D-23034

Version 15.0

Earth Observing System (EOS)
Tropospheric Emission Spectrometer (TES)
**TES SDPS Database Definition,
Release 15.0 – R14v147**

Document Custodian: Scott Gluck

March 22, 2019

JPL

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Earth Observing System (EOS)
Tropospheric Emission Spectrometer (TES)

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TES Ground Data System Database Definition, Release 15.0

Approved by:

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Richard Lay
TES Project Manager

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DOCUMENT LOG

Version	Description	Date
1.01	FM_Simulation_Info table add d_Frequency_Extension	6/6/2002
1.01	Retrieval_Element table modify d_Sa_Scale_Height, to Nullable modify s_Map_Information_ID to Nullable	6/6/2002
1.01	Filter_Information table delete monoBoundExtension modify s_XC_Species to Nullable	6/6/2002
1.01	Step_Control Parameters table delete s_Retrieval_Type	6/7/2002
1.01	Map_Information table insert s_retrieval_Type modify constraint on s_map_type, rmv "Shape"	6/7/2002
1.01	Strategy_Table_Selector Add s_Latitude_Minimum Add s_Latitude_Maximum	6/7/2002
1.01	Step_Information s_Elanor_Mode constraints "FM_SIMULATION", "RETRIEVAL", "RAY_TRACE_ONLY", "CREATE_MAP_ONLY"	6/7/2002
1.01	L1A_Quality, L1B_Nadir_Cloud, L1B_Limb_Cloud, L1B_Spectra_Quality modify Filter to be 1..5, O, D, B	6/10/2002
1.01	Modify expected number of rows and sizes on L1A_Quality, L1B_Nadir_Cloud, L1B_Limb_Cloud, L1B_Spectra_Quality	6/12/2002
1.02	Modify user constraint in table Strategy_Table_Selector for s_latitude_minimum, s_latitude_maximum to be s_latitude_minimum >= -90 and s_latitude_minimum <= 90.1 s_latitude_maximum >= -90 and s_latitude_maximum <= 90.1	7/8/2002
1.03	Modify data type in table L1A_Geolocation, column Orbit_Inclination_Angle from Number (10,11), to Number (11,8)	7/26/2002

Version	Description	Date
1.03	Modify data type in table L1A_Geolocation , columns TES_Bsight_Azimuth, TES_Bsight_Azimuth_Uncert, TES_Bsight_Nadir_Angle, TES_Bsight_Nadir_Uncert, Grd_Trk_TES_Bsight_Azimuth, Tgt_LOS_Azimuth, Tgt_Nadir_Angle, Tgt_Sun_Azimuth, Tgt_Sun_Nadir_Angle Sun_Azimuth, Sun_Nadir, M1_Mirror_Sun_Angle From Number (11,10) to Number (11,8)	7/26/2002
1.04	Modify user constraint in table Strategy_Table_Selector for s_latitude_minimum, s_latitude_maximum to be s_latitude_minimum >= -90 and s_latitude_minimum <= 90 s_latitude_maximum >= -90 and s_latitude_maximum <= 90	8//2002
2.0	Strategy Table Selector s_surface_constraint: SURFACE, OCEAN remove column s_zonal_range s_latitude_minimum: move to column 4, NOT NULL, NUMBER(10,8), <= 90.0 s_latitude_maximum: move to column 5, NOT NULL, Numb (10,8), <=90.0	9/9/2002
2.0	All tables – remove "Not Null" from null constraint for Table Keys	9/9/2002
2.0	Species_State_Information s_emis_parameters_id - Nullable	9/9/2002
2.0	Species_Information_Table remove data constraint on species s_species_order_id	9/9/2002
2.0	EMIS_Parameters make the following not null s_surface_emis_mode s_surface_refl_mode s_surface_emis_filename s_surface_refl_filename	9/9/2002
2.0	Step_Information_Table i_step_number >= 0 add column s_Step_Type, varchar2(128), data constraint"SIMULATION","CLOUD", "NORMAL" Change composite key from s_Step_Information_ID + I_Step_Number to s_Step_Information_ID + i_Step_Number + s_Step_Type	9/9/2002
2.0	Step_Parameters_Table s_FOV_Info_ID nullable	9/9/2002

Version	Description	Date
2.0	Retrieval_Element_Table remove data constraint from s_Species_Order_ID	9/9/2002
2.0	Step_Control_Parameters_Table remove column s_Retrieval_Type remove column s_Run_Mode	9/9/2002
2.0	Cloud_Parameters change column name from s_Cross_Section_Switch to i_Cross_Section_Switch I_Cloud_Switch : change to Not Null	9/9/2002
2.0	FOV_Info Table s_FOV_Filename: change to Not Null I_One_FM_Ray_Per_Detector constraint 0, 1	9/9/2002
2.0	Leven_Marq_Parameters Table d_LM_Res_Tol constraint >= 0 d_LM_IR_Cond constraint >= 0	9/9/2002
2.0	Map_Information Table s_Retrieval_Type, move to column 4 s_Retrieval_Type constraints – 'LINEAR', 'LOG', 'SHAPE', 'TATM'	9/9/2002
2.0	FM_Simulation_Info table redefined	9/9/2002
2.0	Strategy_Table_Selector table Delete s_Scf_Or_Production	9/17/2002
2.0	EMIS_Parameters Indicate NOT USED IN R4	9/17/2002
2.0	Cloud_Parameters Indicate NOT USED IN R4	9/17/2002
2.0	Step_Control_Parameters Remove redundant s_Retrieval_Type column (previous reported in error as Map_Information_Table, fixed comment 12/23/02)	9/17/2002
2.0	Simulated_Data_Info table Delete table	9/17/2002
2.0	L1A_Engineering table Insert ADC_Enabled for all focal planes Fringe Clock Divisor for all focal planes Elect_Filter for all focal planes	9/17/2002
2.1	L1A_Engineering table Modify constraints for Obs_View to be 'SPACE', 'BBODY', 'NADIR', 'LIMB', 'SPATL','TESTP', 'OTHER'	9/18/2002
2.1	Std_Pressure_Lvls_Grp modified comment to read 'relation into Std_Pressure_Lvls'	9/18/2002

Version	Description	Date
2.1	FM_Simulation_Table modify s_Step_Parameters_ID From: foreign key to Step_Parameters:s_Step_Parameters_ID To: foreign key to Step_Information:s_Step_Information_ID	9/23/2002
2.1	L1A_Engineering Table modify names of newly added columns from xx_ADC_Enabled xx_Fringe_Clock_Divisor xx_Elect_Filter to FPxx_ADC_Enabled FPxx_Fringe_Clock_Divisor FPxx_Elect_Filter where xx is the focal plane, 2B, 2A, 1B, 1A	9/24/2002
2.1	Step_Information table s_Retrieval_Element_List_ID change from NOT NULL to NULLABLE	9/24/2002
2.1	FM_Simulation_Info table add column, as part of composite key s_Viewing_Mode, VARCHAR(2), constraint 'NADIR', 'LIMB'	9/25/2002
2.1	L1_Geolocation table rename the following columns to match AURA Guidelines from Latitude_Bsight to Latitude from Longitude_Bsight to Longitude from Sun_Nadir to SolarZenithAngle from Sun_Azimuth to SolarAzimuthAngle from Local_Solar_Time to LocalSolarTime from SC_Latitude to SpacecraftLatitude from SC_Longitude to SpacecraftLongitude from SC_Altitude to SpacecraftAltitude from Orbit_Acending to OrbitAscendingFlag from Tgt_LOS_Azimuth to SpacecraftAzimuth from Tgt_Nadir_Angle to SpacecraftZenith from TES_Bsight_Nadir_Angle to TESBoresightNadirAngle from Ocean_Flag_Footprint to Surface_Type_Footprint from Elevation_Sight to Elevation from Hor_Uncert_Bsight to Horizontal_Uncertainty from Elev_Uncert_Bsight to Elevation_Uncertainty	9/30/2002

Version	Description	Date
2.1	FM_Simulation_Info table Add column d_Max_Opt_Path_Diff NUMBER (14,10), NOT NULL, >0	10/23/2002
2.2	Retrieval_Element table Delete column s_Suba_True_Information_ID	10/28/2002 gbenenya 1/8/2003 for general use
2.2	Species_Information table Add column s_Apriori_Covariance_Info_ID, VARCHAR2(128), Nullable,	10/28/2002 gbenenya 1/8/2003 for general use
2.2	Step_Information table Add column s_Continue_If_Not_Converged NUMBER(1), Nullable, data constraint 0,1 Placed after column s_Step_Type	10/28/2002 gbenenya 1/8/2003 for general use
2.2	Filter_Information table Remove columns d_Max_Opt_Path_Diff d_Spacing_Frequency d_NESR	10/28/2002 gbenenya 1/8/2003 for general use
2.2	Filter_Information table Add columns D_Lores_Conv_Spacing, NUMBER(10,8), Not Null, data constraint >0, <1	10/28/2002 gbenenya 1/8/2003 for general use
2.2	Filter_Information table Add columns D_Hires_Conv_Spacing, NUMBER(10,8), Not Null, data constraint >0, <1	10/28/2002 gbenenya 1/8/2003 for general use
2.2	Step_Parameters table Delete column s_Filter_Information_ID Sequence_Information table Add column s_Filter_Information_ID	10/28/2002 gbenenya 1/8/2003 for general use

(format of change page updated)

Schema	Table, Major Version & Minor Version	Description	Date
R4 2.3	DB_Version, SDPS_Table 1.0	Implement DB_Version, SDPS_Table to track database changes, all table references set to 1.0	10/31/2002

Schema	Table, Major Version & Minor Version	Description	Date
R4 2.4	L1A_Engineering Major = 1 Minor = 1	Cal_Resistor_1, Cal_Resistor_2, OSE_Resistor_1, OSE_Resistor_2 Change from NUMBER(8,5) to NUMBER (8,2)	11/15/2002
R4 2.4	FM_Simulation_Info Major = 2 Minor = 0	Add columns EMIS_IG_Latitude_Shift, NUMBER(7,4), Nullable, data constraint −180..180 EMIS_IG_Longitude_Shift, NUMBER(7,4), Nullable, data constraint −180..180	11/22/2002
R4 2.4	Matrix_Source Major= 1 Minor= 1	Column s_Matrix_Type Add data constraint: "exponentialDecay", "constraint", "diagonal"	12/05/02
R4 2.4	Step_Control_Parameters Major = 2 Minor = 0	Column i_linearln_Tau Change column name to i_linear_In_Tau (note underscore, and spelling)	12/05/02
R4 2.4	Matrix_Source (No table change required)	Column s_Source_Name Comments modified in this document "either initialGuess if using initial guess as this source, or relative path and filename stem, e.g. exponentialDecay/Strengths.asc"	12/05/02
R4 2.4	Step_Information Major = 2 Minor = 0	Column s_Continue_If_Not_Converged Change column name to i_Continue_If_Not_Converged	(12/10/03) (was v2.5)
R4 2.4	FM_Simulation Major = 3 Minor = 0	Columns EMIS_IG_Latitude, EMIS_IG_Longitude Change column names to d_ EMIS_IG_Latitude, d_EMIS_IG_Longitude	(12/10/03) (was v2.5)
R4 2.5	Matrix_Source Major= 2 Minor= 0	remove column: s_Other_Source_Information add column: s_Source_Type, VARCHAR(30), Not Null, "DATABASE", "FILE",	(12/8/03on gbenenyan only) 1/16/03 all R4
R4	Matrix_Source	modify data constraints	(12/8/03

Schema	Table, Major Version & Minor Version	Description	Date
2.5	Major= 2 Minor= 1	Column s_Matrix_Type Modify data constraint to all caps: 'EXPONENTIALDECAY', 'CONSTRAINT', 'DIAGONAL'	on gbenenyan only) 1/16/03 all R4
R4 2.5	(No table change required) Matrix_Source	modify comment in documentation Column s_Source_Name Modify comment in this document	
R4 2.5	Vector_Source_Info Major= 2 Minor= 0	remove column: s_Other_Source_Information add column: s_Source_Type, VARCHAR(30), Not Null, 'INITIALGUESS', 'FILE'	(12/8/03 on gbenenyan only) 1/16/03 all R4
R4 2.5	Vector_Source_Info Major= 2 Minor= 1	s_Source_Name modify constraint from Not Null to Nullable Modify comment in this document	(12/8/03 on gbenenyan only) 1/16/03 all R4
R4 2.6	Constraint_Strengths Major = 1 Minor = 0	Initial table definition	1/16/03
R4 2.7	L2_VMR_Data	Remove table	1/17/03
R4 2.7	L2_Scene L2_Species_Data L2_Nadir_Geolocation L2_Associated_Scene L2_Associated_Scene_ Species L2_Surface_Emissivity Detector_Attributes Major = 1 Minor = 0	Initial table definitions	1/17/03
R4	All table descriptions	Remove "Size in Bytes" from table	2/13/03

Schema	Table, Major Version & Minor Version	Description	Date
2.8	(no table changes required)	information; misleading	
R4 2.8	All Table descriptions (no table changes required)	Modify "73 sequences/orbit" to "72 sequence/orbit" & related data	2/13/03
R4 2.8	Detector_Attributes Major = 1 Minor = 1	Column: Pixel Modify data constraints from +8..+1, -1..-8 to 0..15 Add columns: Effective_Run_From Effective_Run_To	3/4/03
R4 2.8	Run_Attributes, Major = 1 Minor = 1	Column: Run, Modify data type from Number(12) to Number(10) Columns: Start_Time, End Time, modify data type from NUMBER (15,5) to NUMBER (15,6) Columns: Start_Orbit_Path, End_Orbit_Path Create data constraint 1..233	2/13/03
R4 2.8	Scan_Attributes Major = 1 Minor = 1	Column: Run Modify data type from Number(12) to Number(10) Column: Sequence, Modify data type from Number(12) to Number(7) Column: Scan, Modify data type from Number(12)	2/13/03

Schema	Table, Major Version & Minor Version	Description	Date
		to Number(6)	
R4 2.8	L1A_Engineering Major = 1 Minor = 2	Columns: Time_of_Observation, Time_of_ZPD, Modify data type from NUMBER(15,5) to NUMBER (15,6)	2/25/03
R4 2.8	L1A_Geolocation Major = 2 Minor = 0	Columns: Resolved_SC_Position_X Resolved_SC_Position_Y Resolved_SC_Position_Z Modify data type from Number(18,10) to Number(17,10) Columns: Resolved_SC_Velocity_X Resolved_SC_Velocity_Y Modify data type from Number(17,10) to Number(14,10) Column: Local_Solar_Time Modify data type from VARCHAR2(28) to NUMBER(8,6) Delete Column Day_Flag Create Column Day_Night_Flag	2/25/03
R4 2.8	L1B_Nadir_Cloud Major = 2 Minor = 0	Rename cols from L1B_Nadir_Cloud_BT_11 L1B_Nadir_Cloud_BT_12 L1B_Nadir_Cloud_BT_8 L1B_Nadir_Interpixel_Limit to L1B_Nadir_BT_11 L1B_Nadir_BT_12 L1B_Nadir_BT_8 L1B_Nadir_Ipix_Var_Exceeded	2/25/03

Schema	Table, Major Version & Minor Version	Description	Date
		Column: Filter Modify data constraints from '1'..'5', 'O', 'D', 'B' to '1'..'5' Rename table from L1B_Nadir_Cloud to L1B_Nadir_BT	
R4 2.8	L1B_Limb_Cloud Major = 2 Minor = 0	Rename cols from L1B_Limb_Cloud_BT_11 L1B_Limb_Cloud_BT_12 L1B_Limb_Cloud_BT_8 to L1B_Limb_BT_11 L1B_Limb_BT_12 L1B_Limb_BT_8 Column: Pixel Modify data constraint from '-8'..'-1','+8'..'+1' to '0'..'15' Rename table from L1B_Limb_Cloud to L1B_Limb_BT	2/25/03
R4 2.8	L1B_Spectra_Quality Major = 1 Minor = 1	Column: Pixel Modify data constraint from '-8'..'-1','+1'..'+8' to '0'..'15'	2/25/03
R4 2.8	Target_Scene_Attribute s Major = 2 Minor = 0	Major revision of table Change column name from L1B_Cal_Spectra_File to L1B_Spectra_File Remove column Latitude Remove column Longitude Remove column Day_Night_Flag	2/25/03

Schema	Table, Major Version & Minor Version	Description	Date
		Remove column Max_Pixel Diff Remove column TS_ID Remove column L1A_Fatal_Error_Encountered Remove column L1B_Fatal_Error_Encountered	
R4 2.8	Strategy_Table_Selector Major = 2 Minor = 0	Change column name from s_Latitude_Minimum to d_Latitude_Minimum Change column name from s_Latitude_Maximum to d_Latitude_Maximum Change column name from s_Day_Night to s_Day_Night_Flag	2/25/03
R4 2.8	Cloud_Parameters Major = 2 Minor = 0	Change column name from i_Cloud_Liq_Water_5_Micro_Amt to d_Cloud_Liq_Water_5_Micro_Amt Change column name from r_Cloud_Ice_Layer to d_Cloud_Ice_Layer Change column name from r_Cloud_Ice_Amt to d_Cloud_Ice_Amt	2/25/03
R4 2.8	Std_Pressure_Lvls Major = 1 Minor = 1	Column d_Pressures Modify data type, from NUMBER (15,10) to NUMBER(14,10)	2/25/03
R4	Output_Products_Info	Columns: i_Plot_Min_Pressure_Level,	2/25/03

Schema	Table, Major Version & Minor Version	Description	Date
2.8	Major = 2 Minor = 0	i_Plot_Max_Pressure_Level Modify data type from NUMBER(20,3) to NUMBER(14,10) Rename columns from i_Plot_Min_Pressure_Level, i_Plot_Max_Pressure_Level, to d_Plot_Min_Pressure_Level, d_Plot_Max_Pressure_Level	
R4 2.8	FOV_Info Major = 1 Minor = 1	Column: i_Start_FM_Ray Modify data type from NUMBER(3) to NUMBER (4) Column: i_Final_FM_Ray Modify data type, from NUMBER(3) to NUMBER (4) Column: i_Step_Size_FM_Ray Modify data type, from NUMBER(3) to NUMBER (4) Column: s_FOV_Wings Modify data type, from VARCHAR2(24) to VARCHAR2(11)	2/25/03
R4 2.8	Vector_Source_Info Major = 2 Minor = 2	Columns: d_Lower_Boundry_Value, d_Upper_Boundry_Value Modify data type from NUMBER(20,10) to NUMBER(14,10)	2/25/03
R4	Matrix_Source	Column: s_Source_Name Modify	3/4/03

Schema	Table, Major Version & Minor Version	Description	Date
2.8	Major = 2 Minor = 2	Modify data type, from VARCHAR2(500) to VARCHAR2(128) Column: s_Source_Type Modify data type, from VARCHAR2(128) to VARCHAR2(8) Columns: d_Lower_Boundry_Value, d_Upper_Boundry_Value Modify data type from NUMBER(20,10) to NUMBER(14,10)	
R4 2.8	FM_Simulation_Info Major = 3 Minor = 1	Column: s_Source_Name Modify data type from VARCHAR2(500) to VARCHAR2(6) Column: d_EMIS_IG_Latitude Modify data type, from NUMBER(7,4) to NUMBER (6,4) Column: d_EMIS_IG_Latitude Modify data constraint, from -180..180 to -90..90	2/25/03
R4 2.8	DB_Version Major = 2 Minor = 0	All columns: renamed, removed prefix s_, d_, i_ Change column name from Current to Current_Version	3/4/03

Schema	Table, Major Version & Minor Version	Description	Date
		Change column name from Date to Date_Version	
R4 2.8	L2_Scene Major = 2 Minor = 0	All columns: renamed, removed prefix s_, d_, i_ Column: Run, Modify data type from Number(12) to Number(10) Rename column from s_Obs_View to Viewing_Mode	2/13/03
R4 2.8	L2_Species_Data Major = 2 Minor = 0	Major revision of table All columns: renamed, removed prefix s_, d_, i_ Utilize varray type for d_pressure, d_VMR, d_Precision, d_Systematic_Error, d_Correlation_Length, d_Pressure_Level_Altitude, using the pressure level (i_Pressure_Level) as the varray subscript Remove column i_Pressure_Level Primary Key changed from i_L2_Scene_ID, s_Species, i_Pressure_Level to L2_Scene_ID, Species	2/25/03

Schema	Table, Major Version & Minor Version	Description	Date
R4 2.8	L2_Nadir_Geolocation Major = 2 Minor = 0	All columns: renamed, removed prefix s_, d_, i_ Rename column from d_Elevation_Uncertainly to Surface_Elev_Std_Deviation Rename column from d_TESBoresightNadirAngle to TES_Boresight_Nadir_Angle Column: Local_Solar_Time Modify data type from VARCHAR2(28) to NUMBER(8,6) Column: Time_of_Observation Modify data type from NUMBER(15,5) to NUMBER(15,6) Add column Orbit_Ascending_Flag	2/25/03
R4 2.8	L2_Associated_Scene Major = 2 Minor = 0	All columns: renamed, removed prefix s_, d_, i_ Column: Surface_Pressure, Modify data type, from NUMBER(12,8) to NUMBER (14,10) Column Cloud_Top_Pressure, Modify data type, from NUMBER(12,8) to NUMBER (14,10)	3/5/03

Schema	Table, Major Version & Minor Version	Description	Date
		Add column TES_Pixels_Used_Flag	
R4 2.8	L2_Associated_Scene_ Species Major = 2 Minor = 0	All columns: renamed, removed prefix s_, d_, i_ Column Convergence Modify data check from 0..1 to =>0.0, <=1.0	2/25/03
R4 2.8	L2_Surface_Emissivity Major = 2 Minor = 0	All columns: renamed, removed prefix s_, d_, i_ Renamed column Surface_Emissivity to Surface_Emissivity_Array Renamed column Emissivity_Frequency to Emissivity_Frequency_Array	2/25/03
R4 2.9	Vector_Source_Info Major = 2 Minor = 3	Column s_Source_Type modify check constraint from 'INITIALGUESS', 'FILE' to 'INITIAL_GUESS', 'FILE'	3/17/03
R4 2.9	Matrix_Source Major = 2 Minor = 3	Column s_Matrix_Type modify check constraint from 'EXPONENTIALDECAY', 'CONSTRAINT', 'DIAGONAL' to 'EXPONENTIAL_DECAY', 'CONSTRAINT', 'DIAGONAL'	3/17/03
R4 2.9	Retrieval_Element Major = 2 Minor = 0	Remove column d_Sa_Scale_Height	3/17/03
R4	Strategy_Table_Selecto	Add columns for optical filter set	4/11/03

Schema	Table, Major Version & Minor Version	Description	Date
2.10	r Major = 3 Minor = 0	FP_2B_Filter FP_2A_Filter FP_1B_Filter FP_1A_Filter	
R4 2.11	L1A_Quality Major = 2 Minor = 0	Remove column Filter Composite key now Scene_ID+Focal_Plane	5/9/03
R4 2.12	L2_Species_Data Major = 2 Minor = 1	Delete columns Pressure_Array, Pressure_Altitude_Array	6/16/03
R4 2.12	L2_Associated_Scene_ Species Major = 3 Minor = 0	Delete columns RMS_Residual Max_Residual	6/16/03
R4 2.12	L2_Associated_Scene Major = 2 Minor = 1	Add columns Pressure_Array, Pressure_Altitude_Array RMS_Residual Max_Residual	6/16/03
R4 2.12	L2_Nadir_Geolocation Major = 2 Minor = 1	Modify column name From : Surface_Elevation To: Mean_Elev_Footprint From: Surface_Elev_Std_Deviation To: Mean_Elev_Footprint_Std_Dev From: TES_Boresight_Nadir_Angle To TESBoresightNadirAngle From: Solar_Azimuth_Angle To: SolarAzimuthAngle From: Solar_Zenith_Angle To: SolarZenithAngle From: Spacecraft_Azimuth To: SpacecraftAzimuth From: Spacecraft_Zenith To: SpacecraftZenith From: Spacecraft_Latitude To: SpacecraftLatitude	

Schema	Table, Major Version & Minor Version	Description	Date
		From: Spacecraft_Longitude To: SpacecraftLongitude From: Spacecraft_Altitude To: SpacecraftAltitude From: Orbit_Acending_Flag To: OrbitAcendingFlag	
R4 2.12	L2_Scene Major = 3 Minor = 0	Remove column Scene_ID1 Scene_ID2 Add column Scene_ID Modify key from L2_Scene_ID to L2_Scene_ID + Scene_ID	6/16/03
R4 2.12	L1A_Engineering Major = 1 Minor = 3	Add columns FP_1A_Filter_At_Index FP_1B_Filter_At_Index FP_2A_Filter_At_Index FP_2B_Filter_At_Index Foreoptics_Temp	
R4 2.12	L1A_Geolocation (comments, no table change)	In comments, document order of the footprint points Latitude_Footprint_1 = LowerLeft Latitude_Footprint_2 = LowerRight Latitude_Footprint_3 = UpperRight Latitude_Footprint_4 = UpperLeft Longitude_Footprint_1 = LowerLeft Longitude_Footprint_2 = LowerRight Longitude_Footprint_3 = UpperRight Longitude_Footprint_4 = UpperLeft	6/24/03
R4 2.13	L2_Surface_Emissivity Major = 3 Minor = 0	Modify data type, columns Surface_Emissivity_Array and Emissivity_Frequency_Array from VARRAY data type to VARCHAR(3000)	7/8/03
R4 2.13	L2_Associated_Scene Major = 3 Minor = 0	Modify data type, columns Pressure_Altitude_Array, Pressure_Array from VARRAY data type to VARCHAR(3000)	7/8/03

Schema	Table, Major Version & Minor Version	Description	Date
R4 2.13	L2_Species_Data Major = 3 Minor = 0	Modify data type, columns VMR_Array, Precision_Array, Systematic_Error_Array, Correlation_Length_Array from VARRAY data type to VARCHAR(3000)	7/8/03
R4 2.13	L2_Surface_Emissivity L2_Associated_Scene L2_Species_Data (No schema change)	Modify comments only L2_Species_Data & L2_Associated_Scene report at 88 pressure levels, Null data indicated by –999.0 L2_Surface_Emissivity, report 82 emissivities	7/14/03
R5 3.0	L1A_Ifgm_File Major = 2 Minor = 0	Major Revision Scene_ID is key Add filename of each focal plane as column	8/28/03
R5 3.0	L1A_Quality Major = 3 Minor = 0	Major Revision Scene_ID is key Combine all focal planes into column Create general error flag per focal plane Add column L1A_ICS_Scan_Elapsed_Time	8/28/03
R5 3.0	L1A_Geolocation Major = 3 Minor = 0	Add column Day/Night_Flag_SC Rename column from Day_Night_Flag to Day_Night_Flag_Target Rename column from Path_Number to Aura_Path_Number Modify column data type Time_Orbit_Start from VARCHAR(28) to NUMBER (15,6) Rename column from Horizontal_Uncertainly to Horizontal_Uncertainty	8/28/03

Schema	Table, Major Version & Minor Version	Description	Date
		Rename column from Elevation_Uncertainly to Elevation_Uncertainty Rename column from Mean_Elev_Footprint to Surface_Elevation Rename column from Mean_Elev_Footprint_Std_Dev to Surface_Elev_Std_Deviation Remove columns: Time_Orbit_Start Time_Southern_Apex_Crossing Add Orbit_Number All columns to Not Null	
R5 3.0	L1A_Cal_Geolocation Major = 1 Minor = 0	Initial definition	8/28/03
R5 3.0	L1A_Engineering Major = 3 Minor = 0	Modify data constraint on column Obs_View From 'SPACE', 'BBODY','NADIR', 'LIMB', 'OBRCS', 'SPATL' ,'TESTP', 'OTHER' To 'SPACE', 'BBODY','NADIR', 'LIMB', 'SPATL' ,'TESTP', 'OTHER' Make all columns Not Null Rename cols FP_xx_Filter_Index to FP_XX_At_Index to match Cmd&Tele Handbook	8/28/03
R5 3.0	L1B_Nadir_BT Major = 3 Minor = 0	Major Revision Scene_ID is key Combine all focal planes into column	8/28/03
R5 3.0	L1B_Limb_BT Major = 3 Minor = 0	Major Revision Scene_ID is key Combine all focal planes & pixels into column	8/28/03

Schema	Table, Major Version & Minor Version	Description	Date
R5 3.0	L1B_TES_Performance Major = 1 Minor = 0	Initial Definition	8/28/03
R5 3.0	L1B_Cal_Spectra_Quality Major = 1 Minor = 0	Initial Definition	8/28/03
R5 3.0	L1B_Tgt_Spectra_Quality Major = 1 Minor = 0	Major Revision, superceeds L1B_Spectra_Quality	8/28/03
R5 3.0	L1B_Spectra_Quality	Delete table	8/28/03
R5 3.0	Binning_Criteria	Delete table	8/28/03
R5 3.0	Step_Information Major = 3 Minor = 0	Add column s_Error_Analy_Interferrents s_Apodization_Done	8/28/03
R5 3.0	Matrix_Source Major = 3 Minor = 0	Modify constraint on s_Matrix_Type From 'EXPONENTIAL_DECAY', 'CONSTRAINT', 'DIAGONAL' To 'EXPONENTIAL_DECAY', 'CONSTRAINT', 'DIAGONAL', 'COVARIANCE'	8/28/03
R5 3.0	L2_Scene Major = 3 Minor = 0	Modify key to be composite key, L2_Scene_ID + Scene_ID, Scene_ID unique constraint	8/28/03
R5 3.0	L2_Species_Data Major = 4 Minor = 0	Remove column Correlation_Length_Array Add column Vertical_Resolution	8/28/03
R5 3.0	L2_Nadir_Geolocation Major = 2 Minor = 0	Rename column from Time_of_Observation to Time_of_ZPD Add Footprint Corners Changed value of Orbit_Ascending_Flag Added column Scan_Averaged_Flag	8/28/03
R5	L2_Associated_Scene_	Remove column	8/28/03

Schema	Table, Major Version & Minor Version	Description	Date
3.0	Species Major = 3 Minor = 0	Final_Retrieval_Converged (move to L2_Associated_Scene)	
R5 3.0	L2_Associated_Scene Major = 4 Minor = 0	Add column Final_Retrieval_Converged (from L2_Associated_Scene_Species) Rename column from TES_Ret_Pointing_Angle_Unc to TES_Ret_Pointing_Angle_Error	8/28/03
R5 3.0	L2_Surface_Emissivity Major = 4 Minor = 0	Add column Land_Surface_Emiss_Errors Rename column from Surface_Emissivity_Array to Land_Surface_Emissivity Rename column from Emissivity_Frequency_Array to Emissivity_Wavenumber	8/28/03
R5 3.1	L2_Species_Data Major = 5 Minor = 0	Replace column Systematic_Error_Array with Total_Error_Array	9/17/03
R5 3.1	L2_Associated_Scene_ Species Major = 3 Minor = 1	Add column Degrees_Freedom_for_Signal Information_Content	9/17/03
R5 3.1	L1A_Geolocation Major = 3 Minor = 1	Column PCS_Crosstrack modify size from NUMBER(12,10) to NUMBER(13,10)	9/22/03
R5 3.1	L1A_Cal_Geolocation Major = 1 Minor = 1	Column PCS_Crosstrack modify size from NUMBER(12,10) to NUMBER(13,10)	9/22/03
R5 3.1	L1A_Engineering Major = 3 Minor = 1	Make all columns Not Null except for Time_of_Observation Modify comments in document to reflect use of 1993 epoch in TAI time	9/23/03
R5 3.2	L1B_Nadir_BT Major = 4 Minor = 0	Major revision Datatypes revised Remove columns L1B_Nadir_CO_1	10/17/03

Schema	Table, Major Version & Minor Version	Description	Date
		L1B_Nadir_CO_2 L1B_Nadir_CO_3 L1B_Nadir_CO_4 Add columns L1B_Nadir_BT_5 L1B_Nadir_BT_10 Change data type on column L1B_Nadir_Ipix_Var_Exceeded	
R5 3.2	L1B_Limb_BT Major = 4 Minor = 0	Major revision Datatypes revised Remove columns L1B_Limb_CO_1 L1B_Limb_CO_2 L1B_Limb_CO_3 L1B_Limb_CO_4 Add columns L1B_Limb_BT_5 L1B_Limb_BT_10	10/17/03
R5 3.2	No table changes	Include DPS-Database mapping in Appendix A	10/20/03
R5 3.3	L1A_Geolocation Major = 4 Minor = 0	Remove column Sequence_into_Orbit	10/31/03
R5 3.3	L1A_Cal_Geolocation Major = 4 Minor = 0	Remove column Sequence_into_Orbit	10/31/03
R5 3.3	L2_Scene Major = 3 Minor = 1	Add column s_Strategy_Table_Selector_ID, foreign key from Strategy Table Selector table	10/31/03
R5 3.3	Matrix_Source Major = 3 Minor = 1	Column s_Matrix_Type modify constraint list to EXPONENTIAL_DECAY, CONSTRAINT, DIAGONAL, COVARIANCE, FIRST_DERIVATIVE, SECOND_DERIVATIVE, PREMADE	10/31/03
R5 3.4	L2_Scene Major = 4 Minor = 0	Last revision to L2_Scene incorrect (R5 3.3) Table L2_Scene Remove column s_Strategy_Table_Selector_ID	11/13/03

Schema	Table, Major Version & Minor Version	Description	Date
		Add column S_Strategy_Table_ID foreign key from Strategy Table	
R5 3.5	Constraint_Strengths (no schema change)	Constraint_Strengths, column d_Exp_Scale_Height Change data units from km to meters	12/30/03
R5 3.5	L1B_Nadir_BT Major = 5 Minor = 0	Rename columns L1B_Nadir_Interpixel_Vari L1B_Nadir_Ipix_Var_Exceeded To L1B_N_Interpixel_Vari_BT10 L1B_N_Ipix_Var_Exceeded_BT10 Add columns L1B_N_Interpixel_Vari_BT11 L1B_N_Ipix_Var_Exceeded_BT11 (Note: CR in place to implement this in R5 scheme)	1/7/04
R5 3.6	L1A_ICS Major = 1 Minor = 0	Initial table definition	1/28/04
R5 3.7	L1A_Quality Major = 3 Minor = 1	Retofit L1A_Channel_Shift column to R5 schema (see entry below), modify constraint on column L1A_Channel_Shift to nullable	3/3/04
R5 3.7	L1B_Cal_Spectra_Quality	(no schema change, documentation only) Modify comments on General_Error_Flag and General_Quality_Flag to reflect only two valid values, 0 & 1, no fill value	R5 3.7
R5 3.7	L1B_Tgt_Spectra_Quality	(no schema change, documentation only) Modify comments on General_Error_Flag and General_Quality_Flag to reflect only two valid values, 0 & 1, no fill value	R5 3.7
R5.2 4.0	L1A_Quality Major = 3 Minor = 1	Add column L1A_Channel_Shift	1/7/04
R5.2 4.0	Leven_Marq_Params Major = 1 Minor = 1	Add column d_ConvThreshold	1/7/04
R5.2 4.0	Apod_Info Major = 1 Minor = 1	Add column d_Mono_Bound_Extension s_Step_Type s_Viewing_Mode Remove column	1/12/04

Schema	Table, Major Version & Minor Version	Description	Date
		s_Apod_Info_ID Modify table key to composite key: s_Step_Type + s_Viewing_Mode	
R5.2 4.0	Step_Information Major = 4 Minor = 0	Remove column s_Apodization_Done	1/7/04
R5.2 4.0	Sequence_Information Major = 2 Minor = 0	Remove column s_Apod_Info_ID	1/12/04
R5.2 4.0	Run_Attributes_H Major = 1 Minor = 0	Initial definition Provides "History" database	1/12/04
R5.2 4.0	Scan_Attributes_H Major = 1 Minor = 0	Initial definition Provides "History" database	1/12/04
R5.2 4.0	DB_Version Major = 1 Minor = 1	Add column to support both software release and schema Release_ID Add column in DB_Version table to track DB_Version table itself	1/20/04
R5.2 4.0	L1A_Geolocation Major = 4 Minor = 1	Add columns to indicate missing data DPREP_QA_Poor_Percentage PCS_QA_Poor_Percentage	1/21/04
R5.2 4.0	L1A_Cal_Geolocation Major = 4 Minor = 1	Add columns to indicate missing data DPREP_QA_Poor_Percentage PCS_QA_Poor_Percentage	1/21/04
R5.2 4.0	L1B_Cal_Spectra_Quality Major = 1 Minor = 1	Add columns OBRCS_Integrated_Signal Space_View_Integrated_Signal	1/22/04
R5.2 4.1	L1A_Quality Major = 3 Minor = 2	Modify column L1A_Channel_Shift From VARCHAR2(12) to VARCHAR2(16) Modify constraint to L1A_Channel_Shift	2/26/04
R5.2 4.2	Step_Information Major = 4 Minor = 1	Add columns i_Do_Error_Analysis s_Error_Analy_Maptypes	3/2/04
R5.2 4.3	L2_Associated_Scene Major = 4 Minor = 1	Modify column TES_Pixels_Used_Flag from NUMBER(1) to VARCHAR2(128)	3/9/04
R5.2 4.3	L1B_Cal_Spectra_Quality	Delete columns OBRCS_Integrated_Signal	3/11/04

Schema	Table, Major Version & Minor Version	Description	Date
	Major = 2 Minor = 0	Space_View_Integrated_Signal add single column Integrated_Signal Modified fill value to -999.0	
R5.2 4.3	Apod_Info Major = 1 Minor = 2	Column s_Norton_Beer_Apod_Strength Modify constraint from not null to nullable	3/15/04
R5.2 4.3	L1A_Quality Major = 3 Minor = 3	Modify L1A_Channel_Shift constraint to Not Null	3/15/04
R5.2 4.4	L2_Associated_Scene Major = 4 Minor = 2	Remove data constraints from column TES_Pixels_Used_Flag	4/2/04
R5.2 4.4	Std_Pressure_Lvls_Grp	Remove table Std_Pressure_Lvls_Grp from schema	4/2/04
R5.2 4.4	Std_Presure_Lvls Major = 2 Minor = 0	Remove column s_Std_Pressure_Lvls_Grp_ID Add column s_Std_Pressure_Lvls_ID	4/2/04
R5.2 4.4	Sequence_Information Major = 3 Minor = 0	Remove column s_Std_Pressure_Lvls_Grp_ID Add column s_Std_Pressure_Lvls_ID	4/2/04
R5.2 4.4	L1A_Quality Major=3 Minor=4	Remove data constraint on L1A_Channel_Shift	4/9/04
R5.2 4.5	L1A_ICS Major = 2 Minor = 0	Modify data types on columns L1A_MEAN_LASER_FRINGE_VEL from NUMBER(9,7) to NUMBER(7,4) L1A_LASER_FRINGE_VEL_STD_DEV from NUMBER(9,7) to NUMBER(7,4) L1A_MAX_LASER_FRINGE_VEL from NUMBER(9,7) to NUMBER(4) L1A_MIN_LASER_FRINGE_VEL from NUMBER(9,7) to NUMBER(4) For L1A_Main S/W release 5.2.2	7/22/04
R6.0	L1B_Cal_Spectra_Qual	Modify data type of columns	9/14/04

Schema	Table, Major Version & Minor Version	Description	Date
5.0	ity	Zero_Padding from VARCHAR2(704) to VARCHAR2(960) Spikes from VARCHAR2(704) to VARCHAR2(960) Phase_Alignment from VARCHAR2(1600) to VARCHAR2(960) Integrated_Signal from VARCHAR2(576) to VARCHAR2(960) Modify fill value to -9.99e2	
R6.0 5.0	L1B_Tgt_Spectra_Quality	Modify data type of columns Zero_Padding from VARCHAR2(704) to VARCHAR2(960) Phase_Alignment from VARCHAR2(1600) to VARCHAR2(960) Abs_Radiance_Mean_BT from VARCHAR2(512) to VARCHAR2(960) NESR_Mean from VARCHAR2(1600) to VARCHAR2(960) Imaginary_RMS from VARCHAR2(1600) to VARCHAR2(960) Imaginary_Mean from VARCHAR2(1600) to VARCHAR2(960) Modify fill value to -9.99e2	9/14/04

Schema	Table, Major Version & Minor Version	Description	Date
R6.0 5.0	Detector_Attributes, DB_Version, SDPS_Table	Drop these tables	9/23/04
R6.0 5.0	L1A_Quality	Add column L1A_Spike_Occurred Add default value = 9, indicates not processed, nullable	9/17/04
R6.0 5.0	L1A_Quality	L1A_Burst_Occurred Add default value = 9, indicates not processed, nullable	9/28/04
R6.0 5.0	L1A_Quality	L1A_DN_Overflow_Occurred, L1A_DN_Underflow_Occurred Modify data type to VARCHAR2(128) to contain data from all pixels	9/28/04
R6.0 5.0	Strategy_Table	Add column s_Strategy_Data_Version, nullable	8/20/04
R6.0 5.0	L2_Species_Data	VMR_Array modify from VARCHAR2(3000) to VARCHAR2(1500) Percision_Array, Total_Error_Array, Vertical_Resolution modify from VARCHAR2(3000) to VARCHAR2(1200)	9/29/04
R6.0 5.0	L2_Species_Data	Add column Constraint_Vector, nullable	10/1/04
R6.0 5.0	L2_Associated_Scene	Pressure_Array, Pressure_Altitude_Array modify from VARCHAR2(3000) to VARCHAR2(1200)	9/29/04
R6.0 5.0	L2_Associated_Scene	Make the following columns nullable, obsolete columns, retained for compatibility: RMS_Residual Max_Residual Final_Retrieval_Converged	10/5/04
R6.0 5.0	L2_Associated_Scene_ Species	Modify data constraint for column Information_Content to include fill value	9/29/04
R6.0 5.0	L2_Associated_ Scene_Species	Add the following columns as nullable Radiance_Residual_RMS Radiance_Residual_Mean Radiance_Residual_Max Dev_Vs_Retrieval_Covar	10/1/04
R6.0	L2_Associated_	Make the following columns nullable,	10/5/04

Schema	Table, Major Version & Minor Version	Description	Date
5.0	Scene_Species	obsolete columns, retained for compatibility: Convergence Out_of_Expected_Range	
R6.0 5.0	L2_Associated_Scene_Species	Modify data type, column Total_Column_Density, Total_Column_Density_Error from NUMBER(28,27) to VARCHAR2(12), Specify in comments scientific notation format Modify data type, column Information_Content, from NUMBER(6,1) to NUMBER(6,2)	10/5/04
R6.0 5.0	L2_Surface_Emissivity	Modify Land_Surface_Emissivity, Emissivity_Wavenumber, Land_Surface_Emiss_Errors modify from VARCHAR2(3000) to VARCHAR2(1400)	9/29/04
R6.0 5.0	APOD_Info	Modify data constraint column , s_Step_Type: remove 'CLOUD' add 'BT', 'CLOUDID', 'IGREFINE', 'CLOUDIGREFINE', 'FULLFILTER'	10/1/04
R6.0 5.0	Step_Information	Modify data constraint, column s_Step_Type remove 'CLOUD' add 'BT', 'CLOUDID', 'IGREFINE', 'CLOUDIGREFINE', 'FULLFILTER'	10/1/04
R6.0 5.0	Species_Order	Modify data constraints on column s_Species_Order_ID to include 'PCLOUD', 'CLOUDOD', 'CLOUDEXT','CALSCALE','EMIS'	10/5/04
R6.0 5.0	Species_Information	Make the following columns nullable, obsolete columns, retained for compatibility: s_Vector_Source_Info_ID	10/5/04

Schema	Table, Major Version & Minor Version	Description	Date
		add the following columns: GMAO_FLK_Vector_Src_Info_ID GMAO_LLK_Vector_Src_Info_ID CLIM_Vector_Src_Info_ID	
R7.0 6.0	n/a	(documentation only, no schema change) std_pressure_lvls::d_pressures Modify the Database Document to DPS mapping From: L2_Associated_Scene::Pressure_Levels to L2 Product TES-L2-Common metadata To: std_pressure_lvls::d_pressures to L2 Product TES-L2-Common metadata	2/9/05
R7.0 6.0	L2_Nadir_Geolocation	Delete column Scan_Averaged_Flag Create column Scan_Averaged_Count	2/9/05
R7.0 6.0	L2_Associated_Scene_ Species	Modify data type on column Max_Num_Iterations From Number(1) To Number(2)	2/9/05
R7.0 6.0	L2_Associated_Scene_ Species	Modify data type on column Numb_Iter_Performed From Number(1) To Number(2)	2/17/05
R7.0 6.0	Step_Control_Paramete rs	Modify data type on column i_Max_Num_Iterations From Number(10) To Number (2)	2/17/05
R7.0 6.0	L2_Associated_Scene	Remove columns RMS_Residual Max_Residual Final_Retrieval_Converged Cloud_Cover Cloud_Top_Pressure Cloud_Top_Height

Insert new column Cloud_Pressure

NOTE: The columns Cloud_Cover, Cloud_Top_Pressure, and Cloud_Top_Height were NOT removed | 2/25/05

(This was modified 5/2/05 with text in italics) |

Schema	Table, Major Version & Minor Version	Description	Date
		for the R7.0 release. Likewise, Cloud_Pressure was NOT added to the R7.0 Release.	
R7.0 6.0	L2_Associated_Scene_ Species	Remove columns Convergence Out_of_Expected_Range	
R7.0 6.0	Species_Information	Remove obsolete column s_Vector_Source_Info_ID	2/25/05
R7.0 6.0	L2_Species_Data:	Modify column from nullable to Not Null: Constraint_Vector	2/25/05
R7.0 6.0	Strategy_Table	Modify column from nullable to Not Null: s_Strategy_Data_Version	2/25/05
R7.0 6.0	L2_Associated_Scene_ Species	Modify columns from nullable to Not Null: Radiance_Residual_RMS, Radiance_Residual_Mean, Radiance_Residual_Max, Dev_Vs_Retrieval_Covar	2/25/05
R8.0 7.0	L2_Associated_Scene	Remove columns: Cloud_Cover Cloud_Top_Height Insert new columns: Cloud_Top_Pressure_Error Cloud_Effective_OD Cloud_Effective_OD_Error Cloud_Frequency Revise column Cloud_Top_Pressure to NUMBER(7,3)	5/2/05
R8.0 7.0	L2_Associated_Scene_ Species	Insert new column: Species_Retrieval_Quality	5/10/05
R8.0 7.0		Incorporate review findings into tables L2_Associated_Scene, L2_Associated_Scene_Species	5/25/05
R8.0 7.0		Update mapping of database to DPS	6/9/05
R8.0 7.2	Step_Information	Insert new column s_Do_Not_Update	7/19/05
R8.0 7.3	L2_Surface_Emissivity (no schema changes)	Correct comments, 82 emissivities to be carried for each entry (as opposed to 103)	8/8/05
R9.0 8.0	Correlated_Element_ Info	Change column name: from	8/9/05

Schema	Table, Major Version & Minor Version	Description	Date
		s_sSuba_True_Information_ID to s_Apriori_Covariance_Info_ID	
R9.0 8.0	Vector_Source_Info	Add new column s_Source_Ratio_Species	8/9/05
R9.0 8.0	L1B_Tgt_Spectra_ Qualty	Insert new column: Mean_Ratio_Imag_Real	8/9/05
R9.0 8.1	Species_Order	s_Species_Order_ID Add HDO to check constraint	8/16/05
R9.0 8.2	L1B_Tgt_Spectra_ Quality	Remove column Mean_Ratio_Imag_Real (deferred software until R10)	9/21/05
R9.0 8.3	L2_Surface_Emissivity	Add the following columns: Surface_Emiss_Initial Surface_Emiss_Constraint Change the following column From Land_Surface_Emissivity To Surface_Emiss and update comments	10/28/05
R9.0 8.3	L2_Species_Data	Add the following column: VMR_Array_Initial	10/28/05
R9.0 8.3	L2_Associated_Scene	Add the following columns Air_Density TSUR_Precision TSUR_DegreesOfFreedom TSUR_Constraint TSUR_Initial Tropopause_Pressure Dominant_Surface_Type Ozone_Trop_Column Ozone_Trop_Column_Error Ozone_Trop_Column_Initial Surface_Temp_Obs_Error	10/28/05
R9.0 8.3	L2_Associated_Scene_ Species	Add the following column Cloud_Variability_QA KDotDL_QA LDotDL_QA Calibration_QA Surface_Emiss_Mean_QA TSUR_vs_Apriori_QA TSUR_vs_TATM0_QA Average_Cloud_Effective_OD Total_Column_Density_Initial	10/28/05
R 9.0 8.4	Survey_Retrieval_ Control	Remove table from document. SIPS controls the population of the table; SDPS	11/4/05

Schema	Table, Major Version & Minor Version	Description	Date
		software does not access it.	
R9.0 8.4	L2_Surface_Emissivity	Increase size of column Surface_Emiss From VARCHAR2(968) To VARCHAR2(1000)	11/4/05
R9.0 8.5	L2_Nadir_Geolocation	Add columns Day_Night_Flag Surface_Type_Footprint	11/16/05
R9.0 8.6	L2_Associated_Scene_ Species	Modify Calibration_QA data constraint From -1..+1 To -2..+2	12/8/05
R9.0 8.6	L2_Associated_Scene_ Species	Update the database constraints for following as specified for R9.0: Cloud_Variability_QA KDotDL_QA LDotDL_QA Calibration_QA Surface_Emiss_Mean_QA TSUR_vs_Apriori_QA TSUR_vs_TATM0_QA	1/5/06
R9.0 8.7	L2_Associated_Scene_ Species	Modify datatype of the following to NUMBER(6,2) Cloud_Variability_QA KDotDL_QA LDotDL_QA Calibration_QA Surface_Emiss_Mean_QA TSUR_vs_Apriori_QA TSUR_vs_TATM0_QA	1/5/06
R9.0 8.7	L2_Associated_Scene_ Species	Modify data constraint of KDotDL_QA To -100..100	1/5/06
R9.0 8.8	L2_Associated_Scene_ Species	CR 3720 - additional decimal places for Degrees_Freedom_for_Signal	1/25/06
R10.0 8.9	L2_Associated_Scene	CR3816 – modify data constraints on Dominant_Surface_Type	3/29/06
R10.0 8.9	L2_Associated_Scene_ Species	CR3837 – additional decimal places for KDotDL_QA LDotDL_QA Surface_Emiss_Mean_QA TSUR_vs_Apriori_QA TSUR_vs_TATM0_QA CR3839 – add column H2O_HDO_QA	4/18/06
R10.0 8.9	L2_Associated_Scene	CR3837 – additional decimal places for TSUR_Constraint	4/18/06

Schema	Table, Major Version & Minor Version	Description	Date
		TSUR_DegreesOfFreedom TSUR_Initial TSUR_Precision	
R10.0 8.9	L2_Associated_Scene_ Species	Modify data types for Radiance_Residual_RMS, Radiance_Residual_Mean	4/25/06
R10.0 8.9	Apod_Info	Add data constraint 'PTGANG' to Column s_Step_Type	4/28/06
R10.0 8.9	Step_Information	Add data constraints 'PTGANG' to Column s_Step_Type	4/28/06
R10.0 8.10	L2_Associated_Scene_ Species	CR 3862 - Add column Surface_Emission_Layer_QA	5/18/06
R10.0 8.11	Survey_Retrieval_Error	SIPS mod	9/8/06
R10.0 8.12	L2_Associated_Scene	CR 3980 – Modify constraint on Dominant_Surface_Type (remove 0 from valid values) – documentation only	9/20/06
R10.1 8.13	L1B_TES_Performance	CR4048, 3981 – Add columns to support trending of laser power and ICS stability Out_Band_Spec_Real_Mean Out_Band_Spec_Real_Mean_Flag Out_Band_Spec_RMS Out_Band_Spec_RMS_Flag Out_Band_Spec_Imag_Mean Out_Band_Spec_Imag_Mean_Flag	12/21/06
R10.2 8.14	L1B_TES_Performance	Remove the modification in R10.1 8.13 Remove columns Out_Band_Spec_Real_Mean Out_Band_Spec_Real_Mean_Flag Out_Band_Spec_RMS Out_Band_Spec_RMS_Flag Out_Band_Spec_Imag_Mean Out_Band_Spec_Imag_Mean_Flag	1/19/07
R10.2 8.14	L1B_Cal_Spectra_Qual ity	CR4074 – Add columns to support trending of laser power and ICS stability Out_Band_Spec_Real_Mean Out_Band_Spec_Real_Mean_Flag Out_Band_Spec_RMS Out_Band_Spec_RMS_Flag Out_Band_Spec_Imag_Mean Out_Band_Spec_Imag_Mean_Flag	1/19/07
R11.0	L2_Associated_Scene_	CR3996 – Add	12/27/06

Schema	Table, Major Version & Minor Version	Description	Date
11.0	Species	Average_Cloud_Eff_OD_Error (represents AverageCloudEffectiveOpticalDepthError in DPS)	
R11.0 11.0	L2_Nonretrieved_Species	CR3934, 3949 – New table to carry nonretrieved species information	12/27/06
R11.0 11.0	L1B_Tgt_Spectra_Quality	CR4053 – new column Mean_Ratio_Imag_Real	12/27/06
R11.0 11.0	Apod_Info	CR2065 – add column d_NESR_Scaling	1/2/07
R11.0 11.0		Update mapping of this document to DPS	1/23/07
R11.0 11.0		Update table description to indicate that nadir string data has 67 entries; limb has 88	
R11.0 11.1	Apod_Info	Modify data constraint for column d_NESR_Scaling Was: >0 and <1 Now: >0 and <= 1	
R11.0 11.2	Species_Order	Add H2O18 to check constraint for s_Species_Order_ID	5/16/07
R11.0 11.2	Apod_Info	Add "TSURIGREFINE" to check constraint for s_Step_Type	6/18/07
R11.0 11.2	Step_Information	Add "TSURIGREFINE" to check constraint for s_Step_Type	6/18/07
R11.0 11.3	L2_Associated_Scene	Add column Surface_Temp_Initial_Refined	7/16/07
R11.0 11.4	Species_Order	CR4175 - Remove H2O18 to check constraint for s_Species_Order_ID	10/4/07
R11.0 11.5	L2_Associated_Scene_Species	CR4182 – Add C Curve database flag O3_Ccurve_QA. Nadir only	10/18/07
R11.1 11.6	L2_Associated_Scene_Species	CR4253 – Expand Average_Cloud_Effective_OD and Average_Cloud_Eff_OD_Error To NUMBER (9,4)	6/5/08
R12.0 12.0	L2_Associated_Scene	Add Ozone_IRFK column to L2_Associated_Scene table.	9/18/09
R12.0 12.0	Step_Information	Add Report_Interm_Retrieved_Vals column to Step_Information table.	10/14/09
R12.0 12.0	Step_Information	Changed s_Do_Not_Update column size from VARCHAR2(60) to VARCHAR2(128)	10/14/09
R12.0 12.1	L2_Associated_Scene	Adding ReducedCO2LevelIndices column for CO2 Lite processing without NOT	3/24/10

Schema	Table, Major Version & Minor Version	Description	Date
		NULL constraint	
R12.0 12.2	L2_Associated_Scene	Adding ReducedCO2LevelIndices field for CO2 Lite processing with NOT NULL constraint (data must be present for successful insert)	5/24/10
R12.0 12.3	Step_Information	Added new column s_CALC_IRFK without NOT NULL constraint	11/16/10
R12.0 12.4	L2_TES_MLS_Data	Added new table for TES-MLS combined products with following column names: L2_Scene_ID Species KTRANSPSYINVK KTRANSPSYINVRADRES	11/12/10
R12.0 12.5	L2_Associated_Scene	Change field Ozone_IRFK to Ozone_IRK	4/28/11
R12.0 12.5	Step_Information	Change s_CALC_IRFK to CALC_IRK	4/28/11
R12.0 12.6	L2_TES_MLS_Data	Add stored function MATRIX_DATA to return table values.	7/7/11
R13.0 13.0	L2_Associated_Scene CR 4587	Adding Fm_Ozone_Band_Flux and L1B_Ozone_Band_Flux fields to L2_Associated_Scene	12/8/11
R13.0 13.0	Species_Order CR 4611	s_Species_Order_ID Add new species Methanol (CH3OH) to check constraint	3/26/2012
R13.0 13.1	L2_Associated_Scene_ Species CR 4635	Desert_Emiss_QA Add desert emissivity flag; used in all species	9/14/12
R13.0 13.2	L2_Associated_Scene_ Species CR 4652	Chi2_Initial_QA. Chi2_Final_QA	12/6/12
R13.0 13.3	L2_Associated_Scene_ Species CR 4681	Rename Chi2_Initial_QA. Chi2_Final_QA to Residual_Norm_Initial, Residual_Norm_Final	1/17/13
R13.0 13.3	L2_TES_MLS_Data CR 4674	Remove table from schema	1/17/13
R13.0 13.4	L2_Associated_Scene_ Species	Add "Not Null" comment to Desert_Emiss_QA, Initial_Residual_Norm, Final_Residual_Norm. Indicate default value of Fill data for these attributes	2/19/2013
R13.0 13.4	L2_Associated_Scene	Indicate default value of Fill data for these attributes	2/19/2013

Schema	Table, Major Version & Minor Version	Description	Date
		Ozone_IRK ReducedCO2LevelIndices FM_Ozone_Band_Flux L1B_Ozone_Band_Flix Add "Not Null" comment to TES_Pixels_Used_Flag	
R13.1 13.5	Strategy_Table_Selector CR 4733	Add s_Instrument column in support of TES_OMI	5/10/13
R13.1	L2_Associated_Scene	Modify description of Air_Density to be 'wet' air density	8/28/2013
R14.0	Species_Order	Add PAN to species – check constraint Add OCS to species – check constraint	10/14/14
R14.1	L2_Associated_Scene_Species CR 4874	Add TATM_Retrieval_QA Add O3_Retrieval_QA Add H2O_Retrieval_QA	12/2/2014
R14.2	L2_Associated_Scene_Species CR 4899	Add radianceMaximumSNR	3/3/2015
R14.3	Step_Information CR 4917	Add constraint 'CLOUDIGREFINE_2' for IRK column s_Step_Type	4/20/2015
R14.4	L2_Associated_Scene CR 4917	Add the following attributes for IRK: FM_Flux_Segments FM_Flux_Segments_Center_Freq L1B_Flux_Segments O3_LIRK O3_IRK_Segments O3_IRK_Segments_Center_Freq H2O_LIRK TATM_IRK TSUR_IRK CEOD_IRK CTP_IRK	4/20/2015
R14.5	Step_Information CR 4920, 4921	Add column s_interpolatge_retrieved_values	5/2/2015
R14.5	L2_Associated_Scene CR 4917	Add the following for IRK EMISS_IRK Rename Ozone_IRK to O3_IRK Rename CEOD_IRK to CEOD_LIRK Rename CTP_IRK to CTP_LIRK	7/13/2015
R14.6	L2_Associated_Scene L2_IRK_Scene	Introduce L2_IRK_Scene table; move IRK related attributes from L2_Associated_Scene into that table	7/17/2015

Schema	Table, Major Version & Minor Version	Description	Date
		O3_IRK Fm_Ozone_Band_Flux L1B_Ozone_Band_Flux FM_Flux_Segments FM_Flux_Segments_Center_Freq L1B_Flux_Segments O3_LIRK O3_IRK_Segments O3_IRK_Segments_Center_Freq H2O_LIRK TATM_IRK TSUR_IRK CEOD_LIRK CTP_LIRK EMISS_IRK Remove references of Ozone from these attribute names	
R14.6	L2_IRK_Metadata	New table used in transfer of metadata from L2 Retrieval to L2 Products	7/28/2015
R14.7	L2_IRK_Scene	Add attribute L1B_Band_Radiance	9/25/2015
R14.7	L2_IRK_Metadata	Add attribute Zenith_GI_Angles	9/25/2015
R15.0	L1A_Cal_Geolocation L1A_Geolocation	Orbit number size updated	3/22/2019
R15.0	L2_Associated_Scene	Cloud Top Pressure/Effective OD updates	3/22/2019
R15.0	L2_Associatsed_Scene _Species	Made Species_Retrieval_Quality flag NOT NULL	3/22/2019

TABLE OF CONTENTS

1.   INTRODUCTION

1.1   IDENTIFICATION

This document contains the SDPS (Science Data Processing System) database schema definition, used in the science data processing software for the JPL Tropospheric Emission Spectrometer (TES) Project.

1.2   TES PROJECT OVERVIEW

TES is a Fourier transform spectrometer (FTS) designed to obtain high-resolution (0.025 cm-1) emission spectra from the lower atmosphere. The primary scientific objectives of TES are to investigate the 3-dimensional distribution of gases important to tropospheric chemistry, troposphere-biosphere interactions, and troposphere-stratosphere exchange. These investigations will be carried out on global, regional and local scales. The resultant database will be used to calibrate models of the present and future state of the Earth's lower atmosphere.

TES will normally work in a two-day cycle termed the Global Survey; one day gathering data and one day off.   The Global Survey will consist of a continuous sequence of scans, consisting of two calibration scans, followed by two nadir scans and finally three limb scans. Targets of opportunity along with special calibrations may be performed during the off days.

TES Science Data processing is divided into levels according to a scheme prescribed by the EOS project. The Level 1 processing is traditionally broken into Level 1A and Level 1B. Level 1A software provides telemetry packet decommutation and a geo-referenced standard output that are reversible to the original Data Number (DN) values recorded by the instrument. Level 1B provides a radiometric and spectrally calibrated standard data product that is corrected for instrument effects and placed on a common frequency grid for Level 2 use. Level 1B also provides a Residual Instrument Line Shape (ILS) Correction file for Level 2 processing.   Level 2 software accepts and processes Level 1B Product. Level 2 performs a "retrieval" of temperature and molecular abundance profiles for a select set of standard species for each observation. Level 3 software resamples the observation data onto a standard grid. The resulting data products are archived at the Langley Research Facility (LaRC) Distributed Active Archive Center (DACC), which is also responsible for distributing the data to the science community.

The TES Science Data Processing software will be flexible enough to provide functionality for both the normal operating scenario, termed the Global Survey, and to support operating scenarios used to collect special products and calibrations.

1.3   DOCUMENT PURPOSE AND SCOPE

This document formalizes the database table definitions used in the implementation of the TES science data processing software. This document is software release specific. The information contained within this document will be used by the Database Administrator (DBA) to implement the physical database. The document will be used by the science software developers to design and implement software used to access the database for read, write and update functions. Testing personnel will use this document to populate the testing database and to verify access routines. This document will not describe the access routines; these routines are tailored to specific functionality and independently developed.

It is likely that the database will be modified for each release. For instance the database table attributes describing data constraints for each table entry will be developed as the software is being implemented. Many of the tables in the database are being designed in advance of the software. In this case the database table specifications may be incomplete.   This document should be considered the reference to the database as implemented for the current release.

1.4   METHODS

Table definitions contained in this document were developed in concert with the subsystem developers and the TES DBA (Database Administrator). The table descriptions contained in this document will be sufficiently detailed for the database administrator to implement in the physical database, and for the developers to code to.

1.5   TERMINOLOGY

Several terms used in the table description have a specialized meaning when applied to database design.

Datatype – The database representation for a table attribute. All entries for a single table attribute must be the same data type. Briefly, integers are represented by NUMBER(precision) where precision indicates the number of digits (maximum of 38 digits). Floats are represented by NUMBER(precision, scale) where precision is the total number of digits (maximum of 38), and scale is the number of digits to the right of the decimal point, with a default of 0. Character data is represented by VARCHAR2(size) where size indicates the maximum number of characters possible in the table attribute. User defined objects are possible but are not used at this time.

Data Check – An optional validation check of the data may be defined for a table attributes. If a data constraint is violated, the attempted insertion of the data will result in a nonfatal database error, and the insertion of the entire row will fail. Also known as a check constraint.

2

Key (or **primary key)** – Each row or entry in a database table must be unique. The key provides the uniqueness. The key may be a single column in the database or a composite key, composed of two or more columns in the database. The primary key constraint forces each primary key to be unique and not null.

Null Constraint (and **Not Null)** – Null indicates that a table attribute may be left unspecified when the row is inserted into the table. Not Null indicates that the table attribute must be specified when inserted into the table or when the table is updated.

Units – Physical units of measure associated with a table entry. Units are tracked in this document to define the attributes of the data, but are not tracked in the database.

1.6   CONTROLLING DOCUMENTS

1) *TES Level 1A Functional Requirements Document, JPL D-17961*

2) *TES Level 1B Functional Requirements Document, JPL D-17962*

3) *TES Level 2 Functional Requirements Document, JPL D-23176*

1.7   REFERENCED DOCUMENTS

1) *TES Command and Telemetry Handbook, JPL D-15388*

2.   DATABASE DESCRIPTION

2.1   OBJECTIVES

The database will provide persistent data storage between PGEs and executables for information used in the control and processing of science data in the TES SDPS. In addition, the database provides the ability to issue queries against the information stored in the database. This query functionality enables PGEs to subset data as needed for processing. This set of data will be referred to as the *Production Database.*

The database may also be used as persistent storage for data that will be used in trending analysis. For instance, it may be useful to determine if the temperature of the blackbody changes over some unit of time, or if the quality flags associated with the PGE demonstrate some pattern. This set of data will be referred to as the *History Database.*

The database definition is release specific. Early in each release cycle the database tables will be reviewed in consideration of the requirements levied against the system. Additional functionality may be added or entire tables modified at the beginning of the release cycle.

2.2   SUMMARY OF TABLE SCHEMA

The Production database definition may be categorized in to two general categories: that pre-populated prior to data processing, and that populated by the SDPS software. The following figures provide a high level view of the relationships between the tables accessed by SDPS software.

The following tables are populated (and accessed) by software. The Level 1 tables, for the most part, are related through the unique combination of the Run, Sequence and Scan identifiers (combined to form the attribute Scene_ID) that identify each TES observation. Additional attributes such as Focal Plane Array and Pixel are used to uniquely identify several other table entries. These Level 1 populated tables support the selection and subsetting of data accessed in Level 1 and Level 2 PGEs. Several Level 2 tables are referenced though L2_Scene_ID, utilized to account for the presence of averaged L1 target scenes in the L2 algorithm. A translation between the Scene_ID used in the L1 tables and L2_Scene_ID used in the L2 tables is provided in the L2_Scene table. These L2 tables support the interface between L2 Retrieval and L2 Product. Please refer to Figure 2-1, 2-2 and Figure 2-5.

- Run_Attributes
- Scan_Attributes
- L1A_Engineering
- L1A_Geolocation

- L1A_Cal_Geolocation
- L1A_Ifgm_File
- L1A_Quality
- L1A_ICS
- L1B_Nadir_BT
- L1B_Limb_BT
- L1B_Performance
- L1B_Tgt_Spectra_Quality
- L1B_Cal_Spectra_Quality
- Target_Scene_Attributes
- Survey_Retrieval_Control
- L2_Scene
- L2_Species_Data
- L2_Nadir_Geolocation
- L2_Associated_Scene
- L2_Associated_Scene_Species
- L2_Surface_Emissivity
- L2_TES_MLS_Data

The following Retrieval Strategy Control set of tables are pre-populated via scripts provided by the Science Team and Level 2 developers, and accessed for read via software. The Detector_Attributes table is pre-populated with those pixels (detectors) that are not to be used in processing. The DB_Version and SDPS_Table tables provide versioning information about the database tables themselves. Please refer to Figure 2-3 through Figure 2-4.

- Strategy_Table_Selector
- Strategy_Table
- Species_State_Information
- Species_Order
- Species_Information
- Sequence_Information
- Std_Pressure_Lvls
- APOD_Info
- EMIS_Parameters
- Step_Information
- Step_Parameters
- Retrieval_Element_List
- Retrieval_Element
- Step_Control_Parameters
- Correlated_Element_Info
- OD_Info
- Cloud_Parameters
- FOV_Info
- Output_Products_Info

- Leveln_Marq_Parameters
- Filter_Information
- Map_Information
- Vector_Source_Info
- Matrix_Source
- FM_Simulation_Info
- DB_Version
- SDPS_Table
- Detector_Attributes

The following History Database tables are available. The Level 1 tables, for the most part, are related through the unique combination of the Run, Insertion_Date, Sequence and Scan identifiers (combined to form the attribute Scene_ID) that identify each TES history observation. The tables in the History Database support the trending and visualization of data that is of historical value.
Data will be copied and moved from the Production tables to the History tables on the successful completion of a PGE.
Please refer to Figure 2-x.

- Run_Attributes_H
- Scan_Attributes_H
- L1A_Engineering
- L1A_Geolocation
- L1A_Cal_Geolocation
- L1A_Quality
- L1A_ICS
- L1B_Nadir_BT
- L1B_Limb_BT
- L1B_TES_Performance
- L1B_Tgt_Spectra_Quality
- L1B_Cal_Spectra_Quality
- L2_Scene
- L2_Species_Data
- L2_Nadir_Geolocation
- L2_Associated_Scene
- L2_Associated_Scene_Species
- L2_Surface_Emissivity

2.3   DATABASE TABLE DEFINITIONS

The tables following Figure 2-4 provide the database definitions for this release of SDPS software. The definitions will contain a description of each column of the table sufficient for implementation of the table and access of the table through software.

6
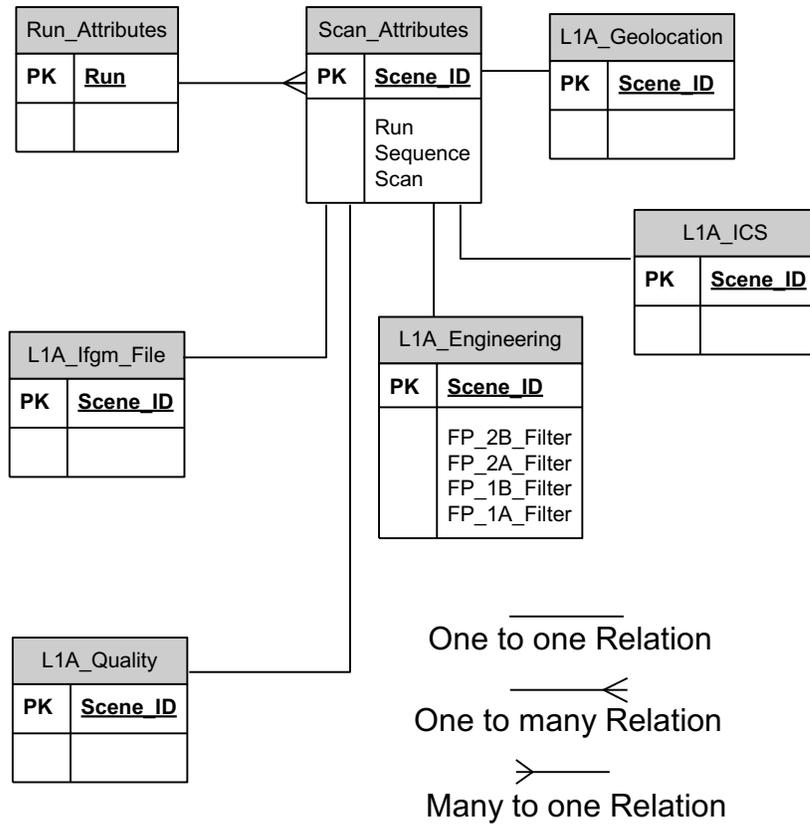
Figure 2-1

SPDS Database Schema

Scan_Attributes	
PK	**Scene_ID**
	Run Sequence Scan

L1A_Engineering	
PK	**Scene_ID**
	FP_2B_Filter FP_2A_Filter FP_1B_Filter FP_1A_Filter

Target_Scene_Attributes	
PK	**Scene_ID**

L1B_Limb_BT	
PK	**L1B_Limb_BT**

Survey_Retrieval_Control	
PK	**Scene_ID1**
	Bin_ID

L1B_Nadir_BT	
PK	**Scene_ID**

L2_Scene	
PK **PK**	**L2_Scene_ID** **Scene_ID**

L1B_TES_Performance	
PK	**Scene_ID**

L1B_Cal_Spectra_Quality	
PK	**Scene_ID**

L1A_ICS	
PK	**Scene_ID**

L1B_Tgt_Spectra_Quality	
PK	**Scene_ID**

One to one Relation

One to many Relation

Many to one Relation

Figure 2-2

SDPS Database Schema (continued)

Figure 2-3
SDPS Database Schema (continued)
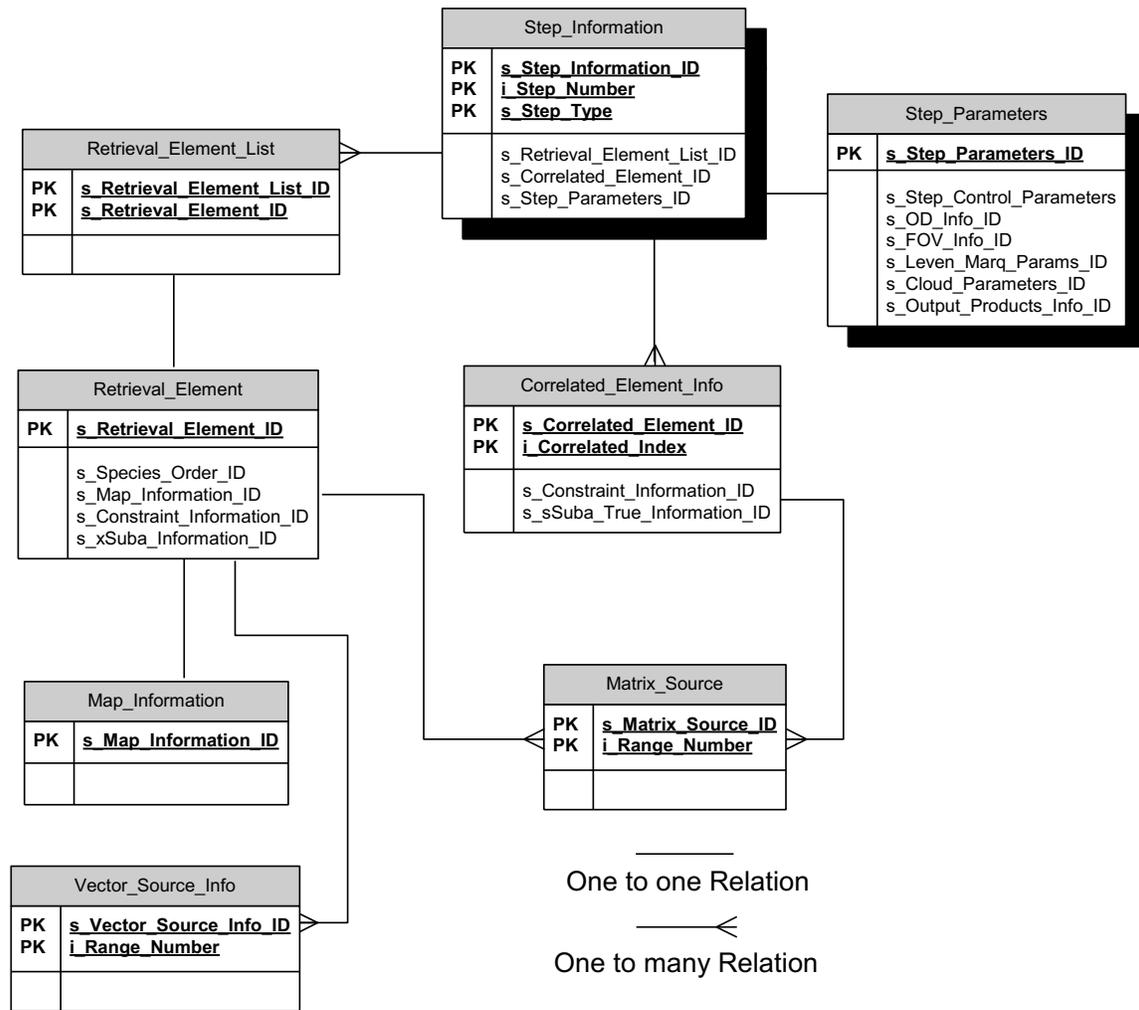
Figure 2-4

SDPS Database Schema (continued)
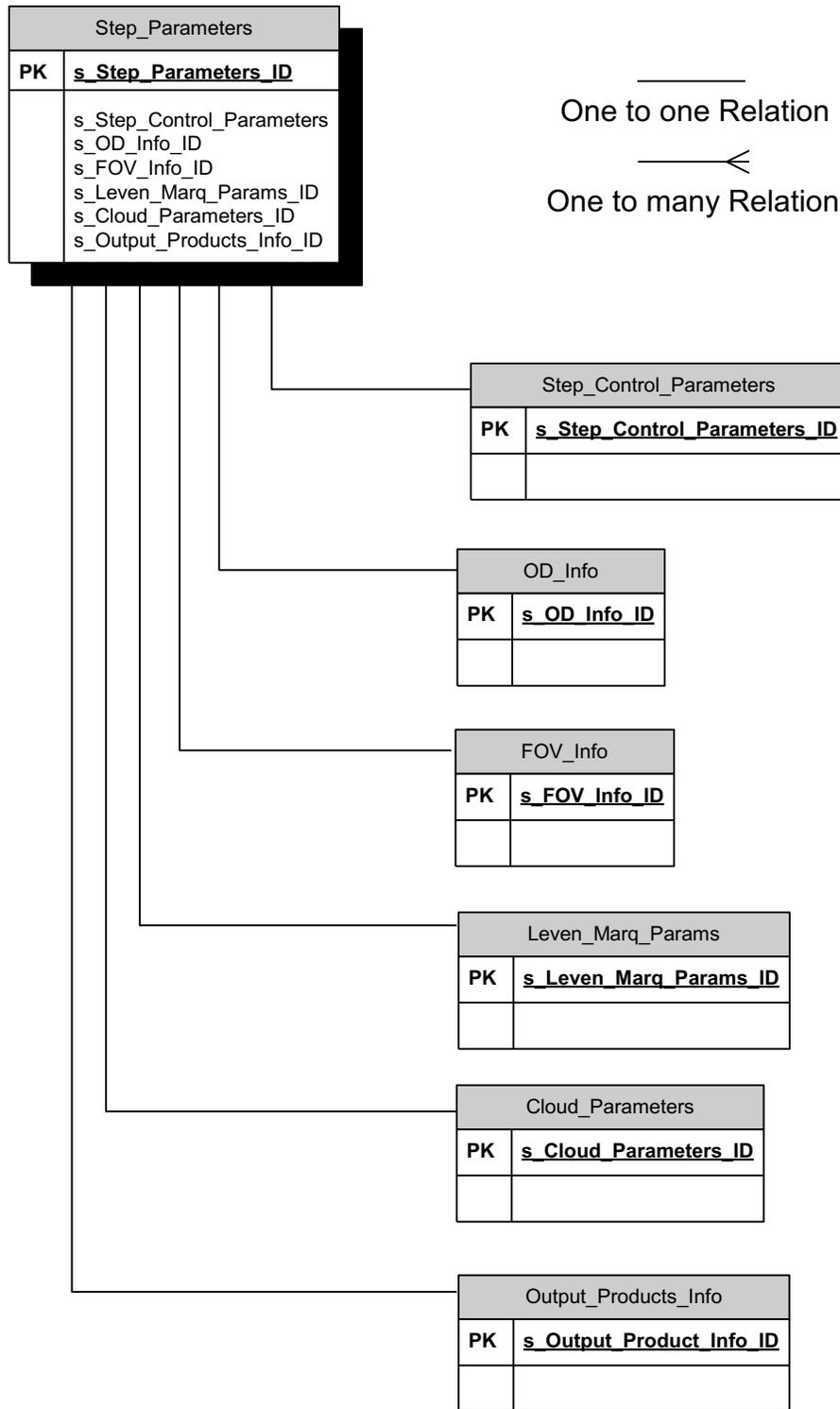
Figure 2-5

SDPS Database Schema (continued)

Run_Attributes

PK	Run

Scan_Attributes

PK	Scene_ID
	Run Sequence Scan

L2_Scene

PK	L2_Scene_ID
	Scene_ID1 Scene_ID2

L2_Associated_Scene

PK	L2_Scene_ID

L2_Associated_Scene_Species

PK	L2_Scene_ID
PK	Species

L2_Nadir_Geolocation

PK	L2_Scene_ID

L2_Species_Data

PK	L2_Scene_ID
PK	Species
PK	Pressure_Level

L2_Surface_Emissivity

PK	L2_Scene_ID

FM_Simulation_Info

PK	s_FM_Simulation_Info_ID
PK	s_Viewing_Mode

Constraint_Strengths

PK	s_Species
PK	s_View_Mode
PK	s_Map_Type
PK	d_Pressure_Min
PK	d_Pressure_Max
PK	d_Latitude_Min
PK	d_Latitude_Max

——————
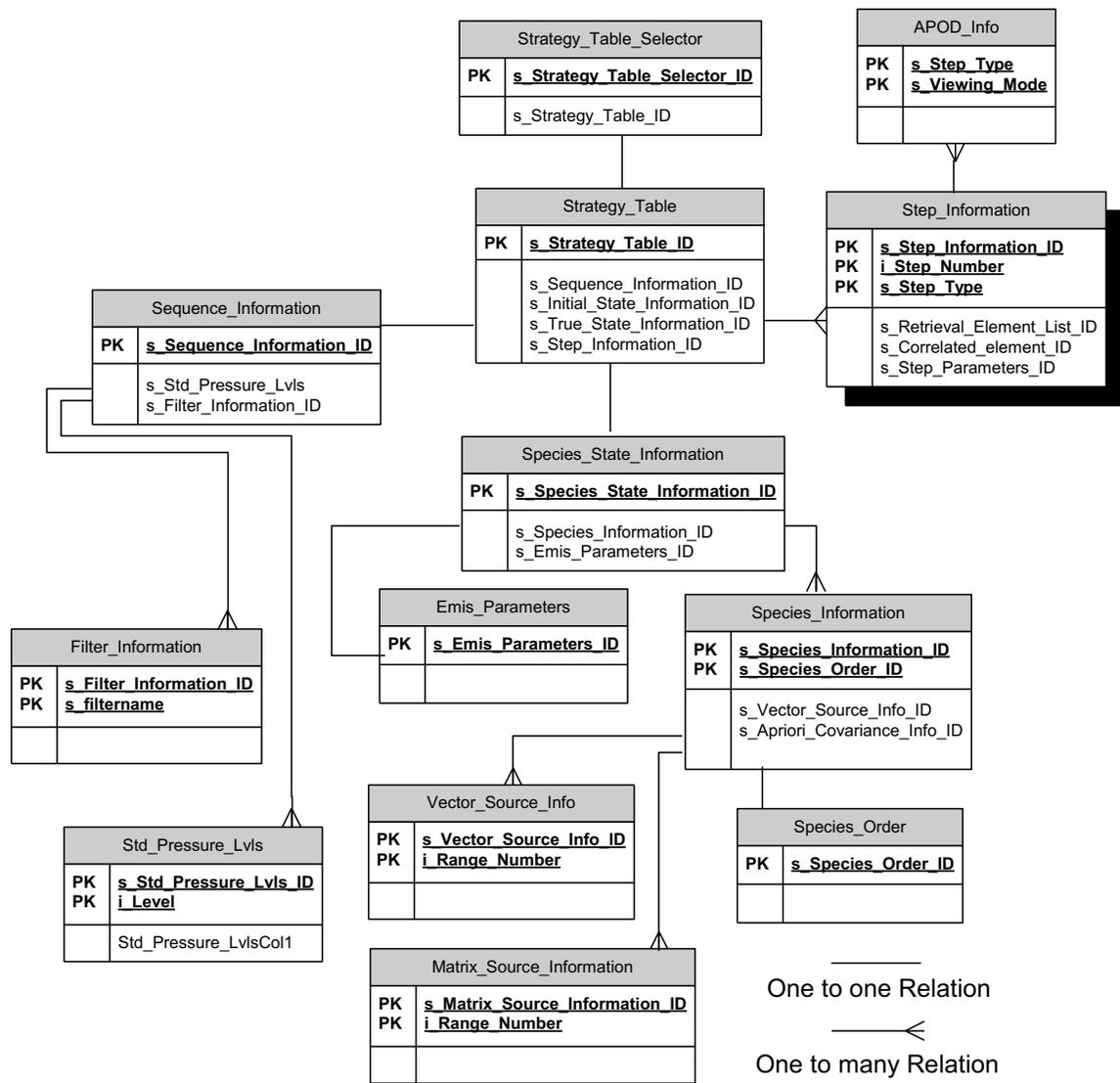One to one Relation

————<
One to many Relation

Figure 2-6

SDPS Database Schema (continued)
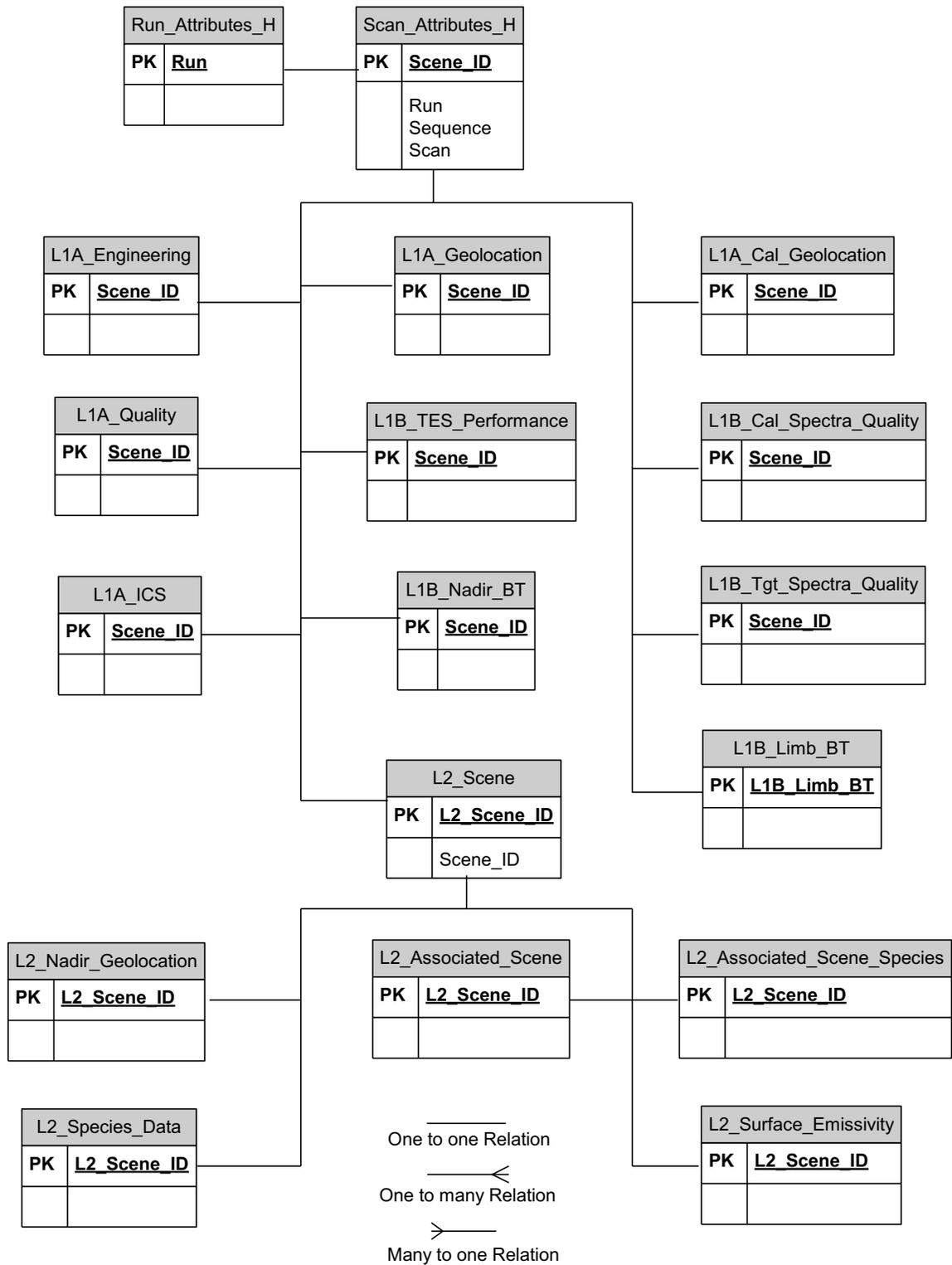
Figure 2-7

History Database Schema

2.3.1   Run_Attributes Table

Table Name: Run_Attributes
Created By: L1A Main
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides attributes specific to an entire Run, a start/stop time for each
                           instrument run processed
Number of entries/Run   1 entry per run
Key   Run

Table 2-2. Run_Attributes

Run Attributes Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Run	NUMBER(10)	n/a			Run Identification
Active	VARCHAR2 (1)	n/a	Not Null	'A', 'P', 'D'	'A' - active, 'P' - processed, 'D' - archived and related tables deleted
Run_Type	VARCHAR2 (2)	n/a	Not Null	'GS', 'SO', 'PG', 'PS', 'SC', 'TP'	'GS' - Global Survey, 'PG' - PreGS Bracketing Cal, 'SO' - Special Observation, 'PS' - Pre SO Bracketing Cal, 'SC' - Spec Cal, 'TP' - Test Pattern
Start_Time	NUMBER(15,6)	TAI Time Format	Not Null		TAI Time, seconds since Jan 1, 1993
Stop_Time	NUMBER(15,6)	TAI Time Format			TAI Time, seconds since Jan 1, 1993
FSW_Version	NUMBER(12)	n/a			Flight S/W version
Command_Seq_ID	NUMBER(12)	n/a			Sequence Macro identifier
Start_Orbit_Number	NUMBER(12)	n/a			First orbit in Run
End_Orbit_Number	NUMBER(12)	n/a			Last orbit in Run
Start_Orbit_Path	NUMBER(12)	n/a		1..233	First orbit path number (1..233) in Run
End_Orbit_Path	NUMBER(12)	n/a		1..233	Last orbit path number (1..233) in Run

2.3.2   Scan_Attributes Table

Table Name: Scan_Attributes
Created By: L1A Main
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides translation between run/seq/scan to Scene_ID. Scene ID is used
                        extensively in other tables.
Number of entries/Run   Pre Run 2861 GS: 12096
                        Post Run 2861 GS: 5760

Key   Scene_ID

Table 2-3. Scan_Attributes

Scan_Attributes Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a		Unique key, points to run/sequence/scan	Oracle generated key
Run	NUMBER(10)	n/a	Not Null		Index
Sequence	NUMBER(7)	n/a	Not Null		Index
Scan	NUMBER(6)	n/a	Not Null		

Scene_ID is associated with an Oracle sequence number available through the Oracle routine nextval.

2.3.3 L1A_Engineering Table

Table Name: L1A_Engineering
Created By: L1A Main
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides temperatures and other engineering attributes based on scan
Number of entries/Run Pre Run 2861 GS: 12096
                       Post Run 2861 GS: 5760
Key   Scene_ID

Table 2-4. L1A_Engineering

L1A_Engineering Table Field Name	Data Type	Units	Null Constraint	Check Constraints	Comments
Scene_ID	NUMBER(12)	n/a		Unique key, points to run/sequence/scan	Foreign Key, from Scan_Attributes table
Time_of_Observation	NUMBER(15,6)	TAI Time	Not Null		TAI format, 93 epoch
Time_of_ZPD	NUMBER(15,6)	TAI Time			TAI format, 93 epoch
Observation_Type	NUMBER(2)	n/a		1..44	Defined in Cmd & Tele Handbook
Obs_View	VARCHAR2(5)	n/a		'SPACE', 'BBODY','NADIR', 'LIMB', 'SPATL','TESTP', 'OTHER'	
Resolution	VARCHAR2(1)	n/a		'H', 'L'	
Scan_Direction	VARCHAR2(1)	n/a		'F', 'R'	
FP_2B_At_Index	VARCHAR2(1)	n/a		'0', '1'	0=At Index 1= Not at Index, filter wheel may not be correctly set
FP_2B_Filter	VARCHAR2(1)	n/a		1, O, D, B	Optical filter, O=open, D=dark, B=bogus (indicates the 'at index' bit is not set)
FP_2A_At_Index	VARCHAR2(1)	n/a		'0', '1'	0=At Index 1= Not at Index, filter wheel may not be correctly set
FP_2A_Filter	VARCHAR2(1)	n/a		1..4, O, D, B	Optical filter, O=open, D=dark, B=bogus (indicates the 'at index' bit is not set)

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L1A_Engineering Table Field Name	Data Type	Units	Null Constraint	Check Constraints	Comments
FP_1B_At_Index	VARCHAR2(1)	n/a		'0', '1'	0=At Index 1= Not at Index, filter wheel may not be correctly set
FP_1B_Filter	VARCHAR2(1)	n/a		1..2, O, D, B	Optical filter, O=open, D=dark, B=bogus (indicates the 'at index' bit is not set)
FP_1A_At_Index	VARCHAR2(1)	n/a		'0', '1'	0=At Index 1= Not at Index, filter wheel may not be correctly set
FP_1A_Filter	VARCHAR2(1)	n/a		1..5, O, D, B	Optical filter, O=open, D=dark, B=bogus (indicates the 'at index' bit is not set)
Signal_Chain_Gain_2B	NUMBER(3,1)	n/a		0.5, 1, 2, 8	Defined in Cmd & Tele Handbook, transformed from enumerated
Signal_Chain_Gain_2A	NUMBER(3,1)	n/a		0.5, 2, 8, 32	Defined in Cmd & Tele Handbook, transformed from enumerated
Signal_Chain_Gain_1B	NUMBER(3,1)	n/a		0.5, 1, 2, 8	Defined in Cmd & Tele Handbook, transformed from enumerated
Signal_Chain_Gain_1A	NUMBER(3,1)	n/a		0.5, 2, 8, 32	Defined in Cmd & Tele Handbook, transformed from enumerated
Black_Body_Wall_Temp_1	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Black_Body_Wall_Temp_2	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Cold_Reference_Plate_Temp_1	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Cold_Reference_Plate_Temp_2	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Detector_2B_Temp	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Detector_2A_Temp	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Detector_1B_Temp	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Detector_1A_Temp	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Beamsplitter_Temp_1	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Beamsplitter_Temp_2	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
Foreoptics_Temp	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
M2_Mirror_Temp	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
M1_Mirror_Temp	NUMBER(8,5)	Kelvin			Transformed from DN in L1A
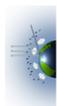
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L1A_Engineering Table Field Name	Data Type	Units	Null Constraint	Check Constraints	Comments
Cal_Resistor_1	NUMBER(8,2)	Ohm			Transformed from DN in L1A
Cal_Resistor_2	NUMBER(8,2)	Ohm			Transformed from DN in L1A
OSE_Resistor_1	NUMBER(8,2)	Ohm			Transformed from DN in L1A
OSE_Resistor_2	NUMBER(8,2)	Ohm			Transformed from DN in L1A
FP2B_ADC_Enabled	NUMBER(1)			0,1	0=Enabled, 1=Disabled
FP2A_ADC_Enabled	NUMBER(1)			0,1	0=Enabled, 1=Disabled
FP1B_ADC_Enabled	NUMBER(1)			0,1	0=Enabled, 1=Disabled
FP1A_ADC_Enabled	NUMBER(1)			0,1	0=Enabled, 1=Disabled
FP2B_Fringe_Clock_Divisor	NUMBER(2)			8..15	
FP2A_Fringe_Clock_Divisor	NUMBER(2)			8..15	
FP1B_Fringe_Clock_Divisor	NUMBER(2)			8..15	
FP1A_Fringe_Clock_Divisor	NUMBER(2)			8..15	
FP2B_Elect_Filter	NUMBER(1)			0,5	0=3.3kHz, 5=DC
FP2A_Elect_Filter	NUMBER(1)			0,1,2,3,5	0=5.1kHz, 1= 6.0kHz, 2=6.9kHz, 3= 7.7kHz, 5=DC
FP1B_Elect_Filter	NUMBER(1)			0,1,5	0=4.0kHz, 1= 4.4kHz, 5=DC
FP1A_Elect_Filter	NUMBER(1)			0,1,2,3,4,5	0=8.8kHz, 1= 9.8kHz, 2=10.7kHz, 3= 11.5kHz, 4=12.4kHz, 5=DC

2.3.4 L1A_Geolocation Table

Table Name: L1A_Geolocation
Created By: L1A Geolocation PGE
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides geolocation calculated by L1A - used by L1B Reformat PGE in
                           creation of standard data product
Number of entries/Run   Pre Run 2861 = 5760 rows
                           Post Run 2861 = 3456 rows
Key   Scene_ID

Table 2-5. L1A_Geolocation

L1A_Geolocation Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	N/A			Foreign Key, from Scan_Attributes table
Geolocation_Failed	NUMBER(1)	T/F	Not Null	0=False, 1=True	When True, ignore other entries
OrbitAscendingFlag	NUMBER(1)	T/F		0=False, 1=True	
Orbit_Number	NUMBER(5)	N/A			Absolute orbit number
Aura_Path_Number	NUMBER(4)	N/A		1..233	repeating orbit path number
Orbit_Inclination_Angle	NUMBER(11,8)	Decimal Degrees			From toolkit metadata

L1A_Geolocation Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Latitude	NUMBER(10,8)	Decimal Degrees Latitude	Not Null	decimal latitude -90 to +90	Geodetic latitude of instrument boresight, 2B array
Longitude	NUMBER(11,8)	Decimal Degrees Longitude	Not Null	decimal longitude -180 to +180	Geodetic longitude of instrument boresight, 2B array
Elevation	NUMBER(8,2)	Meters	Not Null	(-1,000, 100,000]	Nadir:Surface geodetic elevation from DEM, Limb: altitude of tangent point
Horizontal_Uncertainty	NUMBER(8,2)	Meters	Not Null	(-100,000, 100,000]	Uncertain in geolocation horizontal position.
Elevation_Uncertainty	NUMBER(8,2)	Meters	Not Null	(-1,000, 100,000]	Uncertainty in geolocation elevation
Latitude_Footprint_1	NUMBER(10,8)	Decimal Degrees Latitude	Not Null		Nadir: Nadir footprint determined by field of view of pixels Limb: Limb footprint is +-60Km track, +- 12km cross track from surface expression of boresight tangent point
Latitude_Footprint_2	NUMBER(10,8)	Decimal Degrees Latitude	Not Null		
Latitude_Footprint_3	NUMBER(10,8)	Decimal Degrees Latitude	Not Null		

L1A_Geolocation Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Latitude_Footprint_4	NUMBER(10,8)	Decimal Degrees Latitude	Not Null		
Longitude_Footprint_1	NUMBER(11,8)	Decimal Degrees Longitude	Not Null		
Longitude_Footprint_2	NUMBER(11,8)	Decimal Degrees Longitude	Not Null		
Longitude_Footprint_3	NUMBER(11,8)	Decimal Degrees Longitude	Not Null		
Longitude_Footprint_4	NUMBER(11,8)	Decimal Degrees Longitude	Not Null		
Surface_Elevation	NUMBER(8,2)	Meters	Not Null		Average elevation over the footprint
Surface_Elev_Std_Deviation	NUMBER(8,2)		Not Null		Standard deviation of elevation over footprint
Min_Elev_Footprint	NUMBER(8,2)	Meters	Not Null		Lowest elevation over the footprint
Max_Elev_Footprint	NUMBER(8,2)	Meters	Not Null		Greatest elevation over the footprint
Surface_Type_Footprint	NUMBER(1)	Enumerated	Not Null	1..4	From DEM, 1=Fresh Water,2=Salt Water, 3=Land, 4=Mixed (not 100% of FW, SW or Land)
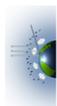
L1A_Geolocation Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Day_Night_Flag_Target	VARCHAR2(5)		Not Null	'DAY' or 'NIGHT'	Day/ Night at boresight geolocation
Day_Night_Flag_SC	VARCHAR2(5)		Not Null	'DAY' or 'NIGHT'	Day/ Night at space craft location
LocalSolarTime	NUMBER(8,6)	Decimal Hours	Not Null		
TES_Bsight_Azimuth	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) azimuth angle relative to the local north at SC.
TES_Bsight_Azimuth_Uncert	NUMBER(11, 8)	Decimal Degrees	Not Null		Uncertainty in TES boresight azimuth angle.
TESBoresightNadirAngle	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) nadir angle relative to the local nadir at S/C.
TES_Bsight_Nadir_Uncert	NUMBER(11, 8)	Decimal Degrees	Not Null		Uncertainty in TES boresight nadir angle.
Grd_Trk_TES_Bsight_Azimuth	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) azimuth angle relative to the local ground track.
SpacecraftAzimuth	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) azimuth angle relative to the local north at the geo-location.
SpacecraftZenith	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) nadir angle relative to the local zenith at the geo-location.
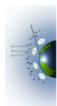
L1A_Geolocation Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Tgt_Sun_Azimuth	NUMBER(11,8)	Decimal Degrees	Not Null		Solar azimuth angle relative to the local north at the geo-location (solar azimuth at target).
Tgt_Sun_Zenith_Angle	NUMBER(11,8)	Decimal Degrees	Not Null		Solar nadir angle relative to the local zenith at the geo-location (solar zenith at target).
SolarAzimuthAngle	NUMBER(11,8)	Decimal Degrees	Not Null		Solar azimuth angle relative to the local north at the spacecraft point at ZPD time (solar azimuth at observation).
SolarZenithAngle	NUMBER(11,8)	Decimal Degrees	Not Null		Solar nadir angle relative to the local zenith at the spacecraft point at ZPD time (solar nadir at observation)
M1_Mirror_Sun_Angle	NUMBER(11,8)	Decimal Degrees	Not Null		
SpacecraftLatitude	NUMBER(10,8)	Decimal Degrees Latitude	Not Null	decimal latitude -90 to +90	Geodetic latitude
SpacecraftLongitude	NUMBER(11,8)	Decimal Degrees Longitude	Not Null	decimal longitude -180 to +180	Geodetic longitude
SpacecraftAltitude	NUMBER(18,10)	Meters	Not Null		Geodetic spacecraft altitude (w/ respect to geoide)

L1A_Geolocation Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Doppler_Shift	NUMBER(11,10)	dimensionless	Not Null		
Resolved_SC_Position_X	NUMBER(17,10)	Meters	Not Null	(+/- 8,000,000)	From ground corrected ephemeris
Resolved_SC_Position_Y	NUMBER(17,10)	Meters	Not Null	(+/- 8,000,000)	From ground corrected ephemeris
Resolved_SC_Position_Z	NUMBER(17,10)	Meters	Not Null	(+/- 8,000,000)	From ground corrected ephemeris
Resolved_SC_Velocity_X	NUMBER(14,10)	Meters/second	Not Null	(+/-8,000)	From ground corrected ephemeris
Resolved_SC_Velocity_Y	NUMBER(14,10)	Meters/second	Not Null	(+/-8,000)	From ground corrected ephemeris
Resolved_SC_Velocity_Z	NUMBER(14,10)	Meters/second	Not Null	(+/-8,000)	From ground corrected ephemeris
Resolved_SC_Quaternion_Q1	NUMBER(12,10)	N/A	Not Null	(+/-1)	From ground corrected ephemeris

L1A_Geolocation Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Resolved_SC_Quaternion_Q2	NUMBER(12,10)	N/A	Not Null		From ground corrected ephemeris
Resolved_SC_Quaternion_Q3	NUMBER(12,10)	N/A	Not Null		From ground corrected ephemeris
Resolved_SC_Quaternion_Q4	NUMBER(12,10)	N/A	Not Null		From ground corrected ephemeris
Resolved_SC_Attitude_Pitch	NUMBER(12,10)	Decimal Degrees	Not Null		From ground corrected Attitude (via toolkit)
Resolved_SC_Attitude_Roll	NUMBER(12,10)	Decimal Degrees	Not Null		From ground corrected Attitude (via toolkit)
Resolved_SC_Attitude_Yaw	NUMBER(12,10)	Decimal Degrees	Not Null		From ground corrected Attitude (via toolkit)
Resolved_SC_Pitch_Rate	NUMBER(12,10)	Decimal Degrees / second	Not Null		From ground corrected Attitude (via toolkit)
Resolved_SC_Roll_Rate	NUMBER(12,10)	Decimal Degrees / second	Not Null		From ground corrected Attitude (via toolkit)

L1A_Geolocation Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Resolved_SC_Yaw_Rate	NUMBER(12,10)	Decimal Degrees / second	Not Null		From ground corrected Attitude (via toolkit)
PCS_Track	NUMBER(12,10)	Decimal Degrees	Not Null		PCS track resolver position at time of ZPD
PCS_Crosstrack	NUMBER(13,10)	Decimal Degrees	Not Null		PCS cross-track resolver position at time of ZPD
DPREP_QA_Poor_Percentage	NUMBER(3)	N/A	Not Null	0..100	Indicates that missing data has been interpolated, and a measure of the percentage of data that has been interpolated
PCS_QA_Poor_Percentage	NUMBER(3)	N/A	Not Null	0..100	Indicates that missing data has been interpolated, and a measure of the percentage of data that has been interpolated

2.3.5   L1A_Cal_Geolocation Table

Table Name: L1A_Cal_Geolocation
Created By: L1A Geolocation PGE
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides geolocation calculated by L1A for calibration observations
Number of entries/Run   Pre Run 2861 GS: 6336
                         Post Run 2861 GS: 2304
Key   Scene_ID

Table 2-6. L1A_Cal_Geolocation

L1A_Cal_Geolocation Table Field Name	Data Type	Units	Null Constrain	Check Constraint	Comments
Scene_ID	NUMBER(12)	N/A			Foreign Key, from Scan_Attributes table
Geolocation_Failed	NUMBER(1)	T/F	Not Null	0=False, 1=True	Flag to indicate if geolocation retrieval is successful
OrbitAscendingFlag	NUMBER(1)	T/F		0=False, 1=True	True = ascending, False=decending
Orbit_Number	NUMBER(5)	N/A			Absolute orbit number
Aura_Path_Number	NUMBER(4)	N/A		1..233	Ground Path number
Day_Night_Flag_SC	VARCHAR2(5)		Not Null	'DAY' or 'NIGHT'	Day/night at spacecraft location and altitude
TES_Bsight_Azimuth	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) azimuth angle relative to the local north at SC.
TES_Bsight_Azimuth_Uncert	NUMBER(11, 8)	Decimal Degrees	Not Null		Uncertainty in TES boresight azimuth angle.
TESBoresightNadirAngle	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) nadir angle relative to the local nadir at S/C.
TES_Bsight_Nadir_Uncert	NUMBER(11, 8)	Decimal Degrees	Not Null		Uncertainty in TES boresight nadir angle.

L1A_Cal_Geolocation Table Field Name	Data Type	Units	Null Constrain	Check Constraint	Comments
Grd_Trk_TES_Bsight_Azimuth	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) azimuth angle relative to the local ground track.
SolarAzimuthAngle	NUMBER(11,8)	Decimal Degrees	Not Null		Solar azimuth angle relative to the local azimuth at the spacecraft point at ZPD time (solar azimuth at observation).
SolarZenithAngle	NUMBER(11,8)	Decimal Degrees	Not Null		Solar nadir angle relative to the local zenith at the spacecraft point at ZPD time (solar nadir at observation)
M1_Mirror_Sun_Angle	NUMBER(11,8)	Decimal Degrees	Not Null		Angle between M1 mirror nomal and the sun at the ZPD time.
SpacecraftLatitude	NUMBER(10,8)	Decimal Degrees Latitude	Not Null	decimal latitude -90 to +90	Geodetic latitude
SpacecraftLongitude	NUMBER(11,8)	Decimal Degrees Longitude	Not Null	decimal longitude -180 to +180	Geodetic longitude
SpacecraftAltitude	NUMBER(18,10)	Meters	Not Null		Geodetic spacecraft altitude (w/ respect to geoide)
Doppler_Shift	NUMBER(11,10)	dimensionless	Not Null		
Resolved_SC_Position X	NUMBER(17,10)	Meters	Not Null	(+/-8,000,000)	From ground corrected ephemeris
Resolved_SC_Position_Y	NUMBER(17,10)	Meters	Not Null	(+/-8,000,000)	From ground corrected ephemeris

L1A_Cal_Geolocation Table Field Name	Data Type	Units	Null Constrain	Check Constraint	Comments
Resolved_SC_Position_Z	NUMBER(17,10)	Meters	Not Null	(+/-8,000,000)	From ground corrected ephemeris
Resolved_SC_Velocity_X	NUMBER(14,10)	Meters/second	Not Null	(+/-8,000)	From ground corrected ephemeris
Resolved_SC_Velocity_Y	NUMBER(14,10)	Meters/second	Not Null	(+/-8,000)	From ground corrected ephemeris
Resolved_SC_Velocity_Z	NUMBER(14,10)	Meters/second	Not Null	(+/-8,000)	From ground corrected ephemeris
Resolved_SC_Quaternion_Q1	NUMBER(12,10)	N/A	Not Null	(+/-1)	From ground corrected ephemeris
Resolved_SC_Quaternion_Q2	NUMBER(12,10)	N/A	Not Null		From ground corrected ephemeris
Resolved_SC_Quaternion_Q3	NUMBER(12,10)	N/A	Not Null		From ground corrected ephemeris
Resolved_SC_Quaternion_Q4	NUMBER(12,10)	N/A	Not Null		From ground corrected ephemeris
Resolved_SC_Attitude_Pitch	NUMBER(12,10)	Decimal Degrees	Not Null		From ground corrected Attitude (via toolkit)
Resolved_SC_Attitude_Roll	NUMBER(12,10)	Decimal Degrees	Not Null		From ground corrected Attitude (via toolkit)

L1A_Cal_Geolocation Table Field Name	Data Type	Units	Null Constrain	Check Constraint	Comments
Resolved_SC_Attitude_Yaw	NUMBER(12,10)	Decimal Degrees	Not Null		From ground corrected Attitude (via toolkit)
Resolved_SC_Pitch_Rate	NUMBER(12,10)	Decimal Degrees / second	Not Null		From ground corrected Attitude (via toolkit)
Resolved_SC_Roll_Rate	NUMBER(12,10)	Decimal Degrees / second	Not Null		From ground corrected Attitude (via toolkit)
Resolved_SC_Yaw_Rate	NUMBER(12,10)	Decimal Degrees / second	Not Null		From ground corrected Attitude (via toolkit)
PCS_Track	NUMBER(12,10)	Decimal Degrees	Not Null		PCS track resolver position at time of ZPD
PCS_Crosstrack	NUMBER(13,10)	Decimal Degrees	Not Null		PCS cross-track resolver position at time of ZPD
DPREP_QA_Poor_Percentage	NUMBER(3)	N/A	Not Null	0..100	Indicates that missing data has been interpolated, and a measure of the percentage of data that has been interpolated
PCS_QA_Poor_Percentage	NUMBER(3)	N/A	Not Null	0..100	Indicates that missing data has been interpolated, and a measure of the percentage of data that has been interpolated

2.3.6   L1A_Ifgm_File Table

Table Name: L1A_Ifgm_File
Created By: L1A PGE 1
Destroyed By: Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides raw interferogram characteristics used by L1B Cal and L1B Tgt
                           PGEs
Number of entries/Run   Pre Run 2861 GS = 10080 rows
                           Post Run 2861 = 5760 rows
Key   Key: Scene ID

Table 2-7. L1A_Ifgm_File

L1A_Ifgm_File Table Field Name	Data Type	Units	Null Constraint	Check Constraints	Comments
Scene_ID	NUMBER(12)	n/a			Scene_ID , Foreign Key, from Scan_Attributes table
Filename_2B	VARCHAR2(128)	n/a			The file contains 16 DN interferograms
Filename_2A	VARCHAR2(128)	n/a			
Filename_1B	VARCHAR2(128)	n/a			
Filename_1A	VARCHAR2(128)	n/a			
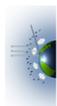
2.3.7 L1A_Quality Table

Table Name: L1A_Quality
Created By: L1A PGE 1
Destroyed By: Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides ifgm quality information used by L1B Cal and L1B Tgt PGEs
Number of entries/Run   Pre Run 2861 GS scenario = 10080 rows
                     Post Run 2861 = 5760 rows
Key   Key: Scene ID

Table 2-8. L1A_Quality

L1A_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a			Scene_ID Scene_ID is Foreign Key, from Scan_Attributes table
L1A_Fatal_Error_Occurred_2B	NUMBER(1)	n/a	Not Null		general status from L1A processing, 2B FP, indicates fatal error 0 = False, 1=True, fatal error occurred
L1A_Fatal_Error_Occurred_2A	NUMBER(1)	n/a	Not Null		general status from L1A processing, 2A FP, indicates fatal error 0 = False, 1=True, fatal error occurred
L1A_Fatal_Error_Occurred_1B	NUMBER(1)	n/a	Not Null		general status from L1A processing, 1B FP, indicates fatal error 0 = False, 1=True, fatal error occurred
L1A_Fatal_Error_Occurred_1A	NUMBER(1)	n/a	Not Null		general status from L1A processing, 1A FP, indicates fatal error 0 = False, 1=True, fatal error occurred
L1A_ICS_Scan_Elapsed_Time	NUMBER(6,4)	secs	Not Null		Scan time in seconds from ICS packet
L1A_ICS_Expected_Ifgm_Size	VARCHAR2(28)	n/a	Not Null		Calculated from ICS packet Contains data from all focal planes in a blank separated character string, 0..99999 Focal Plane are ordered 1A, 1B, 2A, 2B Four values required, fill value = 00000

L1A_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L1A_Ifgm_Dropout_Occurred	VARCHAR2(12)	n/a	Not Null		Missing packets, fill data found Contains data from all focal planes in a blank separated character string, 0 = False, 1=True Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_DN_Overflow_Occurred	VARCHAR2(128)	n/a	Not Null		Approaching DN limit (>60,000) Contains data from all focal planes in a blank separated character string, 0 = False, 1=True, 9=not processed (default value) Focal Plane are ordered 1A, 1B, 2A, 2B Pixels are ordered 0..15 within each focal plane 64 values required
L1A_DN_Underflow_Occurred	VARCHAR2(128)	n/a	Not Null		ZPD Target or BB DN < 16,000 (not applied to SV) Contains data from all focal planes in a blank separated character string, 0 = False, 1=True, 9=not processed (default value) Focal Plane are ordered 1A, 1B, 2A, 2B Pixels are ordered 0..15 within each focal plane 64 values required
L1A_Time_Date_Error_Occurred	VARCHAR2(12)	n/a	Not Null		Conversion error from packet time format to TAI Contains data from all focal planes in a blank separated character string, 0 = False, 1=True Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_Sequence_Error_Occurred	VARCHAR2(12)	n/a	Not Null		Run, sequence, scan bit flip found Contains data from all focal planes in a blank separated character string, 0 = False, 1=True Focal Plane are ordered 1A, 1B, 2A, 2B Four values required

| L1A_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L1A_Filter_Seq_Error_Occurred	VARCHAR2(12)	n/a	Not Null		Filter wheel setting out of sequence Contains data from all focal planes in a blank separated character string, 0 = False, 1=True Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_Attitude_Out_Of_Spec	VARCHAR2(12)	n/a	Not Null		Ancillary data SC attitude & rates in spec Contains data from all focal planes in a blank separated character string, 0 = False, 1=True Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_PCS_Out_Of_Spec	VARCHAR2(12)	n/a	Not Null		PCS pitch/roll in spec for observation type Contains data from all focal planes in a blank separated character string, 0 = False, 1=True Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_ICS_Dir_Out_Of_Sequence	VARCHAR2(12)	n/a	Not Null		ICS scan direction correct Contains data from all focal planes in a blank separated character string, 0 = False, 1=True Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_ICS_Speed_Out_Of_Spec	VARCHAR2(12)	n/a	Not Null		0 = green, 1 = yellow, in excess of 3% variation; 2 = red, in excess of 4% variation Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_BB_Temp_Out_Of_Spec	VARCHAR2(12)	n/a	Not Null		BB temperature out of limits Contains data from all focal planes in a blank separated character string, 0 = False, 1=True Focal Plane are ordered 1A, 1B, 2A, 2B Four values required

L1A_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L1A_Cold_Ref_Temp_Out_Of_Spec	VARCHAR2(12)	n/a	Not Null		Cold Reference Plate temperature out of limits, 0 = False, 1=True, Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_Eng_Temps_Out_Of_Spec	VARCHAR2(12)	n/a	Not Null		0 = green; 1 = yellow; 2 = red Focal Plane are ordered 1A, 1B, 2A, 2B Four values required
L1A_Channel_Shift	VARCHAR2(16)	n/a	Not Null		Indicates detected telemetry channel shift. 0=no shift detected, -1..-15 indicates shift along with channel offset. Contains data from all focal planes in a blank separated character string. Focal Plane are ordered 1A, 1B, 2A, 2B Four values required.
L1A_Spike_Occurred	VARCHAR2(128)	n/a			Indicates interferogram spike has been detected; pixel specific 0=no spike detected for that pixel, 1=spike detected, 9=not processed (default value) Contains data from all focal planes and pixels in a blank separated character string. Focal Plane are ordered 1A, 1B, 2A, 2B Pixels are ordered 0..15 within each focal plane 64 values required
L1A_Burst_Occurred	VARCHAR2(128)	n/a			Indicates interferogram burst has been detected; pixel specific 0=no burst detected for that pixel, 1=burst detected, 9=not processed (default value) Contains data from all focal planes and pixels in a blank separated character string. Focal Plane are ordered 1A, 1B, 2A, 2B Pixels are ordered 0..15 within each focal plane 64 values required
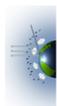
2.3.8 L1A_ICS Table

Table Name: L1A_ICS
Created By: L1A_Main PGE
Destroyed By: Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides summarized ICS data per scan
Number of entries/Run   Pre Run 2861 GS = 8064 rows
                           Post Run 2861 = 5760 rows
Key: Key: Scene_ID

Table 2-9. L1A_ICS

L1A_ICS Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a			Scene_ID Scene_ID is Foreign Key, from Scan_Attributes table
L1A_Mean_Velocity	NUMBER(9,7)	cm/sec	Not Null		ICS Encoder mean velocity in cm/sec over scan, overflow = 99.99999
L1A_Velocity_Std_Dev	NUMBER(9,7)		Not Null		ICS Encoder Std Dev of velocity over scan, overflow = 99.99999
L1A_Max_Velocity	NUMBER(9,7)	cm/sec	Not Null		Maximum ICS Encoder velocity in cm/sec over scan, overflow = 99.99999
L1A_Min_Velocity	NUMBER(9,7)	cm/sec	Not Null		Minimum ICS velocity over RTI in cm/sec in scan, overflow = 99.99999
L1A_Mean_Laser_Fringe_Vel	NUMBER(7,4)	counts/rti	Not Null		Mean laser fringe velocity count over RTI in scan, overflow = 999.9999
L1A_Laser_Fringe_Vel_Std_Dev	NUMBER(7,4)		Not Null		Std Dev of laser fringe count over scan, overflow = 999.9999
L1A_Max_Laser_Fringe_Vel	NUMBER(4)	counts/rti	Not Null		Maximum laser fringe velocity count over RTI in scan, overflow = 9999
L1A_Min_Laser_Fringe_Vel	NUMBER(4)	counts/rti	Not Null		Minimum ICS laser fringe velocity count over RTI in scan, overflow = 9999

2.3.9 L1B_Nadir_BT Table

Table Name: L1B_Nadir_BT
Created By: L1B Reformat PGE
Destroyed By: Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides quality data from L1 processing
Number of entries/Run Pre Run 2861 GS = 2304 rows
                      Post Run 2861 = 3456 rows
Key: Key: Scene_ID

Table 2-10. L1B_Nadir_BT

L1B_Nadir_BT Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a			Scene_ID, Foreign Key from Scan_Attributes table
L1B_Nadir_BT_11	NUMBER (12,6)		Not Null		Brightness Temperature in band 11 Fill value = -999.0
L1B_Nadir_BT_12	NUMBER (12,6)		Not Null		Brightness Temperature in band 12 (12,6) Fill value = -999.0
L1B_Nadir_BT_8	NUMBER (12,6)		Not Null		Brightness Temperature in band 8 (12,6) Fill value = -999.0
L1B_Nadir_BT_5	NUMBER (12,6)		Not Null		Brightness Temperature in band 5 (12,6) Fill value = -999.0
L1B_Nadir_BT_10	NUMBER (12,6)		Not Null		Brightness Temperature in band 10 (12,6) Fill value = -999.0
L1B_N_Interpixel_Vari_BT10	NUMBER (12,6)		Not Null		Measure of nadir scene interpixel variability. Fill value = -999.0
L1B_N_Ipix_Var_Exceeded_BT 10	NUMBER (1)	n/a	Not Null		Limit exceeded of nadir scene interpixel variability 0 = False, 1=True Fill value = -999.0
L1B_N_Interpixel_Vari_BT11	NUMBER (12,6)		Not Null		Measure of nadir scene interpixel variability. Fill value = -999.0

L1B_Nadir_BT Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L1B_N_Ipix_Var_Exceeded_BT 11	NUMBER (1)	n/a	Not Null		Limit exceeded of nadir scene interpixel variability 0 = False, 1=True Fill value = -999.0

2.3.10　　　L1B_Limb_BT Table

Table Name:　　　　　　　L1B_Limb_BT
Created By:　　　　　　　L1B Reformat PGE
Destroyed By:　　　　　　Stays resident until manually deleted by SIPS
Purpose:　　　　　　　　Provides quality data from L1B processing
Number of entries/Run　　Pre Run 2861 GS = 3456
　　　　　　　　　　　　Post Run 2861 = 0
Key　　　　　　　　　　Key: Scene ID

Table 2-11. L1B_Limb_BT

L1B_Limb_BT Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a			Scene_ID is Foreign Key, from Scan_Attributes table
L1B_Limb_BT_11	VARCHAR2(240)		Not Null		Brightness temperature in band 11 (12,6) Contains data from all pixels in a blank separated character string, ordered by pixel 0 .. pixel 15. Sixteen values required, fill value = -999.0
L1B_Limb_BT_12	VARCHAR2(240)		Not Null		Brightness temperature in band 12 (12,6) Contains data from all pixels in a blank separated character string, ordered by pixel 0 .. pixel 15. Sixteen values required, fill value = -999.0
L1B_Limb_BT_8	VARCHAR2(240)		Not Null		Brightness temperature in band 8 (12,6) Contains data from all pixels in a blank separated character string, ordered by pixel 0 .. pixel 15. Sixteen values required, fill value = -999.0
L1B_Limb_BT_5	VARCHAR2(240)		Not Null		Brightness temperature in band 5 (12,6) Contains data from all pixels in a blank separated character string, ordered by pixel 0 .. pixel 15. Sixteen values required, fill value = -999.0
L1B_Limb_BT_10	VARCHAR2(240)		Not Null		Brightness temperature in band 10 (12,6) Contains data from all pixels in a blank separated character

L1B_Limb_BT Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
					string, ordered by pixel 0 .. pixel 15. Sixteen values required, fill value = -999.0

2.3.11   L1B_TES_Performance Table

Table Name: L1B_TES_Performance
Created By: L1B Performance
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides quality data from L1B processing
Number of entries/Run   GS = 1152 rows/GS
Key   Key: Scene ID

Table 2-12. L1B_TES_Performance

L1B_TES_Performance Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a			Scene_ID is Foreign Key, from Scan_Attributes table
Integrated_Signal	VARCHAR2(44)	n/a	Not Null		the area under the pixel-averaged magnitude DN spectra for the full alias, >=0.. 9.9**3 (char rep 8,4) Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B Four values required, fill value = -999.0
Ice_Integrated_Signal	VARCHAR2(44)	n/a	Not Null		the area under the pixel averaged magnitude DN spectra over specified ice sensitive frequency range >=0.. 9.9**3 (char rep 8,4) Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B Four values required, fill value = -999.0
Ice_Integrated_Signal_Flag	VARCHAR2(12)	n/a	Not Null		Contains data from all focal planes in a blank separated character string, Quality flag with the following values -1 – Value not checked 0 – Success +1 - Failure Focal Plane are ordered 1A, 1B, 2A, 2B Four values required, fill value = -1

L1B_TES_Performance Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Relative_ZPD_Offsets_Metric	VARCHAR2(44)		Not Null		a metric computed from relative ZPD offsets for error checking (in relative ZPD offset determination) -500.0 .. 500.0 (char rep 8,5) Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B Four values required, fill value = -999.0
Relative_ZPD_Offsets_Flag	VARCHAR2(12)		Not Null		Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B Error flag with the following values -1 – Value not checked 0 – Success +1 - Failure Four values required, fill value = -1
Shear	VARCHAR2(76)		Not Null		Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B values -99.0 .. 99.0 (char rep 16,14) Four values required, fill value = -999.0
Shear_Flag	VARCHAR2(44)		Not Null		Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B Error flag with the following values -1 – Value not checked 0 – Success +1 - Failure Four values required, fill value = -1

2.3.12   L1B_Cal_Spectra_Quality Table

Table Name: L1B_Cal_Spectra_Quality
Created By: L1B Cal
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides quality data from L1B processing for calibration observations
Number of entries/Run GS = 2304
Key   Key: Scene ID

Table 2-13. L1B_Cal_Spectra_Quality

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a			Scene_ID is Foreign Key, from Scan_Attributes table
Zero_Padding	VARCHAR2(960)	n/a	Not Null		The ratio of zero padding size to the FFT size, 0.0 ..1.0 represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2
Zero_Padding_Flag	VARCHAR2(192)	n/a	Not Null		Error flag with the following values -1 – Value not checked 0 – Success +1 - Failure Contains data from all focal planes/pixels i(64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Spikes	VARCHAR2(960)	n/a	Not Null		The ratio of the number of spikes to the number of spectral points (half FFT size) 0.0 ..1.0 represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2
Spikes_Flag	VARCHAR2(192)	n/a	Not Null		Quality flag with the following values -1 – Value not checked 0 – Good +1 - Suspicious Contains data from all focal planes/pixels in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1
Phase_Alignment	VARCHAR2(960)	n/a	Not Null		Chi-square of spectrum and reference spectrum phase difference, >=0..9.9**(-4) represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2
Phase_Alignment_Flag	VARCHAR2(192)	n/a	Not Null		Quality flag with the following values -1 – Value not checked 0 – Good +1 - Suspicious Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15

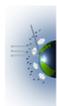| Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
					Sixty four values required, fill value = -1
General_Quality_Flag	VARCHAR2(192)	n/a	Not Null		Status flag with the following values 0 – Success +1 - Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required
General_Error_Flag	VARCHAR2(192)	n/a	Not Null		Quality flag with the following values 0 – Success +1 – Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required
Integrated_Signal	VARCHAR2(960)		Not Null		Integrated spectra values, represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Out_Band_Spec_Real_Mean	VARCHAR2(960)				A metric computed from the black body scan radiances, in the out-of-band frequency ranges represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal plane and pixels in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2
Out_Band_Spec_Real_Mean_Flag	VARCHAR2(192)				Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B each containing pixels 0..15 Error flag with the following values -1 – Value not checked 0 – Success +1 - Failure Sixty four values required, fill value = -1
Out_Band_Spec_RMS	VARCHAR2(960)				A metric computed from the black body scan radiances, in the out-of-band frequency ranges +/-Y.XXXXXXe+/-ZZZ Contains data from all focal plane and pixels in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Out_Band_Spec_RMS_Flag	VARCHAR2(192)				Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B each containing pixels 0..15 Error flag with the following values -1 – Value not checked 0 – Success +1 - Failure Sixty four values required, fill value = -1
Out_Band_Spec_Imag_Mean	VARCHAR2(960)				A metric computed from the black body scan radiances, in the out-of-band frequency ranges +/-Y.XXXXXXe+/-ZZZ Contains data from all focal plane and pixels in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2
Out_Band_Spec_Imag_Mean_Flag	VARCHAR2(192)				Contains data from all focal planes in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B each containing pixels 0..15 Error flag with the following values -1 – Value not checked 0 – Success +1 - Failure Sixty four values required, fill value = -1

2.3.13   L1B_Tgt_Spectra_Quality Table

Table Name: L1B_Tgt_Spectra_Quality
Created By: L1B Tgt
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides quality data from L1B processing
Number of entries/Run Pre Run 2861 GS = 5760 rows
                      Post Run 2861 GS = 3456 rows
Key   Key: Scene ID

Table 2-14. L1B_Tgt_Spectra_Quality

L1B_Tgt_Spectra_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a			Scene_ID is Foreign Key, from Scan_Attributes table
Zero_Padding	VARCHAR2(960)	n/a	Not Null		The ratio of zero padding size to the FFT size, 0.0 ..1.0 represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2
Zero_Padding_Flag	VARCHAR2(192)	n/a	Not Null		Error flag with the following values -1 – Value not checked 0 – Success +1 - Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1

L1B_Tgt_Spectra_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Missing_Cal_Table_Flag	VARCHAR2(192)	n/a	Not Null		Indicates at least one calibration table is missing. Error flag with the following values -1 – Value not checked 0 – Success +1 - Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1
Cal_Table_Quality_Flag	VARCHAR2(192)	n/a	Not Null		indicated at least one calibration table has suspicious quality Quality flag with the following values -1 – Value not checked 0 – Success +1 - Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1
Phase_Alignment	VARCHAR2(960)	n/a	Not Null		Chi-square of the imaginary of calibration ratio is too large >=0, represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2

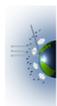| L1B_Tgt_Spectra_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Phase_Alignment_Flag	VARCHAR2(192)	n/a	Not Null		Quality flag with the following values -1 – Value not checked 0 – Success +1 - Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1
Abs_Radiance_Mean_BT	VARCHAR2(960)	n/a	Not Null		Brightness temperature computed from the mean of the absolute radiance after radiometric calibration. 0.0.1.0000, represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2
Abs_Radiance_Mean_BT_Flag	VARCHAR2(192)	n/a	Not Null		Quality flag with the following values -1 – Value not checked 0 – Success +1 - Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1
NESR_Mean	VARCHAR2(960)		Not Null		NESR mean between full in-band range (full power points) >= 0....9.9*10**(-6) represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2

L1B_Tgt_Spectra_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
NESR_Mean_Flag	VARCHAR2(192)		Not Null		Quality flag with the following values -1 – Value not checked 0 – Success +1 – Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1
Imaginary_RMS	VARCHAR2(960)		Not Null		target spectrum imaginary RMS between half power points >=0....9.9*10**(-6) represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2
Imaginary_RMS_Flag	VARCHAR2(192)		Not Null		Quality flag with the following values -1 – Value not checked 0 – Success +1 – Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1
Imaginary_Mean	VARCHAR2(960)		Not Null		Target spectrum imaginary mean between half-power points. +/-10**(-7), represented by +/-Y.XXXXXXe+/-ZZZ Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2

L1B_Tgt_Spectra_Quality Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Imaginary_Mean_Flag	VARCHAR2(192)		Not Null		Quality flag with the following values -1 – Value not checked 0 – Success +1 – Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -1
General_Quality_Flag	VARCHAR2(192)		Not Null		Quality flag with the following values 0 – Success +1 – Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required
General_Error_Flag	VARCHAR2(192)		Not Null		Error flag with the following values 0 – Success +1 – Failure Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required
Mean_Ratio_Imag_Real	VARCHAR2(960)		Not Null		Target spectum mean of the ratio of imaginary to real between half power points. Not reflected in rollup for General_Error_Flag or General_Quality_Flag Representation of +/-Y.XXXXXXe+/-ZZZ. Contains data from all focal planes/pixels (64 values) in a blank separated character string, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 Sixty four values required, fill value = -9.99e2

2.3.14   Target_Scene_Attributes Table

Table Name: Target_Scene_Attributes
Created By: L1B_Tgt
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides L1B files used by L2 - all spectra from a single observation
                                      represented in this table
Number of entries/Run   Pre Run 2861 GS = 5760 rows
                                      Post Run 2861 = 3456 rows
Key   Scene ID

Table 2-15. Target_Scene_Attributes

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)				Scene_ID is foreign key, from Scan_Attributes table
L1B_Spectra_File	VARCHAR2(128)		Not Null		L1B File Name to L1B Target Scene files
L1B_NESR_File	VARCHAR2(128)		Not Null		L1B NESR File

2.3.15 Strategy_Table_Selector Table

Table Name   Strategy_Table_Selector
relations: Strategy_Table
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides all information to pick out a table
Key: s_Strategy_Table_Selector_ID

Table 2-17 Strategy_Table_Selector

Field Name	Data Type	Units	Null Constraint	Check Constraint	Foreign Key	Comments
s_Strategy_Table_Selector_ID	VARCHAR2(128)			Key		key, user entered
s_Strategy_Table_ID	VARCHAR2(128)		Not Null		StrategyTable::StrategyTable_ID	
s_Viewing_Mode	VARCHAR2(5)		Not Null	'NADIR' 'LIMB'		
s_Surface	VARCHAR2(7)			'SURFACE', 'OCEAN'		to decide if need to retrieve emis
s_Day_Night_Flag	VARCHAR2(5)			DAY', 'NIGHT'		

Continued on next page

Table 2-17 Strategy_Table_Selector -- continued

Field Name	Data Type	Units	Null Constraint	Check Constraint	Foreign Key	Comments
s_Initial_Guess_Override	VARCHAR2(6)			'IG_TES', 'IG_OSP'		
d_Latitude_Minimum	NUMBER(10,8)	Decimal degrees	Not Null	decimal latitude –90.0 to +90.0		
d_Latitude_Maximum	NUMBER(10,8)	Decimal degrees	Not Null	decimal latitude –90.0 to +90.0		
FP_2B_Filter	VARCHAR2(1)	N/A		'1'		
FP_2A_Filter	VARCHAR2(1)	N/A		'1','2','3','4'		
FP_1B_Filter	VARCHAR2(1)	N/A		'1','2'		
FP_1A_Filter	VARCHAR2(1)	N/A		'1','2','3','4','5'		
s_Instrument	VARCHAR2(25)	N/A	Not Null	'TES', 'OMI_TES'		Supporting TES_OMI retrievals

2.3.16 Strategy Table

Table Name   Strategy_Table
relations   Strategy_Table_Selector (parent), Sequence_Control_Parameters,
                          State_Information, Step_Information
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides all information for running a retrieval
Key: s_Strategy_Table_ID

Table 2-18 Strategy_Table

Field Name	Data Type	Null Constraint	Check Constraint	Foreign Key	Comments
s_Strategy_Table_ID	VARCHAR2(128)		Key		Key
s_Sequence_Information_ID	VARCHAR2(128)	Not Null		Sequence_Information:: s_Sequence_Information_ID	
s_Initial_State_Information_ID	VARCHAR2(128)	Not Null		Species_State_Information:: s_Species_State_Information_ID	
s_True_State_Information_ID	VARCHAR2(128)	Not Null		Species_State_Information:: s_Species_State_Information_ID	
s_Step_Information_ID	VARCHAR2(128)	Not Null			relation to Step_Information::s_Step_Information_ID
s_Strategy_Data_Version	VARCHAR(30)	Not Null			Ascii version identification of Strategy population scripts Format: 'StrategyTable-R<release no.>-V<DB schema version>-v<data version>-<GMAO/CLIM>' Example :

					'StrategyTable-R6.0-V4.4-v1-GMAO' Default value: 'StrategyTable-R5.3-V4.4-v3-GMAO'

2.3.17 Species_State_Information Table

Table Name	Species_State_Information
Relations	Strategy_Table (parent), Species_Information, Emis_Parameters
Created By:	Delivered with S/W
Destroyed By:	Overwritten on delivery
Purpose:	Provides list of species and their sources as well as other parameters in the state
Key:	s_Species_State_Information_ID

Table 2-19 Species_State_Information

Field Name	Data Type	Null Constraint	Check Constraint	Foreign Key	Comments
s_Species_State_Information_ID	VARCHAR2(128)		Key		Oracle Key, user supplied Foreign key from Strategy Table::s_Initial_State_Information_ID or Strategy Table::True_State_Information_ID
s_Comment	VARCHAR2(128)				
s_Species_Information_ID	VARCHAR2(128)	Not Null			relation to Species_Information, provides all species
s_EMIS_Parameters_ID	VARCHAR2(128)			Emis_Parameters::s_Emis_Parameters_ID	foreign key into Emis_Parameters::s_Emis_Parameters_ID

2.3.18 Species_Order Table

Table Name   Species_Order
Relations   Species_Information
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides list order by species.
Key: s_Species_Order_ID

Table 2-20 Species_Order

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Species_Order_ID	VARCHAR(12)	n/a		'TATM','H2O','CO2','O3','N2O','CO','CH4','O2','NO','SO2','NO2','NH3','HNO3','OH','HF','HCL','HBR','HI','CLO','OCS','HCOH','HOCL','N2','HCN','CH3CL','H2O2','C2H2','C2H6','PH3','COF2','SF6','H2S','HCOOH','HO2','O','CLONO2','NOPLUS','HOBR','CCL4','CFC11','CFC12','CFC22','PTGANG','TSUR','E0','E1','E2','R0','R1','R2','TABSURF','COL','PCLOUD, 'CLOUDOD', 'CLOUDEXT','CALSCALE','EMIS', 'HDO', 'CH3OH','PAN', 'OCS'	
i_Species_Order	NUMBER(3)		Not Null		List Order for species

2.3.19 Species_Information Table

Table Name   Species_Information
Relations   State_Information (parent), Species_Order, Source_Information
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides information associated with a species, this table defines the subset of s_Species_Order_ID
Through s_Species_Information_ID and s_Species_Order_ID, the species may be placed into groups.
Number of entries   defined by user.
Key: composite key s_Species_Information_ID + s_Species_Order_ID

Table 2-21 Species_Information

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Species_Information_ID	VARCHAR2(128)			Key	composite key = s_Species_Information_ID + s_Species_Order_ID
s_Species_Order_ID	VARCHAR(12)	n/a			composite key, also foreign key into Species_Order::s_Species_Order_ID
i_Map_State_Vector	NUMBER(1)		Not Null	0, 1	0 = Not Mapped, 1=Mapped
s_Apriori_Covariance_Info_ID	VARCHAR2(128)	n/a			Relation into Matrix_Source::s_Matrix_Source_ID
GMAO_FLK_Vector_Src_Info_ID	VARCHAR2(128)	n/a			relation into Vector_Source_Info::s_Vector_Source_Info_ID
GMAO_LLK_Vector_Src_Info_ID	VARCHAR2(128)	n/a			relation into Vector_Source_Info::s_Vector_Source_Info_ID
CLIM_Vector_Src_Info_ID	VARCHAR2(128)	n/a			relation into Vector_Source_Info::s_Vector_Source_Info_ID

2.3.20   Sequence_Information Table

Table Name   Sequence_Information
Relations   Strategy Table (parent),Std_Pressure_Lvls, Std_Pressure_Lvls
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides control parameters for a retrieval
Number of entries/Run   1
Key: s_Sequence_Information_ID

Table 2-22 Sequence_Information

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Sequence_Information_ID	VARCHAR2(128)			Key	Key
s_Std_Pressure_Lvls_ID	VARCHAR2(128)		Not Null		relation to Standard_Pressure_Levels::s_Std_Pres_Lvls_ID,
s_Filter_Information_ID	VARCHAR2(128)		Not Null		relation to Filter_Information::s_Filter_Information_ID

2.3.21 Std_Pressure_Lvls Table

Table Name   Std_Pressure_Lvls
Relations   Sequence_Control_Parameters
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides the standard pressure grid for full state vectors
Number of entries/Run   1
Key: Composite Key: Std_Pres_Lvls_Grp_ID + i_level

2-24 Std_Pressure_Lvls

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Std_Pressure_Lvls_ID	VARCHAR2(128)			Key	composite key = s_Std_Pres_Lvls_ID + i_level
i_Level	NUMBER(5)			Key	composite key = s_Std_Pres_Lvls_ID + i_level
d_Pressures	NUMBER(14,10)	hPa	Not Null	>0, <1300	descending order when retrieved from database

S_Std_Pressure_Lvls_ID will have two pre-defined entries: 'TES_Standard_Nadir' and 'TES_Standard_Limb', populated via L2 Strategy scripts.

2.3.22 APOD_Info Table

Table Name   Apod_Info
Parent: Sequence_Control_Parameters (parent)
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Apodization Information
Number of entries/Run   1
Key: Composite key: s_Step_Type + s_Viewing_Mode

Table 2-25 APOD_Info

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Step_Type	VARCHAR2(128)			'SIMULATION', 'NORMAL', 'BT', 'CLOUDID', 'IGREFINE', CLOUDIGREFINE', 'FULLFILTER', 'PTGANG' 'TSURIGREFINE'	Composite Key: s_Step_Type + s_Viewing_Mode
s_Viewing_Mode	VARCHAR2(5)			'NADIR' 'LIMB'	Composite Key: s_Step_Type + s_Viewing_Mode
s_Apodization_Function	VARCHAR2(12)		NOT_NULL	'RECTANGLE', 'NORTON_BEER'	
s_Norton_Beer_Apod_Strength	VARCHAR2(8)			'WEAK', 'MODERATE', 'STRONG'	
s_Self_Apod_Fn_Real_File	VARCHAR2(120)		NOT_NULL		
s_Self_Apod_Fn_Imag_File	VARCHAR2(120)		NOT_NULL		
s_Pad_Selection	VARCHAR2(10)		NOT_NULL	'LAST_POINT', 'ZERO'	
d_Mono_Bound_Extension	NUMBER(4,2)		NOT_NULL	>0, <10	

d_NESR_Scaling	NUMBER(6,5)		NOT_NULL	>0, <=1	

2.3.23 EMIS_Parameters Table

Table Name   Emis_Parameters
Relations   Species_Information
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides parameters that specify standardProductInfo. NOT USED IN R4
Number of entries/Run
Key: s_Emis_Parameters_ID

Table 2-26 EMIS_Parameters

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Emis_Parameters_ID	VARCHAR2(128)			Key	User supplied key
f_Surface_V0	NUMBER(10,4)	cm-1		600.0 - 3100.0	
i_Surface_E0	NUMBER(8,6)		Not Null		Emissivity polynomial coefficients
i_Surface_E1	NUMBER(8,6)		Not Null		
i_Surface_E2	NUMBER(8,6)		Not Null		
i_Surface_R0	NUMBER(8,6)		Not Null		Reflectivity polynomial coefficients
i_surface_R1	NUMBER(8,6)		Not Null		
i_Surface_R2	NUMBER(8,6)		Not Null		
s_Surface_Emis_Mode	VARCHAR2(12)		Not Null	'EMIS_POLY', 'EMIS_TABLE'	
s_Surface_Refl_Mode	VARCHAR2(12)		Not Null	'USE_EMISS', 'REFL_POLY', 'REFL_TABLE'	
s_Surface_Emis_Filename	VARCHAR2(128)		Not Null		
s_Surface_Refl_Filename	VARCHAR2(128)		Not Null		

2.3.24   Step_Information Table

Table Name   Step_Information
Relations
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides parameters that specify Step
Number of entries/Run
Key: s_Step_Information_ID + i_Step_Number + s_Step_Type

Table 2-27 Step_Information

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Step_Information_ID	VARCHAR2(128)			Key	composite key= stepInformation_ID+stepNumber+s_Step_Type
i_Step_Number	NUMBER(5)			Key, >=0	composite key= stepInformation_ID+stepNumber+s_Step_Type
s_Step_Type	VARCHAR2(128)			'SIMULATION', 'NORMAL', 'BT', 'CLOUDID', 'IGREFINE', 'CLOUDIGREFINE', 'CLOUDIGREFINE_2', 'FULLFILTER', 'PTGANG' 'TSURIGREFINE'	composite key= stepInformation_ID+stepNumber+s_Step_Type
i_Continue_If_Not_Converged	NUMBER(1)			0,1	1=True

Continued on next page

Table 2-27 Step_Information - continued

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Elanor_Mode	VARCHAR2(20)		Not Null	'FM_SIMULATION', 'RETRIEVAL', 'RAY_TRACE_ONLY', 'CREATE_MAP_ONLY'	
s_Microwindow_Source	VARCHAR2(500)	n/a	Not Null		
s_Retrieval_Element_List_ID	VARCHAR2(128)				relation into Retrieval_Element_List::s_Retrieval_Element_List_ID
i_Correlated_Elements_Exist	NUMBER(1)	bool	Not Null	0,1	1=True
s_Correlated_Element_ID	VARCHAR2(128)				relation into Correlated_Element_Info::s_Correlated_Element_ID
s_Step_Parameters_ID	VARCHAR2(128)		Not Null		foreign key into Step_Parameters::s_Step_Parameters_ID
s_Error_Analy_Interferrents	VARCHAR2(128)				comma separated list of species that are interferrents for error analysis
i_Do_Error_Analysis	NUMBER(1)	n/a	Not Null	0,1	1=True, perform error analysis
s_Error_Analy_Maptypes	VARCHAR2(128)	n/a			comma separated list of maptypes (LINEAR or LOG) associated with list in s_Error_Analy_Interferrents
s_Do_Not_Update	VARCHAR2(128)	n/a			Contains a comma separated list of species not to update in this step. No entries indicate that all species retrieved in this step will be updated.
Report_Interm_Retrieved_Vals	VARCHAR2(60)	n/a			Contains a comma separated list of species that their intermediate retrieved values from the step should be written to the database.
s_Calc_IRK	VARCHAR2(128)				Contains "O3" when IRK values for O3 are to be generated. Otherwise blank.
s_Interpolate_Retrievel_Values	VARCHAR2(128)	n/a			Contains the name of species that their unretrieved grid points are updated

2.3.25   Step_Parameters Table

Table Name   Step_Parameters
Parent: Step_Information (parent), Step_Control_Parameters, OD_Info,
                              FOV_Info, Leven_Marq_Params, Cloud_Params, Standard_Product_Info,
                              Filter_Info, Retrieval_Element_List
Created By: Delivered with software
Destroyed By: Overwritten with delivery
Purpose: Provides parameters for a retrieval step
Number of entries/Run   num_steps
Key: s_Step_Parameters_ID

Table 2-28 Step_Parameters

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Step_Parameters_ID	VARCHAR2(128)			Key	Key
s_Step_Control_Parameters_ID	VARCHAR2(128)		Not Null		foreign key into Step_Control_Parameters::s_Step_Control_Parameters_ID
s_OD_Info_ID	VARCHAR2(128)		Not Null		foreign key into OD_Info::s_OD_Info_ID
s_FOV_Info_ID	VARCHAR2(128)				foreign key into FOV_Info::s_FOV_Info_ID. Keep null until implemented.

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Table 2-28 Step_Parameters - continued

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Leven_Marq_Params_ID	VARCHAR2(128)		Not Null		foreign key into Leven_Marq_Params::s_Leven_Marq_Params_ID
s_Cloud_Parameters_ID	VARCHAR2(128)				foreign key into Cloud_Parameters::s_Cloud_Parameters_ID

s_Output_Products_Info_ID	VARCHAR2(128)		Not Null		foreign key into Output_Products_Info::Output_Products_Info_ID

2.3.26   Retrieval_Element_List Table

Table Name   Retrieval_Element_List
Parent: Step_Information
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides grouping for species for retrievals
Number of entries/Run   at least one per step
Key: composite Key: s_Retrieval_Element_List_ID + s_Retrieval_Element_ID

Table 2-29. Retrieval_Element_List

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Retrieval_Element_List_ID	VARCHAR2(128)			Key	composite Key
s_Retrieval_Element_ID	VARCHAR2(128)			Key	composite Key: foreign key into Retrieval_Element::s_Retrieval_Element_ID

2.3.27 Retrieval_Element Table

Table Name   Retrieval_Element
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides information for one species in one step of a retrieval
Number of entries/Run at least one per step
Key: s_Retrieval_Element_ID

Table 2-30. Retrieval_Element

Field Name	Data Type	Null Constraint	Check Constraint	Comments
s_Retrieval_Element_ID	VARCHAR2(128)		Key	Oracle Key
s_Species_Order_ID	VARCHAR2(12)	Not Null		Foreign key into species order, used for validation of the species
s_Type	VARCHAR2(12)		'ATMOSPHERIC', 'EMISSIVITY', 'TSUR'	
s_Map_Information_ID	VARCHAR2(128)			Foreign Key into Map_Information::s_Map_Information_ID
s_Xsuba_Information_ID	VARCHAR2(128)			relation into Vector_Source_Info::s_Vector_Source_Info_ID
s_Constraint_Information_ID	VARCHAR2(128)			relation into Matrix_Source::s_Matrix_Source_ID

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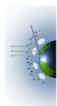
Table 2-30. Retrieval_Element -- continued

Field Name	Data Type	Null Constraint	Check Constraint	Comments
d_Perturbed_Amount	NUMBER(10,5)	Not Null	> 0, < 1	for FD only
d_Average_Est_Error_Fraction	NUMBER(10,5)	Not Null	>0	for constraint gen., will be obsolete

2.3.28   Step_Control_Parameters Table

Table Name   Step_Control_Parameters
Relations   Step_Parameters (parent)
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides control parameter information for one step of a retrieval
Number of entries/Run   # steps (some may be same)
Key: s_Step_Control_Parameters_ID

Table 2-31. Step_Control_Parameters

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Step_Control_Parameters_ID	VARCHAR2(128)			Key	Key
s_Jacobian_Mode	VARCHAR2(20)	n/a	Not Null	'ANALYTIC', 'F_DIFFERENCE'	
s_Inversion_Method	VARCHAR2(40)	n/a	Not Null	'A', 'B', 'C', 'GAUSS_NEWTON', 'LEVENBERG_MARQUARDT'	A' = Least Squares method, 'B' = Least Squares with penalty function, 'C' = Maximum likelihood
s_Cost_Function	VARCHAR2(20)	n/a	Not Null	SIMPLE', 'MAX_LIKELIHOOD', 'MAX_APOSTERIORI'	
i_Max_Num_Iterations	NUMBER(2)	n/a	Not Null	>0	0 could be used to mean just calc FM & jacobians
i_linear_In_Tau	NUMBER(1)	bool	Not Null	0, 1	don't use linear in tau and 1= use linear in tau
i_Exp_Tau_Function	NUMBER(1)	bool	Not Null	0, 1	0=don't use Exp_Tau_Function , 1=use Exp_Tau_Function

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Table 2-31. Step_Control_Parameters -- continued

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
i_Num_Exp_Tau_Fn_Points	NUMBER(10)		Not Null	10000 - 1000000	Number of exponential Tau function
i_Downwelling_Specular	NUMBER(1)	bool	Not Null	0, 1	0=use lambertian surface , 1=use specular surface
s_Merge_Direction	VARCHAR2(20)		Not Null	'SPACE_TO_SURF', 'SURF_TO_SPACE'	Radiance merge direction SPACE-TO-SURF
d_Sub_Layer_Dist	NUMBER(12,5)	m	Not Null	0.5-50000.0	Fixed path segment through sublayers
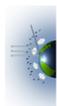
2.3.29 Correlated_Element_Info Table

Table Name   Correlated_Element_Info
Parent: stepInformation
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides information for one correlated species pair in one step of a
                          retrieval
Number of entries/Run
Key   composite key: s_Correlated_Element_ID + i_Correlated_Index

Table 2-32. Correlated_Element_Info

Field Name	Data Type	Null Constraint	Check Constraint	Comments
s_Correlated_Element_ID	VARCHAR2(128)		Key	Composite Key: s_Correlated_Element_ID + i_Correlated_Index
i_Correlated_Index	NUMBER(5)		Key	Composite Key: s_Correlated_Element_ID + i_Correlated_Index
s_Species_Order_ID_1	VARCHAR2(12)	Not Null		
s_Species_Order_ID_2	VARCHAR2(12)	Not Null		
s_Constraint_Information_ID	VARCHAR2(128)	Not Null		relation into Matrix_Source::Matrix_Source_ID
s_Apriori_Covariance_Info_ID	VARCHAR2(128)	Not Null		relation into Matrix_Source::Matrix_Source_ID

2.3.30 OD_Info Table

Table Name	OD_Info
Relations	Step_Information
Created By:	Delivered with S/W
Destroyed By:	Overwritten with delivery
Purpose:	Provides control parameter information for Ods
Number of entries/Run	# steps (some may be same)
Key:	s_OD_Info_ID

Table 2-33. OD_Info

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_OD_Info_ID	VARCHAR2(128)			Key	Key is user defined
i_Cross_Section_Switch	NUMBER(1)	bool	Not Null	0, 1	1 = true
s_Cross_Section_Mode	VARCHAR2(4)	n/a	Not Null	'LUT', 'CALC'	
i_Continuum_Switch	NUMBER(1)	bool	Not Null	0, 1	1 = true
s_Abs_Coeff_Mode	VARCHAR2(4)	n/a	Not Null	'LUT', 'CALC'	
s_Optical_Depth_Pathname	VARCHAR2(128)		Not Null		Path for Optical Depth files
i_Reuse_Optical_Depths	NUMBER(1)	bool	Not Null	0, 1	1 = true
s_Ac_Pathname	VARCHAR2(256)		Not Null		Path for AC files
s_Ac_Filename_Stem	VARCHAR2(128)		Not Null		Filename stem for AC files
s_Cntnm_Pathname	VARCHAR2(128)		Not Null		Path for Continuum files
s_Cross_Section_Pathname	VARCHAR2(128)		Not Null		Path for Cross Section files
s_Pressure_Threshold_File	VARCHAR2(128)		Not Null		
s_Absorber_Amt_Threshold_File	VARCHAR2(128)		Not Null		
s_Temperature_Threshold_File	VARCHAR2(128)		Not Null		
d_vmrCO2	NUMBER(10,5)		Not Null		
d_vmrO2	NUMBER(10,5)		Not Null		
d_vmrN2	NUMBER(10,5)		Not Null		
s_Temperature_Grid_File	VARCHAR2(128)		Not Null		will be added

2.3.31   Cloud_Parameters Table

Table Name   Cloud_Parameters
Parent: Step_Control_Parameters
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides parameters that specify clouds - NOT USED IN R4
Number of entries/Run   1
Key: s_Cloud_Parameters_ID

Table 2-34. Cloud_Parameters

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Cloud_Parameters_ID	VARCHAR2(128)			Key	Oracle Key
s_Cloud_Path_File_Path	VARCHAR2(128)		Not Null		Path for Cloud files
s_Cloud_Abs_Coeff_Bin_File	VARCHAR2(128)				
i_Cross_Section_Switch	NUMBER(1)	bool		0,1	1=True
i_Cloud_Switch	NUMBER(1)	bool	Not Null	0,1	1=True
i_Cloud_Liq_Water_Layer	NUMBER(10)			1-500	
d_Cloud_Liq_Water_5_Micro_Amt	NUMBER(10,4)			1-100	10.7
d_Cloud_Ice_Layer	NUMBER(10,4)			1-500	
d_Cloud_Ice_Amt	NUMBER(10,4)	micron?		0-100	0.0 = no ice cloud

2.3.32   FOV _Info Table

Table Name   FOV_Info
Parent: Step_Information
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides control parameter information for one step of a retrieval
Number of entries/Run # steps (some may be same)
Key: s_FOV_Info_ID

Table 2-35. FOV_Info

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_FOV_Info_ID	VARCHAR2(128)			Key	Oracle Key
i_Start_FM_Ray	NUMBER(4)		Not Null	-1 to 1000	
i_Final_FM_Ray	NUMBER(4)		Not Null	-1, to 1000	
i_Step_Size_FM_Ray	NUMBER(4)		Not Null	-1, to 1000	
i_Start_Detector	NUMBER(5)		Not Null		1
i_Final_Detector	NUMBER(5)		Not Null		16
i_One_FM_Ray_Per_Detector	NUMBER(1)	bool	Not Null	0,1	1=True
s_FOV_Filename	VARCHAR2(128)		Not Null		
s_FOV_Wings	VARCHAR2(11)		Not Null	'EXTRAPOLATE', 'TRUNCATE', 'RENORMALIZE'	

2.3.33   Output_Products_Info Table

Table Name   Output_Products_Info
Parent: Step_Parameters
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides parameters that specify standardProductInfo
Number of entries/Run   1
Key: s_Standard_Product_Info_ID

Table 2-36. Output_Products_Info

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Output_Product_Info_ID	VARCHAR2(128)			Key	Key
i_Ray_Radiances_Output	NUMBER(1)		Not Null	0, 1	
i_Ray_Jacobians_Output	NUMBER(1)		Not Null	0, 1	
d_Plot_Min_Pressure_Level	NUMBER(14,10)	hPa	Not Null	0-1300	
d_Plot_Max_Pressure_Level	NUMBER(14,10)	hPa	Not Null	0-1300	
i_Output_Mono_Radiance	NUMBER(1)		Not Null	0, 1	
s_Ray_Tracing_ASCII_File	VARCHAR2(128)		Not Null		
s_Ray_Tracing_Binary_File	VARCHAR2(128)		Not Null		
i_Rad_Mono_Bin	NUMBER(1)		Not Null	0, 1	
s_Rad_Mono_Filename	VARCHAR2(128)		Not Null		
i_trans_Mono_Bin	NUMBER(1)		Not Null	0, 1	
s_Trans_Mono_Filename	VARCHAR2(128)		Not Null		
s_Rad_Xfer_Rad_Mono_File	VARCHAR2(128)		Not Null		
s_Rad_Xfer_Rad_Cnvl_File	VARCHAR2(128)		Not Null		

2.3.34 Leven_Marq_Parameters Table

Table Name   Leven_Marq_Params
Parent: Step_Control_Parameters
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides information for LM parameters
Number of entries/Run # steps (some may be same)
Key: s_Leven_Marq_Params_ID

Table 2-37. Leven_Marq_Params

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Leven_Marq_Params_ID	VARCHAR2(128)			Key	Key
d_LM_Delta	NUMBER(9,5)	n/a	Not Null	> 0	
d_LM_Sigma	NUMBER(9,6)	n/a	Not Null	>0	
d_LM_Step_Tol	NUMBER(10,9)	n/a	Not Null	>0, <1	
d_LM_Res_Tol	NUMBER(10,9)	n/a	Not Null	>=0	
d_LM_IR_Cond	NUMBER(6,5)	n/a	Not Null	>=0	
d_ConvThreshold	NUMBER(10,8)	n/a	Not Null	>0, <10	

2.3.35 Filter_Information Table

Table Name   Filter_Information
Parent: Step_Information
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides filter information for one step of a retrieval.
Number of entries/Run
Key: Composite key: s_Filter_Information_ID, s_filtername

Table 2-38. Filter_Information

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Filter_Information_ID	VARCHAR2(128)			Key	Composite Key: s_Filter_Information_ID + s_filtername
s_Filtername	VARCHAR2(20)			Key	Composite Key: s_Filter_Information_ID + s_filtername
d_Start_Frequency	NUMBER(20,10)	cm-1	Not Null	> 0	
d_End_Frequency	NUMBER(20,10)	cm-1	Not Null	> 0	
s_Species_List	VARCHAR2(200)	n/a	Not Null		list separated by ',' must be listed in table Species_Order
s_XC_Species_List	VARCHAR2(200)	n/a			list separated by ',' must be listed in table Species_Infomation
d_Lores_Conv_Spacing	NUMBER(10,8)		Not Null	>0, <1	
d_Hires_Conv_Spacing	NUMBER(10,8)		Not Null	>0, <1	

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2.3.36   Map_Information Table

Key: Table Name   Map Information
Parent: Retrieval_Element
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides map type and source information
Key: s_Map_Information_ID

Table 2-39. Map Information Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Map_Information_ID	VARCHAR2(128)			Key	Key
s_Map_Source	VARCHAR2(12)		Not Null	'PREMADE', 'INTERPOLATE'	
s_Inverse_Map_Source	VARCHAR2(12)		Not Null	'PREMADE', 'INVERT'	if PREMADE specify s_inverseMapSourceName
s_Retrieval_Type	VARCHAR2(20)	n/a	Not Null	'LINEAR','LOG', 'SHAPE','TATM'	
s_Map_Type	VARCHAR2(12)		Not Null	'LINEAR', 'LOG'	
s_Map_Source_Name	VARCHAR2(128)	n/a			source name for map database
s_Inverse_Map_Src_Name	VARCHAR2(128)	n/a			source name for map database
s_Retrieval_Level_Src_Name	VARCHAR2(128)	n/a			source name of ret. Parameter database - key by mapType, viewMode, bin...

2.3.37 Vector_Source_Info Table

Table Name	Vector_Source_Info
relations:	Retrieval_Element
Created By:	Delivered with S/W
Destroyed By:	Overwritten with delivery
Purpose:	Provides information about a full state vector source(s)
Number of entries/Run	<500 ?
Key:	s_Vector_Source_Information_ID + i_Range_Number

Table 2-40. Vector_Source_Info

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Vector_Source_Info_ID	VARCHAR2(128)			Composite Key	Key, composite key
i_Range_Number	NUMBER(5)			Composite Key	Key, composite key
s_Lower_Boundary_Type	VARCHAR2(12)		Not Null	'TROPOPAUSE', 'PRESSURE', 'START', 'END', 'FREQUENCY'	
s_Upper_Boundary_Type	VARCHAR2(12)		Not Null	'TROPOPAUSE', 'PRESSURE', 'START', 'END', 'FREQUENCY'	
d_Lower_Boundary_Value	NUMBER(14,10)	hPa		>0 < 2180	
d_Upper_Boundary_Value	NUMBER(14,10)	hPa		>0 < 2180	
s_Source_Name	VARCHAR2(500)	n/a			If initialGuess then this column is null; relative path and filename stem for file, e.g.g exponentialDecay/Strengths.asc; database table name for source type database
s_Source_Type	VARCHAR2(30)	n/a	Not Null	'INITIAL_GUESS','FILE'	The vector data source type, e.g. file or initialGuess
s_Source_Ratio_Species	VARCHAR2(12)	n/a			foreign key into Species_Order::s_Species_Order_ID If present, specifies a dependency

					on the species specified. The state is set to the value read from the OSP multiplied by theVMR of the species specified in this column.

2.3.38 Matrix_Source Table

Table Name	Matrix_Source
relations:	Retrieval_Element
Created By:	Delivered with S/W
Destroyed By:	Overwritten with delivery
Purpose:	Provides information about a matrix source(s)
Number of entries/Run	
Key:	s_Matrix_Source_ID + i_Range_Number

Table 2-41. Matrix_Source

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Matrix_Source_ID	VARCHAR2(128)			Composite Key	Key, composite key
i_Range_Number	NUMBER(5)			Composite Key	Key, composite key
s_Lower_Boundary_Type	VARCHAR2(12)		Not Null	'TROPOPAUSE', 'PRESSURE', 'START', 'END', 'FREQUENCY'	
s_Upper_Boundary_Type	VARCHAR2(12)		Not Null	'TROPOPAUSE', 'PRESSURE', 'START', 'END', 'FREQUENCY'	
d_Lower_Boundary_Value	NUMBER(14,10)	hPa		$>0 < 2180$	
d_Upper_Boundary_Value	NUMBER(14,10)	hPa		$>0 < 2180$	
s_Source_Name	VARCHAR2(128)	n/a	Not Null		Relative path and filename stem, e.g. exponentialDecay/Strengths.asc for filename, or database table name.
s_Source_Type	VARCHAR2(8)	n/a	Not Null	'DATABASE', 'FILE'	The constraint data source type
s_Matrix_Type	VARCHAR2(128)	n/a	Not Null	'EXPONENTIAL_DECAY', 'CONSTRAINT', 'DIAGONAL', 'COVARIANCE', 'FIRST_DERIVATIVE', 'SECOND_DERIVATIVE', 'PREMADE'	The type and form the data is read in

2.3.39   FM_Simulation_Info Table

Table Name   FM_Simulation_Info
Parent: called directly by software
Created By: Delivered with S/W
Destroyed By: Overwritten with delivery
Purpose: Provides parameters that specify simulatedDataInfo
Number of entries/Run 1
Key: s_FM_Simulation_Info_ID + s_Viewing_Mode

Table 2-42. FM_Simulation

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_FM_Simulation_Info_ID	VARCHAR2(128)				composite key, s_FM_Simulation_Info_ID + s_Viewing_Mode
s_Viewing_Mode	VARCHAR2(5)			'NADIR' 'LIMB'	composite key, s_FM_Simulation_Info_ID + s_Viewing_Mode
s_Source_Name	VARCHAR2(6)		Not Null	'FILE','ELANOR'	
s_Other_Source_Information	VARCHAR2(500)				AES_SOS TES_SIMUL or filename clue
s_Output_Filename	VARCHAR2(128)		Not Null		
s_Step_Parameters_ID	VARCHAR2(128)		Not Null		foreign key to Step_Information:s_Step_Information_ID

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Table 2-42. FM_Simulation - continued

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
i_FM_Noise_Equiv_Src_Renorm	NUMBER(1)	bool	Not Null	0,1	True = 1-- however do not implement yet
s_Noise_Source	VARCHAR2(8)		Not Null	'FILE' or 'CREATE'	
s_Noise_Filename	VARCHAR2(128)				noise filename clue

s_NESR_Filename	VARCHAR2(128)		Not Null		NESR Filename clue
I_No_Noise	NUMBER(1)	bool	Not Null	0,1	1=add 0 noise despite NESR
d_Frequency_Extension	NUMBER(6,4)	cm-1	Not Null	>0	
d_Max_Opt_Path_Diff	NUMBER(14,10)	cm	Not Null	>0	
d_EMIS_IG_Latitude	NUMBER(6,4)			−90..90	
d_EMIS_IG_Longitude	NUMBER(7,4)			−180..180	

2.3.40   Constraint_Strengths Table

Table Name: Constraint_Strengths
Created By: Delivered with S/W
Destroyed By: Overwritten on delivery
Purpose: Provides run independent constraint strengths
Number of entries/Run   variable
Key   s_Species + s_View_Mode + s_Map_Type + d_Pressure_Min + d_Pressure_Max + d_Latitude_Min + d_Latitude_Max

Table 2-45. Constraint_Strengths Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
s_Species	VARCHAR2(20)	n/a			Species Nickname – composite key
s_Viewing_Mode	VARCHAR2(20)	n/a		'NADIR", 'LIMB'	Viewing mode – nadir or limb – composite key
s_Map_Type	VARCHAR2(12)	n/a		'LINEAR', 'LOG'	Map Type – composite key
d_Pressure_Min	NUMBER(15,10)	mb		>0, <=1500	Pressure ranges for strengths – composite key
d_Pressure_Max	NUMBER(15,10)	mb		>0, <=1500	Pressure ranges for strengths – composite key
d_Latitude_Min	NUMBER(10,8)	Decimal Degrees		>=-90, <=90	Latitude range for strengths – composite key
d_Latitude_Max	NUMBER(10,8)	Decimal Degrees		>=-90, <=90	Latitude range for strengths – composite key
d_Zero_DER	NUMBER(30,10)		Not Null		o^{th} derivative constraint strength
d_First_DER	NUMBER(30,10)		Not Null		1st derivative constraint strength
d_Second_DER	NUMBER(30,10)		Not Null		2nd derivative constraint strength
d_Exp_Decay	NUMBER(30,10)		Not Null		exponential decay constraint strength
d_Exp_Scale_Height	NUMBER(20,10)	meters	Not Null	>0	exponential decay characteristic height in meters

2.3.41   L2_Scene Table

Table Name: L2_Scene
Created By: L2_Retrieval
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Supporting L2 Retrieval to L2 Products interface; provides mapping from target observations to unique
                                    L2_Scene_ID. All L2 target observation will be entered into this table. Averaged nadir observation (ie two
                                    instrument observations that result in a single L2 target scene) are represented by two entries in this table; each entry
                                    will contain the same L2_Scene_ID but have different Scene_Ids. Limb observations will be one-to-one with
                                    instrument observations.
Number of entries/Run   Pre Run 2861 GS = 4608
                                    Post Run 2861 = 3456
Key   Composite Key: L2_Scene_ID + Scene_ID

<div align="center">Table 2-46. L2_Scene Table</div>

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L2_Scene_ID	NUMBER(12)	n/a			Composite Key, Sequence number associated with column
Scene_ID	NUMBER(12)	n/a		unique	Composite Key, Foreign key from Scan_Attributes::Scene_ID
Run	NUMBER(10)	n/a	Not Null		Foreign key from Run_Attributes::Run
Viewing_Mode	VARCHAR2(5)	n/a	Not Null	'NADIR', 'LIMB'	
s_Strategy_Table_ID	VARCHAR2(128)				Foreign key from Strategy_Table::s_Strategy_Table_ID

L2_Scene_ID is associated with an Oracle sequence number available through the Oracle routine nextval.
Pre Run 2861 - Two rows will be inserted for averaged nadir scenes processed through L2. Each of these two rows will contain the
same L2_Scene_ID but will have a different Scene_ID (from L1A representing the two original nadir observations).

Limb target scenes will be represented by a single row
Post Run 2861 – No target averaging and no limb observations; one to one relation with Scan_Attributes::Scene_ID

2.3.42　　　　L2_Species_Data Table

Table Name:　　　　　　　　　L2_Species_Data
Created By:　　　　　　　　　L2_Retrieval
Destroyed By:　　　　　　　　Stays resident until manually deleted by SIPS
Purpose:　　　　　　　　　　Supporting L2 Retrieval to L2 Products interface; Provides VMR per species and FM
　　　　　　　　　　　　　　pressure level for target scenes
Number of entries/Run　　　　Pre Run 2861 GS = 33408 rows
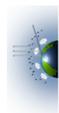　　　　　　　　　　　　　　Post Run 2861 GS = 17280 rows
Key　　　　　　　　　　　　L2_Scene_ID + Species

Table 2-47. L2_Species_Data Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L2_Scene_ID	NUMBER(12)	n/a			Composite Key, relation to L2_Scene::L2_Scene_ID
Species	VARCHAR2(12)				Composite Key, foreign key from Species_Order:s_Species_Order_ID
VMR_Array	VARCHAR2(1500)	VMR or K for AtmT	Not Null		Blank separated characters, entries required: nadir 67, limb 88, numeric only, scientific notation Format (-)1.123456789e(-)12, 17 char reserved for each entry Fill value = -9.99e2
Precision_Array	VARCHAR2(1200)	VMR (or K for AtmT)	Not Null		Blank separated characters entries required: nadir 67, limb 88, numeric only, scientific notation Square-roots of diagonal elements of the output error covariance Format (-)1.12345e(-)12, 13 char reserved Fill value = -9.99e2
Total_Error_Array	VARCHAR2(1200)	VMR or K	Not Null		Blank separated characters, entries required: nadir 67, limb 88, numeric only, scientific notation Format (-)1.12345e(-)12, 13 char reserved Fill value = -9.99e2

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Vertical_Resolution	VARCHAR2(1200)	meters	Not Null		Blank separated characters, entries required: nadir 67, limb 88, numeric only (scientific notation permitted) Format (-)1.12345e(-)12, 13 char reserved Fill value = -9.99e2
Constraint_Vector	VARCHAR2(1200)	meters	Not Null		Blank separated characters, entries required: nadir 67, limb 88, numeric only (scientific notation permitted) Format (-)1.12345e(-)12, 13 char reserved Range -5.0e1 to 1.0e3 Fill value = -9.99e2
VMR_Array_Initial	VARCHAR2(1500)	VMR or K	Not Null		Initial VMR data or temperature data (for retrieved temperature) used in the retrieval. Blank separated characters, entries required: nadir 67, limb 88, numeric only, scientific notation Format (-)1.123456789e(-)12, 17 char reserved for each entry Fill value = -9.99e2

Note: Surface Temperature is not handled in this table; Atmospheric temperature is.

Note: Varchar arrays contain blank separated character data representing values at standard pressure levels reported by Level 2 (limb requires 87 levels plus surface). Nadir observations will contain fewer values. The pressure levels are ordered lowest pressure to highest pressure. All pressure levels are required in these character arrays, null and fill values will be present. Null values are indicated as –9.99e2, and are used as fill for individual values for each pressure level.
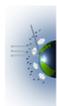
2.3.43　L2_Nadir_Geolocation Table

Table Name:	L2_Nadir_Geolocation
Created By:	L2 Retrieval PGE
Destroyed By:	Stays resident until manually deleted by SIPS
Purpose:	Supporting L2 Retrieval to L2 Products interface; provides averaged nadir geolocation data calculated by L2 - used by L2 ProductPGE in creation of averaged Nadir data product
Number of entries/Run	Pre Run 2861 GS = 1152 (averaged nadir observations)
	Pre Run 2861 GS = 3456 (non-averaged nadir observations)
Key	L2_Scene_ID

Table 2-48. L2_Nadir_Geolocation Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L2_Scene_ID	NUMBER(12)				Key, relation to L2_Scene::L2_Scene_ID
Time_of_ZPD	NUMBER(15,6)	TAI Time	Not Null		TAI Time, 1993 epoch, time of scan geolocation
Latitude	NUMBER(10,8)	Decimal Degrees Latitude	Not Null	decimal latitude -90 to +90	Geodetic latitude of instrument boresight, 2B array
Longitude	NUMBER(11,8)	Decimal Degrees Longitude	Not Null	decimal longitude -180 to +180	Geodetic longitude of instrument boresight, 2B array
Surface_Elevation	NUMBER(8,2)	Meters	Not Null	(-1,000, 100,000]	Nadir:Surface geodetic elevation from DEM,
Surface_Elev_Std_Deviation	NUMBER(8,2)	Meters	Not Null	(-1,000, 100,000]	Uncertainty in geolocation elevation
TES_Boresight_Nadir_Angle	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) nadir angle relative to the local vertical at SC.

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
TES_Bsight_Nadir_Uncert	NUMBER(11, 8)	Decimal Degrees	Not Null		Uncertainty in TES boresight nadir angle.
TES_Bsight_Azimuth	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) azimuth angle relative to the local north at SC.
Solar_Azimuth_Angle	NUMBER(11,8)	Decimal Degrees	Not Null		Solar azimuth angle relative to the local north at the spacecraft point at ZPD time (solar azimuth at observation SolarAzimuthAngle
Solar_Zenith_Angle	NUMBER(11,8)	Decimal Degrees	Not Null		Solar nadir angle relative to the local vertical at the spacecraft point at ZPD time (solar nadir at observation)
Local_Solar_Time	NUMBER(8,6)	Decimal Hours	Not Null		
Spacecraft_Azimuth	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) azimuth angle relative to the local north at the geo-location.
Spacecraft_Zenith	NUMBER(11,8)	Decimal Degrees	Not Null		TES boresight (LOS) nadir angle relative to the local vertical at the geo-location.
Spacecraft_Latitude	NUMBER(10,8)	Decimal Degrees Latitude	Not Null	decimal latitude -90 to +90	Geodetic latitude
Spacecraft_Longitude	NUMBER(11,8)	Decimal Degrees Longitude	Not Null	decimal longitude -180 to +180	Geodetic longitude
Spacecraft_Altitude	NUMBER(18,10)	Meters	Not Null		Geodetic spacecraft altitude (w/ respect to geoide)
Orbit_Ascending_Flag	NUMBER(1)			0/1	1=True, Orbit Ascending, 0=False, Orbit Descending
Scan_Averaged_Count	NUMBER(2)		Not Null	1..40	Indicates number of scans going into averaged nadir scan; 1 indicates no averaging for this target scene
Latitude_Footprint_1	NUMBER(10,8)	Decimal Degrees Latitude	Not Null		

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Latitude_Footprint_2	NUMBER(10,8)	Decimal Degrees Latitude	Not Null		
Latitude_Footprint_3	NUMBER(10,8)	Decimal Degrees Latitude	Not Null		
Latitude_Footprint_4	NUMBER(10,8)	Decimal Degrees Latitude	Not Null		
Longitude_Footprint_1	NUMBER(11,8)	Decimal Degrees Longitude	Not Null		
Longitude_Footprint_2	NUMBER(11,8)	Decimal Degrees Longitude	Not Null		
Longitude_Footprint_3	NUMBER(11,8)	Decimal Degrees Longitude	Not Null		
Longitude_Footprint_4	NUMBER(11,8)	Decimal Degrees Longitude	Not Null		
Day_Night_Flag	VARCHAR2(5)		Not Null	'DAY' or 'NIGHT'	Day/ Night at boresight geolocation, from L1A_Geolocation::Day_Night_Flag_Target
Surface_Type_Footprint	NUMBER(1)	Enumerated	Not Null	1..4	From DEM, 1=Fresh Water,2=Salt Water, 3=Land, 4=Mixed (not 100% of FW, SW or Land), from L1A_Geolocation::Surface_Type_Footprint

2.3.44   L2_Associated_Scene Table

Table Name: L2_Associated_Scene
Created By: L2 Retrieval PGE
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Supporting L2 Retrieval to L2 Products interface; data that is per target scene for both nadir and limb data
Number of entries/Run   Pre Run 2861 = 4608
                                              Post Run 2861 = 3456 rows
Key   L2_Scene_ID

Table 2-49. L2_Associated_Scene Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L2_Scene_ID	NUMBER(12)				Key, relation to L2_Scene::L2_Scene_ID
Surface_Pressure	NUMBER(14,10)	hPa	Not Null		
Surface_Temperature	NUMBER(11,8)	K	Not Null		
Surface_Temperature_Error	NUMBER(11,8)	K	Not Null		

Continued Next Page
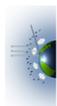
Table 2-49. L2_Associated_Scene Table (Continued)

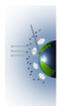| Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
TES_Ret_Pointing_Angle	NUMBER(11,8)		Not Null		Limb only
TES_Ret_Pointing_Angle_Error	NUMBER(11,8)		Not Null		Limb only
TES_Pixels_Used_Flag	VARCHAR2(128)		Not Null		Blank separated characters, 64 pixels required, Focal Plane are ordered 1A, 1B, 2A, 2B, each containing pixels 0..15 0 = False, not used in retrievals 1 = True, pixel information used in retrievals
Pressure_Array	VARCHAR2(1200)	hPa	Not Null		Blank separated characters entries required: nadir 67, limb 88, numeric only, scientific notation Format (-)1.12345e(-)12, 13 char reserved Fill data = -9.99e2
Pressure_Altitude_Array	VARCHAR2(1200)	meters	Not Null		Blank separated characters, entries required: nadir 67, limb 88, numeric only (scientific notation permitted) Format (-)1.12345e(-)12, 13 char reserved Fill data = -9.99e2
Cloud_Top_Pressure	NUMBER(7,3)	hPa	Not Null		Fill = -9.99e2 Data values are > 0
Cloud_Top_Pressure_Error	NUMBER(8,4)	hPa	Not Null		Fill = -9.99e2 Data values are > 0
Cloud_Effective_OD	VARCHAR2(300)		Not Null		Blank separated characters, 25 entries required, numeric only, scientific notation Format 1.123(-)e04, 10 char reserved Fill data = -9.99e2 Data values are > 0
Cloud_Effective_OD_Error	VARCHAR2(300)		Not Null		Blank separated characters, 25 entries required, numeric only, scientific notation

					Format 1.123e(-)04, 10 char reserved Fill data = -9.99e2 Data values are > 0
Cloud_Frequency	VARCHAR2(350)	cm^{-1}	Not Null		Blank separated characters, 25 entries required, numeric only, scientific notation Format (-)1.12345e(-)12, 13 char reserved Fill data = -9.99e2 Note: these are not target scene dependant, and will be the same value for all tgt scenes
Air_Density	VARCHAR2(1200)	Molecules per cm3	Not Null		Air density for each pressure level, entries required: nadir 67, limb 88. Number of pressure levels for nadir will be less. Value represents 'wet' air density. Format (-)1.12345e(-)12, 12 char reserved Fill and default value = -9.99e2
TSUR_Precision	NUMBER(9,5)	K	Not null	0-100, -999.0	Square-root of diagonal element of the measurement error covariance Fill and default value = -999.0
TSUR_DegreesOfFreedom	NUMBER(9,5)	K	Not null	0-1, -999.0	Degrees of freedom for surface temperature. Fill and default value = -999.0
TSUR_Constraint	NUMBER(9,5)	K	Not null	150.0 – 350, -999.0	Surface temperature value used to constrain the retrieval (species independent) Fill and default value = -999.0
TSUR_Initial	NUMBER(9,5)	K	Not null	150.0 – 350, -999.0	Surface temperature from GMAO to be used as 'initial' initial surface temperature Fill and default value = -999.0
Tropopause_Pressure	NUMBER(7,3)	hPa	Not Null	10 – 1300, -999.0	Pressure between the troposphere and stratosphere used to calculate the tropospheric column Fill and default value = -999.0
Ozone_Trop_Column	VARCHAR2(12)	Molecules/cm2	Not Null		Format (-)1.12345e(-)12, 12 char reserved Column amount from the surface to TropopausePressue computed from the retrieved profile. Fill value = -9.99e2
Ozone_Trop_Column_Error	VARCHAR2(12)	Molecules/cm2	Not Null		Format (-)1.12345e(-)12, 12 char reserved

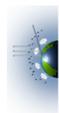|					
					Error in the column amount from the surface to TropopausePressue computed from the total error covariance Fill value = -9.99e2
Ozone_Trop_Column_Initial	VARCHAR2(12)	Molecules/cm2	Not Null		Format (-)1.12345e(-)12, 12 char reserved Initial column amount from the surface to TropopausePressue computed from the initial profile Fill value = -9.99e2
Dominant_Surface_Type	NUMBER(4)		Not Null	1..24, 90, 99, 100 -999	The dominant surface composition of the TES footprint, fill = -999
Surface_Temp_Obs_Error	NUMBER(11,8)	K	Not Null		Fill = -999.0
Surface_Temp_Initial_Refined	NUMBER(9,5)	K	Not Null	150.0 – 350. -999.0	Surface temperature feeding into the TATM/H2O/O3 retrieval (target-level value). Fill - -999.0
ReducedCO2LevelIndices	VARCHAR2(120)	n/a	Not Null		Blank separated integer value for indices that CO2 was retrived. Fill & default value = -999
~~O3_IRK~~	~~VARCHAR2(1500)~~	~~W/m^2/ppb~~	~~Not Null~~		~~The sensitivity to the outgoing longwave radiation in the 10 micron band to variations in ozone at each pressure level.~~ ~~Blank separated characters, entries required: nadir 67, no limb, numeric only, scientific notation~~ ~~Format ( )1.123456789e( )12, 17 char reserved for each entry. Fill & default value = 9.99e2~~
~~Fm_Ozone_Band_Flux~~	~~NUMBER(18,10)~~	~~W/m^2~~	~~Not Null~~		~~The long-wave ozone radiative flux from Measured radiance. Fill & defalut value = -999.0~~
~~L1B_Ozone_Band_Flux~~	~~NUMBER(18,10)~~	~~W/m^2~~	~~Not Null~~		~~The long-wave ozone radiative flux from calculated radiance. Fill and default value = -999.0~~
~~FM_Flux_Segments~~	~~VARCHAR2(1140)~~	~~W/m^2~~			~~Integration of (l1b_radiance/anisotrophy) over 3cm**-1 long sub bands of the 970-1120 band. One element per sub band.~~

FM_Flux_Segments_Center_Freq	VARCHAR2(1400)	cm^-1			Center frequency of each sub band of fm_flux_segments
L1B_Flux_Segments	VARCHAR2(1140)	W/m^2			Same as fm_flux_segments except the integration is over the entire 980-1080 band. Single value.
O3_LIRK	VARCHAR2(1500)	W/m^2			Integration of O3 GI Jacobians. One value for each of 66 levels.
O3_IRK_Segments	VARCHAR2(750)	W/m^2/ppb			o3_lirk for a level re-expressed in terms of o3_vmr for that level. One value for each of 66 levels. o3_irk_segments_01 - Level-01-specific Integration of 3cm**-1 sub bands of O3 GI Jacobians that have been re-expressed in terms of the level's o3_vmr. 1 value per each of the 33 sub bands of 980-1080. o3_irk_segments_02 - Level-02-specific Integration of 3cm**-1 sub bands of O3 GI Jacobians that have been re-expressed in terms of the level's o3_vmr. 1 value per each of the 33 sub bands of 980-1080. <continue o3_irk_segments_nn to level 66>
O3_IRK_Segments_Center_Freq	VARCHAR2(750)				Center frequency of each 3cm**-1 sub band of o3_irk_segments fields above. Is a vector that applies to each of the 66 levels identically.
H2O_LIRK	VARCHAR2(1500)	W/m^2			Integration of H2O GI Jacobians. One value for each of 66 levels.
TATM_IRK	VARCHAR2(1500)	W/m^2			Integration of TATM GI Jacobians. One value for each of 66 levels.
TSUR_IRK	VARCHAR2(25)	W/m^2			Integration of TSUR GI Jacobians. One value for the 1 level.
CEOD_LIRK	VARCHAR2(575)	W/m^2			Integration of CEOD GI Jacobians. One value for each of 6 cloud frequencies.
CTP_LIRK	VARCHAR2(25)	W/m^2			Integration of CTP GI Jacobians. One value for the 1 level.
EMISS_IRK	VARCHAR2(250)	W/m^2			Integration of Emissivity GI Jacobians. One value for each emissivity frequency (10)

Note: Varchar arrays contain blank separated character data representing values at standard pressure levels reported by Level 2 (limb requires 87 levels plus surface). Nadir observations will contain fewer values. The pressure levels are ordered lowest pressure to highest pressure. All pressure levels are required in these character arrays, null and fill values will be present. Null values are indicated as –9.99e2, and are used as fill for individual values for each pressure level.

2.3.45   L2_IRK_Scene Table

Table Name: L2_IRK_Scene
Created By: L2 Retrieval PGE
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Supporting L2 Retrieval IRK to L2 Products interface for the IRK product; data that is
                                per target scene for nadir data
Number of entries/Run   Pre Run 2861 = 2228
                                Post Run 2861 = 3456 rows
Key   L2_Scene_ID + IRK_Band (Only O3 for R14)

Table 2-xx L2_IRK_Scene Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L2_Scene_ID	NUMBER(12)		Not Null		Key, relation to L2_Scene::L2_Scene_ID
IRK_Band	VARCHAR(12)		Not Null	O3	Secondary key (R14 only O3 band supported). This secondary key supports additional IRK products beyond O3
IRK	VARCHAR2(1500)	W/m^2/ppb			The sensitivity to the outgoing longwave radiation in the 10 micron band to variations at each pressure level. Blank separated characters, entries required: nadir 67, no limb, numeric only, scientific notation Format (-)1.123456789e(-)12, 23 char reserved for each entry. Fill & default value = -9.99e2
LIRK	VARCHAR2(1500)	W/m^2			Integration of O3 GI Jacobians. One value for each of 66 levels.
IRK_Segments_1	VARCHAR2(825)	W/m^2/ppb			irk for a level re-expressed in terms of vmr for that level. One value for each of 66 levels + surface.

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					irk_segments_n - Level-n (1..67) Integration of sub bands of GI Jacobians that have been re-expressed in terms of the level's vmr. 1 value per each of the sub bands.
IRK_Segments_2	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_3	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_4	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_5	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_6	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_7	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_8	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_9	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_10	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_11	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_12	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_13	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_14	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_15	VARCHAR2(825)	W/m^2/ppb			

IRK_Segments_16	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_17	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_18	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_19	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_20	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_21	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_22	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_23	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_24	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_25	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_26	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_27	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_28	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_29	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_30	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_31	VARCHAR2(825)	W/m^2/ppb			

IRK_Segments_32	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_33	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_34	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_35	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_36	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_37	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_38	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_39	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_40	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_41	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_42	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_43	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_44	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_45	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_46	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_47	VARCHAR2(825)	W/m^2/ppb			

IRK_Segments_48	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_49	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_50	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_51	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_52	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_53	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_54	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_55	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_56	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_57	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_58	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_59	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_60	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_61	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_62	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_63	VARCHAR2(825)	W/m^2/ppb			

IRK_Segments_64	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_65	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_66	VARCHAR2(825)	W/m^2/ppb			
IRK_Segments_67	VARCHAR2(825)	W/m^2/ppb			
L1B_Band_Flux	NUMBER(18,10)	W/m^2			The long-wave ozone radiative flux from calculated radiance. Fill and default value = -999.0
L1B_Flux_Segments	VARCHAR2(1250)	W/m^2			Integration of (l1b_radiance/anisotrophy) sub band frequencies. One element per sub band.
Fm_Band_Flux	NUMBER(18,10)	W/m^2			The long-wave ozone radiative flux from Measured radiance. Fill & defalut value = -999.0
FM_Flux_Segments	VARCHAR2(1250)	W/m^2			Integration of GI radiances over sub bands frequencies. One element per sub band.
~~FM_Flux_Segments_Center_Freq~~	~~VARCHAR2(1250)~~	~~cm^-1~~			~~Center frequency of each sub band of fm_flux_segments~~
H2O_LIRK	VARCHAR2(1500)	W/m^2			Integration of H2O GI Jacobians. One value for each of 66 levels.
TATM_IRK	VARCHAR2(1500)	W/m^2			Integration of TATM GI Jacobians. One value for each of 66 levels.
TSUR_IRK	VARCHAR2(25)	W/m^2			Integration of TSUR GI Jacobians. One value for the 1 level.
CEOD_LIRK	VARCHAR2(150)	W/m^2			Integration of CEOD GI Jacobians. One value for each of 6 cloud frequencies.
CTP_LIRK	VARCHAR2(25)	W/m^2			Integration of CTP GI Jacobians. One value for the 1 level.
EMIS_IRK	VARCHAR2(250)	W/m^2			Integration of Emissivity GI Jacobians. One value for each emissivity frequency (10)
L1B_Band_Radiance	NUMBER(18,10)				The total of L1B Radiance over the 980-1080 frequency range

L2_IRK_Metadata Table

Table Name: L2_IRK_Metadata
Created By: L2 Retrieval PGE
Destroyed By: Stays resident until manually deleted by SIPS
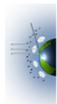Purpose: Supporting L2 Retrieval IRK to L2 Products interface for the IRK product
Number of entries/Run   Pre Run 2861 = 2228
                Post Run 2861 = 3456 rows
Key   IRK_Band (Only O3 for R14)

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
IRK_Band	VARCHAR2(12)		Not Null	O3	Secondary key (R14 only O3 band supported). This secondary key supports additional IRK products beyond O3
nIRKCloudFreq	NUMBER(2)				Number of cloud frequencies reported in IRKCloudFreq
IRKCloudFreq	VARCHAR2(1500)	cm^{-1}			Blank separated list of cloud frequencies
nIRKEmisFreq	NUMBER(2)				Number of Emissivity Frequencies reported in IRKEmisFreq
IRKEmisFreq	VARCHAR2(1500)	cm^{-1}			Blank separated list of emissivity frequencies
nFMFluxSegments	NUMBER(3)				Number of FM flux segments reported in FMFluxSegmentsCenterFreq
FMFluxSegmentsCenterFreq	VARCHAR2(1500)	cm^{-1}			Blank separated list of FM Flux Segments center frequencies
FMFluxSegmentsMinFreq	VARCHAR2(25)	cm^{-1}			Minimum frequency in FM Flux band
FMFluxSegmentsMaxFreq	VARCHAR2(25)	cm^{-1}			Maximum frequency in FM Flux band

nIRKSegments	NUMBER(3)				Number of IRK segments reported in IRKSegmentsCenterFreq
IRKSegmentsCenterFreq	VARCHAR2(1500)	cm^{-1}			Blank separated list of IRK Segments center frequencies,
IRKSegmentsMinFreq	NUMBER(9,5)	cm^{-1}			Minimum frequency in IRK band
IRKSegmentsMaxFreq	NUMBER(9,5)	cm^{-1}			Maximum frequency in IRK band
SegmentWidth	NUMBER(9.5)	cm^{-1}			Width of FM Flux and IRK band segments
NadirResolution	NUMBER(4,3)	cm^{-1}			Nadir resolution
Zenith_GI_Angles	VARCHAR2(125)	degrees			5 zenith angles for FM radiances computed at 5 nadir angles

2.3.46 L2_Associated_Scene_Species Table

Table Name: L2_Associated_Scene_Species
Created By: L2 Retrieval PGE
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Supporting L2 Retrieval to L2 Products interface; Data that is per target scene per species
                             for both nadir and limb data.
Number of entries/Run   Pre Run 2861 GS $=$ 33408

                             Post Run 2861 GS $=$ 17280
Key   L2_Scene_ID + Species

Table 2-50. L2_Associated_Scene_Species Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L2_Scene_ID	NUMBER(12)	n/a			Composite Key, relation to L2_Scene::L2_Scene_ID
Species	VARCHAR2(12)				Composite key
Total_Column_Density	VARCHAR2(12)		Not Null		Format (-)1.12345e(-)12, 12 char reserved
Total_Column_Density_Error	VARCHAR2(12)		Not Null		Format (-)1.12345e(-)12, 12 char reserved

Continued Next Page

Table 2-50. L2_Associated_Scene_Species Table (Continued)

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Species_Retrieval_Converged	NUMBER(1)	Bool	Not Null	0,1	0 = Not converged 1 = converged
Numb_Iter_Performed	NUMBER(2)		Not Null		
Max_Num_Iterations	NUMBER(2)		Not Null		
Degrees_Freedom_for_Signal	NUMBER(11,6)		Not Null	0.0.. 1000.0	
Information_Content	NUMBER(6,2)		Not Null	-100..1000.0, -999.0	Fill and default value = -999.0
Radiance_Residual_RMS	VARCHAR2(208)		Not Null		Represents 16 pixels in limb, one in nadir Limb data is blank separated Default value = -999.0, nominal values 0..100 Format (-)1.12345e(-)12, 13 char reserved In limb all 16 values must be present
Radiance_Residual_Mean	VARCHAR2(208)		Not Null		Represents 16 pixels in limb, one in nadir Limb data is blank separated Default value = -999.0, nominal values -1000..1000 Format (-)1.12345e(-)12, 13 char reserved In limb all 16 values must be present
Radiance_Residual_Max	NUMBER(12,7)		Not Null	-10,000..10,000, -999.0	Default value = -999.0
Dev_Vs_Retrieval_Covar	NUMBER(12,7)		Not Null	-10,000..10,000, -999.0	Default value = -999.0
Species_Retrieval_Quality	NUMBER(1)	N/A	Not Null	0,1	0=false (poor quality), 1=true (passed quality check, reported errors are likely to be accurate)

					Default value is 0 (poor quality)
Cloud_Variability_QA	NUMBER(6,2)	N/A	Not Null	0..100, -999.0	Quality value calculated from cloud variability Fill and default value = -999.0
KDotDL_QA	NUMBER(9,5)	N/A	Not Null	-100..100, -999.0	Quality value calculating the signal left in the residual. This is the maximum dot product of the Jacobian and the Radiance. Fill and default value = -999.0
LDotDL_QA	NUMBER(9,5)	N/A	Not Null	-100 .. +100, -999.0	Quality value calculating the signal level in the residual. This is the dot product of the radiance with the residual. Fill and default value = -999.0
Calibration_QA	NUMBER(6,2)	N/A	Not Null	-2 .. +2, -999.0	Quality value of calculated from the calibration factors Fill and default value = -999.0
Average_Cloud_Effective_OD	NUMBER(9,4)	N/A	Not Null	0..10000, -999.0	Quality value: the cloud mean optical depth from 975 – 1200 cm-1 This is the same for all species and taken from the cloud values at the final retrieval step. Fill and default value = -999.0
Average_Cloud_Eff_OD_Error	NUMBER(9,4)	N/A	Not Null	0..500, -999.0	Quality value: error for Average Cloud Effective Optical Depth This is the same for all species and calculated at the final retrieval step. Fill and default value = -999.0
Surface_Emiss_Mean_QA	NUMBER(9,5)	N/A	Not Null	-2..+2, -999.0	Quality value comparing the retrieved emissivity to the initial emissivity. Nadir only, fill for ocean and limb scenes Fill and default value = -999.0
TSUR_vs_Apriori_QA	NUMBER(9,5)	N/A	Not Null	-100..100, -999.0	Quality value comparing the surface temperature to a priori value. Nadir only, fill for ocean and limb scenes.

					Fill and default value = -999.0
TSUR_vs_TATM0_QA	NUMBER(9,5)	N/A	Not Null	-100..100, -999.0	Quality value comparing the surface temperature to the lowest atmospheric pressure. Nadir only, fill for ocean and limb scenes. Fill and default value = -999.0
Total_Column_Density_Initial	VARCHAR2(12)	Molec/cm2	Not Null		Format (-)1.12345e(-)12, 12 char reserved Fill value = -9.99e2
H2O_HDO_QA	NUMBER(9,5)		Not Null	-50.0..50.0, -999.0	Fill = -999.0
Surface_Emission_Layer_QA	NUMBER(9,5)	N/A	Not Null	-100..100, -999.0	Quality value comparing the atmospheric temperature to the surface temperature when ozone near the surface is elevated. This will be fill for CO, CH4, HDO, and most H2O Fill and default value = -999.0
O3_Ccurve_QA	NUMBER(2)	N/A	Not Null	0, 1, -99	Quality value indicating ozone with an unrealistic lapse rate, with values too high in the near-surface layers and too low around 350-200 hPa. 0=bad QA, 1=good QA. Nadir only, limb fill. Fill and default value = -99
Desert_Emiss_QA	NUMBER(2)	N/A	Not Null	0, 1, -99	Quality value indicating high emissivity; possibly a desert scene with high geologic silicate content. 0=bad QA, 1=good QA. Nadir only, limb fill, ocean/water fill. Fill and default value = -99
Residual_Norm_Initial	NUMBER(6,3)	N/A	Not Null	0..999 maximum value, -999.0 fill	Quality value reported for all species, used specifically in methanol for final quality determination; initial cost function Fill and default value = -999.0
Residual_Norm_Final	NUMBER(6,3)	N/A	Not Null	0..999 maximum value, -999.0 fill	Quality value reported for all species, used specifically in methanol for final quality determination; final cost function Fill and default value = -999.0
TATM_QA	NUMBER(2)	N/A	Not Null	0, 1, -99	Quality value indicating temperature retrieval quality. 0=bad QA, 1=good QA.

					Fill and default value = -99
O3_QA	NUMBER(2)	N/A	Not Null	0, 1, -99	Quality value indicating ozone retrieval quality. 0=bad QA, 1=good QA. Fill and default value = -99
H2O_QA	NUMBER(2)	N/A	Not Null	0, 1, -99	Quality value indicating water retrieval quality. 0=bad QA, 1=good QA. Fill and default value = -99
radianceMaximumSNR	NUMBER(9,4)	N/A	Not Null		Less than 40.0 = bad QA, Greater than 40.0 =good QA. Fill and default value = -999.0

Columns Radiance_Residual_RMS, Radiance_Residual_Mean, Radiance_Residual_Max, Dev_Vs_Retrieval_Covar will always be calculated and populated by L2.

2.3.47 L2_Surface_Emissivity Table

Table Name: L2_Surface_Emissivity
Created By: L2 Retrieval PGE
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Supporting L2 Retrieval to L2 Products interface; For nadir only, provide Surface Emissivity .
Number of entries/Run   Pre Run 2861 = 5760
                           Post Run 2861 = 17280
Key   L2_Scene_ID

Table 2-51. L2_Surface_Emissivity Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L2_Scene_ID	NUMBER(12)	n/a			Key, relation to L2_Scene::L2_Scene_ID
Surface_Emiss	VARCHAR2(1000)	n/a	Not Null		Initial surface emissivity nadir targets. Blank separated characters, 121 entries required, numeric only, scientific notation. Format 1.12345, 8 char reserved. Fill value = -999.0
Emissivity_Wavenumber	VARCHAR2(1696)	cm-1	Not Null		Blank separated characters, 121 entries required, numeric only, scientific notation. Format (-)1.12345e(-)12, 13 char reserved. Fill data = -9.99e2. Note: these are not target scene dependant, and will be the same value for all tgt scenes
Land_Surface_Emiss_Errors	VARCHAR2(1696)				Blank separated characters, 121 entries required, numeric only, scientific notation. Format (-)1.12345e(-)12, 13 char reserved. Fill data = -9.99e2
Surface_Emiss_Initial	VARCHAR2(968)	N/A	Not null		Initial surface emissivity for land nadir targets.

					Blank separated characters, 121 entries required, numeric only, scientific notation Format 1.12345, 8 char reserved Fill value = -999.0
Surface_Emiss_Constraint	VARCHAR2(968)	N/A	Not null		A priori surface emissivity for land nadir targets. Blank separated characters, 121 entries required, numeric only, scientific notation Format 1.12345, 8 char reserved Fill value = -999.0

Note: VARCHAR2 character arrays will contain blank separated character data representing values for 121 entries. All entries are required in these character arrays, null and fill values will be present. Null values are indicated as –9.99e2.

2.3.48　　　　L2_Nonretrieved_Species Table

Table Name:	L2_Nonretrieved_Species
Created By:	L2_Retrieval
Destroyed By:	Stays resident until manually deleted by SIPS
Purpose:	Supporting L2 Retrieval to L2 Products interface; Provides VMR per species and FM pressure level for target scenes for species that are not retrieved
Number of entries/Run	Pre Run 2861 GS = 33408 rows
	Post Run 2861 GS = 17280 rows
Key	L2_Scene_ID + Species

Table 2-47. L2_Nonretrieved_Species Table

Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
L2_Scene_ID	NUMBER(12)	n/a			Composite Key, relation to L2_Scene::L2_Scene_ID
Species	VARCHAR2(12)				Composite Key, foreign key from Species_Order:s_Species_Order_ID
VMR_Array	VARCHAR2(1500)	VMR	Not Null		Blank separated characters entries required: nadir 67, limb 88, numeric only, scientific notation Format (-)1.123456789e(-)12, 17 char reserved for each entry Fill value = -9.99e2

2.3.49 Run_Attributes_H Table

Table Name: Run_Attributes_H
Created By: SIPS
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides root node for the History database, used in Visulation
Number of entries/Run 1 entry per run
Key Run + History_Insertion_Date

Table 2-52. Run_Attributes_H

Run Attributes Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Run	NUMBER(10)	n/a			Run Identification
History_Insertion_Date	DATE	Oracle date			Date that the run information was inserted into the History database
Active	VARCHAR2 (1)	n/a	Not Null	'A', 'P', 'D'	'A' - active, 'P' - processed, 'D' - archived and related tables deleted
Run_Type	VARCHAR2 (2)	n/a	Not Null	'GS', 'SO', 'PG', 'PS', 'SC', 'TP'	'GS' - Global Survey, 'PG' - PreGS Bracketing Cal, 'SO' - Special Observation, 'PS' - Pre SO Bracketing Cal, 'SC' - Spec Cal, 'TP' - Test Pattern
Start_Time	NUMBER(15,6)	TAI Time Format	Not Null		TAI Time, seconds since Jan 1, 1993
Stop_Time	NUMBER(15,6)	TAI Time Format			TAI Time, seconds since Jan 1, 1993
FSW_Version	NUMBER(12)	n/a			Flight S/W version
Command_Seq_ID	NUMBER(12)	n/a			Sequence Macro identifier
Start_Orbit_Number	NUMBER(12)	n/a			First orbit in Run
End_Orbit_Number	NUMBER(12)	n/a			Last orbit in Run
Start_Orbit_Path	NUMBER(12)	n/a		1..233	First orbit path number (1..233) in Run
End_Orbit_Path	NUMBER(12)	n/a		1..233	Last orbit path number (1..233) in Run

2.3.50　　　　Scan_Attributes_H Table

Table Name: Scan_Attributes_H
Created By: SIPS
Destroyed By: Stays resident until manually deleted by SIPS
Purpose: Provides translation between Run & Insertion_Date /seq/scan to Scene_ID
             for History Database. Scene ID is used extensively in other tables.

Number of entries/Run   Pre Run 2861 GS = 8064
             Post Run 2861 GS = 5760
Key   Scene_ID

Table 2-53. Scan_Attributes_H

Scan_Attributes Table Field Name	Data Type	Units	Null Constraint	Check Constraint	Comments
Scene_ID	NUMBER(12)	n/a		Unique key, points to run/sequence/scan	Oracle generated key
Run	NUMBER(10)	n/a	Not Null		Index
History_Insertion_Date	DATE	Oracle date			Date that the run information was inserted into the History database
Sequence	NUMBER(7)	n/a	Not Null		Index
Scan	NUMBER(6)	n/a	Not Null		

# Appendix A – Data Product Specification to Database mapping

The Data Product Specification (DPS) documents the L1B and L2 product files that are generated from the TES Ground Data System. Many of the attributes in the DPS are provided through the database. This section provides a mapping from the database to the DPS, and is organized around the DPS section structure. The Data Types mentioned are DPS designations. Where "No Map" is indicated the data in the DPS is obtained from other means than the database. In this case the Interface Control Document from the originating subsystem should be referenced.

From DPS Table 3-3: L1B Spectra Data Type Definition

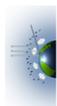| DPS Data Name	Database Table Name Column Name
Spectra	No direct map (file name contain the spectra in Target_Scene_Attributes table)

From DPS Table 3-4: L1B NESR Data Type Definition

DPS Data Name	Database Table Name Column Name
NESR	No direct map (file name contain the spectra in Target_Scene_Attributes table)
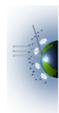
**From DPS Table 3-10: L1B Geolocation Data Type Definition: Geolocation_type**

DPS Data Name	DATABASE Table Name Column Name
Time_of_Geolocation	L1A_Engineering ::Time_of_ZPD
Geolocation_Failed	L1A_Geolocation:: Geolocation_Failed
OrbitAscendingFlag	L1A_Geolocation:: OrbitAscendingFlag
Path_Number	L1A_Geolocation:: Aura_Path_Number
Orbit_Inclination_Angle	L1A_Geolocation:: Orbit_Inclination_Angle
PCS_QA_Poor_Percentage	L1A_Geolocation:: PCS_QA_Poor_Percentage
DPREP_QA_Poor_Percentage	L1A_Geolocation:: DPREP_QA_Poor_Percentage
Latitude	L1A_Geolocation:: Latitude
Longitude	L1A_Geolocation:: Longitude
Elevation	L1A_Geolocation:: Elevation
Horizontal_Uncertainty	L1A_Geolocation:: Horizontal_Uncertainty
Elevation_Uncertainty	L1A_Geolocation:: Elevation_Uncertainty
Latitude_Footprint_1	L1A_Geolocation:: Latitude_Footprint_1
Latitude_Footprint_2	L1A_Geolocation:: Latitude_Footprint_2
Latitude_Footprint_3	L1A_Geolocation:: Latitude_Footprint_3
Latitude_Footprint_4	L1A_Geolocation:: Latitude_Footprint_4
Longitude_Footprint_1	L1A_Geolocation:: Longitude_Footprint_1
Longitude_Footprint_2	L1A_Geolocation:: Longitude_Footprint_2
Longitude_Footprint_3	L1A_Geolocation:: Longitude_Footprint_3
Longitude_Footprint_4	L1A_Geolocation:: Longitude_Footprint_4
SurfaceElevation	L1A_Geolocation:: Surface_Elevation

DPS Data Name	DATABASE Table Name Column Name
SurfaceElevStandardDeviation	L1A_Geolocation:: Surface_Elev_Std_Deviation
Min_Elev_Footprint	L1A_Geolocation:: Min_Elev_Footprint
Max_Elev_Footprint	L1A_Geolocation:: Max_Elev_Footprint
Surface_Type_Footprint	L1A_Geolocation:: Surface_Type_Footprint
Day_Night_Flag_Target	L1A_Geolocation:: Day_Night_Flag_Target
Day_Night_Flag_SC	L1A_Geolocation:: Day_Night_Flag_SC
LocalSolarTime	L1A_Geolocation:: LocalSolarTime
TES_Bsight_Azimuth	L1A_Geolocation:: TES_Bsight_Azimuth
TES_Bsight_Azimuth_Uncert	L1A_Geolocation:: TES_Bsight_Azimuth_Uncert
TESBoresightNadirAngle	L1A_Geolocation:: TESBoresightNadirAngle
TES_Bsight_Nadir_Uncert	L1A_Geolocation:: TES_Bsight_Nadir_Uncert
Grd_Trk_TES_Bsight_Azimuth	L1A_Geolocation:: Grd_Trk_TES_Bsight_Azimuth
SpacecraftAzimuth	L1A_Geolocation:: SpacecraftAzimuth
SpacecraftZenith	L1A_Geolocation:: SpacecraftZenith
Tgt_Sun_Azimuth	L1A_Geolocation:: Tgt_Sun_Azimuth
Tgt_Sun_Zenith_Angle	L1A_Geolocation:: Tgt_Sun_Zenith_Angle
SolarAzimuthAngle	L1A_Geolocation:: SolarAzimuthAngle
SolarZenithAngle	L1A_Geolocation:: SolarZenithAngle
M1_Mirror_Sun_Angle	L1A_Geolocation:: M1_Mirror_Sun_Angle
SpacecraftLatitude	L1A_Geolocation:: SpacecraftLatitude
SpacecraftLongitude	L1A_Geolocation:: SpacecraftLongitude
SpacecraftAltitude	L1A_Geolocation:: SpacecraftAltitude
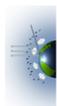
DPS Data Name	DATABASE Table Name Column Name
Doppler_Shift	L1A_Geolocation:: Doppler_Shift
Resolved_SC_Position_X	L1A_Geolocation:: Resolved_SC_Position_X
Resolved_SC_Position_Y	L1A_Geolocation:: Resolved_SC_Position_Y
Resolved_SC_Position_Z	L1A_Geolocation:: Resolved_SC_Position_Z
Resolved_SC_Velocity_X	L1A_Geolocation:: Resolved_SC_Velocity_X
Resolved_SC_Velocity_Y	L1A_Geolocation:: Resolved_SC_Velocity_Y
Resolved_SC_Velocity_Z	L1A_Geolocation:: Resolved_SC_Velocity_Z
Resolved_SC_Quaternion_Q1	L1A_Geolocation:: Resolved_SC_Quaternion_Q1
Resolved_SC_Quaternion_Q2	L1A_Geolocation:: Resolved_SC_Quaternion_Q2
Resolved_SC_Quaternion_Q3	L1A_Geolocation:: Resolved_SC_Quaternion_Q3
Resolved_SC_Quaternion_Q4	L1A_Geolocation:: Resolved_SC_Quaternion_Q4
Resolved_SC_Attitude_Pitch	L1A_Geolocation:: Resolved_SC_Attitude_Pitch
Resolved_SC_Attitude_Roll	L1A_Geolocation:: Resolved_SC_Attitude_Roll
Resolved_SC_Attitude_Yaw	L1A_Geolocation:: Resolved_SC_Attitude_Yaw
Resolved_SC_Pitch_Rate	L1A_Geolocation:: Resolved_SC_Pitch_Rate
Resolved_SC_Roll_Rate	L1A_Geolocation:: Resolved_SC_Roll_Rate
Resolved_SC_Yaw_Rate	L1A_Geolocation:: Resolved_SC_Yaw_Rate
PCS_Track	L1A_Geolocation:: PCS_Track
PCS_Crosstrack	L1A_Geolocation:: PCS_Crosstrack

From DPS Table 3-13: Engineering Dataset Type Definition: Engineering_type

Note: The DPS files are focal plane specific, while the database contains information from all focal planes for an observation. The software must select the correct column according to the focal plane being output. These fields include:

Filter_Identification
At_Index
ADC_Enabled
Elect_Filter
Fringe_Clock_Divisor
Signal_Chain_Gain
Detector_Temp

DPS Data Name	DATABASE Table Name Column Name
Scan	Scan_Attributes::Scan
Sequence	Scan_Attributes::Sequence
Time_of_Observation	L1A_Engineering:: Time_of_Observation
Filter_Identification	L1A_Engineering:: FP_2B_Filter FP_2A_Filter FP_1B_Filter FP_1A_Filter
ADC_Enabled	L1A_Engineering:: FP2B_ADC_Enabled FP2A_ADC_Enabled FP1B_ADC_Enabled FP1A_ADC_Enabled
Elect_Filter	L1A_Engineering:: FP2B_Elect_Filter FP2A_Elect_Filter FP1B_Elect_Filter FP1A_Elect_Filter
Fringe_Clock_Divisor	L1A_Engineering:: FP2B_Fringe_Clock_Divisor FP2A_Fringe_Clock_Divisor FP_1B_Fringe_Clock_Divisor FP_1A_Fringe_Clock_Divisor
AT_Index	L1A_Engineering:: FP_2B_AT_Index FP_2A_AT_Index

DPS Data Name	DATABASE Table Name Column Name
	FP_1B_AT_Index FP_1A_AT_Index
Filter_Wheel_Index	Not Mapped, translated filter positions to optical filter provided in Filter_Identification
Signal_Chain_Gain	L1A_Engineering:: Signal_Chain_Gain_2B Signal_Chain_Gain_2A Signal_Chain_Gain_1B Signal_Chain_Gain_1A
Detector_Temp	L1A_Engineering:: Detector_2B_Temp Detector_2A_Temp Detector_1B_Temp Detector_1A_Temp
Observation_Type	L1A_Engineering:: Observation_Type
ICS_Scan_Direction	L1A_Engineering:: Scan_Direction
Blackbody_Wall_Temp_#1	L1A_Engineering:: Black_Body_Wall_Temp_1
Blackbody_Wall_Temp_#2	L1A_Engineering:: Black_Body_Wall_Temp_2
Cold_Reference_Plate_Temp_#1	L1A_Engineering:: Cold_Reference_Plate_Temp_1
Cold_Reference_Plate_Temp_#2	L1A_Engineering:: Cold_Reference_Plate_Temp_2
Beamsplitter_Temp_#1	L1A_Engineering:: Beamsplitter_Temp_1
Beamsplitter_Temp_#2	L1A_Engineering:: Beamsplitter_Temp_2
Foreoptics_Temp	L1A_Engineering:: Foreoptics_Temp
M1_Mirror_Temp	L1A_Engineering:: M1_Mirror_Temp
M2_Mirror_Temp	L1A_Engineering:: M2_Mirror_Temp
Calibration_SS_Resistor_1	L1A_Engineering:: Cal_Resistor_1
Calibration_SS_Resistor_2	L1A_Engineering:: Cal_Resistor_2
OSE_Resistor_1	L1A_Engineering:: OSE_Resistor_1
OSE_Resistor_2	L1A_Engineering::

DPS Data Name	DATABASE Table Name Column Name
	OSE_Resistor_2
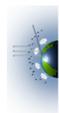
From DPS Table 3-16: L1A QA Dataset

Note: The DPS files are focal plane specific, while several of the database columns contain information from all focal planes. The software must obtain the information pertaining to the correct focal plane.

DPS Data Name	DATABASE Table Name Column Name
L1A_Ifgm_Dropout_Occurred	L1A_Quality:: L1A_Ifgm_Dropout_Occurred
L1A_Time_Date_Error_Occurred	L1A_Quality:: L1A_Time_Date_Error_Occurred
L1A_Sequence_Error_Occurred	L1A_Quality:: L1A_Sequence_Error_Occurred
L1A_Filter_Seq_Error_Occurred	L1A_Quality:: L1A_Filter_Seq_Error_Occurred
L1A_SC_Attitude_Out_Of_Spec	L1A_Quality:: L1A_Attitude_Out_Of_Spec
L1A_ICS_Direction_Out_Of_Sequence	L1A_Quality:: L1A_ICS_Dir_Out_Of_Sequence
L1A_ICS_Speed_Variation_Out_Of_Specification	L1A_Quality:: L1A_ICS_Speed_Out_Of_Spec
L1A_BB_Temperature_Out_Of_Specification	L1A_Quality:: L1A_BB_Temp_Out_Of_Spec
L1A_Cold_Ref_Plate_Temperature_Out_Of_Specification	L1A_Quality:: L1A_Cold_Ref_Temp_Out_Of_Spec
L1A_Engineering_Temperatures_Out_Of_Specification	L1A_Quality:: L1A_Eng_Temps_Out_Of_Spec
L1A_Channel_Shift	L1A_Quality:: L1A_Channel_Shift

From DPS Table 3-17: L1A Pixel QA Dataset

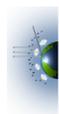| DPS Data Name	DATABASE Table Name Column Name
L1A_Spike_Occurred	L1A_Quality:: L1A_Spike_Occurred
L1A_DN_Overflow_Occurred	L1A_Quality:: L1A_DN_Overflow_Occurred
L1A_DN_Underflow_Occurred	L1A_Quality:: L1A_DN_Underflow_Occurred

From DPS Table 3-18: L1B Target Spectra Quality

Note: The DPS files are observation specific, while several of the database columns contains information from all focal planes/pixels. The software must obtain the information pertaining to the correct pixel, as data fields in DPS L1B Target Spectra Quality are dimensioned Sequences_dim x TES_pixel_dim

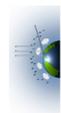| DPS Data Name	DATABASE Table Name Column Name
L1B_Zero_Padding	L1B_Tgt_Quality:: Zero_Padding
L1B_Zero_Padding_Flag	L1B_Tgt_Quality:: Zero_Padding_Flag
L1B_Missing_Cal_Table_Flag	L1B_Tgt_Spectra_Quality:: Missing_Cal_Table_Flag
L1B_Cal_Table_Quality_Flag	L1B_Tgt_Spectra_Quality:: Cal_Table_Quality_Flag
L1B_Phase_Alignment	L1B_Tgt_Spectra_Quality:: Phase_Alignment
L1B_Phase_Alignment_Flag	L1B_Tgt_Spectra_Quality:: Phase_Alignment_Flag
L1B_Absolute_Radiance_Mean_BT	L1B_Tgt_Spectra_Quality:: Abs_Radiance_Mean_BT
L1B_Absolute_Radiance_Mean_BT_Flag	L1B_Tgt_Spectra_Quality:: Abs_Radiance_Mean_BT_Flag
L1B_NESR_Mean	L1B_Tgt_Spectra_Quality:: NESR_Mean
L1B_NESR_Mean_Flag	L1B_Tgt_Spectra_Quality:: NESR_Mean_Flag
L1B_Imaginary_RMS	L1B_Tgt_Spectra_Quality:: Imaginary_RMS
L1B_Imaginary_RMS_Flag	L1B_Tgt_Spectra_Quality:: Imaginary_RMS_Flag
L1B_Imaginary_Mean	L1B_Tgt_Spectra_Quality:: Imaginary_Mean
L1B_Imaginary_Mean_Flag	L1B_Tgt_Spectra_Quality:: Imaginary_Mean_Flag

DPS Data Name	DATABASE Table Name Column Name
L1B_General_Quality_Flag	L1B_Tgt_Spectra_Quality:: General_Quality_Flag
L1B_General_Error_Flag	L1B_Tgt_Spectra_Quality:: General_Error_Flag

From DPS Table 3-19: L1B Nadir Brightness Temperatures

DPS Data Name	DATABASE Table Name Column Name
L1B_Nadir_ BT_11	L1B_Nadir_BT:: L1B_Nadir_BT_11
L1B_Nadir_ BT_12	L1B_Nadir_BT:: L1B_Nadir_BT_12
L1B_Nadir_ BT_8	L1B_Nadir_BT:: L1B_Nadir_BT_8
L1B_Nadir_BT5	L1B_Nadir_BT:: L1B_Nadir_BT_5
L1B_Nadir_BT10	L1B_Nadir_BT:: L1B_Nadir_BT_10
L1B_N_ Interpixel_Vari_BT10	L1B_Nadir_BT:: L1B_N_Interpixel_Vari_BT10
L1B_N_ Interpixed_Var_Exceeded_BT10	L1B_Nadir_BT:: L1B_N_Ipix_Var_Exceeded_BT10
L1B_N_ Interpixel_Vari_BT11	L1B_Nadir_BT:: L1B_N_Interpixel_Vari_BT11
L1B_N_ Interpixed_Var_Exceeded_BT11	L1B_Nadir_BT:: L1B_N_Ipix_Var_Exceeded_BT11

From DPS Table 3-20: L1B Limb Brightness Temperatures

DPS Data Name	DATABASE Table Name Column Name
L1B_Limb_ BT_11	L1B_Limb_BT:: L1B_Limb_BT_11
L1B_ Limb_ BT_12	L1B_Limb_BT:: L1B_Limb_BT_12
L1B_ Limb_ BT_8	L1B_Limb_BT:: L1B_Limb_BT_8
L1B_ Limb_ BT_5	L1B_Limb_BT:: L1B_Limb_BT_5
L1B_ Limb_ BT_10	L1B_Limb_BT:: L1B_Limb_BT_10

From DPS Table 3-21: L1 ECS Inventory Metadata

DPS Data Name	DATABASE Table Name Column Name
AssociatedInstrumentShortName	No map
AssociatedPlatformShortName	No map
AssociatedSensorShortName	No map
OperationMode	No map
ShortName	No map
VersionID	No map
ProductionDateTime	No map
SizeMBECSDataGranule	No map
LocalVersionID	No map
InputPointer	No map
ParameterName	No map
AutomaticQualityFlag	No map
AutomaticQualityFlagExplanation	No map
OperationalQualityFlag	No map
OperationalQualityFlagExplanation	No map
ScienceQualityFlag	No map
ScienceQualityFlagExplanation	No map
RangeBeginningDate (L2 – L1B uses Orbit begin/end date/time)	Run_Attributes:: Start_Time (Run_Attributes::Start_Time and Stop_Time is formatted in TAI, a conversion is required to break into Date and Time)
RangeBeginningTime (L2 – L1B uses Orbit begin/end date/time)	Run_Attributes:: Start_Time
RangeEndingDate (L2 – L1B uses Orbit begin/end date/time)	Run_Attributes:: Stop_Time
RangeEndingTime (L2 – L1B uses Orbit begin/end date/time)	Run_Attributes:: Stop_Time
PGEVersion	No map

From DPS Table 3-22: L1 Production History

DPS Data Name	DATABASE Table Name Column Name
ECS	No Map
Environment Variable	No Map
Fetch	No Map
SIPS PCF	No Map
Database (PRE)	No Map
Database (POST)	No Map
Workspace List (PRE)	No Map
Workspace List (POST)	No Map
Runtime	No Map
Store	No Map
Control Definition	No Map
Control Parameter	No Map
Control Parameter (Runtime)	No Map
TimeStamp	No Map
PGE Return Code	No Map
README	No Map
PGE Version	No Map
PGE Config records	No Map
Delivery Config Specifications	No Map
PGE specific configurations	No Map

From DPS Table 3-23: TES-Common Metadata

DPS Data Name	DATABASE Table Name Column Name
InstrumentName	No Map
ProcessLevel	No Map
TAI93AtOzOfGranule	No Map
GlobalSurveyNumber/ID	Run_Attributes ::Run_ID (or from command line)
GranuleMonth	Run_Attributes :: Start_Time
GranuleDay	Run_Attributes :: Start_Time
GranuleYear	Run_Attributes :: Start_Time
SurveyMode	No Map
PGEVersion	No Map

From DPS Table 3-24: TES-L1B-Common Metadata

DPS Data Name	DATABASE Table Name Column Name
Run_Counter	Run_Attributes:: Run (or from command line)
Orbital_Path_ID	L1B_Geolocation:: Aura_Path_Number
Absolute_Orbit_Number	L1B_Geolocation:: Orbit_Number
Time_Of_Observation_Start	L1A_Engineering:: Time_of_Observation (of first ifgm in orbit)
Time_Of_Observation_End	L1A_Engineering:: Time_of_Observation (of last ifgm in orbit)
Geolocation_Data_Missing	L1B_Geolocation:: Geolocation_Failed (per target scene)
L1A_Data_Missing	from L1A_Quality:: L1A_Fatal_Error_Occurred (does not contain missing scans, which may be indirectly inferred from Scan_Attributes)
L1B_Data_Missing	from L1B_Tgt_Spectra_Quality:: General_Error_Flag (does not contain missing scans)
Command_Sequence_ID	Run_Attributes::Command_Seq_ID
IceContamination	L1B_Performance::Ice_Integrated_Signal_Flag

From DPS Table 3-25: TES-L1B-Nadir Metadata

DPS Data Name	DATABASE Table Name Column Name
Start_Frequency	not mapped
Delta Frequency	not mapped

From DPS Table 3-26: TES-L1B-Limb Metadata

DPS Data Name	DATABASE Table Name Column Name
Start_Frequency	not mapped
Delta Frequency	not mapped

From DPS Table 4-4: L2 Nadir Primary Data Fields

DPS Data Name	DATABASE Table Name Column Name
[species]	L2_Species_Data:: VMR_Array
[species]Precision	L2_Species_Data:: Precision_Array
TotalError	L2_Species_Data:: Total_Error_Array (for update 3.1)
[species]VerticalResolution	L2_Species_Data:: Vertical_Resolution
ConstraintVector	Not mapped
AveragingKernel	Not mapped
TotalErrorCovariance	Not mapped
MeasurementErrorCovariance	Not mapped
ObservationErrorCovariance	Not mapped
Initial	Not mapped
AveragingKernelDiagonal	Not mapped
AirDensity	L2_Associated_Scene:: Air_Density
Pressure	L2_Associated_Scene:: Pressure_Array
Altitude	L2_Associated_Scene:: Pressure_Altitude_Array

From DPS Table 4-6: L2 Nadir Associated Data Fields

DPS Data Name	DATABASE Table Name Column Name
Scan_Averaged_Count	L2_Nadir_Geolocation:: Scan_Averaged_Count
SpeciesRetrievalQuality	L2_Associated_Scene_Species:: Species_Retrieval_Quality
CloudTopPressure	L2_Associated_Scene:: Cloud_Top_Pressure
CloudTopPressureError	L2_Associated_Scene:: Cloud_Top_Pressure_Error
CloudEffectiveOptical_Depth	L2_Associated_Scene:: Cloud_Effective_OD
CloudEffectiveOptical_DepthError	L2_Associated_Scene:: Cloud_Effective_OD_Error
AverageCloudEffOpticalDepth	L2_Associated_Scene_Species:: Average_Cloud_Effective_OD
AverageCloudEffOpticalDepthError	L2_Associated_Scene_Species:: Average_Cloud_Eff_OD_Error
SurfaceTemperature	L2_Associated_Scene:: Surface_Temperature
SurfaceTempError	L2_Associated_Scene:: Surface_Temperature_Error
SurfaceTempInitial	Not mapped
SurfaeTempDegreesOfFreedom	Not mapped
SurfaceTempObservationError	L2_Associated_Scene:: Surface_Temp_Obs_Error
SurfaceTempConstraint	Not mapped
SurfaceTempPrecision	Not mapped
TotalColumnDensity	L2_Associated_Scene_Species:: Total_Column_Density
TotalColumnDensityError	L2_Associated_Scene_Species:: Total_Column_Density_Error
TotalColumnDensityInitial	L2_Associated_Scene_Species:: Total_Column_Density_Initial
SpeciesRetrievalConverged	L2_Associated_Scene_Species:: Species_Retrieval_Converged
DeviationVsRetrievalCovariance	L2_Associated_Scene_Species:: Dev_Vs_Retrieval_Covar
RadianceResidualMean	L2_Associated_Scene_Species:: Radiance_Residual_RMS
RadianceResidualRMS	L2_Associated_Scene_Species:: Radiance_Residual_Mean
RadianceResidualMax	L2_Associated_Scene_Species:: Radiance_Residual_Max
NumbIterPerformed	L2_Associated_Scene_Species:: Numb_Iter_Performed
MaxNumIterations	L2_Associated_Scene_Species:: Max_Num_Iterations
DegreesOfFreedomForSignal	L2_Associated_Scene_Species:: Degrees_Freedom_for_Signal (for update 3.1)

DPS Data Name	DATABASE Table Name Column Name
InformationContent	L2_Associated_Scene_Species:: Information_Content
CloudVariability_QA	L2_Associated_Scene_Species:: Cloud_Variability_QA
KDotDL_QA	L2_Associated_Scene_Species:: KDotDL_QA
LDotDL_QA	L2_Associated_Scene_Species:: LDotDL_QA
Calibration_QA	L2_Associated_Scene_Species:: Calibration_QA
H2O_HDO_Corr_QA	L2_Associated_Scene_Species:: H2O_HDO_QA
SurfaceEmissMean_QA	L2_Associated_Scene_Species:: Surface_Emission_Layer_QA
SurfaceTempVsApriori_QA	L2_Associated_Scene_Species:: TSUR_vs_Apriori_QA
SurfaceTempVsAtmTemp_QA	L2_Associated_Scene_Species:: TSUR_vs_TATM0_QA
SurfaceEmissionLayer_QA	L2_Associated_Scene_Species:: Surface_Emission_Layer_QA
O3TroposphericColumn	L2_Associated_Scene:: Ozone_Trop_Column
O3TroposphericColumnError	L2_Associated_Scene:: Ozone_Trop_Column_Error
O3TroposphericColumnInitial	L2_Associated_Scene:: Ozone_Trop_Column_Initial
O3_Ccurve_QA	L2_Associated_Scene_Species:: O3_Ccurve_QA
Desert_Emiss_QA	L2_Associated_Scene_Species:: Desert_Emiss_QA
TATM_QA	L2_Associated_Scene_Species:: TATM_Retrieval_QA
O3_QA	L2_Associated_Scene_Species:: O3_Retrieval_QA
H2O_QA	L2_Associated_Scene_Species:: H2O_Retrieval_QA
UTCTime	L1A_Engineering:: Time_of_ZPD (requires conversion to UTC)

From DPS Table 5-6: TES-IRK-O3-Filter-Band Metadata

DPS Data Name	DATABASE Table Name Column Name
IRKBand	L2_IRK_Metadata:: IRK_Band
IRKCloudFreq	L2_IRK_Metadata:: IRKCloudFreq
IRKEmissFreq	L2_IRK_Metadata:: IRKEmissFreq

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DPS Data Name	DATABASE Table Name Column Name
FmFluxSegsCenterFreq	L2_IRK_Metadata:: FmFluxSegmentsCenterFreq
FmFluxSegsMinFreq	L2_IRK_Metadata:: FmFluxSegmentsMinFreq
FmFluxSegsMaxFreq	L2_IRK_Metadata:: FmFluxSegmentsMaxFreq
IRKSegsCenterFreq	L2_IRK_Metadata:: IRKSegmentsCenterFreq
IRKSegsMinFreq	L2_IRK_Metadata:: IRKSegmentsMinFreq
IRKSegsMaxFreq	L2_IRK_Metadata:: IRKSegmentsMaxFreq
SegmentWidth	L2_IRK_Metadata:: SegmentWidth
NadirResolution	L2_IRK_Metadata:: NadirResolution
ZenithGIAngles	L2_IRK_Metadata:: Zenith_GI_Angles

From DPS Table 5-7: IRK O3 Band Fields

DPS Data Name	DATABASE Table Name Column Name
O3IRK	L2_IRK_Scene:: IRK
FmBandFlux	L2_IRK_Scene:: FM_Band_Flux
L1BBandFlux	L2_IRK_Scene:: L1B_Band_Flux
L1BBandRadiance	L2_IRK_Scene:: L1B_Band_Radiance
FmFluxSegs	L2_IRK_Scene:: FM_Flux_Segments
L1BFluxSegs	L2_IRK_Scene:: L1B_Flux_Segments
O3LIRK	L2_IRK_Scene:: LIRK
O3IRKSegs	L2_IRK_Scene:: IRK_Segments_1-67 (67 fields combined)
H2OLIRK	L2_IRK_Scene:: H2O_LIRK
TATMIRK	L2_IRK_Scene:: TATM_IRK
SurfaceTemperatureIRK	L2_IRK_Scene:: TSUR_IRK
CloudEffectiveOpticalDepthLIRK	L2_IRK_Scene:: CEOD_LIRK
CloudTopPressureLIRK	L2_IRK_Scene:: CTP_LIRK

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DPS Data Name	DATABASE Table Name Column Name
SurfaceEmissivityIRK	L2_IRK_Scene:: Emis_IRK

From DPS Table 4-8: L2 Limb Primary Data Fields

DPS Data Name	DATABASE Table Name Column Name
[species]	L2_Species_Data:: VMR_Array
[species]Precision	L2_Species_Data:: Precision_Array
TotalError	L2_Species_Data:: Total_Error_Array
VerticalResolution	L2_Species_Data:: Vertical_Resolution
ConstraintVector	L2_Species_Data:: Constraint_Vector
AveragingKernel	Not mapped
TotalErrorCovariance	Not mapped
MeasurementErrorCovariance	Not mapped
ObservationErrorCovariance	Not mapped
Initial	Not mapped
AveragingKernelDiagonal	Not mapped
AirDensity	L2_Associated_Scene:: Air_Density
Pressure	L2_Associated_Scene:: Pressure_Array
Altitude	L2_Associated_Scene:: Pressure_Altitude_Array

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From DPS Table 4-10: L2 Limb Associated Data Fields

DPS Data Name	DATABASE Table Name Column Name
SpeciesRetrievalQuality	L2_Associated_Scene_Species:: Species_Retrieval_Quality
CloudTopPressure	L2_Associated_Scene:: Cloud_Top_Pressure
CloudTopPressureError	L2_Associated_Scene:: Cloud_Top_Pressure_Error
CloudEffectiveOpticalDepth	L2_Associated_Scene:: Cloud_Effective_OD
CloudEffectiveOpticalDepth Error	L2_Associated_Scene:: Cloud_Effective_OD_Error
AverageCloudEffOpticalDe pth	L2_Associated_Scene_Species:: Average_Cloud_Effective_OD
AverageCloudEffOpticalDe pthErrror	L2_Associated_Scene_Species:: Average_Cloud_Eff_OD_Error
TotalColumnDensity	L2_Associated_Scene_Species:: Total_Column_Density
TotalColumnDensityError	L2_Associated_Scene_Species:: Total_Column_Density_Error
TotalColumnDensityInitial	L2_Associated_Scene_Species:: Total_Column_Density_Initial
SpeciesRetrievalConverged	L2_Associated_Scene_Species:: Species_Retrieval_Converged
DeviationVsRetrievalCovari ance	L2_Associated_Scene_Species:: Dev_Vs_Retrieval_Covar
RadianceResidualMean	L2_Associated_Scene_Species:: Radiance_Residual_Mean
RadianceResidualRMS	L2_Associated_Scene_Species:: Radiance_Residual_RMS
RadianceResidualMax	L2_Associated_Scene_Species:: Radiance_Residual_Max
NumberIterPerformed	L2_Associated_Scene_Species:: Numb_Iter_Performed
MaxNumIterations	L2_Associated_Scene_Species:: Max_Num_Iterations
DegreesOfFreedomForSign al	L2_Associated_Scene_Species:: Degrees_Freedom_for_Signal
InformationContent	L2_Associated_Scene_Species:: Information_Content
CloudVariability_QA	L2_Associated_Scene_Species:: Cloud_Variability_QA
KDotDL_QA	L2_Associated_Scene_Species:: KDotDL_QA
LDotDL_QA	L2_Associated_Scene_Species:: LDotDL_QA
Calibration_QA	L2_Associated_Scene_Species:: Calibration_QA
H2O_HDO_Corr_QA	L2_Associated_Scene_Species:: H2O_HDO_QA

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DPS Data Name	DATABASE Table Name Column Name
UTCTime	L1A_Engineering:: Time_of_ZPD (requires conversion to UTC)

From DPS Table 4-12: L2 Ancillary Nadir Data Fields

DPS Data Name	DATABASE Table Name Column Name
SpacecraftLatitude	L2_Nadir_Geolocation:: Spacecraft_Latitude
SpacecraftLongitude	L2_Nadir_Geolocation:: Spacecraft_Longitude
SpacecraftAltitude	L2_Nadir_Geolocation:: Spacecraft_Altitude
OrbitAscendingFlag	L2_Nadir_Geolocation:: Orbit_Ascending_Flag
SolarAzimuthAngle	L2_Nadir_Geolocation:: Solar_Azimuth_Angle
PixelsUsedFlag	L2_Associated_Scene:: TES_Pixels_Used_Flag
O3TroposphericColumn	L2_Associated_Scene:: Ozone_Trop_Column_Error
O3TroposphericColumn Error	L2_Associated_Scene:: Ozone_Trop_Column
O3TroposphericColumn Initial	L2_Associated_Scene:: Ozone_Trop_Column_Initial
TropopausePressure	L2_Associated_Scene:: Tropopause_Pressure
SurfaceEmissivity	L2_Surface_Emissivity:: Surface_Emiss
SurfaceEmissErrors	L2_Surface_Emissivity:: Land_Surface_Emiss_Errors
SurfaceEmissConstraint	L2_Surface_Emissivity:: Surface_Emiss_Constraint
SurfaceEmissInitial	L2_Surface_Emissivity:: Surface_Emiss_Initial
HDO_H2ORatio MeasurementError Covariance	No map
HDO_H2ORatioSystematic ErrorCovariance	No Map
HDO_H2ORatioTotalError Covariance	No Map
HDO_H2OAveragingKernel	No Map
H2O_HDOAveragingKernel	No Map
Filter_Position_1A	L1A_Engineering::FP_1A_Filter
Filter_Position_1B	L1A_Engineering::FP_2B_Filter
Filter_Position_2A	L1A_Engineering::FP_2A_Filter

DPS Data Name	DATABASE Table Name Column Name
Filter_Position_2B	L1A_Engineering::FP_2B_Filter
UTCTime	L1A_Engineering:: Time_of_ZPD (requires conversion to UTC)
SurfaceTempInitialRefined	L2_Associated_Scene:: Surface_Temp_Initial_Refined

From DPS Table 4-13: L2 Ancillary Limb Data Fields

DPS Data Name	DATABASE Table Name Column Name
SpacecraftLatitude	L1A_Geolocation:: SpacecraftLatitude
SpacecraftLongitude	L1A_Geolocation:: SpacecraftLongitude
SpacecraftAltitude	L1A_Geolocation:: SpacecraftAltitude
OrbitAscendingFlag	L1A_Geolocation:: OrbitAscendingFlag
SolarAzimuthAngle	L1A_Geolocation:: SolarAzimuthAngle
PixelsUsedFlag	L2_Associated_Scene:: TES_Pixels_Used_Flag
TropopausePressure	L2_Associated_Scene:: Tropopause_Pressure
RetrievedPointingAngle	L2_Associated_Scene:: TES_Ret_Pointing_Angle
RetrievedPointingAngleError	L2_Associated_Scene:: TES_Ret_Pointing_Angle_Error
HDO_H2ORatioMeasurementErrorCovariance	No map
HDO_H2ORatioSystematicErrorCovariance	No map
HDO_H2ORatioTotalErrorCovariance	No map
HDO_H2OAveragingKernel	No map
H2O_HDOAveragingKernel	No map
Filter_Position_1A	L1A_Engineering::FP_1A_Filter
Filter_Position_1B	L1A_Engineering::FP_2B_Filter
Filter_Position_2A	L1A_Engineering::FP_2A_Filter
Filter_Position_2B	L1A_Engineering::FP_2B_Filter

From DPS Table 4-15: L2 Nadir Geolocation Fields

DPS Data Name	DATABASE Table Name Column Name
Sequence	Scan_Attributes::Sequence
Scan	Scan_Attributes::Scan
Time	L2_Nadir_Geolocation:: Time_of_ZPD
DayNightFlag	L2_Nadir_Geolocation:: Day_Night_Flag

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Latitude	L2_Nadir_Geolocation:: Latitude
Longitude	L2_Nadir_Geolocation:: Longitude
SurfaceElevStandardDeviation	L2_Nadir_Geolocation:: Surface_Elev_Std_Deviation
SurfaceTypeFootprint	L2_Nadir_Geolocation:: Surface_Type_Footprint
DominantSurfaceType	L2_Associated_Scene:: Dominant_Surface_Type
BoresightNadirAngle	L2_Nadir_Geolocation:: TES_Boresight_Nadir_Angle
BoresightNadirAngleUnc	L2_Nadir_Geolocation:: TES_Bsight_Nadir_Uncert
BoresightAzimuth	L2_Nadir_Geolocation:: TES_Bsight_Azimuth
SolarZenithAngle	L2_Nadir_Geolocation:: Solar_Zenith_Angle
LocalSolarTime	L2_Nadir_Geolocation:: Local_Solar_Time
Tgt_SpacecraftZenith	L2_Nadir_Geolocation:: Spacecraft_Zenith
Tgt_SpacecraftAzimuth	L2_Nadir_Geolocation:: Spacecraft_Azimuth
Latitude_Footprint_1	L2_Nadir_Geolocation:: Latitude_Footprint_1
Latitude_Footprint_2	L2_Nadir_Geolocation:: Latitude_Footprint_2
Latitude_Footprint_3	L2_Nadir_Geolocation:: Latitude_Footprint_3
Latitude_Footprint_4	L2_Nadir_Geolocation:: Latitude_Footprint_4
Longitude_Footprint_1	L2_Nadir_Geolocation:: Longitude_Footprint_1
Longitude_Footprint_2	L2_Nadir_Geolocation:: Longitude_Footprint_2
Longitude_Footprint_3	L2_Nadir_Geolocation:: Longitude_Footprint_3
Longitude_Footprint_4	L2_Nadir_Geolocation:: Longitude_Footprint_4

From DPS Table 4-16: L2 Limb Geolocation Fields

DPS Data Name	DATABASE Table Name Column Name
Sequence	Scan_Attributes::Sequence
Scan	Scan_Attributes::Scan
DayNightFlag	L1A_Geolocation:: Day_Night_Flag_Target
Time	L1A_Engineering:: Time_of_ZPD
Latitude	L1A_Geolocation :: Latitude
Longitude	L1A_Geolocation :: Longitude
SurfaceElevStandardDeviation	L1A_Geolocation:: Surface_Elev_Std_Deviation
SurfaceTypeFootprint	L1A_Geolocation:: Surface_Type_Footprint
BoresightNadirAngle	L1A_Geolocation :: TESBoresightNadirAngle

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BoresightNadirAngleUnc	L1A_Geolocation :: TES_Bsight_Nadir_Uncert
BoresightTangentHeight	L1A_Geolocation :: Elevation
BoresightTangentHeightUnc	L1A_Geolocation :: Elevation_Uncertainty
BoresightAzimuth	L1A_Geolocation :: TES_Bsight_Azimuth
SolarZnithAngle	L1A_Geolocation :: SolarAzimuthAngle
LocalSolarTime	L1A_Geolocation :: LocalSolarTime
Tgt_SpacecraftZenith	L1A_Geolocation :: SpacecraftZenith
Tgt_SpacecraftAzimuth	L1A_Geolocation :: SpacecraftAzimuth
Latitude_Footprint_1	L1A_Geolocation :: Latitude_Footprint_1
Latitude_Footprint_2	L1A_Geolocation :: Latitude_Footprint_2
Latitude_Footprint_3	L1A_Geolocation :: Latitude_Footprint_3
Latitude_Footprint_4	L1A_Geolocation :: Latitude_Footprint_4
Longitude_Footprint_1	L1A_Geolocation :: Longitude_Footprint_1
Longitude_Footprint_2	L1A_Geolocation :: Longitude_Footprint_2
Longitude_Footprint_3	L1A_Geolocation :: Longitude_Footprint_3
Longitude_Footprint_4	L1A_Geolocation :: Longitude_Footprint_4

From DPS Table 4-18: L2 ECS Inventory Metadata

DPS Data Name	DATABASE Table Name Column Name
AssociatedInstrumentShortName	No map
AssociatedPlatformShortName	No map
AssociatedSensorShortName	No map
OperationMode	No map
ShortName	No map
VersionID	No map
ProductionDateTime	No map
SizeMBECSDataGranule	No map
LocalGranuleID	No map
LocalVersionID	No map
InputPointer	No map
ParameterName	No map
AutomaticQualityFlag	No map
AutomaticQualityFlagExplanation	No map
OperationalQualityFlag	No map
OperationalQualityFlagExplanation	No map
ScienceQualityFlag	No map
ScienceQualityFlagExplanation	No map
RangeBeginningDate	Run_Attributes:: Start_Time (Run_Attributes::Start_Time and Stop_Time is formatted in TAI, a conversion is required to break into Date and Time)
RangeBeginningTime	Run_Attributes:: Start_Time
RangeEndingDate	Run_Attributes:: Stop_Time
RangeEndingTime	Run_Attributes:: Stop_Time
PGEVersion	No map

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From DPS Table 4-19: L2 Production History

DPS Data Name	DATABASE Table Name Column Name
ECS	No Map
Environment Variable	No Map
Fetch	No Map
SIPS PCF	No Map
Database (PRE)	No Map
Database (POST)	No Map
Workspace List (PRE)	No Map
Workspace List (POST)	No Map
Runtime	No Map
Store	No Map
Control Definition	No Map
Control Parameter	No Map
Control Parameter (Runtime)	No Map
TimeStamp	No Map
PGE Return Code	No Map
README	No Map
PGE Version	No Map
PGE Config records	No Map
Delivery Config specifications	No Map
Strategy Table Information	No Map
PGE specific configurations	No Map

From DPS Table 4-20: L2 TES-Common-Metadata

DPS Data Namee	DATABASE Table Name Column Name
InstrumentName	No Map
ProcessLevel	No Map
TAI93AtOzOfGranule	No Map
GlobalSurveyNumber/ID	Run_Attributes ::Run_ID (or from command line)
GranuleMonth	Run_Attributes :: Start_Time
GranuleDay	Run_Attributes :: Start_Time
GranuleYear	Run_Attributes :: Start_Time
SurveyMode	No Map
PGEVersion	No Map
IceContamination	L1B_TES_Performance :: Ice_Integrated_Signal_Flag (Provided by Scene_ID)

From DPS Table 4-21: TES-L2-Common-Metadata

DPS Data Name	DATABASE Table Name Column Name
Pressure	std_pressure_lvls::d_pressures
VerticalCoordinate	No Map
CloudFrequency	L2_Associated_Scene:: Cloud_Frequence
EmissivityWavenumber	L2_Surface_Emissivity:: Emissivity_Wavenumber

From DPS Table 4-22: TES-L2-Nadir-Metadata

DPS Data Name	DATABASE Table Name Column Name
ScanResolution	L1A_Engineering:: Resolution