BepiColombo Data Analysis Ecosystem: Quick-Look and Science Analysis Forum

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Context: The ESA/JAXA BepiColombo mission will orbit in the harsh environment of Mercury for a duration of 1(+1) year(s), starting in 2026, with 2 orbiters (17 instruments) dedicated to the planet (ESA Mercury Planetary Orbiter) and its magnetosphere (JAXA Mercury Magnetospheric Orbiter). A tight collaboration between instrument teams is required in order to achieve the science objectives of the mission. The ESA Science Ground Segment (SGS) is currently developing and operating a data analysis ecosystem to support the instrument operations and scientific data monitoring, in close collaboration with the instrument teams. At the end point of the data processing chain, the Quick-Look Analysis (QLA) interface is able to interactively display the instruments operational and scientific data, and to share some of these science plots among the BepiColombo teams. This functionality is being complemented by a Science Analysis Forum (SAF) that will provide the necessary space to discuss mission science data interpretation.

QLA

Quick-Look Analysis
Web-interface to analyse the data acquired

SAF

Science Analysis Forum
Web-interface to discuss about data with others
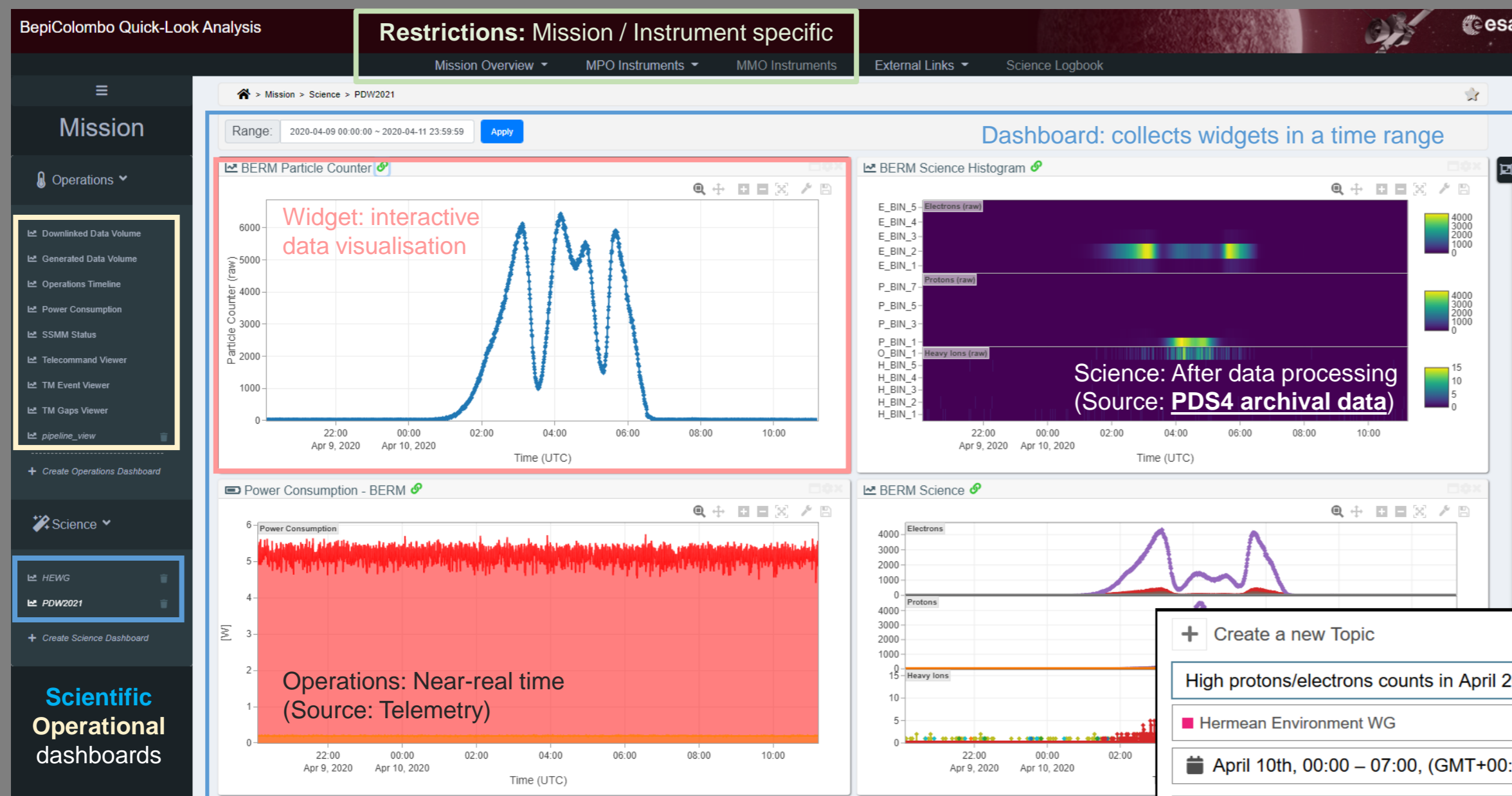
Quick-Look Analysis (QLA) highlights:
On-the-fly reading and down-sampling of PDS4 data, data caching on its way.
Interactive data visualisations (plotly.js library), filterable/sortable tables, images…
Near real-time checking of scientific (PDS4) and operational (telemetry) data.
Customisable views (dashboards) to combine data sets.
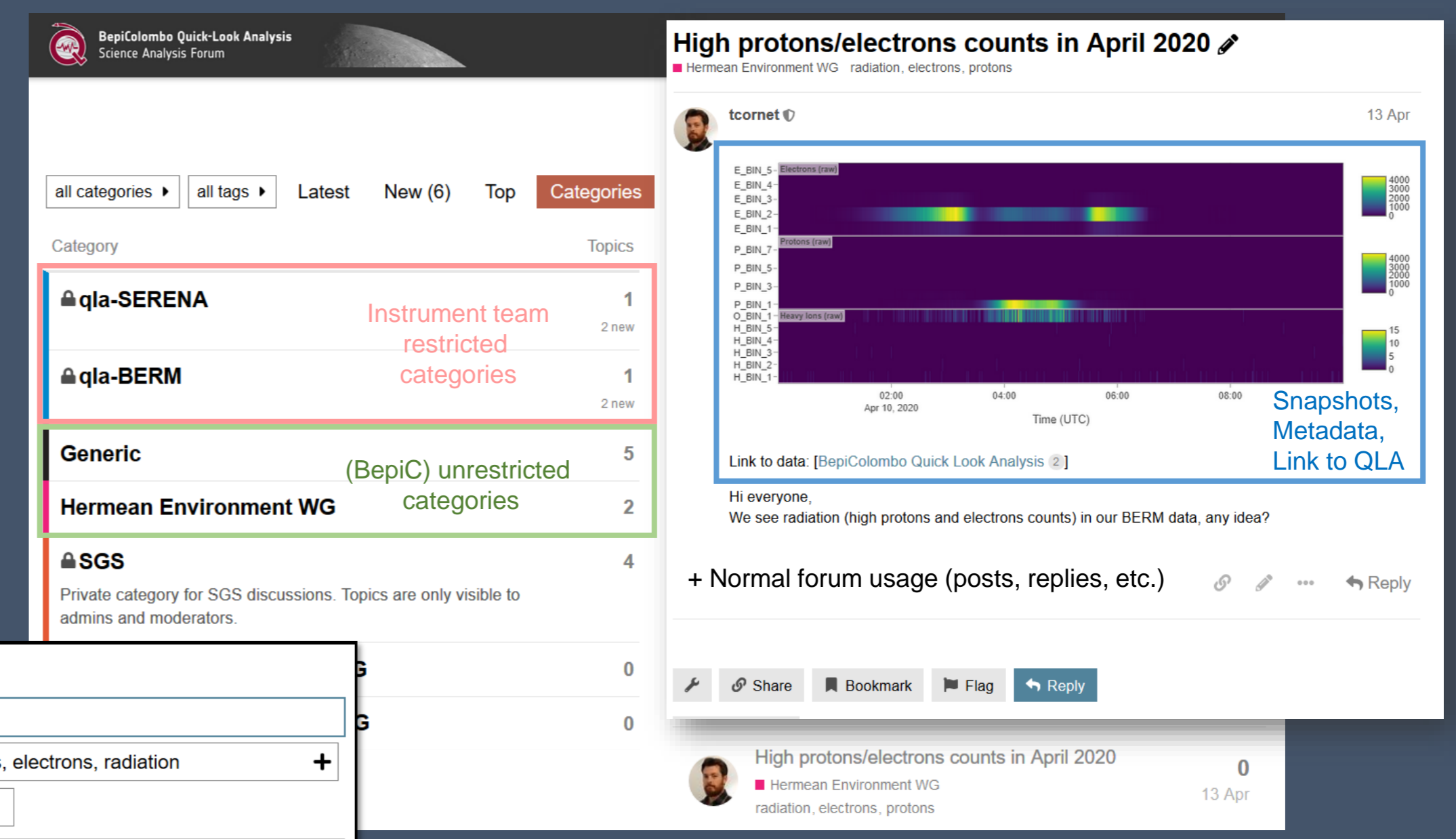Sharing capabilities of the data plots.

Report science events to other teams

Look back at the science data

Science Analysis Forum (SAF) highlights:
Discourse instance to support science discussions (=forum).
Tight coupling with the data source (QLA): image snapshots, metadata.
Plugins for authentication, restrictions, metadata handling (data explorer).
Preservation of the information.

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