

Improving Quality Control Tools & Procedures for ARM Value-Added Products

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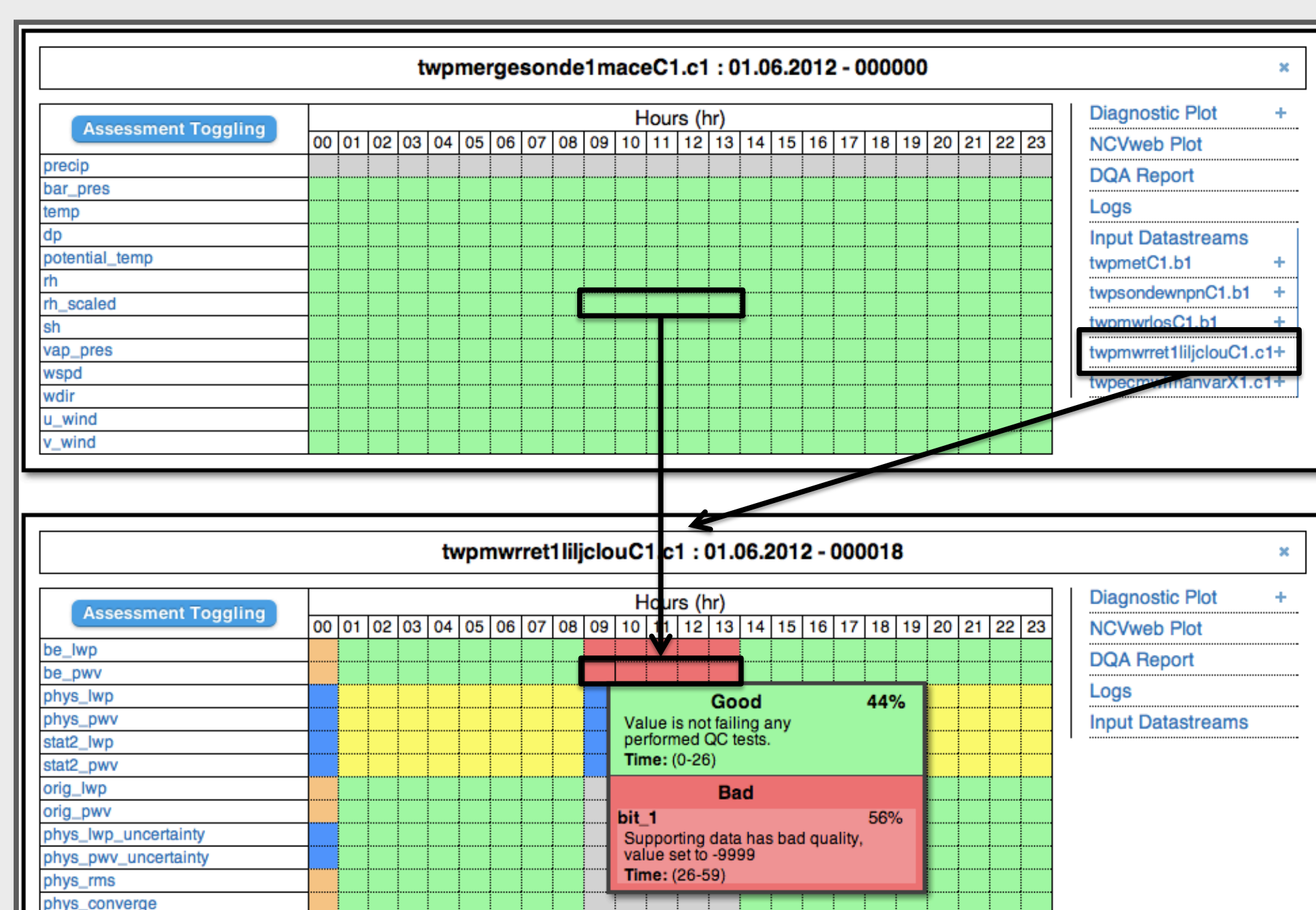
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DQ Explorer & Production VAPs

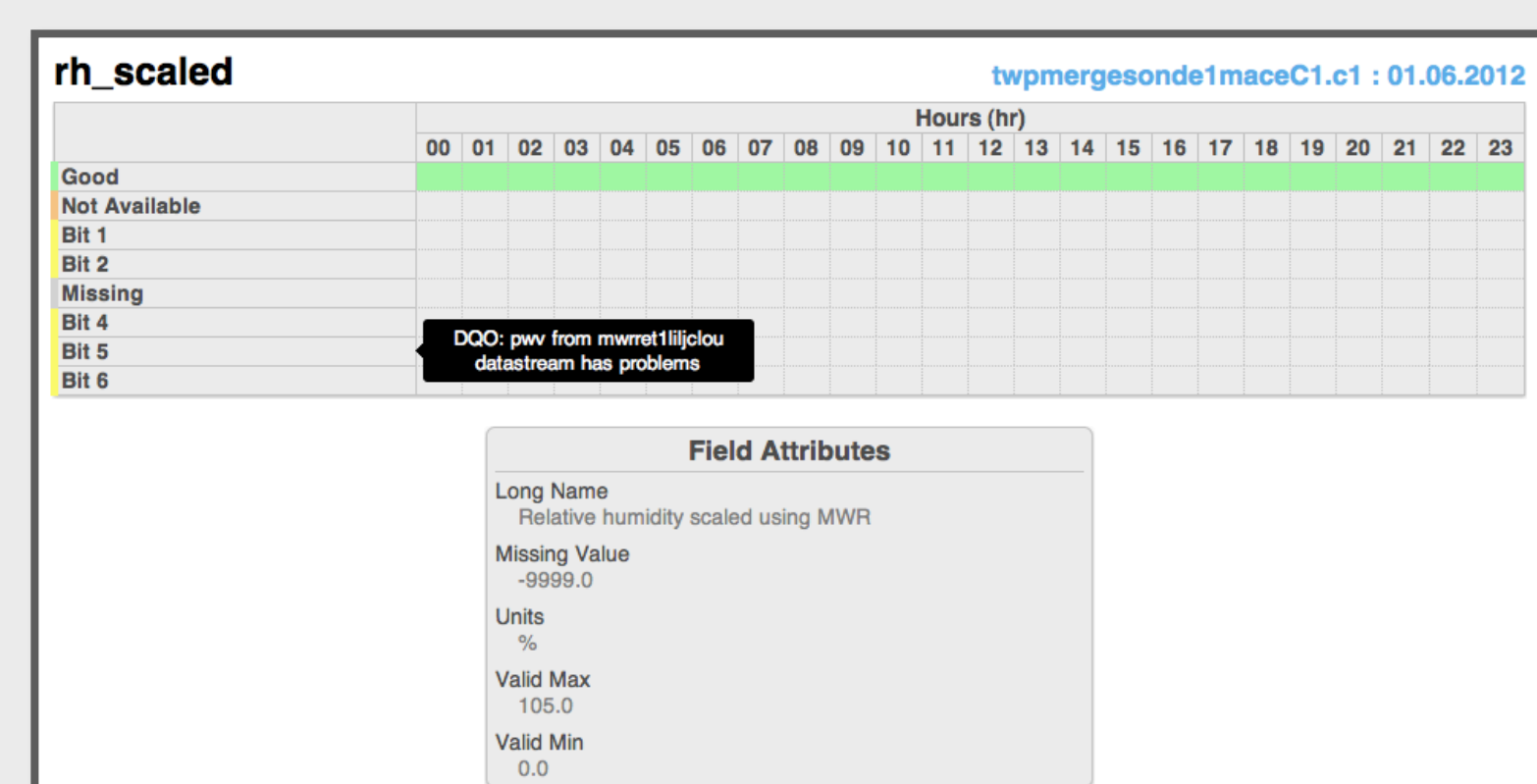
DQ Explorer (available at <http://dq.arm.gov>) web application has many new features that help streamline the quality control (QC) of VAPs:

- Displays QC summary metrics from multiple datastreams on the same page using a common hourly grid
- Provides quick access to metrics for VAP input datastreams via the “Input Datastreams” link on each table
- Handles any number of bit-packed QC tests, including those created by the DQ Office, with color coding for multiple assessment levels
- Displays metrics and plots for multiple data levels of the same datastream

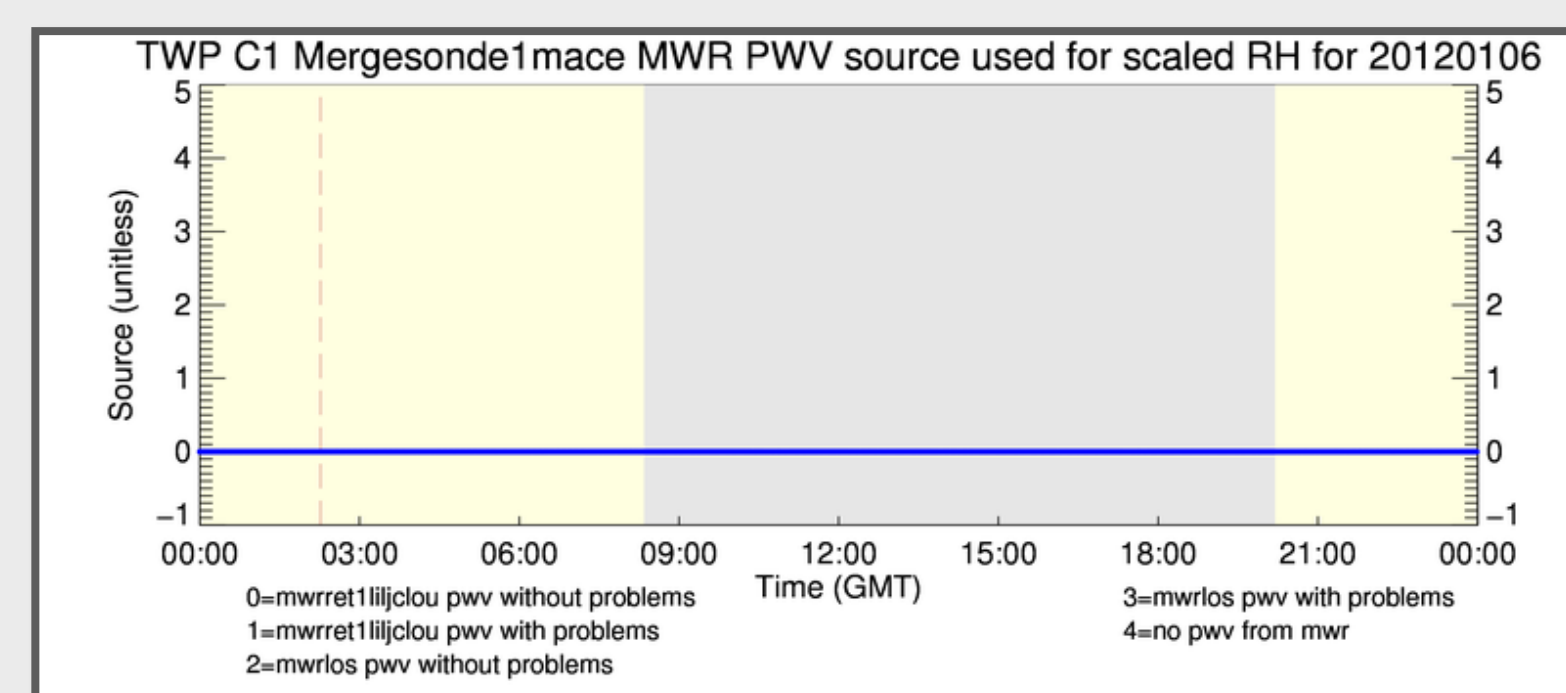
Potential Problem Identification for MERGESONDE VAP



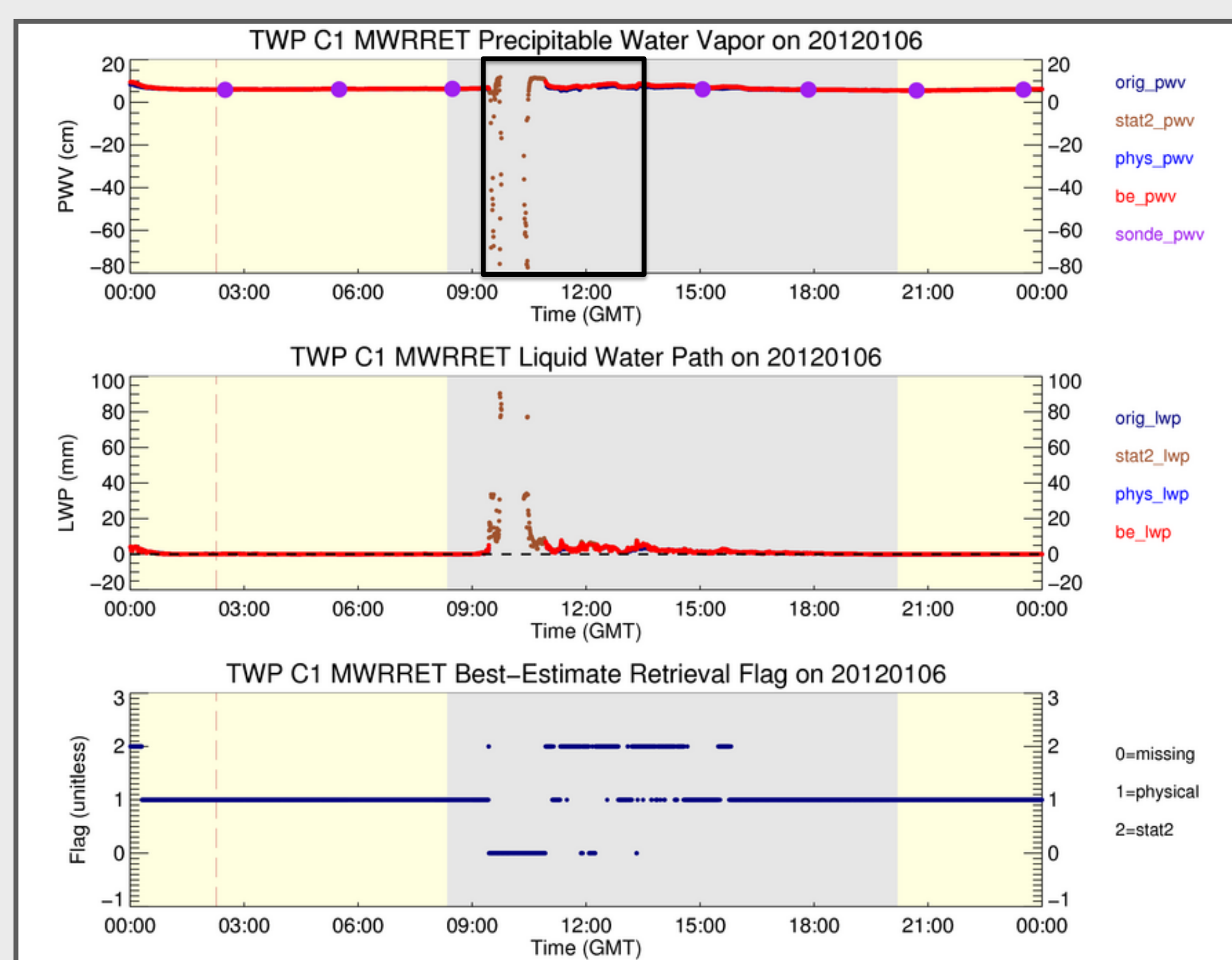
DQ Explorer hourly QC metrics for MERGESONDE and MWRRET VAPs. The MWRRET metrics indicate a problem with PWV values used for the MERGESONDE `rh_scaled` field.



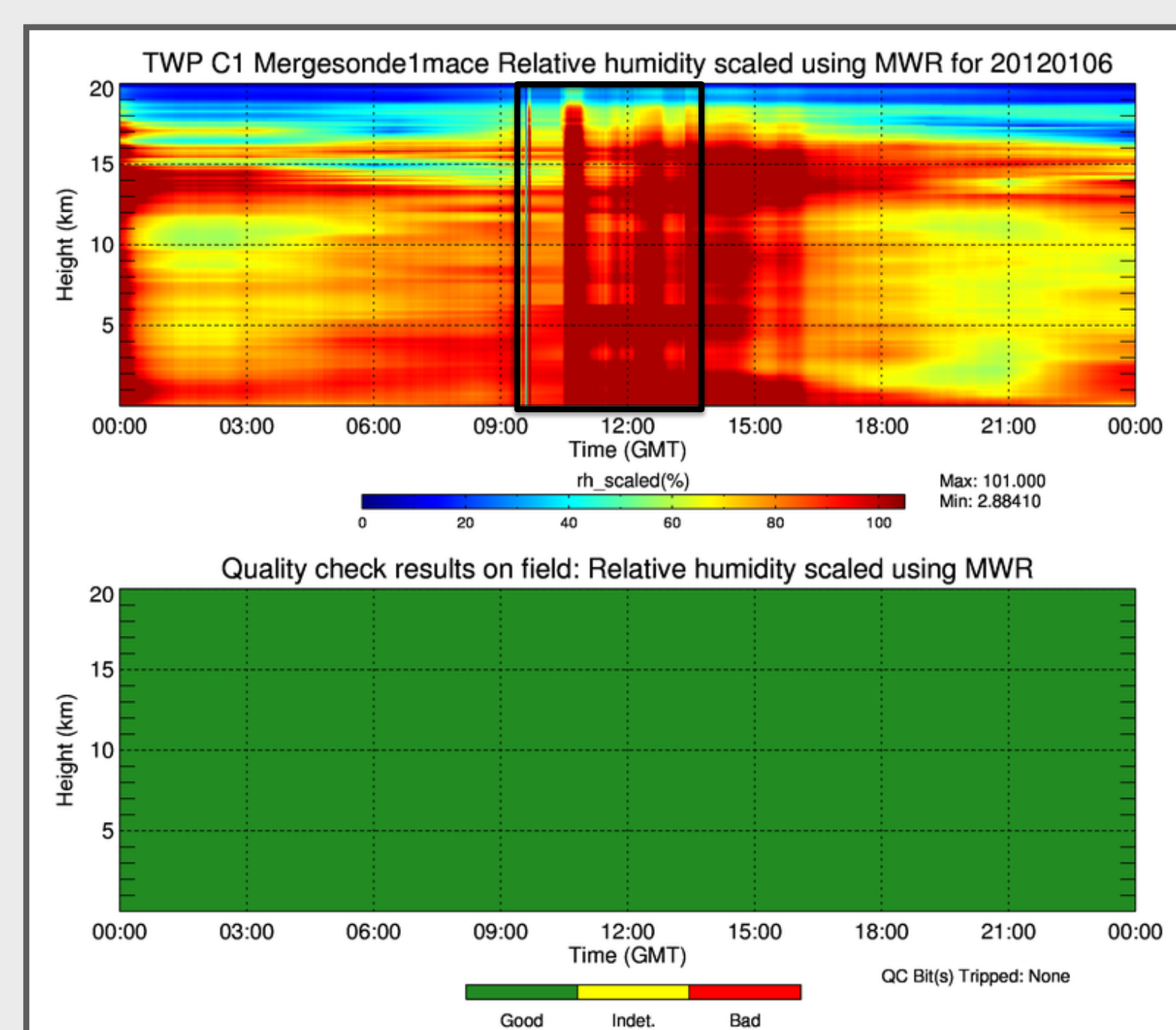
Detailed field-level view of QC metrics for MERGESONDE `rh_scaled` field showing no problems



MERGESONDE `vapor_source` values=0, indicating no problems with MWRRET PWV



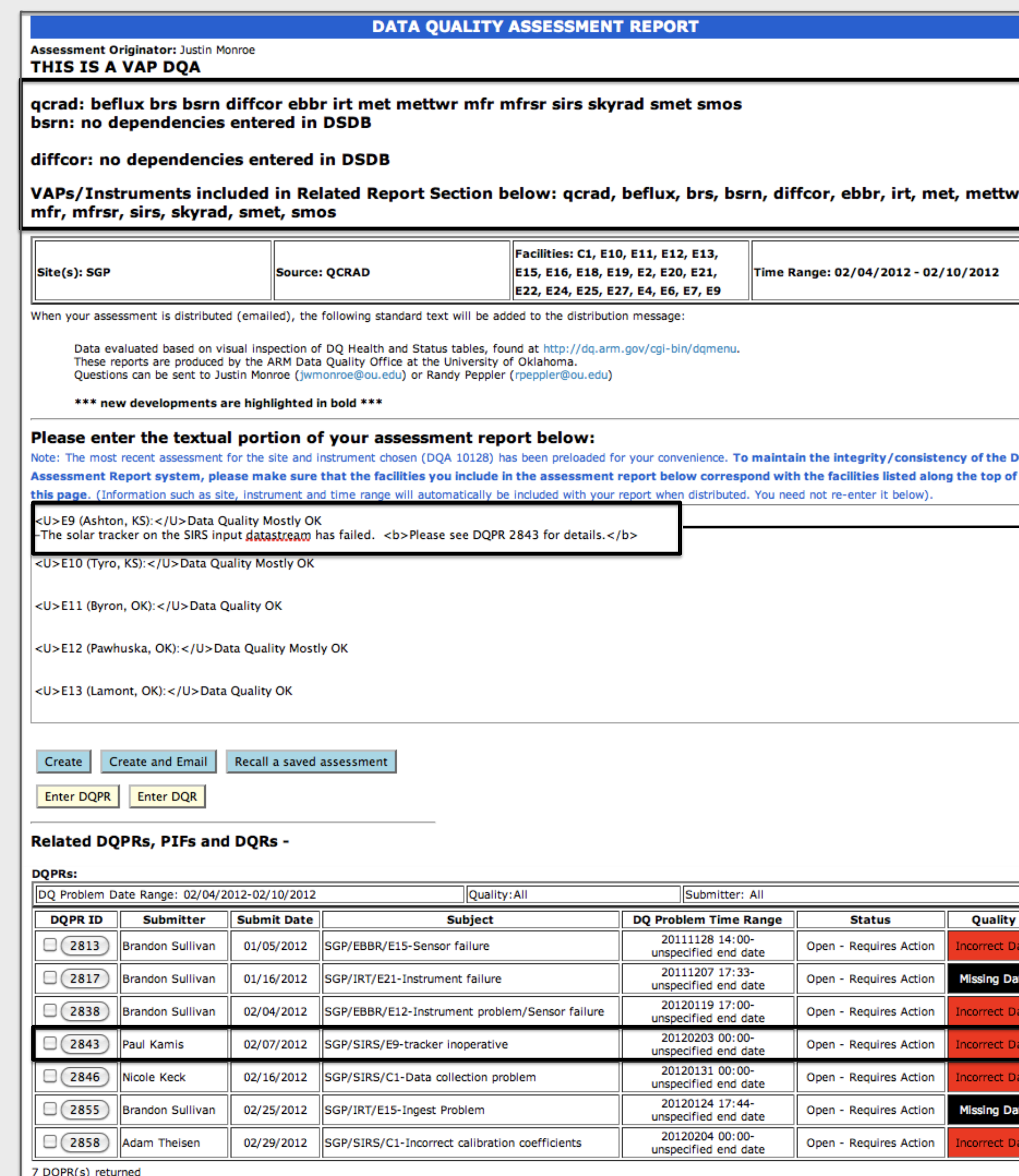
DQ Explorer plots of MWRRET PWV, LWP, and Best-Estimate Retrieval Flag. Best-estimate PWV data were missing during a portion of the problem period identified in the hourly metrics.



DQ Explorer plot of MERGESONDE `rh_scaled`. Values are saturated at 101% for much of the problem period identified in the hourly metrics.

Updated Data Quality Assessment Reporting

The **Data Quality Assessment (DQA)** tool, developed and maintained at BNL, has undergone updates to utilize VAP dependency information:



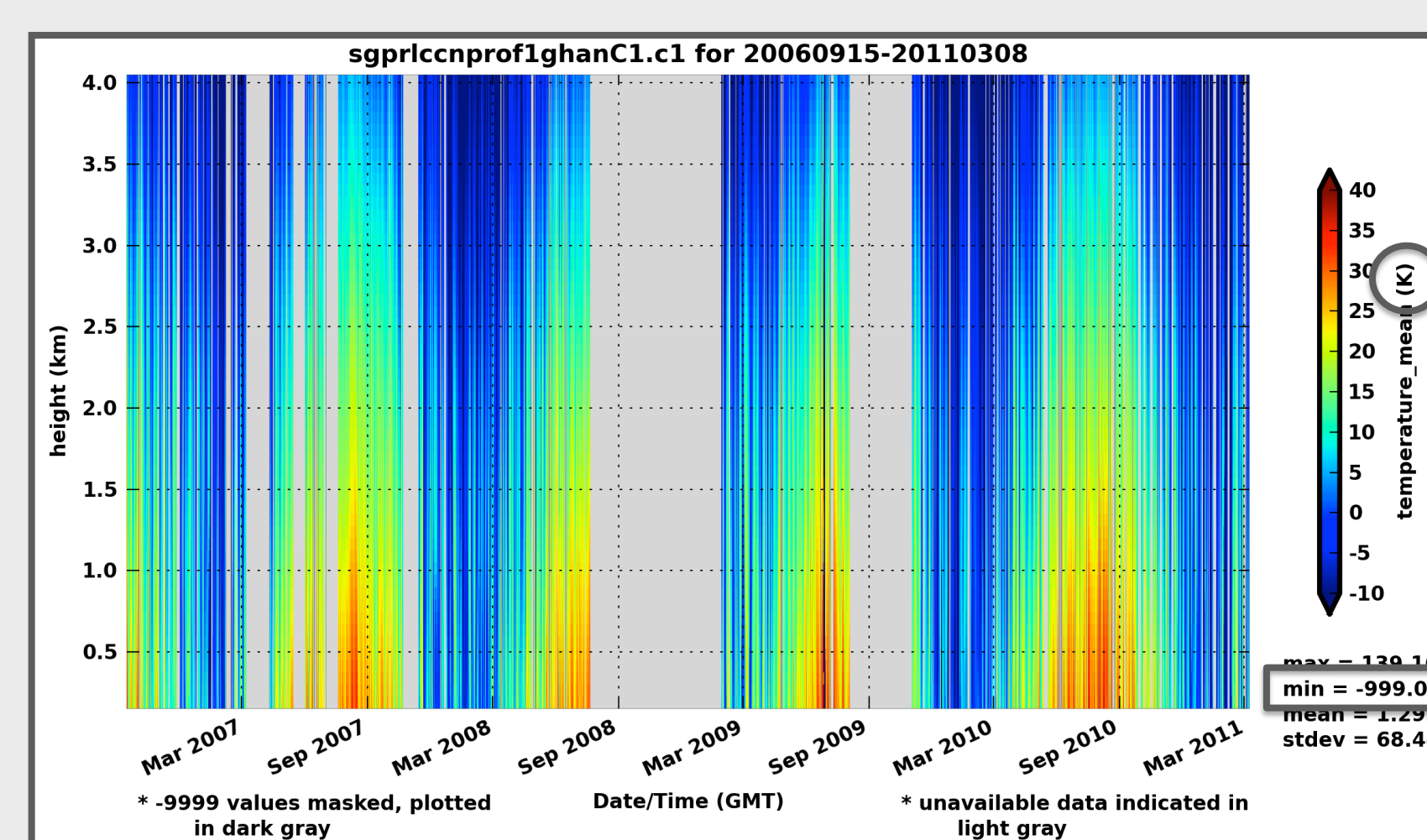
Queries web service hosted at PNNL for datastream-level VAP dependencies

DQ analyst sees a problem with SGP E9 SIRS and notes it in QCRAD DQA

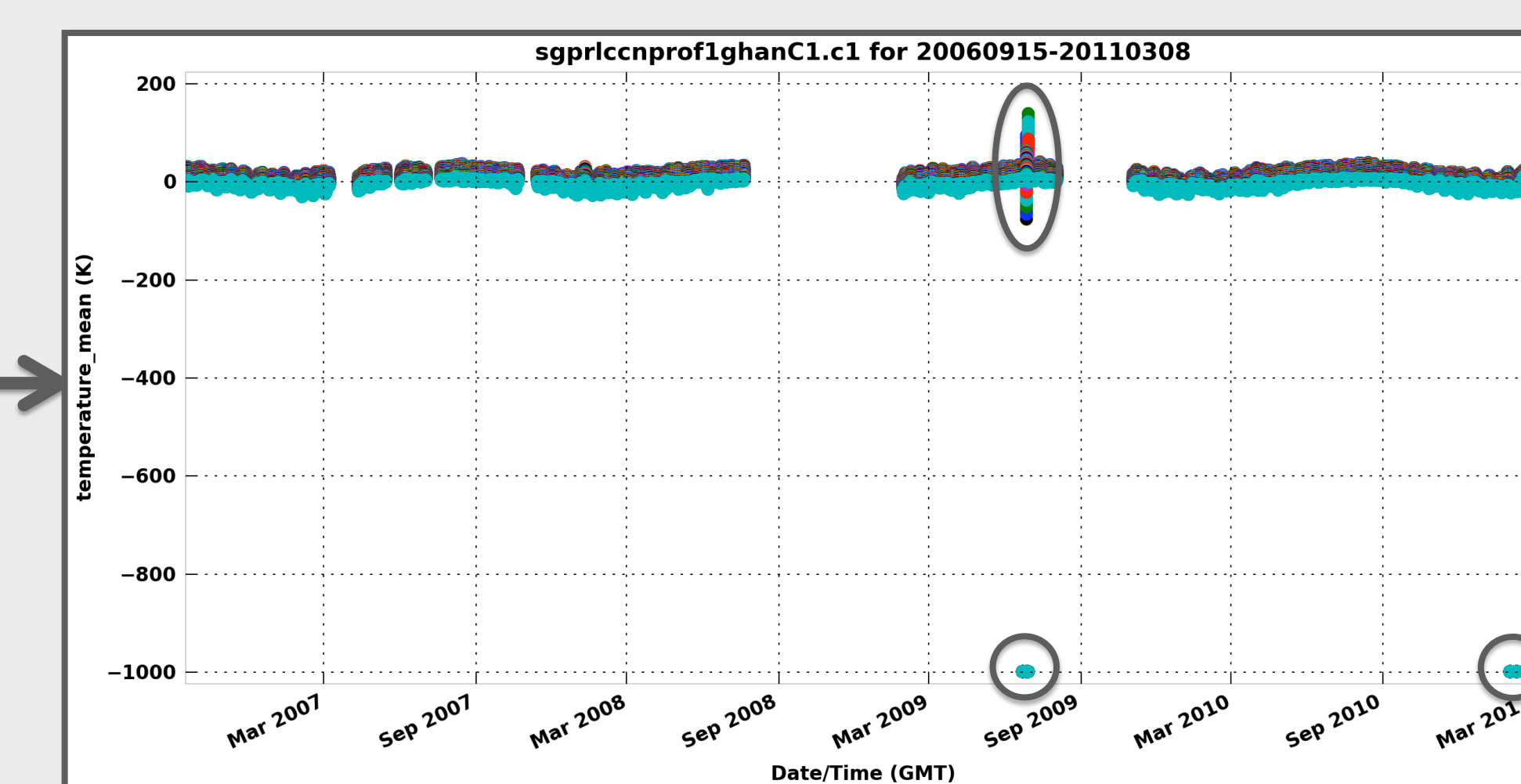
DQ analyst can quickly scan and access open DQPRs and DQRs from associated input datastreams

Evaluation Products & DQ Inspector

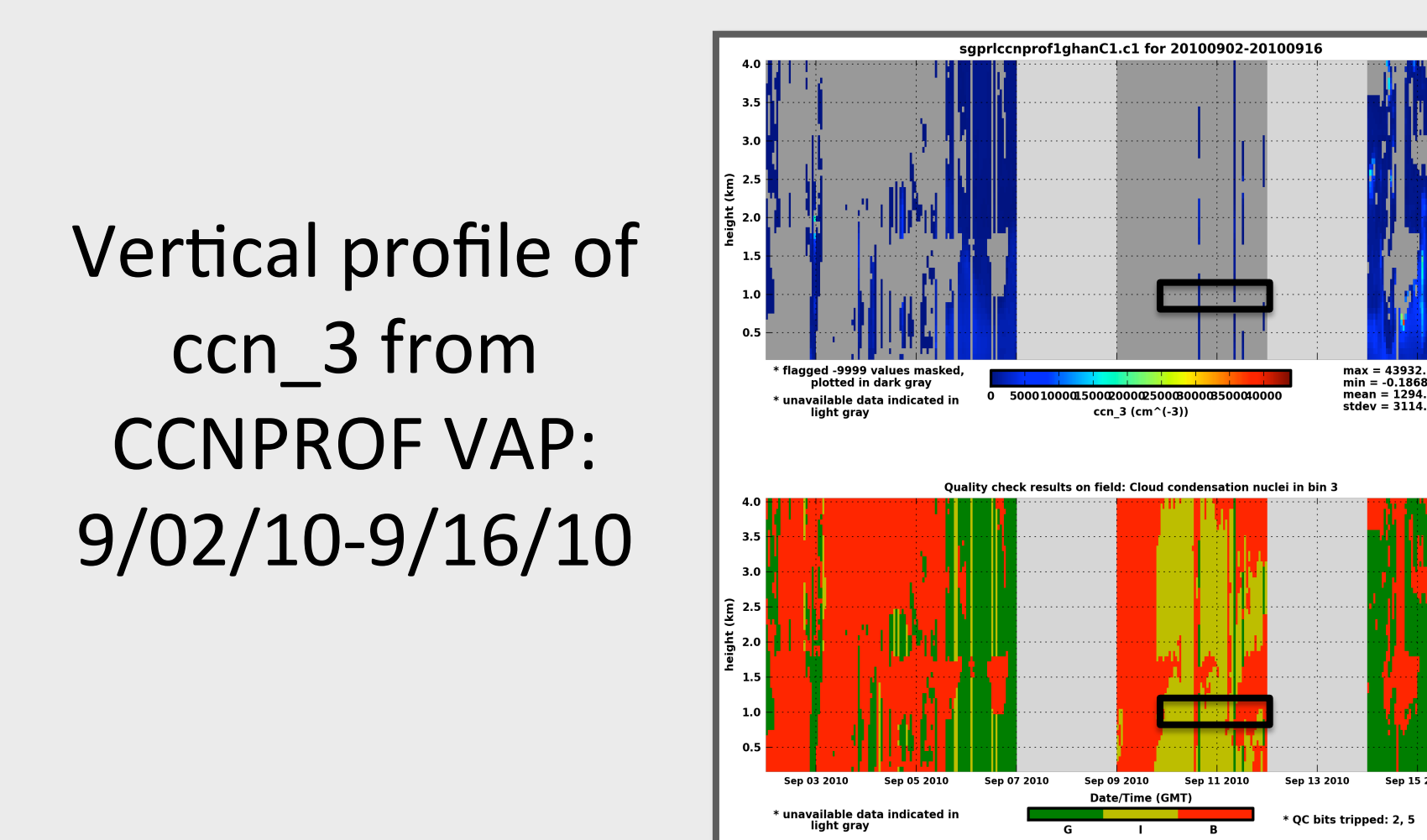
DQ Inspector enables the DQ Office to troubleshoot development VAPs for developers:



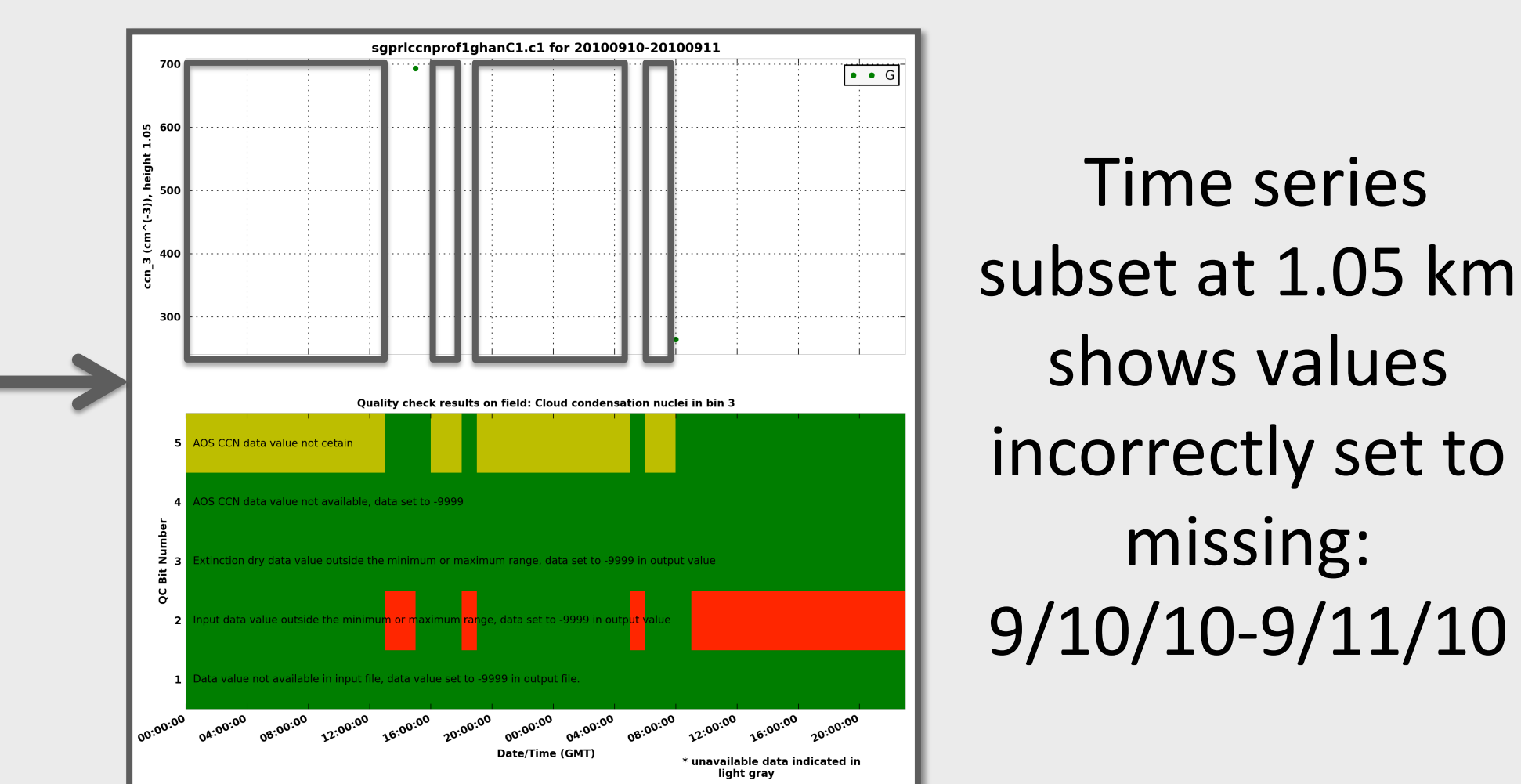
Vertical profile of `temperature_mean` from CCNPROF VAP: 9/15/06-3/08/11



Same data plotted as time series to quickly identify outliers



Vertical profile of `ccn_3` from CCNPROF VAP: 9/02/10-9/16/10



Time series subset at 1.05 km shows values incorrectly set to missing: 9/10/10-9/11/10