V2.2 L2AS Detailed Release Description April 15, 2002

Algorithm Changes

Implement new 'optically thick atmosphere' algorithm.
Implement new experimental aerosol retrieval algorithm over homogeneous surface types.
Change selection criteria for input equivalent reflectances to be used in aerosol retrievals over heterogeneous surfaces.
Change selection criteria for choosing to perform an aerosol retrieval over dark water.
Change optical depth default which uses optical depth upper bound: instead of default = upper bound - 0.05, use default = upper bound * 0.9.
Update calculation of old NumClearCam field (compute number of clear cameras) to calculation of new NumCamUsed field (compute number of cameras used in retrieval).

Bug Fixes

Report previously-computed data fields in product even when subsequent processing encounters an error.
Clean up memory-related errors.
Add correction for delta function problem in diffuse atmospheric transmittance terms.

Aerosol Product Changes

Change field name AerCompModId to AerRetrSuccFlagPerMixture
Change field name NumSuccAerModel to NumSuccAerMixture
Change field name NumClearCam to NumCamUsed
Change field name HetLandContrast to HetContrast
Change field name ColOptDepth to OptDepthPerMixture
Change field name ColOptDepthUnc to OptDepthUncPerMixture
Change field name ChisqHetSpectral to ChisqHetCalcPerBand
Change the following field names and add a band dimension:
RegMeanOptDepth to RegMeanSpectralOptDepth
RegMedianOptDepth to RegMedianSpectralOptDepth
RegStDevOptDepth to RegStDevSpectralOptDepth
RegWgtdMeanOptDepth to RegWgtdMeanSpectralOptDepth
RegWgtdStDevOptDepth to RegWgtdStDevSpectralOptDepth
BestFitOptDepth to RegBestFitSpectralOptDepth
Change the following field names:
BestFitChisq to RegBestFitChisq
BestFitMixture to RegBestFitMixture
SfcRetrOptDepth to RegSfcRetrOptDepth
SfcRetrModel to RegSfcRetrMixture
SfcRetrAlgTypeFlag to RegSfcRetrAlgTypeFlag
Add new fields:
OptDepthDWCalcPerBand (not yet populated)
OptDepthOTACalcPerBand (not yet populated)
OptDepthHetCalcPerBand
OptDepthHomogCalcPerBand
ChisqHomog
ChisqAbsCalcPerBand (not yet populated)
ChisqHomogCalcPerBand

RegEqReflDarkest
RegEqReflStDev
RegSfcRetrOptDepthUnc (not yet populated)
RegBestFitMixtureEqRefl (not yet populated)
Reorder regional aerosol parameters within aerosol file
Remove obsolete fields ReflParamR0, OptDepthDiffUpBd, OptDepthDiffLoBd, ExtNDVI
Rename the dimension NAerModelDim to NAerMixtureDim

Science Config File Changes

Rename min_dw_chan_thresh to min_dw_cam_thresh
Change values:
cloud_mask_decision_matrix(1,1): .true. -> .false.
cloud_mask_decision_matrix(2,1): .true. -> .false.
cloud_mask_decision_matrix(1,2): .true. -> .false.
cloud_mask_decision_matrix(2,2): .true. -> .false.
def_ref_mixt: 51 -> 0
max_chisq_het_thresh: 4 -> 3
max_hdrf: 3.0 -> 2.0
sigma_tau_default: 2. -> 3.
Remove parameters: band_mask, min_ddv_chan_thresh,
min_het_contrast_thresh, max_chisq_abs_ddv_thresh,
max_chisq_geom_ddv_thresh, max_chisq_spec_ddv_thresh,
min_r0_ddv_thresh, max_r0_ddv_thresh, toa_r0_ddv,
k_variance, g_variance, use_t0_t1_for_DDV
Add parameters:
dw_band_mask: .false. .false. .true .true.
het_band_mask: .true .true. .true .false.
homog_band_mask: .true .true. .true .false.
ota_band_mask: .true .true. .true .true.
bias_pix_flag: .false.
min_het_stdev_thresh: 0.0
min_ota_subr_thresh: 32
min_ota_cam_thresh: 5
max_chisq_abs_ota_thresh: 3.0
max_chisq_geom_ota_thresh: 3.0
max_chisq_spec_ota_thresh: 3.0
max_chisq_maxdev_ota_thresh: 3.0

Other Ancillary File Changes

ACP update: switch to new APOP (Aerosol Physical and Optical Properties) file containing 11 new aerosol component particles.
ACP update: switch to new Aerosol Mixture file containing 24 mixtures of new aerosol component particles. This represents a complete revamping of the previous version.
Switch to new SMART (Simulated MISR Ancillary Radiative Transfer) dataset containing improved RT (Radiative Transfer) calculations.