

## The sys admin's daily grind: Charly's weather report page

# All Weather

To find out what the weather is like, sys admin columnist Charly Kühnast no longer needs to go outdoors get wet, blown away, frozen to death, or sunburned. *By Charly Kühnast*

Years ago, the wind blew me in the direction of a weather station who sends data not only to the small screen in my cozy living room, but to my PC as well. A few weeks ago, a fellow Linux fan told me about a small weather station for an affordable price of about EUR 100 (US\$ 100, UK£ 75). The best thing is it also includes a USB port that gives you access to the weather data. Without much ado, I purchased a WH-1080, which is apparently available from several vendors.

To read the data regularly, I need a Linux PC that runs around the clock and is not far from the reception module on the weather station. Some time in the future, I would like to hand this task over to a single-board ARM system like the Raspberry Pi [1]. To read the data, I have a small Perl script [2]. The measurements it produces are: temperature (indoors and outdoors), dew point, wind chill factor, humidity indoors and outdoors, wind speed and direction, precipitation, and air pressure.

The precipitation measurement poses a problem: The station returns data for the precipitation volume of the last hour, the last 24 hours, and total volume since the

last reset. However, in my case, the first two values are always zero, even if it's pouring rain. I still haven't found out whether the script is to blame for this or whether it has to do with an update to the weather station. The sensor data is migrated via rsync to a web server, which archives and converts them to RRDs to draw the waveform graphs.

### Clouds from the Cloud

Of course, my hobby station can't give me some interesting meteorological data, such as cloud height and cloud types, but I can compensate by tapping into external sources. For example, weather data from civil airports are available in the METAR format [3] for free. I can easily interpret data in the shell or using the Perl Geo::METAR module, and it even works with various commercial weather

services. The US National Oceanic and Atmospheric Administration [4] and Yahoo! [5], for example, offer current weather conditions in XML format, as do a number of other services. The German weather service DWD is very generous with its data [6].

Now I now have a generously populated weather page [7] (Figure 1). The next logical step is to add some kind of alert or control technology to dispatch a warning email if a storm is brewing (i.e., "take down the washing"). ■■■

### INFO

- [1] Raspberry Pi: <http://www.raspberrypi.org>
- [2] Logging script: <http://www.sjcn.net.id.au/computers/weather-station-data-logger>
- [3] METAR: <http://en.wikipedia.org/wiki/METAR>
- [4] NOAA: [http://www.weather.gov/xml/current\\_obs/](http://www.weather.gov/xml/current_obs/)
- [5] Yahoo! Weather: <http://developer.yahoo.com/weather/>
- [6] DWD weather: <http://www.dwd.de/wxdwd>
- [7] Charly's great weather: <http://kuehnast.com/wetter>

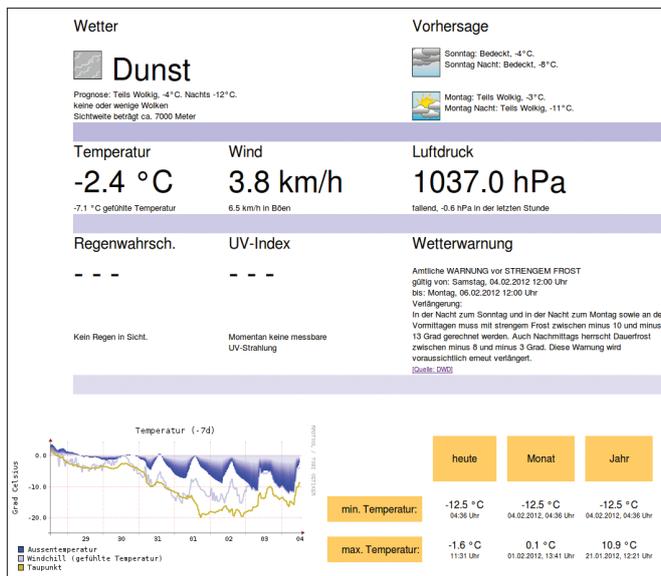


Figure 1: Charly combines real-time and historic values from his weather station with data from the Internet.

### AUTHOR

Charly Kühnast is a Unix operating system administrator at the Data Center in Moers, Germany. His tasks include firewall and DMZ security and availability. He divides his leisure time into hot, wet, and eastern sectors, where he enjoys cooking, freshwater aquariums, and learning Japanese, respectively.

