ARM Data Quality Office: Fusion of Automated and Manual QA/QC Techniques

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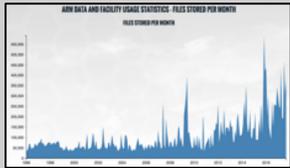
Automation

The Atmospheric Radiation Measurement Program (ARM) collects data from over 350 instruments every day.

The ARM Data Quality (DQ) Office is tasked with ensuring that data downloaded by the end-users are of the highest quality.

DQ Office utilizes a blend of different languages in its toolbox and recently upgraded to take advantage of multiprocessing which drastically reduces our run time.
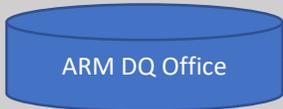
ARM DQ Office

DQ software needs to be scalable so it can run on a virtual machine with 2 cores onboard a ship for a remote deployment or on a computing cluster with over 1000.
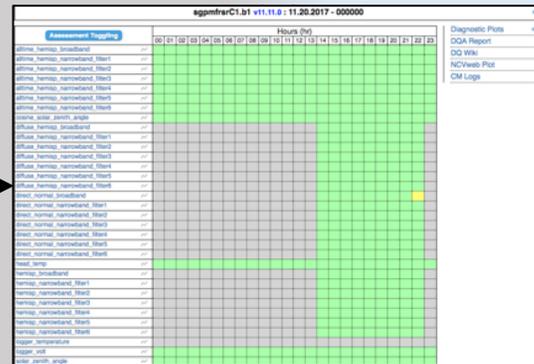
DQ Office runs approximately **10,000 processes** a day to run tests and visualize the latest data coming in. This results in the daily creation or updating of over **5,000 images** and over **400 daily summaries of QC tests** that are used in the analysis of the data.
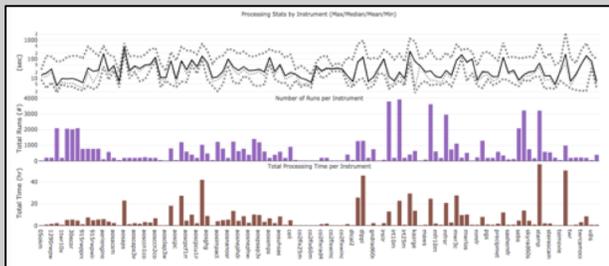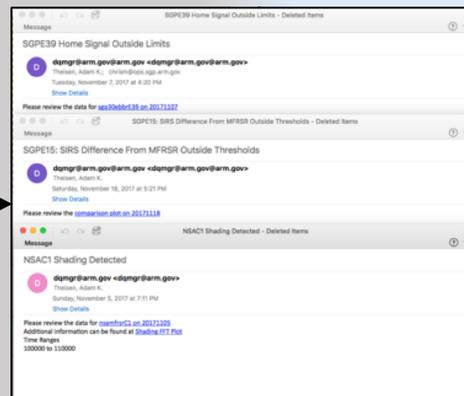

Data Visualization
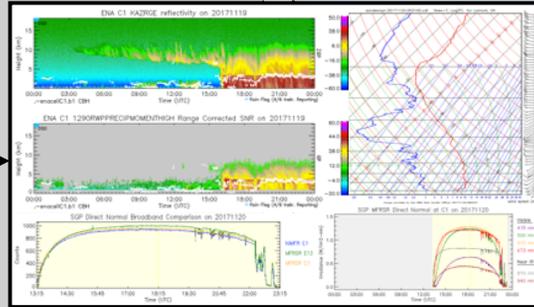
QC Summary Information
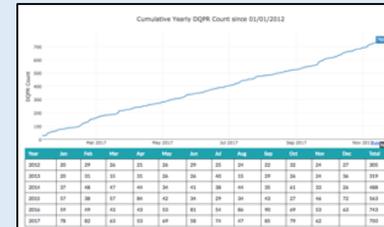

Automated Problem Alerts

Manual

Team of undergraduate meteorology students are employed to review and submit a **Data Quality Assessment Report (DQA)** on a weekly basis.
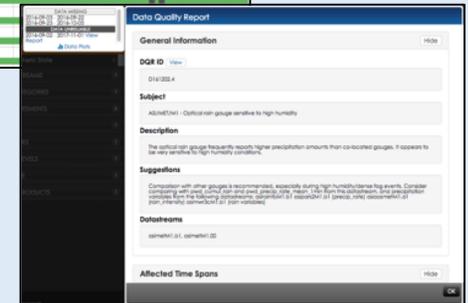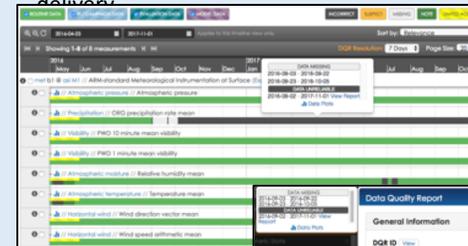
Analysts review over 160 years worth of data over the course of a year.

Problems are promptly reported through the **Data Quality Problem Reporting (DQPR)** system where site technicians, instrument experts, and others work to resolve the problem in a timely manner.

Information about the problem and how it impacts the data is then reported to the end user through a **Data Quality Report (DQR)**. These reports are both human and machine readable and can be accessed through a web service or applied on data delivery.

www.arm.gov/data