

Planning Your Observing Sessions: Choosing *When* to Observe

Phillip Ostroff, Phil's Astronomy Blog Article #2

Okay, so you're geared up and ready to go. You either have a scope or you want to attempt some naked eye or binocular astronomy. You've got the urge to get out under some dark skies and let some photons smash into your eyeball at the speed of, well, light!

One of the things you will soon to learn to appreciate, and perhaps despise, will be that you are completely at the whim of Mother Nature. She will make or break you. She will make you leap with joy but will also make you cry your eyes out at as she chooses. There will be nights where you will enjoy unparalleled clarity, there will be nights when you will mope around at home due to heavy clouds, and there will be nights where you will drive for two hours, set yourself up under a wonderful clear sunset and then scratch your head as the clouds roll in.

This article will hopefully help you plan the right time to get out under the stars. While we can not beat Mother Nature, there are ways to predict how she will behave...

Your Calendar/Schedule

Let's put Mother Nature aside for one short moment and discuss the other big factor that comes into play when planning the timing of your astronomical excursion. It's called "Life".

Life happens. Life is full of stuff. Most of it can be controlled; a lot of it can be thrown at you with very little warning. Either way, there will always be something on your schedule that could impact your ability to get out under the night sky. Be careful and plan for such things as best as you can. This can include birthdays, anniversaries, social engagements, business meetings, school or university assignments and the like. This stuff is really important. There may be things you can move around to try to get out of for special astronomical events, but consider this carefully! You don't want to upset your significant other or boss/teacher/lecturer etc. in doing so.

The stars will always be there! Make sure your priorities are right. Don't let your interests in the night sky completely take precedence over anything else at the risk of alienating yourself from your friends, families and general obligations!

Lecture over; now back to Mother Nature...

What Factors to Look For

So, when we talk about nice or even "ideal" viewing conditions, what exactly does that mean? At a very high level, we want *clear skies* and *comfortable conditions*. We want to be able to see stuff, and we don't want to be too hot, too cold or too battered about by winds while doing so. Let's examine these a little more thoroughly...

Clear Skies

In order to take a gander at all the cool stuff that lies out there in deep space or within our solar system, we need to be able to see it clearly. The term "clear" is an interesting one. Many factors affect how really clear the night sky can be. You might look up at a planet through your scope on a clear night but be disappointed to see that the planet is blurry and dances around dramatically. Our atmosphere is a tricky thing to deal with in astronomy, and there are a few additional factors that need to be considered for optimal viewing.

- **Cloud Cover:** Obviously, the fewer the clouds, the better. Some folks are okay with dealing with a few clouds or even shooting through some holes in massive cloud formations. However, you want to avoid as many clouds as possible!
- **Seeing:** This is a scale used by astronomers to measure the atmospheric turbulence in the sky. It is typically rated out of five, with the higher number reflecting better conditions. When the air is really turbulent, say a 1/5, planets and the moon will dance around dramatically in your eyepiece. Interestingly, deep sky objects like nebulae and galaxies aren't too affected by this.
- **Transparency:** This scale determines whether or not there is any other type of hindrance in the sky between ground level and space. Sometimes you may have very high, thin cloud cover, or water vapor which can affect how things appear for those of us on the ground.

Comfortable Conditions

Even though you might have clear skies, you want to be comfortable while being underneath them! Some folks can handle high heat, freezing cold or both! Others can't. But it's good to be aware of such things just to be prepared for any eventuality.

- **Temperature:** This is important. Do you go out wearing shorts, sandals and a t-shirt? Or thermals, two layers of tracksuit pants, a jacket, scarf, mittens and beanie? Any weather service these days is good enough to give you this information in an accurate manner. Also, know your tolerances! If you can't stand the freezing cold, don't put in the effort to go outside when you know you won't be able to handle it.

- Wind: This is also an important factor. There is nothing worse than sitting out in the middle of a field somewhere with the wind battering you and your gear around. Gentle breezes are tolerable (perhaps less so when it is already cold) but gusting winds can rack your morale and knock your equipment around (as well as blow your star charts all over the place!!!)

The Moon

The Moon plays an important factor when planning your sessions. If the Moon is your target, then no problem – go out when conditions are favorable and when the moon is in the position that best suits your interests. Some people love the Moon and will spend a majority of their viewing time studying it. They usually plan on observing the different features that are observable at various times of the month as the Moon changes its phases.

However, for those of you who are seeking deep sky gems, the Moon is not your friend. Its brightness can wash out much detail of many deep sky objects and often make it especially difficult to find them at all! Be careful to determine where the Moon is and what it's doing from a phase perspective. Ideally, the time around the New Moon is ideal for deep sky observing.

One very useful tool is the Stardate Moon Phase Calendar (<http://stardate.org/nightsky/moon/>). You can scan ahead months in advance if needed!

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Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Image Copyright Stardate

Weather Planning Tools

There are a number of ways that you can look ahead and try and plan an astronomy session. Thanks to today's modern weather technology, there are countless resources available to the astronomer, novice or amateur, that enables him or her to predict a potential fantastic night out under the stars.

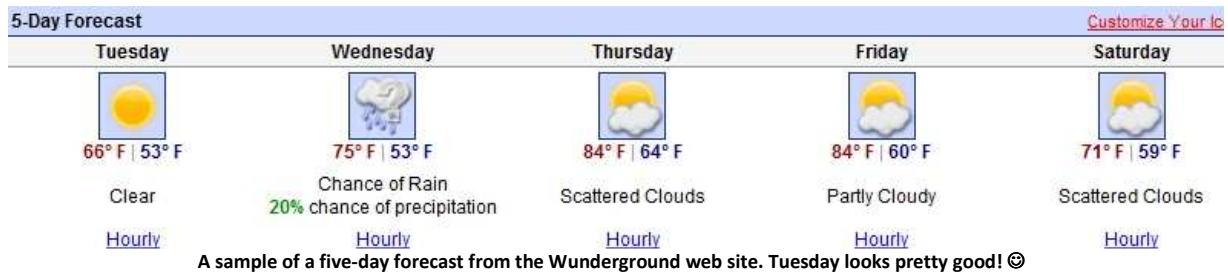
There are a number of tools available, but how you use them will greatly increase your chances of planning the close-to-perfect night out...

Long Range Planning

You have got your social and work calendar sorted out, and you think you may have a window of opportunity. It's time to start looking ahead and praying to the weather gods for clear, stable skies!

Start with the long range forecast. Many local news agencies will have five or seven day forecasts available which you can use to start planning your nights out. While the far end of the forecast range at this level can be a bit touch-and-go, keep an eye on it nonetheless. Check it out daily, and the closer you'll get to your target date the more accurate the forecast will typically be.

One site that is very valuable in this respect is <http://www.wunderground.com>. This is an international weather site with a five day forecast that includes cloud cover, wind strength and direction, and other useful factors for most cities around the world.



A sample of a five-day forecast from the Wunderground web site. Tuesday looks pretty good! ☺

Short Range Planning

You've had your eyes on a particular day that is coming up, so now we need the best, most accurate prediction for astronomical conditions possible. There are a couple of web sites that have been designed specifically for this. Both are essentially the same, but one is focused on North America while the other has more of an international focus.

[The Sky Clock by Atilla Danko](#)

<http://cleardarksky.com/csk/>

This is a great tool for Northern American users. It captures with great accuracy all of the meteorological factors that we are concerned with. Using a scale system, it rates each factor on an hourly basis. From cloud cover, to seeing conditions, temperature and wind, it details what you need to know. Astronomers cling very closely to the predictions on this web site and it is uncanny as to how accurate it can be!

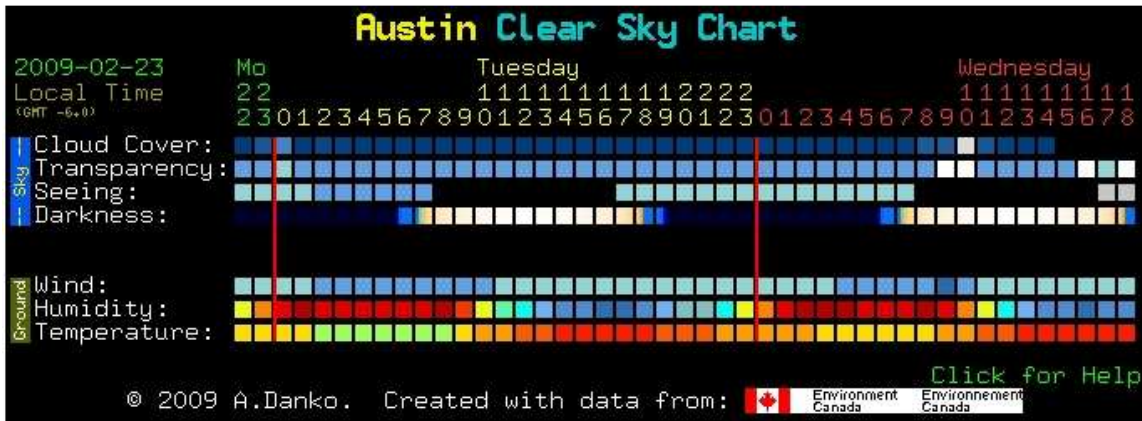


Image Copyright Atilla Danko, Clear Sky Clock

Instructions for how to use the Sky Clock are beneath each chart. Simply find your city and examine the chart that is presented!

7Timer by Ye Quanzi

<http://7timer.y234.cn/V3/>

For the rest of the world, there's 7Timer! This is very similar to Sky Clock but has wider coverage. Its creator claims to service 2 million cities. Put it to the test!

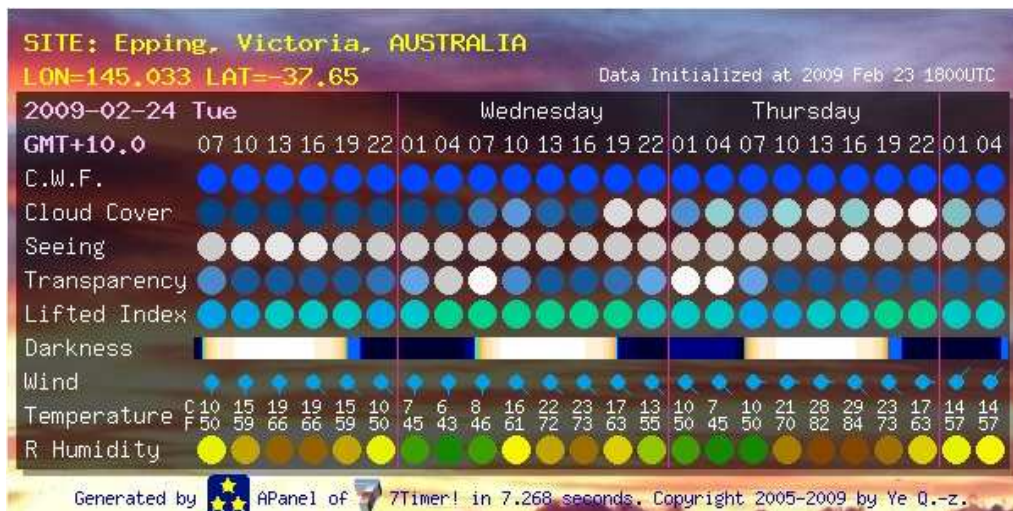


Image Copyright Ye Quanzi

Cross-check your sources! While one source might scream out "Clear skies, woohoo!" another source might indicate slight cloud cover. Be careful, and get as much information as you can. Especially if you have to travel to a dark sky site, you want to be sure it's a worthwhile trip.

Shooting Through Holes in the Clouds

Then again, when the urge really takes you, there's no harm in just getting out there and letting Lady Luck take control. If you peer out your back door and it seems relatively clear, there's no harm in getting out there to see what you can see.

Sometimes you really can get nice views of things when the conditions aren't exactly brilliant. With brighter objects like the Moon and Planets, you can still get good detail in less than savory conditions. Many folks enjoy this sort of astronomy regularly through slightly cloudy skies, or with skies with average seeing conditions.

Don't keep waiting for the best of nights, get out there and get it whenever you can!

In Summary

ACT OF GOD (No personal engagements, no work engagements, no study engagements, no religious holidays) + (5/5 Seeing, Super Clear Transparency, 0 Wind Gusts, Mild Temperatures) = **A Decent Night Out**

It's really a game of pot luck. The weather is unpredictable, as is your social or work life. It is a very rare event when the gods of all these things work in harmony and present the ultimate opportunity to observe. Still, with the tools and methods outlined in this article, perhaps you can get a bit of an edge and plan for a wonderful night out.