



## **RADIOACTIVITY MONITORING NETWORK OF SLOVAK HYDROMETEOROLOGICAL INSTITUTE AND ITS ACTIVITY WITHIN THE FRAMEWORK OF NUCLEAR EMERGENCY INFORMATION SYSTEM**

**A. Procházková, T. Trčka**

*Slovak hydrometeorological institute, Bratislava*

### **Abstract**

SHMI radioactivity monitoring network is a part of nuclear radiation early warning system. This paper describes the aim and the structure of the monitoring system.

### **Introduction**

Nuclear power plant operation is joined with potential risk of people impact by accidental radioactivity releases. Powerful information systems are the sources of information of environmental radioactivity. They are the database for improving of effective countermeasures. Radioactivity monitoring network of SHMI performs the tasks of early warning system.

### **Aims of system**

The system from the beginning was made by six measurement places. They were equipped by dose rate equipment NB 3201. The effort of area monitoring network building led to the extending of monitoring places into 26 ones. They have been equipped by proportional detectors of FAG FHZ 621B.

In 1992 according to the cooperation between Czechoslovak Federative Republic and Federative Republik of German the integrated monitoring information system for radioactivity IMIS was performed. In the first stage of system building the user software was realised by firma Dornier. The workstation DEC 5000-240 with software was installed at SHMI. Also the staff was trained and the system was connected to the public data network Eurotel. In the second stage the measurement places of radioactivity monitoring network were connected to the system. In the framework of the information system Slovak Centre of Radioactivity Monitoring Network is superior to the SHMI informaticon system. It collects data from many organisations and also from SHMI monitoring network. According that fact the more efficient computer was installed in Slovak Centre of Radioactivity Monitoring Network. The computer DEC 5000-133 with software for radioactivity monitoring data collection was installed to SHMI. Fig.1 shows the transmissions of IMIS informations.

According to Agreement of Slovak Ministry of Environment and Austrian Federal Ministry of Health and Consumer Protection signed in may of 1994 data exchange from early warning systems have been made. For that purpose National Early Warning Centre of Vienna and National Communication Centre of SHMI of Bratislava Airport were connected by leased line. The data of Slovak measuring system are available as 10-minutes values and daily average values in the telecommunication centre at Bratislava Airport, from wick the data are transferred by local network (TCP/IP) to any partner-computer. The data of Austrian measuring system are available as 5-minutes average values, average values per hour and daily average values on the process control computer in the National Early Warning Centre in Vienna. Fig.2 shows the connection of parts of the system.

Measurement places are the information source of radioactivity monitoring network. Software preprocesses radioactivity data within meteorological data and transferres them to

telecommunication centre. Software for cooperation with dose rate detector works in two regimes:

1. automatic operation
2. manual operation

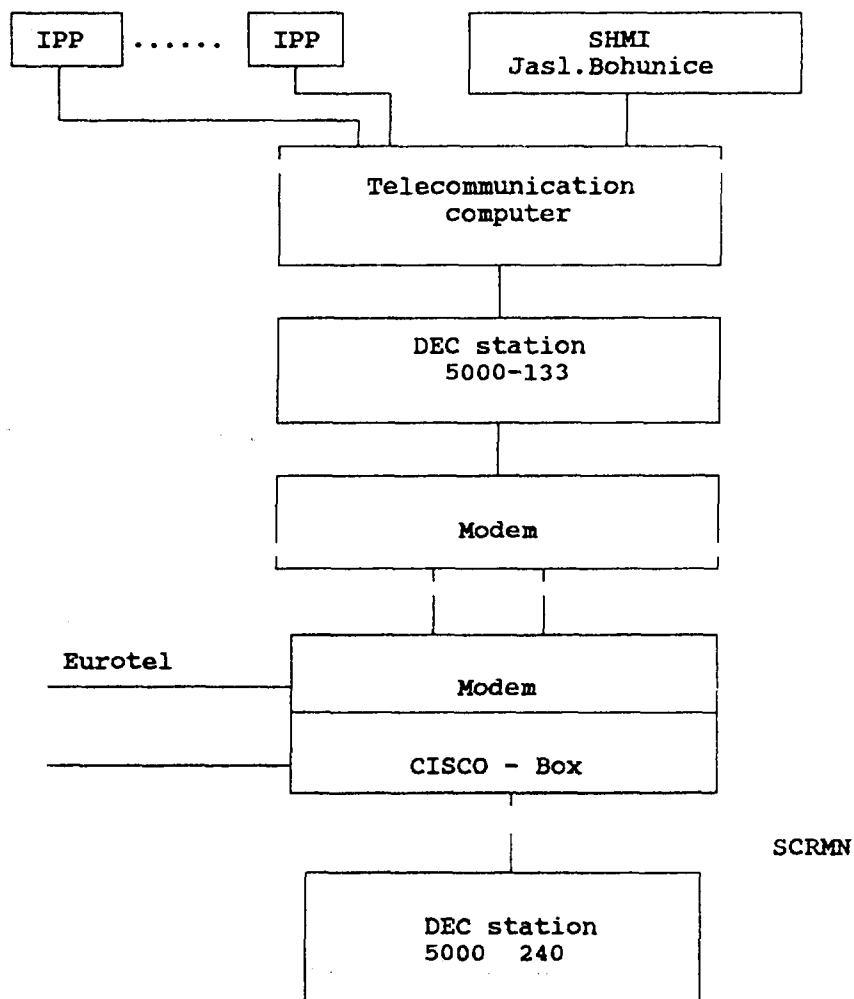
Stages of automatic operation:

1. normal operation (gamma dose rate is lower then 500 nSv/hour)
2. increased radioactivity (gamma dose rate is higher then 500 nSv/hour)
3. failure

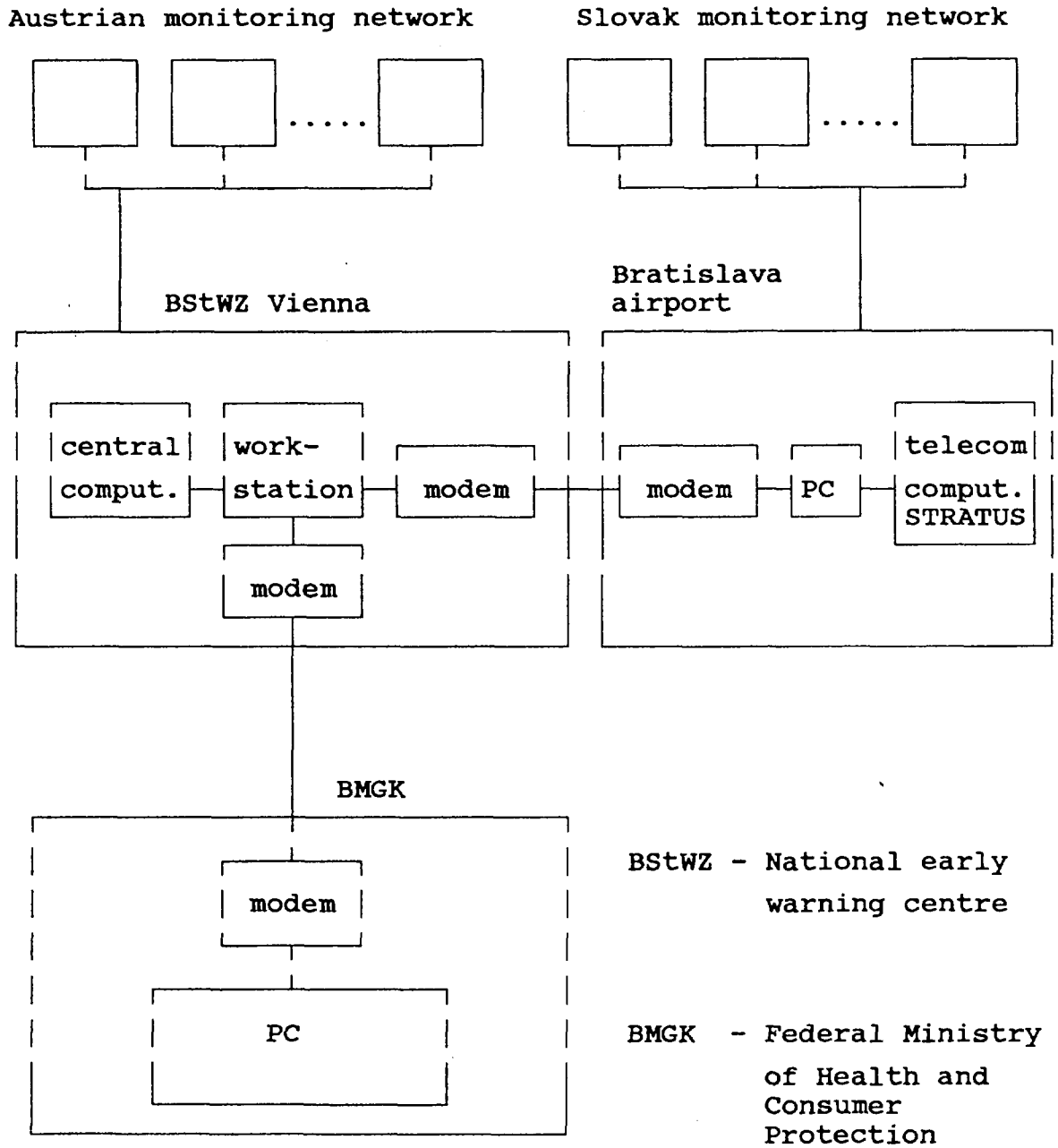
For information system IMIS in "normal operation" daily average values are transferred. In "increased radioactivity" two-hours average values are transferred.

### Conclusion

This paper presents a short description of radioactivity monitoring network of SHMI and its connection with Austrian and German systems. It provides national means for the monitoring of the radiological effects of nuclear accident and for informing government departments and the public.



**Fig.1** Scheme of IMIS information system



**Fig.2** Connection of Austrian and Slovak early warning systems