



2011

CURSUS IN HET GEBRUIK VAN DE AFSTANDSBESTUURBARE TELESCOOP ABT VAN METIUS

Frans Nieuwenhout,

November, 2011

Inhoud

- Intro: Wat is de ABT en hoe is hij gemaakt
- Enkele resultaten
- Hoe kan de ABT gebruikt worden?

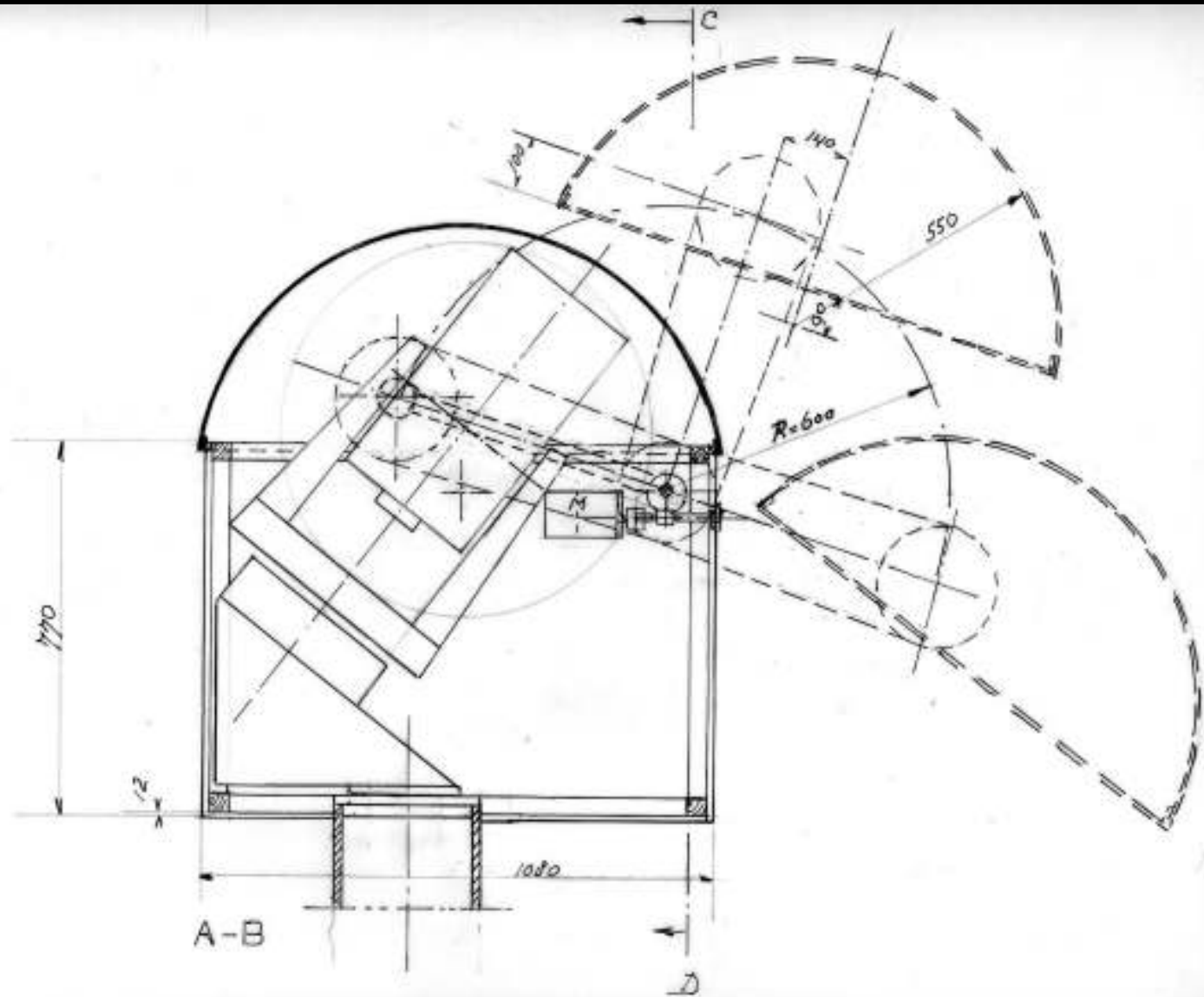
ABT in vogelvlucht

- Voor opnames van sterren, planetoiden, kometen, en melkwegstelsels
- Minder geschikt voor planeten en melkweg
- Budget: 6000 euro
- Subsidie van Prins Bernhardfonds: 2300 euro
- Steun van Universiteit van Amsterdam: ST7 camera plus filterwiel

Het idee: Gunn, Sky&Telescope 10/97

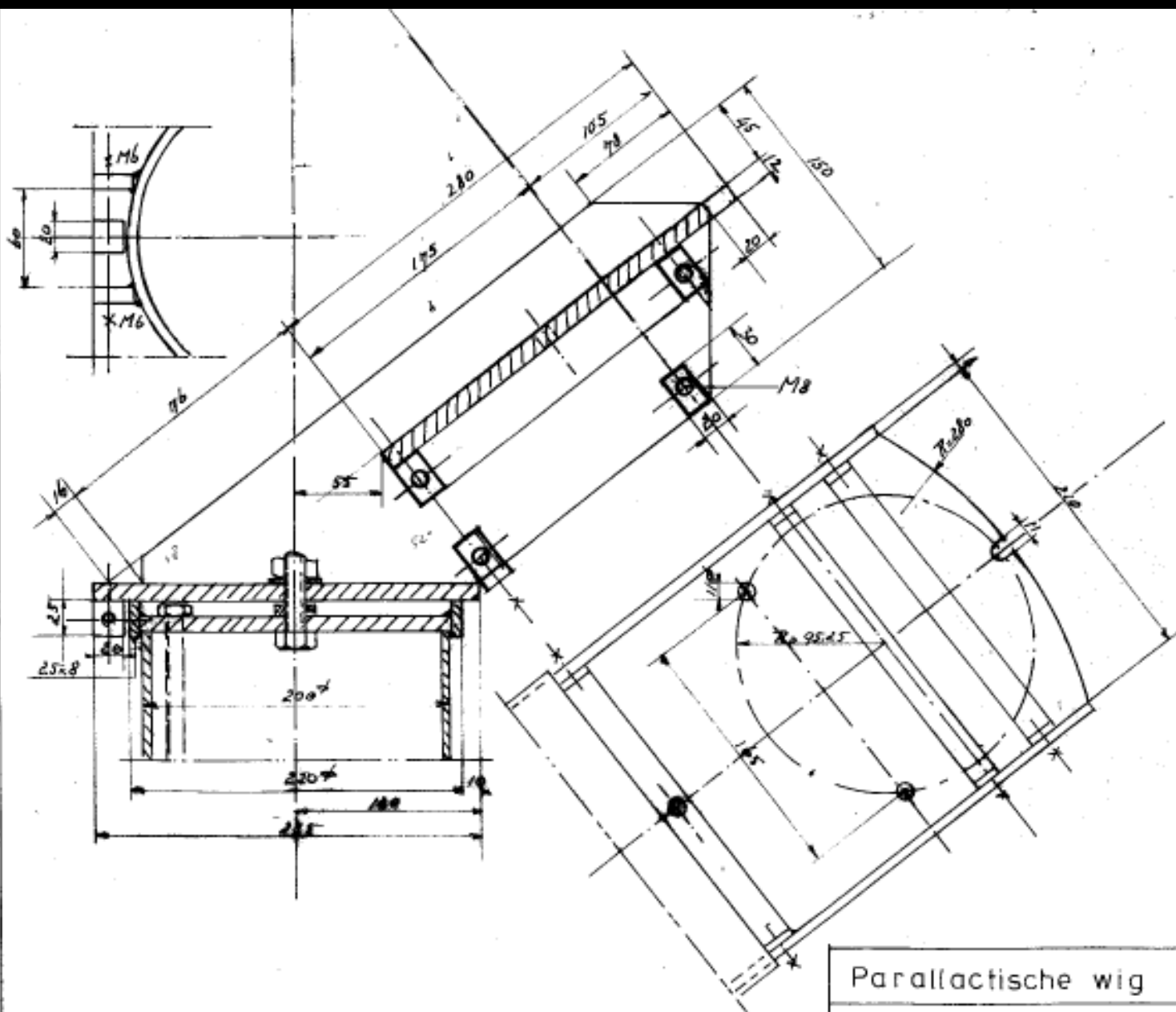


Eerste tekening behuizing (Jan Deugd)



Schaalmodel waarbij de aandrijving in de kist blijft: minder gevoelig voor weer





Parallactische wig		A3	
MÉTIUS	28-10-04	1:5	0402 b













Frame voor de behuizing en de equatoriale wig



Afstandsbestuurbare Telescoop(ABT)



- Eigendom van Metius en gebouwd door leden in 2004/2005
- Doel: leden van Metius van huis uit een telescoop en camera te laten bedienen

(ABT)

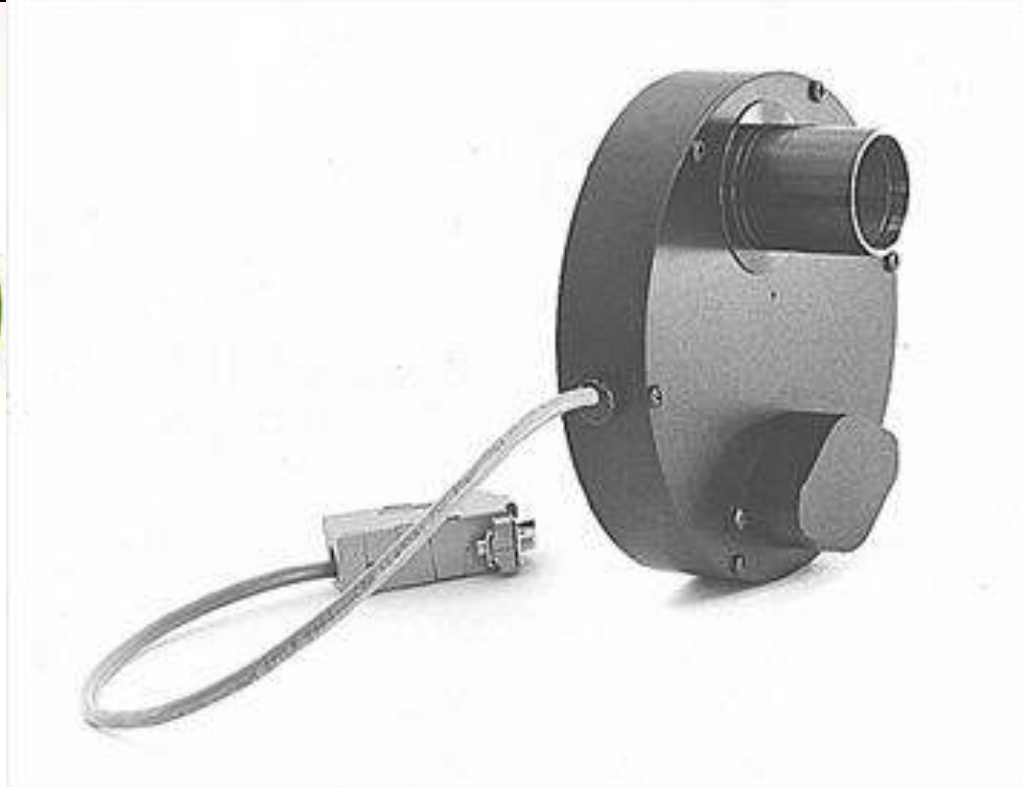


- 10" Meade teleskoop en een SBIG ST402 CCD camera die beiden via internet kunnen worden aangestuurd
- In bijna 7 jaar tijd meer dan 35,000 CCD opnames

Van mei 2005- mei 2006
HX516 camera (660x494 pixels of 7,4 μm)



Van mei 2006 tot maart 2007: ST-7XME
camera met filter wiel met BVR filters



Vanaf maart 2007: ST-402ME camera met filter
wiel met IR-BV filters

Zelfde CCD als ST7, maar veel compacter:
Geen problemen dat camera tegen kist stoot



Voorbeelden van resultaten

Bolvormige sterhoop door Marco Seynen (29 August 2005)



Messier 3 door Inge van de Stadt



M3 door Gerard Hoogeland



M51 (links) op 3 Mei 2005, en (rechts) met
supernova SN2005cs op 31 Augustus 2005



Sluiernevel in de Zwaan door Rian van der Weiden



Hoe te gebruiken?

Opstartscherm van de ABT software

FileEditViewHelp

StatusEnvironmentTelescopeCameraHistoryMessagesAdmin

Server:	86.83.65.237:3195		
User:	Nieuwenhout		
Status:	Connected [00:03:03]		
Last power on:	10/17/10 - 11:14:08		
Site:	Latitude: 52°40'07"	Longitude: 355°13'44"	

Operator :	Nieuwenhout	Request	Release
Housing:	Closed	Open	Close
Power:	On	On	Off

Rise & set times at site:

	Sun:		Moon:	
	Rise:	Set:	Rise:	Set:
16 Oct	08:08	18:44	16:14	00:52
17 Oct	08:09	18:41	16:31	02:02
Moon:	Waxing gibbous [18/10/2010 02:11]			

Bedieningsknoppen

Menus

10] Metius (c) AbtClient v1.17.26.0
12] Connecting to ABT server.
12] Sending login...
12] Login succesful.
12] <System> Welcome Frans Nieuwenhout, you are here for the 882 time, last time was on 'Saturday 16 October 2010 20:55:39' with IP:86.83.65.237
12] 1 user(s) are online (Nieuwenhout).
12] <AbtServer> Nieuwenhout is now operator.
14] <AbtServer> Telescope: WARNING: Elevation is not at expected position, but at Alt: 54°26'13"!

Full Name	Ima
Frans Nieuwenhout	5

Opstartscherm van de ABT software

Software interface for the ABT system, showing status, environment, telescope, camera, history, messages, and admin tabs.

Bedienings knoppen (Control buttons)

Verzoek om bediening: request (Request for operation: request)

Bediening weer afstaan: release (Operation returned: release)

Wie bedient? (Who is operating?)

Staat de stroom aan? (Is the power on?)

Is de kist open of dicht? (Is the box open or closed?)

Het log: wat is er gebeurd? (The log: what has happened?)

Wie zijn er online? (Who is online?)

Server: 86.83.65.237:3195
User: Nieuwenhout
Status: Connected [00:03:03]
Last power on: 10/17/10 - 11:14:08
Site: Latitude: 52°40'07" Longitude: 355°13'44"

Rise & set times at site:

	Sun:		Moon:	
	Rise:	Set:	Rise:	Set:
16 Oct	08:08	18:44	16:14	00:52
17 Oct	08:09	18:41	16:31	02:02

Moon: Waxing gibbous [18/10/2010 02:11]

Operator: Nieuwenhout
Housing: Closed
Power: On

Buttons: Request, Release, Open, Close, On, Off

Log messages:

```
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```

User list:

Full Name	Ima
Frans Nieuwenhout	5



Sensor data:

Table

Graph

Last 24 hours Select day 10/30/2011

Location	Quantity	Value
Outdoor	Temperature	16.5 °C
Indoor	Temperature	24.9 °C
Telescope	Temperature	22.3 °C
Computer	Temperature	19.3 °C
Outdoor	Humidity	70 % 11.0 °C
Indoor	Humidity	54 % 14.9 °C
Telescope	Humidity	59 % 13.9 °C
Computer	Humidity	72 % 14.1 °C
Outdoor	Airpressure	1018 hPa
Outdoor	Lightlevel	100.0 %
Outdoor	Cloudlevel	111 %
Outdoor	Windspeed	2.00 m/s
Outdoor	Rain	Dry
System	Equipment	Off
System	Housing	Closed
System	Heating	Off
System	Dehumidifier	Off
System	Connected users	1
System	Cpu load	0.0 %
Outdoor	Cloud NTC Vol...	1.00 V
Outdoor	Cloud IR Voltage	1.00 V

**Environment menu:
metingen van lokaal
weerstation**

File Edit View Help

Status **Environment** Telescope Camera History Messages Admin

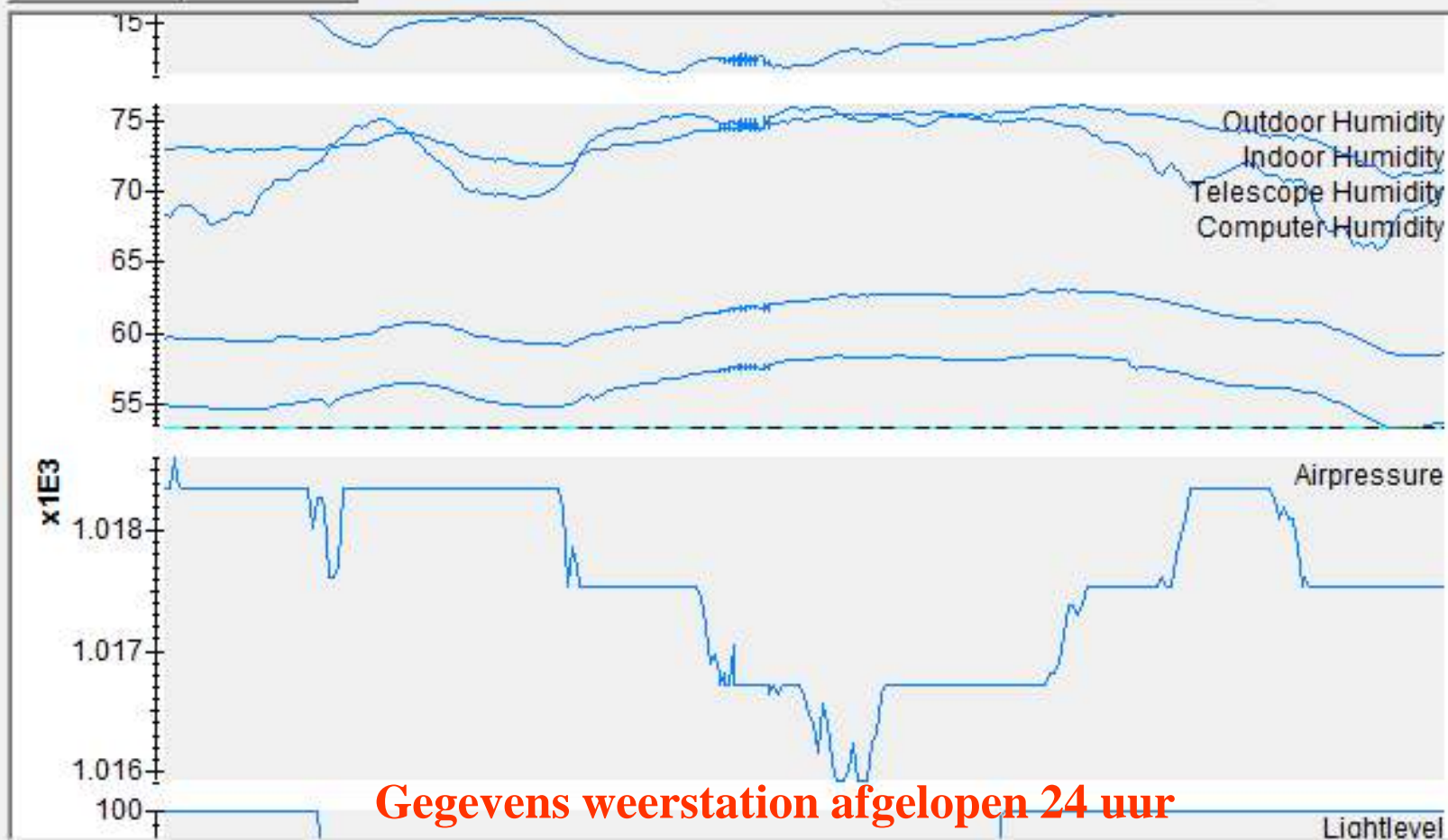
Sensor data:

Table

Graph

☒ Last 24 hours ☐ Select day

10/30/2011

**Gegevens weerstation afgelopen 24 uur**

Menu om de teleskoop aan te sturen

Move: N, E, Stop, W, S

Speed: ☒ Guide, ☐ Centre, ☐ Find, ☐ Max

Goto: Database: Messier, Target: Messier M1, Selected: Messier M1, R.A.: , Dec.: , Size: , Edit, Select, Goto, Select, Update pos to target, Sync

History: Previous sync: R.A.: , Dec.: , Position: R.A.: 8h03'33", Dec.: 38°47'45", Azi.: 268°17'12" W, Alt.: 53°17'43"

Focus: +, -, ☒ Fast, ☐ Slow

Status: Action: Ready..., Command:

Kies uit een aantal
verschillende databases

Hier: Messier catalogue

0] Metius (c) AbtClient v1, 17, 26, 0
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Menu teleskoop aansturing

File Edit View Help

Telescope Environment Camera History Messages Admin

Move: N E Stop W S

Speed: ☒ Guide ☐ Centre ☐ Find ☐ Max

Goto: Database: User defined objects Edit
Target: Per FO UG Select
Selected: Per AI
Per DY SRb
Per FO UG
Per FY UGZ
Per GK DQ
Per KT UG
Per MR
Per NS UG
Per PT UG
R.A.: Size: Select
Update pos to target.
Sync

History: Previous sync: R.A.: Dec.:
Position: R.A.: 8h03'33" Dec.: 38°47'43"
Azi.: 271°29'33" W Alt.: 50°51'21"

Focus: + - ☒ Fast ☐ Slow

Status: Action: Ready...
Command:

Je kunt ook je eigen lijst van waarneemobjecten maken

Hier: mijn persoonlijke lijst van variabele sterren

```
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Menu voor telescoop aansturing

Status | Environment | **Telescope** | Camera | History | Messages | Admin

Move:

Speed: ☒ Guide ☐ Centre ☐ Find ☐ Max

Goto: Database:
 Target:
 Selected:
 R.A.: Dec.:

History: Previous sync: R.A.: Dec.:

Position: R.A.: Dec.:
 Azi.: Alt.:

Synchronize: Update pos to target.

Focus: ☒ Fast ☐ Slow

Status: Action: Command:

1) Selecteer het gekozen object

2) Druk op 'goto' knop

3) Zie wat er met de telescoop gebeurt: Zodra object bereikt is wordt 'Action' vernieuwd en verschijnt: 'slew completed'

```
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2] <AbtServer> Nieuwenhout is now operator.
4] <AbtServer> Telescope: WARNING: Elevation is not at expected position, but at Alt: 54°26'13"!
1] <AbtServer> Target is currently at Azi: 319°32'48" NW and Alt: 27°53'45" (Limit: 26).
```

Full Name	Image
Frans Nieuwenhout	5

[illegible]

```
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11] <AbtServer> Target is currently at Azi: 319°32'48" Nw/ and Alt: 27°53'45" (Limit: 26).
```

Full Name	Ima
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[illegible]

Full Name	Image
Frans Nieuwenhout	5

[illegible]

Full Name	Image
Frans Nieuwenhout	5

Menu voor telescoop aansturing

Status | Environment | **Telescope** | Camera | History | Messages | Admin

Move:

Speed: ☒ Guide ☐ Centre ☐ Find ☐ Max

Goto: Database:
 Target:
 Selected:
 R.A.: Dec.:

History: Previous sync: R.A.: Dec.:

Position: R.A.: Dec.:
 Azi.: Alt.:

Synchronize:

Focus: ☒ Fast ☐ Slow

Status: Action:
 Command:

Na een (preview) opname eventueel:

- 1) Object centreren
- 2) Beter scherpstellen door op Focus knop + of - te drukken
- 3) Opnieuw een (preview) opname maken

```

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```

Full Name	Image
Frans Nieuwenhout	5

EditViewHelp

Data base alle waarnemingen

StatusEnvironmentTelescopeCameraHistoryMessagesAdmin

Query:

☒ Last 10 images
☐ Last 24 hours
☐ Advanced
☐ DarkFrame
☐ FlatField

Search

Images:

Result:

Search done, found 10 images.

Show

ID	RA	Dec	Date/Time (GMT)	Exp	User	Filter	Mode	CCD ...	Object	Filename
22690	04h 08' 37"	51° 14' 29"	Sun 17-Oct-2010 10:26:09	0.1s	Frans Nieuwenhout	Blue	Light	10.7	Per FO UG	2010\PerFOUG-NIE-201
L22689	18h 25' 54"	38° 47' 30"	Sun 10-Oct-2010 20:26:24	5s	Frans Nieuwenhout	IR	Light	4.9	Zenit	2010\Zenit-NIE-2010101
L22688	18h 25' 54"	38° 47' 30"	Sun 10-Oct-2010 20:24:24	5s	Frans Nieuwenhout	IR	Light	4.9	Zenit	2010\Zenit-NIE-2010101
L22687	18h 36' 57"	38° 05' 59"	Sun 10-Oct-2010 19:55:42	10s	Frans Nieuwenhout	VBand	Light	4.5	#214 Vega, alf Lyr	2010\214VegaalfLyr-NIE
L22686	18h 32' 15"	36° 08' 38"	Sun 10-Oct-2010 19:49:00	20s	Frans Nieuwenhout	VBand	Light	3.6	Unknown	2010\Unknown-NIE-201
L22685	18h 32' 15"	36° 08' 40"	Sun 10-Oct-2010 19:48:14	10s	Frans Nieuwenhout	VBand	Light	3.2	Unknown	2010\Unknown-NIE-201
L22684	22h 15' 26"	49° 28' 16"	Sun 03-Oct-2010 12:21:12	0.1s	Marco Seynen	VBand	Light	-14.4	Unknown	2010\Unknown-SEY-201
22683	22h 12' 42"	49° 28' 16"	Sun 03-Oct-2010 12:18:28	0.1s	Marco Seynen	IR	Light	-14.4	Unknown	2010\Unknown-SEY-201
L22682	17h 51' 51"	37° 32' 43"	Sat 15-May-2010 00:33:18	60s	Inge van de Stadt	VBand	Light	-20.0	TrES-3b	2010\TrES3b-STA-20100
22681	17h 51' 51"	37° 32' 45"	Sat 15-May-2010 00:32:16	60s	Inge van de Stadt	VBand	Light	-20.4	TrES-3b	2010\TrES3b-STA-20100

```

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2] <AbtServer> Nieuwenhout is now operator.
4] <AbtServer> Telescope: WARNING: Elevation is not at expected position, but at Alt: 54°26'13"!
1] <AbtServer> Target is currently at Azi: 319°32'48" Nw/ and Alt: 27°53'45" (Limit: 26).
0] <AbtServer> Telescope is pointing below the observable horizon, image may be blocked!! Azi: 322°18'38" Nw/ Alt: 25°59'43" / Limit: 26.
6] <AbtServer> Image taken by Nieuwenhout, at RA:4h08'37" Dec:51°14'29", exposure:0.1s, size:762kb, ID:22690
  
```

Full Name	Image
Frans Nieuwenhout	6



Vragen?