2003 EXPLANATION OF OBSERVATIONS BY REFERENCE NUMBER

Observational records have been kept continuously since **August 31, 1979.** Station moved to 6515 Oakwood Dr. Fairfax Co. (post office address Falls Church, Virginia) on Feb. 8, 1986-**Latitude 38° 50' 25.228"** (38.84033) **Longitude 77° 09' 57.852"** (77.16600). This is about **2.7** miles north and **1/3** of a mile west of the earlier location. This new location is about **1.5** miles ENE of Annandale, VA, inside the beltway and is just NE of Belvedere Elementary School (Fairfax Co. Public Schools). The altitude is **360 feet** above mean sea level.

1. DATE: MONTH - DAY - YEAR

TEMPERATURE - #2 AND #4 All Temperatures are given in degrees Fahrenheit.

The maximum and minimum temperatures are read from a 1996-upgraded Nimbus digital thermometer and recorded on a daily observation sheet to the nearest 1/10 of a degree but are rounded off when entered on the monthly observation sheet. Fan-Aspirated Vantage Pro (Davis Instruments Hayward CA) is used as a back up since 03-01-02. Example: 50.5°F would be recorded 51°F.

2. TEMP. MAX. - MAXIMUM TEMPERATURE DEGREES FAHRENHEIT FOR DATE

The Maximum temperature in degrees F for a 24 hour period from midnight until midnight at exactly 5 feet above ground level using Fan-Aspirated Davis Vantage Pro as a back up since 01-01-03.

TIME #3 AND #5

The time of the maximum and minimum are read from a Nimbus digital thermometer (Sensor Instruments Co., Inc. Concord, NH) Fan-Aspirated Davis Vantage Pro is used as a back up since 01-01-03.

3. TIME MAX. - TIME THE MAXIMUM TEMPERATURE OCCURS

Time of maximum temperature in 24-hr. time taken from a Nimbus digital thermometer and/or the Weksler thermograph (Weksler Instruments, Inc. Freeport, NY) with Davis Vantage Pro is used as a back up since 01-01-03.

4. TEMP. MIN. - MINIMUM TEMPERATURE DEGREES FAHRENHEIT FOR DATE

Minimum temperature in degrees F for a 24 hour period from midnight until midnight at exactly 5 feet above ground level with Fan-Aspirated Davis Vantage Pro is used as a back up since 1-1-03.

5. TIME OF MIN. - TIME THE MINIMUM TEMPERATURE OCCURS

Time of the minimum temperature in 24-hr. time taken from a Nimbus digital thermometer and/or the Weksler thermograph with Fan-Aspirated Davis Vantage Pro is used as a back up since 01-01-03.

6. TEMP. RANGE - DAILY TEMPERATURE RANGE

Temperature range is obtained by subtracting the minimum temperature from the maximum temperature for the day.

7. TEMP. MEAN - MEAN TEMPERATURE IN DEGREES FAHRENHEIT FOR DATE

Mean temperature equals the maximum temperature plus the minimum temperature and divide the sum by two.

8. MEAN CHANGE - MEAN TEMPERATURE CHANGE IN DEGREES F FROM YESTERDAY

Change in today's mean compared to yesterday's mean temperature or yesterday's mean temperature minus today's mean.

9. SOIL TEMP. - GROUND TEMPERATURE IN DEGREES FAHRENHEIT

The ground temperature is taken remotely with a Davis Vantage Pro soil thermometer probe at a depth of one foot and observations are taken at sunset.

SOLAR RADIATION #10 AND #11

The Nimbus Digital Solar Radiation instrument is used to help in the determination of sky cover. If the sky is covered with thin cirrus and significant solar radiation is passing through, a remark will be made to the effect that sunlight is passing through high thin clouds.

10. SKY AM - AMOUNT OF AVERAGE CLOUD SKY COVERAGE SEEN FROM SUNRISE TO NOON

Cloud cover in A.M. is taken from sunrise until noon. 0 = clear (0 to 33% sky coverage), 1 = partly cloudy (34% to 66% sky coverage), 2 = cloudy (67% to 100% sky coverage).

11. SKY PM - AMOUNT OF AVERAGE CLOUD SKY COVERAGE SEEN FROM NOON TO SUNSET
See #10 above as explanation is the same except for time.

12. PRECIP. MELTED - MELTED PRECIPITATION MEASURED IN HUNDREDTHS OF AN INCH
Starting January 1, 1983 the melted precipitation for 24-hour period will be recorded from midnight to midnight measured in .01 of an inch. T means Trace, less than .01 inches of precipitation. From Aug. 31, 1979 to Dec. 31, 1982 precipitation was recorded sunset to sunset. In the event a measurement could not be made at midnight then it will be noted under remarks. Precipitation is checked with both a nine-inch diameter and an eight-inch diameter official NWS rain gauge specification No. D040-SP001 and a four-inch diameter clear plastic gauge.

13. MAX. 1 HR PRECIP. - MAXIMUM PRECIPITATION OCCURRING IN A ONE HOUR PERIOD FOR DATE
This information is observed from a NIMBUS remote precipitation monitor that is battery powered and thus will record data during power outages that occur during thunderstorms. Instrument is reset manually. NOTE: If the precipitation period goes through midnight and it can't be determined if the maximum period of precipitation occurred before or after midnight a note will be made under remarks and the observation will be recorded on the date it is thought to have occurred or will be omitted.

14. MAX. 5M PRECIP. - MAXIMUM PRECIPITATION OCCURRING IN A FIVE MINUTE PERIOD FOR DATE
This information is recorded from a NIMBUS remote precipitation monitor that is battery powered and thus will record data during power outages that occur during thunderstorms. Instrument is reset manually. ALSO NOTE THE ADDED REMARKS OF #13 AS THIS ALSO APPLIES TO #14.

15. FROZ. PRECIP. - FROZEN PRECIPITATION MEASURED IN TENTHS OF AN INCH FOR DATE
Amount of new snow or frozen precipitation recorded for a 24-hour period from midnight until midnight starting Jan. 1, 1983, from 1979 to Dec. 1982 it was sunset to sunset. Measurement will be taken when the snowfall has just stopped before melting caused by sunlight, etc. In deep snows the frozen precip. #15 and snow on the ground measurements #16 will differ because of packing of new snow by the weight of overlaying snow. If the precipitation is other than snow it should be noted under remarks #39. The amount is measured in tenths of an inch. This represents the maximum frozen precipitation depth on the ground at any one time. If a measurement cannot be made or determined at midnight a measurement will be made as near to midnight as possible and recorded as to time under remarks. Starting 1996 on deep snows (over five inches) a separate reading will be taken on snowfall. The snowboard is cleared each time when the snow depth reaches five inches this is called the five inch running total method **(RTM)** and will be recorded under remarks as an additional observation.

16. SNOW ON GROUND- SNOW TOTAL MEASURED IN TENTHS OF AN INCH AT SUNSET
Snow total is a measure of the average amount of snow or frozen precipitation on the ground at sunset measured in inches. Example: if 3 inches of snow is recorded in shadows and one inch in sunny areas an average of 2 inches would be recorded. When T or trace is used it means there are only some patches of snow left in shadowed or colder areas. Trace or T will be recorded until all snow patches have melted in the area where the station is located. Numbers 15 and 16 should be the same if it is a very cold day and if no previous snow was on the ground. Numbers 15 and 16 could be different if some of the new snow melted before the sunset observations. Snow on the ground #16 may decrease on a day when the maximum temperature is less than 32° due to melting or settling due to the heat of the sun in the open areas. In very deep snows 15 and 16 could be different because of settling or packing with temperatures even much below freezing.

17. START TIME - FIRST STARTING TIME OF PRECIPITATION

August 1979 - December 1982
If a time is listed for the date but no precipitation is recorded then the precipitation started between sunset and midnight and the amount would be recorded on the following day.

January 1983 - Present
The time precipitation started in 24-hour time. Time of 0001 means midnight or continued precipitation through time midnight. Time may not be given if less than 0.01 inches of precipitation fell. Time listed would be when enough precipitation had fallen to wet the pavement or approximately .005 inches. Snowfall time is recorded when the first snow flakes were observed during daylight hours and not later than .01 snowfall when melted when falling during late hours of night or early hours of morning when readings are recorded on a precipitation recorder not directly observed.

18. END TIME - FIRST ENDING TIME OF PRECIPITATION
Time precipitation ended - see #17 for additional information. End of precipitation is most often determined from the precipitation recorder when the last precipitation dot has been recorded. One dot equals about .005 of an inch rain.

19. DATE: MONTH - DAY – YEAR

20. START TIME - SECOND STARTING TIME OF PRECIPITATION

If more than one time is given for a date then two distinct periods (interval of >1 to 2 hours separating periods of precipitation) of precipitation occurred. If more than two periods of precipitation occurred a note should be found under remarks #39, example: period of off and on showers from 1400-2000 hours. Often a time will not be given when only a T of precipitation has been recorded.

21. END TIME - SECOND ENDING TIME OF PRECIPITATION

SEE #20 ABOVE FOR MORE INFORMATION.

22. WIND RUN - REPRESENTS THE AVERAGE WIND SPEED

Since 01-01-2003 daily wind run replaces wind dots. A chart has been made to give a correlation between wind dots and the current wind run observations.

The number of wind dots from midnight until midnight. One dot represents about 618 turns of anemometer cups. THIS IS TWICE THE NUMBER OF TURNS OR 1/2 THE NUMBER OF DOTS BEFORE NOV. 8,1987. Starting 01-01-2003 the wind run reading from a Davis Vantage Pro Instrument replaces the wind dot observation. A chart has been made to give a correlation between past observations of wind dots to the current wind run observations.

WIND VELOCITY #22 AND #23

The anemometer for the average velocity is about eight feet above the ground and was moved to a more exposed area about forty feet up a hill on July 1, 1998 thus there may be some increase in the average wind velocity due to the change in location. This observation will no longer be recorded on the monthly observation sheet as of 01-01-2003 and will be replaced with the wind run.

The other anemometer used for maximum wind gust is about five feet above the apex of the house roof at 32 feet above the ground but is still protected some from the wind by tall trees to the north and south and is well exposed to east or west winds.

23. MAX. GUST – DAILY MAXIMUM WIND FROM MIDNIGHT TO MIDNIGHT

The maximum wind recorded from midnight to midnight as recorded by a Davis Vantage Pro and Nimbus Instruments. Starting 01-01-2003 Davis Vantage Pro will be used to obtain the velocity, time and, direction of the maximum gust which will be recorded under remarks when strong winds occur of generally greater than 30 mph.

24. TIME GUST – TIME OF DAILY MAXIMUM WIND GUST FROM MIDNIGHT TO MIDNIGHT

The time of the maximum wind will be recorded from midnight to midnight by a Davis Vantage Pro and Nimbus Instrument. Starting 01-01-2003 Davis Vantage Pro will be used to obtain the time and direction of the maximum gust that will be recorded under remarks when strong winds occur of generally greater than 30 mph.

25. MAX. RH - MAXIMUM HUMIDITY FOR 24 HOUR PERIOD FROM MIDNIGHT TO MIDNIGHT

Starting on January 1, 1991 the maximum relative humidity reading will be taken from a Nimbus digital remote humidity sensor. The Nimbus instrument has an accuracy of 2% from (20%-100%) at 70° F and 5% from (20%-100%) at 32° F. Since November 15, 1998 the Davis Vantage Pro has been used since it is more accurate (2% for the full range of scale) for R.H. Starting 01-01-2003 a Fan-Aspirated Davis Vantage Pro will be used to obtain the relative humidity When the observer is absent for a few days the maximum relative humidity readings will be taken from a hydrothermograph for the 24 hour period of midnight to midnight or from computer data by way of interfacing with the Nimbus or Fan-Aspirated Davis Vantage Pro weather instruments. (Also read #26)

26. MIN. RH - MINIMUM HUMIDITY FOR 24 HOUR PERIOD FROM MIDNIGHT TO MIDNIGHT

Starting on Nov. 15, 1998 the minimum relative humidity reading was taken from a Davis Monitor II digital remote sensor with an accuracy of 2% for the full range of scale. The Nimbus instrument was replaced since it gave too low a reading before its repair on July 15, 1997and too high after the repair until its replacement with the Davis instrument on November 15, 1998. Thus relative humidity readings for 1997 and 1998 may be in error by ten percent. READINGS OF LESS THAN 16% ARE GENERALLY CHECKED WITH A WET AND DRY BULB THERMOMETER. (Also read #25) Observations starting 01-01-2003 will be taken using a Fan-Aspirated Davis Vantage Pro Instrument.

27. MAX. BAR. - MAXIMUM BAROMETER READING FOR DATE

The maximum barometer reading is taken from a barograph for the 24-hour period of midnight to midnight. The barometer reading will also be checked with a NIMBUS digital barometer sensor and Davis Vantage Pro sensor.

28. MIN. BAR. - MINIMUM BAROMETER READING FOR DATE

The minimum barometer reading is taken from a barograph for the 24-hour period of midnight to midnight. The barometer reading will also be checked with a NIMBUS digital barometer sensor and Davis Vantage Pro sensor.

29. AVE. BAROMETER - AVERAGE BAROMETER READING FOR THE DATE

Mean barometer equals the maximum barometer plus the minimum barometer and divide the sum by two.

30. BAR. CHANGE - AVE. CHANGE MEAN BAROMETER READING FOR DATE COMPARED TO YESTERDAY'S

Change in today's mean barometer compared to yesterday's mean barometer reading.

31. BAR. & PRECIP. - BAROMETER READING AT THE ONSET OF PRECIPITATION

The atmospheric pressure when precipitation started. When more than one period of precipitation is recorded the pressure is taken at the time of the first precipitation.

32. MAP FEAT. - MAP FEATURE INFLUENCING TODAY'S WEATHER

Codes used for map features. The feature listed is the one most affecting the day's weather. If more than one is recorded then they both were responsible for the day's weather in the order listed.

8 Low Pressure
9 High Pressure
9R. Elongated High Pressure
10. Air Mass (mT- maritime tropical)
11 Cold front
21 Warm front
24 Stationary front
23 Upper level disturbance or a trough line
26 Occluded front

33. FEAT. LOC. - LOCATION OF THE INFLUENCING MAP FEATURE GIVEN BY STATE ABBREVIATIONS.

If **C** is placed after a state abbreviation it means the feature is located off the coast of that state. Likewise **G** represents "off the gulf coast", **A** is for "off the Atlantic coast". The feature location is given for a time between 0600 and 0800 hours local time.

34. HP. LP. TRACK - HIGH OR LOW PRESSURE TRACK DIRECTION

Only given for High or Low Pressures as to the direction they track (often NE at our latitude)

35. FRONT DIRECT. - DIRECTION OF FRONTAL APPROACH

This indicates the direction of frontal approach. If there is more than one front then the direction of the nearest front will be given.

36. FRONT INTEN. - FRONTAL INTENSITY

THE STRENGTH OF THE FRONT INFLUENCING THE AREA'S WEATHER IS GIVEN FOR THE DATE.

S = STRONG FRONT [greater than 10 degrees temp. difference on either side of the front]
AVE. = AVERAGE FRONT [approximately 5 to 10° of temp. change on opposite sides of the front]
W = WEAK FRONT [less than 5° temp. change across front]

37. FRONT PASSED - TIME OF FRONTAL PASSAGE

If there are two fronts in 24 hours then two times will be given and the second front will be recorded under remarks # 39 and 24 hour time will be employed.

38. DATE: MONTH - DAY – YEAR

39. REMARKS

Remarks will include other observations of interest.
Example: SNOW to WATER ratio, coldest since Dec. 23, 1989

Symbols commonly used in remarks column are as follows:

LP	**Low Pressure**	**TH**	Thunder but no storm observed
LPT	**Low Pressure Trough**	**L**	Lightning but no storm observed
HP	**High Pressure**	**SH**	Shower
HPR	**High Pressure Ridge**	**SHS**	Showers
CF	**Cold Front**	**TS**	Thunderstorm
WF	**Warm Front**	**TSH**	Thundershower
OF	**Occluded Front**	**DCF**	Double Cold Front or 2 Fronts in 24 hours
SF	**Stationary Front**	**TP**	Triple Point Low- The point where the occluded front separates into a WF. And a CF.