













## 2 Production Rules

### 2.1 Overview

#### 2.1.1 PGE Description

L3 Products PGE creates the TES Level 3 standard products in HDF-EOS 5 and HDF5 files with the global maps associated with the standard data time period. It re-samples the TES Level 2 data onto a standard grid and then produces maps and global three-dimensional representations about the distribution of atmospheric gasses within the troposphere. L3 provides a browsing or “quick looks” of the TES observation results. The standard products from Level 3 are archived at the Distributed Active Archive Center (DAAC), which is also responsible for distributing the data to the science community.

The table below illustrates the molecular species and temperature reported for L2 nadir and limb retrievals, and which profiles are to be processed by the L3 Product PGEs under this release. Note that Limb CH<sub>4</sub>, CO, and HCN will not be produced in this software release.

**Table 1: View and Species Types**

Species	H2O	O3	CH4	CO	HCN	HDO	Temperature
Nadir Grid Objects	x	x	x	x	x	x	x
Limb Grid Objects	x	x				x	x

#### 2.1.2 Release Specific Information

Significant changes from Release 15.00 include:

N/A – Initial release of document

## 2.2 Files and Databases

### 2.2.1 Input and Output Files

The following table lists all input and output files used in this PGE. All .MCF files shall exist in *./MCF* directory and all .met and .he5 files shall exist in a *./out* directory directly below the run directory for the PGE. In the Filename column, <runID> indicates the 10 digit numeric value for run identifier. The format and content version are F01\_05 for the initial release of the Level 3 output products. This will increment upon further deliveries.

**Table 1** List of TES L3 Products PGE input/output files

ESDT name	Filename	Description	Input/ Output	File Size (bytes)
N/A	L3_Algorithm_OSP.asc	File containing the Level 3 algorithm parameters used during the PGE processing.	Input	1810
N/A	L3_Color_Table_OSP.cpt	File containing the color table inputs for the plots included in the Level 3 output products.	Input	169
N/A	L3_Plotting_OSP.asc	File containing the pressure level and VMR inputs for the Level 3 plotting routines.	Input	13225
N/A	L3_Products_def.dat	Parameter definition file containing the Parameter_Control, Program_Control, L3_Standard_Products, and the MCFLogicalId (map between ESDT Short name and MCF Logical ID) information.	Input	1910
N/A	L3_Products.pcf	Toolkit PCF file (SIPS template plus Level 3 specific information) ( ./control files/ )	Input	28935
N/A	TES.MCF	Contains TES-specific metadata specification Shared with L1B. ( ./MCF/ )	Input	11751
N/A	TL3ATD.006.MCF	Atmospheric temperature (daily) MCF file template needed for metadata.	Input	7275
N/A	TL3H2OD.006.MCF	H2O (daily) MCF file template needed for metadata.	Input	7276
N/A	TL3O3D.006.MCF	O3 (daily) MCF file template needed for metadata.	Input	7275
N/A	TL3COD.006.MCF	CO (daily) MCF file template needed for metadata.	Static Input	7275
N/A	TL3CH4D.006.MCF	CH4 (daily) MCF file template needed for metadata.	Static Input	7276
N/A	TL3HDOD.006.MCF	HDO (daily) MCF file template needed for metadata.	Static Input	7276
N/A	TL3HCND.006.MCF	NO2 (8-day) MCF file template needed for metadata.	Static Input	7277
N/A	TL3ATM.006.MCF	Atmospheric temperature (monthly) MCF file template needed for metadata.	Static Input	7276
N/A	TL3H2OM.006.MCF	H2O (monthly) MCF file template needed for metadata.	Static Input	7277
N/A	TL3O3M.006.MCF	O3 (monthly) MCF file template needed for metadata.	Static Input	7276



N/A	TL3COM.006.MCF	CO (monthly) MCF file template needed for metadata.	Static Input	7276
N/A	TL3CH4M.006.MCF	CH4 (monthly) MCF file template needed for metadata.	Static Input	7277
N/A	TL3HDOM.006.MCF	HDO (monthly) MCF file template needed for metadata.	Static Input	7277
N/A	TL3HCNM.006.MCF	HNO3 (monthly) MCF file template needed for metadata.	Static Input	7277
N/A	Browse.001.MCF	Browse product MCF file template needed for metadata	Static Input	1012

**collection\_type** = Daily, 8-day, Monthly

**Table 3** List of TES L3 Products PGE daily output files

<b>ESDT name</b>	<b>Filename</b>	<b>Description</b>	<b>Input/Output</b>	<b>File Size (bytes)</b>
TL3ATD	TES-Aura_L3-ATM-TEMP-r<runID>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 Atmospheric Temperatures Daily product HDF met file.	Output	5827
TL3H2OD	TES-Aura_L3-H2O-r<runID>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 H2O Daily product HDF met file.	Output	5827
TL3O3D	TES-Aura_L3-O3-r<runID>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 O3 Daily product HDF met f	Output	5827
TL3COD	TES-Aura_L3-CO-r<runID>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 CO Daily product HDF met file.	Output	5827
TLCH4D	TES-Aura_L3-CH4-r<runID>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 CH4 Daily product HDF met file.	Output	5827
TL3HDOD	TES-Aura_L3-HDO-r<runID>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 HDO Daily product HDF me file.	Output	5827
TL3HCND	TES-Aura_L3-HCN-r<runID>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 HCN Daily product HDF me file.	Output	5827
TL3ATD	TES-Aura_L3-ATM-TEMP-r<runID>_F<format_ver>_<content_ver>.he5	TES/Aura Level 3 Atmospheric Temperatures Daily product HDF file.	Output	Variable
TL3H2OD	TES-Aura_L3-H2O-r<runID>_F<format_ver>_<content_ver>.he5	TES/Aura Level 3 H2O Daily product HDF file	Output	Variable
TL3O3D	TES-Aura_L3-O3-r<runID>_F<format_ver>_<content_ver>.he5	TES/Aura Level 3 O3 Daily product HDF file.	Output	Variable
TL3COD	TES-Aura_L3-CO-r<runID>_F<format_ver>_<content_ver>.he5	TES/Aura Level 3 CO Daily product HDF file.	Output	Variable
TLCH4D	TES-Aura_L3-CH4-	TES/Aura Level 3 CH4 Daily product HDF file.	Output	Variable

	r<runID>_F<format_ver>_<content_ver>.he5			
TL3HDOD	TES-Aura_L3-HDO-r<runID>_F<format_ver>_<content_ver>.he5	TES/Aura Level 3 HDO Daily product HDF file	Output	Variable
TL3HCND	TES-Aura_L3-HCN-r<runID>_F<format_ver>_<content_ver>.he5	TES/Aura Level 3 HCN Daily product HDF file	Output	Variable
N/A	TES_L3-<species>_<runID>_<obs_view>_<pressure_level>_L2_Daily_Plot.png	TES/Aura Level 2 gridded daily product png file generated as a graphic output file.	Output	Variable
N/A	TES_L3-<species>_<runID>_<obs_view>_<pressure_level>_L3_Daily_Plot.png	TES/Aura Level 3 daily product png file generated as a graphic output file.	Output	Variable
N/A	TES_L3-<species>_<runID>_NADIR_SURFACE_VMR_L2_Daily_Plot.png	TES/Aura Level 2 NADIR gridded daily product png file, for surface VMR, generated as a graphic output file.	Output	Variable
N/A	TES_L3-<species>_<runID>_NADIR_SURFACE_VMR_L3_Daily_Plot.png	TES/Aura Level 3 NADIR daily product png file, for surface VMR, generated as a graphic output file.	Output	Variable
N/A	TES_L3-<species>_<runID>_<obs_view>_TOTAL_COLUMN_L2_Daily_Plot.png	TES/Aura Level 2 gridded daily product png file, for total column density, generated as a graphic output file.	Output	Variable
N/A	TES_L3-<species>_<runID>_<obs_view>_TOTAL_COLUMN_L3_Daily_Plot.png	TES/Aura Level 3 daily product png file, for total column density, generated as a graphic output file.	Output	Variable
N/A	TES_L3-O3_<runID>_<obs_view>_TROP_COLUMN_L2_Daily_Plot.png	TES/Aura Level 2 gridded daily product png file, for tropospheric column measurements, generated as a graphic output file.	Output	Variable
N/A	TES_L3-O3_<runID>_<obs_view>_TROP_COLUMN_L3_Daily_Plot.png	TES/Aura Level 3 daily product png file, for tropospheric column measurements, generated as a graphic output file.	Output	Variable
N/A	TES_L3-TATM_<runID>_<obs_view>_<day/night>_<pressure_level>_L2_Daily_Plot.png	TES/Aura Level 2 gridded daily product png file, for atmospheric temperature measurements, generated as a graphic output file.	Output	Variable
N/A	TES_L3-TATM_<runID>_<obs_view>_<day/night>_<pressure_level>	TES/Aura Level 3 daily product png file, for atmospheric temperature measurements, generated as a graphic output file.	Output	Variable

	L3_Daily_Plot.png			
N/A	TES_L3-TATM_<runID>_<obs_view>_<day/night>_SURFACE_TEMP_L2_Daily_Plot.png	TES/Aura Level 2 gridded daily product png file, for atmospheric temperature measurements at the surface, generated as a graphic output file.	Output	Variable
N/A	TES_L3-TATM_<runID>_<obs_view>_<day/night>_SURFACE_TEMP_L3_Daily_Plot.png	TES/Aura Level 3 daily product png file, for atmospheric temperature measurements at the surface, generated as a graphic output file.	Output	Variable
N/A	TES_L3-TATM_<runID>_<obs_view>_<day/night>_SURFACE_VMR_L2_Daily_Plot.png	TES/Aura Level 2 gridded daily product png file, for atmospheric temperature measurements for surface VMR, generated as a graphic output file.	Output	Variable
N/A	TES_L3-TATM_<runID>_<obs_view>_<day/night>_SURFACE_VMR_L3_Daily_Plot.png	TES/Aura Level 3 daily product png file, for atmospheric temperature measurements for surface VMR, generated as a graphic output file.	Output	Variable
N/A	Tmp_Postscript-<species>_<runID>_<obs_view>_<dataType>_<imageType>.ps	A postscript graphic file.	Output	Variable
N/A	L3_Products.log	A log file generated for every PGE invocation.	Output	Variable
N/A	L3_Products_Input_Run<runID>_<collection_type>.log	A data file specifying inputs for the PGE invocation.	Output	Variable
N/A	L3_Products_<runID>.errorlog	Optional error file produced if errors occur. This file is always sent to the SCF. The path is set by the environment variable FWErrorFile.	Output	Variable

**runID** = #####; **obs\_view** = NADIR, LIMB; **day/night** = DAY/NIGHT; **collection\_type** = Daily, 8-day, Monthly  
**species** = H2O, CO, CH4, NO2, HDO, HNO3, O3, ATM-TEMP; **format\_ver** = ##; **content\_ver** = ##;  
**imageType** = L2\_Daily/L3\_Daily; **dataType** = VMR/Pressure Level;

(eg. - TES-Aura\_L3-HNO3-r0000002147\_F01\_05.he5 or  
TES\_L3-CO\_0000002147\_NADIR\_SURFACE\_VMR\_L2\_Daily\_Plot.png)

**Table 4: List of TES L3 Products PGE monthly output files**

ESDT name	Filename	Description	Input/Output	File Size (bytes)
TL3ATM	TES-Aura_L3-ATM-TEMP-M<year>m<month>_F<format_ver>_<content_ver>01.he5.met	TES/Aura Level 3 Atmospheric Temperatures Monthly product HDF met file.	Output	5827
TL3H2OM	TES-Aura_L3-H2O-M<year>m<month>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 H2O Monthly product HDF met file.	Output	5827
TL3O3M	TES-Aura_L3-O3-M<year>m<month>_F<format_ver>_<content_ver>.he5.met	TES/Aura Level 3 O3 Monthly product HDF met file.	Output	5827

	ver> <content ver>.he5.met			
TL3COM	TES-Aura_L3-CO-M<year>m<month>_F<format_ver> <content ver>.he5.met	TES/Aura Level 3 CO Monthly product HDF met file.	Output	5827
TLCH4M	TES-Aura_L3-CH4-M<year>m<month>_F<format_ver> <content ver>.he5.met	TES/Aura Level 3 CH4 Monthly product HDF met file.	Output	5827
TL3HDOM	TES-Aura_L3-HDO-M<year>m<month>_F<format_ver> <content ver>.he5.met	TES/Aura Level 3 HDO Monthly product HDF met file.	Output	5827
TL3HCNM	TES-Aura_L3-HNO-M<year>m<month>_F<format_ver> <content ver>.he5.met	TES/Aura Level 3 HCN Monthly product HDF met file.	Output	5827
TL3ATM	TES-Aura_L3-ATM-TEMP-M<year>m<month>_F<format_ver> <content ver>.he5	TES/Aura Level 3 Atmospheric Temperatures Monthly product HDF file.	Output	Variable
TL3H2OM	TES-Aura_L3-H2O-M<year>m<month>_F<format_ver> <content ver>.he5	TES/Aura Level 3 H2O Monthly product HDF file.	Output	Variable
TL3O3M	TES-Aura_L3-O3-M<year>m<month>_F<format_ver> <content ver>.he5	TES/Aura Level 3 O3 Monthly product HDF file.	Output	Variable
TL3COM	TES-Aura_L3-CO-M<year>m<month>_F<format_ver> <content ver>.he5	TES/Aura Level 3 CO Monthly product HDF file.	Output	Variable
TLCH4M	TES-Aura_L3-CH4-M<year>m<month>_F<format_ver> <content ver>.he5	TES/Aura Level 3 CH4 Monthly product HDF file.	Output	Variable
TL3HDOM	TES-Aura_L3-HDO-M<year>m<month>_F<format_ver> <content ver>.he5	TES/Aura Level 3 HDO Monthly product HDF file.	Output	Variable
TL3HCNM	TES-Aura_L3-HCN-M<year>m<month>_F<format_ver> <content ver>.he5	TES/Aura Level 3 HCN Monthly product HDF file.	Output	Variable
N/A	TES_L3-<species>_M<year/month>_NADIR_<pressure_level>_L3_Monthly_Plot.png	TES/Aura Level 3 Monthly product png file. A graphic plot file used to create the browse images.	Output	Variable
N/A	TES_L3-<species>_M<year/month>_NADIR_TOTAL_COLUMN_L3_Monthly_Plot.png	TES/Aura Level 3 Monthly product png file. A graphic plot file used to create the browse images for total column density.	Output	Variable
N/A	TES_L3-O3_M<year/month>_NADIR_TROP_COLUMN_L3_Monthly_Plot.png	TES/Aura Level 3 Monthly product png file. A graphic plot file used to create the browse images for tropospheric column measurements.	Output	Variable
N/A	TES_L3-TATM_M<year/month>_NADIR_<day/night>_<pressure_level>_L3_Monthly_Plot.png	TES/Aura Level 3 Monthly product png file. A graphic plot file used to create the browse images for atmospheric temperatures.	Output	Variable
N/A	Tmp_Postscript-<species>_<runID>_<obs_view> <data Type> <image Type>.ps	A postscript graphic file.	Output	Variable

N/A	L3_Products.log	A log file generated for every PGE invocation.	Output	Variable
N/A	L3_Products_Input_Run<runID> <collection type>.log	A data file specifying inputs for the PGE invocation.	Output	Variable
N/A	L3_Products_<runID>.errorlog	Optional error file produced if errors occur. This file is always sent to the SCF. The path is set by the environment variable FWErrorFile.	Output	Variable

**runID** = #####; **day/night** = DAY/NIGHT; **collection\_type** = Daily, 8-day, Monthly  
**species** = H2O, CO, CH4, NO2, HDO, HNO3, O3, ATM-TEMP; **format\_ver** = ##; **content\_ver** = ##;  
**year/month** = YYYY/MM; **imageType** = L2\_Daily/l3\_Daily; **dataType** = VMR/Pressure Level;

(eg. - TES-Aura\_L3-O3-M2008m01\_F01\_05.he5 or  
TES\_L3-TATM\_M200801\_NADIR\_DAY\_100\_L3\_Monthly\_Plot.png)

**Table 5: List of TES L3 Products PGE browse output files**

ESDT name	Filename	Description	Input/Output	File Size (bytes)
Browse	TES-Aura-L3-<species>-r<runID>_F<format_ver>_<content_ver>B.h5.met	TES/Aura Level 3 Browse product HDF met file.	Output	Variable
Browse	TES-Aura-L3-<species>-r<runID>_F<format_ver>_<content_ver>B.h5	TES/Aura Level 3 Browse product HDF file.	Output	Variable
Browse	TES-Aura_L3-ATM-TEMP-r<runID>_F<format_ver>_<content_ver>.h5.met	TES/Aura Level 3 Atmospheric Temperatures daily Browse product HDF met file.	Output	Variable
Browse	TES-Aura_L3-ATM-TEMP-r<runID>_F<format_ver>_<content_ver>.h5	TES/Aura Level 3 Atmospheric Temperatures daily Browse product HDF met file.	Output	Variable
Browse	TES-Aura_L3-ATM-TEMP-M<year/month>_F<format_ver>_<content_ver>B.he5.met	TES/Aura Level 3 Atmospheric Temperatures monthly Browse product HDF met file.	Output	Variable
Browse	TES-Aura_L3-ATM-TEMP-M<year/month>_F<format_ver>_<content_ver>B.he5	TES/Aura Level 3 Atmospheric Temperatures monthly Browse product HDF file.	Output	Variable
N/A	L3_Products.log	A log file generated for every PGE invocation.	Output	Variable
N/A	L3_Products_Input_Run<runID> <collection type>.log	A data file specifying inputs for the PGE invocation.	Output	Variable
N/A	L3_Products_<runID>.errorlog	Optional error file produced if errors occur. This file is always sent to the SCF. The path is set by the environment variable FWErrorFile.	Output	Variable

**runID** = #####; **species** = H2O, CO, CH4, NO2, HDO, HNO3, O3, ATM-TEMP; **format\_ver** = ##;  
**content\_ver** = ##; **year/month** = YYYY/MM;

(eg. - TES-Aura\_L3-HNO3-r0000002147\_F01\_05B.h5 or  
TES-Aura\_L3-O3-M2008m01\_F01\_05B.h5)

### 2.2.1.2 Files to be sent to the DAAC

As part of normal daily processing, for each TES species retrieved there will be an ESDT and a browse product generated with their associated .met files, as defined in Table 3 and Table 5. These are to be archived to the DAAC as part of SIPS standard processing.

As part of normal monthly processing, for each TES species retrieved there will be an ESDT and a browse product generated with their associated .met files, as defined in Table 4 and Table 5. These are to be archived to the DAAC as part of SIPS standard processing.

### 2.2.1.3 Files to be sent to the SCF

Failed PGE packages should be sent to the SCF by SIPS.

The \*.png graphic and \*.ps postscript plot files generated during both daily and monthly processing should be sent the SCF for science team inspection, as defined in Tables 3 & 4.

The estimated size of the \*.png files is 58 Mb per Global Survey. The estimated size of the \*.ps files generated per Global Survey is 400 Mb. However, the postscript files should be tar'd up before transfer to the SCF. This will significantly reduce the size of the data by approximately 5x.

[NOTE: specific destination and method of file transfer from SIPS to SCF is **TBD**. Most likely it will be transferred to a directory at the SCF similar to other production PGEs  
/prod\_SIPS/<runID>/<YYYY\_MM\_DD>/L3\_<YYYY\_MM\_DD>]

## 2.2.2 Database

The Oracle database is the primary data source for L3\_Products.

### 2.2.2.2 Database Tables Attributes

Several database tables are used during the execution of L3\_Products. Summary information is provided below: For more detailed information about the database tables see the TES Ground Data System Database Definition, JPL D-23034 document.

Table 6 Database tables accessed by TES L3 Products PGE

Table Name	Description	Read/ Write/ Update*
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L1A_Geolocation	Contains geolocation information for Limb retrievals	R
L2_Nadir_Geolocation	Contains geolocation information for Nadir retrievals	R
L1A_Engineering	Contains time & filter position information	R
L2_Associated_Scene	Contains additional data that is applicable to both Nadir and Limb	R
L2_Associated_Scene_Species	Contains additional data per target scene per species for both Nadir and Limb	R
L2_Scene	Provides a map from target observations to the L2_Scene_ID	R
L2_Species_Data	Contains retrieval results.	R
Run_Attributes	Contains the start & stop times used by L2_Products	R
Scan_Attributes	Provides a map from run, sequence, scan to scene ID.	R

\* - R/W/U = Read/Write/Update

Table Name: **L1A\_Geolocation**  
 Populated By: L1A Geolocation PGE  
 Purpose: Provides geolocation calculated by L1A – used by L1B Reformat PGE in creation of standard data product

Table Name: **L2\_Nadir\_Geolocation**  
 Populated By: L2 Retrieval PGE  
 Purpose: Supporting L2 Retrieval to L2 Products interface; provides averaged nadir geolocation data calculated by L2 - used by L2 Products PGE in creation of averaged Nadir data product

Table Name: **L1A\_Engineering**  
 Populated By: L1A Main  
 Purpose: Provides temperatures and other engineering attributes based on scan

Table Name: **L2\_Associated\_Scene**  
 Populated By: L2 Retrieval PGE  
 Purpose: Supporting L2 Retrieval to L3 Products interface; data that is per target scene for both nadir and limb.

Table Name: **L2\_Associated\_Scene\_Species**  
 Populated By: L2 Retrieval PGE  
 Purpose: Supporting L2 Retrieval to L3 Products interface; data that is per target scene per species for both nadir and limb.

Table Name: **L2\_Scene**  
 Populated By: L2\_Retrieval

Purpose:	Supporting L2 Retrieval to L3 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 (i.e. - 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.
Table Name:	<b>L2_Species_Data</b>
Populated By:	L2_Retrieval
Purpose:	Supporting L2 Retrieval to L3 Products interface; provides VMR per species and FM pressure level or target scenes
Table Name:	<b>Run_Attributes</b>
Populated By:	L1A Main
Purpose:	Provides attributes specific to an entire Run, a start/stop time for each instrument run processed
Table Name:	<b>Scan_Attributes</b>
Populated By:	L1A Main
Purpose:	Provides translation between run/seq/scan to Scene_ID. Scene ID is used extensively in other tables.

## 2.3 PGE Execution

The L3 Products PGE is executed either once per Global Survey or once per month (appx. 15 GSs).

Before running the PGE:

- The environment variables listed below need to be set.
- The Parameter Definition file needs to reside in the top-level directory, or where the PGE will be executed from. Optionally, the Control\_Parameter file may be used or the *Program\_Control* may be supplied at the command line.
- The database needs to exist with the tables listed above and be populated.
- All inputs files listed in Table 2 above need to reside in the proper places, i.e., PCF/pcf\_test.dat, MCF/TES.MCF, etc.
- All files paths in the L3\_Products.pcf and L3\_Products\_def.dat must be updated to point explicitly to the directory where the files reside, especially the MCF files.

To execute the standard daily processing of the L3 Products PGE, the command-line arguments are:

```
L3_Products_Main -deffile L3_Products_def.dat -parameters 'Program_Control { run = "<runID>"; }'
```





To execute the standard monthly processing of the L3 Products PGE, the command-line arguments are:

```
L3_Products_Main -deffile L3_Products_def.dat -parameters 'Program_Control { granuleType =  
"Monthly"; month = "<year-month>"; }'
```

where <year-month> is a string with a format "yyyy-mm", ex. "2008-01"

## **2.3.1 Environment**

### **2.3.1.2 Environment Variables**

To set up general environment variables:

```
Source /vobs/L3_Products/control_files/setup_env
```

The environment variables that need to be set for use in R10 are:

#### **1. Oracle Environments**

ORACLE\_BASE

ORACLE\_HOME

ORACLE\_PATH

SID – <database>

ORACLE\_SID – <database>

DB\_USER – <user name>

DB\_PWD - <password>

#### **2. FW Environments**

FWErrorFile – Error log file, set to “./L3\_Products\_{runID}.errorlog”.

ErrorCodeFile – Header file containing all error code, set to the full path to where “error\_code.h” resides, i.e., Framework/Exception/error\_code.h.

#### **3. Other**

PGSHOME – set to the current location of the SDPTK, i.e. /pkg/pgs/SDPTK5.2.14v1

L3\_OSP\_PATH – set to current location of the L3 OSP directory

GMTHOME – set to current location of the L3 control\_files directory

MAGICK\_CONFIGURE\_PATH – set to current location of L3 control\_files/im\_config directory

PGS\_PC\_INFO\_FILE – set to the location of the toolkit PCF file.

LD\_LIBRARY\_PATH – (this path must include: \$ORACLE\_HOME)



### 2.3.1.3 Parameter Definition File

Parameter definition and control files are prepared according to the Framework Programmer's Guide. The parameter definition file will be provided to the SIPS and is listed below:

#### L3\_Products\_def.dat

```
Parameter_Control {
  TESMCFname string 512 "../MCF/TES.MCF" //TES MCF file name;
  LogfileName string 100 "../out/L3_Products.log" // Log file name;
  VerboseMode radio Verbose true Normal false Quiet false // Log mode;
}

Program_Control {
  granuleType string 10 "Daily" // Valid granule type - "Daily", "8-Day", "Monthly";
  viewMode string 10 "All" // Valid view mode - "All", "NadirOnly",
  "LimbOnly";
  speciesList string 100 "" // Species list - the default means all or a list of
  species delimited by comma;
  run string 200 "" // One or more Run IDs delimited by comma;
  runToExclude string 200 "" // One or more Run IDs to exclude, can only be
  used with months;
  month string 200 "" // One or more months delimited by comma, ex.
  "2006-10,2006-11";
  formatVersion int 1 1000 1 // Format Version number based on Format
  changes;
  contentVersion int 1 10000 5 // Content Version number based on content
  changes;
  diagnosticsFlag bool false // Output diagnostics files;
}

MCFLogicalID {
  TL3ATD int 0 100000 13211 // TES Aura L3 Daily MCF logical IDs;
  TL3H2OD int 0 100000 13215;
  TL3O3D int 0 100000 13221;
  TL3COD int 0 100000 13225;
  TL3CH4D int 0 100000 13231;
  TL3HDOD int 0 100000 13235;
  TL3ATM int 0 100000 13251 // TES Aura L3 Monthly MCF logical IDs;
  TL3H2OM int 0 100000 13255;
  TL3O3M int 0 100000 13261;
  TL3COM int 0 100000 13265;
  TL3CH4M int 0 100000 13271;
  TL3HDOM int 0 100000 13281;
  TL3Browse int 0 100000 13291 //TES Aura L3 Browse MCF logical ID;
  TL3HCND int 0 100000 13461;
  TL3HCNM int 0 100000 13471;
  TL3ACETD int 0 100000 13481;
  TL3ACETM int 0 100000 13491;
}
```

#### 2.3.1.4 Triggering Conditions

In daily production, the L3\_Products PGE is triggered upon completion of the last L2\_Retrieval PGE for a global survey. The L3 Products PGE processes all of the data for one global survey per instantiation.

Once a month, SIPS is to trigger the L3\_Products PGE for a predefined monthly period. This is defined to be all run IDs that have a start time in the calendar month. The L3 Products PGE determines, via a Oracle query, which run IDs start in the specified in the command line.

#### 2.3.1.5 Completion Indication

L3 Products PGE will return 0 for successful completion and non-zero for failure. Success status should be returned only after the ESDT's are successfully generated.

If this PGE fails due to PGE error, no further L3 processing for this run is scheduled.

If this PGE fails due to SIPS error it needs to be restarted from the beginning of the run. The L3\_Products PGE cannot be restarted mid-run.

L3\_Products PGE creates \*.png and \*.ps files.

To view \*.png files use `/user/bin /display <filename>`

To view \*.ps files use `/user/bin /gcv <filename>`

### 2.3.2 Processing Details

#### 2.3.2.2 Processing Summary

1. Validate that input files are present, including TES MCF and ECS MCF. These files are listed in Table
2. Generate a L3 Standard and Browse Products (.he5, .h5 & .met) for each species type listed above in Table 1.
3. Upon completion of the Level 3 Products PGE execution, transfer \*.png and \*.ps graphic files from PGE output directory to TBD SCF directory. These files are also to be archived with the L3 Products standard output files at the SIPS.
4. Upon completion of processing SIPS is to remove temporary files from working directory. The temporary intermediate files have file suffixes of \*.cpt

### 2.3.2.3 Expected Elapsed Time

TBD.

## 2.4 Resources

### 2.4.1 Number of CPUs

Only one CPU is required to perform operation of this PGE during the R10 timeframe.

### 2.4.2 Expected CPU Time

TBD.

### 2.4.3 Expected Disk Usage

TBD.

### 2.4.4 Database Usage

See TES Ground Data System Database Definition document.

## 3 Dependencies, Liens and Constraints

### 3.1 Dependencies and Liens

None.

### 3.2 Constraints

None.

## 4 Revision Summary

## 5 Acronyms

CC	ClearCase
CM	Configuration Management
DAAC	Distributed Active Archive Center
DPS	Data Product Specification
EOS	Earth Observing System
ESDT	Earth Science Data Type
FW	Framework
GDS	Ground Data System

GS	Global Survey
HDF	Hierarchical Data Format
ITSS	Information Technology and Scientific Services
JPL	Jet Propulsion Laboratory
L1A	Level1A Subsystem
L1B	Level 1B Subsystem
L2	Level-2 Subsystem
L3	Level-3 Subsystem
MCF	Metadata Configuration File
OSP	Operational Support Products
PCF	Process Control File
PEM	Project Element Manager
PGE	Product Generation Executive
R10	Release 10
RDD	Release Description Document
SCF	Science Computing Facility
SDP	Science Data Product
SDPTK	Science Data Processing Toolkit
SIPS	Scientific Investigator-led Processing System
SO	Special Observation
SRD	Software Requirements Document
TES	Tropospheric Emission Spectrometer