



PrecisionPass™

UAS DATA VALIDATION

QUICKLY ASSESS UAV DATA QUALITY IN THE FIELD

BENEFITS

Determine in the field if the data collected meets the required criteria or if you should re-fly a mission

Ensure that data collected has proper overlap and coverage for stitching and analysis purposes

Easily configured to help you get the exact information you need

Helps pilots improve their capture techniques over time

Data collected by UAVs has become invaluable to projects of all scopes and sizes. However, as the number of UAVs collecting data has increased, so have problems related to the quality of the data collected. With a multitude of different sensor packages and flight platform characteristics, not to mention varying operator piloting skills, how can you ensure that the captured data will meet the needs of your downstream analysis?

Harris Corporation, developers of the leading image analysis software, ENVI®, has created PrecisionPass to assess UAV data collects in the field. This toolkit lets pilots quickly determine if a data collection meets the required criteria or if it needs to be collected again. This immediate feedback reduces the risk of failures during the analysis stage, all but eliminating the need to re-fly a mission, so customer needs are met in a timely and cost-efficient manner.

REVIEW REQUIRED METADATA

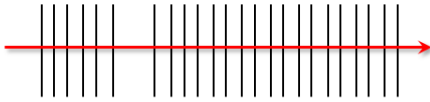
PrecisionPass performs a metadata review to ensure all required metadata are present and are within the specified criteria for the capture. The criteria can be configured to contain items such as positional information, camera parameters, timestamps, bit depth, and file format.

EVALUATE COVERAGE

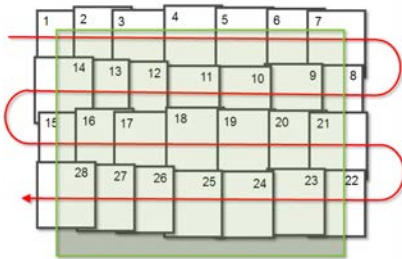
PrecisionPass reviews the spacing along and between flight lines to ensure that there is proper overlap and sidelap for stitching and analysis purposes. The toolkit can also find gaps between scan lines and compare the collection to a bounding polygon to ensure proper coverage.

ASSESS IMAGE RESOLUTION

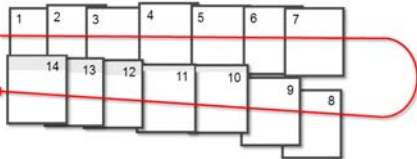
Harris leveraged its decades of experience developing algorithms that analyze satellite image quality to create this toolkit that similarly analyzes the quality of UAV data. PrecisionPass can determine the minimum, maximum, and average ground sample distance (GSD) for each pixel. This ensures that the spatial resolution required for analysis will be met.



Along track analysis of a push-broom sensor.



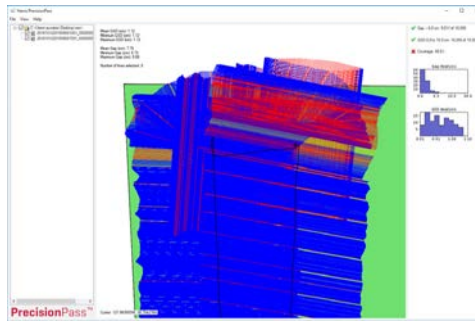
Capture area assessment for frame camera.



Adjacent flight line assessment for frame camera.

ASSESS IMAGE QUALITY

Using advanced image analysis techniques, PrecisionPass can identify the presence of over- and under-saturation as well as insufficient contrast levels. PrecisionPass can also rapidly produce an image mosaic for quality assessment and in-the-field analysis.



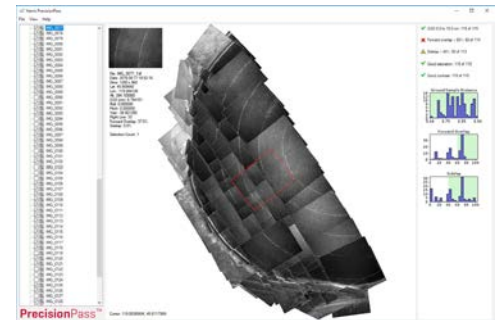
Corning hyperspectral push-broom imagery of an orchard. Red lines indicate a larger than 5cm gap between scan lines (i.e. the minimum allowable gap for this mission)

SPEED-UP UPLOAD/PROCESSING TIMES

PrecisionPass can analyze all images or scan lines to remove unneeded and poor-quality data. This includes excessive overlap, off-nadir imagery, and extraneous data outside of the capture polygon.

PACKAGE DATA FOR PROCESSING

PrecisionPass can package your data so it can easily be uploaded and ingested into your analysis workflow. Lossless compression can be performed to diminish the time lost during file transfer.



MicaSense imagery of a potato field. Collection statistics on the right hand side indicate that some collection criteria was achieved and others were not.

IMPROVE DATA CAPTURE

PrecisionPass has an easy to use interface that assists pilots in assessing their capture and helps them improve their capture techniques over time.

CONFIGURE BASED ON NEEDS

The parameters in PrecisionPass can be easily configured to help you get the exact information you need.

About Harris Corporation

Harris Corporation is a leading technology innovator, solving customers' toughest mission-critical challenges by providing solutions that connect, inform and protect. Harris supports government and commercial customers around the world. [Learn more at harris.com.](http://harris.com)

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