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in State of Health Analysis for International Monitoring Systems

International monitoring system (IMS) stations report state of health (SOH) data at regular intervals. Analysis of this data can provide valuable information about the current performance of the stations as well as help operators diagnose problems. Additionally, the data can provide information about component degradations that could eventually lead to system failure resulting in down-time or loss of data. Pacific Northwest National Laboratory (PNNL) is performing SOH analysis research to aid in the identification of current and potential future failures. The objective is to improve the current SOH monitoring capability to increase system uptime, decrease loss of data, and reduce unscheduled maintenance visits. PNNL has developed a software framework that uses model-based analysis techniques and provides a web-based graphical user interface for interaction. The current version of the tool was designed to analyze data from the Swedish Automated Unattended Noble gas Analyzer (SAUNA). Models of normal operation were implemented using both a basic mean and an alternate, exponential smoothing approach. Deviations from the models are then used to provide alerts and identify trends. The current state of the tool and SOH analysis will be presented.

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