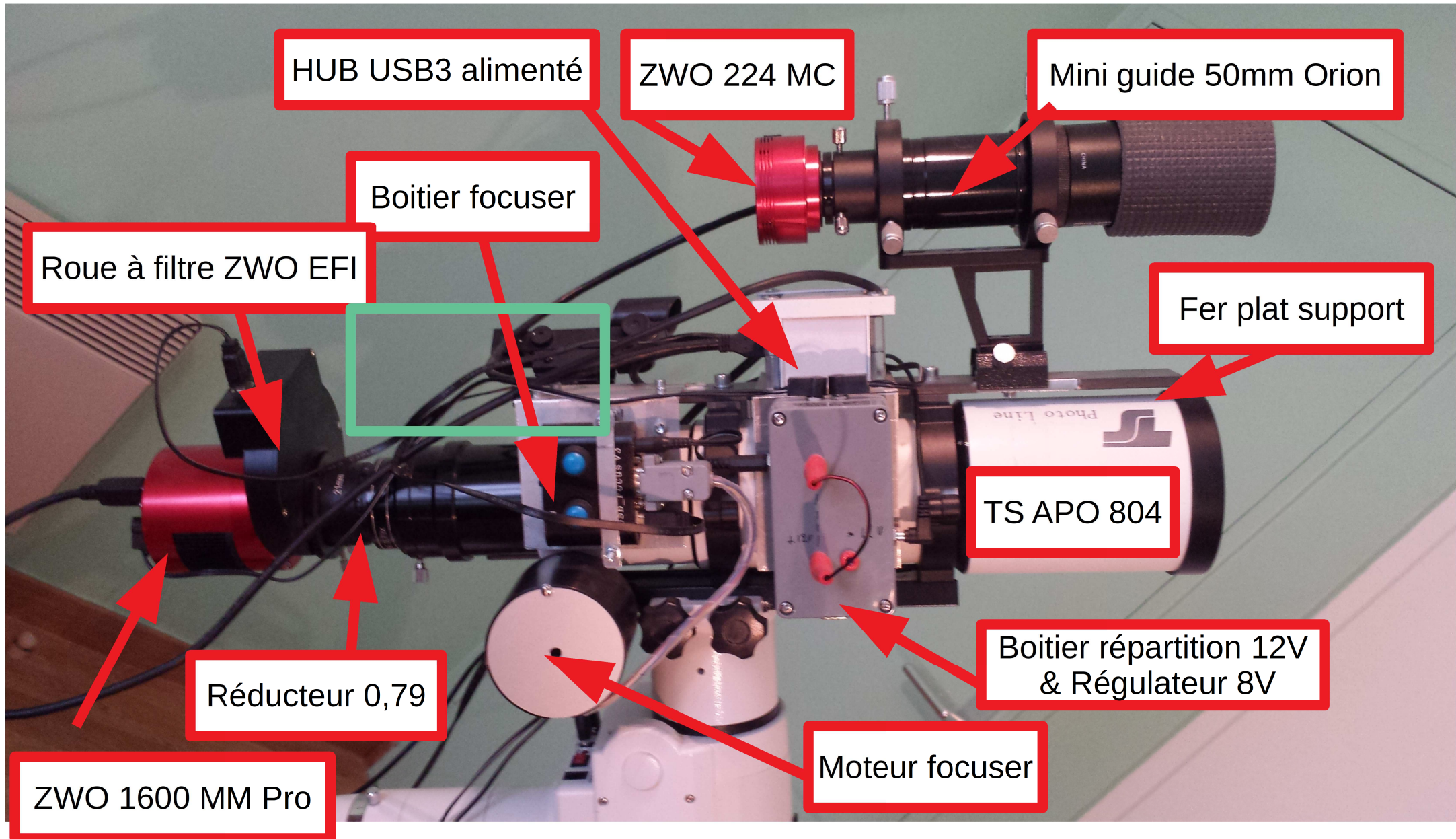
Aucune improvisation lors d'une séance d'imagerie :

- 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.

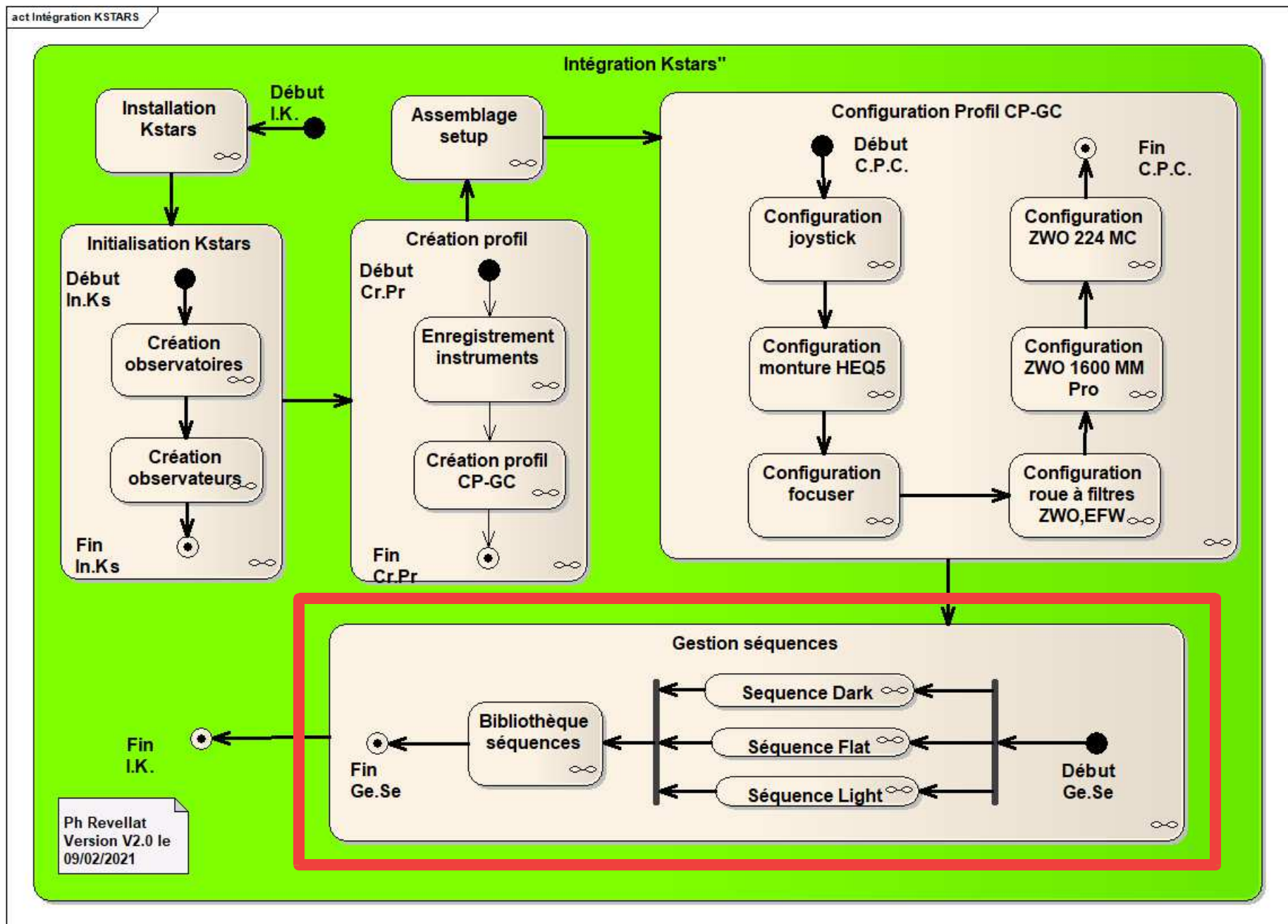
Je ne présente pas Kstars mais l'usage que j'en fait :

- 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)

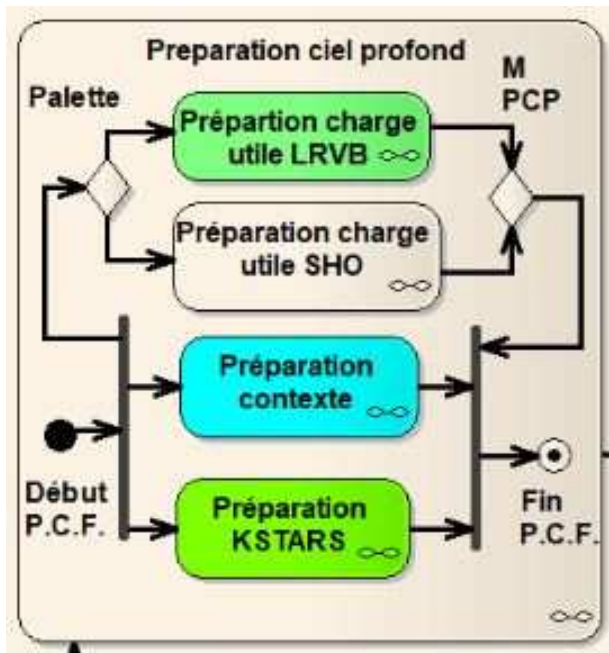


# Intégration de Kstars au setup CP-GC





# Préparation ciel profond



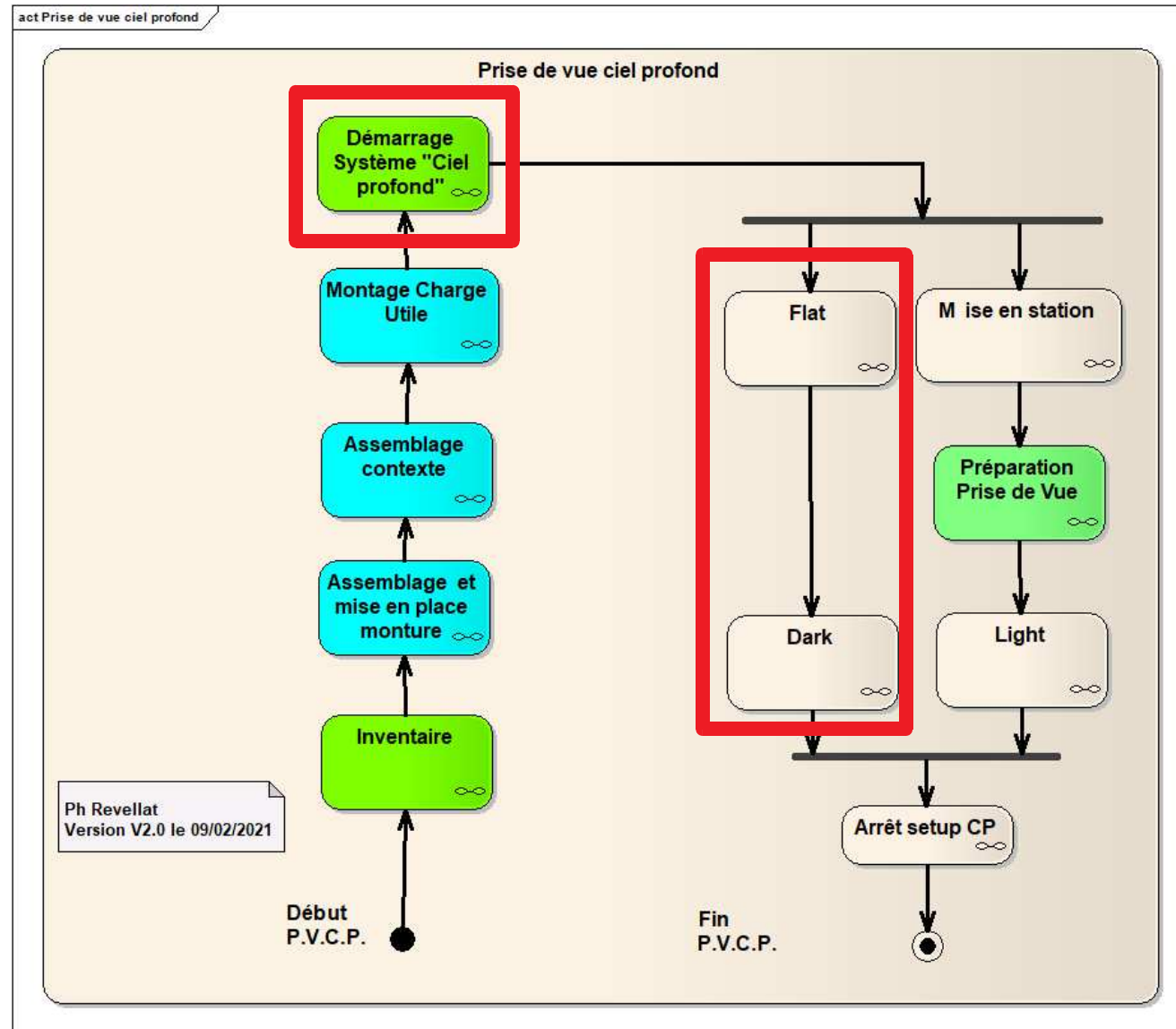
- Préparation charge utile : monter les bons filtres,
- Préparation contexte : charger les batteries et vérifier l'espace disque,
- Préparation Kstars :
  - Configurer la roue à filtre
  - Vérifier le profil
  - Créer le jeux de séquence à utiliser,
- Si approprié tester et s'entraîner.



# Démarrage système Flat et Dark

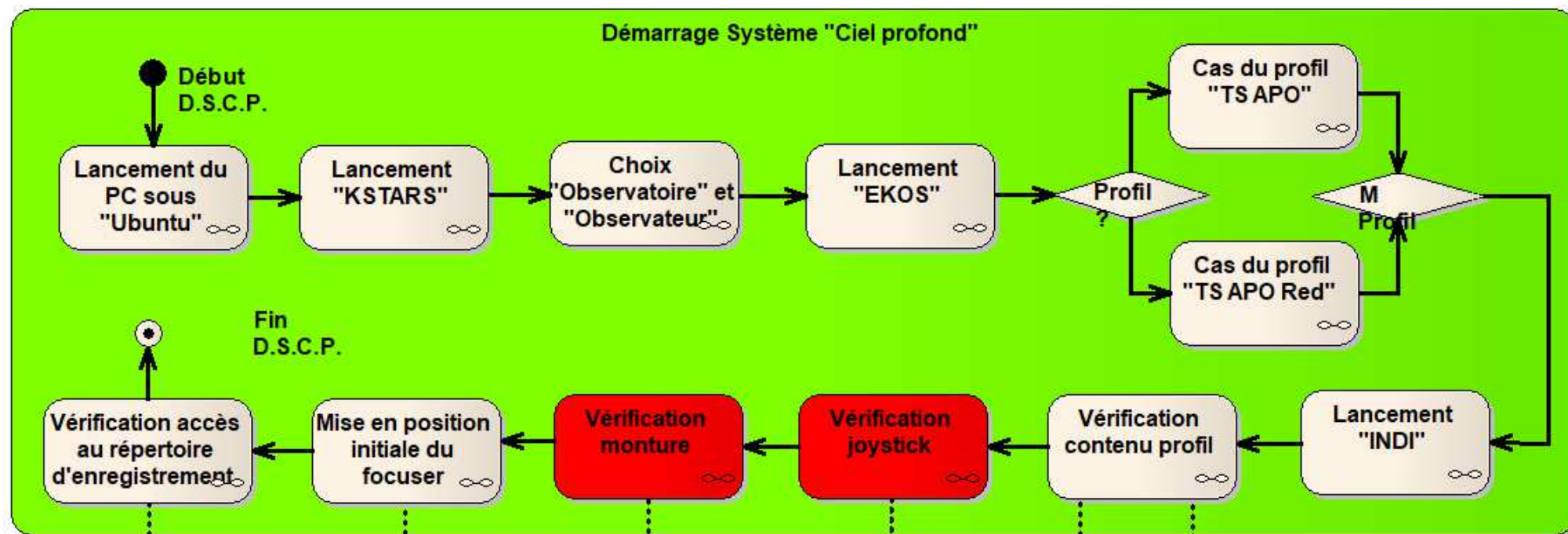
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# Prise de vue « Ciel Profond)



# 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 :

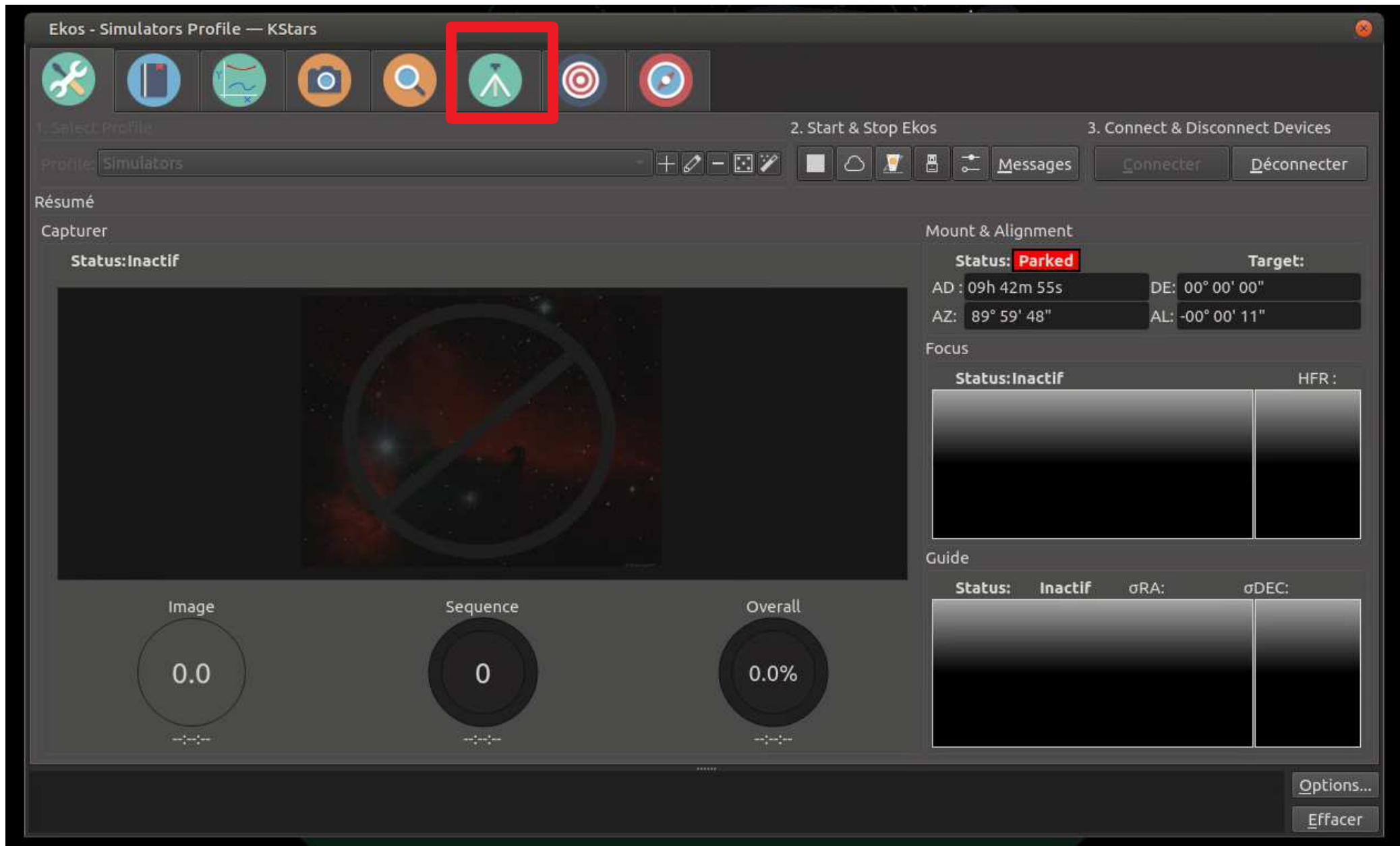
- le nom du répertoire prévus pour les "Light" est bien le même que celui des séquences pré-enregistrées,
- le répertoire prévu pour les "Lights" est accessible,
- que la capacité libre du disque est compatible du volume d'image prévu.

La vérification peut être :

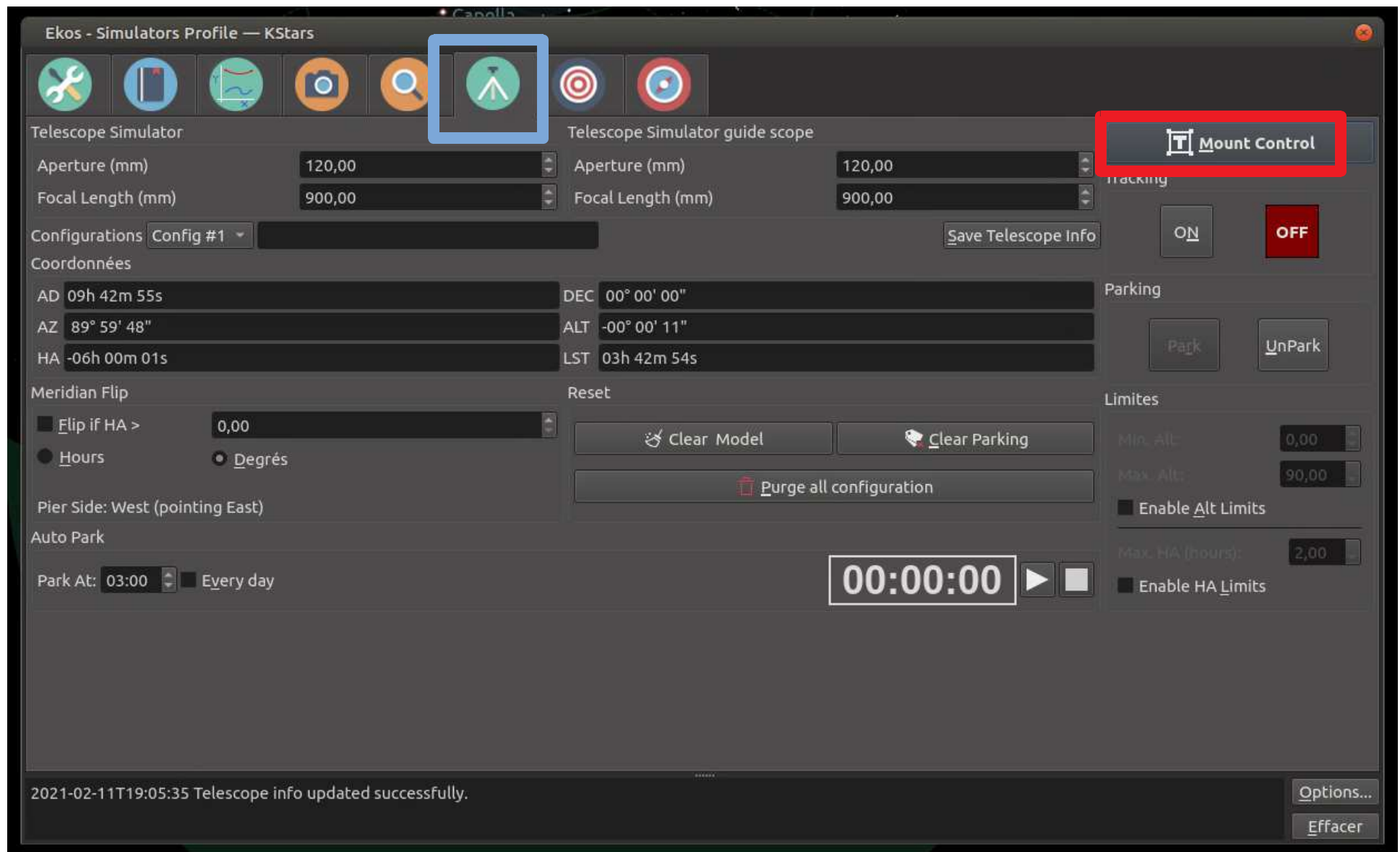
"Simple" = vérification dans le contrôleur INDI de la présence des devices ASI 1600, ASI 224, EFW Mini, EQMOD, USB Focus V3 et joystick



# Pointage ciel bleu et uniforme



# Pointage ciel bleu et uniforme



# Pointage ciel bleu et uniforme

The image shows two windows from the KStars software. The left window, titled "Mount Control — KStars", contains a 3x3 grid of directional arrow buttons with a red "STOP" button in the center. Below the grid are checkboxes for "Reverse", "Up/Down", and "Left/Right", followed by a "Chercher" button. A section for target coordinates lists AD, DE, HA, AZ, AL, and ZA. Below this is a "Target:" field with a "Click Find Icon" button. Further down are input fields for AD, DE, Type (RA/DE, AZ/AL, HA/DE), and Date de référence (epoch) (JNow, J2000). At the bottom are "GOTO", "PARK", and "UNPARK" buttons, with the status "Status: Parked". The right window, titled "Ekos - Simulators Profile — KStars", has a toolbar with icons for various functions; the telescope icon is highlighted with a blue box. The main area is divided into "Telescope Simulator" and "Telescope Simulator guide scope" sections, each with input fields for Aperture (mm) and Focal Length (mm). Below these are "Configurations" and "Coordonnées" (AD, DEC, AZ, ALT, HA, LST) fields. A "Meridian Flip" section includes a "Flip if HA >" slider and radio buttons for "Hours" and "Degrés". A "Reset" section has "Clear Model" and "Clear Parking" buttons. An "Auto Park" section includes a "Park At:" time field and a "Every day" checkbox. On the right side of this window are "Mount Control", "Tracking" (ON/OFF), "Parking" (Park/UnPark), and "Limites" (Min Alt, Max Alt, Max HA) settings. A large red arrow points from a box containing "1°" to the "UNPARK" button in the left window. A status bar at the bottom of the right window displays the message "2021-02-11T19:05:35 Telescope info updated successfully." and buttons for "Options..." and "Effacer".

Mount Control — KStars

Ekos - Simulators Profile — KStars

Telescope Simulator

Aperture (mm) 120,00

Focal Length (mm) 900,00

Configurations Config #1

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

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

Options... Effacer

# Pointage ciel bleu et uniforme

The screenshot shows the EQMod software interface. A red box highlights the directional control pad on the left, which includes arrows for movement and a central 'STOP' button. A red arrow points from this box to a text box labeled '1°'. Another red box highlights the camera icon in the top toolbar, with a red arrow pointing from a text box labeled '2°' to it. A blue box highlights the telescope icon in the top toolbar. A large red text box in the center contains the instruction: '1° A l'aide des différentes commandes, pointer une zone de ciel bleu uniforme et loin du couchant'. The interface also displays various telescope parameters, target coordinates, and control buttons like 'GOTO', '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

Configurations Config #1

Coordonnées

AD 05h 01m 40s

AZ 00° 00' 00"

DE 90° 00' 00"

HA -05h 59m 57s

ZA 41° 13' 58"

Target: Click Find Icon

AD: HH:MM:SS

DE: DD:MM:SS

Type: RA/DE AZ/AL HA/DE

Date de référence (epoch): JNow J2000

GOTO SYNC

PARK UNPARK

Status: Inactif

EQMod Mount guide scope

Aperture (mm) 50,00

Focal Length (mm) 162,00

Save Telescope Info

Mount Control

Tracking ON OFF

Parking Park UnPark

Clear Parking

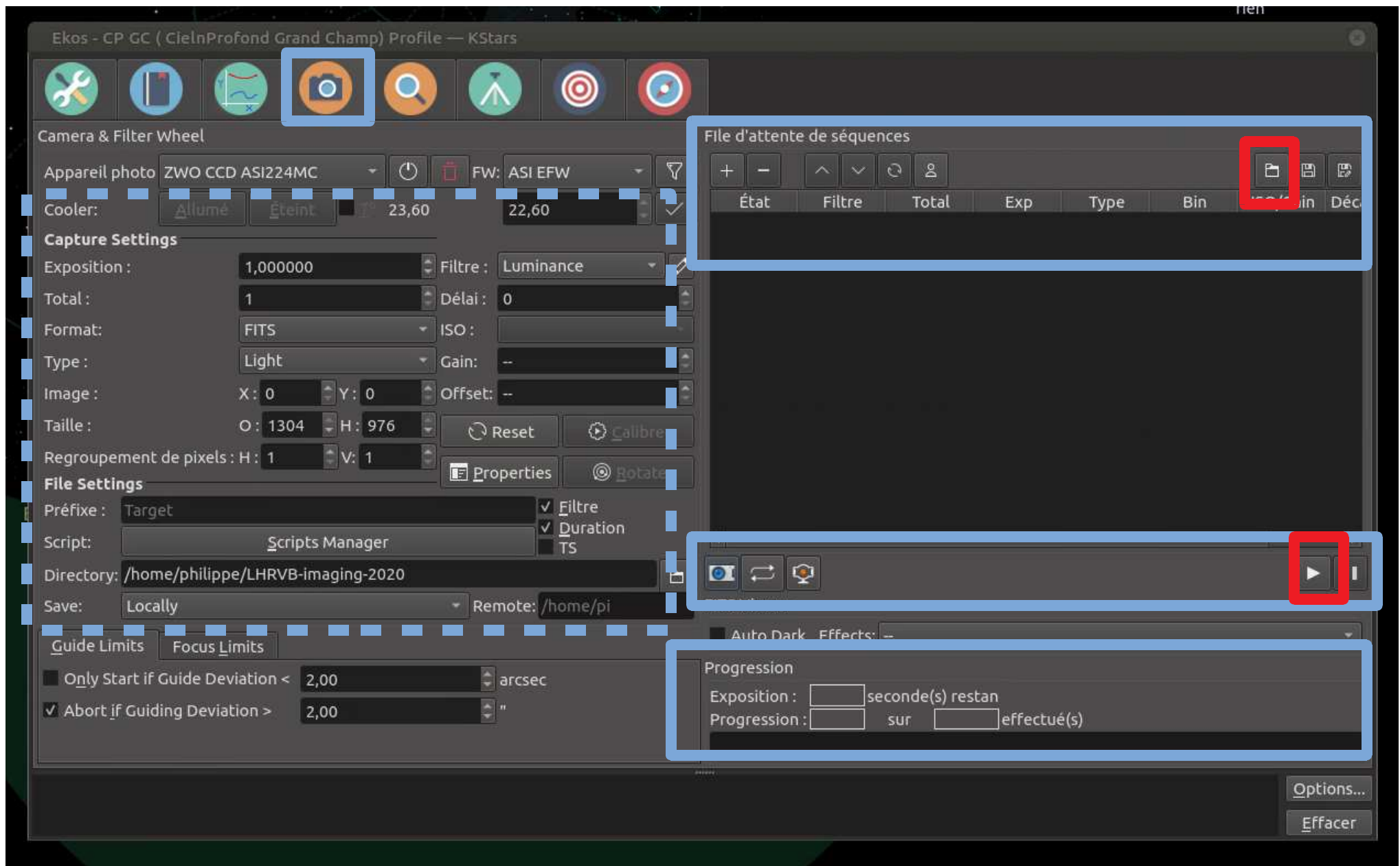
00:00:00

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

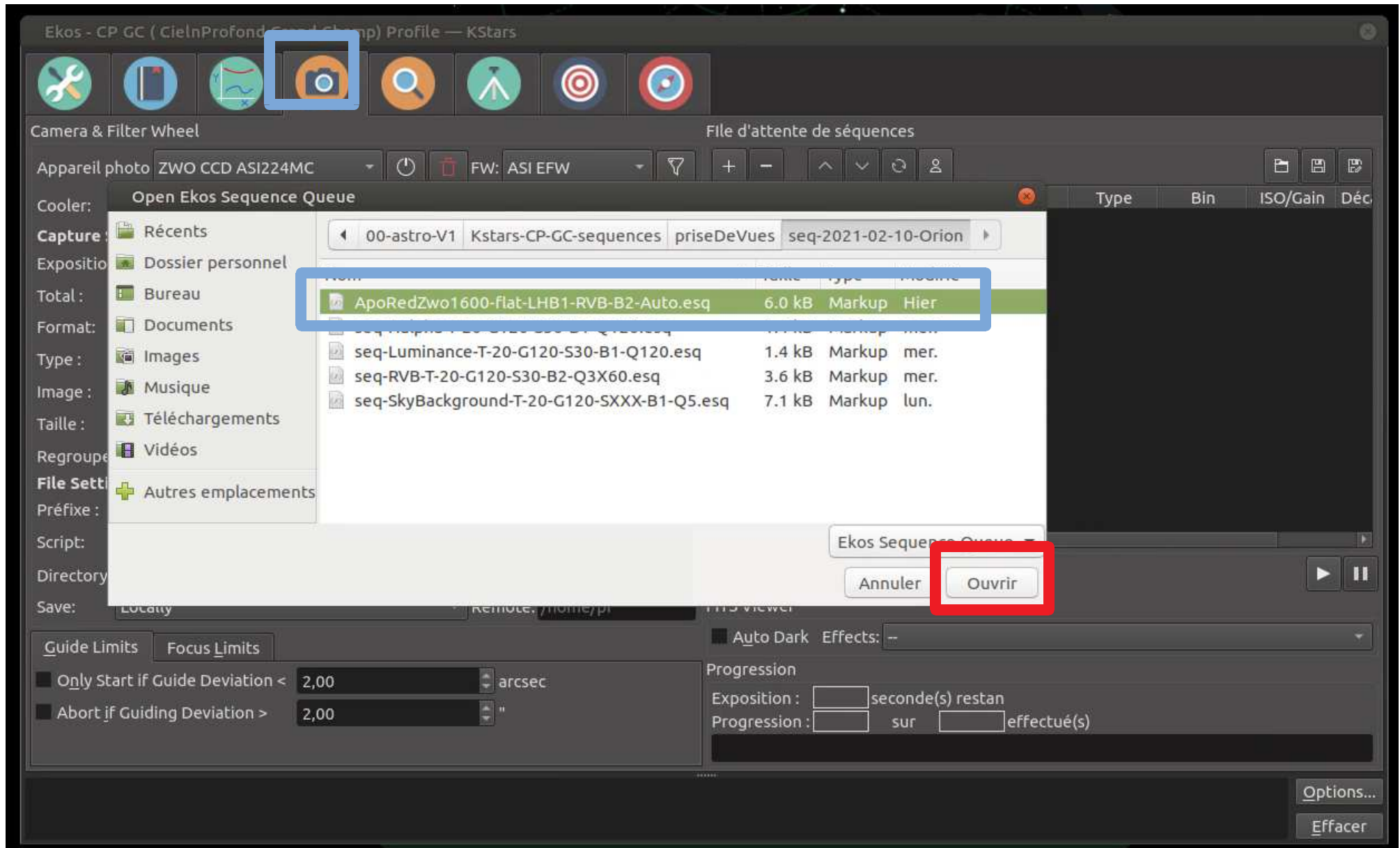
Options... Effacer



# Capture images : Onglet image



# 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:   T° 21,50 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 ☒ Filtre

Script : Scripts Manager ☒ Duration

Directory : /home/philippe/forFlat ☒ TS

Save : Locally Remote : /home/philippe/forFlat

☒ 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)

# Capture images : Séquence Flat

The screenshot shows the KStars Ekos interface configured for a Flat field sequence capture. The 'Mount Control' window on the left displays the current target coordinates and a 'PARK' button. The 'Ekos - CP GC (CielProfond Good Guide) Profile' window on the right shows the 'Camera & Filter Wheel' settings, including the camera model (ZWO CCD ASI1600MM Pro), filter (Bleu), and exposure settings (0.010000s). A red box highlights the 'PARK' button, and a red arrow points to it from a '1°' label. The 'File d'attente de séquences' table lists the sequence of captures.

**Mount Control — KStars**

AD : 05h 03m 27s    AZ : 00° 00' 00"  
DE : 90° 00' 00"    AL : 48° 45' 09"  
HA : -05h 59m 58s    ZA : 41° 13' 58"

Target: Click Find Icon

AD : HH:MM:SS  
DE : DD:MM:SS  
Type : RA/DE ● AZ/AL ● HA/DE  
Date de référence (epoch) : JNow ● J2000

**PARK**

Status: Inactif

**Ekos - CP GC (CielProfond Good Guide) Profile — KStars**

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

**File Settings**

Préfixe : Target    Filtre  
Script : Scripts Manager    Duration  
Directory : /home/philippe/forFlat    TS

Locally    Remote: /home/philippe/forFlat

Units    Focus Limits

Abort 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	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**

Auto Dark    Effects: --

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



# Capture images : Séquence Dark

The screenshot displays the KStars software interface, divided into two main panels: Mount Control (left) and Ekos (right).

**Mount Control — KStars**

- Directional buttons: Up, Down, Left, Right, and a central STOP button.
- Reverse checkbox, Up/Down, Left/Right checkboxes.
- Scale: 1x
- Coordinates: AD: 05h 04m 07s, AZ: 00° 00' 00", DE: 90° 00' 00", AL: 48° 45' 09", HA: -05h 59m 57s, ZA: 41° 13' 58".
- Target: Click Find Icon
- AD: HH:MM:SS, DE: DD:MM:SS
- Type: RA/DE, AZ/AL, HA/DE
- Date de référence (epoch): JNow, J2000
- PARK, UNPARK buttons.
- Status: Parked

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

- Camera & Filter Wheel: ZWO CCD ASI1600MM Pro, FW: ASI EFW.
- Cooler: Allumé, Éteint, T°: -16,00, 0,00.
- Capture Settings: Exposition: 0,010000, Filtre: Bleu, Total: 11, Format: FITS, ISO: 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: Only Start if Guide Deviation < 2,00 arcsec, Abort if Guiding Deviation > 5,00.
- Progression: Exposition: [ ] seconde(s) restan, Progression: [ ] sur [ ] effectué(s).
- Buttons: Options..., Effacer.

**Annotations:**

- 1° Si prévu, charger séquence Dark**: Points to the Camera icon in the Ekos toolbar.
- 2° Mettre le bouchon sur la lunette de l'imageur**: Points to the Camera icon in the Ekos toolbar.

Type	Bin	Gain	De
Flat	1x1	60.0	
Inactif	H Alpha	0/11	0,010000
Inactif	Rouge	0/11	0,010000
Inactif	Vert	0/11	0,010000
Inactif	Bleu	0/11	0,010000
Flat	1x1	60.0	
Flat	2x2	60.0	
Flat	2x2	60.0	
Flat	2x2	60.0	

# Capture images : Séquence Dark

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

Camera & Filter Wheel

Appareil photo: ZWO CCD ASI1600MM Pro FW: ASI EFW

Cooler: **Allumé** Éteint ☒ T° 4,00 -15,00

**Capture Settings**

Exposition: 60,000000 Filtre: Luminance

Total: 17 Délai: 1

Format: FITS ISO: Gain: 120,0

Type: Dark

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

Directory: /home/philippe/darklib/zwo1600/dark-T-15G120S60Q17B2

Save: Locally Remote: T-15G120S60Q17B2

Guide Limits Focus Limits

☒ Only Start if Guide Deviation < 2,00 arcsec

☒ Abort if Guiding Deviation > 2,00 "

**File d'attente de séquences**

	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	

1° Lancer la séquence

Start framing (looping)

Auto Dark Effects: --

Progression

Exposition: seconde(s) restan

Progression: sur effectué(s)

Options... Effacer

# Capture images : Séquence Dark

The screenshot displays the KStars Ekos interface, specifically the Mount Control and Telescope Simulator windows. The Mount Control window on the left features a 3x3 grid of directional buttons (Up, Down, Left, Right, Stop, and Diagonals) and a 'Chercher' (Search) section with coordinates (AD, DE, HA, AZ, AL, ZA) and a 'Click Find Icon' button. Below this are fields for 'AD:', 'DE:', 'Type:', and 'Date de référence (epoch):', along with 'GOTO', 'SYNC', 'PARK', and 'UNPARK' buttons. The 'Status: Parked' is indicated at the bottom. The Telescope Simulator window on the right shows 'Telescope Simulator' and 'Telescope Simulator guide scope' sections. The 'Telescope Simulator' section includes fields for Aperture (mm) and Focal Length (mm), a 'Config #1' dropdown, and 'Coordonnées' (Coordinates) for AD, DEC, AZ, ALT, HA, and LST. It also has a 'Meridian Flip' section with 'Flip if HA >' and 'Hours' options, and a 'Pier Side: West (pointing East)' label. The 'Telescope Simulator guide scope' section has similar Aperture and Focal Length fields, a 'Save Telescope Info' button, and a 'Reset' section with 'Clear Model', 'Clear Parking', and 'Purge all configuration' buttons. The 'Parking' section includes 'Park At' and 'Every day' options, a '00:00:00' timer, and 'Park' and 'UnPark' buttons. The 'Limites' section has 'Min. Alt', 'Max. Alt', 'Enable Alt Limits', 'Max. HA (hours)', and 'Enable HA Limits' options. A red box highlights the 'Fin des Flats et Darks' text at the bottom center. The status bar at the bottom shows '2021-02-11T19:05:35 Telescope info updated successfully.' and buttons for 'Options...' and 'Effacer'.

Mount Control — KStars

Ekos - Simulators Profile — KStars

Telescope Simulator

Telescope Simulator guide scope

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

Status: Parked

Fin des Flats et Darks

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

Options... Effacer

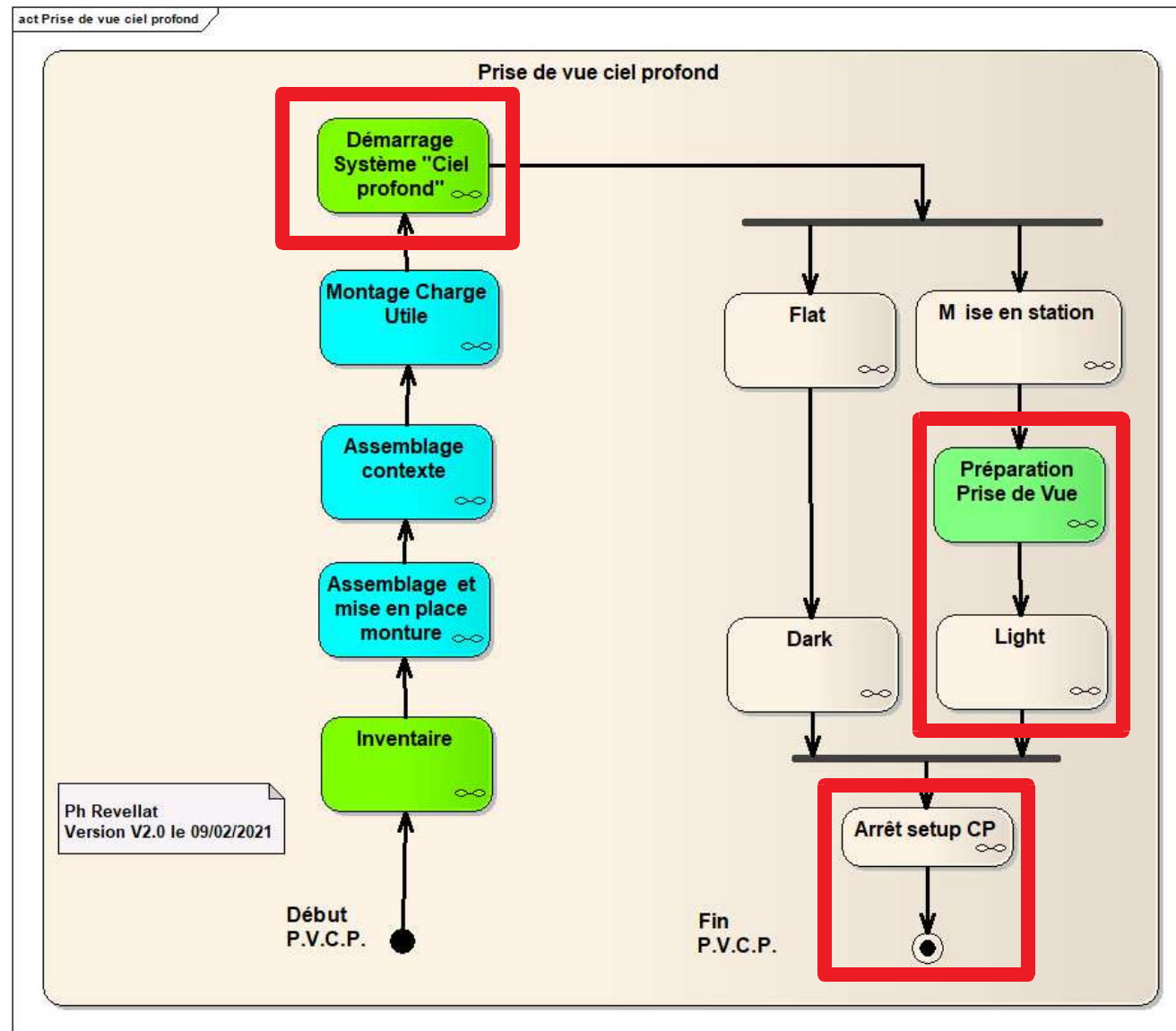


# Préparation prise de vue & Lights

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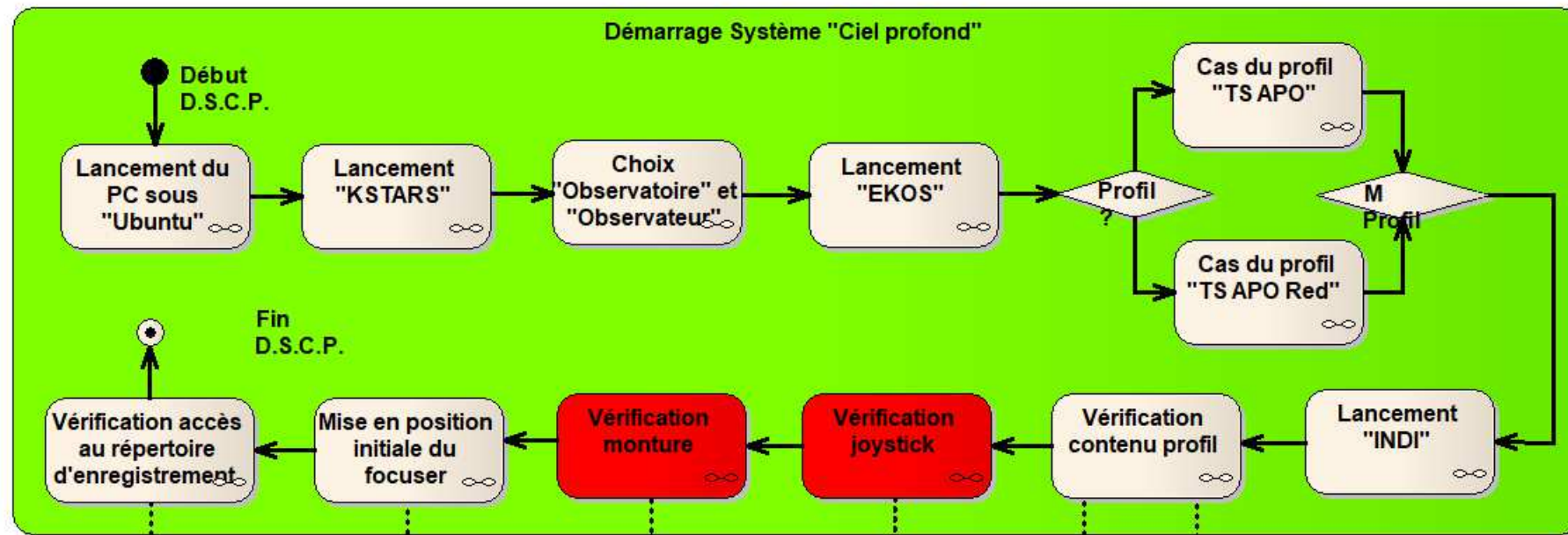


# Préparation prise de vue et Lights



# 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 :

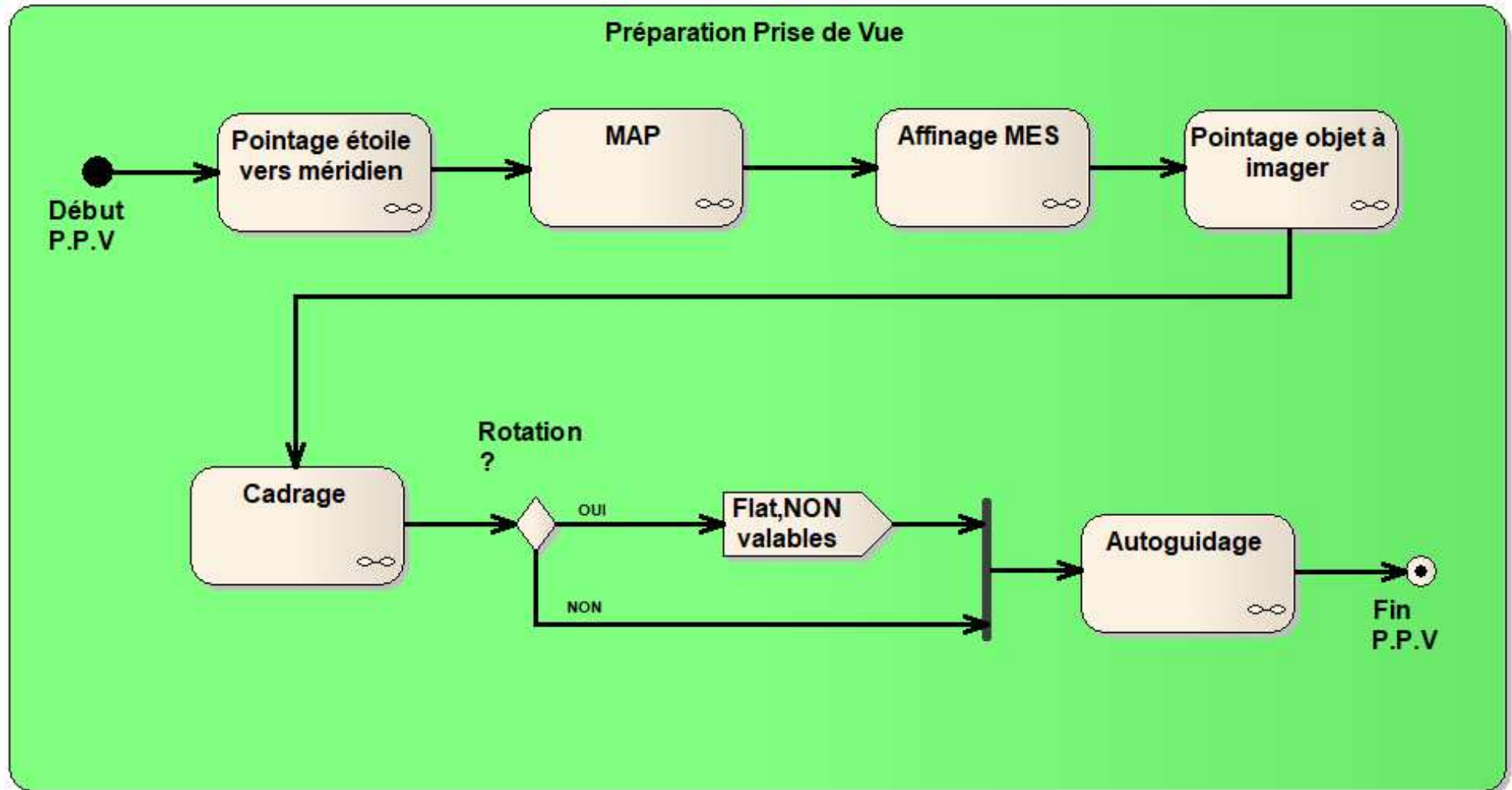
- le nom du répertoire prévu pour les "Light" est bien le même que celui des séquences pré-enregistrées,
- le répertoire prévu pour les "Lights" est accessible,
- que la capacité libre du disque est compatible du volume d'image prévu.

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

Ph Revellat  
V2.0 le 11/02/2021

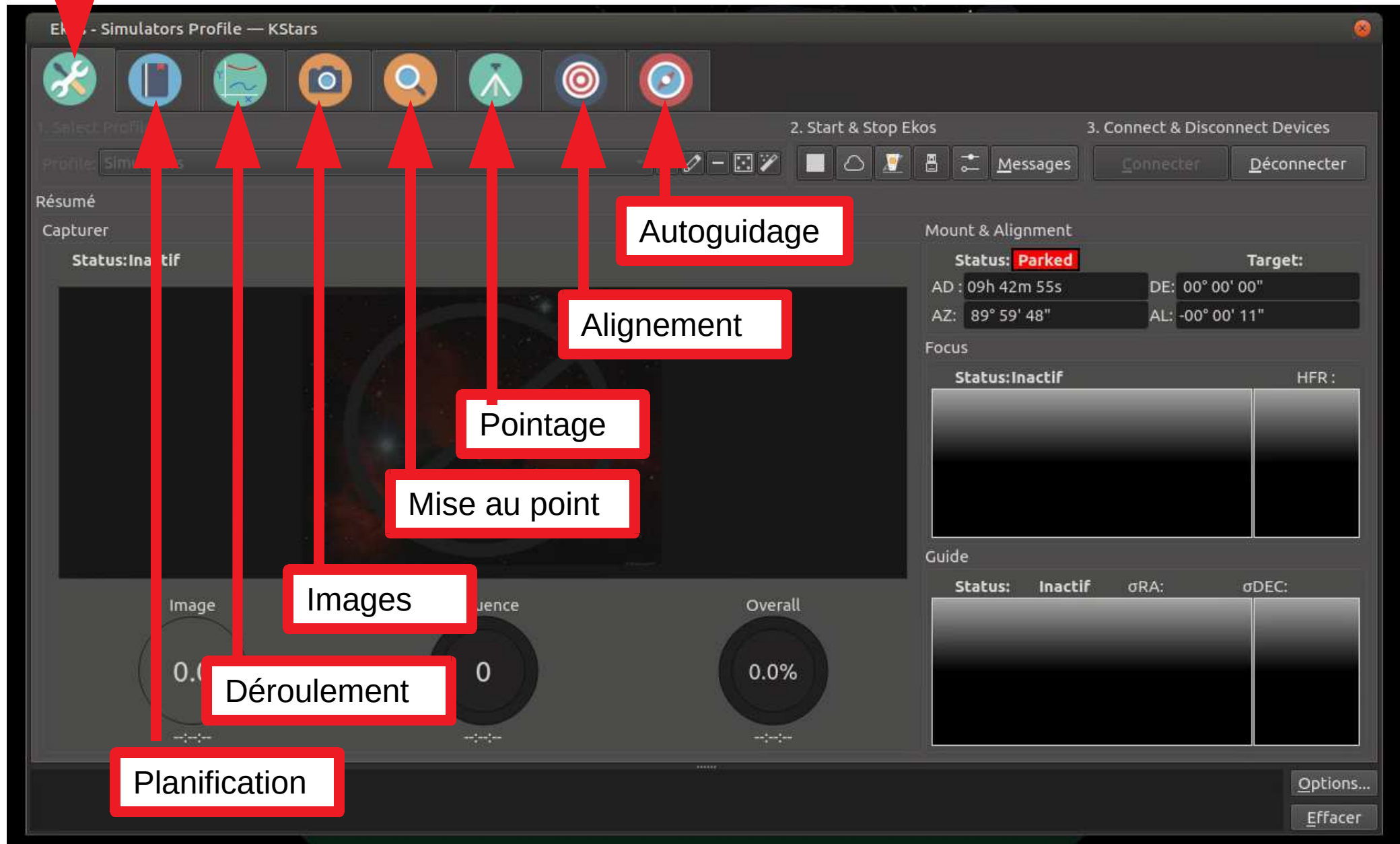
# Préparation prise de vues

act Préparation prise de vue



Synthèse & contrôle

# EKOS





# Pointage étoile vers méridien

The screenshot shows the Ekos KStars interface. The title bar reads "Ekos - 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), and two target icons. Below the toolbar, the "Profile" dropdown is set to "Simulators". To the right of the telescope icon, a red box contains the text "2°". The main window is divided into several panels. On the left, the "Résumé" panel shows "Capturer" and "Status: Inactif". The central panel displays a simulated night sky with a red box containing the text "1° Enlever le bouchon de sur la lunette de l'imageur". At the bottom of this panel are three circular gauges: "Image" (0.0), "Sequence" (0), and "Overall" (0.0%). On the right, the "Mount & Alignment" panel shows "Status: Parked" (in a red box) and "Target:" with coordinates: AD: 09h 42m 55s, DE: 00° 00' 00", AZ: 89° 59' 48", and AL: -00° 00' 11". Below this is the "Focus" panel with "Status: Inactif" and "HFR:". At the bottom right is the "Guide" panel with "Status: Inactif", "σRA:", "σDEC:", and two empty input fields. At the very bottom right are buttons for "Options..." and "Effacer".

Ekos - Simulators Profile — KStars

Profile: Simulators

2. Start & Stop Ekos

3. Connect & Disconnect Devices

Messages

Connecter

Déconnecter

Résumé

Capturer

Status: Inactif

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

Image

0.0

Sequence

0

Overall

0.0%

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

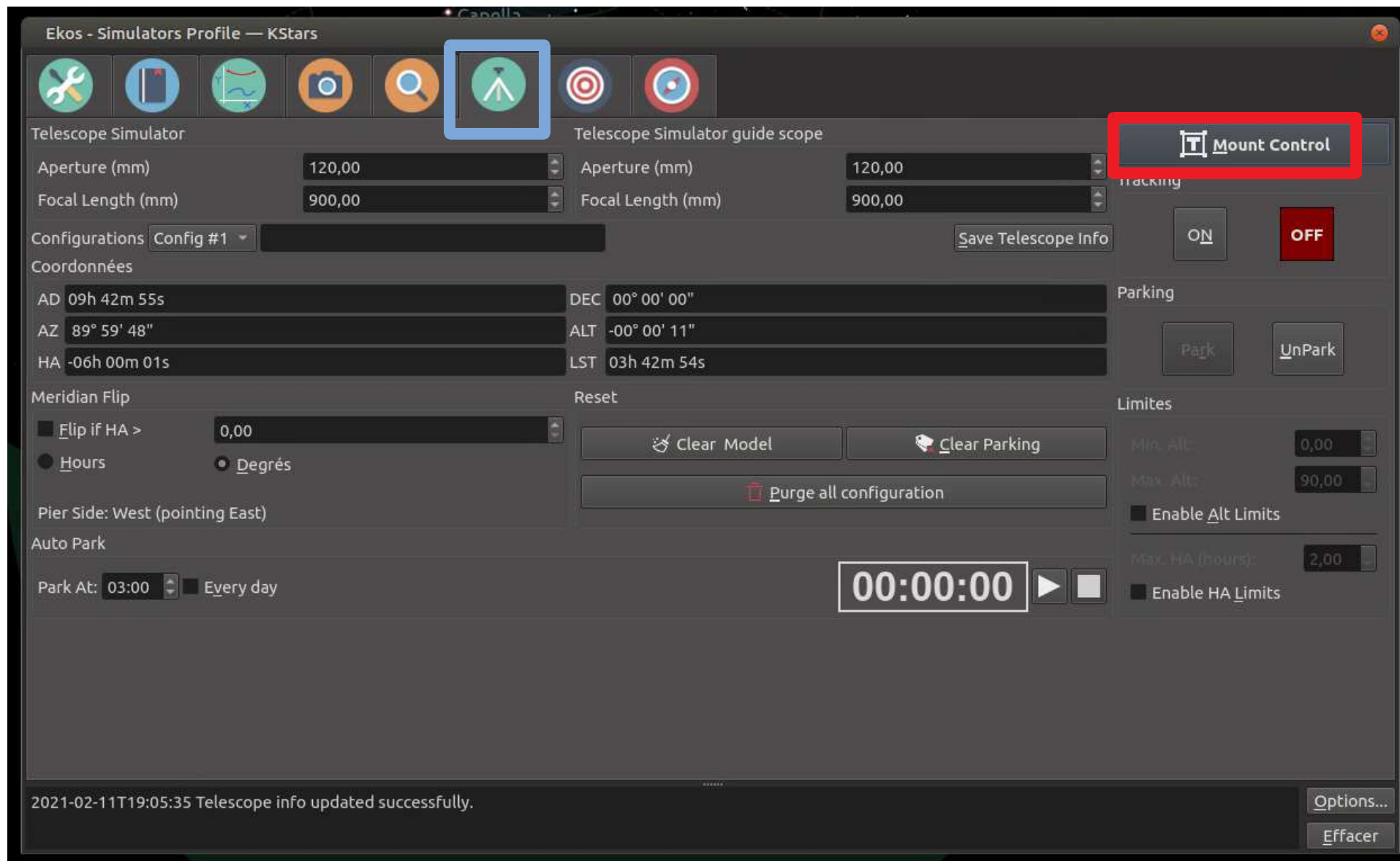
σRA:

σDEC:

Options...

Effacer

# Pointage étoile vers méridien



# Pointage étoile vers méridien

The screenshot displays the KStars software interface, divided into two main panels. The left panel, titled 'Mount Control — KStars', contains a grid of directional arrow buttons and a 'STOP' button. Below these are checkboxes for 'Reverse', 'Up/Down', and 'Left/Right', followed by a 'Chercher' (Search) button. A 'Target:' field with a magnifying glass icon is also present. The right panel, titled 'Ekos - Simulators Profile — KStars', features a toolbar with various icons, including a green telescope icon highlighted with a blue box. Below the toolbar, there are sections for 'Telescope Simulator' and 'Telescope Simulator guide scope', both showing 'Aperture (mm)' and 'Focal Length (mm)' settings. A 'Configurations' dropdown is set to 'Config #1'. The 'Coordonnées' (Coordinates) section displays values for AD, AZ, HA, DEC, ALT, and LST. A red box highlights the '2° lancer la recherche' (2° launch the search) text. The 'Auto Park' section shows 'Park At: 03:00' and 'Every day'. A large digital display shows '00:00:00'. The 'Status: Parked' is indicated at the bottom left. A red box highlights the 'UNPARK' button. The bottom status bar shows '2021-02-11T19:05:35 Telescope info updated successfully.' and buttons for 'Options...' and 'Effacer'.

Mount Control — KStars

Ekos - Simulators Profile — KStars

Telescope Simulator

Aperture (mm) 120,00

Focal Length (mm) 900,00

Configurations Config #1

Coordonnées

AD 09h 42m 55s

AZ 89° 59' 48"

HA -06h 00m 01s

DEC 00° 00' 00"

ALT -00° 00' 11"

LST 03h 42m 54s

2° lancer la recherche

1°

Target: Click Find Icon

AD : HH:MM:SS

DE: DD:MM:SS

Type : RA/DE AZ/AL HA/DE

Date de référence (epoch) : JNow J2000

GOTO

PARK

UNPARK

Status: Parked

Telescope Simulator guide scope

Aperture (mm) 120,00

Focal Length (mm) 900,00

Save Telescope Info

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

Reset

Clear Model

Clear Parking

Purge all configuration

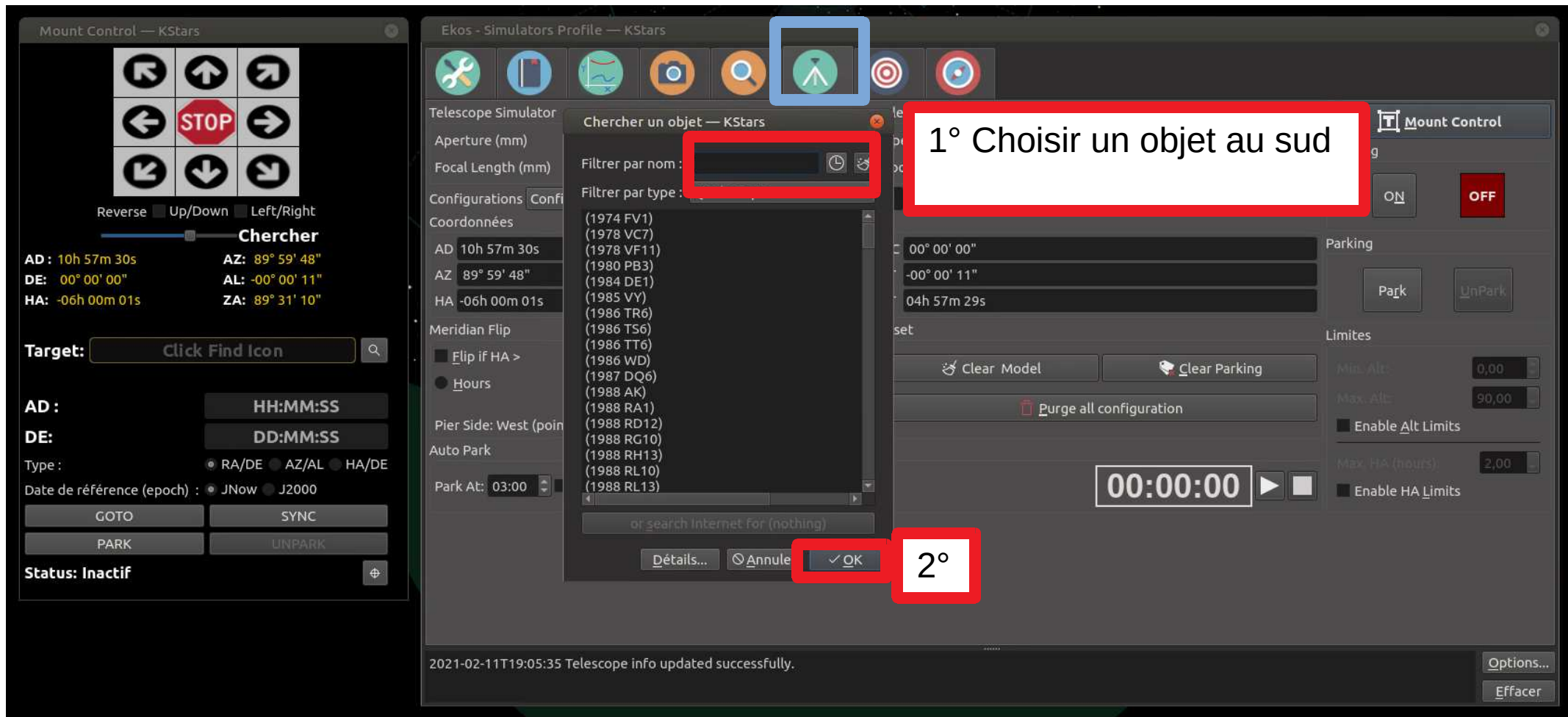
00:00:00

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

Options...

Effacer

# Pointage étoile vers méridien



Mount Control — KStars

Ekos - Simulators Profile — KStars

Telescope Simulator

Aperture (mm)

Focal Length (mm)

Configurations

Coordonnées

AD 10h 57m 30s

AZ 89° 59' 48"

HA -06h 00m 01s

Meridian Flip

Flip if HA >

Hours

Pier Side: West (pointing)

Auto Park

Park At: 03:00

or search Internet for (nothing)

Détails... Annuler OK

Chercher un objet — KStars

Filtrer par nom :

Filtrer par type :

(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)

(1988 RL13)

00° 00' 00"

-00° 00' 11"

04h 57m 29s

Clear Model

Clear Parking

Purge all configuration

00:00:00

1° Choisir un objet au sud

2°

Mount Control

ON OFF

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.

# Pointage étoile vers méridien

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

- Mount Control (Left Panel):** Features a 3x3 grid of directional arrows (Up, Down, Left, Right, and Diagonals) and a central 'STOP' button. Below the grid are checkboxes for 'Reverse', 'Up/Down', and 'Left/Right'. A 'Chercher' (Search) button is present, along with a 'Target:' input field containing 'Rigel'. Below this, there are fields for 'AD' (05h 15m 33s) and 'DE' (-08° 10' 51''), and a 'Type' dropdown menu with options 'RA/DE', 'AZ/AL', and 'HA/DE'. A 'GOTO' button is highlighted with a red box. Other buttons include 'PARK', 'UNPARK', and 'Status: Inactif'.
- Ekos - Simulators Profile (Main Window):**
  - Telescope Simulator:** Includes fields for 'Aperture (mm)' (120,00) and 'Focal Length (mm)' (900,00). A 'Config #1' dropdown is also visible.
  - Telescope Simulator guide scope:** Similar fields for 'Aperture (mm)' (120,00) and 'Focal Length (mm)' (900,00). A 'Save Telescope Info' button is present.
  - Coordonnées (Coordinates):** Fields for 'AD' (10h 59m 32s), 'DEC' (00° 00' 00''), 'AZ' (89° 59' 48''), 'ALT' (-00° 00' 11''), 'HA' (-06h 00m 01s), and 'LST' (04h 59m 31s).
  - Meridian Flip:** Includes a checkbox for 'Flip if HA >' (0,00) and a radio button for 'Hours' (selected) vs 'Degrés'.
  - Pier Side:** Set to 'West (pointing East)'.
  - Auto Park:** Includes a 'Park At' field (03:00) and a checkbox for 'Every day'.
  - Reset:** Includes buttons for 'Clear Model', 'Clear Parking', and 'Purge all configuration'.
  - Limites (Limits):** Includes fields for 'Min. Alt' (0,00), 'Max. Alt' (90,00), 'Enable Alt Limits', 'Max. HA (hours)' (2,00), and 'Enable HA Limits'.
  - Tracking:** Includes an 'ON' button and a red 'OFF' button.
  - Parking:** Includes 'Park' and 'UnPark' buttons.
- Status Bar:** Displays the message '2021-02-11T19:05:35 Telescope info updated successfully.' and buttons for 'Options...' and 'Effacer'.



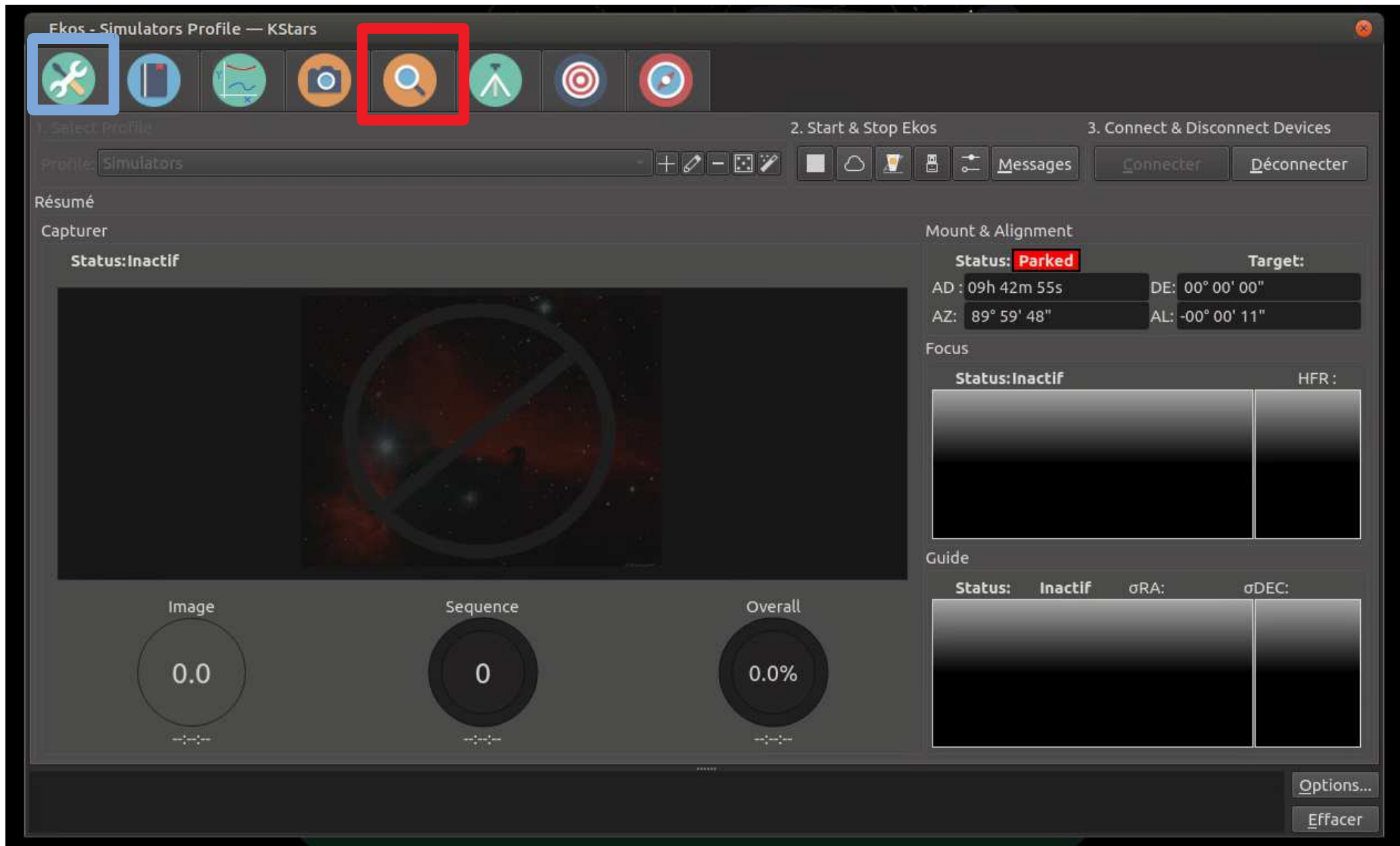
# Pointage étoile vers méridien

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

- Mount Control (Left Panel):** Features a grid of directional arrows (Up, Down, Left, Right, and Diagonals) and a central 'STOP' button. Below the grid are checkboxes for 'Reverse', 'Up/Down', and 'Left/Right'. A 'Chercher' (Search) button is present. The target information is displayed as follows:  
AD : 05h 15m 48s    AZ : 175° 33' 23"  
DE : -08° 10' 51"    AL : 32° 58' 14"  
HA : -00h 15m 04s    ZA : 57° 00' 13"  
The 'Target:' field is set to 'Rigel'. Below this, the 'AD' is set to '05h 15m 33s' and 'DE' to '-08° 10' 51"'. The 'Type' is set to 'RA/DE'. The 'Date de référence (epoch)' is set to 'JNow'. Buttons for 'GOTO', 'SYNC', 'PARK', and 'UNPARK' are visible. The 'Status' is 'Tracking'.
- Telescope Simulator (Main Panel):** Contains fields for 'Aperture (mm)' (120,00) and 'Focal Length (mm)' (900,00). It also has a 'Configurations' dropdown set to 'Config #1' and a 'Save Telescope Info' button. The 'Coordonnées' (Coordinates) section shows:  
AD 05h 15m 48s    DEC -08° 10' 51"  
AZ 175° 33' 23"    ALT 32° 58' 14"  
HA -00h 15m 04s    LST 05h 00m 44s  
The 'Meridian Flip' section has a checkbox for 'Flip if HA >' set to '0,00', with radio buttons for 'Hours' and 'Degrés'. The status is 'inactive (flip not requested)' and the 'Pier Side' is 'West (pointing East)'. 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. Buttons for 'Clear Model', 'Clear Parking', and 'Purge all configuration' are also present.
- Telescope Simulator guide scope (Right Panel):** Similar to the main simulator, it shows 'Aperture (mm)' (120,00) and 'Focal Length (mm)' (900,00). It has a 'Mount Control' button and 'Tracking' controls (ON/OFF). The 'Parking' section has 'Park' and 'UnPark' buttons. The 'Limites' (Limits) section shows 'Min. Alt:' (0,00), 'Max. Alt:' (90,00), 'Enable Alt Limits' (checked), 'Max. HA (hours):' (2,00), and 'Enable HA Limits' (checked).

A status bar at the bottom indicates '2021-02-11T19:05:35 Telescope info updated successfully.' and includes 'Options...' and 'Effacer' buttons.

# Mise au point



# Mise au point

Ekos - CP GC (CielnProfond 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

**Settings** Process Mechanics

☐ Étoile sélectionnée automatiquement ☐ Dark Frame

☒ Sub Frame Box: 64 px **Use dark frames from the library.**

☐ Full Field Annulus: 0,0 % 100,0 %

☒ Suspend Guiding Settle: 0,00 s

HFR: Stars: Relative Profile... Clear Data

Options... Effacer

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

# Mise au point

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

- Top Bar:** Contains icons for various functions. The magnifying glass icon is highlighted with a blue box.
- Viseur (Viewer):** Shows the 'Focuser Simulator' with a simulated star field. A red box highlights a star labeled '3.07', and a green box highlights another star. A red text box with the text '1° Choisir une étoile' (1° Choose a star) is overlaid on the viewer.
- CCD & Filter Wheel:** Contains settings for the CCD Simulator, including exposure time (1,000), binning (1x1), gain (50,00), and filter (Red).
- Settings:** Includes checkboxes for 'Étoile sélectionnée automatiquement', 'Sub Frame', 'Full Field', and 'Suspend Guiding'. A tooltip for 'Box: 64 px' explains it as 'Size of the subframe to constrain capture to, in pixels.'
- V-Curve:** A graph showing HFR (Horizontal Field Rate) versus time. The HFR is currently 3.07, and there is 1 star.
- Log:** A text box at the bottom left shows the following log entries:
  - 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 Focuser Simulator interface. The top toolbar contains several icons, with the magnifying glass icon (representing focus) highlighted by a blue box. The main window is divided into a control panel on the left and a live view area on the right.

**Control Panel:**

- Viseur:** Focuser Simulator
- Steps:** 49978 / 50000
- Start:** Auto Focus (button), Arrêter (button)
- CCD & Filter Wheel:**
  - CCD: CCD Simulator
  - Exp: 1,000
  - Bin: 1x1
  - Gain: 50,00
  - FW: CCD Simulator
  - Filtre: Red
- Settings:** Éttoile sélectionnée automatiquement, Sub Frame (checked), Full Field, Suspend Guiding (checked).
- Box:** 64 px
- Annulus:** 0,0 %
- Settle:** 0,00 s

**Live View:** A grayscale image of a star field with a green box around a central star. The star's HFR value, 2.41, is displayed in red next to the box.

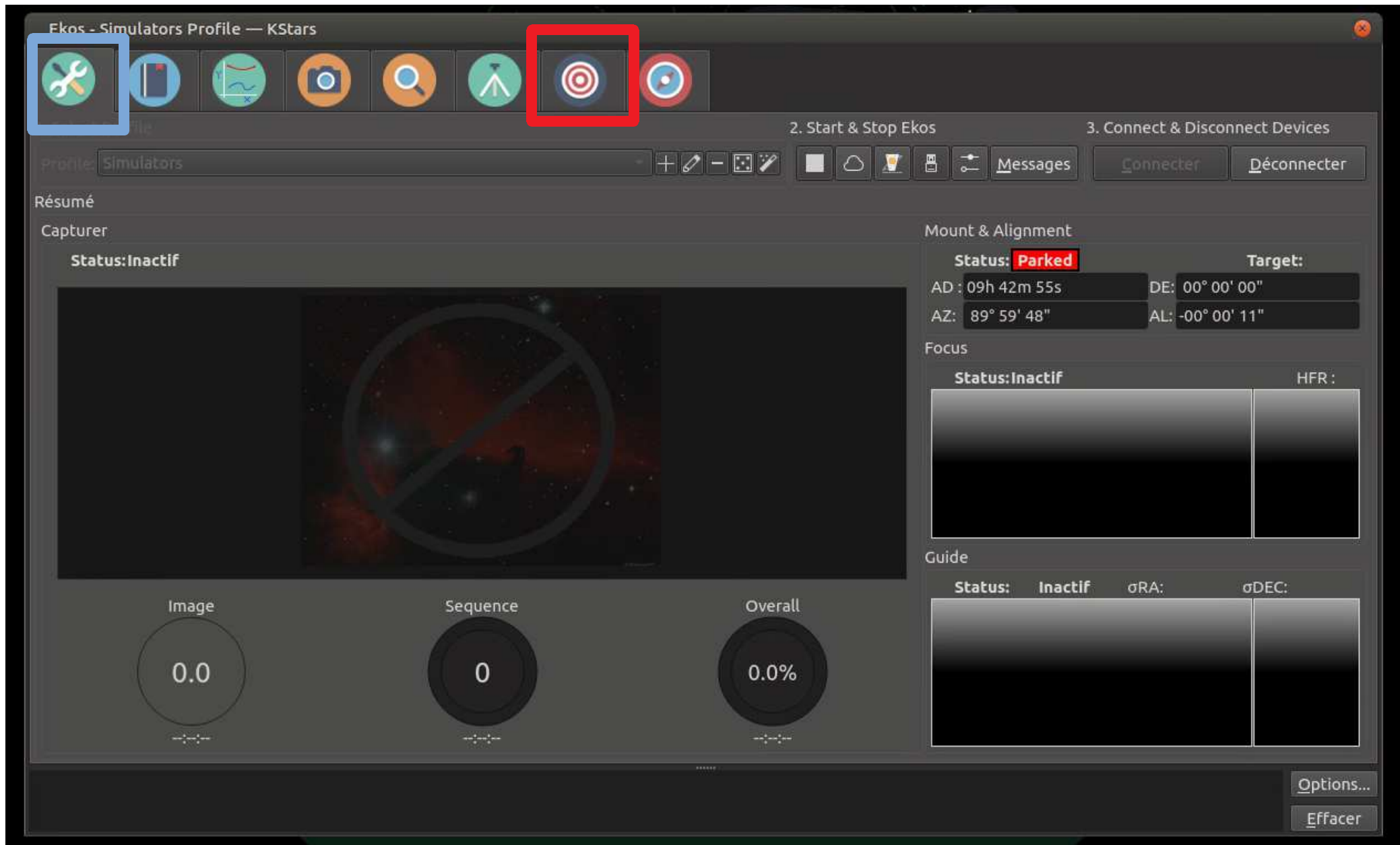
**V-Curve:** A graph showing HFR (Horizontal Focal Ratio) versus Steps. The curve is a V-shape, indicating the focus procedure. The HFR value 2.41 is shown at the bottom of the graph.

**Log:** A text box at the bottom left shows the focus procedure log:

```
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



# Affinage mise en station

Ekos - Simulators Profile — KStars

**Solver Control**  
**Capture & résolution**

**Solver Action**  
☐ Sync  
☐ Slew to Target  
☒ **Nothing**

**Solution Coordinates (JNow)**  
AD : 05:15:47 Accuracy 30  
DE : -08:10:50 Settle 1500

**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** **Alignement 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
----	-----	----------	---	-----	-----

**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

Ekos - Simulators Profile — KStars

**Solver Control**

Capture & résolution  
Load & Slew...  
Arrêter

**Solver Action**

☐ Sync  
☐ Slew to Target  
☐ Nothing

**Telescope Coordinates (JNow)**

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

**Solution Coordinates (JNow)**

AD : DE:  
Err:  
Pix: Rotation :

**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** **Alignement 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
05:15:47	-08:10:50	Rigel ( $\beta$ Orionis)			

**Mount Model**

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

Options...  
Effacer

# Affinage mise en station

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

**Solver Control**

**Capture & résolution**

Load & Slew...

Arrêter

**Solver Action**

☐ Sync

☐ Slew to Target

☒ Nothing

**Telescope Coordinates (JNow)**

AD : 05:36:26 Accuracy 20

DE: -05:14:44 Settle 1500

**Solution Coordinates (JNow)**

AD : 05:27:56 DE: 01:13:36

Err: 135 arcsec. RA:-99 DE:-92

Pix: 2.02 Rotation : 73.62142

Champ de vision : 5.4' x 118.2' Primary Scope

FL: 9.0 (388.9) F/: 4.7 (4.9)

**Plate Solve Capture Options**

CCD : ZWO CCD ASI1600MM Pro

Exp: 10,10

Bin: 1x1 Gain: --

ISO : Dark

FW: ASI EFW Filtre :

**Solver Mode**

☒ StellarSolver ☐ Distant

**Solution Results** **Alignement polaire**

**Polar Alignment Assistant**

This tool provides a simple method to polar align a German equatorial mount. **Park** your mount to home position where it **points** toward the celestial pole with the counter weight down. Select mount direction and speed and then click **Start** to begin the process.

Direction : Ouest 30 Vitesse : 1x Manual slew

Démarrer Arrêter

**Legacy Polar Alignment Tool**

Erreur Az 00° 02' 44" too far west Erreur Alt :

Erreur dans la mesure de l'azimut. Erreur dans la mesure de l'altitude

Corrigez l'erreur d'azimut Corrigez l'erreur d'altitude

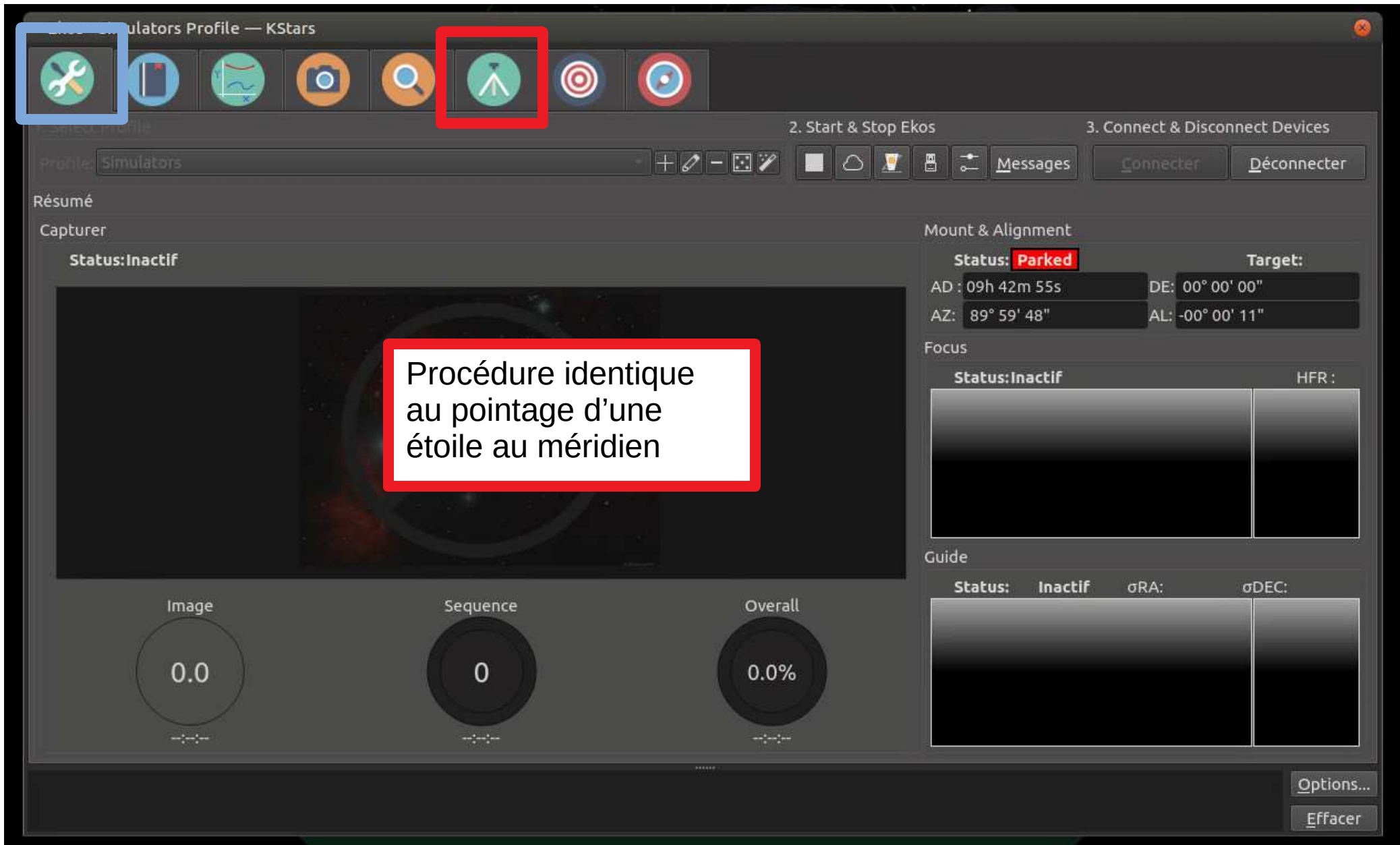
2021-02-24T20:44:12 Solution coordinates: RA (05h 27m 57s) DEC ( 01° 13' 37") Telescope Coordinates: RA (05h 28m 03s) DEC ( 01° 15' 08")

2021-02-24T20:44:12 Effective telescope focal length is updated to 379 mm.

Options... Effacer

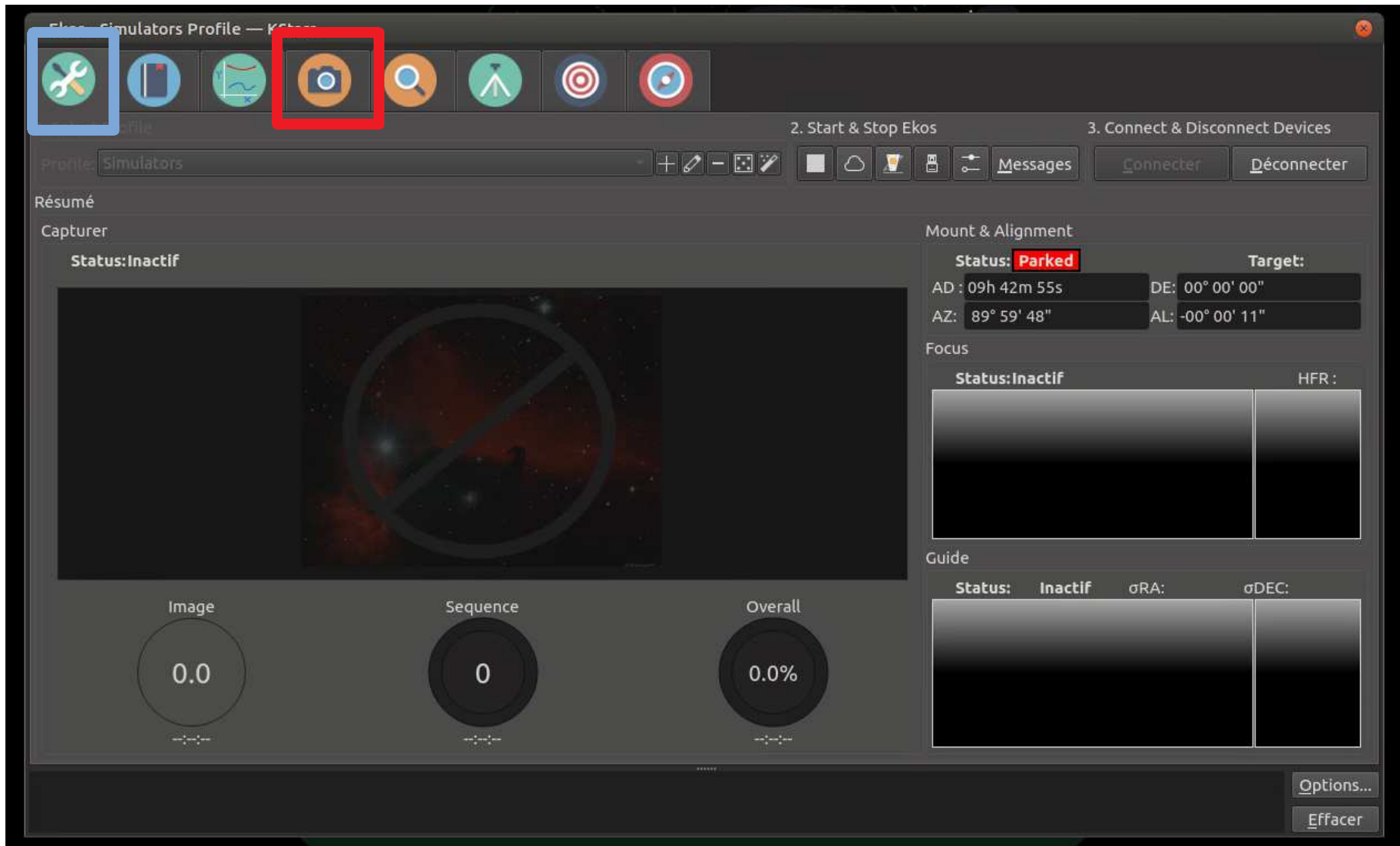


# Pointage objet à imager

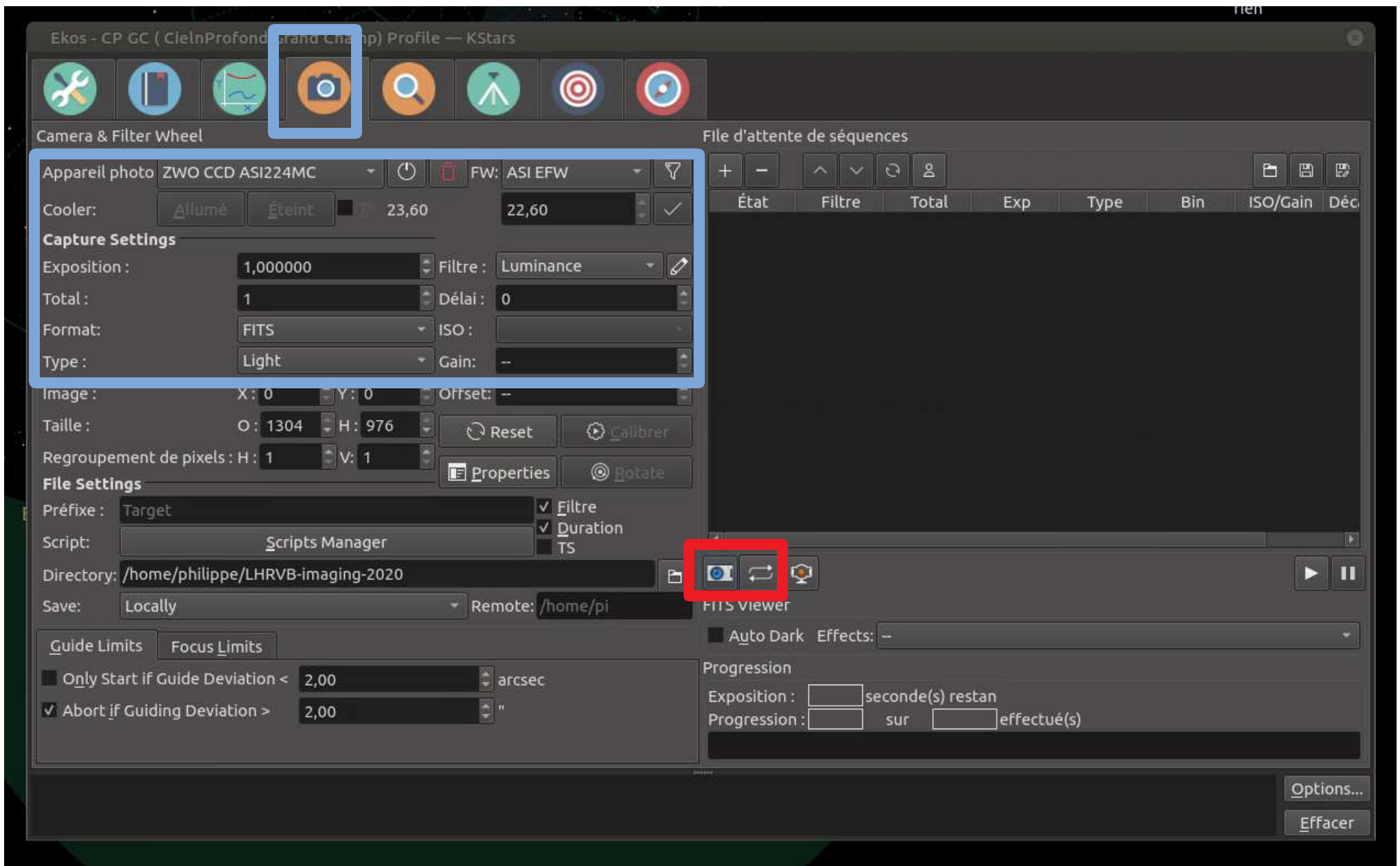




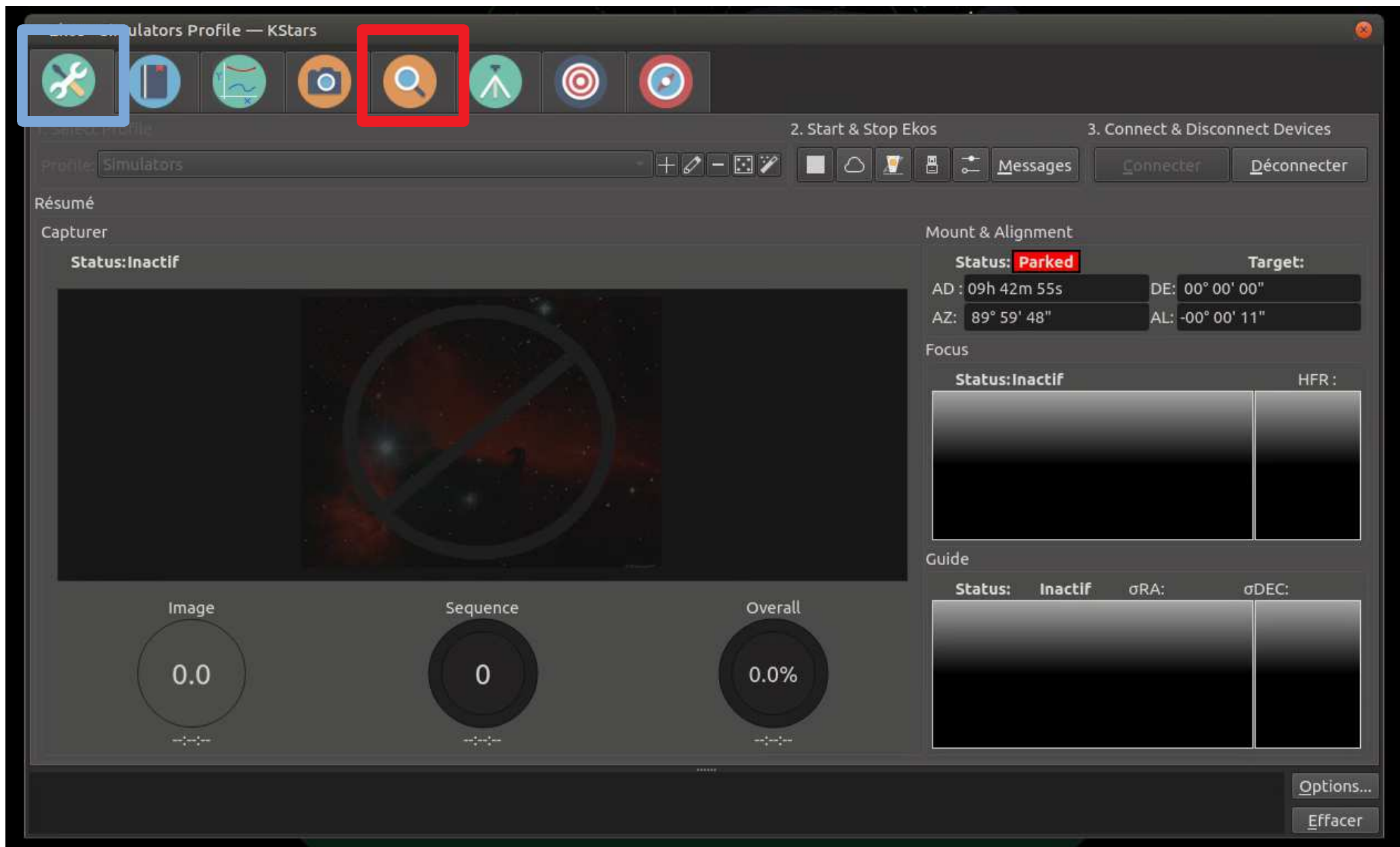
# Cadrage objet à imager



# Cadrage objet à imager



# Autoguidage



# Autoguidage

The screenshot displays the Ekos - Simulators Profile window in KStars, specifically the autoguiding section. The interface is divided into several panels:

- Top Bar:** Contains icons for various functions. The autoguiding icon (a red circle with a white dot) is highlighted with a blue box.
- Contrôle Panel (Left):** A red box highlights the 'Capturer' and 'En boucle' buttons. Below them are 'Guide' and 'Arrêter' buttons. Further down are checkboxes for 'Subframe', 'Auto Star', and 'Dark'. A dropdown menu shows 'Guide : CCD Simulator Guider' and 'Via : CCD Simulator'. Below these are input fields for 'Exp: 1,000', 'Bin: 1x1', 'Box: 32', and 'Effets: --'. There are also checkboxes for 'Directions' (AD, DEC, Swap) and a 'Connecter' button.
- Guide Info Panel (Bottom Left):** Shows the current state as 'Idling'. It includes a 'Portée : Guide Scope' dropdown, a 'Guiding rate' of 0,500, and a 'P : 133.33'. Below these are fields for 'Focal', 'Aperture', 'F/D', and 'FOV'. There are also fields for 'Guiding Delta', 'Pulse Length (ms)', 'RA RMS', and 'DE RMS'. The 'Total RMS' and 'Guide SNR' are both shown as 'xxx'.
- Drift Graphics Panel (Center):** A graph showing drift in arcseconds over time. The x-axis represents time from -02:00 to -00:30. The y-axis represents drift in arcseconds from -3 to 3. The graph shows four data series: RA (green), DE (blue), SNR (yellow), and RMS (red). The RA and DE series show a slight upward trend, while SNR and RMS remain relatively flat.
- Contrôle Drift Plot Panel (Right):** A circular plot showing the drift in arcseconds. The x-axis is 'dRA (arcsec)' and the y-axis is 'dDE (arcsec)'. The plot shows concentric circles representing different drift levels, with a red circle at the center.
- Bottom Bar:** Contains a status message: '2021-02-11T20:50:54 Calibration is cleared. 2021-02-11T20:50:54 Mount is moving. Resetting calibration...'. There are also buttons for 'Options...' and 'Effacer'.

# Autoguidage

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

- Top Bar:** Contains icons for various tools. The Autoguiding icon (a target with a red bullseye) is highlighted with a blue box.
- Contrôle (Control) Panel:** Located on the left, it includes buttons for "Capturer", "En boucle", "Guide", "Arrêter", and "Dark". The "Guide" button is highlighted with a red box. A white box with "2°" is placed next to it.
- Guide Settings:** Below the control panel, settings for the "CCD Simulator Guider" are shown, including "Via: CCD Simulator", "Exp: 4,500", "Bin: 1x1", "Box: 32", and "Effets: --".
- Guide Info:** A section on the bottom left showing the status of the guider (Idling, Preparing, Running) and various parameters like "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", "Pulse Length", "RA RMS", "DE RMS", "Total RMS", and "Guide SNR".
- Main View:** A large black area showing a simulated star field. A small green square highlights a specific star, which is also highlighted by a red box. A white box with the text "1° choisir étoile guide" (1° choose guide star) is placed next to it.
- Drift Graphics:** A section on the bottom right containing two plots. The left plot is a "drift (arcsec)" graph showing RA, DE, SNR, and RMS over time. The right plot is a "dDE (arcsec)" vs "dRA (arcsec)" graph showing a circular pattern of drift.
- Status Bar:** At the bottom, it displays the current time and status: "2021-02-11T20:50:54 Calibration is cleared." and "2021-02-11T20:50:54 Mount is moving. Resetting calibration...".



# Autoguidage

Ekos - Simulators Profile — KStars

Contrôle

Capturer En boucle

Guide

Arrêter

Guide : CCD Simulator Guider

Via : CCD Simulator

Exp: 4,500 Bin: 1x1

Box: 32 Effets

Directions ☒ AD ☒ DEC ☐ Swap

☒ + ☒ - ☒ + ☒ -

Connecter Déconnecter

Guide Info

☒ 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

drift (arcsec)

RA DE SNR RMS

Contrôle Drift Plot

dDE (arcsec)

dRA (arcsec)

2021-02-11T20:55:29 DEC backlash...

2021-02-11T20:54:49 RA drifting reverse...

2021-02-11T20:54:32 RA drifting forward...

# Autoquidage

Ekos - Simulators Profile — KStars

Contrôle

Capturer En boucle

Guide

Arrêter

Guide : CCD Simulator Guider

Via : CCD Simulator

Exp: 4,500 Bin: 1x1

Box: 32 Effets --

Directions ☒ AD ☒ DEC ☒ Swap

☒ + ☒ - ☒ + ☒ -

Connecter Déconnecter

Guide Info

☒ 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 " 0.00 0.00

Pulse Length (ms) 0 0

RA RMS" 0.02 DE RMS" 0.00

Total RMS" 0.02

Guide SNR xxx

Drift Graphics

drift (arcsec)

00:00 00:30 01:00 01:30

RA DE SNR RMS

Contrôle Drift Plot

dDE (arcsec)

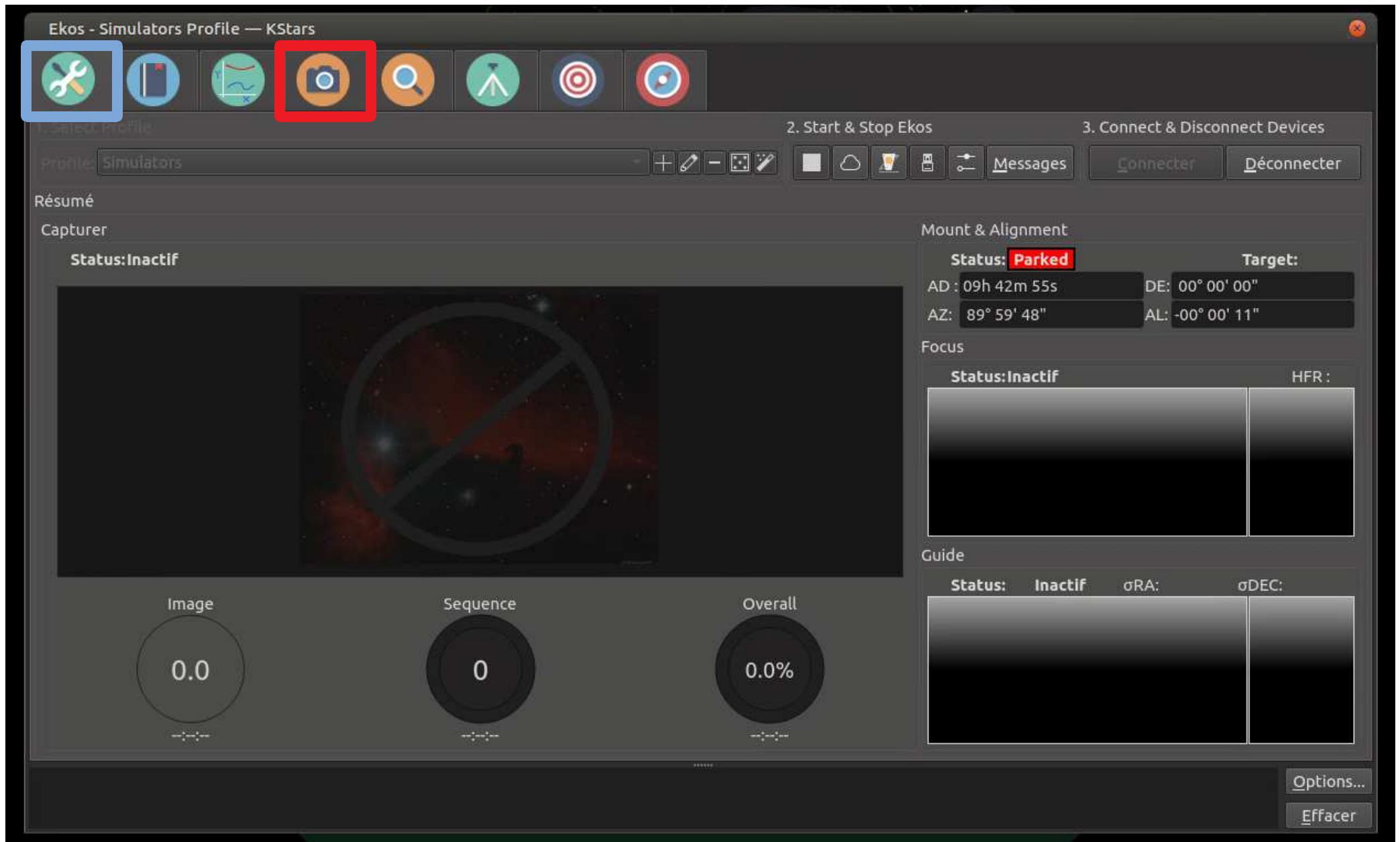
dRA (arcsec)

2,0

Options... Effacer

2021-02-11T20:57:19 Guidage automatique démarré.  
2021-02-11T20:57:19 Calibrage terminé.  
2021-02-11T20:57:19 DEC swap enabled.

# Lights



# Lights

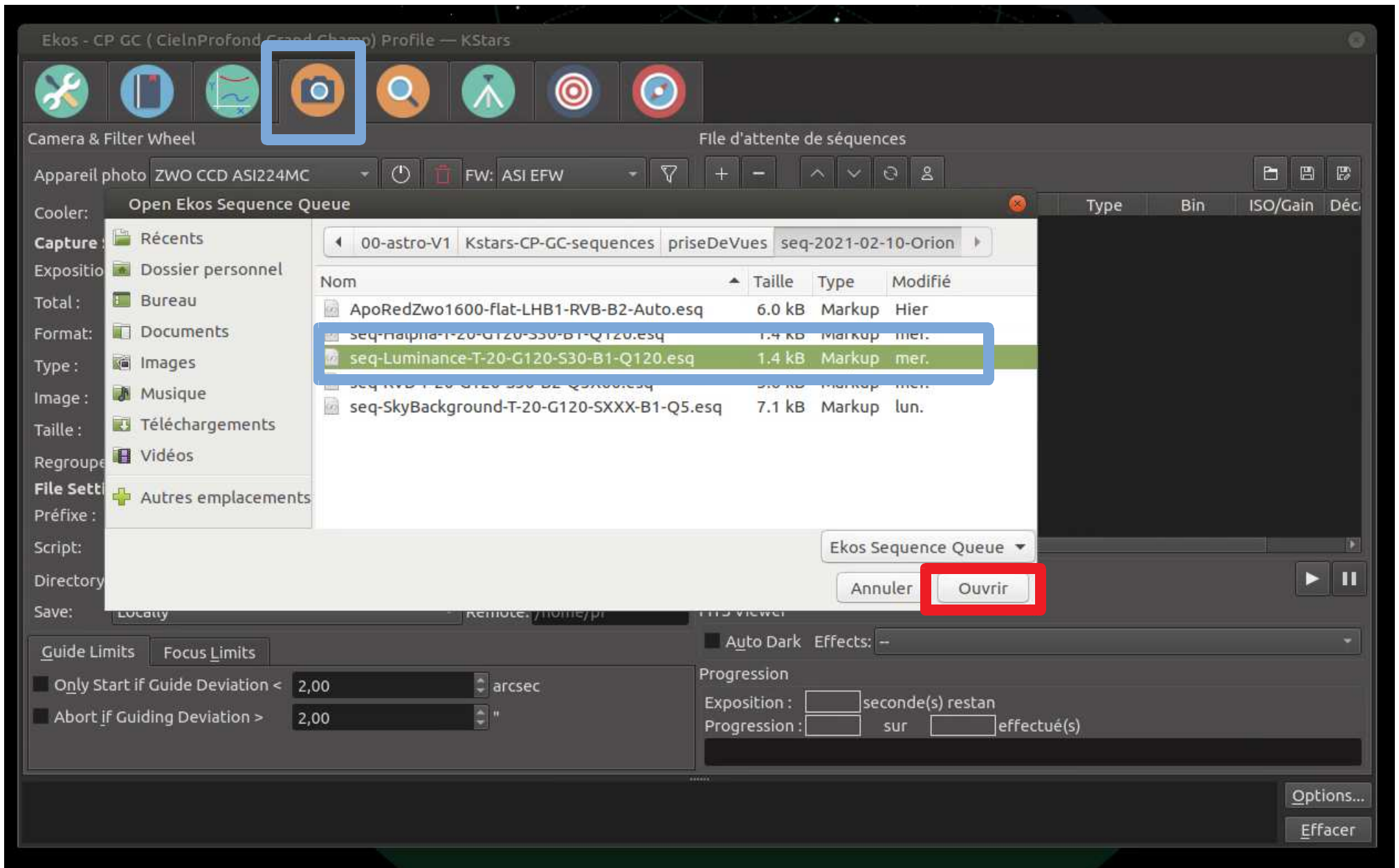
The screenshot shows the Ekos software interface with the following components:

- Top Bar:** Ekos - CP GC (CielnProfond Grand Champ) Profile — KStars
- Toolbar:** A row of icons for various functions. The camera icon is highlighted with a blue square.
- Camera & Filter Wheel:**
  - Appareil photo: ZWO CCD ASI1600MM Pro
  - Cooler: Allumé / **Éteint** (highlighted with a red square)
  - FW: ASI EFW
- Capture Settings:**
  - Exposition: 0,010000
  - Total: 11
  - Format: FITS
  - Type: Flat
  - Gain: 60,0
  - 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
- File d'attente de séquences:** A table showing a sequence of exposures. The 'Add' button (a square with a plus sign) is highlighted with a red square.
- Sequence 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	
- Buttons:** Reset, Calibrer, Properties, Rotate.
- Progression:** Exposition: [ ] seconde(s) restan, Progression: [ ] sur [ ] effectué(s)
- Log:** 2021-02-14T22:31:30 Cooler is off, 2021-02-14T22:28:11 Cooler is on, 2021-02-14T22:28:11 Cooler is on
- Buttons:** Options..., Effacer



# Lights Luminance





# 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° 21,50 -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 ☒ Duration ☒ TS

Script:

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

Save: Locally Remote: LHRVB-imaging-2020

**Guide Limits** **Focus Limits**

☐ Only Start if Guide Deviation < 2,00 arcsec

☒ Abort if Guiding Deviation > 15,50 "

**File d'attente de séquences**

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

**FITS Viewer**

☒ Auto Dark Effects: --

**Progression**

Exposition :  seconde(s) restan

Progression :  sur  effectué(s)

# 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 ☒ I° -20,50 -20,00 ☒

**Capture Settings**

Exposition: 30,000000 Filtre: Luminance

Total: 120 Délai: 0

Format: FITS ISO: Gain: 120,0

Type: Light

Image: X: 0 Y: 0 Offset: -

Taille: O: 4656 H: 3520

Regroupement de pixels: H: 1 V: 1

**File Settings**

Préfixe: Neb-Orion ☒ Filtre ☒ Duration ☒ TS

Script: Scripts Manager

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

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) restant

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

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

Camera & Filter Wheel

Appareil photo: ZWO CCD ASI1600MM Pro FW: ASI EFW

Cooler: ☐ Allumé ☒ Éteint  $\checkmark$  T° 21,50 -20,00

**Capture Settings**

Exposition : 30,000000 Filtre : Bleu

Total : 60 Délai : 0

Format : FITS ISO : Gain : 120,0

Type : Light

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

Taille : O : 4656 H : 3520

Regroupement de pixels : H : 2 V : 2

**File Settings**

Préfixe : Neb-Orion ☒ Filtre ☒ Duration ☒ TS

Script:

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

Save: Locally Remote: LHRVB-imaging-2020

**File d'attente de séquences**

	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	

**FITS Viewer**

☒ Auto Dark Effects: --








Progression

Exposition :  seconde(s) restan

Progression :  sur  effectué(s)

# Lights H Alpha

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

Appareil photo: ZWO CCD ASI1600MM Pro FW: ASI EFW

Cooler: ☐ Allumé ☒ Éteint ☒ I<sup>2</sup> 21,50 -20,00

**Capture Settings**

Exposition: 30,000000 Filtre: H Alpha

Total: 120 Délai: 0

Format: FITS ISO: Gain: 120,0

Type: Light

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

Taille: O: 4656 H: 3520

Regroupement de pixels: H: 1 V: 1

**File Settings**

Préfixe: Neb-Orion ☒ Filtre ☒ Duration ☐ TS

Script: Scripts Manager

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

Save: Locally Remote: LHRVB-imaging-2020

☐ Only Start if Guide Deviation < 2,00 arcsec

☒ Abort if Guiding Deviation > 15,50 "

**File d'attente de séquences**

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

**FITS Viewer**

☐ Auto Dark Effects: --

**Progression**

Exposition: seconde(s) restan

Progression: sur effectué(s)

# Arrêt Kstars

The screenshot displays the KStars Mount Control window. On the left, there is a control panel with directional buttons (up, down, left, right, and diagonal), a 'STOP' button, and a 'Click Find Icon' button. Below these are fields for AD, DE, HA, AZ, AL, and ZA coordinates, along with a 'Status: Tracking' indicator. The main window shows a toolbar with various icons, including a wrench icon highlighted with a blue box. Below the toolbar, there is a 'Résumé' section with a 'Capturer' button and a 'Status: Inactif' indicator. The central area displays a dark image of a celestial object with a red 'X' over it. To the right, there is a 'Mount & Alignment' section with 'Status: Tracking' and 'Target' coordinates, and a 'Focus' section with 'Status: Inactif' and 'HFR' fields. At the bottom, there are three circular gauges labeled 'Image', 'Sequence', and 'Overall', each showing a value (0.0, 0, and 0.0% respectively). The bottom status bar shows a log of events: '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.'.

Mount Control — KStars

GC (CielnProfond Grand Champ) Profile — KStars

Profile: CP GC (CielnProfond Grand Champ)

2. Start & Stop Ekos

3. Connect & Disconnect Devices

Messages

Connecter

Déconnecter

Résumé

Capturer

Status: Inactif

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 :

Guide

Status: Disconnected  $\sigma$ RA:  $\sigma$ DEC:

Image

Sequence

Overall

0.0

0

0.0%

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.

2021-02-15T13:46:03 Le port du Guide depuis ZWO CCD ASI1600MM Pro est prêt.

Options...

Effacer



# Arrêt Kstars

The screenshot displays the KStars software interface, specifically the 'Panneau de contrôle de INDI' (INDI Control Panel) window. The main window is titled 'Mount Control — KStars' and shows various controls for the telescope mount, including a 3x3 grid of directional buttons, a 'STOP' button, and a 'Reverse' checkbox. The status bar at the bottom indicates 'Status: Tracking'.

The 'Panneau de contrôle de INDI' window is open, showing the 'Contrôle principal' (Main Control) tab. It features a table of presets:

Presets	Preset 1	Preset 2	Preset 3
Atteindre	10	14393	12000

A red box highlights the 'Preset 1' button in the 'Atteindre' row. A text box with a red border contains the text '1° Parquer le focuser'.

The bottom of the INDI control panel shows a log of events:

- 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.
- 2021-02-15T12:47:07: [INFO] Moving to Preset 1 with position 10.

# Arrêt Kstars

Mount Control — KStars

Ekos - CP GC (CielnProfond 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

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

Atteindre Preset 1 Preset 2 Preset 3

Target: 90° 00' 00" 48° 45' 09"

HFR:

σDEC:

Status: Tracking

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.

1° Le focuser est parqué

# Arrêt EKOS

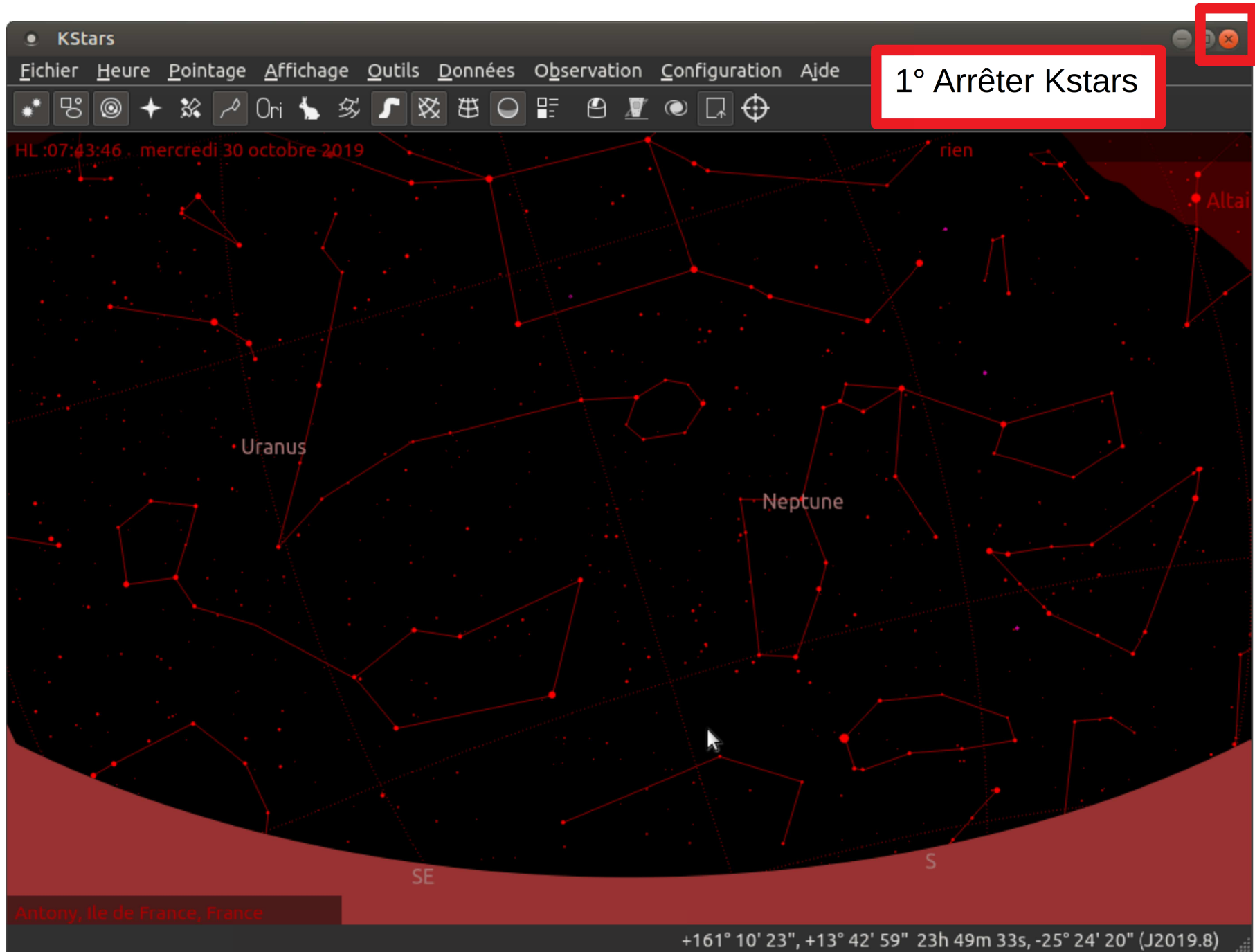
The screenshot shows the KStars Mount Control interface. The interface is divided into several sections: a left sidebar with navigation buttons and a main window with a toolbar and status panels. The annotations are as follows:

- 1° Parquer la monture**: A red box highlights the **PARK** button in the left sidebar.
- 2° Déconnecter**: A red box highlights the **Déconnecter** button in the top right toolbar.
- 3° Arrêter INDI**: A red box highlights the **Stop Ekos** button in the top right toolbar.
- 4° Arrêter EKOS**: A red box highlights the **Stop Ekos** button in the top right toolbar.

The main window displays the **CP GC (CielnProfond Grand Champ) Profile** and the **Mount & Alignment** status. The **Mount & Alignment** status shows **Status: Tracking** and **AD: 04h 47m 11s**. The **Guide** status shows **Status: Disconnected** and **σRA: σDEC:**. The bottom status bar shows the following 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.
- 2021-02-15T13:46:03 Le port du Guide depuis ZWO CCD ASI1600MM Pro est prêt.

# Arrêt Kstars



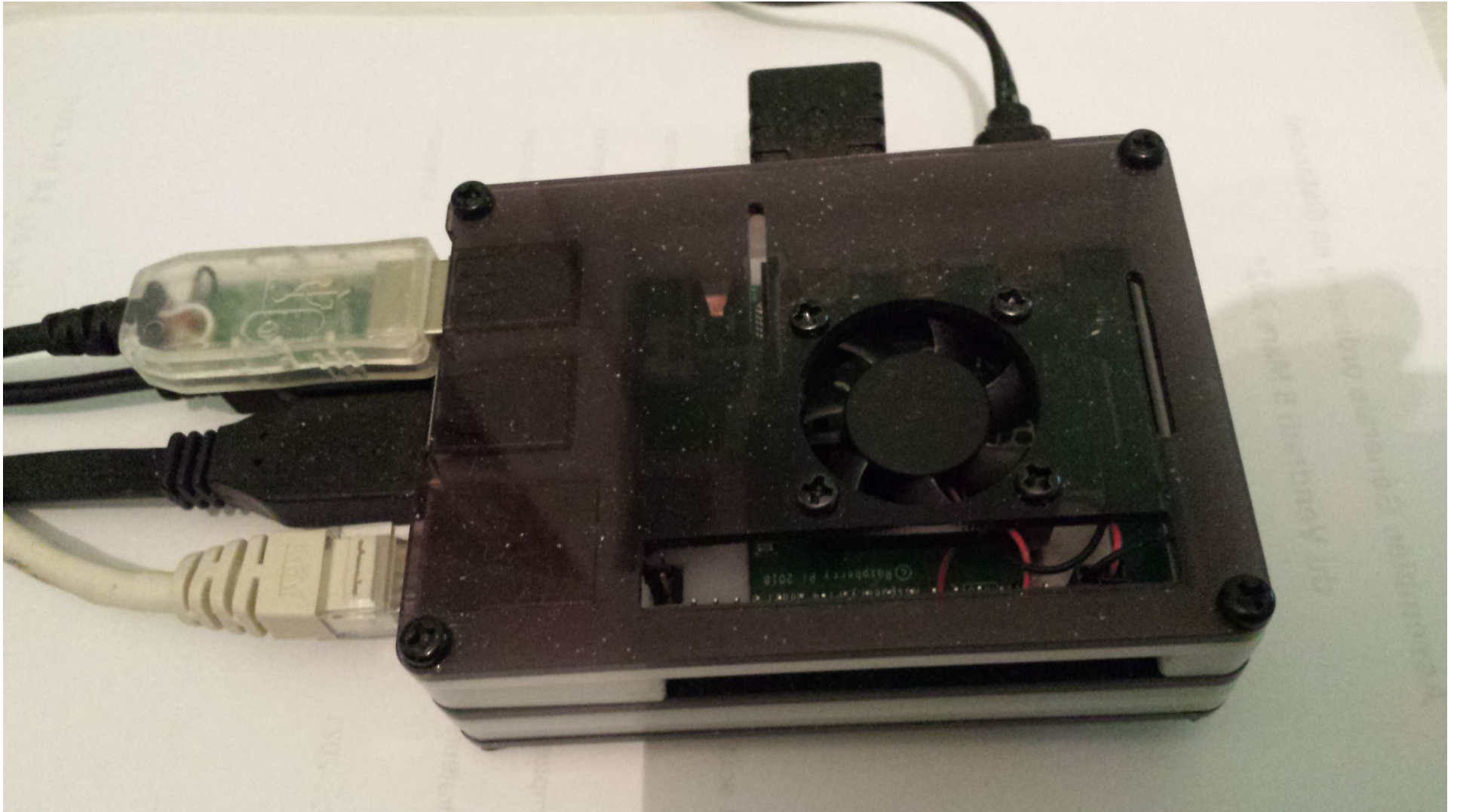


# KSTARS

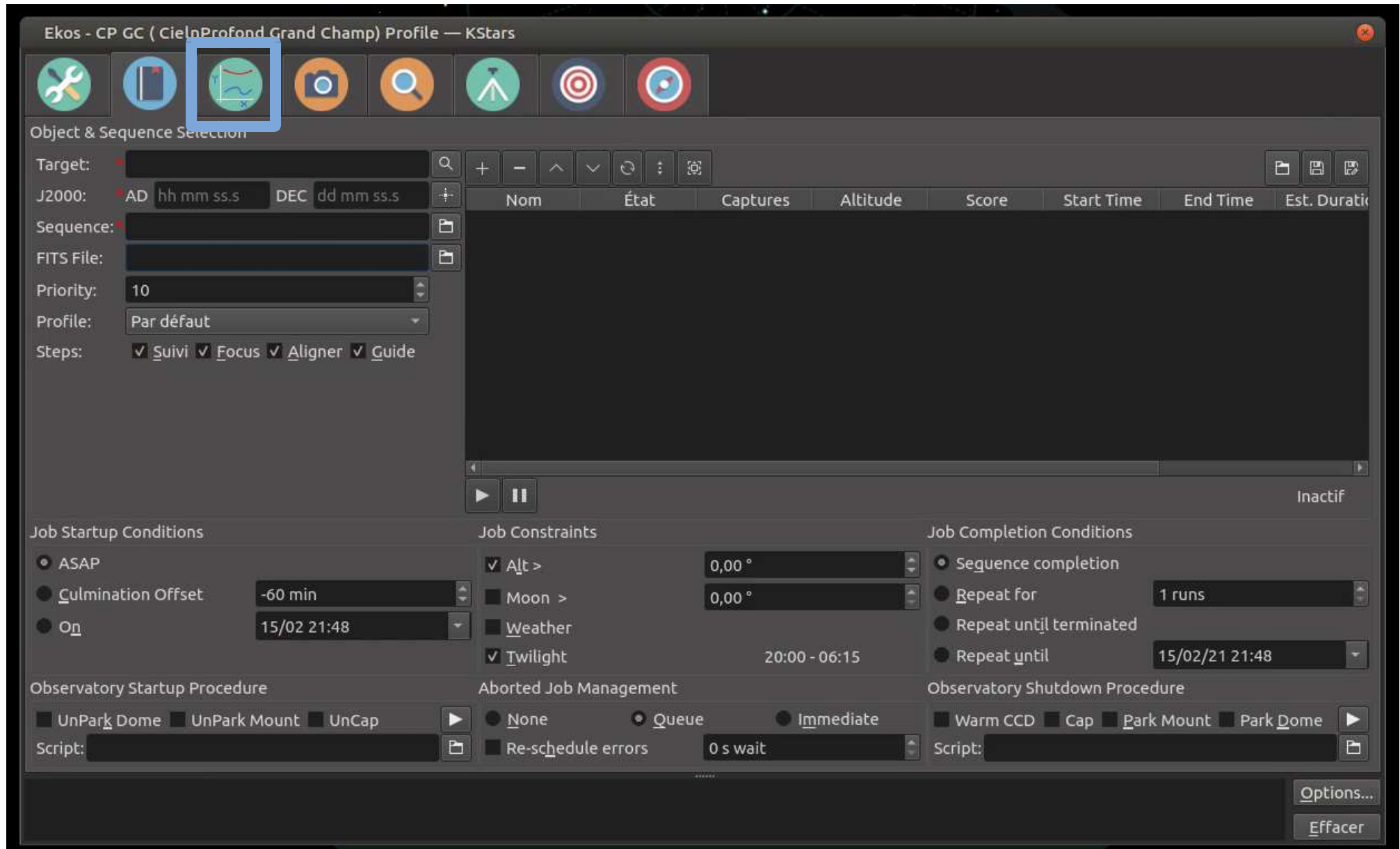
## Le futur



# Le RPI4



Kstars veille, Je dors !!!



Remerciement

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