Comet measurements using ASTAP

Using the files supplied by Nick James:

https://nickdjames.com/comphot/Examples/2022E3/

The files are stacks on the stars and the comet. These are not necessarily how I would use ASTAP for comet photometry so this is a bit of a fix. Han, the author of ASTAP, describes his technique here:

https://www.youtube.com/watch?v=BEjcSm_cZx8

These are the steps I took to make the measurements:

Platesolving and setting of MZERO is done on the stack on stars since it can't be done on the comet stack as stars are trailed. The aperture on the Photometry tab has to be set to maximum to allow it to calculate sky background

Blink	he Pho	otometry	QIn	spector	R	N
Ap	erture:	max	~	Annul	us:	5

The second secon	4 C G 152(G)	15/05/2 T 2.44	Xertechnik	STRUE : I Gualance to FITS a
Tik 0.	r 5 - 1942	9828TU: 2		IVIS - 72 Industrial Action IVIS - 72 Industrial Action
Collectional Contract (CCC 200) Program Collection and Collection (CCC 200) Program	I Reogram:	4	was -	ACTINE - Collection (Collection) Collection (Collection) CARE - Collection (Collection) CARE - Collection (Collection) CARE - Collection (Collection)
		Lan+	Cleans 6 serve	STUD - C 27MULTIDUCCE 3. / Other is support OWLAS - C HUBBERTHEIDER V / Value for a IMTE-MCS (2020-01-0370) 15 17 / Cranton et supported
	Manage	100	• 4 F	-Tran Scale SCHIER - Still JI - Square from tools SCHIER - Still JI - Square from tools
	Section 2	the second		
	100 C			
	Set Post.			
Statistics and a Paul Statist	and the log of	1.1.1		
	and the second			
*Default for ensure hopes patients and KOOK (2010) Adjusting colour levels and on the analysis dealers, Sec. (2010) Proceedings of the section of COC	and a state of the			Sec. Sec.
2012-17 Adjusting order a fixed and a characteristic an deather. New 1920-25 Tex collection descent. For megnitude reconcernents in ele-				
	Sec. 4. 1. 194			
	233			
	15 2 575 +9510 401	15-12-55-58 +59°-C 40.4	180 43, FM M 35 5HE 720	2810 385 12 (10/01/35/57) (01 40)

In the image viewer window, click the Solve button to platesolve (takes <0.5s) and to calculate MZERO use Tools \rightarrow Calibrate photometry (or Ctrl-U). This sets fields in the FITS header so now click "Save new header"

Because the comet stack can't be platesolved, need to copy FITS header values (platesolve details and MZERO) from the first window and copy to the comet stack FITS header window – they can easily just be copied or edited. (This is the fix!)



This allows measurements to be made. To see the extent of the coma you can stretch the histogram, either using the presets or manually.



I chose to rotate the image (Tools \rightarrow Rotate image) so I could draw an ellipse around the coma. Right-click mouse and drag around the coma. Holding the ctrl key at the same time as dragging for an ellipse, or without gives a rectangle. Might take a few attempts the get the best fit.



Select **Measure total magnitude within shape** gives a magnitude written next to the image.

To measure the size of the coma, again drag from the edges of the coma and select **Angular distance**

Add rectangle with annotation Add marker Add object position short Add marker at o, 8 position Measure total magnitude within shape Angular distance Object 1, no lock Object 2, no lock 1707.06" ± 287.25°			Add annotation
Add marker Add object position Add object position short Add marker at o, & position Measure total magnitude within shape Angular distance Show statistics within shape Angular distance Object 1, no lock Object 2, no lock 1707.06" ± 287.25°			Add rectangle with annotation
Add object position Add object position short Add marker at q, & position Measure total magnitude within shape Angular distance Angular distance Angular distance Object 1, no lock Object 2, no lock 1707.06" ± 287.25°			Add marker
Add object position short Add marker at α, δ position Measure total magnitude within shape Angular distance (7) Show statistics within shape Angular distance (7) Show statistics within shape (7) Show st		Start Barris	Add object position
Add marker at o, & position Measure total magnitude within shape Angular distance Angular distance Angular distance Object 1, no lock Object 2, no lock 1707.06" ± 287.25°	A Charles and		Add object position short
Angular distance Angular distance Angular distance Angular distance Object 1, no lock Object 2, no lock 1707.06" 2287.25°	and the second	and a contract	Add marker at α , δ position
Angular distance Angular distance Angular distance Object 1, no lock Object 2, no lock 1707.06" ± 287.25°			Measure total magnitude within shape
Angular distance Object 1, no lock Object 2, no lock 1707.06" 287.25°	日本語の記述		Angular distance
Angular distance Object 1, no lock Object 2, no lock 1707.05" ± 287.25°	A CARLES AND A CARLES		Show statistics within shape
Object 1, no lock Object 2, no lock 1707.06" ∠ 287.25°			
Object 1, no lock Object 2, no lock 1707.06" ∠ 287.25°	6		F
	Angular distance		

You can also remove objects from any measurement aperture by selecting them (dragging mouse again) and selecting **remove deep sky object**. This allows you to remove any bright stars that might affect photometry measurements.