Clouds and the Earth's Radiant Energy System (CERES)

Data Management System

Operator's Manual

Grid Geostationary Narrowband Radiances (Subsystem 11)

CER11.7P1

Release 5
Version 5

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Document Revision Record

The Document Revision Record contains information pertaining to approved document changes. The table lists the date the Software Configuration Change Request (SCCR) was approved, the Release and Version Number, the SCCR number, a short description of the revision, and the revised sections. The document authors are listed on the cover. The Head of the CERES Data Management Team approves or disapproves the requested changes based on recommendations of the Configuration Control Board.

Document Revision Record

SCCR Approval Date	Release/ Version Number	SCCR Number	Description of Revision	Section(s) Affected
11/27/01	R3V2	311	• Changed Alternate Analyst information.	All
			• Added control flag runtime parameter to indicate whether PGEs are first or second pass.	1.0-10.0
			• Changed PGEs CER11.1P1-4 and CER11.2P1 to be first pass PGEs. Run-time parameters, output product names have been modified. Secondary inputs (MOA, ESNOW, EICE) for CER11.1P1-4 were eliminated.	1.0-4.0, 9.0
			• Added second pass PGEs CER11.1P5-8 and CER11.2P2.	5.0-8.0, 10.0
			• Added PGE CER11.3P1: Recalibrate GGEO Input Radiance Data.	11.0
			• Added PGE CER11.4P1: Create Correlation Plots of GGEO vs. VIRS Cloud Data.	12.0
			• Added PGE CER11.5P1: Create Geostationary Regression Coefficients.	13.0
			• Deleted cloud inputs not needed for first pass processing.	1.3.3, 1.3.4, 1.3.5, 2.3.2, 2.3.3, 2.3.4, 3.3.2, 3.3.3, 3.3.4, 4.3.2, 4.3.3 & 4.3.4
			• Updated format to comply with standards.	All
03/25/02	R3V3	329	• Added PCFin, PCF, and Log files to Expected Output Dataset(s) tables.	1.6, 2.6, 3.6, 4.6, 5.6, 6.6, 7.6, 8.6, 9.6, 10.6, 11.6, 12.6 & 13.6
			• Updated format to comply with standards.	All
06/07/02	R3V4	366	• Added desert scratch files to Expected Temporary Files table for PGE CER11.3P1.	11.7
			• Updated format to comply with standards.	All

Document Revision Record

SCCR Approval Date	Release/ Version Number	SCCR Number	Description of Revision	Section(s) Affected
09/03/02	R3V5	379	• In Table 12-6, the cal_coeffs files which get created or appended to in the data/ancillary/dynamic directory are the permanent output files. The cal_coeffs files in the data/out_comp/coeffs were previously listed in this table, but they were moved to Table 12-7, the table for Expected Temporary files. Note that the number and name of the files have also changed.	11.6 & 11.7
			• Updated the Total Run Time statistic in the Memory/Disk Space/Time Requirements sections for PGEs 11.1P5-8, 11.2P2, 11.3P1, 11.4P1, and 11.5P1.	5.2.5, 6.2.5, 7.2.5, 8.2.5, 9.2.5, 10.2.5, 11.2.4, 12.2.4, & 13.2.4
			• Updated format to comply with standards.	All
03/31/03	R3V6	426	• Updated image file naming conventions.	1.3.1, 1.3.2, 2.3.1, 3.3.1, 4.3.1, 5.3.1, 5.3.2, 6.3.1, 7.3.1, 8.3.1
			• Added new expected QA output files for first pass main processor.	1.6, 2.6, 3.6, 4.6
			• Updated format to comply with standards.	All
11/24/03	R3V7	486	• Two modifications to Table 12-5, "Expected Output File Listing for CER11.4P1" - ($SS11_4}_{$PS11_4}_{$CC11_4} added to CER_cloudplot.ps filename - new file, CER_cloudplot*.stats, added to table.	12.6
			• Updated sections describing the B1 Input dataset file names for GOES-8 and GOES-9/10.	1.3.1, 1.3.2, 2.3.1, 5.3.1, 5.3.2, 6.3.1
			• Updated format to comply with standards.	All
04/12/04	R3V8	518	• Removed all references to PGE CER11.5P1.	Document Overview, Sec.13 (removed)
			• The Generic PGE Entries were removed from Appendix C.	Appendix C
			• Updated format to comply with standards.	All

Document Revision Record

SCCR Approval Date	Release/ Version Number	SCCR Number	Description of Revision	Section(s) Affected
03/07/05	R3V9	553	• Added information for two new PGEs: CER11.1P10 and CER11.6P1.	Document Overview, Subsystem Overview, 9.0-9.7, 14.0-14.7
			• Added numBATCHjobs info to main processor automated job procedures.	1.2.1, 1.4.2, 2.2.1, 2.4.2, 3.2.1, 3.4.2, 4.2.1, 4.4.2, 5.2.1, 5.4.2, 6.2.1, 6.4.2, 7.2.1, 7.4.2
			• Corrected startDay comment to show that value can be a single zero (0) rather than a double zero string (00).	1.4.3, 2.4.3, 3.4.3, 4.4.3, 5.4.3, 6.4.3, 7.4.3, 8.4.3
			• Removed reference to orbital files from main processor sections except those for GOES-8 non-McIDAS.	2.4.3, 3.4.3, 4.4.3, 6.4.3, 7.4.3, 8.4.3
			• Removed "$" from variable names in the expected output file tables. The "{ }" notation is sufficient to designate variables.	1.6, 2.6, 3.6, 4.6, 5.6, 6.6, 7.6, 8.6, 10.6, 11.6, 12.6, 13.6
			• Removed "$" from variable names in the Expected Temporary Files/Directories tables. The "{ }" notation is sufficient to designate variables.	1.7, 2.7, 3.7, 4.7, 5.7, 6.7, 7.7, 8.7
			• Removed repetition of PGE number.	10.0, 11.0
			• Corrected GGEO output file size, 1775 MB -> 1933 MB.	10.6, 11.6, 12.3.1, 13.3.1
			• Changed "VIRS" references to "CERES".	Subsystem Overview, 11.1.4, 12.0, 13.0
			• Modified Temporary File file names for PGE CER11.4P1. Specifically, three REGAVG files have been combined into a single (i.e. one) file.	13.7
			• Added pge name CER11.1P10 to table.	11.1.3
			• Added pge name CER11.6P1 to table.	11.1.4
			• Added pge name CER11.6P1 to table.	13.1.3
			• Updated format to comply with standards.	All

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SCCR Approval Date	Release/ Version Number	SCCR Number	Description of Revision	Section(s) Affected
08/25/06	R4V1	636	• Added new satellite name in the valid values list. • Updated format to comply with standards.	9.2.1, 9.3.1 All
05/28/08	R5V1	675	• Added new section to include PGE CER11.7P1 information. • The word "meta" was added in red to the "Destination" column for output file CER_ISCCP-D2like. (11/12/2008)	15.0 Table 15-5
05/16/07	R5V2	653	• Updated sections to reflect the new directory structure mandated by SEC. • Modified table for clarity. (07/14/2009) • Added "P1" to ESNOW and EICE filenames. (07/28/2009) • The pcf script "gen_pcf_ggeomain_mcidas.csh" was changed to "gen_pcf_ggeomain.csh" to correspond with the Test Plan. (08/18/2009) • Removed Appendix C - Sample ASCII (PCFin) File Listing since PCFin files are no longer required. (09/17/2009)	9.0, 11.0, 13.0 Table 9-7 Secs. 9.3.3 & 9.3.4 Sec. 9.4.4 App. C
10/28/09	R5V3	736	• Updated pcf, run scripts directory path location from bin directory to rcf directory for PGE CER11.7P1. • Removed CER_cloudplot.ps and CER_cloudplot.stats files from the expected output table. (This was corrected in the SCCR 653 GGEO Operator's Manual, so we also needed to update this operator's manual with the same information.) (03/04/2010) • Removed (.met) from the CER_QCRPT file in the expected output table. (This was corrected in the SCCR 653 GGEO Operator's Manual, so we also needed to update this operator's manual with the same information.) (03/05/2010)	Secs. 15.4 & 15.5 Table 13-5 Table 13-5
03/04/10	R5V4	757	• Initial delivery of PGE 11.6P1 on *magneto*. Updated directory structure to comply with the SEC requirements. • A "/" was left out of the PCF output file. (03/11/2010) • Added "Available Through Ordering Tool" column and removed red "meta" from expected output tables. (09/14/2010)	Secs. 14.3.2, 14.4.2 -14.4.4, 14.5.4 Table 14.6 Table 14.6 All Expected Output Tables

Document Revision Record

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03/04/10 (Cont'd)	R5V4	757	• Modified a link and document title name. (04/10/2012)	References
07/25/12	R5V5	916	• Removed PGEs 11.1P1 – 11.P8, 11.1P10, 11.2P1, 11.2P2, 11.3P1, 11.4P1, and 11.6P1.	Secs. 1.0 – 14.0
			• Added new environment variables.	Sec. 1.2.2
			• Updated file path name.	Sec. 1.3.1
			• Modified PCF script name.	Sec. 1.4.2
			• Added instructions to run process using SGE.	Sec. 1.4.3
			• Modified expected output file listing directory path for ISCCP-D2like and removed PCFin file. (02/20/2013)	Table 1-5
			• Added PCF.log and summary output files. (02/21/2013)	Table 1-5
			• Removed "PCF" from summary output file. (02/22/2013)	Table 1-5
			• Modified input data file disposition to make it consistent with FMP changes. (09/04/2013)	Sec 1.3.1
			• Updated output product destination. (09/04/2013)	Table 1-5
			• Modified formatting of filename (needed "{" instead of "(". (10/07/2013)	Table 1-5
			• Fixed some cross reference link issues. (10/10/2013)	All
			• Removed the "summary" output file. (05/07/2014)	Table 1-5
			• Replaced PGE CER11.1P1 - CER11.1P4 and CER11.2P1 with PGE CER11.7P1. (03/25/2015)	App. B

Preface

The Clouds and the Earth's Radiant Energy System (CERES) Data Management System supports the data processing needs of the CERES Science Team research to increase understanding of the Earth's climate and radiant environment. The CERES Data Management Team works with the CERES Science Team to develop the software necessary to support the science algorithms. This software, being developed to operate at the Langley Atmospheric Science Data Center (ASDC), produces an extensive set of science data products.

The Data Management System consists of 12 subsystems; each subsystem represents one or more stand-alone executable programs. Each subsystem executes when all of its required input data sets are available and produces one or more archival science products.

This Operator's Manual is written for the data processing operations staff at the Langley ASDC by the Data Management Team responsible for this Subsystem. Each volume describes all Product Generation Executables for a particular subsystem and contains the Runtime Parameters, Production Request Parameters, the required inputs, the steps used to execute, and the expected outputs for each executable included within this Subsystem. In addition, all subsystem error messages and subsequent actions required by the ASDC operations staff are included.

Acknowledgment is given to the CERES Documentation Team for their support in preparing this document.

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Introduction

CERES is a key component of EOS and NPP. The first CERES instrument (PFM) flew on TRMM, four instruments are currently operating on the EOS Terra (FM1 and FM2) and Aqua (FM3 and FM4) platforms, and NPP (FM5) platform. CERES measures radiances in three broadband channels: a shortwave channel (0.3 - 5 μm), a total channel (0.3 - 200 μm), and an infrared window channel (8 - 12 μm). The last data processed from the PFM instrument aboard TRMM was March 2000; no additional data are expected. Until June 2005, one instrument on each EOS platform operated in a fixed azimuth scanning mode and the other operated in a rotating azimuth scanning mode; now all are typically operating in the fixed azimuth scanning mode. The NPP platform carries the FM5 instrument, which operates in the fixed azimuth scanning mode though it has the capability to operate in a rotating azimuth scanning mode.

CERES climate data records involve an unprecedented level of data fusion: CERES measurements are combined with imager data (e.g., MODIS on Terra and Aqua, VIIRS on NPP), 4-D weather assimilation data, microwave sea-ice observations, and measurements from five geostationary satellites to produce climate-quality radiative fluxes at the top-of-atmosphere, within the atmosphere and at the surface, together with the associated cloud and aerosol properties.

The CERES project management and implementation responsibility is at NASA Langley. The CERES Science Team is responsible for the instrument design and the derivation and validation of the scientific algorithms used to produce the data products distributed to the atmospheric sciences community. The CERES DMT is responsible for the development and maintenance of the software that implements the science team's algorithms in the production environment to produce CERES data products. The Langley ASDC is responsible for the production environment, data ingest, and the processing, archival, and distribution of the CERES data products.

Document Overview

This document, Grid Geostationary Narrowband Radiances Release 5 Operator's Manual, is part of the CERES Subsystem 11, often referred to as GGEO, delivery package provided to the Langley Atmospheric Science Data Center (ASDC). It provides a description and explains the procedures for executing the CERES Subsystem 11 software. A description of the acronyms and abbreviations is provided in Appendix A. A list of messages that can be generated during the execution of PGE CER11.7P1 is contained in Appendix B.

This document is organized as follows:

Subsystem Overview

The CERES project uses satellite-mounted scanner instruments to collect broadband radiative flux measurements around the globe. The purpose of collecting these data is to help atmospheric scientists better understand the Earth's radiant energy budget and to provide them with data for building better global climate models.

One shortcoming of the CERES data is that the number of satellites collecting the data is limited to a few orbiting platforms. Because of the orbital characteristics of these platforms, the CERES instruments can view any region on the Earth at most only two or three times during a 24-hour period. Therefore, every region will have large time gaps for which no observational broadband data will be available.

To help interpolate the data through the gaps, the CERES Project uses narrowband measurements collected by the International Satellite Cloud Climatology Project (ISCCP). The ISCCP data are collected primarily from instruments aboard geostationary satellites which view large areas of the Earth continuously and thus can provide a pattern for the diurnal variations of the regions within those areas. The geostationary satellites are at high altitudes, and near-global coverage can be achieved with as little as four or five strategically located satellites. The ISCCP project also collects data from polar orbiting satellites which provide some, but not continuous, coverage at the high latitude regions which are not visible from the geostationary platforms.

GGEO is the Subsystem which grids the ISCCP narrowband data within regions defined by the CERES one-degree nested grid and averages the data over each hour. The CERES Project will only use ISCCP data from every third hour. Currently, only data from geostationary satellites is being used.

The GGEO subsystem is designed to run as a two-pass processing system. During the first pass, input data is processed with default count conversion coefficients. Cloud processing is turned off so as to speed up processing. The resultant first-pass GGEO product is used to intercalibrate the input data from the various sources using CERES data from the SFC product as a baseline. After this is accomplished, a second pass through the system is made, this time recalibrating the input data with coefficients generated during the first pass.

CER11.7P1: ISCCP-D2like-GEO

This PGE reads cloud data from the GGEO output product and creates ISCCP-D2like-GEO HDF product with 18 cloud types monthly/hourly, monthly product.

1.0 PGEName: CER11.7P1

ISCCP-D2like-GEO HDF product.

This PGE reads GGEO product cloud data and creates ISCCP-D2like-GEO HDF product containing monthly-hourly, monthly averages of 18 cloud types.

1.1 PGE Details

1.1.1 Responsible Persons

Table 1-1. Subsystem Software Analysts Contacts

Item	Primary	Alternate
Contact Name	Rajalekshmy Raju	Forrest Wrenn
Organization	SSAI	SSAI
Address	One Enterprise Parkway	One Enterprise Parkway
City	Hampton	Hampton
State	VA 23666	VA 23666
Phone	(757) 951-1673	(757) 951-1981
Fax	(757) 951-1600	(757) 951-1600
LaRC email	Rajalekshmy.I.Raju@nasa.gov	Forrest.Wrenn@nasa.gov

1.1.2 E-mail Distribution List

E-mail distribution list can be obtained from the primary contact listed in Table 1-1.

1.1.3 Parent PGE(s)

Table 1-2. Parent PGEs for CER11.7P1

PGEName	Description
CER11.2P2	Sort and Merge Gridded Geostationary Narrowband Radiances, 2nd pass
CER11.6P1	GGEO Weeder.

1.1.4 Target PGE(s)

Not applicable.

1.2 Operating Environment

1.2.1 Runtime Parameters (List all Dynamic Parameters needed at Runtime)

The following runtime parameters are used when setting up a job.

Table 1-3. Runtime Parameters for CER11.7P1

Parameter	Description	Data Type	Valid Values
dataYear (yyyy)	Data year	4-digit	valid year number
dataMonth (mm)	Data month	2-digit	01-12

1.2.2 Environment Script Requirements

Refer to the CERES internal paper (Reference 1) for a detailed description of the CERES environment parameters.

There is no subsystem-specific environment script that needs executing for the GGEO Subsystem. A Langley TRMM Information System (LaTIS) start-up script with the following environment variable definitions should be sourced prior to GGEO job setup.

SS11_7	**Sampling Strategy, PGE CER11.7P1**
PS11_7	**Production Strategy, PGE CER11.7P1**
CC11_7	**Configuration Code, PGE CER11.7P1**
SW11_7	**Software SCCR#, PGE CER11.7P1**
DATA11_7	**Data SCCR#, PGE CER11.7P1**
SS11	**Sampling Strategy, PGE CER112P2**
PS11	**Production Strategy, Subsystem 11 Postprocessor**
CC11	**Configuration Code, Subsystem 11**
CC11_6	**Configuration Code, PGE 11.6P1**
PGE	**CER11.7P1**
PROD	**yes**
InputArchive	**Directory from which to read the input data products.** **If PROD is no InputArchive $CERESHOME/ggeo/data.** **If PROD is yes InputArchive /ASDC_archive/CERES.**
OutputArchive	**Directory for writing the output data products.**

1.2.3 Execution Frequency (daily, hourly, or monthly)

Once per month.

1.2.4 Memory/Disk Space/Time Requirements

Memory: **300 MB**
Disk Space: **2 GB**
Total Run Time: **20 minutes**

1.2.5 Restrictions Imposed in Processing Order

Not applicable.

1.3 Processor Dependencies (Previous PGEs, Ingest Data)

Note: Include required .met files, header files, .. all required inputs

1.3.1 Input Dataset Name (#1): GGEO (2nd pass)

a. Directory Location/Inputs Expected (Including .met files, header files, etc.):

   $InputArchive/GGEO/
   CER_GGEO_{$SS11}_{$PS11}_{$CC11}.{yyyy}{mm}

   1. Mandatory/Optional: **Mandatory.**
   2. Time Related Dependency: **Data year and month must agree.**
   3. Waiting Period: **Process when inputs are available.**

b. Source of Information (Source is PGE name or Ingest Source):

   CER11.2P2, CER11.6P1

c. Alternate Data Set, if one exists (maximum waiting period):

   $InputArchive/GGEOW/
   CER_GGEOW_{$SS11}_{$PS11}_{$CC11_6}.{yyyy}{mm}

d. File Disposition after successful execution: **N/A**

e. Typical file size (MB): **1933**

1.4 Operating Procedures (Procedure for each part of the processor's elements)

1.4.1 Staging Input Files

All input files should be staged **PRIOR** to job setup.

1.4.2 How to Generate the PCF File

The PCF generator script uses the PCF ASCII file name as input. To generate the PCF, type the following at the command line prompt:

> **$CERESHOME/ggeo/CER11.7P1/rcf/CER11.7P1_pcf_gen.pl yyyymm**

This will create the following PCF in the **$CERESHOME/ggeo/CER11.7P1/rcf/pcf** directory.
CER11.7P1_PCF_{$SS11_7}_{$PS11_7}_{$CC11_7}.{yyyy}{mm}

1.4.3 How to Execute the Main Processor

To execute the Main Processor, type the following at the command line prompt:

> **$CERESHOME/ggeo/CER11.7P1/rcf/CER11.7P1_processor.pl PCFile**

where **PCFile** is the name of the Main Processor PCF generated in Section 1.4.2.

To Run using SGE:

Note: It is not necessary to manually create the PCF as described above when submitting a job using the SGE submission script.

```
>cd $CERESHOME/ggeo/CER11_7P1/rcf
>CER11.7P1-SGE_Driver.pl -date yyyymm -platform cpu
```

To run multiple sequential months:

```
> cd $CERESHOME/ggeo/CER11_7P1/rcf
> CER11.7-SGE_Driver.pl -start yyyymm -end yyyymm -platform cpu
```

There are several options for running jobs.

[-clean]	**Delete any existing outputs that are encountered**
[-force]	**Force to run the job with less than required inputs.**
[-platform CPU]	**Run the PGE on the platform designated by CPU (*P6* or *x86*)**
[-date yyyymm]	**Run the job for the data year/month specified by yyyymm**
[-start yyyymm]	**starting year/month in multiple sequential months' process**
[-end yyyymm]	**ending year/month in multiple sequential months' process.**

1.4.4 Special Case Considerations

N/A at this time.

1.4.5 Special Reprocessing Instructions

Once a job has started processing, the same job cannot be reprocessed without first removing the log and output files created during the previous run. This is true regardless of whether the previous run completed successfully or not. File removal can be accomplished with the cleanup script by typing the following at the command line prompt.

```
> cd $CERESHOME/ggeo/CER11.7P1/rcf
> clean.pl yyyymm
```

where **yyyy** and **mm** are the same as the arguments to the script that generates the PCF ASCII file (see Section 1.4.2).

NOTE: The environment variables in Section 1.2.2 must be the same as they were for the Main Processor job, the one being cleaned, when it was setup.

1.5 Execution Evaluation

1.5.1 Exit Code

CER11.7P1 terminates using the CERESlib defined EXIT code for LaTIS as seen in Table 1-4.

Table 1-4. Exit Codes for CER11.7P1

Exit Code	Definition	Action
0	Normal Exit	Proceed Normally
202	Abnormal	Check the Logfiles and take the appropriate action (see Appendix B)

1.5.2 Screen Messages (Use Table format for large number of messages)

None.

1.5.3 Log and Status Files Results (Include ALL Log Files)

The log files contain all error and/or status messages produced by the PGE. The files are located in **$CERESHOME/ggeo/runlogs** directory.

1. **Report Log File:**

   CER11.7P1_LogReport_{$SS11_7}_{$PS11_7}_{$CC11_7}.{yyyy}{mm}

   The Report Log File contains process-related informational messages. These messages may be strictly informative, or they may indicate a fatal condition that resulted in premature PGE termination. A list of messages is contained in Appendix B.

2. **Status Log File:**

   CER11.7P1_LogStatus_{$SS11_7}_{$PS11_7}_{$CC11_7}.{yyyy}{mm}

   The Status Log File contains all Toolkit messages with levels {_W_, _E_, _F_, _S_, _M_, _U_, _N_, and _S_}. These messages could be strictly informative, or they could indicate a fatal condition that resulted in premature PGE termination. The messages are self-explanatory.

3. **User Log File:**

   CER11.7P1_LogUser_{$SS11_7}_{$PS11_7}_{$CC11_7}.{yyyy}{mm}

   The User Log File contains only those messages created by the Toolkit with levels _U_ (user information) and _N_ (notice). These messages are strictly informative.

1.5.4 Solutions to Possible Problems

A lot of problems are due to errors in the PCF file. Checking the PCF for syntax errors should be the first step when problems occur. This can be done with the **ceresutil** script in CERESlib. To check the PCF for errors, type the following at the command line prompt:

Also, verify that the input files listed in the PCF are present in the input data directory.

1.5.5 Conditions for Subsystem and/or Target PGE(s) Terminal Failure (Halt all further processing)

a. Subsystem Termination

None. All Main Processor jobs run independently of each other. The terminal failure of one job does not adversely affect the processing of other jobs.

b. Target PGE Termination

None

1.6 Expected Output Dataset(s)

The Expected Output Datasets are listed below. Each PGE execution produces one granfile and one QC report.

Table 1-5. Expected Output File Listing for CER11.7P1

File Name/Directory[a]	m/o[b]	File Size (MB)	Freq/ PGE	Target PGE	Destination[c]	Available Through Ordering Tool
CER_ISCCP-D2like-GEO_{SS11_7}_{PS11_7}_{CC11_7}.{yyyy}{mm}(.met) @($CERESHOME/ggeo/data/ISCCP-D2like-GEO/{$SS11_7}_{$PS11_7}/{yyyy}/{mm}	m	1933	1	n/a	Archive,rm	Yes
CER11.7P1_PCF_{SS11_7}_{PS11_7}_{CC11_7}.{yyyy}{mm} @($CERESHOME/ggeo/CER11.7P1/rcf/pcf)	m	1	1	n/a	Archive, rm	No
CER11.7P1_PCF_{SS11_7}_{PS11_7}_{CC11_7}.{yyyy} {mm}.log @($CERESHOME/ggeo/CER11.7P1/rcf/pcf)	m	1	1	n/a	Archive, rm	No
CER11.7P1_LogReport_{SS11_7}_{PS11_7}_{CC11_7}.{yyyy} {mm}@($CERESHOME/ggeo/runlogs)	m	1	1	n/a	Archive, rm	No
CER11.7P1_LogStatus_{SS11_7}_{PS11_7}_{CC11_7}.{yyyy} {mm}@($CERESHOME/ggeo/runlogs)	m	1	1	n/a	Archive, rm	No
CER11.7P1_LogUser_{SS11_7}_{PS11_7}_{CC11_7}.{yyyy} {mm}@($CERESHOME/ggeo/runlogs)	m	1	1	n/a	Archive, rm	No

a. If "**(.met)**" is written next to an expected Output Filename, then the metadata file **must** exist with the identical filename and .met extension.
b. m - mandatory output
o - optional output
c. /QA - File is to be written to the DAAC designated /QA directory.
rm - remove

1.7 Expected Temporary Files/Directories

Table 1-6. Temporary Files Listing

Directory	File Name
N/A	N/A

References

1. Reference "Sampling Strategy, Production Strategy, and Configuration Code Implementation at the Langley TRMM and Terra Information System (LATIS)" internal paper for detail description of the CERES environment parameters. URL: http://ceres.larc.nasa.gov/Internal/intern_docs.php

Appendix A
Acronyms and Abbreviations

AES	Atmospheric Environmental Services
ASDC	Atmospheric Science Data Center
CERES	Clouds and the Earth's Radiant Energy System
CM	Configuration Management
DAAC	Distributed Active Archive Center
DMO	Data Management Office
EOS	Earth Observing System
EOS-AM	EOS Morning Crossing Mission
EOS-PM	EOS Afternoon Crossing Mission
ERBE	Earth Radiation Budget Experiment
ERBS	Earth Radiation Budget Satellite
GGEO	Grid GEOstationary data subsystem (another name for Subsystem 11)
GMS	Geostationary Meteorological Satellite operated by JMA
GOES	Geostationary Operational Environmental Satellite
granfile	granule file; intermediate output file produced by the GGEO Main processor
ISCCP	International Satellite Cloud Climatology Project
JMA	Japan Meteorological Agency, Tokyo, Japan
LaTIS	Langley TRMM Information System
LW	Longwave
MB	Megabytes
MCF	Metadata Control File
met	metadata file
METEOSAT	METEOrological Operational SATellite
N/A	Not Applicable
NASA	National Aeronautics and Space Administration
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NOAA	National Oceanic and Atmospheric Administration
PGE	Product Generation Executables
QC	Quality Control
SSAI	Science Systems and Applications, Inc.
TRMM	Tropical Rainfall Measuring Mission

Appendix B
Error Messages for Subsystem 11

Appendix B contains a comprehensive list of messages that can be generated during the execution of a PGE. These messages are used to inform the operator or analyst of specific circumstances encountered during data processing. These messages may be strictly informative (Error Type = Status or Warning), or may indicate a fatal condition that results in premature PGE termination (Error Type = Fatal). All messages are written to the LogReport file and/or the LogStatus File of the processing instance.

Table B-1 contains a list of the PGE CER11.7P1 diagnostic messages. Each table entry includes a pneumonic, the text associated with that pneumonic, and a set of Action Keys.

Operator Instructions:

If a PGE prematurely terminates, then take the following steps:

1. Look at the last few records on the LogStatus file.
2. Find the error message in the following Error Message listing(s), and follow the appropriate ACTION
3. If an error message is not in the LogStatus File, then repeat steps 1 and 2 using the LogReport File.
4. If no information is derived, then call the responsible person in Table 1-1.
5. If the appropriate ACTION failed, then call the responsible person in Table 1-1.
6. In all cases, log all steps that were taken after the PGE failure, and send a copy to the responsible person listed in Table 1-1.

Action Keys for Table B-1: (Note if an ACTION does not work, call the Responsible Person in Table 1-1.)

1. Verify that file exists.
2. Allocate more memory, rerun.
3. Check that PCF is correct, fix any errors, rerun.
4. No Action, call the Responsible Person in Table 1-1.

Table B-1. Example of TK (SMF) Utility Message Table

Message/Error Type		Action Key
GGEOFILE_E_FILEOPENERR	Error...opening GGEO file	1
GGEOFILE_E_FILECLOSERR	Error...closing GGEO file	4
GGEOFILE_E_HEDREADERR	Error...reading ggeo header record	1,4
GGEOFILE_E_MEMALLOC_ERR	Error...allocating memory for zone array	2
BGRANULE_E_GETNUMIMAGES_ERROR	Error...unable to number of image files from PCF	3
BGRANULE_E_MEMALLOC_ERR	Error...unsuccessful allocation of memory.	2, 4
GGEOMAIN_E_IMAGEFILEREAD	Error...opening or reading image file	3
GGEOMAIN_E_GETRUNTIMEPARAM	Error...getting runtime parameter from PCF.	3
GRANFILE_E_CLOSERR	Error...closing ggeo granfile.	4
GRANFILE_E_GETNUMERR	Error...getting the number of ggeo granfiles from the PCF.	3
GRANFILE_E_HEADEREADERR	Error...reading header from ggeo granfile.	1
GRANFILE_E_OPENERR	Error...opening ggeo granfile	3
GRANFILE_E_SATELLITEMISMATCH	Error...PCF satellite name does not match input satellite id	3
GGEOPOST_E_DATEMISMATCH	Error...granfile year/month does not match input parameter	1, 3
GGEOPOST_E_INVALIDDATE	Error...invalid date info on granfile header	1
PCFILE_E_CANTFINDDIAGSFLAG	Error...cannot find diagnostics flag	3
PCFILE_E_CANTFINDINPUTID	Error...cannot find input_data_id in PCF.	3
PCFILE_E_CANTFINDPLOTHOURPARAM	Error...cannot find plot hour parameter in PCF.	3
PCFILE_E_CANTFINDPLOTPARAM	Error...cannot find plot parameter in PCF.	3
CFILE_E_CANTFINDRESTARTPARAM	Error...cannot find restart parameter in PCF.	3
PCFILE_E_CANTFINDSATNAME	Error...cannot find satellite name in PCF.	3
PCFILE_E_CANTFINDYYYYMM	Error...cannot find data date in PCF	3
PCFILE_E_CANTGETNUMGRANFILES	Error...unable to get number of granfiles from the PCF.	3
PCFILE_E_CANTGETNUMIMAGES	Error...unable to get number of image files from PCF	3
PCFILE_E_INCORRECTINPUTID	Error...unknown code for input_data_id.	4
PCFILE_E_PLOTFLAGERR	Error...undecipherable plot flag.	3, 4
PCFILE_E_WRONGNUMPLOTFLAGS	Error...incorrect number of plot flags.	4
ISCCPINPUT_E_IMGFILEOPENERR	Error...B1 Image file open error	1,3,4
ISCCPINPUT_E_MEMALLOCATERR	Error...allocating memory.	2
ISCCPINPUT_E_FILEMISMATCH	Error...image file date/time does not correspond to orbital file date/time.	1,3,4
MCNAVIGATE_E_MEMALLOCATERR	Error...allocating memory.	2