



The DXer's Notebook
By Dave Braun, dcbraun@comcast.net

This discussion of sunset DX began during a discussion of when DXers could expect to hear the new Chicago area X-bander on 1690...

Neil Kazaross <neilkaz@earthlink.net>: Your time and that of your colleagues in the east for WRLI will be via sunset skip. WPTX will drop to 1 kW (if not cheating) and then WRLI is 10 kW until Chicago SS. The end of October will be superb for this. I know you totally understand this, but we have some newer members here who don't fully appreciate the mechanics of SSS DX. In two weeks as Oct starts to end, you'll never find me online at 7 PM local since SSS DX potential gets good by then.

Les Rayburn <les@highnoonfilm.com>: Kaz, I'm interested in finding a good reference on sunset DXing. Why does it get better at the end of this month for instance?

Brian Leyton <bleyton@cpe-usalco.com>: I know I'm still kind of new at this, but let me take a stab at this one...

Basically it has to do with the sunrise & sunset times, and how they relate to the time at which various stations either switch power/pattern or go on/off. To simplify matters for station management, rather than have them track sunrise times every day, an approximate average sunrise / sunset time for the month is used.

Here's an example: From a link to the sunrise/sunset times for them on the FCC site, and a site that will give you true sunrise/sunset times by city, you can see that sunrise for October is 7:00AM, and sunset is 6:15. However, these are the approximate average times, not the real ones. These times will be close around the middle of the month, but will be off at the beginning & end of the month. For example, true sunset for October 1 would be around 6:30, but at the end of the month, will be more like 5:45 (let's ignore daylight savings time & stick with CDT times).

So the result is that at the beginning of the month, WRLI will cut power from 10Kw to 1Kw at 6:15. True sunset for October 1 is not until 6:30, so the likelihood of good skip while they're on high power are lousy. Contrast that with the end of the month, when true sunset is at 5:45. You've got 1/2 hour while they are on 10Kw, but the sun is already down. In this case, the best conditions for hearing them are probably to the east, where there is a path of darkness.

If you're in the east, then at the end of the fall months, conditions are best for you to hear sunset skip from stations to the west, as darkness extends west, and the skip rolls in before the stations cut power.

Looking at the morning, it's a similar scenario. Looking back at WRLI again, their power-up time is 7:00AM. At the beginning of the month, true sunrise is at 6:47, so they are powering up after sunrise, therefore lousy conditions. At the end of the month, sunrise isn't until 7:22, so you have a good 20 min. of darkness when they're going to be on 10Kw. In this case though, the best conditions will be to the west. As the stations to your east power up, you should have a better chance of hearing them before the skip disappears.

In the spring, everything is reversed.

Hope this makes sense...

One thing I left out of my explanations of SRS & SSS is why October in particular is a good month. This is because it is one of the months which has a large change in sunrise/sunset times. Comparing this to June for example, looking at Chicago, the sunrise time goes from 5:15 on 6/1 to 5:19 on 6/30. Big deal. Same for sunset. 8:19 to 8:30.

So the months that have a large change in the sunrise/sunset times are the ones that give you the longest period of time when the skip is in, and the power is high. Those would be the fall & spring months.

Bruce Conti <BACONTI@aol.com>: It also has something to do with the changing of the seasons, in terms of the increasing/decreasing darkness and resulting changes in the ionosphere. Of course we all know about the so-called "end of the DX season" where the long daylight hours make DXing more difficult during summer due to the ionosphere's extended exposure to the sun's energy. Mid-winter anomaly is somewhat less understood, believed to be due to the short days and minimal exposure of the ionosphere to the sun's energy, sometimes resulting in daytime skip but otherwise bringing about more consistent DX conditions. The changing seasons of spring and fall result in the largest swings in ionospheric conditions and thus the most volatile DX conditions during sunrise/sunset.

Russ Edmunds <wb2bjh@nrcdxas.org>: Another factor in October is the time change. (In April conditions aren't as good, so the change is of less benefit). You have more possible options within a given month because the time changes aren't entirely consistent with the actual sunrise and sunset changes.

Try also checking out and ordering the reprint articles on the subject in the NRC Reprints (said he, having written one of them).

Robert Foxworth <rfoxwor1@tampabay.rr.com>: Re: Sunset DX -- this month, all other things being equal, the one dominant variable is the s/off time. To understand this, consider how the clock times of local sunset vary over periods of days.

First consider that the rate of change of local sunset time varies throughout the year, in fact the curve describing the rate of change of sunset (not the absolute time of any given sunset) is pretty well described by a sine wave. The rate of change is greatest in fall and spring (greatest slope) and is nearly zero in June and December. Therefore sunset skip CX in those months are nearly invariant throughout the entire month as sunset is offset from s/off time by a nonchanging offset which depends mainly on where you are (east or west) in the timezone belt.

If you live in Long Island, in most all of December the sun sets at 1624 local time every day. You don't even notice the change for a month. (That was LSS where I then lived. In Boston it's nearer 1615 as I recall)

In fall, the time of sunset changes by from 1 to 2 minutes per day. So, secondly, since the FCC mandates that local clock time signoff is constant over the entire month, the actual time that a station signs off, or changes power, is the average for the month, it follows that, in the fall, the station must s/off early, relative to actual LSS at the beginning of the month, and somewhat late relative to actual sunset at the end of the month.

I always found that the last few days of October gave the greatest variation in time offset and the best CX, otherwise. So, get ready. Stations remaining on day power into near-darkness. It's a special time of year. On the first of November sunset may occur a minute earlier but the stations s/off 15 or 30 minutes earlier. Plan to watch TV that night if you can't find anyone who forgot to adjust the time.

See if this helps you understand and use the sunset DX phenomenon to expand your totals.