

National Observatory of Athens Institute of Astronomy & Astrophysics Helmos Observatory



# ARISTARCHOS TELESCOPE 2.3 m

# **OBSERVER'S COOKBOOK**

# **GETTING STARTED**

The program ZEISS GUI is selected and run in the OPC computer

* Aristarchos Control GUI - Login	
C Local Login	
Remote Login (Authorisation Server)	
Astronomer	
C Programmer	
C Engineer	
C Administrator	
Isername guest Password	
guest	
OK Cancel	Help

The Telescope operating system is activated

🗮 Aristarchos Control GUI - "ast" as Astronomer					
File View Source Telescope M2 Enclosure AGU SFM FITS Exter	nal Tests System Help				
System Information					
Operations Guiding System   Weather Station   Temperature Sensors   Misc					
SOURCE <none></none>	TELESCOPE				
right ascension declination	right ascension	declination	sky position angle		
equinox	MODE SHUTTER		airmass		
proper motion Δα. Δδ					
parallax offsets ξ η	date	universal time	UT1-UTC		
MODE	julian date	local startime			
ENCLOSURE MODE (windscreen on)	hour angle		parallactic angle		
SHUTTER wind screen elevation enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation		
wind screen elevation enclosure azimuti	azimum	elevation (reverse)	cassegrain rotation		
INSTRUMENT port number instrument	INFO	aperture offsets	additional velocities		
EOCUS CORRECTION focus position offset	msionientspecific bisets MI = 0 CO = XO = YO =	AX = AY =	<u>audituriai vertudires</u>		
177-06-2007 18:22:36 nobody(02224): control program initiated 177-06-2007 18:33:36 nobody(02224): ERROR (5) in "login_form/Tlogin.ClientSocketError": socket error while 177-06-2007 18:33:48 ast(02224): ERROR CHAIN: +5/ 177-06-2007 18:33:48 ast(02224): login as Astronomer 177-06-2007 18:33:48 ast(02224): debug logging mode on 177-06-2007 18:33:48 ast(02224): administrator access disabled 177-06-2007 18:33:48 ast(02224): diministrator access disabled 177-06-2007 18:33:48 ast(03096): STATUS (Aristarchos Control Thread): control thread initialised 177-06-2007 18:33:48 ast(03096): STATUS (Aristarchos Control Thread): control thread initialised 177-06-2007 18:33:48 ast(03096): STATUS (Aristarchos Control Thread): control thread initialised					

## Right click in this area and a pop up menu appears

Aristarchos Control GUI - '	"ast" as Astronomer				
File View Source Telescope M	12 Enclosure AGU SFM FITS Exter	nal Tests System Help			
System Information					
Operations Guiding System Wea	ather Station   Temperature Sensors   Misc	cellaneous			
SOURCE <none></none>		TELESCOPE			
right ascension	declination	right ascension	declination	sky posit	ition angle
equinox		MODE		air mass	
proper motion ∆∞ parallax	Δδ		universal time	UT1 - UT	
offsets ξ	η	date	universarume	011-01	ic .
MODE		julian date	local star time	ľ	Button Array On/Off
ENCLOSURE MODE SHUTTER	(windscreen on)	hour angle		parallar	Send single Commands Reboot/Reset Functions IMC Diagnostics
wind screen elevation	enclosure azimuth	azimuth	elevation (reverse)	casseg	Connection Setup Work Unit Initialisation Configuration Reload
port number	instrument	INFO			Data Transmission Settings Broadcast Ping
FOCUS CORRECTION	focus position offset	i <u>nstrument specific offsets</u> MI = 0 C0 = X0 = Y0 =	<u>aperture offsets</u> AX = AY =	<u>additior</u>	Status Panels Communication Panels Dump Panels Download Panels Upload Panels
ioode poenden	ious promon encor				Go to Runlevel 🛛 🕨
07-06-2007 18:33:36 nobody 07-06-2007 18:33:40 nobody 07-06-2007 18:33:48 ast(02 07-06-2007 18:33:48 ast(02 07-06-2007 18:33:48 ast(02		_form/Tlogin.ClientSocketBr isabled	TCC GPC FCC FPC		Go to Security Level  Security Level Definitions M2 Enclosure GPS Temperature Sensors Weather Station Science Fold Mirror Probe Mechanics

Choose Button Array On/Off in order to activate the menu bar and right click in the same area to select Go to Run level, observation

📲 Aristarchos Control GUI	- "ast" as Astronomer				
	M2 Enclosure AGU SFM FITS Exter	rnal Tests System Help			
System Information					
	/eather Station Temperature Sensors Mise				
SOURCE <none></none>		TELESCOPE			
right ascension	declination	right ascension	declination	sky posit	ion angle
equinox		MODE SHUTTER		air mass	
proper motion ∆∞. parallax	δ۵				
offsets §	η	date	universal time	UT1 - UT	C
MODE		julian date	local star time		
ENCLOSURE					
MODE SHUTTER	(windscreen on)	hour angle		parallacti	c encle ✓ Button Array On/Off
wind screen elevation	enclosure azimuth	azimuth	elevation (reve	erse) cassegra	Send single Commands Reboot/Reset Functions IMC Diagnostics
INSTRUMENT port number	instrument	INFO		off	Connection Setup Work Unit Initialisation Configuration Reload
FOCUS		instrument specific offsets MI = 0 C0 =	<u>aperture offsets</u> AX = AY =	server connections diagnostics	Data Transmission Settings Broadcast Ping
CORRECTION		×0 =		balance only observation	Status Panels
focus position	focus position offset	Y0 =		tcc logfile dow ad engineering GPS+TMP+MET	Communication Panels Dump Panels Download Panels
	dy(02224): control program ini			HDR+CCD	Upload Panels
	dy(02224): ERROR (5) in "login dy(02224): ERROR CHAIN: +5/	_form/Tlogin.ClientSocketEn	ror": socket error	Special Test	Go to Runlevel
7-06-2007 18:33:48 ast(	02224): login as Astronomer 02224): debug logging mode on				Go to Security Level
	02224): administrator access d	isabled		EPC -	Security Level Definitions
7-06-2007 18:33:48 ast(	03096): STATUS (Àristarchos Co	ntrol Thread): control thre	ad initialised		Science Fold Mirror

# **SCRIPT INTRODUCTION**

Aristarchos Control (	GUI - "ast" as Astronomer			
File View Source Telesco	ppe M2 Enclosure AGU SFM FITS Exter	nal Tests System Help		
Restore Settings About Script Execution				
The second se	Weather Station Temperature Sensors Mise			
Save Settings as		TELESCOPE		
Edit Source List Edit Guide Star List	declination	right ascension	declination	sky position angle
Logout Exit		MODE SHUTTER		air mass
proper motion 🗛	Δδ	SHOTTER		
parallax offsets ξ	η	date	universal time	UT1-UTC
MODE		julian date	local star time	
ENCLOSURE MODE SHUTTER	(windscreen on)	hour angle		parallactic angle
wind screen elevation	enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation
INSTRUMENT port number	instrument	INFO		
FOCUS CORRECTION focus position	focus position offset	instrument specific offsets MI = 0 C0 = X0 = Y0 =	<u>aperture offsets</u> AX = AY =	additional velocities
07-06-2007 18:33:36 m 07-06-2007 18:33:40 m 07-06-2007 18:33:48 m 07-06-2007 18:33:48 m 07-06-2007 18:33:48 m	<pre>sobody(02224): control program ini sobody(02224): ERROR (5) in "login sobody(02224): ERROR CHAIN: +5/ sts(02224): login as Astronomer ast(02224): debug logging mode on ast(02224): administrator access d sts(03096): STATUS (Aristarchos Co</pre>	_form/Tlogin.ClientSocketBry isabled		Science Fold Mirror Science Fold Mirror Science Fold Mirror Science Fold Mirror Science Star Acquisitor Science Star Acquisitor Reboot Facility Science Access Balance System Filter Wheel Filter Wheel Filter Wheel

Next, go to the central menu and select Restore settings

Then, the script "basics.noa" is automatically loaded (wait until is finished)

#### **TELESCOPE PARAMETERS**

Go to the central menu, Telescope and select the essential parameters: refraction, pointing, shutter



Aristarchos Co	ontrol GUI - "ast" as Astrono	mer						
File View Source	Telescope M2 Enclosure AGU	SFM FITS Extern	nal Tests System Help					
System Information	Options							
Operations Guiding	Default Parameters	atura Sanaora   Miao	ure Sensors   Miscellaneous					
SOURCE <n< td=""><td></td><td>ature pensors   misc</td><td>TELESCOPE</td><td></td><td></td></n<>		ature pensors   misc	TELESCOPE					
right ascension	Absolute Positioning Special Absolute Positioning		right ascension	declination	sky position angle			
equinox	Relative Positioning Stop Positioning Additional Velocities		MODE		airmass			
proper motion parallax	Stop Additional Velocities							
offsets	Shutter Tracking		date	universal time	UT1-UTC			
MODE	Reversion Refraction		julian date	local star time				
ENCLOSURE MODE SHUTTER	Pointin Displacement Compensation Instrument Offsets Aperture Offsets	on)	hour angle		parallactic angle			
wind screen ele	Reset Aperture Offsets Reset Blind Offsets	imuth	azimuth	elevation (reverse)	cassegrain rotation			
INSTRUMEN port number	Pointing Tests Position Measurements Observation Definitions		INFO	aperture offsets	additional velocities			
FOCUS			MI = 0	AX =	duditional verocities			
CORRECTION focus position	<b>1</b> focus positio	un officiat	C0 = X0 = Y0 =	AY =				
	locus positi	AT ONO C						
07-06-2007 18:5	4:02 ast(02172): ERROR CH	LAIN: +210/335/2	2010/1922/	Server	Aummy Mill mode off ping			
			ocuments and Settings\Omiro	s\Ny Documents\a_ctr				
	5:45 ast (02224): DEBUG: 0			GPC	Telescope			
	5:50 ast(02224): DEBUG: 0 0:52 ast(02224): DEBUG: 0		BY CANCEL: IMC Diagnostics	FCC				
			sk/ENC GetData": work unit :	not initialised EPC	GPS			
07-06-2007 19:0	0:52 ast(02224): ERROR (2	(554) in "ENC_Po	ositioning_form/TENC_Positi		Temperature Sensors			
	0:52 ast(02224): ERROR CH 1:02 ast(02224): DEBUG: 0		/ SY CANCEL: Enclosure Positi	oning	Weather Station			
	V Probe Mechanics							

🚟 Aristarchos Control GUI - "a	ast" as Astronomer					
File View Source Telescope M2	Enclosure AGU SFM FITS Exte	rnal Tests System Help				
System Information Options						
Operations Guiding Default Paran	ature Sensors   Mis	cellaneous				
SOURCE <n control="" panel<="" td=""><td>C)</td><td>TELESCOPE</td><td></td><td></td></n>	C)	TELESCOPE				
Absolute Posi	itioning	right ascension	declination	sky position angle		
	ute Positioning	right ascension	declination	sky position angle		
Relative Posit						
equinox Stop Positionii Additional Vel		MODE		air mass		
en aller		SHUTTER				
proper motion						
offsets Tracking		date	universal time	UT1-UTC		
MODE Reversion						
Refraction		julian date	local star time			
ENCLOSURE Pointing						
MUDE	Compensation on)	hour angle		parallactic angle		
SHUTTER Instrument O		-				
Aperture Offs	imuth	azimuth	elevation (reverse)	cassegrain rotation		
Reset Apertu			• • •	,		
Reset Blind O	ffsets					
INSTRUMEN Pointing Tests	s	INFO				
port number Position Meas						
Observation [	Definitions	instrument specific offsets	aperture offsets	additional velocities		
FOCUS		MI = 0	AX =	<u>additional velocities</u>		
CORRECTION		C0 =	AY =			
CONTRECTION		×0 = Y0 =				
focus position	focus position offset	10=				
07-06-2007 18:54:02 ast(021	721 - RDDOD CHATN- 4210/335	(2010/1922/		dummy		
07-06-2007 18:54:02 ast (021			s\My Documents\a ctr	indus i s		
	07-06-2007 18:55:45 ast(02224): DEBUG: OPEN WINDOW: IMC Diagnostics					
07-06-2007 18:55:50 ast (022			GPC	M2		
07-06-2007 19:00:52 ast(022 07-06-2007 19:00:52 ast(022		AND CONTRACTOR AND	not initialized			
07-06-2007 19:00:52 ast(022				Temperature Sensors		
07-06-2007 19:00:52 ast(022	24): ERROR CHAIN: +498/255	V		Weather Station		
07-06-2007 19:01:02 ast(022	24): DEBUG: CLOSING WINDOW	BY CANCEL: Enclosure Positi	oning	Science Fold Mirror		

#### **TARGET SELECTION**

Go to central menu, Source menu so as to select a target via choice define new

Aristar	chos Control GUI - "as	t" as Astronomer			
File View		Enclosure AGU SFM FITS Exter	nal Tests System Help		
System Infc					
Operations	Select from Catalogue	tation Temperature Sensors Misc	ellaneous		
SOUR	Select from List		TELESCOPE		
right as(	Go To Source Follow Source	declination	right ascension	declination	sky position angle
equinox	Update Source Update Offsets Update Velocities		MODE SHUTTER		air mass
proper tr	iuiun Δα	Δδ	SHOTIER		
parallax offsets	ξ	η	date	universal time	UT1-UTC
MODE			julian date	local star time	
ENCLO	SURE				
MODE SHUTT	ER	(windscreen on)	hour angle		parallactic angle
wind scre	een elevation	enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation
INSTRU port num	exercise and the second se	instrument	INFO		
			instrument specific offsets	aperture offsets	additional velocities
FOCUS			MI = 0 C0 =	AX = AY =	
CORRE	CTION		X0 =	~~~~	
focus po	sition	focus position offset	Y0 =		
07-06-200	7 19:00:52 ast(0222	4): DEBUG: OPEN WINDOW: En-	closure Positioning	Server	dummy full mode off ping
			sk/ENC_GetData": work unit r ositioning form/TENC Positio	not initialised	
		4): ERROR (2334) IN ENC_P 4): ERROR CHAIN: +498/2554,		GPC	M2
and the second			BY CANCEL: Enclosure Positio	100	
			urce Selection from Catalogu BY CANCEL: Source Selection	EPP)	Temperature Sensors
		4): DEBUG: OPEN WINDOW: So			Weather Station
07-06-200	7 19:07:18 ast(0222	4): DEBUG: CLOSING WINDOW 1	BY CANCEL: Source Settings	~	Science Fold Mirror

This is what appears

Source Settings	
Stellar Source Planetary Source	
	equinox actual 💌
	epoch 2000.0
right ascension	declination
00 <sup>h</sup> 00 <sup>m</sup> 00.00 <sup>s</sup>	+00° 00' 00.0"
📕 🕴 I	proper monon per year 💌
☑ ppm right ascension	<b>ppm declination</b>
+00 <sup>h</sup> 00 <sup>m</sup> 00.0000§	+00° 00' 00.000"
∏ parallax	
000° 00' 00.000"	
/s /	Γη
+00° 00',00.0"	+00° 00' 00.0"
OK Cancel	Help

Then we can define the coordinates of the target and the epoch of the observation (e.g. equatorial coordinates, J2000) These parameters do appear in the following area,

SOURCE NG	C6205(M13)			
right ascension 16 <sup>h</sup> 41 <sup>m</sup> 41	.50s		clination 36°27'	39.0"
equinox J2000				
proper motion parallax	Δα NIL/yr NIL	<u>δ</u> Δ	NIL/yr	(2000)
offsets	ξ O"	η	0"	
MODE				

on which if right click applied then the preview option appears

SOURCE NGC6205(M13)	
right ascension 16ʰ41ʷ41.50≈	declination +36°27'39.0''
equinox J2000	
proper motion parallax offsets MODE	Δδ NIL/yr (2000)

which helps us check if the target defined can really be observed

🚟 Source Location Preview	
Location Axes Tracking Tracking Drift Telescope Configuration Simulation Parameters	
Current Object Location	
source identification: NGC6205(M13)	<u>_</u>
source type: fixed	
location: 16h41m41.50s +36°27'39.0" (J2000)	
proper motion: NIL NIL (2000)	
parallax: NIL	
offsets: xi=0", eta=0"	
-	-
observation at: 07-06-2007 19h15m38.76s (0s)	
julian date: 2454259.30253	
reduced location: 16h41m59.47s +36°26'40.5"	
local mean star time: 13h47m42.31s	
hour angle: 21h05m42.84s	
horizontal location: 258°50'21.5" +55°35'14.2"	
cassegrain rotation angle: 073°58'37.2"	
parallactic angle: 286°01'22.8"	
airmass: 1.212	
set in 11h15m	
refraction critical in 8h34m	
blind spot crossing in 2h48m	
EL limit in 10h5m	
1	
Close	Help

After the target has been selected, then we go to central menu, Source and then Go to source option

🚔 Aristarchos Control GUI - "ast" as Astronomer			
File View Source Telescope M2 Enclosure AGU SFM FITS Exter	nal Tests System Help		
System Info Define New			
Operations Select from Catalogue tation Temperature Sensors Miss	cellaneous		
SOUR( Select from List	TELESCOPE		1
right as( Go To Source Jeclination 16 h 4 Follow Source +36 ° 27 ' 39 . 0 ''	right ascension	declination	sky position angle
equinox Update Source J2001 Update Offsets	MODE		air mass
Update Velocities proper mouor Δα τοιμγρτ Δδ ΝΙL/γr (2000) parallax ΝΙL	SHUTTER		
offsets ξ0"η0"	date	universal time	UT1-UTC
MODE	julian date	local star time	
ENCLOSURE MODE (windscreen on) SHUTTER	hour angle		parallactic angle
wind screen elevation enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation
INSTRUMENT port number instrument	INFO		
FOCUS CORRECTION	instrument specific offsets MI = 0 C0 = X0 = Y0 =	<u>aperture offsets</u> AX = AY =	additional velocities
focus position focus position offset			
07-06-2007 19:08:46 ast(02224): DEBUG: OPEN WINDOW: So		Server	full mode off ping
07-06-2007 19:11:07 ast(02224): DEBUG: CLOSING WINDOW : 07-06-2007 19:11:16 ast(02224): DEBUG: new stellar sou		MAINAL FOR DE-126"2 TCC	
07-06-2007 19:11:16 ast(02224): Dabbd. new scellar sou 07-06-2007 19:11:16 ast(02224): SOURCE SELECTION: SRC :		11411141.303, DE-130 2	M2
07-06-2007 19:15:38 ast(02224): DEBUG: OPEN WINDOW: So		FCC	
07-06-2007 19:15:38 ast(02224): ERROR (209) in "TEL_ta			Temperature Sensors
07-06-2007 19:15:38 ast(02224): ERROR (2996) in "SRC_P 07-06-2007 19:15:38 ast(02224): ERROR CHAIN: +209/2996		ecute": could not ex	Weather Station
07-06-2007 19:15:38 ast (02224): ERROR CHAIN: +209/2996 07-06-2007 19:17:45 ast (02224): DEBUG: CLOSING WINDOW:			Science Fold Mirror

### **<u>GUIDING</u>**

Next, go to central menu and to option AGU and choose Mechanics folowed by the Offset Correction option

🗯 Aristarchos Control GUI - "ast" as Ast	ronomer					
File View Source Telescope M2 Enclosure	AGU SFM FITS Exter	rnal Tests	System Help			
System Information	Mechanics	Þ	Options			
Operations   Guiding System   Weather Station	. CCDs	•	Default Parameters			
SOURCE NGC6205(M13)	Guide Star Selection		Control Panel			1
right ascension declina 16h41m41.50s +36°		Guiding	Home Positioning Absolute Positioning Relative Postioning	eclination		sky position angle
equinox J2000		MODE	Stop Positioning	_		airmass
propermotion Δα NIL/yr Δδ NIL parallax NIL offsets ξ 0" η 0"	, <sub>Д</sub> ут (2000)	date	Astigmatism Correction Flexure Correction Offset Correction	niversal time		UTI-UTC
MODE		julian da	42	local star time		
ENCLOSURE		1				
	creen on)	hour ang	gle			parallactic angle
wind screen elevation enclos	ure azimuth	azimuth		elevation (reverse)		cassegrain rotation
INSTRUMENT port number instrum		INFO				
port number instrum	len					
FOCUS		instrume MI = 0	ent specific offsets	<u>aperture offsets</u> AX =		additional velocities
COBBECTION		C0 =		AY =		
	oosition offset	×0 = Y0 =				
07-06-2007 19:08:46 ast(02224): DEB	UG: OPEN WINDOW: So	urce Sett	ings	^	Server	Mul mode off ping
07-06-2007 19:11:07 ast (02224): DBB				1)- 1) FO- NR-1055	TCC	
07-06-2007 19:11:16 ast(02224): DBB 07-06-2007 19:11:16 ast(02224): SOU					GPC	M2
07-06-2007 19:15:38 ast(02224): DEB					FCC	
07-06-2007 19:15:38 ast(02224): ERR					EPC	Temperature Sensors
07-06-2007 19:15:38 ast(02224): ERR 07-06-2007 19:15:38 ast(02224): ERR			orm/iSRC_preView.Exe	cute": could not ex		Weather Station
07-06-2007 19:17:45 ast(02224): DEB			ocation Preview			Science Fold Mirror

which is followed by the absolute positioning option

🕮 Aristarchos Control GUI - "ast" as Astronomer				
File View Source Telescope M2 Enclosure AGU SFM FITS Ex	ternal Tests	System Help		
System Information Mechanics	Þ	Options		
Operations Guiding System Weather Station	•	Default Parameters		
SOURCE NGC6205(M13) Guide Star Selection		Control Panel		
right ascension declina Co-ordinate Correcti	on Guidina	Home Positioning	eclination	sky position angle
16h41m41.50s +36° Blind Offset Guiding	orradiang	Abs Nute Positioning	Clinddon	sky position drigte
equinox		Relative Postioning Stop Positioning		air mass
J2000	MODE		<u></u>	unmuss
propermotion Δα NILAr Δδ NILAr (2000)	SHUT	Focus Automatics Astigmatism Correction		
parallax NIL	date	Flexure Correction	niversal time	UT1-UTC
offsets ξ0"η0"	uale	Offset Correction	niversarume	011-010
MODE	iulian d	eto	local startime	
ENGLACIUSE	julianu	ale	iocai siai time	
ENCLOSURE				
MODE (windscreen on)	hour an	gle		parallactic angle
SHUTTER				
wind screen elevation enclosure azimuth	azimuth	1	elevation (reverse)	cassegrain rotation
INSTRUMENT	INFO			
port number instrument				
50010	instrum MI = 0	ent specific offsets	aperture offsets AX =	additional velocities
FOCUS	MI = 0 C0 =		AX = AY =	
CORRECTION	×0 =			
focus position focus position offset	Y0 =			
07-06-2007 19:08:46 ast (02224): DEBUG: OPEN WINDOW:		A STATE OF	Serve	E full mode off ping
07-06-2007 19:11:07 ast(02224): DEBUG: CLOSING WINDO 07-06-2007 19:11:16 ast(02224): DEBUG: new stellar s			41m41.50s. DE=+36°2 TCC	Telescope
07-06-2007 19:11:16 ast (02224): SOURCE SELECTION: SR				
07-06-2007 19:15:38 ast (02224): DEBUG: OPEN WINDOW: :			FCC	
07-06-2007 19:15:38 ast(02224): ERROR (209) in "TEL_ 07-06-2007 19:15:38 ast(02224): ERROR (2996) in "SRC				Temperature Sensors
07-06-2007 19:15:38 ast(02224): ERROR (2996) 1n "SRC 07-06-2007 19:15:38 ast(02224): ERROR CHAIN: +209/29:		orm/iSKC_Preview.EXe	cuce . coura not ex	Weather Station
07-06-2007 19:17:45 ast (02224): DEBUG: CLOSING WINDO		Location Preview		Science Fold Mirror
			~	Probe Mechanics

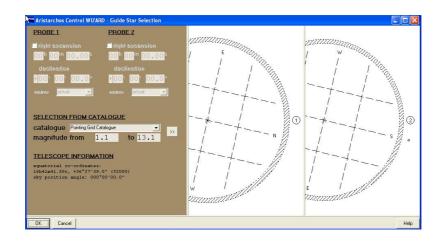
$\Delta s a result$	we can now	select	various	filters	for the	ouide stars
ns a result,	we can now	Sciect	various	mens	ior unc	guide stars

Guidi	ng Probe Positi	ioning 📒	
orobes	foci   astigmatism	n correctors filter	s
I⊽ filte	er number 1		
Johnso	on R filter	•	
I⊽ filte	er number 2		
Johnso	on R filter	•	
			Help
OK	Cancel		

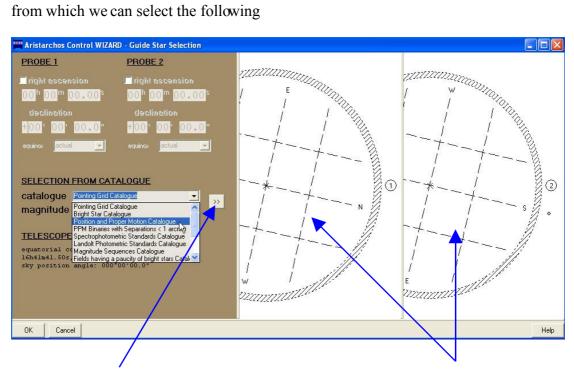
Next, we choose AGU and guide star selection again from the central menu

🚝 Aristarchos Control GUI - "ast" as Astronomer			
File View Source Telescope M2 Enclosure AGU SFM FITS Exter	nal Tests System Help		
System Information Mechanics	•		
Operations Guiding System Weather Station	•		
SOURCE NGC6205(M13) Guide Star Selection	COPE		1
right ascension declina Co-ordinate Correction 16 <sup>h</sup> 41 <sup>m</sup> 41.50 <sup>s</sup> +36 <sup>o</sup> Blind Offset Guiding	Guiding ension	declination	sky position angle
equinox J2000	MODE SHUTTER		air mass
propermotion ∆a. NIL/yr ∆ō NIL/yr (2000) parallax NIL offsets ≰ 0" ŋ 0"	date	universal time	UT1-UTC
MODE	julian date	local star time	
ENCLOSURE			
MODE (windscreen on) SHUTTER	hour angle		parallactic angle
wind screen elevation enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation
INSTRUMENT	INFO		
port number instrument			
	instrument specific offsets	aperture offsets	additional velocities
FOCUS	MI = 0	AX =	<u>additional verbences</u>
CORRECTION	C0 = X0 =	AY =	
focus position focus position offset	хо= Y0=		
07-06-2007 19:15:38 ast(02224): ERROR (2996) in "SRC P	reView form/TSRC PreView.Ex	ecute": could not ex 🔨	ull mode off ping
07-06-2007 19:15:38 ast (02224): ERROR CHAIN: +209/2996			
07-06-2007 19:17:45 ast (02224): DEBUG: CLOSING WINDOW:		TCC	Telescope
07-06-2007 19:24:30 ast(02224): DEBUG: OPEN WINDOW: Gu 07-06-2007 19:24:30 ast(02224): ERROR (991) in "GDR_ta			
07-06-2007 19:24:30 ast(02224): ERROR (2644) in "GDR_P			j ≚ _ GPS
07-06-2007 19:24:30 ast(02224): ERROR CHAIN: +991/2644		EPC	Temperature Sensors
07-06-2007 19:27:21 ast(02224): no guider probe positi			Weather Station
07-06-2007 19:27:21 ast(02224): DEBUG: CLOSING WINDOW :	BY CANCEL: Guiding Probe Po	sitioning 🚽	Probe Mechanics

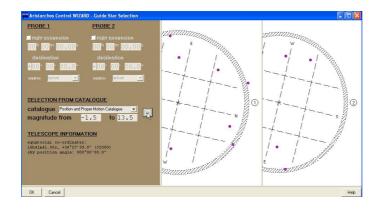
and the following image does appear



from which we can select the following

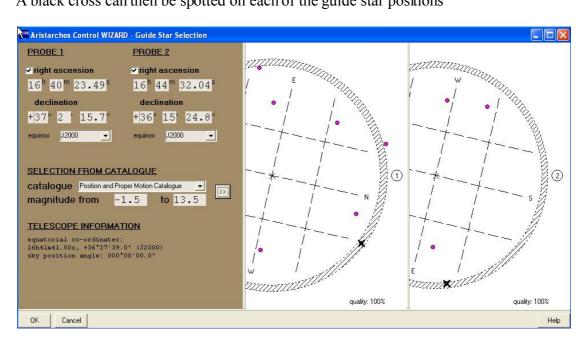


By selecting Pointing grid catalogue and position and proper motion catalogue and by clicking on the two arrow button, we can see in principle some guide stars on the right hand side of the window



We select (left click) those guide stars closest the to numbers 1 and 2 which should additionally be located on the shaded periphery

A black cross can then be spotted on each of the guide star positions



then we press the OK button (bottom left region)

Next, we execute the following instructions Go to central menu, then to AGU, CCDs, CCD and Guiding Options

🗯 Aristarchos Control GUI - "ast" as Astro	nomer			
File View Source Telescope M2 Enclosure A	GU SFM FITS External Tes	sts System Help		
System Information	Mechanics	•		
Operations Guiding System Weather Station	CCDs	Options		
SOURCE NGC6205(M13)	Guide Star Selection	Default Parameters		1
right ascension declina 16 <sup>h</sup> 41 <sup>m</sup> 41.50 <sup>s</sup> +36°	Co-ordinate Correction Guiding Blind Offset Guiding	CCD and Guiding Options Find and Select Guide Stars Adjust Reference Position	nation	sky position angle
equinox J2000 proper motion Δα ΝΙL/vr Δδ ΝΙL/vr	MOD SHU r (2000)	Exposure Loop		air mass
parallax NIL η 0" offsets ξ 0" η 0"	date	Exposure Stacking Start Stack Exposure Stop Stack Exposure	ərsal time	UT1-UTC
MODE	julian	I da Save Images Download Image	star time	
MODE (windscre SHUTTER	sen on) hour (	Stop Download Image Download All Images Reset Marks		parallactic angle
wind screen elevation enclosure	e azimuth azimu	uth Cleanup Server	ation (reverse)	cassegrain rotation
INSTRUMENT port number instrumer	instru MI = 0	- Iment specific offsets aper	ture offsets	additional velocities
CORRECTION	C0 = X0 = Y0 =	AY =		
focus position focus pos	sition offset			
07-06-2007 19:50:38 ast(02224): ERROR 07-06-2007 19:50:38 ast(02224): ERROR 07-06-2007 19:50:38 ast(02224): ERROR 07-06-2007 19:50:38 ast(02224): DEBUG 07-06-2007 19:52:04 ast(02224): DEBUG 07-06-2007 19:52:04 ast(02224): ERROR 07-06-2007 19:52:04 ast(02224): ERROR 07-06-2007 19:52:08 ast(02224): DEBUG	(3010) in "WIZARD_Guid CHAIN: +963/975/3010/ : CLOSING WINDOW BY 0.K : OPEN WINDOW: Guide St. (1240) in "LST_task/LS" (2527) in "LST_Handlin CHAIN: +1240/2527/	estarSelection_form/TWIZARD .: Aristarchos Control WIZA ar Acquisition Settings T_GetData": work unit not i g_form/TLST_Handling.getCCD	_CuideStarSele TCC RD - Guide Sta GPC nitialised BtnClick": cou	Mil mode off     ping       X     Telescope       X     M2       X     Enclosure       GPS     Temperature Sensors       X     Weather Station       X     Science Fold Mirror       Y     Probe Mechanics

and the following window appears on which the settings for the two guide stars are presented

🚟 Guide Star Arqui	sition Settings				- 🗆 🗙
<i>•u</i>	CCD 1	CCD 2	Cassegrain rotator corrections	✓ tendency analys	is 🔺
use for guiding		2	✓ differential refraction corrections	damped guiding	
CCD mode	<ul> <li>∩ normal gain</li> <li>∩ high gain</li> <li> low light mode</li> </ul>	<ul> <li>normal gain</li> <li>high gain</li> <li>low light mode</li> </ul>	<ul> <li>wavelength sensitive guiding</li> <li>arithmetical flexure correction</li> </ul>		
			maximum number of background clip	ping iterations	10
	adapted expo		background sigma clipping multiplica	ator for upper limit	3
exposure time (ms)	1000	1000	background sigma clipping multiplica	ator for lower limit	3
binning	1	1 🔻	sigma multiplicator for tendency anal	ysis	3
region of interest	5	5	sigma multiplicator for background s	ubtraction	20
detection threshold	70	70	proportional gain		1
12 Yr 70 Yr 75	1		integral gain		0
limit area (# pix)	10	10	filter depth		0
			random delay [ms]		0
mean wavelength of s	science filter 550		number of exposures for reference de	etermination	1
mean wavelength of			maximum number of reference clippin	ng iterations	10
mean wavelength of	-		reference sigma clipping multiplicato	ır	3
			acceptance time for status FOUND (r	ms) 300000	
•			4		

In this window the following must already me preselected: tendency analysis, differential refraction corrections and wavelengh sensitive guiding. Moreover, we may choose to work with CCD1 or CCD2 or both, depending on the guide stars we have already detected

🗯 Guide Star Acqui	sition Settings				- 🗆 ×
ß	CCD 1	CCD 2	Cassegrain rotator corrections	tendency analysi	s
use for guiding CCD mode	C normal gain C high gain C low light mode	C normal gain C high gain C low light mode	<ul> <li>✓ differential refraction corrections</li> <li>✓ wavelength sensitive guiding</li> <li>☐ arithmetical flexure correction</li> </ul>	✓ damped guiding	
	🗖 adapted expo	sure times	maximum number of background clip background sigma clipping multiplica		10 3
exposure time (ms)	1000	1000	background sigma clipping multiplice		3
binning	1 💌	1 💌	sigma multiplicator for tendency analy		3
region of interest	5	5	sigma multiplicator for background su	ubtraction	20
detection threshold	70	70	proportional gain		1
limit area (# pix)	10	10	integral gain		0
minicaloa (ii piiy	110	110	filter depth random delay [ms]		0
					0
mean wavelength of	science filter 550	0 💌	number of exposures for reference de		1
mean wavelength of	guider ccd 1 550	0 🔹	maximum number of reference clippir	-	10
mean wavelength of	guider ccd 2 550	0 🗸	reference sigma clipping multiplicato	r	3
			acceptance time for status FOUND (r	ms) 300000	
OK Cancel					Help
	/				

Using right click on the window, we may select the following: configuration sets and standard algorithm and then press OK

🚟 Guide Star Acqui	sition Settings			- 🗆 🗙
use for guiding	CCD 1	CCD 2	Cassegrain rotator corrections	
CCD mode	<ul> <li>C normal gain</li> <li>C high gain</li> <li>✓ low light mode</li> </ul>	<ul> <li>normal gain</li> <li>high gain</li> <li>low light mode</li> </ul>	<ul><li>✓ wavelength sensitive guiding</li><li>✓ arithmetical flexure correction</li></ul>	
	adapted expo	sure times	maximum number of background clipping iterations background sigma clipping multiplicator for upper limit	3
exposure time (ms)	1000	1000	background sigma clipping multiplicator for lower limit	3
binning	1 -	1 🔹	sigma multiplicator for tendency analysis	3
region of interest	5	5	sigma multiplicator for background subtraction	20
detection threshold	70	70	proportional gain	1
limit area (# pix)	10	10	integral gain filter denth default values	0
		,	default configuration sets	<u> </u>
			weak averaging load current configuration from	m work unit
mean wavelength of	science filter 550	0 💌	nun standard PI algorithm v automatic data request mat bright guide stars	
mean wavelength of	guider ccd 1 550		refe faint guide stars te chipping iterations	10
mean wavelength of	guider ccd 2 550	0 🔹		3
			acceptance time for status FOUND (ms) 30000	0
OK Cancel				Help

### Next, go to central menu, AGU, CCDs, Find and Select Guide Stars option

ile View Source Telescope M	12 Enclosure AGU SFM F	TS External Tests	System Help		
System Information	Mechanics	•			
Operations   Guiding System   We	ather Station	×	Options		
SOURCE NGC6205(M1	100 C	election	Default Parameters		
right ascension 16h41m41.50s	·	Correction Guiding Guiding	CCD and Guiding Options Find and Select Guide Stars Adjust Reference Position	nation	sky position angle
equinox J2000 proper motion Δα NIL/yr	۵۵ NILAyr (200	MODE SHUT	Guiding Mode Exposure Loop		air mass
parallax NIL offsets ξ 0"	η 0"	date	Exposure Stacking Start Stack Exposure Stop Stack Exposure	ərsal time	UT1-UTC
MODE		julian da	Save Images	star time	
<u>ENCLOSURE</u> MODE SHUTTER	(windscreen on)	hour an	Download Image Stop Download Image Download All Images Reset Marks		parallactic angle
wind screen elevation	enclosure azimuth	azimuth	Cleanup Server	ation (reverse)	cassegrain rotation
INSTRUMENT port number	instrument	INFO	int specific offsets ape	rture offsets	additional velocities
FOCUS CORRECTION focus position	focus position offset	MI = 0 C0 = X0 = Y0 =	AX = AY =		
7-06-2007 19:52:04 ast(0 7-06-2007 19:52:04 ast(0 7-06-2007 19:52:08 ast(0 7-06-2007 19:53:32 ast(0 7-06-2007 19:53:32 ast(0 7-06-2007 19:53:32 ast(0 7-06-2007 19:53:32 ast(0	2224): ERROR (2527) ir 2224): ERROR CHAIN: +1 2224): DEBUG: CLOSING 2224): DEBUG: OPEN WIN 2224): ERROR (1240) ir 2224): ERROR (2527) ir 2224): ERROR (2527) ir	. "LST_Handling_: 240/2527/ WINDOW BY CANCE) DOW: Guide Star . "LST_task/LST_( . "LST_Handling_: 240/2527/	<pre>SetData": work unit not i form/TLST_Handling.getCCD :: Guide Star Acquisition Acquisition SetUings setData": work unit not i form/TLST_Handling.getCCD :: Guide Star Acquisition</pre>	BenClick": cou Settings nitialised BenClick": cou	Mill mode off     ping       3     Telescope       3     M2       3     Enclosure       3     GPS       3     Temperature Sensors       4     Weather Station       5     Science Fold Mirror       9     Probe Mechanics

and the following window emerges

🞬 Guide Star Find	
<u>CCD 1</u>	CCD 2
	-
X=100 ,Y=100 (mest	
×≠100 . Y= 100 (mext) size of thumbnails ⓒ 172x130 (Binning 8x8),	E #= 100 , Y= 100 n Jpeg Compression Quality 45
size of thumbnails	Jpeg Compression Quality

Click on start search button, then some guide stars come out on the empty areas below CCD1 and CCD2, which we may select by pressing left click. Finally, we Close the window

Next, goto central menu, AGU, Blind Offset Guiding

🕮 Aristarchos Control GUI - "ast" as Astronomer			
File View Source Telescope M2 Enclosure AGU SFM FITS E	xternal Tests System Help		
System Information Mechanics	Image and the second s second second sec		
Operations Guiding System Weather Station	•		
SOURCE NGC6205(M13) Guide Star Selection	D COPE		1
right ascension declina Co-ordinate Corre	tion Guiding ension	declination	sky position angle
16h41m41.50s +36° Blind Offset Guidin			
equinox J2000	MODE		air mass
proper motion Δα NIL/yr Δδ NIL/yr (2000)	SHOTILIT		
paraliax NIL offsets ξ0" η0"	date	universal time	UT1-UTC
MODE	julian date	local star time	
ENCLOSURE			
MODE (windscreen on) SHUTTER	hour angle		parallactic angle
wind screen elevation enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation
INSTRUMENT	INFO		
port number instrument			
	in the second second for the second		
FOCUS	instrument specific offsets MI = 0	<u>aperture offsets</u> AX =	additional velocities
CORRECTION	C0 =	AY =	
	X0 = Y0 =		
focus position focus position offset			
07-06-2007 19:52:04 ast (02224): ERROR CHAIN: +1240/		Server	t full mode off ping
07-06-2007 19:52:08 ast(02224): DEBUG: CLOSING WIND 07-06-2007 19:53:32 ast(02224): DEBUG: 0PEN WINDOW:			
07-06-2007 19:53:32 ast(02224): BRROR (1240) in "LS	[_task/LST_GetData": work uni	t not initialised GPC	f f vf f Feelessee
07-06-2007 19:53:32 ast(02224): BRROR (2527) in "LS 07-06-2007 19:53:32 ast(02224): BRROR CHAIN: +1240/		1.00	I I X I GPS
07-06-2007 19:53:32 ast(02224): ERROR CHAIN: +12407 07-06-2007 20:03:18 ast(02224): DEBUG: CLOSING WIND		isition Settings	Temperature Sensors
07-06-2007 20:05:22 ast(02224): DEBUG: OPEN WINDOW:			Weather Station
07-06-2007 20:10:32 ast (02224): DEBUG: CLOSING WIND	DW BY O.K.: Guide Star Find		Science Fold Mirror
		×	

#### **SCIENTIFIC INSTRUMENT**

In order to pick the instrument we wish to observe with, go to central menu, SFM and positioning

🚟 Aristarchos Control GUI - "as	st" as Astronomer			
File View Source Telescope M2	Enclosure AGU SFM FITS Exter	rnal Tests System Help		
System Information	Default Parame	ters		
Operations Guiding System Weathe		a		
SOURCE NGC6205(M13)	Stop Positioning	ESCOPE		
right ascension	declination Flexure Correct	ion ascension	declination	sky position angle
16h41m41.50s	+36°27'39.0"			
equinox		MODE		air mass
J2000		SHUTTER		
proper motion ∆∞ NIL/yr	Δδ NIL/yr (2000)			
parallax NIL offsets をの"	n 0"	date	universal time	UT1-UTC
	ηv			
MODE		julian date	local star time	
ENCLOSURE				
MODE	(windscreen on)	hour angle		parallactic angle
SHUTTER				
wind screen elevation	enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation
INSTRUMENT		INFO		
port number	instrument			
permaneer	inoutanion			
FOCUS		instrument specific offsets MI = 0	<u>aperture offsets</u> AX =	additional velocities
		C0 =	AY =	
CORRECTION		×0 =		
focus position	focus position offset	Y0 =		
07-06-2007 19:52:04 ast(0222	24) · REBOR CHAIN· +1240/252	7/		dummy
07-06-2007 19:52:08 ast (0222			sition Settings	full mode off ping
07-06-2007 19:53:32 ast(02224): DEBUG: OPEN WINDOW: Guide Star Acquisition Settings TCC Telescope 07-06-2007 19:53:32 ast(02224): ERROR (1240) in "LST task/LST GetData": work unit not initialised GPC M2				
07-06-2007 19:53:32 ast(0222 07-06-2007 19:53:32 ast(0222				
07-06-2007 19:53:32 ast(0222			EPC	
07-06-2007 20:03:18 ast(0222		and the second	sition Settings	Temperature Sensors
07-06-2007 20:05:22 ast(0222 07-06-2007 20:10:32 ast(0222				Science Fold Mirror
1. 11 100, 10,10,00 ABC(0222			~	Probe Mechanics

Then, the instrument selection menu does come forth

Instrume		
• TEK	1024x1024F	
C MOS	i	
C Twir	i Spectrograph	
C Eche	elle	
CIBC	amera	

We easily select the desirable instrument and press OK

### **OBSERVATION SETTINGS**

Aristarchos Control GUI - "ast" as Astronomer					
File View Source Telescope M2 Enclosure AGU SFM FITS Exte	rnal Tests System Help				
System Information Fi	Iter Wheel 🔸 Positioning				
Operations Guiding System Weather Station Temperature Sensors	EK1024×1024 ► Stop Positioning				
SOURCE NGC6205(M13)	TELESCOPE		1		
right ascension declination 16h41m41.50s +36°27'39.0"	right ascension	declination	sky position angle		
equinox J2000	MODE SHUTTEB		air mass		
propermotion Δα NIL/yr Δδ NIL/yr (2000) parallax NIL offsets ξ 0"η 0"	date	universal time	UT1-UTC		
MODE	julian date	local startime			
ENCLOSURE MODE (windscreen on) SHUTTER	hour angle		parallactic angle		
wind screen elevation enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation		
INSTRUMENT port number instrument	INFO				
FOCUS	instrument specific offsets MI = 0	aperture offsets AX =	additional velocities		
CORRECTION	C0 = ×0 = Y0 =	AY =			
focus position focus position offset	10-				
07-06-2007 20:23:24 ast(02224): ERROR (878) in "SFM_task/SFM_GetData": work unit not initialised 07-06-2007 20:23:24 ast(02224): ERROR (2775) in "SFM_DefPars_form/TSFM_DefPars.getSfmBtnClick": could 07-06-2007 20:23:24 ast(02224): ERROR CHAIN: +878/2775/ 07-06-2007 20:23:37 ast(02224): DEBUG: CLOSING WINDOW BY CANCEL: Science Fold Mirror Default Paramete 07-06-2007 20:23:27 ast(02224): DEBUG: CLOSING WINDOW BY CANCEL: Science Fold Mirror Default Paramete 07-06-2007 20:23:27 ast(02224): DEBUG: CLOSING WINDOW BY CANCEL: Science Fold Mirror Default Paramete 07-06-2007 20:23:27 ast(02224): DEBUG: CLOSING WINDOW BY CANCEL: Science Fold Mirror Default Paramete					
07-06-2007 20:24:01 ast(02224): DEBUG: 0PEN WINDOW: Telescope Options 07-06-2007 20:24:01 ast(02224): ERROR (209) in "TEL_task/TEL_GetData": work unit not initialised 07-06-2007 20:24:01 ast(02224): ERROR (2605) in "TEL_Options.getTelEnClick": could 07-06-2007 20:24:01 ast(02224): ERROR CHAIN: +209/2605/ 07-06-2007 20:25:56 ast(02224): DEBUG: CLOSING WINDOW BY CANCEL: Telescope Options					

Go to central menu, External, Filter Wheel and Positioning

and the filter menu arises as shown. Choose appropriately and press OK

Help

Next, go to central menu, External, TEK1024x1024 and Exposure Settings

	Enclosure AGU SFM FITS Ext	ilter Wheel	tem Help		
stem Information		EK1024×1024	Generic Options	1	
Operations Guiding System Weatt SOURCE NGC6205(M13)		TELESCO	Exposure Settings		
right ascension 16 <sup>h</sup> 41 <sup>m</sup> 41 . 50≈ equinox J2000	declination +36°27'39.0''	MODE SHUTTEF	Start Exposures NS Stop Exposures Exposure Loop Exposure Stacking Start Stack Exposure Stop Stack Exposure	ination	sky position angle air mass
proper motion ∆a. NIL/yr parallax NIL offsets ξ 0" MODE	∆δ NIL/yr (2000) η 0"	date julian date	Download Image Stop Download Image Download All Images Reset Marks	ersal time I star time	UT1-UTC
ENCLOSURE			Cleanup Server		
MODE SHUTTER	(windscreen on)	hour angle			parallactic angle
wind screen elevation	enclosure azimuth	azimuth	ele	vation (reverse)	cassegrain rotation
INSTRUMENT port number	instrument	INFO			
FOCUS CORRECTION focus position	focus position offset	MI = 0 CO = XO = YO =	<u>pecific offsets</u> AX AY		additional velocities
-06-2007 20:24:01 ast(022 -06-2007 20:24:01 ast(022 -06-2007 20:25:56 ast(022 -06-2007 20:28:13 ast(022 -06-2007 20:28:13 ast(022 -06-2007 20:28:13 ast(022 -06-2007 20:28:13 ast(022	24): ERROR (209) in "TEL_c 24): ERROR (2605) in "TEL_ 24): ERROR (2605) in "TEL_ 24): DERUG: CLOSING WINDOW 24): DEBUG: CLOSING WINDOW 24): ERROR (1736) in "FLT_ 24): ERROR (2537) in "FLT_ 24): ERROR CHAIN: ±1736/25 24): DERUG: CLOSING WINDOW	Options_form/ 5/ BY CANCEL: T ilter Wheel S task/FLT_GetD Handling_form 37/	TTEL_Options.getTelB elescope Options ettings ata": work unit not /TFLT_Handling.getFL	tnClick": could TCC GPC FCC TBtnClick": cou	Mill mode off ping       Image of ping       Image of ping       Image

and the observation selection menu develops as follows

ZESS CCD Settings		- 🗆 ×
object name	object	-
file name	file	
image type		
exposure time (s)	60	# 1
binning	× 1	
	у 1	
region of interest	× 1	- 1024
	у 1	- 1024
OK Cancel		Help 👻

On the option image type, we may pick object (real observation), dark, bias or flat

CCD Settings		- 🗆 X
object name	object	-
file name	file	
image type		
exposure time (s)	object ;	# 1
binning	dark bias	
	у 1	
region of interest	× 1 –	1024
	у 1 –	1024
OK Cancel		Help 🗸

After fixing the observation status, we then Start Exposures as shown below

File View Source Telescope M2 Enclo			em Help	1	
System Information   Operations   Guiding System   Weather Sta	TEL	er Wheel	Generic Options Exposure Settings		
16h41m41.50s +. equinox	eclination 36°27'39.0''	TELESCO right ascent	Start Exposures Stop Exposures Exposure Exposure Stacking Start Stack Exposure	ination	sky position angle air mass
parallax NIL	s NIL√yr (2000) 1 0"	SHUTTEF date julian date	Stop Stack Exposure	ersal time I star time	UTI - UTC
ENCLOSURE			Cleanup Server		
MODE (W SHUTTER	rindscreen on)	hour angle			parallactic angle
wind screen elevation er	nclosure azimuth	azimuth	elev	∕ation (re∨erse)	cassegrain rotation
INSTRUMENT port number in:	strument	INFO			
EOCUS CORRECTION focus position fo	cus position offset	<u>instrument s</u> MI = 0 C0 = X0 = Y0 =	<u>pecific offsets</u> <u>ape</u> AX = AY =		additional velocities
7-06-2007 20:30:56 ast(02224): 7-06-2007 20:32:42 ast(02224): 7-06-2007 20:32:42 ast(02224): 7-06-2007 20:32:42 ast(02224): 7-06-2007 20:36:27 ast(02224): 7-06-2007 20:36:27 ast(02224): 7-06-2007 20:36:27 ast(02224): 7-06-2007 20:36:27 ast(02224):	DEBUG: OPEN WINDOW: CCI ERROR (1828) in "CCD_ts ERROR (2532) in "CCD_He ERROR CHAIN: +1828/2533 ERROR (1812) in "CCD_ts ERROR (2528) in "CCD_He ERROR CHAIN: +1812/2528	) Settings ask/CCD_GetD andling_form 2/ ask/CCD_SetP andling_form 3/	ata": work unit not /TCCD_Handling.getCCD arameters": work unit /TCCD_Handling.Execut	initialised T DBtnClick": cou G : not initialis F	Build aurmity     ping       CC     X     Telescope       pFC     X     M2       CC     X     Enclosure       GC     X     Temperature Sensors       Y     Weather Station       X     Piche Mechanics

### **ENCLOSURE**

We may open the enclosure (dome) simply by going to central menu, Enclosure, Shutter

📽 Aristarchos Control GUI - "as	st" as Astronomer			
File View Source Telescope M2	Enclosure AGU SFM FITS E	xternal Tests System Help		
System Information	Options Default Parameters			
Operations Guiding System Weath		Miscellaneous		
SOURCE NGC6205(M13)	Control Panel Absolute Positioning	TELESCOPE		
right ascension 16h41m41.50s	Relative Positioning Stop Positioning	right ascension	declination	sky position angle
equinox <b>J2000</b>	Constant Velocities Stop Constant Velocities	MODE		air mass
proper motion کα NIL/yr parallax NIL offsets ह 0"	Automatics Windscreen	date	universal time	UT1-UTC
MODE	Reversion Shutter Left Fan	julian date	local star time	
ENCLOSURE MODE	Right Fan (windscreen on)	hour angle		parallactic angle
SHUTTER wind screen elevation	enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation
INSTRUMENT port number	instrument	INFO		
FOCUS CORRECTION		instrument specific offsets MI = 0 C0 = X0 =	<u>aperture offsets</u> AX = AY =	additional velocities
focus position	focus position offset	Y0 =		
		OW BY CANCEL: Filter Wheel Set	ctings 🔥 Server	dummy full mode off ping
7-06-2007 20:32:42 ast(0222 7-06-2007 20:32:42 ast(0222 7-06-2007 20:36:27 ast(0222	44):       ERROR (1828) in "CC         44):       ERROR (2532) in "CC         44):       ERROR CHAIN: +1828/         44):       ERROR (1812) in "CC         44):       ERROR (2528) in "CC	D_task/CCD_GetData": work unit D_Handling_form/TCCD_Handling 2532/ D_task/CCD_SetParameters": wor D_Handling_form/TCCD_Handling 2528/	getCCDBtnClick": cou GPC FCC rk unit not initialis FPC	Telescope     K M2     Enclosure     GPS     Weather Station     Science Fold Mirror

For the enclosure to follow the telescope we press Automatics (central menu, Enclosure)

Aristarchos Control GUI - "as	st" as Astronomer					
File View Source Telescope M2	Enclosure AGU SFM FITS Ex	ternal Tests System Help				
System Information	Options					
Operations Guiding System Weath	Default Parameters	Miscellaneous				
SOURCE NGC6205(M13)	Control Panel	TELESCOPE		1		
right ascension	Absolute Positioning	right ascension	declination	sky position angle		
16h41m41.50s	Relative Positioning Stop Positioning	ingin accontion		ory promon angle		
equinox	Constant Velocities	MODE		air mass		
J2000	Stop Constant Velocities	SHUTTER				
proper motion ∆∞ NIL/yr	Automatics	Shorren				
parallax NIL offsets ६ 0"	Windscreen	date	universal time	UT1-UTC		
	Reversion					
MODE	Shutter Left Fan	julian date	local star time			
ENCLOSURE	Right Fan					
MODE	(windscreen on)	hour angle		parallactic angle		
SHUTTER	· · ·					
wind screen elevation	enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation		
				_		
INSTRUMENT						
	instrument	INFO				
portnumber	Instrument					
		instrument specific offsets	aperture offsets	additional velocities		
FOCUS		MI = 0 C0 =	AX = AY =	-		
CORRECTION		×0 =	A) -			
focus position	focus position offset	Y0 =				
locus position	locus position oliset					
<u>.</u>						
07-06-2007 20:30:56 ast(0222 07-06-2007 20:32:42 ast(0222		W BY CANCEL: Filter Wheel Set	tings 🔬 Server	full mode off ping		
		_task/CCD_GetData": work unit		Telescope		
		Handling_form/TCCD_Handling.				
07-06-2007 20:32:42 ast(0222 07-06-2007 20:36:27 ast(0222		532/ task/CCD SetParameters": worl	FCC			
		_Handling_form/TCCD_Handling.1		Temperature Sensors		
07-06-2007 20:36:27 ast(0222				Weather Station		
07-06-2007 20:36:27 ast(0222	17-06-2007 20:36:27 ast(02224): DEBUG: CLOSING WINDOW BY O.K.: CCD Settings					

### **WINDSCREEN**

This option is activated by default. If we wish to raise or lower the windshield, we may go to central menu, Enclosure, Absolute Positioning, where the following window appears

🖀 Aristarchos Control GUI - "ast" as Astronomer 💦 🔲 💌						
File View Source Telescope M2	Enclosure AGU SFM FITS I	External Tests System Help				
System Information	Options					
Operations Guiding System Weath	Default Parameters	Miscellaneous				
SOURCE NGC6205(M13)	Control Panel	TELESCOPE				
right ascension 16h41m41.50s	Absolute Positioning Relative Positioning Stop Positioning	right ascension	declination	sky position angle		
equinox J2000	Constant Velocities Stop Constant Velocities	MODE SHUTTER		air mass		
proper motion Δα NIL/yr parallax NIL offsets ξ 0"	Automatics Windscreen Reversion	date	universal time	UT1-UTC		
MODE	Shutter Left Fan Right Fan	julian date	local star time			
MODE SHUTTER	(windscreen on)	hour angle		parallactic angle		
wind screen elevation	enclosure azimuth	azimuth	elevation (reverse)	cassegrain rotation		
INSTRUMENT port number	instrument	INFO	ts aperture offsets	additional velocities		
FOCUS		MI = 0	AX =	<u>additional velocities</u>		
COBBECTION		C0 =	AY =			
focus position	focus position offset	×0 = Y0 =				
07-06-2007 20:43:16 ast(0222			ositioning.getTelFixBtnCl ⊼ S	erver full mode off ping		
07-06-2007 20:43:16 ast (02224): ERROR CHAIN: +209/2616/						
GPC M2						
07-06-2007 20:43:30 ast(0222						
07-06-2007 20:43:30 ast(0222 07-06-2007 20:43:30 ast(0222				PC Temperature Sensors		
07-06-2007 20:43:30 ast(0222			OFFICIALITY, GEOMODORCIICA	Weather Station		
07-06-2007 20:43:36 ast(02224): DEBUG: CLOSING WINDOW BY CANCEL: Enclosure Positioning						

Enclosure Positioning						
🔽 enclosure azimuth						
000° 00' 00.000	н					
vind screen elevation						
+00°00'00.000	n					
OK Cancel	Help					

and choose a desirable elevation limit as below (afterdeactivating the enclosure azimuth option)

Enclosure Positioning	
🗆 enclosure azimuth	
000° 00' 00.000"	
$\overline{\mathbf{v}}$ wind screen elevation	
+00° 00' 00.000"	
OK Cancel	Help

**<u>NB</u>**: The windscreen elevation, has a maximum value of 70 degrees.

### **CHANGING FROM ONE TARGET TO ANOTHER USING GUIDING**

To change the target during an observation (using guiding) we do the following: Deactivate Blind Offset Guiding in the menu AGU:

🎬 Aristarchos Control GUI - "ast" as Astronomer							
File View Source Telescope M2 Enclosure	AGU SFM FITS Externe	Tests System Help					
System Information	Mechanics	•					
Operations Guiding System Weather Station	CCDs	•					
SOURCE <none></none>	Guide Star Selection	COPE					
right ascension declin	Co-ordinate Correction Guidin	ension	declination	sky position angle			
equinox		DDE IUTTER		air mass			
propermotion Δα. Δδ parallax offsets ξ η	, / dat	te	universal time	UT1-UTC			
MODE	julia	an date	local star time				
ENCLOSURE MODE (winds SHUTTER	creen <b>/</b> on) hou	ur angle		parallactic angle			
wind screen elevation enclos	sure azimuth azir	muth	elevation (reverse)	cassegrain rotation			
INSTRUMENT port number instrum	nent	FO					
FOCUS , CORRECTION / focus position / focus	inst MI = C0 = X0 = Y0 =	=	<u>aperture offsets</u> AX = AY =	additional velocities			
08-06-2007 20:26:04 nobody(02976): control program initiated 08-06-2007 20:26:21 ast(02976): login as Astronomer 08-06-2007 20:26:21 ast(02976): debug logging mode on 08-06-2007 20:26:21 ast(03000): STATUS (Aristarchos Control Thread): control thread initialised FCC FCC FCC FCC FCC							

Then reset blind offsets option in the Telescope menu:

🐃 Aristarchos Control GUI - "ast" as Astronomer							
File View Source Telescope M2 Enclosure AGU SFM FITS External Tests System Help							
System Information	on Options						
Operations Guiding	Default Parameters	ature Sensors Miscellaneous					
SOURCE <n< td=""><td>Control Panel</td><td></td><td>TELESCOPE</td><td></td><td>1</td></n<>	Control Panel		TELESCOPE		1		
	Absolute Positioning			at a set the set of the set	- 1		
right ascension	Special Absolute Positioning		right ascension	declination	sky position angle		
	Relative Positioning						
equinox	Stop Positioning Additional Velocities		MODE		air mass		
	Stop Additional Velocities		SHUTTER				
proper motion parallax							
offsets	Shutter		date	universal time	UT1-UTC		
	Tracking Reversion						
MODE	Refraction		julian date	local star time			
ENCLOSURE	Pointing						
MODE	Displacement Compensation	on)	hour angle		parallactic angle		
SHUTTER	Instrument Offsets	5119	inour airigio		paranaono anglo		
wind screen ele	Aperture Offsets	imuth	azimuth	elevation (reverse)	cassegrain rotation		
wind bereen eie	Reset Aperture Offsets	Indu	dennuur	(1000100)	cassegramoaan		
	Reset Blind Offsets						
INSTRUMEN	Pointing Tests		INFO				
port number	Position Measurements						
	Observation Definitions			<i>a a b b b b b b b b b b</i>	L PC A L P		
FOCUS			instrument specific offsets MI = 0	aperture offsets AX =	additional velocities		
COBBECTION		C0 =	AY =				
CURRECTION	N		×0 =				
focus position focus position offset			Y0 =				
Preside Law of the second seco							
08-06-2007 20:26:04 nobody(02976): control program initiated Server full mode of ping							
08-06-2007 20:26:21 ast (02976): debug logging mode on TCC							
	6:21 ast(02976): administ				GPC M2		
					EPC Temperature Sensors		
					Weather Station		
					Science Fold Mirror		