COPING WITH DEW

Apart from a turn of bad weather, there are two things that can put an end to your observing session quick smart and both of them are preventable.

The first one is Power. This will affect everyone who uses a motorised or computerised telescope. Batteries dies game over. Preventable by making sure you have adequate power for the night's session. Know your consumption rate and dress it accordingly.

The other is Condensation or Dew. If your optics dew up, game over. Wiping it makes it worse and its often easier to pack up for the night. But who want to do that when your at under a truly dark moonless sky, particularly if you drive for hours to get there or you're at a star party. Once again completely preventable.

So what is dew and how does it come about?

Dew is moisture or tiny droplets of water that settle objects, (in our case telescope and their optics), by way of condensation. It will always settle on the surface of colder objects. Condensation is gas reverting back to liquid as it cools. Dew is water vapour in the air reverting back to water on your telescope and its optics. This is because the telescope body and more importantly the optics cool down much quicker that the surrounding air and viola … dew is formed.

How bad it can get depends on your humidity of your location and the time of year. It tends to bug us during Spring through to Autumn, although it is usually less evident in Summer.

Remembering some basics about weather particularly temperature and dew point, dew will form when the temperature falls below the dew point. When the dew point falls below zero that is frost and is just as bad as dew. If all this happened and you are not prepared… game over.

Schmidt Cassegrain and Refractor telescopes are more easily affected because there is a large unprotected glass surface closer to the air than say a Newtonian telescope would have.

There is a cure.

The best cure is prevention. Now that we have some idea as to how and why it forms on our telescopes, lets stop it from forming in the first place.

First line of defence

A dew shield is basically an extension of you telescope tube, it should be 1.5 times the aperture of your telescope tube. It works by keeping the air still at or near the glass, keeping it slightly warmer and slowing down the formation of dew. It does not stop it from happening, it just slows down the process. On some nights this may enough to have a dew free night but more often than not you will need to do more.

We stock and use Farpoint dew shields, made from an ABS polymer material they are felt lined to stop stray light, they have Velcro fastening, and a polyethylene strip which ensures a perfect fit.. Best thing is they store flat when not in use and weight very little. Available is sizes to suit all popular model scopes. Dew shield are the least expensive option.

I've got a dew shield but I am still dewing up

Some nights you need to move to stage two… Stopping dew.

When you plan a longer observing session or are imaging dew control is of the utmost importance. Anyone who tried to image only to see the finished image look foggy it is probably caused by dew on the telescopes optics. Fortunately, there is a way to stop this happening and getting the results you want.

Dew Heaters are usually straps made of resistance wire embedded in rubber, which dissipate the heat throughout the strap. Usually covered in a cordura type material for protection and are available in many different lengths. They work by simply wrapping them around the telescope tube or eyepiece, camera, finderscope etc. and then plugging into a 12vDC power source apply heat. The heat will radiate through the strap to the telescope etc and warm the temperature above the dewpoint which will stop the dew from ruining your session. In its simplest form the strap will warm up without controlling the temperature, this system uses the most power usually around 1-2 amps per hour on average (remember to calculate this into your consumption rate).

The best option is to use a Dew Controller, these are usually Pulse Width Modulators (PWM) regulators that send electric pulses to the strap causing it to heat up. By adjusting the pulse rate, you adjust the heat (more pulses, more heat). The temperature only needs to be 1-2 degrees above dewpoint to stop dew. Of course, this makes your power consumption more efficient. There many models available from the simplest with dual channels and can handle up to 4 heater straps to models with digital displays and temperature sensors that can allow you to customise you heating.

We stock and use Kendrick Dew Remover Products; they have been around since 1993 and are leaders in this technology. Their Premier Heaters offer years of trouble-free heating and their Controllers allow you to set the amount of heat required to ensure Dew is not a problem any more.

So how do I put this all together so I can enjoy long night under the sky.

When setting up for the night ahead, always assume Dew will be part of that night. Star with putting on your Dew Heater Strap. Wrap it around the scope tube closest to wear the optic that could affected is, in an SCT this is just over the front cell where the corrector plate is, in a refractor this is just at the rear of the built-in dew shield. Now for the SCT owner wrap a Dew Shield over the top of the Heater Strap (remember we are trying to trap that heat near the corrector, not warm the night sky). Now plug into your Dew Controller and turn the controller to halfway mark (great starting point). From here we can adjust to suit if there is no dew turn it down a notch, if there is dew turn it up a notch. This situation can change as the night progresses, but you are now in control and your observing or imaging session can be enjoyed without frustration.

Get ready for some long nights ahead.