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Operational Monitoring of GOME-2 and IASI Level 1 Product Processing at EUMETSAT

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The growing complexity of operational level 1 radiance products from Low Earth Orbiting (LEO) platforms like EUMETSATs Metop series makes near-real-time monitoring of product quality a challenging task. The main challenge is to provide a monitoring system which is flexible and robust enough to identify and to react to anomalies which may be previously unknown to the system, as well as to provide all means and parameters necessary in order to support efficient ad-hoc analysis of the incident.

The operational monitoring system developed at EUMETSAT for monitoring of GOME-2 and IASI level 1 data allows to perform near-real-time monitoring of operational products and instrument's health in a robust and flexible fashion. For effective information management, the system is based on a relational database (Oracle). An Extract, Transform, Load (ETL) process transforms products in EUMETSAT Polar System (EPS) format into relational data structures. The identification of commonalities between products and instruments allows for a database structure design in such a way that different data can be analyzed using the same business intelligence functionality. An interactive analysis software implementing modern data mining techniques is also provided for a detailed look into the data.

The system is effectively used for day-to-day monitoring, long-term reporting, instrument's degradation analysis as well as for ad-hoc queries in case of an unexpected instrument or processing behaviour. Having data from different sources on a single instrument and even from different instruments, platforms or numerical weather prediction within the same database allows effective cross-comparison and looking for correlated parameters. Automatic alarms raised by checking for deviation of certain parameters, for data losses and other events significantly reduce time, necessary to monitor the processing on a day-to-day basis.