INTRODUCTION TO USING BUFKIT

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Sat 08/23/2014

This introduction to using BUFKIT, the program and data files, will give you a start on using it to get soaring forecasts time series cross sections (thermal heights – mixed layer height, surface temp, winds aloft, and RH, etc). Download the most recent version which is v13.4 as of mid 2014. The BUFKIT program is freely available and is easy to install on a Windows PC. Does take a fair amount of time trying to learn how the user interface works. You can download it here:

http://wdtb.noaa.gov/tools/BUFKIT/index.html

Getting the BUFKIT soundings is also a bit tedious and tricky. They are
publically available here from the Penn State met department web site:

http://www.meteo.psu.edu/bufkit/CONUS_NAM_12.html

One just has to pick the model type, run time and location to download files into the BUFKIT data directory. The program is a bit overwhelming to use even if you are familiar with meteorology and the model terminology. I suggest you install and then try to configure it. Select the SETUP menu from the top right corner to specify where BUFKIT files go. BUFKIT files are text files that represent multiple model soundings with either hourly or three hourly data. The source sounding data is in BUFR binary format and must be decoded to the text BUFKIT format – that's what these web sitesdo to make the model sounding more available.

There is training on how to use BUFKIT. Select the TRAINING button at the top right. There you will find many flash videos with sound training sessions. It's probably best that I sit down and provide some "one-on-one" training in person or with a remote PC to PC program like Teamviewer or GoToMeeting. What makes use of the program especially great is that it uses hourly sounding data from the native RUC and NAM model grids, so it's possible to get a much more detailed look at the thermal layer ... and even triggering times. You can also display the Global Model (GFS), but soundings are only available every 3 hours out to 184 hours in the future.

Here is a sample BUFKIT time series plot for soaring use:

https://www.dropbox.com/s/6fscbxwli7kpsk1/Bufkit_TimeSeries_Bishop_20110826_18Z_NAM.jpg?dl=0
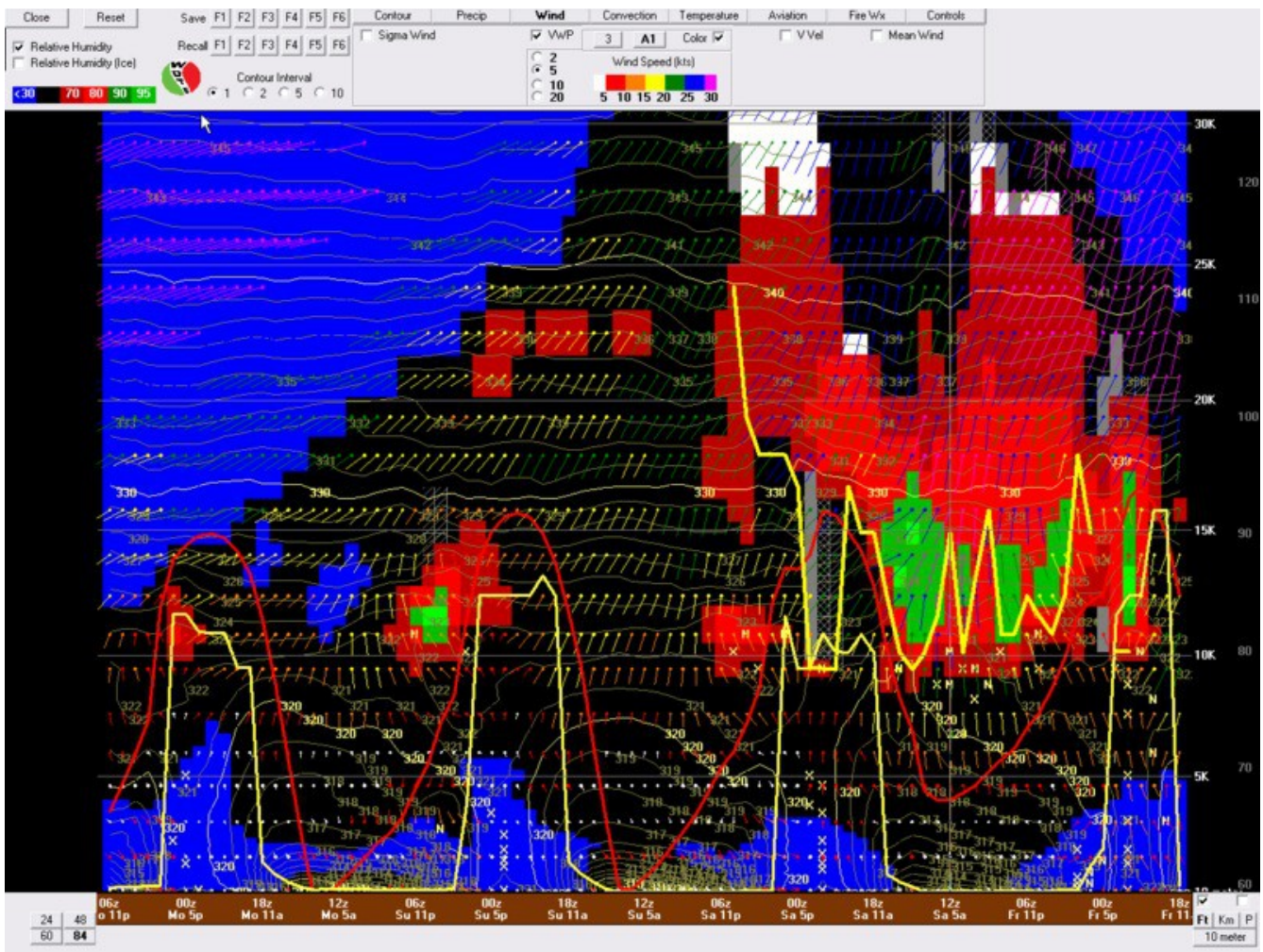
It is a time series plot (Time vs Altitude) from the BUFKIT program based on hourly soundings of of winds, thermal heights, RH, cloud bases from the NAM model starting 11am PDT Fri 08/26/11 (18Z) out 84 hours. Note that 00Z is equivalent to 5pm PDT.

Time marches from right to left (11am PDT starts on the right hand side). The bold yellow line attached to the ground shows the mixed layer height or thermal height AGL (add 4000ft for Bishop to get MSL). Wind vectors are colored (see label bar at top). Relative Humidity (RH) is contoured (see label at top left). Note the Red and green areas between 12000 and 17000 AGL. This represents the cloud layers which is clobbering the day's soaring. It is also depicted by a gray shaded area (barely visible). A second bold yellow line marks the cloud base. You can see that cloud bases and the heavy moisture aloft continues from Fri afternoon into Saturday morning before abating somewhat (14000 to 20000msl). Thermal heights decrease a bit on Saturday, but rise again on Sun to almost the heights on Friday.

One more thing. If you look closely, you will see the surface temperature plot (red bold line) for Bishop. It starts at a max temp of 93F on Fri, 92 on Sat, 92 on Sun and 89 on Mon. Notice the drying trend and increasing SW flow aloft on Monday. So, the last of the good days will be on Sunday.

Configuring BUFKIT to display things the way shown is best demonstrated than explained because

there are lots of unique and confusing UI nuances.

Hope this can get you started. Feel free to email or even give me a phone call which sometimes solves problems even faster.

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