

L1AQC : Process L1A to L1AQC

Low level QC (pitch, roll, yaw, and azimuth) and deglitching.

Processing Parameters:

Rotator Home Angle: 0.0

Process log:

Process Single Level

Found data: lat

Found data: lon

No deglitching will be performed.

ProcessL1aqc.processL1aqc: 12-May-2026 10:31:18

Sorting all datasets chronologically

Screening ES for clean timestamps.

Filtering file for high pitch and roll or pre/post-tilt

Percentage of data out of pre/post-tilt bounds: 0 %

Process Single Level: /Users/nils/Data/VDIUP/ESS/hcp/006/L1AQC/20260429_030400_L1AQC.hdf -
SUCCESSFUL

Example Deglitching

Randomized. Complete plots of hyperspectral

deglitching from anomaly analysis can be found in [output_directory]/Plots/L1AQC_Anoms.

None found.

None found.

None found.

None found.

None found.

None found.

L1B : Process L1AQC to L1B

Dark correction. Calibration and/or full characterization. Match timestamps & wavebands.

Processing Parameters: None

Cal. Type: Full-FRM Internal working temp source: Internal thermistor

Process log:

Process Single Level

ProcessL1b: /Users/nils/Data/VDIUP/ESS/hcp/006/L1AQC/20260429_030400_L1AQC.hdf

ProcessL1bTriOS.processL1b: 12-May-2026 10:31:18

Interpolate Data LATITUDE

Interpolate Data LONGITUDE

Interpolate Data SOLAR_AZ

Interpolate Data SZA

Interpolate Data LATITUDE

Interpolate Data LONGITUDE

Interpolate Data TILT

MERRA2 data for Wind and AOD may be used to replace blank values. Reading in model data...

Retrieving ancillary file from server: GMAO_MERRA2.20260429T030000.MET.nc

Retrieving ancillary file from server: GMAO_MERRA2.20260429T030000.AER.nc

Request error: 404

Filling in ancillary data with default values where still needed.

ES: Using internal thermistor for sensor working temperature

Dark Correction: SAM_8834 - ES

ProcessL1b_Interp.processL1b_Interp: 12-May-2026 10:32:46

Interpolate Data sixS_irradiance

found NaN 435

found NaN 484

Interpolate Data direct_ratio

found NaN 435

found NaN 484

Interpolate Data diffuse_ratio

found NaN 435

found NaN 484

Interpolate Data solar_zenith

Process Single Level: /Users/nils/Data/VDIUP/ESS/hcp/006/L1B/20260429_030400_L1B.hdf -

SUCCESSFUL

Example Temporal Interpolations

Randomized. Complete plots of hyperspectral interpolations can be found in [output_directory]/Plots/L1B_Interp.

None found.

L1BQC : Process L1B to L1BQC

Apply more quality control filters.

Processing Parameters:

Max Wind: 50.0

Min SZA: 0.0

Max SZA: 90.0

Filter Sigma Es: 5.0

Filter Sigma Li: 8.0

Filter Sigma Lt: 3.0

Process log:

Process Single Level

Percentage of data out of Wind limits: 0 %

Out-of-bounds SZA. SZA: 100

Passed. SZA: 90

Flag data from TT2: 2026-04-29 03:04:00+00:00 to 2026-04-29 04:03:22+00:00

Percentage of data out of SZA limits: 99 %

Remove IRRADIANCE Data

Length of dataset prior to removal 406 long

Length of dataset after removal 5 long: 98.8% removed

Remove ANCILLARY Data

Length of dataset prior to removal 406 long

Length of dataset after removal 5 long: 98.8% removed

Remove ES_L1AQC Data

Length of dataset prior to removal 406 long

Length of dataset after removal 5 long: 98.8% removed

Remove SIXS_MODEL Data

Length of dataset prior to removal 406 long

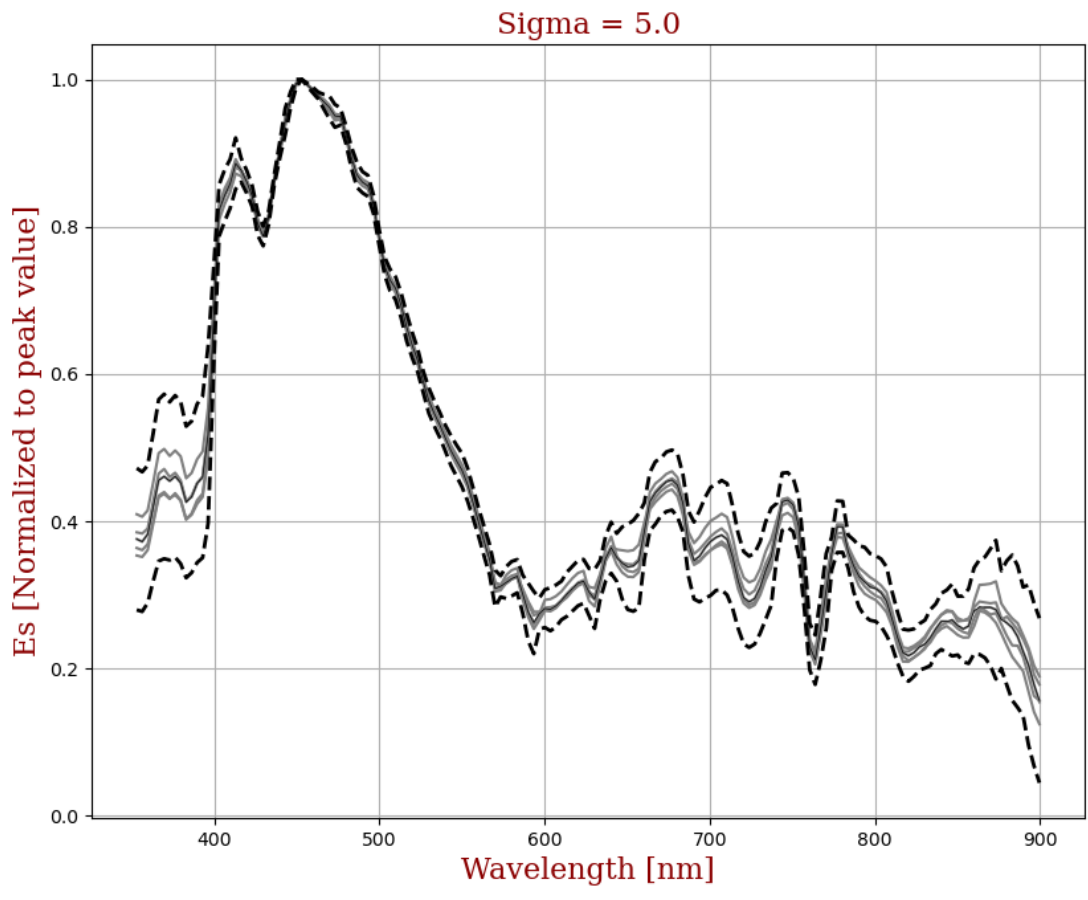
Length of dataset after removal 5 long: 98.8% removed

Applying spectral filtering to eliminate noisy spectra.

0.0% of Es data flagged

Process Single Level: /Users/nils/Data/VDIUP/ESS/hcp/006/L1BQC/20260429_030400_L1BQC.hdf -
SUCCESSFUL

Spectral Filters



L2 : Process L1BQC to L2

Apply temporal binning, station selection, glint correction,
NIR corrections, reflectance calculation, and OC product calculation.

Processing Parameters:

Ensemble Duration: 300

Percent Lt Filter: 10.0

Glint_Correction: Mobley 1999 NIR Correction: Ruddick et al. 2005/2006 Remove Negatives: ON

Process log:

Process Single Level

ProcessL2: /Users/nils/Data/VDIUP/ESS/hcp/006/L1BQC/20260429_030400_L1BQC.hdf

Binning datasets to ensemble time interval.

ProcessL2.ensemblesReflectance ensemble is less than 1 minute. Skipping.

ProcessL2.ensemblesReflectance with slices failed. Continue.

Filtering reflectance spectra for negative values is not supported for Trios ES only. Disabled feature.

All irradiance data appear to have been eliminated from the file. Aborting.

L2 processing failed. Nothing to output.

Process Single Level: /Users/nils/Data/VDIUP/ESS/hcp/006/L2/20260429_030400_L2.hdf - NOT
SUCCESSFUL