The in-situ pressure calibration system used by Meteo-France

Dr J. Duvernoy

Météo-France, (jerome.duvernoy@meteo.fr)

Météo France was entrusted with the survey and forecast of atmosphere's behavior. The responsibility of the observation in Météo France has been given to the Direction of Observation's Systems (DSO), which manages, in consequence, a network of 600 meteorological surface stations. On these 600 stations, there are over than 300 barometers.

To achieve pressure measurement accuracy, network's barometers are calibrated every two year in the Laboratory of Metrology of the DSO and are controlled in situ every year. So the DSO has developed its own in situ pressure calibration system, which is composed of a transportable reference barometer, a portable generator and a special software, called LEON SITE. This system maintains easily the integrity of the traceability chain.

In a first time, we will describe the generator's running. The generator is based on two gasholders of high and low pressure (compared to the ambient pressure) and a mixer gasholder. Both reference and calibrated barometers are connected with the mixer gasholder. The pressure is generated from 800 to 1060 hPa with a stability of 0.03 hPa.

In a second time, we will study the opportunities of the software LEON for the data acquisition and processing. The system enables to use either the inner barometer or an other reference standard as reference. In all cases reference barometers should be calibrated before and after.

Finally, we will present the operational use of this system for the Météo France's network and the usual uncertainty of measurement. For example, such countries like Cuba, Libye or the Asecna organization called on the DSO's services as Regional Instrumentation Center (RIC) to controlled in situ their barometers with this system.