

New Horizons Solar Wind at Pluto (SWAP) KEM1 Data Set Overview

Kem1_cal

Data Set Overview

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Around

This data set contains Calibrated data taken by the New Horizons Solar Wind Around Pluto instrument during the KEM1 ENCOUNTER mission phase.

SWAP comprises electro-optics and detectors to obtain count rate measurements of the solar wind; measuring the solar wind before, during and after the Pluto encounter will allow characterization of the atmospheric escape rate of Pluto. The SWAP electro-optic elements select the angles and energies of the solar wind and pickup ions to be measured; ions thus selected are registered with a coincidence detector system. SWAP measures the energy spectrum of ions in its environment by varying (also called scanning or sweeping) voltages of the electro-optics over many steps during a short time period. SWAP can also immediately follow a sweep of coarse voltage steps with a sweep of finer steps, centered on the peak measurement of the coarse sweep, to obtain a higher resolution of that portion of the energy spectrum.

There are three types of SWAP science data: real-time; summary; histogram. Real-time data, at rates up to 1Hz, provide the most detailed science measurements since they contain the full count rate distribution as a function of energy (speed). For science summary and science histogram modes, the full distribution is not recorded. Instead, parameters are derived from the count rate distribution stored by SWAP. These derived parameters require less memory than storing the whole distribution. The science summary and science histogram modes are primarily used during the cruise phase of the mission. For science data, the common data product is usually a binary table; for calibrated real-time data, spectrograms as images are also provided. Typically the tables have instrument parameters and measurements in the columns and measurement times in the rows, but the actual format depends on the type of data and the processing level (raw vs. calibrated). Other tables containing housekeeping and other parameters are also provided. This data set includes documentation for all data types and formats.

PDS4 Version History

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This is VERSION 2.0 of this data set.

This version includes data acquired by the spacecraft between 08/14/2018 and 04/30/2024. It only includes data downlinked before 05/01/2024 and after 04/30/2022. Future datasets may include more data acquired by the spacecraft after 08/13/2018 but downlinked after 04/30/2024.

This version included SWAP observations and plasma rolls taken after the ASTEROID 486958 Arrokoth (2014 MU69) encounter.

This dataset corresponds to New Horizons NAIF SPICE distribution v0008.

