

Mobile automatic weather and air pollution system (MWS)

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MWS was financed by Slovene Ministry of defence and Agency for research to investigate possibilities for combining new technologies in the hardware and software field with standard and advance air pollution modelling.

First part of MWS is mobile weather station, capable of monitoring three general types of environmental parameters – meteorological parameters (wind, air temperature, humidity, solar radiation, pressure, precipitation), pollution parameters (PM10, SO₂, NO_x...) and aviation support parameters (visibility, cloud height and cover,...). MWS uses new intelligent sensors that can be connected via serial connection.

For the integration of the sensor sampling, statistical calculations, data quality control, data logging into a Flash memory, for data forming for output in application-specific formats and communications VIPER PC/104 embedded PC is used. Main performances of the VIPER are low power consumption (less than 2W), small dimensions (10x10cm), fast CPU (400 MHz Intel PXA255) and a lot of interfaces (Ethernet, USB, RS232). For the fast installation of the station automatic compass and GPS is used also.

Second part of MWS is mobile workstation, that collects data from one or more automatic weather stations by radio or GSM link. The mobile workstation is notebook PC that uses MySQL data base to store incoming data. This data are automatically coupled with GIS database and can be instantly visualized. In the case that MWS is used to investigate the air pollution episode, emission and dispersion model can be used. Mobile workstation can therefore online estimate doses of the nearby population.

Possibilities of different use of MWS will be given from research applications, standard measurements for regulatory purposes to civil defence applications in case of terrorist attacks and major accidents.