

Free astronomical software

I have listed here software applications and sites that I have used and can recommend. There are probably other applications available that I am not aware of and if you know of any let me know and I can check them out and add them to this list. All the applications and sites listed here I regularly use as tools to make the hobby of astronomy easier, more capable and better informed. If you have any concerns about downloading such free software I can only say I have personally downloaded software from these sites and had no problems but I can make no guarantees at all and you use this information at your own risk.

I should also like to make a personal remark. The quality of all of these applications is first class. They are breathtakingly advanced and the developers have all made a huge contribution to the world of amateur astronomy and deserve our heart-felt thanks. It is also possible to purchase applications that cover many of the same topics. These tend to be more comprehensive, especially in areas such as image processing which is a commercially important area.

Any comments made are my own impressions and views on the site or application.

Weather

Meteoblue – very useful meteorological site with special tools for astronomers – click on “charts and tools” then under “miscellaneous” click on “Astronomy seeing”. Can be customized for your own location. I have found the information to generally be very accurate and reliable.

<http://www.meteoblue.com/en/great-britain/>

Also have a look at the jet stream forecast – the jet stream is what can really mess up seeing when it is overhead.

<http://www.metcheck.com/UK/jetstream.asp>

Metcheck – another meteorological site with astronomy specific information. Very similar information to Meteoblue and can also be customized from your own postal code.

<http://www.metcheck.com/HOBBIES/astronomy.asp>

BBC weather – A reasonable weather summary but not enough information to be very useful for astronomy.

<http://www.bbc.co.uk/weather/>

Meteorological office – added this for completeness, not a very good site for an astronomy viewpoint, very complicated and does not tell you very much. Somehow it tries too hard but does not really end up being very useful.

<http://www.metoffice.gov.uk/>

Planetarium software

Stellarium – This is brilliant free planetarium software – I use it all the time. It is superb for looking to see what is up tonight and also modeling events in the past or future. It is fully featured and its graphics are very good indeed. The only thing I have never got to work is comet information, although I understand it is possible.

http://www.stellarium.org/en_GB/

Carte de ciel – Also very good free planetarium software. It has more technical features than Stellarium and I use it for comet data and charting. The graphics are not as gorgeous as Stellarium but then that is not its purpose. For finding and charting objects it is excellent.

<http://www.ap-i.net/skychart/en/start>

Celestia – this is very cool 3D planetarium animation software. Lovely to look at although I find it a little tricky to use – definitely worth a look – has great educational value. It can be downloaded from this link:

<http://sourceforge.net/projects/celestia/>

and there are loads of online resources such as this:

<http://www.celestiamotherlode.net/>

Virtual moon atlas – An extremely useful application for finding your way around the moon and also discovering what you are looking at. I regard this as essential for lunar observation.

<http://ap-i.net/avl/en/start>

Winjupos – I put this here because I am not sure where else to put it. This is a very capable application for analyzing Jupiter and other solar system objects. It can take data and apply it to a 3d rendering of the planet, de-rotate it and perform various translations and calculations.

<http://jupos.org/gh/download.htm>

There is a tutorial here:

<http://www.sunspot51.com/Misc/winjupos.pdf>

Image capture software

APT - "Astro Photography Tool" a general purpose, fully featured application for deep sky astro-imaging. Widely compatible - Canon EOS DSLR or ASCOM compatible CCD, APT is good for planning, collimating, aligning, focusing, framing, controlling, imaging, analyzing and monitoring. Very capable software.

<http://www.ideiki.com/astro/>

SharpCap2 - SharpCap is a comprehensive webcam and astronomy camera capture tool. It has a wide compatibility with webcams and similar cameras.

<http://www.sharpcap.co.uk/>

WXastrocapture – basic, though capable and easy to use webcam image capture software. Designed for Philips ToUcams and a limited number of other cameras. Can also be used as a guide software to steer a mount.

<http://arnholm.org/astro/software/wxAstroCapture/>

Image analysis and processing

Registax6 – a wonderfully capable piece of software for stacking and processing images from webcams. It is the standard package used by many amateurs to produce amazing results. Takes a little getting used to but is reasonably straightforward. The apparent simplicity of the application hides the very sophisticated technology that drives it. Software such as this has revolutionized astronomical imaging of planets and the moon.

<http://www.astronomie.be/registax/>

Autostakkert2 – frame stacking software for webcam images. Does a similar job to Registax, although does not have the image processing part. I have experimented with both, each has its merits but I cannot say one is better than the other. If you use Autostakkert you will need to save the file as a TIF file and import it into Registax for final processing.

<http://www.autostakkert.com/wp/download/>

Deepsky stacker – this is a very capable application for using DSLR or CCD camera data, along with all its calibration files and stacking them for processing in other packages. It is simple to use and works very well, especially on multi-processed processors.

<http://deepskystacke.free.fr/english/index.html>

GIMP - General Image Manipulation Program – this is a fully featured application for processing and enhancing images, not just astronomical. There are plenty of on-line tutorials. It can also do things that certain expensive paid for packages cannot, for example it can make super animated GIFs – very useful for presentations and websites.

<http://www.gimp.org/downloads/>

Image Analyser – This is a very capable application for enhancing astronomical images (or any other others for that matter). It has a limited range of tools but it does have some different ones that can be very useful. It has some good deconvolution filters for sharpening for example. Certainly worth a look.

<http://meesoft.logicnet.dk/>

Imagenomic noiseware – community edition. This is rather clever noise suppression software. The paid for version is very versatile, the free version is less tweakable but still has very effective algorithms for intelligently removing

noise from images. This is the best one I have found for this, much better even than Photoshop for noise reduction in my view.

<http://imagenomic.com/download.aspx>

Iris – Fully featured astronomical image acquisition and processing software. I must confess I have added this for completeness. I have tried a number of times to use it without any success at all, although others praise it. It appears to be very comprehensive but its user interface is complicated to put it mildly. I will keep trying as it appears to have some very useful tools.

<http://www.astrosurf.com/buil/us/iris/iris.htm>

Other bits and bobs

Sky and telescope – have some really useful tools:

<http://www.skyandtelescope.com/>

Great Red Spot Transit calculator -

<http://www.skyandtelescope.com/observing/objects/javascript/3304091.html?c=n&rand=0.1081848844782266>

Please do let me know if you have other favourites that we can share.

Nick Busby, February 2014