

Thinking of a Weather Station?

While clearing out the geography office a while back I unearthed the remains of a traditional Stevenson's Screen and instruments for weather recording. At the time we were planning to introduce a module on weather as part of the KS3 scheme of work. Our enthusiasm had been prompted by the arrival of the Met Office in nearby Exeter and a subsequent trial of classroom video conferencing with them. Clearly if we were to 'do weather' in Year 8 then practical activity was an important way of trying to engage pupils in what is often seen by teachers as a 'dry' (forgive the pun!) and theoretical topic, not a topic that many are comfortable teaching and so all the more challenging to enthuse pupils. A weather station seemed to be an essential tool and while at first, rebuilding the Stevenson Screen offered the most cost-effective solution, further thought suggested that electronic was the way to go. An electronic weather station offers automatic data recording and therefore much more data to work with as well as wider availability of the data linked through the school computer network and published on the school website live! The school had also recently been designated a Specialist School in Maths and ICT and so there was further reason (and some additional funding!) to go for the electronic option.



After some research into electronic weather stations, supported by advice from the Globe Program and helpful discussion with our eventual supplier, **The Weather Shop** (www.ukweathershop.co.uk), I settled on the Davis Vantage Pro2 with WeatherLink software. Key points were that Davis Instruments have a good reputation, the Pro2 very much fitted our requirement for a fully automated system with robust and integrated sensors, linked wirelessly to the console and a proven software package offering a good range of displays and data management options. All this at a competitive price, helped by a discount for Globe programme members. Full details of the equipment can be found on the following site www.davisnet.com. Aside from the equipment and software supplied in our order, a dedicated PC, Monitor and keyboard share is used to store the data, interface the system with the school network and publish data on a live screen in the geography department.

Geography Office

Flat Screen Display

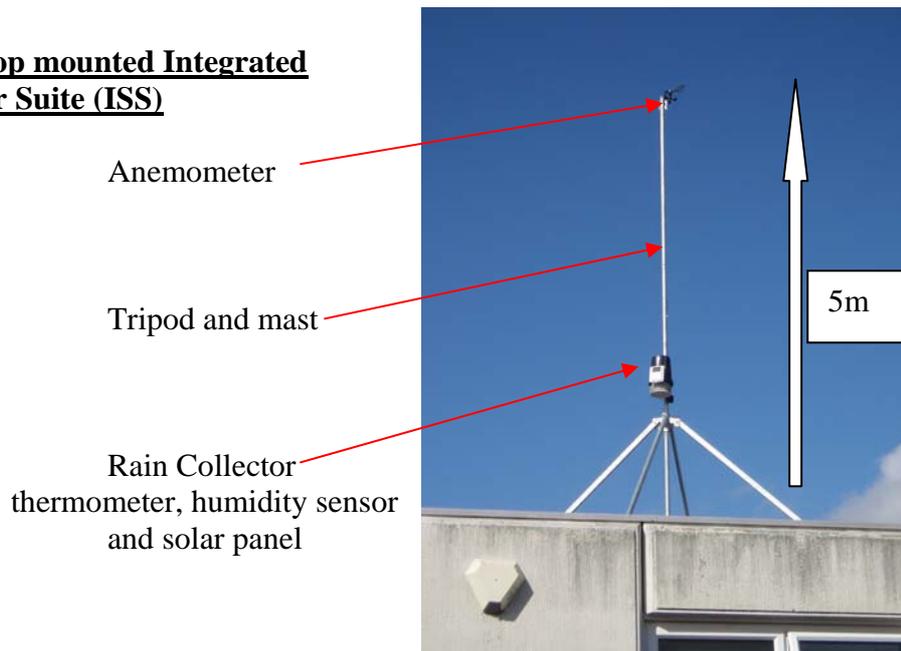
Wireless Receiver/
Console

PC



One challenge was to find the right location for the sensor suite. The sensors need to be sited in an area unaffected by heat sources (chimneys), precipitation run-off and in an unobstructed airflow – It also needed to be secure from theft and vandalism – The best compromise was the roof of the ICT block, mounted on a 5m mast that could be lowered for maintenance (this was manufactured on site by the school caretakers). This ensured security, clear airflow and no adjacent heat sources. Adequate sunlight to power the system (Solar powered) and a clear line of sight for the wireless signal to the receiver/console in the Geography office were also important though the transmission should be received through walls at ranges of over 100m.

Rooftop mounted Integrated Sensor Suite (ISS)



With help from the ICT staff, the system was up and running within days of delivery and linked to the network through the school website which allows pupils and the general public to access live weather data displays and a certain amount of historical data. A full log of data updated every 30 seconds is recorded on the dedicated PC from which data can be exported to investigate or manipulate. It is also intended to input data to the Globe Programme database in America which feeds NASA's climate change study programme. In turn, pupils can access a wide range of atmospheric and environmental data from around the world and share data with partner schools in over 110 different countries. The Davis weather station and weatherlink software can produce data in the right format for this Programme and report data automatically.

School website link and display

home
information >>
curriculum >>
extra-curricular >>
year groups >>
communications >>
community >>
vacancies
sports hall
weatherstation
contact

Welcome to the Uffculme School website!

Welcome to our web site. We hope that you will find it informative and interesting. We are a specialist foundation school of 92 We are a co providing op through our enriching ac

Whatever yo find the info organised in you desire.

Current Weather Conditions at Uffculme School , Devon - Win

http://www.uffculme.devon.sch.uk/weather/

Current Weather Conditions at Uffculme S...

Current Forecast: Partly cloudy with little temperature change.

Sunrise: 7:30 Sunset: 18:28

Met Office Rainfall Radar

DAVIS

Current Weather at Uffculme School, Devon

Temperature	16.4°C
Humidity	87%
Dewpoint	14.2°C
Wind	NW at 0.0 mph
	1023.2 mb &

Outside Temp (C) Outside Hum (%) Dew Point (C)

Wind Chill (C) THN Index (C) Heat Index (C)

(www.uffculme.devon.sch.uk/weather)

The weather station has proven very reliable over the 18 months since installation, with the sensor suite 100% serviceable and wireless connectivity excellent. Occasional power cuts have interrupted the console and computer but data is backed up within the console which has an independent battery power source and logs the data to the computer as soon as power is restored.

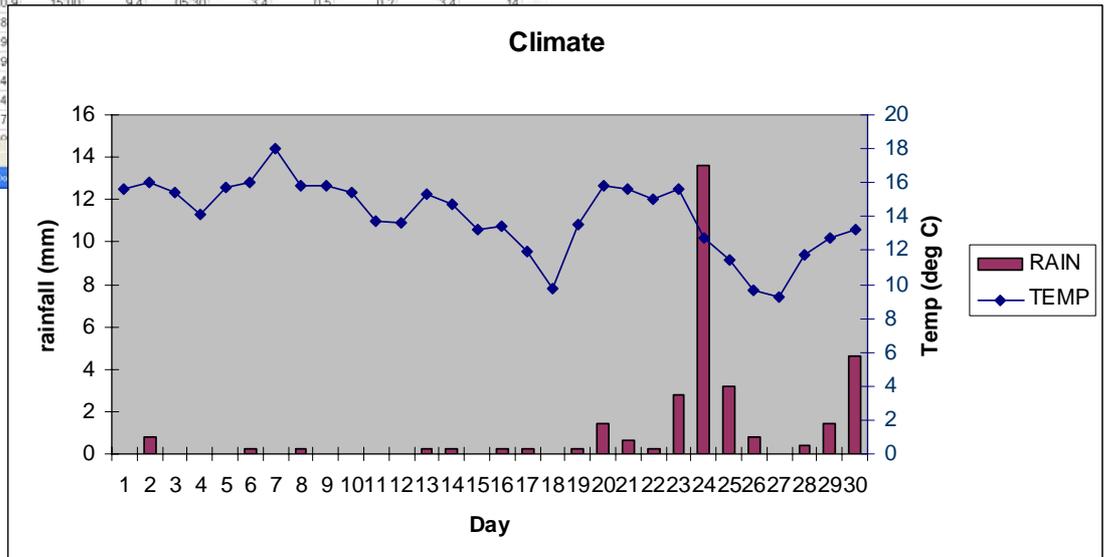
We are gradually developing the use of the station within the school and initial responses have been very positive with pupils regularly looking at the geography department display, members of the local community accessing and using the data on the website and Y8 pupils using the station data to keep weather diaries, analyse and present forecasts during their unit of work. Data is also being used by the Maths and ICT departments to develop graphicacy and data handling skills. There is clearly further potential to use the station to support Science topics and pupil investigations and in the longer term to identify climatological patterns in the area.



Y8 Pupils presenting forecasts using station data

DAY	MEAN TEMP	HIGH	TIME	LOW	TIME	DEG DAYS	DEG DAYS	RAIN	WIND SPEED	HIGH	TI
1	15.6	18.6	15:00	13.1	08:00	2.7	0	0	3.8	18	
2	16	19.6	13:30	12.9	02:00	2.4	0.1	0.8	4.2	21	
3	15.4	18.2	16:00	12.8	00:00	2.9	0	0	6.3	21	
4	14.1	19.7	17:30	8.6	08:30	4.3	0.1	0	3.2	15	
5	15.7	21.4	16:30	9.4	05:00	3.4	0.8	0	2.8	18	
6	16	20.4	17:00	10.7	04:30	2.6	0.3	0.2	3	14	
7	18	22.9	16:30	13.2	02:30	1.5	1.2	0	4.1	14	
8	15.8	20.7	15:30	11.2	07:00	2.9	0.4	0.2	3.9	16	
9	15.8	18.9	15:30	12.1	01:00	2.6	0.1	0	2.2	12	
10	15.4	18.9	14:30	12.5	00:00	3	0	0	7.3	29	
11	13.7	19.9	15:30	8	08:00	4.7	0.1	0	2.6	15	
12	13.6	18.8	17:30	8.4	06:30	4.7	0	0	3.6	14	
13	15.3	20.9	15:00	9.4	05:30	3.4	0.5	0.2	3.4	14	
14	14.7	18									
15	13.2	19									
16	13.4	19									
17	11.9	14									
18	9.8	14									
19	13.5	17									

Example of Y9 ICT pupil work using data downloaded from weatherstation (Excel format)



Costs Summary (Feb 2006):

Wireless Vantage Pro2 weather station including ISS and console
Weatherlink Software

Less 15% discount for Globe Programme membership

Total £697

Additional cost for PC, keyboard and monitor.

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