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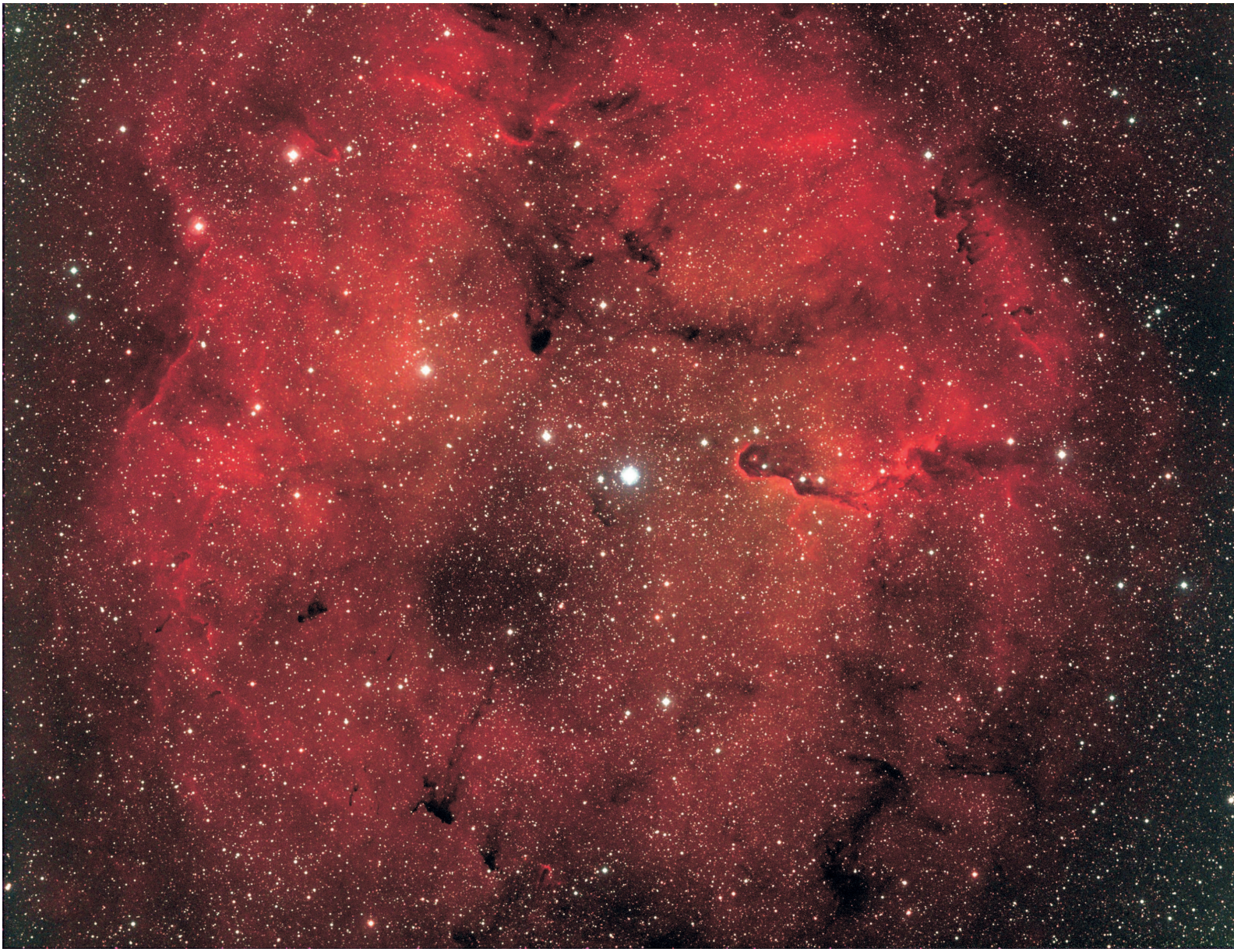

La Palma Visit | DSP 7 Reviewed | AGM 2016

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Deep Sky Planner 7: A Review

Jonathan Gale

$75 (download option)
Website: http://knightware.biz/

Whilst there is a plethora of software for the imager and technical astronomer, it seems to me the visual observer has little left to choose from. Free software titles such as *Stellarium, Hello Northern Sky*, and *Cartes Du Ciel* (CDC) are always popular, but for charting and planning I believe you need to make a purchase. A year or so ago, the choice was wider, but now there are really only two packages in development contending for your money; *Sky Tools 3* and *Deep Sky Planner* 7 (DSP). I confess I am a dyed-in-the-wool *Sky Tools* user, so I was intrigued when approached to write this review and see how the competition fared, particularly as I had considered purchasing the software a year or so ago.

I am a purely visual observer, so my review will look at the tasks a typical visual observer would do:

- Inputting equipment, observer and location details
- Creating observing lists with user chosen objects and those suggested by the system
- Generating charts
- Logging observations
- Comparing observations with photographs

The philosophy behind DSP is rather different to the one I am familiar with; I am used to having lists drawn from catalogues which then become my observing plan; with DSP you have separate object lists and observing plans, or you can add objects directly to your plan, one by one. You are also offered observing projects, which is a way of allotting observations to multiple projects, ideal if you are doing *Astronomical League* programmes.

Logging of observations is also rather spectacular with the vast amount of information that can be recorded for each observation, from the eyepiece used, to the reading from the SQM, or for your own images/sketches to be linked to an observation if you wish.

Charting is external to DSP with the software linking to *CDC, Starry Night Pro, Sky X Pro*, or *Redshift*. For the purposes of this review, I used *CDC version 3* to generate the charts.

So to the software and the first port of call, setting it up.

Setting up

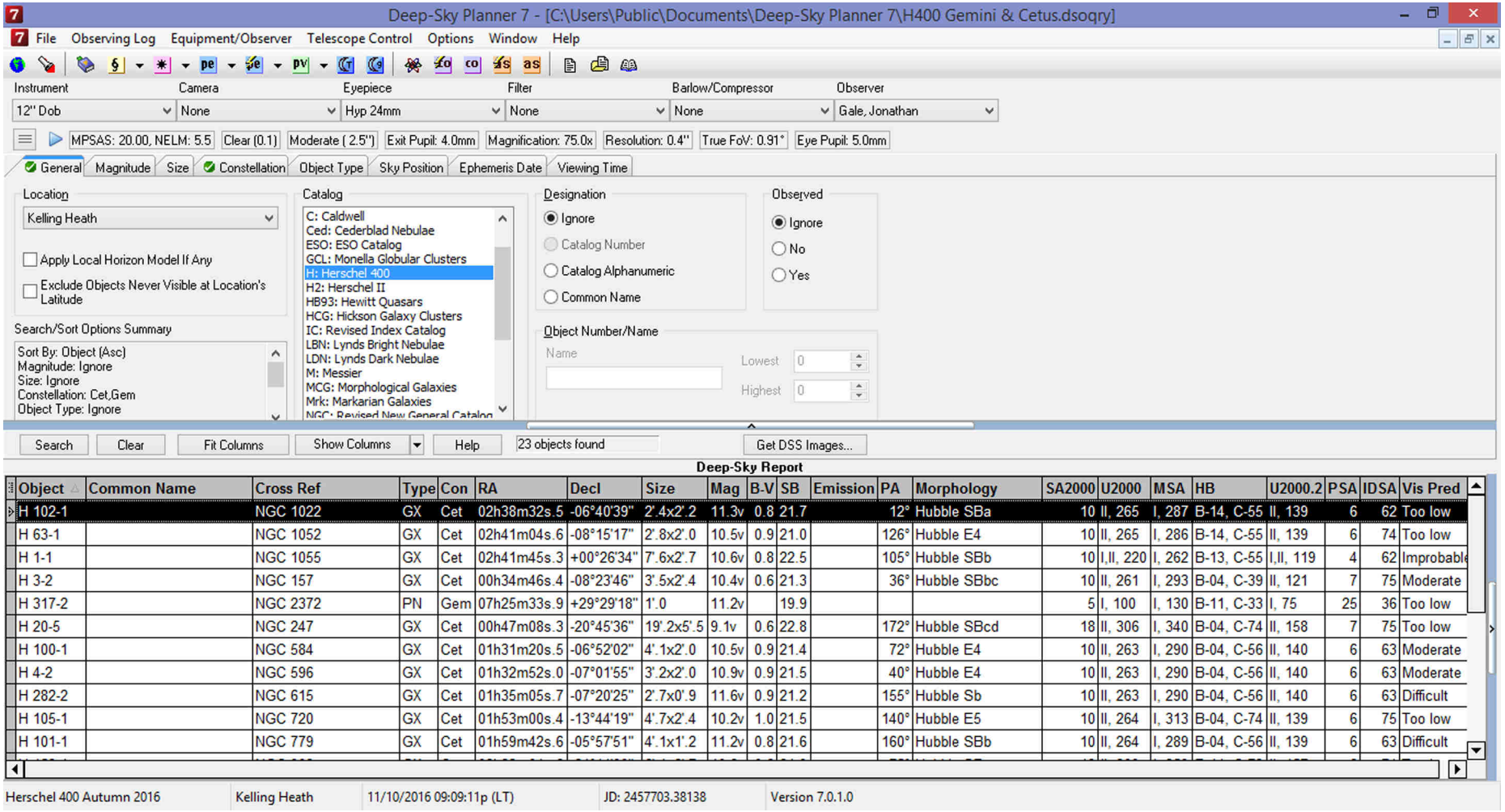
DSP is available from the author's website either as a download or, for a little extra, on a CD. I was using the download option which worked perfectly. The installation was straightforward and went without a hitch.

First impressions are of a clean interface with logical menus and clear toolbar buttons. My first task was to input my location and observing site details through the Location Manager. The initial screen offers pre-set major locations throughout the world if you want a "rough cut" site, although for central Wiltshire my nearest pre-set was Cardiff.

Inputting your own observing spot is either through a dialog box entering your latitude, longitude and time zone, choosing from a pre-set list, or through an option to click on a Google map embedded within the program. This is an excellent idea, although here I did find a bug as I zoomed in on the map. You can also create a folder of "favourite" locations if you are an international observer, rather than searching for them within the pre-set country folders. Once a location is created it can be marked as the "favourite" one.

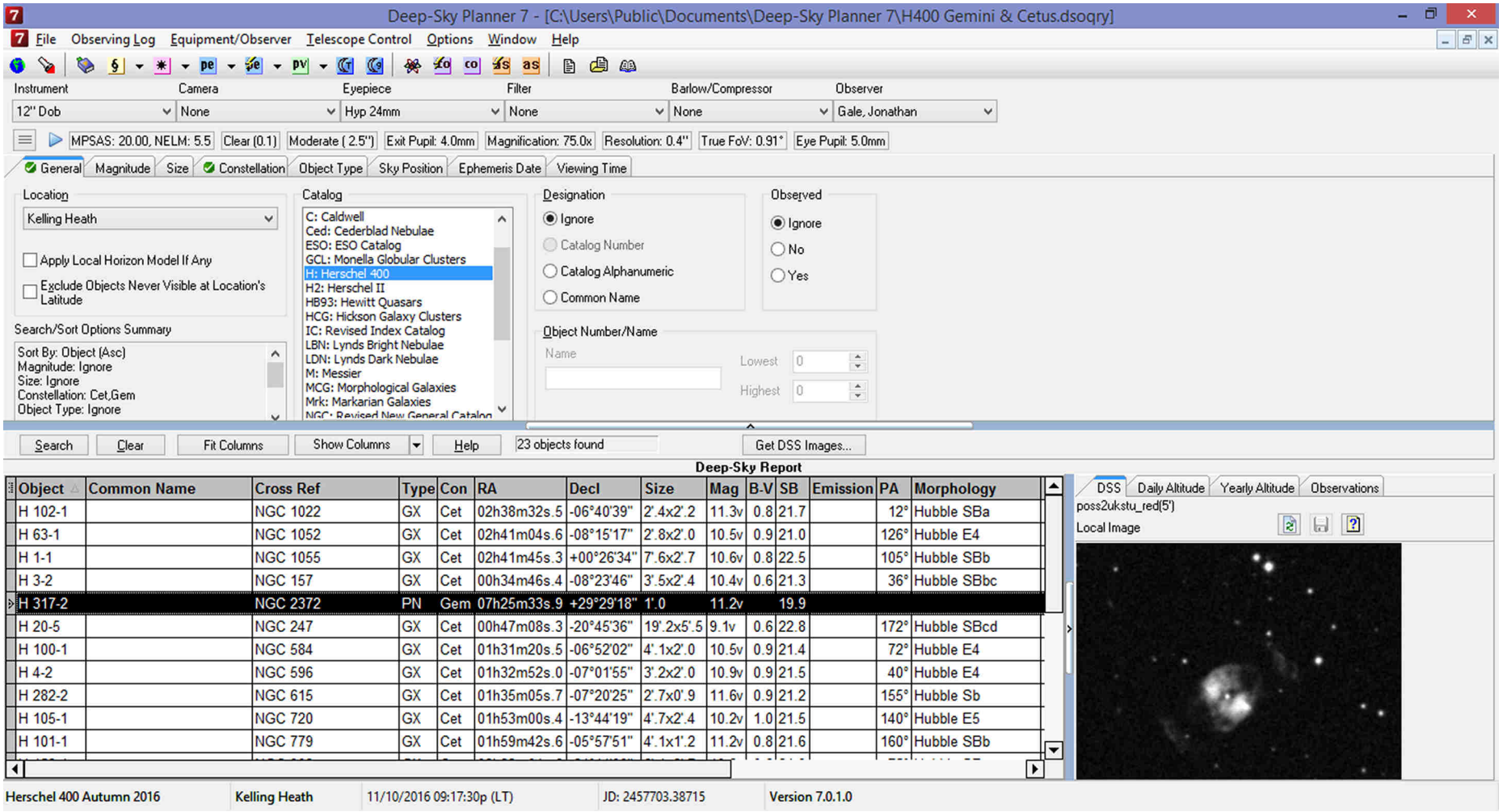
The next step is the inputting of equipment, which I find a chore in whatever software program I use. DSP gives a simple way to enter the information for a telescope's aperture, focal length and a name. Here I would have liked a pre-set list of common telescopes to select from then customise it to my requirements, but unless you

Figure 1
Deep Sky Planner DSO query for Herschel 400 objects in Cetus and Gemini



Object	Common Name	Cross Ref	Type	Con	RA	Decl	Size	Mag	B-V	SB	Emission	PA	Morphology	SA2000	U2000	MSA	HB	U2000.2	PSA	IDSA	Vis Pred
H 102-1		NGC 1022	GX	Cet	02h38m32s.5	-06°40'39"	2'.4x2'.2	11.3v	0.8	21.7		12°	Hubble SBa	10	II, 265	I, 287	B-14, C-55	II, 139	6	62	Too low
H 63-1		NGC 1052	GX	Cet	02h41m04s.6	-08°15'17"	2'.8x2'.0	10.5v	0.9	21.0		126°	Hubble E4	10	II, 265	I, 286	B-14, C-55	II, 139	6	74	Too low
H 1-1		NGC 1055	GX	Cet	02h41m45s.3	+00°26'34"	7'.6x2'.7	10.6v	0.8	22.5		105°	Hubble SBb	10	I,II, 220	I, 262	B-13, C-55	I,II, 119	4	62	Improbable
H 3-2		NGC 157	GX	Cet	00h34m46s.4	-08°23'46"	3'.5x2'.4	10.4v	0.6	21.3		36°	Hubble SBbc	10	II, 261	I, 293	B-04, C-39	II, 121	7	75	Moderate
H 317-2		NGC 2372	PN	Gem	07h25m33s.9	+29°29'18"	1'.0	11.2v		19.9				5	I, 100	I, 130	B-11, C-33	I, 75	25	36	Too low
H 20-5		NGC 247	GX	Cet	00h47m08s.3	-20°45'36"	19'.2x5'.5	9.1v	0.6	22.8		172°	Hubble SBcd	18	II, 306	I, 340	B-04, C-74	II, 158	7	75	Too low
H 100-1		NGC 584	GX	Cet	01h31m20s.5	-06°52'02"	4'.1x2'.0	10.5v	0.9	21.4		72°	Hubble E4	10	II, 263	I, 290	B-04, C-56	II, 140	6	63	Moderate
H 4-2		NGC 596	GX	Cet	01h32m52s.0	-07°01'55"	3'.2x2'.0	10.9v	0.9	21.5		40°	Hubble E4	10	II, 263	I, 290	B-04, C-56	II, 140	6	63	Moderate
H 282-2		NGC 615	GX	Cet	01h35m05s.7	-07°20'25"	2'.7x0'.9	11.6v	0.9	21.2		155°	Hubble Sb	10	II, 263	I, 290	B-04, C-56	II, 140	6	63	Difficult
H 105-1		NGC 720	GX	Cet	01h53m00s.4	-13°44'19"	4'.7x2'.4	10.2v	1.0	21.5		140°	Hubble E5	10	II, 264	I, 313	B-04, C-74	II, 139	6	75	Too low
H 101-1		NGC 779	GX	Cet	01h59m42s.6	-05°57'51"	4'.1x1'.2	11.2v	0.8	21.6		160°	Hubble SBb	10	II, 264	I, 289	B-04, C-56	II, 139	6	63	Difficult

Deep Sky Planner DSO query for Herschel 400 objects in Cetus and Gemini



Object	Common Name	Cross Ref	Type	Con	RA	Decl	Size	Mag	B-V	SB	Emission	PA	Morphology
H 102-1		NGC 1022	GX	Cet	02h38m32s.5	-06°40'39"	2'.4x2'.2	11.3v	0.8	21.7		12°	Hubble SBa
H 63-1		NGC 1052	GX	Cet	02h41m04s.6	-08°15'17"	2'.8x2'.0	10.5v	0.9	21.0		126°	Hubble E4
H 1-1		NGC 1055	GX	Cet	02h41m45s.3	+00°26'34"	7'.6x2'.7	10.6v	0.8	22.5		105°	Hubble SBb
H 3-2		NGC 157	GX	Cet	00h34m46s.4	-08°23'46"	3'.5x2'.4	10.4v	0.6	21.3		36°	Hubble SBbc
H 317-2		NGC 2372	PN	Gem	07h25m33s.9	+29°29'18"	1'.0	11.2v		19.9			
H 20-5		NGC 247	GX	Cet	00h47m08s.3	-20°45'36"	19'.2x5'.5	9.1v	0.6	22.8		172°	Hubble SBcd
H 100-1		NGC 584	GX	Cet	01h31m20s.5	-06°52'02"	4'.1x2'.0	10.5v	0.9	21.4		72°	Hubble E4
H 4-2		NGC 596	GX	Cet	01h32m52s.0	-07°01'55"	3'.2x2'.0	10.9v	0.9	21.5		40°	Hubble E4
H 282-2		NGC 615	GX	Cet	01h35m05s.7	-07°20'25"	2'.7x0'.9	11.6v	0.9	21.2		155°	Hubble Sb
H 105-1		NGC 720	GX	Cet	01h53m00s.4	-13°44'19"	4'.7x2'.4	10.2v	1.0	21.5		140°	Hubble E5
H 101-1		NGC 779	GX	Cet	01h59m42s.6	-05°57'51"	4'.1x1'.2	11.2v	0.8	21.6		160°	Hubble SBb

Figure 2
Deep Sky Planner DSO query for Herschel 400 objects in Cetus and Gemini

have tens of telescopes this is not likely to be a problem. There are equipment lists available from the author's support section, which whilst there no telescope lists, there are filter lists which I found extremely useful.

As with filters and telescopes, eyepieces are entered in a similar way, again with lists to be downloaded from the website if desired.

Finally you enter the key item of equipment - yourself! Just enter your name and eye pupil size which I believe is used in the visibility calculations. Measuring your exit pupil could be interesting - one friend photographed his own eye to obtain this.

Deep Sky Queries

For my initial tasks, I wanted a list of Herschel 400 (H400) targets in Gemini and Cetus, and a separate list of H400 galaxies in Ursa Major. To achieve this DSP offers a "Deep Sky Object" query, which has a nifty shortcut on the tool bar to select a particular catalogue, or this choice can be made later. There are many options for fine tuning your criteria such as magnitude and size, but my criteria were broad being the constellations and optimal viewing time.

DSP displays the results in a neat grid with user selectable columns, and a context sensitive tab which gives data such as altitude, an observations summary, and the option to download a DSS image. One problem with astronomical software is that the authors tend to assume that you have Internet access wherever you are so you can download the images as and how you need them. Fortunately DSP's author must have had experience of astronomy in the UK as she has thoughtfully added the option to download all the images for your list in one go - very neat.

The choice of columns displayed can be altered with a mouse click or two, but the default choice worked well for me as it includes the reference for popular atlases such as *SkyAtlas 2000*, *Uranometria 2000* (both versions), *Pocket Sky Atlas*, and the *Interstellarum Deep Sky Atlas*. The Morphology column is interesting as it gives the Hubble classification for galaxies, Trumpler for open clusters and Shapley-Sawyer for globulars, which helps mortals like me learn the classes and relate them to the objects.

DSP also offers you a visibility prediction which is useful, but for it to work you must remember to enter data for darkness either from an SQM or manually (I cheated and calculated my NELM and converted it to SQM), transparency and seeing. You also need to ensure that all the observer details are correct such as the exit pupil mentioned earlier.

A minor irritation is that the list does not refresh if the details for instrument are changed and the search requires redoing - not a great hassle but an auto update would be useful.

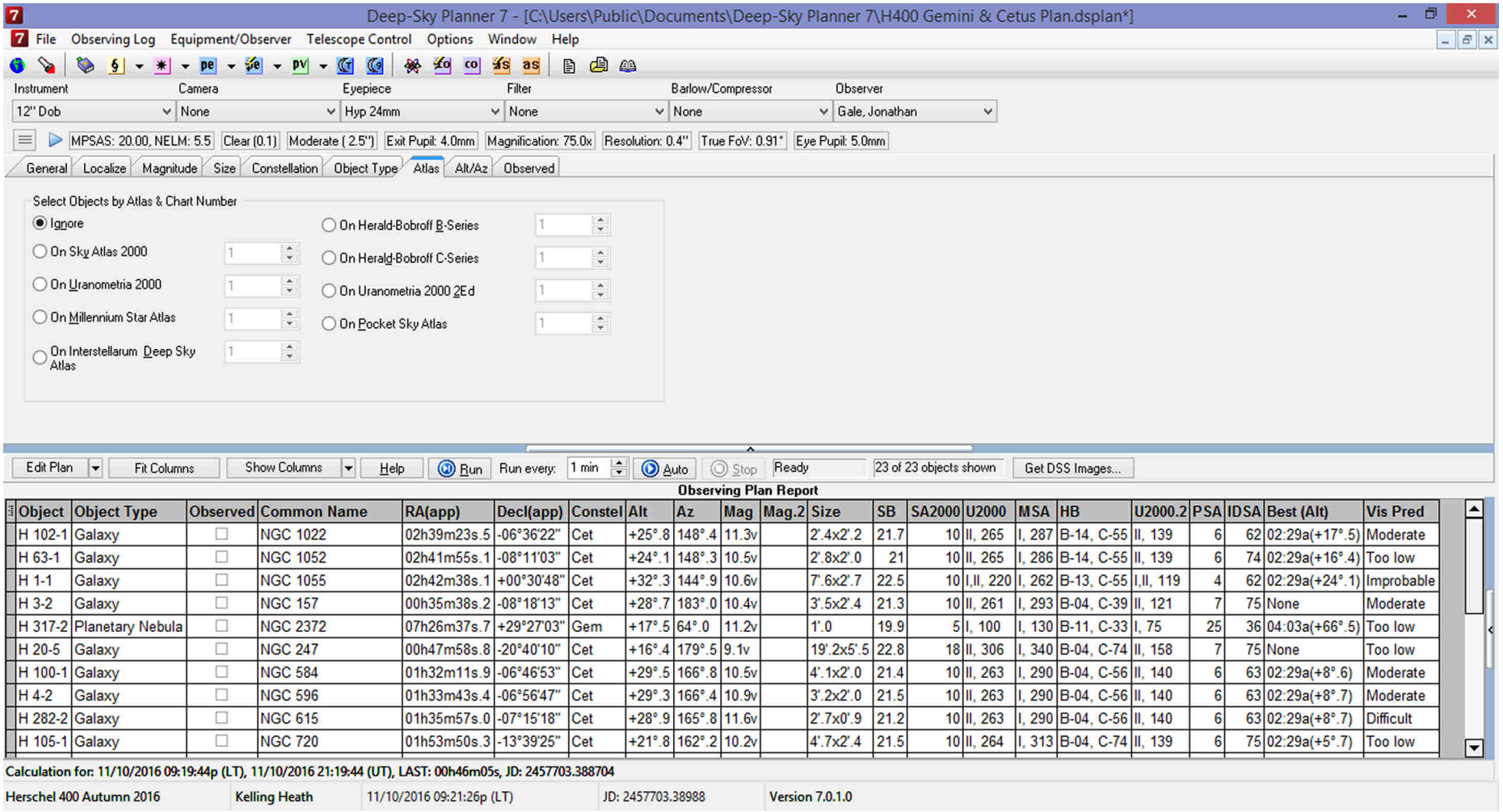
Right clicking an object on the query gives you the option of generating the finder chart from your charting software. Here I did have an issue where the date and time between DSP and CDC differed, giving me inaccurate results. Tweaking the CDC settings solved this, although DSP did warn me about the mismatch. I verified the objects accuracy using the CDC image against the DSP one. I have never quite got to grips with CDC, largely due to my impatience to spend time learning it, but in fairness it produced a good chart. Whether I would use it as a finder chart is entirely another matter, as I would reach for one of my printed atlases; however invest some time with CDC and I am sure you can produce a suitable finder chart.

Once you have the objects listed you can refine your list filtering by, say, the particular page in an atlas, or between high and low for altitude and azimuth. I used this to narrow my galaxy list to one page of the *Pocket Sky Atlas* for fun! What might be useful is a way of filtering on the Visibility prediction, although this column can be sorted so it is not too much hassle, but with a longer list it might be a requirement.

DSP has 26 deep sky catalogues from the Messiers to Hickson to Zwicky Galaxy clusters, totalling some 1.55 million objects. More than enough you might think, and it probably is, but if you want the Collinder catalogue then you appear to be out of luck; the Collinder name is indeed used as a common name, but not as a separate catalogue. I tried to find the Coathanger as a simple example but failed; asterisms not included! Mind you if you wanted some of the more obscure catalogues for globulars for example such as Palomar, Terzan or Melotte then you have a challenge. They are there, but not as separate catalogues; they are all in the *Monella Globular Clusters Catalogue*, so you have to tease them out.

Observing Plans

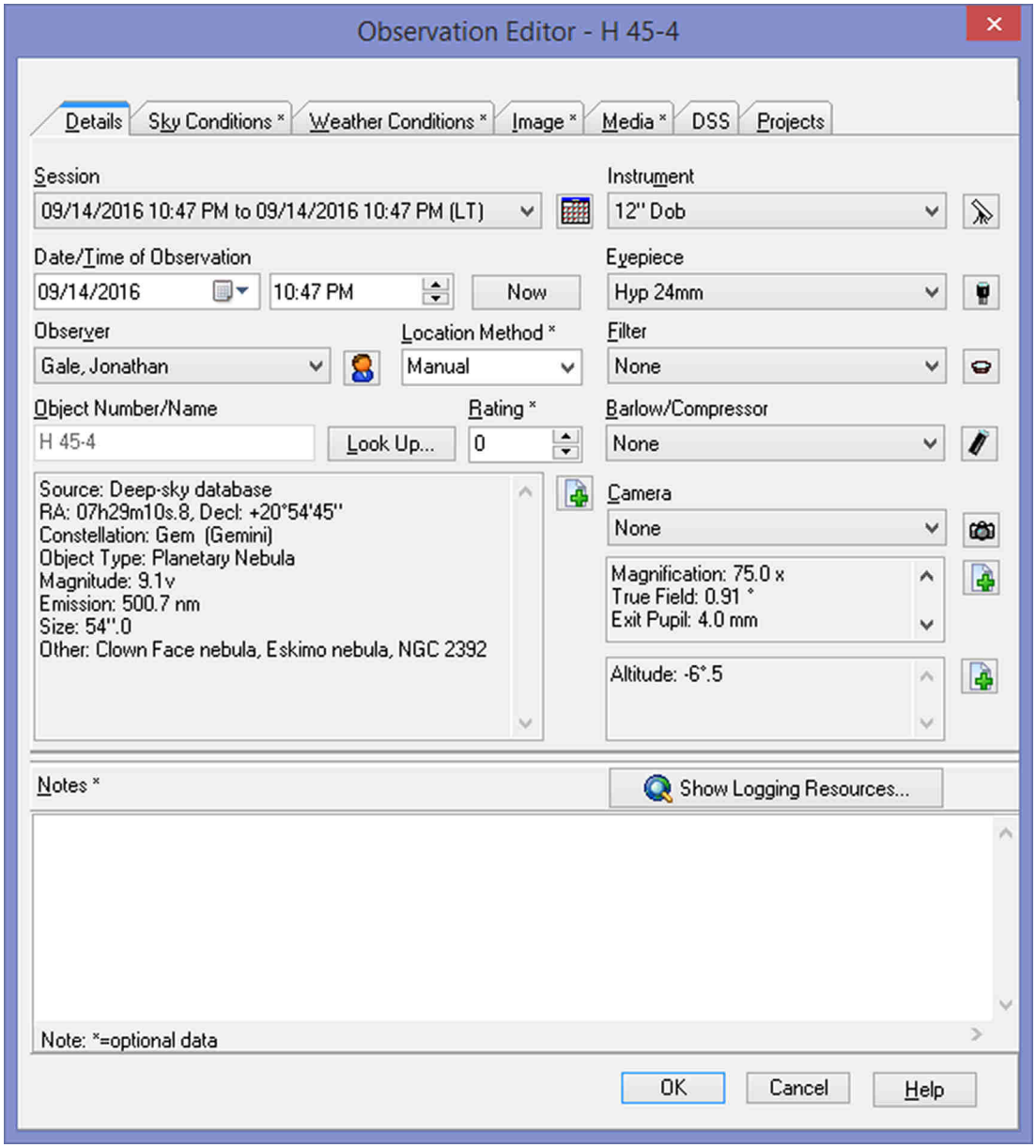
Once you have the objects you require, the next step is to add them to an observing plan. This is a similar document to the "Deep Sky" query, with some additional columns, but to add objects to it you drag and drop them from the query document, or add them on a one by one basis using a search



Object	Object Type	Observed	Common Name	RA(app)	Decl(app)	Constel	Alt	Az	Mag	Mag.2	Size	SB	SA2000	U2000	MSA	HB	U2000.2	PSA	IDSA	Best (Alt)	Vis Pred
H 102-1	Galaxy	☐	NGC 1022	02h39m23s.5	-06°36'22"	Cet	+25°.8	148°.4	11.3v		2'.4x2'.2	21.7	10	II, 265	I, 287	B-14, C-55	II, 139	6	62	02:29a(+17°.5)	Moderate
H 63-1	Galaxy	☐	NGC 1052	02h41m55s.1	-08°11'03"	Cet	+24°.1	148°.3	10.5v		2'.8x2'.0	21	10	II, 265	I, 286	B-14, C-55	II, 139	6	74	02:29a(+16°.4)	Too low
H 1-1	Galaxy	☐	NGC 1055	02h42m38s.1	+00°30'48"	Cet	+32°.3	144°.9	10.6v		7'.6x2'.7	22.5	10	I,II, 220	I, 262	B-13, C-55	I,II, 119	4	62	02:29a(+24°.1)	Improbable
H 3-2	Galaxy	☐	NGC 157	00h35m38s.2	-08°18'13"	Cet	+28°.7	183°.0	10.4v		3'.5x2'.4	21.3	10	II, 261	I, 293	B-04, C-39	II, 121	7	75	None	Moderate
H 317-2	Planetary Nebula	☐	NGC 2372	07h26m37s.7	+29°27'03"	Gem	+17°.5	64°.0	11.2v		1'.0	19.9	5	I, 100	I, 130	B-11, C-33	I, 75	25	36	04:03a(+66°.5)	Too low
H 20-5	Galaxy	☐	NGC 247	00h47m58s.8	-20°40'10"	Cet	+16°.4	179°.5	9.1v		19'.2x5'.5	22.8	18	II, 306	I, 340	B-04, C-74	II, 158	7	75	None	Too low
H 100-1	Galaxy	☐	NGC 584	01h32m11s.9	-06°46'53"	Cet	+29°.5	166°.8	10.5v		4'.1x2'.0	21.4	10	II, 263	I, 290	B-04, C-56	II, 140	6	63	02:29a(+8°.6)	Moderate
H 4-2	Galaxy	☐	NGC 596	01h33m43s.4	-06°56'47"	Cet	+29°.3	166°.4	10.9v		3'.2x2'.0	21.5	10	II, 263	I, 290	B-04, C-56	II, 140	6	63	02:29a(+8°.7)	Moderate
H 282-2	Galaxy	☐	NGC 615	01h35m57s.0	-07°15'18"	Cet	+28°.9	165°.8	11.6v		2'.7x0'.9	21.2	10	II, 263	I, 290	B-04, C-56	II, 140	6	63	02:29a(+8°.7)	Difficult
H 105-1	Galaxy	☐	NGC 720	01h53m50s.3	-13°39'25"	Cet	+21°.8	162°.2	10.2v		4'.7x2'.4	21.5	10	II, 264	I, 313	B-04, C-74	II, 139	6	75	02:29a(+5°.7)	Too low

Fig 3
Observing Plan for Herschel 400 objects in Cetus and Gemini with Atlas selection

Figure 4
Observation Logging General Notes



facility. Interestingly, this screen has options for adding objects by classifications (asterisms!) but still no luck on the Coathanger.

To test the capabilities of the observing plan, I used a DSO query to select all the globular clusters in the NGC and dragged them to an Observing Plan document. I wanted to filter those above 10° (altitude) for the night of the 28th October, ordered by the best altitude for observation. Of the 118 objects located, my list produced 43. Sorting the plan is simply done by clicking on the column titles. Your plans can be updated for a date and time by "running" them either manually or automatically, and then saved for re-running at a later date.

The filtering for the plans is broadly similar as for the DSO queries, but additionally you can refine to select those objects observed or not, or by the angular size or magnitude. If you want the ultimate customisation, you can create a "Local Horizon Model" which is a custom horizon for your observing location which takes into account any local obstructions. This can then be integrated into the calculations for rise and set times - useful for those hilly areas!

Plans can have custom column selections to make them more readable or for printing; the choice of telescope, or eyepiece can be altered globally and the plan rerun. Again DSS images can be downloaded in bulk for the objects on the plan.

If you are seeking some inspiration for your observing, then the DSP website has some 350 plans, with a selection ranging from Gary Seronik's "Binocular Highlights", to Astronomical League programs, to the *Night Sky*

Observers Guide volumes, or to my joy "Asterisms" where I did finally locate the Coathanger. *Sky & Telescope* articles are also well represented. Finally, if you have the technical know-how and patience, you can create your own plan files and import them into DSP.

For those who use an Argo Navis or Sky Commander system, observing plans can be linked to these through the software, although I cannot comment further as I do not have one.

Logging your observations

So you have your objects, you have your plan, the sky has come and gone, so the only task is to write up your observing log. Many people use an Excel spreadsheet, but for me this is not the proper way and the logging facilities in DSP allow for an abundance of information.

The heart of the logging is the Observation Editor, or your notebook in simple terminology. Logging is built around the concept of a *session* which is drawn on the assumption that the observation is made at the observing location currently in use in the software, although this and the date and time can be altered whilst making the log note. Basic data such as the observer, instrument, eyepiece and filter are selected from drop down lists, and new ones can be added as you write. Uniquely, as far as I know, DSP allows you to specify the mode of location for your object - whether you went the route of "the old ways" by star-hopping (my choice), or digital setting circles or GOTO. There is adequate space for notes, whilst the biographical data on the equipment used and objects observed can be inserted as a block within your notes. One lack in my opinion, and where *SkyTools* scores, is that you cannot insert just the eyepiece used in the narrative which is

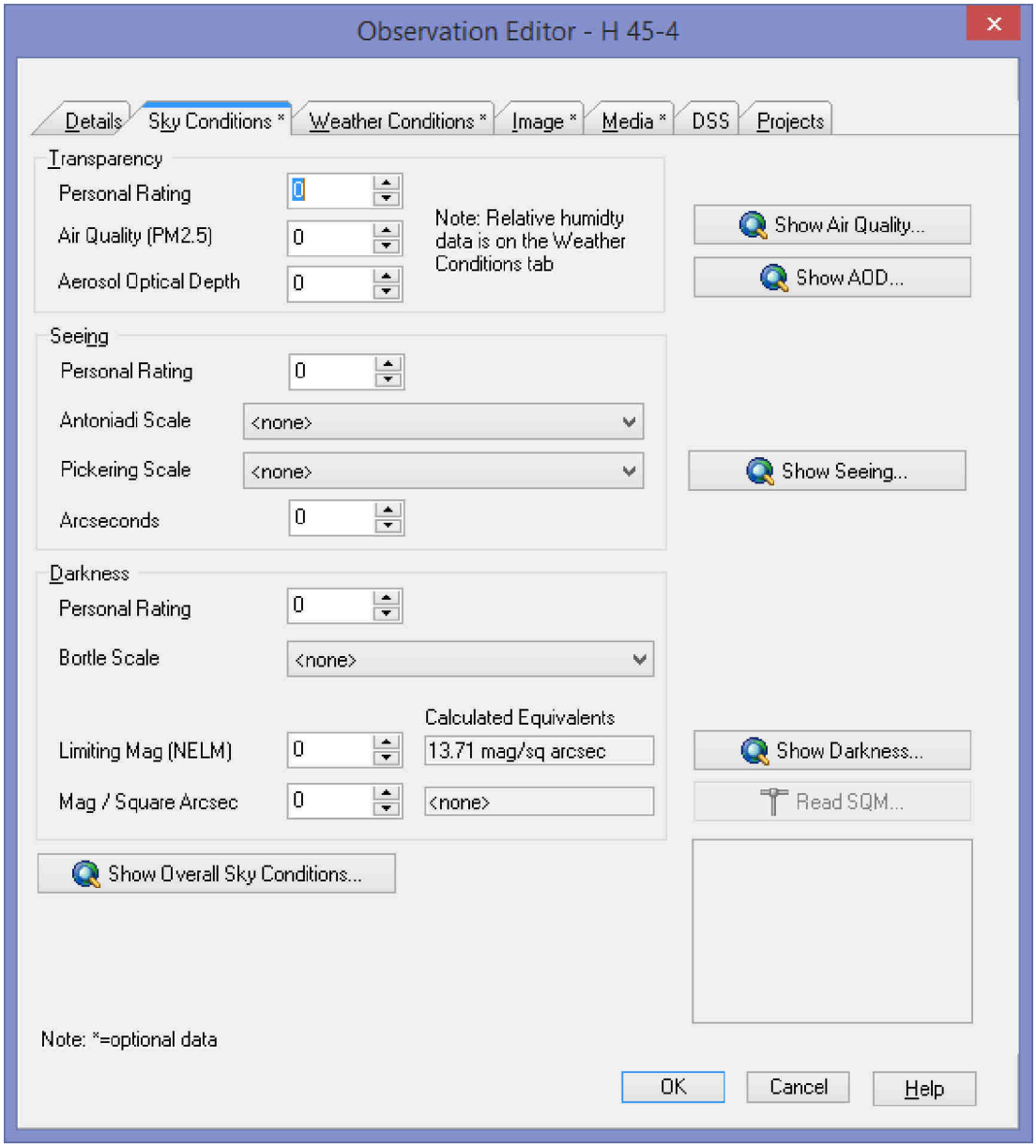
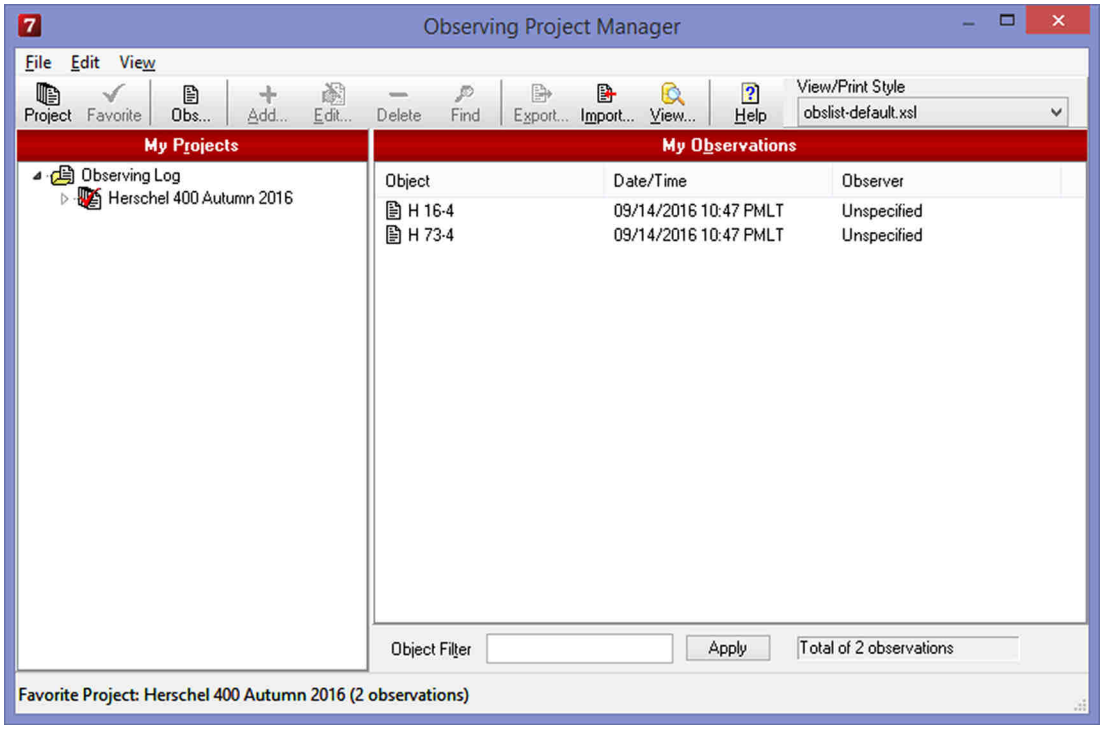


Figure 5
Observation Logging Sky Conditions

Figure 6
Observing Projects Manager



especially useful where you are using more than one or two for your observation - you can certainly insert the equipment as a whole but not individual pieces as needed.

For the meticulous observer, additional information can be logged on sky and weather conditions, an image attached (perhaps a sketch), or a media file. The sky and weather conditions tabs are truly astonishing with the amount of data that you can record if you have the time; three visual scales for seeing and darkness (Antoniadi, Pickering and Bortle), direct reading from your SQM and links to websites for Air Quality and Aerosol Optical Depth. To think all these years I have only commented on the amount of cloud and light pollution in my notes! Weather conditions is equally detailed with everything from the temperature to the wind direction.

Finally, there is a comprehensive facility for searching your observing logs, offering many options for refining your search from the observing site down to the eyepiece used. Again, for those who write articles and books this facility could prove invaluable for gathering observations for comparison.

Observing Projects

Observing projects are a way of organising your observations into groups or as DSP terms them "projects". For example if you are following some of the Astronomical League's programmes, you may have some existing observations you can count towards the award, or maybe you have some of Alvin Huey's "Faint Fuzzies" guides and want to group your observations by guide. I was initially sceptical about this feature as I could not initially see any logical use for it. However, for writing articles and papers I think this could be invaluable. A project can also be defined as a "favourite" so any observations can automatically be included into the project.

Projects are created by a simple mouse click then just dragging the observations into them. Projects can be deleted, but that does not delete any of the observations; the project just contains links to the observation.

So for writing articles herein lies the ability to gather together observations, which would hopefully have linked images, into writing projects; you then have all the observations in a cohesive group, something I shall certainly use.

Double stars et al!

Aside from the deep sky, DSP has other capabilities for those nonconformists who may observe the planets, or the Moon! Planet ephemeris are catered for, along with planet events such as conjunctions, elongations and eclipses.

For this review though, particular stars will be of interest and the catalogues do not appear to disappoint. DSP has 7 catalogues of stars including Hipparchus, SAO and WDS. For my interest, I wanted to locate a new asterism from the October 2016 Sky and Telescope; I used one of the stars, HD 187570, to locate it. I was quite impressed - DSP did not seem to have the native HD catalogue

listed, but I entered the HD number and it correctly cross referenced it to its corresponding Hipparchos value (which I checked in *SkyTools* for comparison) and then generated the chart in *CDC* which worked correctly.

Conclusions

From my perspective, DSP is a comprehensive planning and logging system which is worth anyone's time and money to employ in their observing life. Admittedly, when I began this review, it took me a while to get used to the software as it seemed a little drawn-out, but following the videos on the website helped me understand the author's approach.

I am very impressed with the logging facility's comprehensive note taking ability, the observing projects may not be to everyone's taste, but I can certainly see how I can use it, and I am delighted with the bulk download of *DSS* images.

So, what could be improved? For me it would be the charting facility, which of course is beyond the author's control, but I do state that I have not tested it with anything other than *CDC*, so the results may be different. I am fond of Eye and Telescope's facility to search for nearby objects to the one you are observing, and this would be a worthy inclusion. I think owners with larger telescopes would want more esoteric catalogues

My question is would I migrate from *Sky Tools* to *DSP*? The answer is that I would use both for differing projects. I have no hesitation is using *DSP* for my writing and observing projects such as the H400 as the image download is a key part for me. I would continue logging with *Sky Tools*, simply because I have so many logs already committed to it.

So, give it a try; you can download a free trial of *DSP* from the author's website, as you can from the competitors, and give time to learning to use it properly. You may find that it is a valuable addition to that much loved notebook whose pages are now beginning to have considerable curl in them.

Cover Images : Detail

Front Cover Image

IC1396

Image by Alex Colborn

Telescope: TMB80 F/6 with Riccardi reducer to give F/4.5
Camera: QSI 683wsg
Equipment: Astronomik narrowband filters
Hα(red), **OIII**(green), **Hβ**(blue),
4 hrs through each filter
total exposure 12hrs

Top Back Cover Image

Sharpless 129

Image by Shaun Reynolds

Sure, Sharpless 129 I believe refers to the surrounding emission , and as you say , I thought it was Ou4 but will need to check on that.
Telescope: Kit NEQ6
Mount Williams Optics FLT 98 APO refractor
Camera: Starlight SXV 694 mono cooled CCD (at -10°)
Equipment: St 80 guide scope with loadstar guide CCD
Using Astrodon 5nm OIII, 5nm Hα, and RGB filters
Hα: 7 hours total (30 min exp)
OIII: 15 hrs total in (30 min sub exposure)
RGB: 1 hour each
Maxim to capture and Photoshop to post process

Lower Back Cover Image

Abell 85

Image by Andrew Robertson

As promised, here is a new version of my Abell 85 image; now with added OIII data. All acquired from my garden in Norfolk.

There are 3 SNRs in this image including Abell 85.

G114.3+0.3 Filaments at the top of the image
G116.5+01.1 30' long filament at the bottom
CTB 1 or G116.9+00.1
Abell 85

Telescope: Takahashi FSQ85
Mount: Avalon Linear Fast Reverse
Hα: 32 hours (bin 1x1)
OIII: 16 hours (bin 2x2)
RGB: 1 hour each (bin 1x1)