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Assessment of the readiness of noble gas equipment for field operation in the IMS network

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The radionuclide component of the International Monitoring System (IMS) consists of 80 radionuclide stations, of which 40 are equipped with noble-gas monitoring capability. Prior to the set-up of the IMS network, noble gas monitoring was only performed by a few institutions using manual, laboratory based systems. The deployment of noble gas systems in a world-wide network of monitoring stations required development of a new generation of equipment, which is reliable, suited for automated field operation at a detection sensitivity lower than previously achieved in laboratory based systems. New types of equipment have been developed and undergone extensive testing during the last 10 years under the framework of the ongoing International Noble Gas Experiment (INGE). During Phase III of INGE, three different types of noble gas systems are deployed into the IMS for testing. With altogether 17 systems in the field between 2004 to 2008 experience of more than 37 operational years has been accumulated.
Operational parameters of the noble gas systems have improved during the entire Phase III from the first systems towards the latest state-of the art system generations.
To ensure minimum down time any operational problems are addressed within the support system inside the PTS. Within this support system the operational performance is continuously monitored and particular problems are identified. The solution of operational problems is the joint objective of the PTS, the station operators and the system suppliers. Equipment reliability, operational procedures, maintenance and sparing plans are continuously reviewed and improved.
The operational status of the IMS noble gas network during the Phase III exercise as well as the support strategy is presented.