The Meteorological Service of Canada found that the Vaisala Radiosonde RS92 is just as good as it is claimed to be.

Between January and April 2005, the Meteorological Service of Canada (MSC) completed a Vaisala Radiosonde RS92/RS80 intercomparison study at its national upper air training and development station in Stony Plain, Alberta. The purpose of this intercomparison was to qualify the RS92 radiosonde for operational use.

A total of 50 test flights were performed in which the 2 radiosonde types were flown simultaneously. Test flights were performed in a variety of weather conditions to reflect the possible effects of clouds, precipitation, solar radiation, etc., and involved both the LORAN and GPS versions of the RS80 and RS92 radiosondes. Tests also involved the use of the Vaisala Ground Check Set GC25 for the RS92 pre-flight preparations.

Convincing results
From an operational perspective, observers found the ground check set easy to use, with no problems encountered in its use or in the handling of the RS92 radiosondes.

From a data perspective, the RS92 radiosondes were found to respond better to atmospheric changes than the RS80s. In humidity soundings, the RS92’s dual heated hygristor system provided more accurate cloud top information and more realistic humidity, particularly at cold temperatures, than the older sonde model. Wind speeds measured with both sondes compared very well, although there were some significant differences in wind direction at low wind speeds. This was expected, as wind direction is typically quite variable at low speeds. Considering its new code-correlated GPS processing software, the RS92 winds were considered to be the more accurate whenever differences were noted. In addition, there were fewer instances of missing wind layers with the RS92 GPS radiosondes.

As for temperature, both types of radiosondes agreed well with one another; however, the RS92 radiosondes reported cooler daytime temperatures in the stratosphere. This difference is probably the result of the RS92’s new temperature sensor, which is less affected by solar radiation.

One happy customer
Overall, test results showed that the RS92 radiosondes met or exceeded the performance of the RS80 radiosondes presently being used. Consequently, the RS92 radiosondes were approved for operational use and will be gradually implemented into MSC’s upper air observing network, which comprises 31 stations.