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

Data Management System

Operator's Manual

TISA Averaging
(Subsystems 7.1, 8.0, & 10.0)

Release 4
Version 3

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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.

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04/20/05	R4V1	583	• Delete the two PGEs CER10.2P1 and CER10.3P1. • Added phase one to create the snow map, the monthly and monthly hourly means CERES-clear-sky albedo and SW flux and clear-sky map. • Added PGE CER10.1P2. • Changed ENV10.1P1-env.csh to ENV10.1P2 and took out CC9_1. • Changed ENV10.1P1-env.csh to ENV10.1P2. • Updated format to comply with standards.	Document Overview Sec. 3.0 Sec. 4.0 Sec. 4.2.2 Sec. 4.4 All
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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 Sciences 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 Yvonne M. Seaman and Waldena Banks of Science Applications International Corporation (SAIC) for their support in the preparation of this document and to Maria Vallas Mitchum, NASA, LaRC, and Sandra K. Nolan, SAIC, for structuring the manual guidelines and organization.

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Introduction

The Clouds and the Earth's Radiant Energy System (CERES) is a key component of the Earth Observing System (EOS) program. The CERES instrument provides radiometric measurements of the Earth's atmosphere from three broadband channels: a shortwave channel (0.3 - 5 ∝m), a total channel (0.3 - 200 ∝m), and an infrared window channel (8 - 12 ∝m). The CERES instruments are improved models of the Earth Radiation Budget Experiment (ERBE) scanner instruments, which operated from 1984 through 1990 on the National Aeronautics and Space Administration's (NASA) Earth Radiation Budget Satellite (ERBS) and on the National Oceanic and Atmospheric Administration's (NOAA) operational weather satellites NOAA-9 and NOAA-10. The strategy of flying instruments on Sun-synchronous, polar orbiting satellites, such as NOAA-9 and NOAA-10, simultaneously with instruments on satellites that have precessing orbits in lower inclinations, such as ERBS, was successfully developed in ERBE to reduce time sampling errors. CERES continues that strategy by flying instruments on the polar orbiting EOS platforms simultaneously with an instrument on the Tropical Rainfall Measuring Mission (TRMM) spacecraft, which has an orbital inclination of 35 degrees. In addition, to reduce the uncertainty in data interpretation and to improve the consistency between the cloud parameters and the radiation fields, CERES includes cloud imager data and other atmospheric parameters. The TRMM satellite carries one CERES instrument while the EOS satellites carry two CERES instruments, one operating in a fixed azimuth plane scanning mode (FAPS) for continuous Earth sampling and the other operating in a rotating azimuth plane scan mode (RAPS) for improved angular sampling.

Document Overview

This document, the CERES Release 3 Operator's Manual for the Time Interpolation and Averaging Subsystem (TISA) 10.0, provides an overview of the operating environment, the operating procedure, and evaluation of the expected output files of the three Subsystems. This document is organized as follows:

Introduction
Document Overview
Subsystem Overview
PGEName: CER7.1.1P1
PGEName: CER8.1P1
PGEName: CER10.1P1
PGEName: CER10.1P2
PGEName: CER10.1P3
References
Appendix A - Acronyms and Abbreviations
Appendix B - Error Messages for CER7.1.1P1, CER8.1P1, CER10.1P1, CER10.1P2, CER10.1P3
Appendix C - Sample ASCII (PCFin) File Listing(s) for CER7.1.1P1, CER8.1P1, CER10.1P1, CER10.1P2, CER10.1P3

Subsystem Overview

Subsystem 7.1 - Time Interpolation for Single and Multiple Satellites

The time interpolation process (7.1), one of the two key parts of Subsystem 7.0, temporally interpolates CERES data and produces hourly of top-of-the-atmosphere (TOA) fluxes and cloud properties on a 1.0-degree equal-area grid. Another key part of Subsystem 7.0, the Synoptic Surface and Atmospheric Radiation Budget (SARB), Subsystem 7.2, produces the Intermediate Synoptic Radiative Fluxes and Clouds (SYNI), which contains the vertical structure of atmospheric and surface flux using the interpolated data as input and boundary conditions.

The main input to the time interpolation process is the Hourly Gridded Single Satellite Fluxes and Clouds (FSW) product, produced by Atmospheric Gridding and Spatial Averaging, Subsystem 6.0. The gridded shortwave (SW) and longwave (LW) TOA fluxes and cloud information are the key items to be interpolated. The radiative profile will be recalculated in the SARB part of Subsystem 7.0 using the interpolated fluxes as constraints. This process produces the internal product, Time Space Interpolate (TSI). These files contain nested grid region data which is the input to Subsystem 7.2.

The time interpolation process produces global maps of TOA total-sky LW and SW flux, TOA clear-sky LW and SW flux, TOA window radiances, and cloud properties at every hour Greenwich Mean Time (GMT) for every day of the month. The process of producing involves several steps:

1. Cloud properties from the CERES times of observation are interpolated.
2. The CERES TOA LW and SW fluxes are interpolated for every hour using geostationary data to assist in modeling meteorological variations between times of observations.

Subsystem 8.0 - Compute Regional, Zonal, and Global Averages

The Monthly Regional, Zonal, and Global Radiation Fluxes and Cloud Properties Subsystem produces regional, zonal and global monthly and monthly-hourly means. These means are calculated from one month of synoptic maps on a regional basis and then combined to produce zonal and global averages.

The main input to this Subsystem is the Surface and Atmospheric Radiation Budget (SARB) product, produced by Subsystem 7.2, SYNI. This product contains one month of 3-hourly synoptic maps of top-of-atmosphere (TOA) LW and SW fluxes, TOA window fluxes, upwelling and downwelling SW and LW fluxes at each standard CERES pressure level, and numerous cloud parameters for each region of the CERES global 1.0-degree equal-area grid. The flux parameters include both total-sky and clear-sky.

The three archival products output from this Subsystem are the Monthly Regional Radiative Fluxes and Clouds (AVG) product (HDF format) which contains regional monthly and monthly-hourly means of fluxes and cloud parameters, the Monthly Zonal and Global Radiative Fluxes, Clouds (ZAVG) product (HDF format) which contains the zonal and global monthly and monthly-hourly

averages of the above parameters, and the Synoptic Radiative Fluxes and Clouds (SYN) product (HDF format) which contains regional synoptic hourly means of fluxes and cloud parameters.

The main steps involved in the averaging process are:

1. Read the synoptically ordered data.
2. Average the flux data to produce regional synoptic hourly, monthly and monthly-hourly means.
3. Average the cloud properties using the specified weighting schemes to produce regional synoptic hourly, monthly and monthly-hourly means.
4. Average the regional means to produce zonal means.
5. Average the zonal means to produce global means.

Subsystem 10.0 - Compute Monthly and Regional TOA and SRB Averages

The Monthly Regional TOA and SRB Averages Subsystem (10.0) computes averages of TOA longwave (LW) and shortwave (SW) fluxes, surface fluxes, and cloud properties on regional, zonal, and global spatial scales. The main input to Subsystem 10.0 is the Hourly Gridded Single Satellite TOA and Surface Fluxes and Clouds (SFC) product produced by Surface Gridding and Spatial Averaging Subsystem (9). SFC contains hourly single satellite flux and cloud properties averaged over 1.0-degree regions. Subsystem 10.0 produces the Monthly Regional TOA and SRB Averages (SRBAVG) product (HDF format). Two methods are used to compute the regional TOA total-sky flux averages. TOA flux estimates from both of the two methods are used to produce estimates of surface flux at all temporal and spatial scales using the TOA-to-surface flux parameterization schemes for shortwave and longwave.

The process of producing the means stored in SRBAVG involves:

1. The TOA clear-sky flux data, surface flux data, and the cloud property data are linearly interpolated.
2. Monthly and monthly-hourly means are calculated from the interpolated fluxes and cloud properties on regional, zonal, and global scales.

Subsystem 10.0 - Compute Daily and Regional TOA and SRB Averages

The Monthly Regional TOA and SRB Averages Subsystem (10.0) computes averages of TOA longwave (LW) and shortwave (SW) fluxes, surface fluxes, and cloud properties on regional scales. The main input to Subsystem 10.0 is the Hourly Gridded Single Satellite TOA and Surface Fluxes and Clouds (SFC) product produced by Surface Gridding and Spatial Averaging Subsystem (9). SFC contains hourly single satellite flux and cloud properties averaged over 1.0-degree regions. Subsystem 10.0 produces the Daily Regional TOA and SRB Averages (SRBAVG) product (HDF format).

The process of producing the means stored in SRBAVG involves:

1. The TOA clear-sky flux data, surface flux data, and the cloud property data are linearly interpolated.
2. Daily means are calculated from the interpolated fluxes and cloud properties on regional, zonal, and global scales.
3. The snow/ice daily means are calculated from the 10-minutes snow/ice maps.
4. The ISCCP-like format GGEO and MODIS cloud data are produced in HDF format.

Subsystem 10.0 - Compute Monthly and Monthly Hourly CERES Albedo and SW Flux

The monthly and monthly hourly albedo and SW flux and the clear-sky albedo map are required for inputs into Subsystem 10.0. The main input to compute the average albedo and SW flux for each region are the Hourly Gridded TOA and Clouds (SFC) product from Subsystem 9.0

The process of producing the monthly and monthly hourly albedo and SW flux involved:

1. Timely interpolate the TOA albedo and SW flux for each region.
2. Spacial average the albedo and SW flux.
3. A clear-sky map of albedo is then produced for inputs to compute the GGEO fluxes.

1.0 PGEName: CER7.1.1P1

Time Interpolation for Single and Multiple Satellites (Subsystem 7.1)

1.1 PGE Details

1.1.1 Responsible Persons

Table 1-1. Subsystem Software Analysts Contacts

Item	Primary	Alternate
Contact Name	Cathy Nguyen	Rajalekshmy Raju
Organization	SAIC	SAIC
Address	1 Enterprise Parkway	1 Enterprise Parkway
City	Hampton	Hampton
State	VA 23666	VA 23666
Phone	827-4855	827-4854
Fax	825-4968	825-4968
LaRC email	le.t.nguyen@larc.nasa.gov	r.raju@larc.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 CER7.1.1P1

PGEName	Description
CER9.1P1	Post-Processor for MOA Data, creates PMOA
CER6.2P1	Sort and Merge Gridded Single Satellite Fluxes and Clouds
CER11.6P1	Sort and Merge Gridded Geostationary Narrowband Radiance, GGEOW. This PGE should be used if GGEOW is available.
CER11.2P1	Sort and Merge Gridded Geostationary Narrowband Radiance, GGEO. This PGE is used only if GGEOW is not available.
CER10.1P1	Compute Monthly and Regional TOA and SRB Averages.

Table 1-2. Parent PGEs for CER7.1.1P1

PGEName	Description
CER10.1P2	Preprocessor for creating the clear-sky map, the monthly hourly CERES clear-sky albedo and Snow/Ice Data

1.1.4 Target PGE(s)

Table 1-3. Target PGEs after CER7.1.1P1

PGEName	Description
CER7.2.1P1	Synoptic SARB Subsystem Main-Processor

1.2 Operating Environment

1.2.1 Runtime Parameters

Table 1-4. Runtime Parameters for CER7.1.1P1

Parameter	Description	Data Type	Valid Values
subsystem_id	Subsystem number	C(1)	7
MM	CERDataDateMonth	I(2)	01 .. 12
YYYY	CERDataDateYear	I(4)	>1996
GGEO	GGEO data exist flag	C(1)	Y, N

1.2.2 Environment Script Requirements

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

One Environment Script is required. It is named '**ENV7.1.1P1-env.csh**' and contains the following parameters:

SS7_1 Output Sampling Strategy for Subsystem 7.1, see Production Request
SS6 Input Sampling Strategy for Subsystem 6, see Production Request
SS10 Input Sampling Strategy for Subsystem 10, see Production Request
SS11 Input Sampling Strategy for Subsystem 11, see Production Request
SS12 Input Sampling Strategy for Subsystem 12, see Production Request
PS7_1 Output Production Strategy for Subsystem 7.1, see Production Request
PS6 Input Production Strategy for Subsystem 6, see Production Request
PS10 Input Production Strategy for Subsystem 10, see Production Request

PS11	Input Production Strategy for Subsystem 11, see Production Request
PS12	Input Production Strategy for Subsystem 12, see Production Request
CC7_1	Output Configuration Code for Subsystems 7.1, see CM Database
CC6	Input Configuration Code for Subsystems 6, see CM Database
CC9_1	Input Configuration Code for PMOA. see CM Database
CC10	Input Configuration Code for Subsystem 10, see CM Database
CC11	Input Configuration Code for Subsystem 11, see CM Database
CC11_6	Input Configuration Code for Subsystem 11, see CM Database
SW7_1	Output Software SCCR# for Subsystems 7.1, see CM Database
DATA7_1	Output Data SCCR# for Subsystems 7.1, see CM Database

1.2.3 Execution Frequency (daily, hourly,..)

monthly (1/month) - This PGE is processed once per month, when input is available.

1.2.4 Memory/Disk Space/Time Requirements

Memory:	69792 K
Disk Space:	21.6 GB
Total Run Time:	4 hours 14 minutes

1.2.5 Restrictions Imposed in Processing Order

None. Process when input data are available (see Section 1.3).

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): PMOA

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

   $CERESHOME/tisa_grid/data/out_comp/data/PMOA/
   CER_PMOA_$SS12_$PS12_$CC9_1.{YYYY}{MM}F*, where * = 1 .. 4

   1. Mandatory/Optional: **These files are Mandatory.**
   2. Time Related Dependency:

      The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
   3. Waiting Period: **None, process when all input data are available.**

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

Source PGE: CER9.1P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution:

Do not remove, will be needed for other PGE(s).

e. Typical file size (MB): **Total file size = 1441 MB (total 4 files = 5764 MB).**

1.3.2 Input Dataset Name (#2): FSWB

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

$CERESHOME/tisa_grid/data/out_comp/data/FSW/
CER_FSWB_$SS6_$PS6_$CC6.{YYYY}{MM}Z*, where * = 001 .. 180

$CERESHOME/tisa_grid/data/out_comp/data/FSW/
CER_FSWB_$SS6_$PS6_$CC6.{YYYY}{MM}Z*.met, where * = 001 .. 180

1. Mandatory/Optional: **At least one of the 180 files is Mandatory.**
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period: **None, process when all input data are available.**

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

Source PGE: CER6.2P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Files can be removed.**

e. Typical file size (MB): **65 MB**

1.3.3 Input Dataset Name (#3): GGEOW or GGEO

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

$CERESHOME/ggeo/data/out_comp/data/
CER_GGEO_$SS11_$PS11_$CC11.{YYYY}{MM}

or

$CERESHOME/ggeo/data/out_comp/data/
CER_GGEOW_$SS11_$PS11_$CC11_6.{YYYY}{MM}

GGEOW should be chosen before **GGEO,** and if it is not available, then **GGEO** is the alternate data set**.**

1. Mandatory/Optional: **This file is Optional, see item 3 below.**
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
3. Waiting Period:

   Dependent on GGEOW or GGEO expected waiting period (consult CERES Data Management Office (DMO)).

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

Source PGE: CER11.6P1 or CER11.2P1

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

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **567 MB**

1.3.4 Input Dataset Name (#4): xglb

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/
CER_xglb_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **This file is Mandatory.**
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
3. Waiting Period: **None, process when all input data are available**.

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

Source PGE: CER10.1P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **2.33 MB**

1.3.5 Input Dataset Name (#5): mhr_csalb

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/
CER_mhr_csalb_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **This file is Mandatory.**
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
3. Waiting Period: **None, process when all input data are available**.

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

Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **15.62 MB**

1.3.6 Input Dataset Name (#6): csalb0-intrp2s

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/
CER_csalb0-intrp2s_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **This file is Mandatory.**
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
3. Waiting Period: **None, process when all input data are available**.

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

Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **649800 B**

1.3.7 Input Dataset Name (#6): SNOW-PCT

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/
CER_SNOW-PCT_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **This file is Mandatory.**

2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period: **None, process when all input data are available**.

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

   Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **259200 B**

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

The PCF is created by first executing an ASCII file generator, **tisavg_7.1.1P1_ascii_gen.csh**, and then the PCF generator, **tisavg_7.1.1P1_pcfgen.csh**. The ascii file generator sources a Subsystem 7.1-specific environment script, **ENV7.1.1P1-env.csh.**

1.4.1 How to Generate the ASCII File

The ASCII file generator, **tisavg_7.1.1P1_ascii_gen.csh,** requires four command line arguments: Subsystem Number (7), 4-digit Data Year (YYYY), 2-digit Data Month (MM), and 1-character GGEO data file exist flag (GGEO), (Optional, default value = y), see Table 1-4.

At the command line (>) type:

```
> cd $CERESHOME/tisa_avg/bin
> tisavg_7.1.1P1_ascii_gen.csh {subsystem_id} {YYYY} {MM} {GGEO}
```

The following file will be generated in **$CERESHOME/tisa_avg/rcf/**:

```
CER7.1.1P1_PCFin_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}
```

1.4.2 How to Generate the PCF File

The PCF generator, **tisavg_pcfgen.csh**, is executed using the newly created ASCII input file name as a command line argument.

At the command line (>) type:

```
> cd $CERESHOME/tisa_avg/bin
> tisavg_7.1.1P1_pcfgen.csh $CERESHOME/tisa_avg/rcf/
  CER7.1.1P1_PCFin_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}
```

The following PCF will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER7.1.1P1_PCF_$SS7_1_$PS7_1_$CC7_1.YYYYMM

1.4.3 How to Execute the Main Processor

The production script is executed by typing the script name, **CER7.1.1P1**, followed by three command line arguments: year (YYYY), month (MM), PCF directory location/file name, see Table 1-3.

At the command line (>) type:

```
> cd $CERESHOME/tisa_avg/bin
> CER7.1.1P1 {YYYY} {MM}
  CER7.1.1P1_PCF_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}
```

1.4.4 Special Case Considerations

N/A at this time.

1.4.5 Special Reprocessing Instructions

All output files are opened with STATUS=NEW in Subsystem 7.1. The PGE script has been designed to check for these files and delete them prior to execution, but in the case of a change in the file permission status, the ASDC must take appropriate action. These files must be removed before processing.

1.5 Execution Evaluation

1.5.1 Exit Codes

The processor CER7.1.1P1 terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS), as seen in Table 1-5. Other Exit Codes may appear from the program, which may be the result of a system, compiler, or Toolkit related error. In these cases, contact the responsible person(s) (see Table 1-1) for assistance.

Table 1-5. Exit Codes for CER7.1.1P1

Exit Code	Definition	Action
0	Normal Exit	Proceed normally
202	Failure	Check the Log Files and take the appropriate action (see Appendix B).

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

When running the production script, **CER7.1.1P1**, the system message, "No match," may be written to the screen. This message occurs when the scripts try to remove an old output file that does not exist. This does not signify a problem.

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 directory: **$CERESHOME/tisa_avg/data/data_7/runlogs**.

1. Report Log File: CER7.1.1P1_LogReport_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}

The Report Log File contains TISA Averaging related messages. A comprehensive list of these messages that can be generated during execution of the PGE is contained in Appendix B .

2. Status Log File: CER7.1.1P1_LogStatus_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}

The Status Log File contains all messages created by the Toolkit. If an abnormal exit is encountered by the PGE, this file should be examined for '_F_', fatal message type. The responsible person should be advised.

3. User Log File: CER7.1.1P1_LogUser_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}

The User Log File is not used at this time, but exists to satisfy the Toolkit requirements. Typically the _U_ and _N_ (User information and Notice) will be written to User Log File and Status Log File.

1.5.4 Solutions to Possible Problems

As mentioned in Appendix B all output files are opened with Status = NEW. The PGE script has been designed to check for these files and to delete them prior to execution, but in the case of a change in the file permission status, the ASDC must take appropriate action. These files must be removed before reprocessing. A script, which removes PGE created files, **cleanup_fail**, is located in directory **$CERESHOME/tisa_avg/bin**. To use the clean-up files for **CER7.1.1P1**:

```
>$CERESHOME/tisa_avg/bin/cleanup_fail 7.1.1P1
   CER7.1.1P1_PCF_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}
```

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

a. Subsystem Termination

There are no foreseeable subsystem terminating conditions at this time.

b. Target PGE Termination

N/A

1.6 Expected Output Dataset(s)

The expected Output Datasets are listed below for each instance of the PGE. This PGE is expected to process once per month**.**

Table 1-6. Expected Output File Listing for CER7.1.1P1

File Name[a]/Directory	m/o	File Size (MB)	Freq/ PGE	Target PGE	Destination[b]
CER7.1P1_PCF_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM} @($CERESHOME/tisa_avg/rcf)	m	1	1/mo	N/A	Archive, rm
CER7.1P1_PCFin_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM} @($CERESHOME/tisa_avg/rcf)	m	1	1/mo	N/A	Archive, rm
CER7.1P1_LogReport_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_7/runlogs)	m	1	1/mo	N/A	Archive, rm
CER7.1P1_LogStatus_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_7/runlogs)	m	1	1/mo	N/A	Archive, rm
CER7.1P1_LogUser_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_7/runlogs)	m	1	1/mo	N/A	Archive, rm
CER_TSIB_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}Z*, where * = 001...180 (.met) @($CERESHOME/tisa_avg/data/data_7/out_comp)	m	298	180/mo	7.2.1P1-8	Archive
CER_JRGRP_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM} (.met) @($CERESHOME/tisa_avg/data/data_7/out_comp)	m	1	1/mo	N/A	Archive, rm
CER_JVREG_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM} (.met) @($CERESHOME/tisa_avg/data/data_7/out_comp)	m	1	1/mo	N/A	Archive, rm

a. See Section 1.2 for information on variable data values
If "(**.met**)" is written next to an expected Output Filename, then the metadata file **must** exist with the identical filename and .met extension

b. VD - Validation Days in 1998 (Jan./5, 12, 19, 26/, Apr./6, 13, 20, 27/, July/6, 13, 20, 27/, Oct./5, 12, 19, 26/)
Permanent - Files will not be removed from the production disk
DB - File content is to be entered into the LaTIS Database
rm - remove
YYYY - 4 digit year
MM - 2 digit month {valid values: 01 .. 12}
DD - 2 digit day {valid values: 01 .. 31
HH - 2 digit hour of the day {valid values: 00 .. 23)
m - mandatory output
o - optional output
EOD - End of Data Month

1.7 Expected Temporary Files / Directories

N/A

2.0 PGEName: CER8.1P1

Compute Regional, Zonal, and Global Averages (Subsystem 8.0)

2.1 PGE Details

2.1.1 Responsible Persons

Table 2-1. Subsystem Software Analysts Contacts

Item	Primary	Alternate
Contact Name	Cathy Nguyen	Rajalekshmy Raju
Organization	SAIC	SAIC
Address	1 Enterprise Parkway	1 Enterprise Parkway
City	Hampton	Hampton
State	VA 23666	VA 23666
Phone	827-4855	827-4854
Fax	825-4968	825-4968
LaRC email	le.t.nguyen@larc.nasa.gov	r.raju@larc.nasa.gov

2.1.2 E-mail Distribution List

E-mail distribution list can be obtained from the primary contact listed in Table 2-1.

2.1.3 Parent PGE(s)

Table 2-2. Parent PGEs for CER8.1P

PGEName	Description
CER7.1.1P	Time Space Interpolation Subsystem Main-Processor
CER7.2.P1	Synoptic SARB Subsystem Main-Processor

2.1.4 Target PGE(s)

CER8.1P1 has no target PGE(s).

2.2 Operating Environment

2.2.1 Runtime Parameters

Table 2-3. Runtime Parameters for CER8.1P1

Parameter	Description	Data Type	Valid Values
subsystem_id	Subsystem number	I(1)	8
MM	CERDataDateMonth	I(2)	01 .. 12
YYYY	CERDataDateYear	I(4)	>1996

2.2.2 Environment Script Requirements

Refer to the CERES internal paper (Reference 1) for a detailed description of the CERES environment parameters. The URL for this document is http://asd-www.larc.nasa.gov/ceres/intern doc/

One Environment Script is required. It is named '**ENV8.1P1-env.csh**' and contains the following parameters:

SS8	Output Sampling Strategy for Subsystem 8, see Production Request
SS7_2	Input Sampling Strategy for Subsystem 7.2, see Production Request
SS7_1	Input Sampling Strategy for Subsystem 12, see Production Request
PS8	Output Production Strategy for Subsystem 8, see Production Request
PS7_2	Input Production Strategy for Subsystem 7.2, see Production Request
PS7_1	Input Production Strategy for Subsystem 7.1, see Production Request
CC8	Output Configuration Code for Subsystem 8. see CM Database
CC7_2	Input Configuration Code for Subsystem 7.2, see CM Database
SW8	Output Software SCCR# for Subsystem 8, see CM Database
DATA8	Output Data SCCR# for Subsystem 8, see CM Database
INST	Instrument Process for Subsystem 8, see Production Request

2.2.3 Execution Frequency (daily, hourly,..)

monthly (1/month) - This PGE is processed once per month, when input is available.

2.2.4 Memory/Disk Space/Time Requirements

Memory:	171472 K
Disk Space:	20 GB
Total Run Time:	28 hours 40 minutes

2.2.5 Restrictions Imposed in Processing Order

Process when input data are available (see Section 2.3).

2.3 Processor Dependencies (Previous PGEs, Ingest Data,..)

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

2.3.1 Input Dataset Name (#1): TSI

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

   $CERESHOME/tisa_avg/data/data_7/out_comp/ CER_TSIB_$SS7_1_$PS7_1_$CC7_1.{YYYY}{MM}Z{zone number}, where zone number = 01 .. 180

   1. Mandatory/Optional: **At least one of the 180 files is Mandatory.**
   2. Time Related Dependency:

      The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

   3. Waiting Period:

      Wait until CER7.1.1P1 has completed for the DataMonth.

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

   Source PGE: CER7.1.1P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution:

   Remove at end of DataMonth processing.

e. Typical file size (MB): **640 MB**

2.3.2 Input Dataset Name (#2): SYNI

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

   $CERESHOME/sarb/data/out_comp/data/sarbsyn/ CER_SYNI_$SS7_2_$PS7_2_$CC7_2.{YYYY}{MM}{Zone}, where Zone = 01 .. 180

   1. Mandatory/Optional: **At least one of the 180 files is Mandatory.**

2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period:

   Wait until CER7.2.1P1 has completed for the DataMonth.

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

   Source PGE: CER7.2P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution:

   Remove at end of DataMonth processing.

e. Typical file size (MB): **640 MB**

2.4 Operating Procedures

The main processor production script, run_8.1P1, references a Process Control File (PCF) which contains the correct file names and paths for the PGE. This PCF is created by first executing an ASCII file generator, tisavg_ascii_gen.csh, and then the PCF generator, tisavg_pcfgen.csh. The ascii file generator sources a subsystem 8.0-specific environment script, ENV8.1P1-env.csh

2.4.1 How to Generate the ASCII File

The ASCII file generator, tisavg_ascii_gen.csh, requires three command line arguments: Subsystem (subsystem_id), year (YYYY), and month (MM).

At the command line (>) type:

> **cd $CERESHOME/tisa_avg/bin**
> **tisavg_ascii_gen.csh {subsystem_id} {YYYY} {MM}**

The following file will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER8.1P1_PCFin_$SS8_$PS8_$CC8.{YYYY}{MM}

2.4.2 How to Generate the PCF File

The PCF generator, **tisavg_pcfgen.csh**, is executed using the newly created ASCII input file name as a command line argument.

At the command line (>) type:

> **cd $CERESHOME/tisa_avg/bin**
> **tisavg_pcfgen.csh $CERESHOME/tisa_avg/rcf/**
> **CER8.1P1_PCFin_$SS8_$PS8_$CC8.{YYYY}{MM}**

The following PCF will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER8.1P1_PCF_$SS8_$PS8_$CC8.{YYYY}{MM}

2.4.3 How to Execute the Main Processor

The production script is executed by typing the script name, **run_8.1P1**, followed by two command line arguments: year (YYYY) and month (MM) and PCF file name, see Table 2-3.

At the command line (>) type:

> **cd $CERESHOME/tisa_avg/bin**
> **CER8.1P1 {YYYY} {MM}**
CER8.1P1_PCF_$SS8_$PS8_$CC8.{YYYY}{MM}

2.4.4 Special Case Considerations

N/A at this time.

2.4.5 Special Reprocessing Instructions

All output files are opened with STATUS=NEW in Subsystem 8.0. The PGE script has been designed to check for these files and delete them prior to execution, but in the case of a change in the file permission status, the ASDC must take appropriate action. These files must be removed before processing.

2.5 Execution Evaluation

2.5.1 Exit Codes

The processor CER8.1P1 terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS) as seen in Table 2-4. Other Exit Codes may appear from the program, which may be the result of a system, compiler, or Toolkit related error. In these cases, contact the responsible person (see Table 2-1) for assistance.

Table 2-4. Exit Codes for CER8.1P1

Exit Code	Definition	Action
0	Normal Exit	Proceed normally
202	Failure	Check the Log Files and take the appropriate action (see Appendix B).

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

When running the production script, run_8.1P1, the system message, "No match," may be written to the screen. This message occurs when the scripts try to remove an old output file that does not exist. This does not signify a problem.

2.5.3 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 directory: $CERESHOME/tisa_avg/data/data_8/runlogs.

1. Report Log File: CER8.1P1_LogReport_$SS8_$PS8_$CC8.{YYYY}{MM}

The Report Log File contains TISA Averaging related messages. A comprehensive list of these messages that can be generated during execution of the PGE is contained in Appendix B .

2. Status Log File: CER8.1P1_LogStatus_$SS8_$PS8_$CC8.{YYYY}{MM}

The Status Log File contains all messages created by the Toolkit. If an abnormal exit is encountered by the PGE, this file should be examined for '_F_', fatal message type. The responsible person should be advised.

3. User Log File: CER8.1P1_LogUser_$SS8_$PS8_$CC8.{YYYY}{MM}

The User Log File is not used at this time, but exists to satisfy the Toolkit requirements. Typically the _U_ and _N_ (User information and Notice) will be written to User Log File and Status Log File.

2.5.4 Solutions to Possible Problems

As mentioned in Section 2.4.5, all output files are opened with Status = NEW. The PGE script has been designed to check for these files and to delete them prior to execution, but in the case of a change in the file permission status, the ASDC must take appropriate action. These files must be removed before reprocessing. A script, which removes PGE created files, **cleanup_8.1P1.csh**, is located in directory **$CERESHOME/tisa_avg/bin**. To use the clean-up files for **CER8.1P1**:

>$CERESHOME/tisa_avg/bin/cleanup_8.1P1.csh

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

a. Subsystem Termination

There are no foreseeable subsystem terminating conditions at this time.

a. Target PGE Termination

N/A

2.6 Expected Output Dataset(s)

The expected Output Datasets are listed below for each instance of the PGE. This PGE is expected to process once per month.

Table 2-5. Expected Output File Listing for CER8.1P1

File Name[a]/Directory	m/o	File Size (MB)	Freq/PGE	Target PGE	Destination[b]
CER8.1P1_PCF_$SS8_$PS8_$CC8.{YYYY}{MM} @($CERESHOME/tisa_avg/rcf)	m	1	1/mo	N/A	Archive, rm
CER8.1P1_PCFin_$SS8_$PS8_$CC8.{YYYY}{MM} @($CERESHOME/tisa_avg/rcf)	m	1	1/mo	N/A	Archive, rm
CER8.1P1_LogReport_$SS8_$PS8_$CC8.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_8/runlogs)	m	2.6	1/mo	N/A	Archive, rm
CER8.1P1_LogStatus_$SS8_$PS8_$CC8.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_8/runlogs)	m	1	1/mo	N/A	Archive, rm
CER8.1P1_LogUser_$SS8_$PS8_$CC8.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_8/runlogs)	m	1	1/mo	N/A	Archive, rm
CER_AVG_$SS8_$PS8_$CC8.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_8/out_comp)	m	1585	1/mo	N/A	Archive, rm
CER_ZAVG_$SS8_$PS8_$CC8.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_8/out_comp)	m	36	1/mo	N/A	Archive, rm
CER_SYN_$SS8_$PS8_$CC8.{YYYY}{MM}{DD}(.met) @ ($CERESHOME/tisa_avg/data/data_8/out_comp)	m	564	28..31/mo	N/A	Archive, rm
CER_LRGRP_$SS8_$PS8_$CC8.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_8/out_comp)	m	1	1/mo	N/A	Archive, rm

a. See Section 2.2 for information on variable data values
If "(**.met**)" is written next to an expected Output Filename, then the metadata file **must** exist with the identical filename and .met extension

b. Permanent - Files will not be removed from the production disk
DB - File content is to be entered into the LaTIS Database
rm - remove
YYYY - 4 digit year
MM - 2 digit month {valid values: 01 .. 12}
DD - 2 digit day {valid values: 01 .. 31}
m - mandatory output
o - optional output

2.7 Expected Temporary Files / Directories

N/A

3.0 PGEName: CER10.1P1

Compute Monthly and Regional TOA and SRB Averages (Subsystem 10.0)

3.1 PGE Details

3.1.1 Responsible Persons

Table 3-1. Subsystem Software Analysts Contacts

Item	Primary	Alternate
Contact Name	Cathy Nguyen	Rajalekshmy Raju
Organization	SAIC	SAIC
Address	1 Enterprise Parkway	1 Enterprise Parkway
City	Hampton	Hampton
State	VA 23666	VA 23666
Phone	827-4855	827-4854
Fax	825-4968	825-4968
LaRC email	le.t.nguyen@larc.nasa.gov	r.raju@larc.nasa.gov

3.1.2 E-mail Distribution List

E-mail distribution list can be obtained from the primary contact listed in Table 3-1.

3.1.3 Parent PGE(s)

Table 3-2. Parent PGEs for CER10.1P1

PGEName	Description
CER9.3P1	Sort and Merge Gridded TOA and Surface Fluxes.
CER9.1P1	Postprocessor for MOA Data, creates PMOA
CER10.1P2	Preprocessor for creating the clear-sky map, the monthly hourly CERES clear-sky albedo and Snow/Ice Data
CER11.6P1	Sort and Merge Gridded Geostationary Narrowband Radiance, GGEOW. This PGE should be used if GGEOW is available.
CER11.2P1	Sort and Merge Gridded Geostationary Narrowband Radiance, GGEO. This PGE is used only if GGEOW is not available.

3.1.4 Target PGE(s)

CER10.1P1 has no target PGE(s).

3.2 Operating Environment

3.2.1 Runtime Parameters

Table 3-3. Runtime Parameters for CER10.1P1

Parameter	Description	Data Type	Valid Values
subsystem_id	Subsystem number	I(2)	10
MM	CERDataDateMonth	I(2)	01 .. 12
YYYY	CERDataDateYear	I(4)	>1996
GGEO	GGEO data exist flag, default=Y	C(1)	Y, N

3.2.2 Environment Script Requirements

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

One Environment Script is required. It is named '**ENV10.1P1-env.csh**' and contains the following parameters:

SS10 Output Sampling Strategy for Subsystem 10, see Production Request
SS9 Input Sampling Strategy for Subsystem 9, see Production Request
SS11 Input Sampling Strategy for Subsystem 11, see Production Request
SS12 Input Sampling Strategy for Subsystem 12, see Production Request
PS10 Output Production Strategy for CER10.1P1, see Production Request
PS9 Input Production Strategy for Subsystem 9, see Production Request
PS11 Input Production Strategy for Subsystem 11, see Production Request
PS12 Input Production Strategy for Subsystem 12, see Production Request
CC10 Output Configuration Code for CER10.1P1, see CM Database
CC9_3 Input Configuration Code for Subsystem 9, see CM Database
CC9_1 Input Configuration Code for Subsystem 9, see CM Database
CC11 Input Configuration Code for Subsystem 11, see CM Database
CC11_6 Input Configuration Code for Subsystem 11, see CM Database
SW10 Output Software SCCR# for Subsystem 10, see CM Database
DATA10 Output Data SCCR# for Subsystem 10, see CM Database
INST Instrument Process for Subsystem 10, see Production Request

3.2.3 Execution Frequency (daily, hourly,..)

monthly (1/month) - This PGE is processed once per month, when input is available.

3.2.4 Memory/Disk Space/Time Requirements

Memory:	194384 K
Disk Space:	2.5 GB
Total Run Time:	11 hours 40 minutes

3.2.5 Restrictions Imposed in Processing Order

Process when input data are available (see Section 3.3). The PGE CER10.1P2 produces input data for CER10.1P1, therefore CER10.1P2 must be processed before CER10.1P1 processing.

3.3 Processor Dependencies (Previous PGEs, Ingest Data,..)

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

3.3.1 Input Dataset Name (#1): PMOA

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

   $CERESHOME/tisa_grid/data/out_comp/data/PMOA/
   CER_PMOA_$SS12_$PS12_$CC9_1.{YYYY}{MM}F*, where* = 1 .. 4

   1. Mandatory/Optional: **These files are Mandatory.**
   2. Time Related Dependency:

      The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
   3. Waiting Period: **None, process when all input data are available.**

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

   Source PGE: CER9.1P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution:

   Do not remove, will be needed for other PGE(s).

e. Typical file size (MB): **(Total 4 files = 5764 MB)**

3.3.2 Input Dataset Name (#2): SFCB

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

$CERESHOME/tisa_grid/data/out_comp/data/SFC/
CER_SFCB_${SS9}_${PS9}_${CC9_3}.{YYYY}{MM}Z*, where* = 001 .. 180

$CERESHOME/tisa_grid/data/out_comp/data/SFC/
CER_SFCB_${SS9}_${PS9}_${CC9_3}.{YYYY}{MM}Z*.met, where* = 001 .. 180

1. Mandatory/Optional: **At least one of the 180 files is Mandatory.**
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period: **None, process when all input data are available.**

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

Source PGE: CER9.3P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Files can be removed.**

e. Typical file size (MB): **33 MB**

3.3.3 Input Dataset Name (#3): GGEOW or GGEO

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

$CERESHOME/ggeo/data/out_comp/data/
CER_GGEO_$SS11_$PS11_$CC11.{YYYY}{MM}

or

$CERESHOME/ggeo/data/out_comp/data/
CER_GGEOW_$SS11_$PS11_$CC11_6.{YYYY}{MM}

GGEOW should be chosen before **GGEO,** and if it is not available, then **GGEO** is the alternate data set**.**

1. Mandatory/Optional: **Mandatory,** see item 3.
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period:

   Dependent on GGEOW or GGEO expected waiting period (consult CERES Data Management Team (DMT)).

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

Source PGE: CER11.6P1 or CER11.2P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **567 MB**

3.3.4 Input Dataset Name (#4): mhr-csalb

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/
CER_mhr-csalb_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **Mandatory,** see item 3.
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period:

   Dependent on SFC expected waiting period (consult CERES Data Management Team (DMT)).

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

Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **15.6 MB**

3.3.5 Input Dataset Name (#5): csalb0-intrp2s

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/
CER_csalb0-intrp2s_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **Mandatory,** see item 3.
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period:

   Dependent on SFC expected waiting period (consult CERES Data Management Team (DMT)).

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

   Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **649800 B**

3.3.6 Input Dataset Name (#6): SNOW-PCT

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

   $CERESHOME/tisa_avg/data/ancillary/dynamic/ CER_SNOW-PCT_$SS10_$PS10_$CC10.{YYYY}{MM}

   1. Mandatory/Optional: **Mandatory,** see item 3.
   2. Time Related Dependency:

      The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

   3. Waiting Period:

      Dependent on SFC expected waiting period (consult CERES Data Management Team (DMT)).

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

   Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **259200 B**

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

The main processor production script, **CER10.1P1**, references a Process Control File (PCF), which contains the correct file names and paths for the PGE. This PCF is created by first executing an ASCII file generator, **tisavg_10.1P1_ascii_gen.csh**, and then the PCF generator, **tisavg_10.1P1_pcfgen.csh**. The ASCII file generator sources a Subsystem 10.0-specific environment script, **ENV10.1P1-env.csh**.

3.4.1 How to Generate the ASCII File

The ASCII file generator, **tisavg_10.1P1_ascii_gen.csh**, requires four command-line arguments: 2-digit Subsystem Number (10), 4-digit Data Year (YYYY), 2-digit Data Month (MM), and 1-character GGEO data file exist flag (GGEO) (Optional, default value = y), see Table 3-3.
At the command-line (>) type:

> cd $CERESHOME/tisa_avg/bin
> tisavg_10.1P1_ascii_gen.csh {subsystem_id} {YYYY} {MM} {GGEO}

The following file will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER10.1P1_PCFin_$SS10_$PS10_$CC10.{YYYY}{MM}

3.4.2 How to Generate the PCF File

The PCF generator, **tisavg_10.1P1_pcfgen.csh,** is executed using the newly created ASCII input file name as a command-line argument.

Note: The PCF generator script, **tisavg_10.1P1_pcfgen.csh**, uses the PCF.template. Therefore, PCF.template must exist in the $CERESHOME/tisa_avg/bin directory.

At the command-line (>) type:

> cd $CERESHOME/tisa_avg/bin
> tisavg_10.1P1_pcfgen.csh $CERESHOME/tisa_avg/rcf/
CER10.1P1_PCFin_$SS10_$PS10_$CC10.{YYYY}{MM}

The following PCF will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER10.1P1_PCF_$SS10_$PS10_$CC10.{YYYY}{MM}

3.4.3 How to Execute the Main Processor

The production script is executed by typing the script name, **CER10.1P1**, followed by three command-line arguments: year (YYYY), month (MM), and PCF file name, see Table 3-3.

At the command-line (>) type:

> cd $CERESHOME/tisa_avg/bin
> CER10.1P1 {YYYY} {MM}
CER10.1P1_PCF_$SS10_$PS10_$CC10.{YYYY}{MM}

3.4.4 Special Case Considerations

N/A at this time.

3.4.5 Special Reprocessing Instructions

All output files are opened with STATUS=NEW in Subsystem 10.0. These files must be removed before processing. Refer to Table 3-5, the files in this table have to be completely removed.

3.5 Execution Evaluation

3.5.1 Exit Codes

The processor CER10.1P1 terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS), as seen in Table 3-4. Other Exit Codes may appear from the program, which may be the result of a system, compiler, or Toolkit-related error. In these cases, contact the responsible person (see Table 3-3) for assistance.

Table 3-4. Exit Codes for CER10.1P1

Exit Code	Definition	Action
0	Normal Exit	Proceed normally
202	Failure	Check the Log Files and take the appropriate action (see Appendix B).

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

When running the production script, **CER10.1P1**, the system message, "No match" may be written to the screen. This message occurs when the scripts try to remove an old output file that does not exist. This does not signify a problem.

3.5.3 Log and Status Files Results (Include <u>ALL</u> Log Files)

The Log files contain all error and/or status messages produced by the PGE. The files are located in directory: **$CERESHOME/tisa_avg/data/data_10/runlogs**.

1. Report Log File: CER10.1P1_LogReport_$SS10_$PS10_$CC10.{YYYY}{MM}

The Report Log File contains TISA Averaging-related messages. A comprehensive list of these messages that can be generated during execution of the PGE is contained in Appendix B .

2. Status Log File: CER10.1P1_LogStatus_$SS10_$PS10_$CC10.{YYYY}{MM}

The Status Log File contains all messages created by the Toolkit. If an abnormal exit is encountered by the PGE, this file should be examined for '_F_', fatal message type. The responsible person should be advised.

3. User Log File: CER10.1P1_LogUser_$SS10_$PS10_$CC10.{YYYY}{MM}

The User Log File is not used at this time, but exists to satisfy the Toolkit requirements. Typically, the _U_ and _N_ (User information and Notice) will be written to User Log File and Status Log File.

3.5.4 Solutions to Possible Problems

As mentioned in Section 3.4.5 all output files are opened with Status = NEW. The PGE script has been designed to check for these files and to delete them prior to execution, but in the case of a change in the file permission status, the ASDC must take appropriate action. These files must be removed before reprocessing. A script, which removes PGE created files, **cleanup_10.1P1.csh**, is located in directory **$CERESHOME/tisa_avg/bin**. To use the clean-up files for **CER10.1P1**:

>**$CERESHOME/tisa_avg/bin/cleanup_10.1P1.csh**

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

a. Subsystem Termination

There are no foreseeable subsystem terminating conditions at this time.

b. Target PGE Termination

N/A

3.6 Expected Output Dataset(s)

The expected Output Datasets are listed below for each instance of the PGE. This PGE is expected to process once per month**.**

Table 3-5. Expected Output File Listing for CER10.1P1 (1 of 7)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
CER10.1P1_LogReport_$SS10_$PS10_$CC10.{YYYY}{MM} @ ($CERESHOME/tisa_avg/data/data_10/runlogs)	m	604	1/mo	N/A	Archive, rm

Table 3-5. Expected Output File Listing for CER10.1P1 (2 of 7)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
CER10.1P1_LogStatus_$SS10_$PS10_$CC10.{YYYY}{MM} @ ($CERESHOME/tisa_avg/data/data_10/runlogs)	m	604	1/mo	N/A	Archive, rm
CER10.1P1_LogUser_$SS10_$PS10_$CC10.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_10/runlogs)	m	604	1/mo	N/A	Archive, rm
CER10.1P1_PCFin_$SS10_$PS10_$CC10.{YYYY}{MM} @ ($CERESHOME/tisa_avg/rcf)	m	604	1/mo	N/A	Archive, rm
CER10.1P1_PCF_$SS10_$PS10_$CC10.{YYYY}{MM} @ ($CERESHOME/tisa_avg/rcf)	m	604	1/mo	N/A	Archive, rm
CER_SRBAVG1_$SS10_$PS10_$CC10.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	604	1/mo	N/A	Archive, rm
CER_SRBAVG2_$SS10_$PS10_$CC10.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	1794	1/mo	N/A	Archive, rm
CER_SRBAVG3_$SS10_$PS10_$CC10.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	1794	1/mo	N/A	Archive, rm
CER_xglb_$SS10_$PS10_$CC10.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/ancillary/dynamic)	m	2.3	1/mo	N/A	Archive, rm
CER_NQCRP_$SS10_$PS10_$CC10.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	4	1/mo	N/A	Archive, rm
CER_NRGRP_$SS10_$PS10_$CC10.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	26	1/mo	N/A	Archive, rm
CER_NVREG_$SS10_$PS10_$CC10.{YYYY}{MM}(.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	1	1/mo	N/A	Archive, rm
TOA_TSP_{YYYY}{MM}_$INST.pdf @ ($CERESHOME/tisa_avg/web/tsplot)	m	5	1/mo	N/A	Permanent
SURF_TSP_{YYYY}{MM}_$INST.pdf @ ($CERESHOME/tisa_avg/web/tsplot)	m	5	1/mo	N/A	Permanent
CALB_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CALB_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CALB_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLDO_HIGH_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent

Table 3-5. Expected Output File Listing for CER10.1P1 (3 of 7)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
CLDO_LMID_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLDO_LOW_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLDO_UMID_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLDP_HIGH_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLDP_LMID_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLDP_LOW_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLDP_UMID_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CLW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CNF_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CNF_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CNF_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSDLW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent

Table 3-5. Expected Output File Listing for CER10.1P1 (4 of 7)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
CSDLW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSDLW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSDSW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSDSW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSDSW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSDWN_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSNLW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM})	m	1	1/mo	N/A	Permanent
CSNLW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSNLW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSNSW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSNSW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSNSW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSN_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent

Table 3-5. Expected Output File Listing for CER10.1P1 (5 of 7)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
CSW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CSW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CWN_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CWN_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
CWN_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TALB_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TALB_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TALB_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TLW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TLW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TLW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TNF_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TNF_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TNF_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent

Table 3-5. Expected Output File Listing for CER10.1P1 (6 of 7)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
TSDLW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSDSW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSDSW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSDSW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSDWN_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSNLW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSNLW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSNLW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSNSW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSNSW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSNSW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSN_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSW_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TSW_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent

Table 3-5. Expected Output File Listing for CER10.1P1 (7 of 7)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
TSW_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TWN_A_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TWN_B_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent
TWN_D_{YYYY}{MM}_$INST.gif @ ($CERESHOME/tisa_avg/web/plot/gif/ TAVG_{YYYY}{MM}_$INST)	m	1	1/mo	N/A	Permanent

a. See Section 3.2 for information on variable data values
If "(**.met**)" is written next to an expected Output Filename, then the metadata file **must** exist with the identical filename and .met extension
b. Permanent - Files will not be removed from the production disk
rm - remove
YYYY - 4-digit year
MM - 2-digit month {valid values: 01 .. 12}
m - mandatory output
o - optional output
INST - Instrument code (1 for TRMM-PFM, or 2 TERRA-FM1, or 3 for TERRA-FM2, or 4 for AQUA-FM3, or 5 for AQUA-FM4)

3.7 Expected Temporary Files / Directories

Table 3-6. Temporary Files Listing (1 of 3)

Directory	File Name
$CERESHOME/tisa_avg/data/data_10/out_comp	MCFWrite.temp{YYYY}
$CERESHOME/tisa_avg/data/data_10/runlogs	ShmMem
$CERESHOME/tisa_avg/data/int_prod	CER_match-bin_$SS10_ $PS10_ $CC10.{YYYY}{MM}
$CERESHOME/tisa_avg/data/int_prod	CER_match-lat_$SS10_$PS10_ $CC10.{YYYY}{MM}
$CERESHOME/tisa_avg/data/int_prod	CER_match-tot_$SS10_$PS10_ $CC10.{YYYY}{MM}
$CERESHOME/tisa_avg/data/int_prod	CER_tot-match_$SS10_$PS10_ $CC10.{YYYY}{MM}
$CERESHOME/tisa_avg/web/plot/dat	CALB_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CALB_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLDO_HIGH.{YYYY}{MM}_$INST

Table 3-6. Temporary Files Listing (2 of 3)

Directory	File Name
$CERESHOME/tisa_avg/web/plot/dat	CLDO_LMID.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLDO_LOW.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLDO_UMID.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLDP_HIGH.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLDP_LMID.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLDP_LOW{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLDP_UMID.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CLW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CNF_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CNF_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSDLW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSDLW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSDSW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSDSW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSDWN_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSNLW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSNLW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSNSW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSNSW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSN_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CSW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CWN_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	CWN_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TALB_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TALB_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TLW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TLW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TNF_A.{YYYY}{MM}_$INST

Table 3-6. Temporary Files Listing (3 of 3)

Directory	File Name
$CERESHOME/tisa_avg/web/plot/dat	TNF_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSDLW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSDSW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSDSW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSDWN_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSNLW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSNLW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSNSW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSNSW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSN_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSW_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TSW_B.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TWN_A.{YYYY}{MM}_$INST
$CERESHOME/tisa_avg/web/plot/dat	TWN_B.{YYYY}{MM}_$INST

4.0 PGEName: CER10.1P2

CERES Only Monthly and Monthly Hourly Albedo and SW Flux (Subsystem 10.0)

4.1 PGE Details

4.1.1 Responsible Persons

Table 4-1. Subsystem Software Analysts Contacts

Item	Primary	Alternate
Contact Name	Cathy Nguyen	Rajalekshmy Raju
Organization	SAIC	SAIC
Address	1 Enterprise Parkway	1 Enterprise Parkway
City	Hampton	Hampton
State	VA 23666	VA 23666
Phone	827-4855	827-4854
Fax	825-4968	825-4968
LaRC email	le.t.nguyen@larc.nasa.gov	r.raju@larc.nasa.gov

4.1.2 E-mail Distribution List

E-mail distribution list can be obtained from the primary contact listed in Table 4-1.

4.1.3 Parent PGE(s)

Table 4-2. Parent PGEs for CER10.1P2

PGEName	Description
CER9.3P1	Sort and Merge Gridded TOA and Surface Fluxes.

4.1.4 Target PGE(s)

Table 4-3. Target PGEs after CER10.1P2

PGEName	Description
CER10.1P1	Temporal Interpolation and Spacial Average

4.2 Operating Environment

4.2.1 Runtime Parameters

Table 4-4. Runtime Parameters for CER10.1P2

Parameter	Description	Data Type	Valid Values
MM	CERDataDateMonth	I(2)	01 .. 12
YYYY	CERDataDateYear	I(4)	>1996

4.2.2 Environment Script Requirements

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

One Environment Script is required. It is named '**ENV10.1P2-env.csh**' and contains the following parameters:

SS10	Output Sampling Strategy for Subsystem 10, see Production Request
SS9	Input Sampling Strategy for Subsystem 9, see Production Request
PS10	Output Production Strategy for Subsystem 10, see Production Request
PS9	Input Production Strategy for Subsystem 9, see Production Request
CC10	Output Configuration Code for Subsystem 10, see CM Database
SW10	Output Software SCCR# for Subsystem 10, see CM Database
DATA10	Output Data SCCR# for Subsystem 10, see CM Database
INST	Instrument Process for Subsystem 10, see Production Request

4.2.3 Execution Frequency (daily, hourly,..)

monthly (1/month) - This PGE is processed once per month, when input is available.

4.2.4 Memory/Disk Space/Time Requirements

Memory:	54624 K
Disk Space:	21.6 GB
Total Run Time:	1 hour and 48 minutes

4.2.5 Restrictions Imposed in Processing Order

None. Process when input data are available (see Section 4.3).

4.3 Processor Dependencies (Previous PGEs, Ingest Data,..)

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

4.3.1 Input Dataset Name (#1): SFCB

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

   $CERESHOME/tisa_grid/data/out_comp/data/SFC/
   CER_SFCB_${SS9}_${PS9}_${CC9_3}.{YYYY}{MM}Z*, where* = 001 .. 180

   $CERESHOME/tisa_grid/data/out_comp/data/SFC/
   CER_SFCB_${SS9}_${PS9}_${CC9_3}.{YYYY}{MM}Z*.met, where* = 001 .. 180

   1. Mandatory/Optional: **At least one of the 180 files is Mandatory.**
   2. Time Related Dependency:

      The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
   3. Waiting Period: **None, process when all input data are available.**

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

   Source PGE: CER9.3P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **33 MB**

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

The main processor production script, **CER_10.1P2**, references a Process Control File (PCF) which contains the correct file names and paths for the PGE. This PCF is created by first executing an ASCII file generator, **tisavg_10.1P2_ascii_gen.csh**, and then the PCF generator, **tisavg_10.1P2_pcfgen.csh**. The ascii file generator sources a CER10.1P2-specific environment script, **ENV10.1P2-env.csh.**

4.4.1 How to Generate the ASCII File

The ASCII file generator, **tisavg_10.1P2_ascii_gen.csh**, requires four command-line arguments: 2-digit Subsystem Number (10), 4-digit Data Year (YYYY), and 2-digit Data Month (MM), see Table 4-4.

At the command-line (>) type:

> cd $CERESHOME/tisa_avg/bin
> tisavg_10.1P2_ascii_gen.csh {subsystem_id} {YYYY} {MM}

The following file will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER10.1P2_PCFin_$SS10_$PS10_$CC10.{YYYY}{MM}

4.4.2 How to Generate the PCF File

The PCF generator, **tisavg_10.1P2_pcfgen.csh,** is executed using the newly created ASCII input file name as a command-line argument.

Note: The PCF generator script, **tisavg_10.1P2_pcfgen.csh**, uses the PCF.template. Therefore, PCF.template must exist in the $CERESHOME/tisa_avg/bin directory.

At the command-line (>) type:

> cd $CERESHOME/tisa_avg/bin
> tisavg_10.1P2_pcfgen.csh $CERESHOME/tisa_avg/rcf/
CER10.1P2_PCFin_$SS10_$PS10_$CC10.{YYYY}{MM}

The following PCF will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER10.1P2_PCF_$SS10_$PS10_$CC10.{YYYY}{MM}

4.4.3 How to Execute the Main Processor

The production script is executed by typing the script name, **CER10.1P2**, followed by the PCF file name.

At the command line (>) type:

> cd $CERESHOME/tisa_avg/bin
> CER10.1P2 CER10.1P2_PCF_$SS10_$PS10_$CC10.{YYYY}{MM}

4.4.4 Special Case Considerations

N/A at this time.

4.4.5 Special Reprocessing Instructions

All output files are opened with STATUS=NEW in Subsystems 10.0. The PGE script has been designed to check for these files and delete them prior to execution, but in the case of a change in the file permission status, the ASDC must take appropriate action. These files must be removed before processing.

4.5 Execution Evaluation

4.5.1 Exit Codes

The processor CER10.1P2 terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS), as seen in Table 4-5. Other Exit Codes may appear from the program, which may be the result of a system, compiler, or Toolkit related error. In these cases, contact the responsible person(s) (see Table 4-1) for assistance.

Table 4-5. Exit Codes for CER10.1P2

Exit Code	Definition	Action
0	Normal Exit	Proceed normally
202	Failure	Check the Log Files and take the appropriate action (see Appendix B).

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

When running the production script, **CER10.1P2**, the system message, "No match," may be written to the screen. This message occurs when the scripts try to remove an old output file that does not exist. This does not signify a problem.

4.5.3 Log and Status Files Results (Include <u>ALL</u> Log Files)

The Log files contain all error and/or status messages produced by the PGE. The files are located in directory: **$CERESHOME/tisa_avg/data/data_10/runlogs**.

1. Report Log File: CER10.1P2_LogReport_$SS10_$PS10_$CC10.{YYYY}{MM}

The Report Log File contains TISA Averaging related messages. A comprehensive list of these messages that can be generated during execution of the PGE is contained in Appendix B .

2. Status Log File: CER10.1P2_LogStatus_$SS10_$PS10_$CC10.{YYYY}{MM}

The Status Log File contains all messages created by the Toolkit. If an abnormal exit is encountered by the PGE, this file should be examined for '_F_', fatal message type. The responsible person should be advised.

3. User Log File: CER10.1P2_LogUser_$SS10_$PS10_$CC10.{YYYY}{MM}

The User Log File is not used at this time, but exists to satisfy the Toolkit requirements. Typically the _U_ and _N_ (User information and Notice) will be written to User Log File and Status Log File.

4.5.4 Solutions to Possible Problems

As mentioned in Appendix B all output files are opened with Status = NEW. The PGE script has been designed to check for these files and to delete them prior to execution, but in the case of a change in the file permission status, the ASDC must take appropriate action. These files must be removed before reprocessing. A script, which removes PGE created files, **cleanup_10.1P2_Terra.csh**, is located in directory **$CERESHOME/tisa_avg/bin**. To use the clean-up files for **CER10.1P2**:

>**$CERESHOME/tisa_avg/bin/cleanup_10.1P2_Terra.csh**

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

a. Subsystem Termination

   There are no foreseeable subsystem terminating conditions at this time.

b. Target PGE Termination

   N/A

4.6 Expected Output Dataset(s)

The expected Output Datasets are listed below for each instance of the PGE. This PGE is expected to process once per month**.**

Table 4-6. Expected Output File Listing for CER10.1P2

File Name[a]/Directory	m/o	File Size (MB)	Freq/ PGE	Target PGE	Destination[b]
CER_mhr-csalb_$SS10_$PS10_$CC10.{YYYY}{MM}(.met) @($CERESHOME/tisa_avg/data/ancillary/dynamic)	m	12	1/mo	CER10.1P1	Archive
CER_csalb0_intrp2s_$SS10_$PS10_$CC10.{YYYY}{MM}(.met) @($CERESHOME/tisa_avg/data/ancillary/dynamic)	m	1	1/mo	CER10.1P1	Archive
CER_SNOW-PCT_$SS10_$PS10_$CC10.{YYYY}{MM} (.met) @($CERESHOME/tisa_avg/data/ancillary/dynamic)	m	4	1/mo	CER10.1P1	Archive
CER10.1P2_PCF_$SS10_$PS10_$CC10.{YYYY}{MM} @($CERESHOME/tisa_avg/rcf)	m	0.04	1/mo	N/A	Archive, rm
CER10.1P2_PCFin_$SS10_$PS10_$CC10.{YYYY}{MM} @($CERESHOME/tisa_avg/rcf)	m	0.006	1/mo	N/A	Archive, rm
CER101P2_LogStatus_$SS10_$PS10_$CC10.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_10/runlogs)	m	0.005	1/mo	N/A	Archive, rm
CER10.1P2_LogReport_$SS10_$PS10_$CC10.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_10/runlogs)	m	0.001	1/mo	N/A	Archive, rm
CER10.1P2_LogUser_$SS10_$PS10_$CC10.{YYYY}{MM} @($CERESHOME/tisa_avg/data/data_10/runlogs)	m	0.001	1/mo	N/A	Archive, rm

a. See Section 4.2 for information on variable data values
If "(**.met**)" is written next to an expected Output Filename, then the metadata file **must** exist with the identical filename and .met extension

b. VD - Validation Days in 1998 (Jan./5, 12, 19, 26/, Apr./6, 13, 20, 27/, July/6, 13, 20, 27/, Oct./5, 12, 19, 26/)
Permanent - Files will not be removed from the production disk
DB - File content is to be entered into the LaTIS Database
rm - remove
YYYY - 4 digit year
MM - 2 digit month {valid values: 01 .. 12}
DD - 2 digit day {valid values: 01 .. 31
HH - 2 digit hour of the day {valid values: 00 .. 23)
m - mandatory output
o - optional output
EOD - End of Data Month

4.7 Expected Temporary Files / Directories

Table 4-7. Temporary Files Listing

Directory	File Name
$CERESHOME/tisa_avg/data/int_prod	CER_clrsky-albsw$SS10_ $PS10_$CC10.{YYYY}{MM}

5.0 PGEName: CER10.1P3

Compute Daily Regional TOA and SRB Averages (Subsystem 10.0)

5.1 PGE Details

5.1.1 Responsible Persons

Table 5-1. Subsystem Software Analysts Contacts

Item	Primary	Alternate
Contact Name	Cathy Nguyen	Rajalekshmy Raju
Organization	SAIC	SAIC
Address	1 Enterprise Parkway	1 Enterprise Parkway
City	Hampton	Hampton
State	VA 23666	VA 23666
Phone	827-4855	827-4854
Fax	825-4968	825-4968
LaRC email	le.t.nguyen@larc.nasa.gov	r.raju@larc.nasa.gov

5.1.2 E-mail Distribution List

E-mail distribution list can be obtained from the primary contact listed in Table 5-1.

5.1.3 Parent PGE(s)

Table 5-2. Parent PGEs for CER10.1P3

PGEName	Description
CER9.3P1	Sort and Merge Gridded TOA and Surface Fluxes.
CER9.1P1	Postprocessor for MOA Data, creates PMOA
CER10.1P2	Preprocessor for creating the clear-sky map, the monthly hourly CERES clear-sky albedo and Snow/Ice Data
CER11.6P1	Sort and Merge Gridded Geostationary Narrowband Radiance, GGEOW. This PGE should be used if GGEOW is available.
CER11.2P1	Sort and Merge Gridded Geostationary Narrowband Radiance, GGEO. This PGE is used only if GGEOW is not available.

5.1.4 Target PGE(s)

CER10.1P3 has no target PGE(s).

5.2 Operating Environment

5.2.1 Runtime Parameters

Table 5-3. Runtime Parameters for CER10.1P3

Parameter	Description	Data Type	Valid Values
subsystem_id	Subsystem number	I(2)	10
MM	CERDataDateMonth	I(2)	01 .. 12
YYYY	CERDataDateYear	I(4)	>1996
GGEO	GGEO data exist flag, default=Y	C(1)	Y, N

5.2.2 Environment Script Requirements

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

One Environment Script is required. It is named '**ENV10.1P3-env.csh**' and contains the following parameters:

SS10	Output Sampling Strategy for Subsystem 10, see Production Request
SS9	Input Sampling Strategy for Subsystem 9, see Production Request
SS11	Input Sampling Strategy for Subsystem 11, see Production Request
SS12	Input Sampling Strategy for Subsystem 12, see Production Request
SS4_0	Input Sampling Strategy for CER4.1-4.0P1, see Production Request
PS10	Input Production Strategy for CER10.1P1, CER10.1P2, see Production Request
PS10_3	Output Production Strategy for CER10.1P3, see Production Request
PS9	Input Production Strategy for Subsystem 9, see Production Request
PS11	Input Production Strategy for Subsystem 11, see Production Request
PS12	Input Production Strategy for Subsystem 12, see Production Request
PS4_0	Input Production Strategy for CER4.1-4.0P1, see Production Request
CC10	Input Configuration Code for CER10.1P1, CER10.1P2, see CM Database
CC10_3	Output Configuration Code for CER10.1P3, see CM Database
CC9_3	Input Configuration Code for Subsystem 9, see CM Database
CC9_1	Input Configuration Code for Subsystem 9, see CM Database
CC11	Input Configuration Code for Subsystem 11, see CM Database
CC11_6	Input Configuration Code for Subsystem 11, see CM Database

CC4_0	Input Configuration Code for CER4.1-4.0P1, see CM Database
SW10	Output Software SCCR# for Subsystem 10, see CM Database
DATA10	Output Data SCCR# for Subsystem 10, see CM Database
INST	Instrument Process for Subsystem 10, see Production Request

5.2.3 Execution Frequency (daily, hourly,..)

monthly (1/month) - This PGE is processed once per month, when input is available.

5.2.4 Memory/Disk Space/Time Requirements

Memory:	194384 K
Disk Space:	2.5 GB
Total Run Time:	4 hours 20 minutes

5.2.5 Restrictions Imposed in Processing Order

Process when input data are available (see Section 5.3).

5.3 Processor Dependencies (Previous PGEs, Ingest Data,..)

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

5.3.1 Input Dataset Name (#1): PMOA

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

   $CERESHOME/tisa_grid/data/out_comp/data/PMOA/
   CER_PMOA_$SS12_$PS12_$CC9_1.{YYYY}{MM}F*, where* = 1 .. 4

   1. Mandatory/Optional: **These files are Mandatory.**
   2. Time Related Dependency:

      The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

   3. Waiting Period: **None, process when all input data are available.**

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

   Source PGE: CER9.1P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution:

   Do not remove, will be needed for other PGE(s).

e. Typical file size (MB): **(Total 4 files = 5764 MB)**

5.3.2 Input Dataset Name (#2): SFCB

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

$CERESHOME/tisa_grid/data/out_comp/data/SFC/ CER_SFCB_${SS9}_$PS{9_3}_${CC9_3}.{YYYY}{MM}Z*, where* = 001 .. 180

$CERESHOME/tisa_grid/data/out_comp/data/SFC/ CER_SFCB_${SS9}_$PS{9_3}_${CC9_3}.{YYYY}{MM}Z*.met, where* = 001 .. 180

1. Mandatory/Optional: **At least one of the 180 files is Mandatory.**
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period: **None, process when all input data are available.**

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

Source PGE: CER9.3P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Files can be removed.**

e. Typical file size (MB): **33 MB**

5.3.3 Input Dataset Name (#3): GGEOW or GGEO

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

$CERESHOME/ggeo/data/out_comp/data/ CER_GGEO_$SS11_$PS11_$CC11.{YYYY}{MM}

or

$CERESHOME/ggeo/data/out_comp/data/ CER_GGEOW_$SS11_$PS11_$CC11_6.{YYYY}{MM}

GGEOW should be chosen before **GGEO,** and if it is not available, then **GGEO** is the alternate data set**.**

1. Mandatory/Optional: **Mandatory,** see item 3.
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period:

   Dependent on GGEO expected waiting period (consult CERES Data Management Team (DMT)).

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

   Source PGE: CER11.6P1 or CER11.2P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **567 MB**

5.3.4 Input Dataset Name (#4): ESNOW

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

   $CERESHOME/clouds/data/out_comp/data/CER_ESAI/ CER_ESNOW_$SS4_0_$PS4_0_$CC4_0.{YYYY}{MM}{01}

   1. Mandatory/Optional: **At least one of the 31 files are Mandatory.**
   2. Time Related Dependency:

      The DataDate {YYYY}{MM}{DD} must match the Runtime Parameters YYYY, MM and DD.

   3. Waiting Period: **None, process when all input data are available.**

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

   Source PGE: CER4.1-4.0P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution:

   Do not remove, will be needed for other PGE(s).

e. Typical file size (MB): **Total file size = 1.2 MB (total 31 files = 34 MB).**

5.3.5 Input Dataset Name (#5): EICE

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

   $CERESHOME/clouds/data/out_comp/data/CER_ESAI/ CER_EICE_$SS4_0_$PS4_0_$CC4_0.{YYYY}{MM}{01}

   1. Mandatory/Optional: **At least one of the 31 files is Mandatory.**

2. Time Related Dependency:

   The DataDate {YYYY}{MM}(DD} must match the Runtime Parameters YYYY, MM and DD.

3. Waiting Period: **None, process when all input data are available.**

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

Source PGE: CER4.1-4.0P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution:

Do not remove, will be needed for other PGE(s).

e. Typical file size (MB): **Total file size = 1.2 MB (total 31 files = 34 MB).**

5.3.6 Input Dataset Name (#6): mhr-csalb

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/ CER_mhr-csalb_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **Mandatory,** see item 3.
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period:

   Dependent on SFC expected waiting period (consult CERES Data Management Team (DMT)).

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

Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **15.6 MB**

5.3.7 Input Dataset Name (#7): csalb0-intrp2s

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/ CER_csalb0-intrp2s_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **Mandatory,** see item 3.
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
3. Waiting Period:

   Dependent on SFC expected waiting period (consult CERES Data Management Team (DMT)).

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

   Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **649800 B**

5.3.8 Input Dataset Name (#8): SNOW-PCT

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

   $CERESHOME/tisa_avg/data/ancillary/dynamic/ CER_SNOW-PCT_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **Mandatory,** see item 3.
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.
3. Waiting Period:

   Dependent on SFC expected waiting period (consult CERES Data Management Team (DMT)).

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

   Source PGE: CER10.1P2

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **259200 B**

5.3.9 Input Dataset Name (#9): xglb

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

$CERESHOME/tisa_avg/data/ancillary/dynamic/
CER_xglb_$SS10_$PS10_$CC10.{YYYY}{MM}

1. Mandatory/Optional: **Mandatory,** see item 3.
2. Time Related Dependency:

   The DataDate {YYYY}{MM} must match the Runtime Parameters YYYY and MM.

3. Waiting Period:

   Dependent on SFC expected waiting period (consult CERES Data Management Team (DMT)).

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

   Source PGE: CER10.1P1

c. Alternate Data Set, if one exists (maximum waiting period): **N/A**

d. File Disposition after successful execution: **Do not remove.**

e. Typical file size (MB): **2.3 MB**

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

The main processor production script, **CER10.1P3**, references a Process Control File (PCF), which contains the correct file names and paths for the PGE. This PCF is created by first executing an ASCII file generator, **tisavg_10.1P3_ascii_gen.csh**, and then the PCF generator, **tisavg_10.1P3_pcfgen.csh**. The ASCII file generator sources a Subsystem 10.0-specific environment script, **ENV10.1P3-env.csh**.

5.4.1 How to Generate the ASCII File

The ASCII file generator, **tisavg_10.1P3_ascii_gen.csh**, requires four command-line arguments: 2-digit Subsystem Number (10), 4-digit Data Year (YYYY), 2-digit Data Month (MM), and 1-character GGEO data file exist flag (GGEO) (Optional, default value = y), see Table 5-3.

At the command-line (>) type:

> cd $CERESHOME/tisa_avg/bin
> tisavg_10.1P3_ascii_gen.csh {subsystem_id} {YYYY} {MM} {GGEO}

The following file will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER10.1P3_PCFin_$SS10_$PS10_3_$CC10_3.{YYYY}{MM}

5.4.2 How to Generate the PCF File

The PCF generator, **tisavg_10.1P3_pcfgen.csh,** is executed using the newly created ASCII input file name as a command-line argument.

Note: The PCF generator script, **tisavg_10.1P3_pcfgen.csh**, uses the PCF.template. Therefore, PCF.template must exist in the $CERESHOME/tisa_avg/bin directory.

At the command-line (>) type:

> cd $CERESHOME/tisa_avg/bin
> tisavg_10.1P3_pcfgen.csh $CERESHOME/tisa_avg/rcf/
CER10.1P3_PCFin_$SS10_$PS10_3_$CC10_3.{YYYY}{MM}

The following PCF will be generated in **$CERESHOME/tisa_avg/rcf/**:

CER10.1P3_PCF_$SS10_$PS10_3_$CC10_3.{YYYY}{MM}

5.4.3 How to Execute the Main Processor

The production script is executed by typing the script name, **CER10.1P3**, followed by three command-line arguments: year (YYYY), month (MM), and PCF file name, see Table 5-3.

At the command-line (>) type:

> cd $CERESHOME/tisa_avg/bin
> CER10.1P3 {YYYY} {MM}
CER10.1P3_PCF_$SS10_$PS10_3_$CC10_3.{YYYY}{MM}

5.4.4 Special Case Considerations

N/A at this time.

5.4.5 Special Reprocessing Instructions

All output files are opened with STATUS=NEW in Subsystem 10.0. These files must be removed before processing. Refer to Table 5-5, the files in this table have to be completely removed.

5.5 Execution Evaluation

5.5.1 Exit Codes

The processor CER10.1P3 terminates using the CERES-defined EXIT CODES for the Langley TRMM Information System (LaTIS), as seen in Table 5-4. Other Exit Codes may appear from the program, which may be the result of a system, compiler, or Toolkit-related error. In these cases, contact the responsible person (see Table 5-1) for assistance.

Table 5-4. Exit Codes for CER10.1P3

Exit Code	Definition	Action
0	Normal Exit	Proceed normally
202	Failure	Check the Log Files and take the appropriate action (see Appendix B).

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

When running the production script, **CER10.1P3**, the system message, "No match" may be written to the screen. This message occurs when the scripts try to remove an old output file that does not exist. This does not signify a problem.

5.5.3 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 directory: **$CERESHOME/tisa_avg/data/data_10/runlogs**.

1. Report Log File: CER10.1P3_LogReport_$SS10_$PS10_3_$CC10_3.{YYYY}{MM}

The Report Log File contains TISA Averaging-related messages. A comprehensive list of these messages that can be generated during execution of the PGE is contained in Appendix B .

2. Status Log File: CER10.1P3_LogStatus_$SS10_$PS10_3_$CC10_3.{YYYY}{MM}

The Status Log File contains all messages created by the Toolkit. If an abnormal exit is encountered by the PGE, this file should be examined for '_F_', fatal message type. The responsible person should be advised.

3. User Log File: CER10.1P3_LogUser_$SS10_$PS10_3_$CC10_3.{YYYY}{MM}

The User Log File is not used at this time, but exists to satisfy the Toolkit requirements. Typically, the _U_ and _N_ (User information and Notice) will be written to User Log File and Status Log File.

5.5.4 Solutions to Possible Problems

As mentioned in Section 5.4.5 all output files are opened with Status = NEW. The PGE script has been designed to check for these files and to delete them prior to execution, but in the case of a change in the file permission status, the ASDC must take appropriate action. These files must be removed before reprocessing. A script, which removes PGE created files, **cleanup_10.1P3.csh**, is located in directory **$CERESHOME/tisa_avg/bin**. To use the clean-up files for **CER10.1P3**:

>**$CERESHOME/tisa_avg/bin/cleanup_10.1P3.csh**

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

a. Subsystem Termination

There are no foreseeable subsystem terminating conditions at this time.

b. Target PGE Termination

N/A

5.6 Expected Output Dataset(s)

The expected Output Datasets are listed below for each instance of the PGE. This PGE is expected to process once per month**.**

Table 5-5. Expected Output File Listing for CER10.1P3 (1 of 2)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
CER10.1P3_LogReport_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} @ ($CERESHOME/tisa_avg/data/data_10/runlogs)	m	604	1/mo	N/A	Archive, rm
CER10.1P3_LogStatus_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} @ ($CERESHOME/tisa_avg/data/data_10/runlogs)	m	604	1/mo	N/A	Archive, rm
CER10.1P3_LogUser_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} @ ($CERESHOME/tisa_avg/data/data_10/runlogs)	m	604	1/mo	N/A	Archive, rm
CER10.1P3_PCFin_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} @ ($CERESHOME/tisa_avg/rcf)	m	604	1/mo	N/A	Archive, rm

Table 5-5. Expected Output File Listing for CER10.1P3 (2 of 2)

File Name[a]/Directory	m/o	File Size (mb)	Freq/ PGE	Target PGE	Destination[b]
CER10.1P3_PCF_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} @ ($CERESHOME/tisa_avg/rcf)	m	604	1/mo	N/A	Archive, rm
CER_SRBAVG-Daily1_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	604	1/mo	N/A	Archive, rm
CER_SRBAVG-Daily2_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	1794	1/mo	N/A	Archive, rm
CER_SRBAVG-ISCCP-D2-like1_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	1794	1/mo	N/A	Archive, rm
CER_SRBAVG-ISCCP-D2-like2_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	1794	1/mo	N/A	Archive, rm
CER_QC-ISCCP-D2-NITE_$SS10_$PS10_3_$CC10_3.{YYYY}{MM} (.met) @ ($CERESHOME/tisa_avg/data/data_10/out_comp)	m	1794	1/mo	N/A	Archive, rm

a. See Section 5.2 for information on variable data values
If "(**.met**)" is written next to an expected Output Filename, then the metadata file **must** exist with the identical filename and .met extension

b. Permanent - Files will not be removed from the production disk
rm - remove
YYYY - 4-digit year
MM - 2-digit month {valid values: 01 .. 12}
m - mandatory output
o - optional output
INST - Instrument code (1 for TRMM-PFM, or 2 TERRA-FM1, or 3 for TERRA-FM2, or 4 for AQUA-FM3, or 5 for AQUA-FM4)

5.7 Expected Temporary Files / Directories

Table 5-6. Temporary Files Listing

Directory	File Name
$CERESHOME/tisa_avg/data/data_10/out_comp	MCFWrite.temp{YYYY}
$CERESHOME/tisa_avg/data/data_10/runlogs	ShmMem

References

1. Reference "Proposal for Semi-Automated Sampling Strategy, Production Strategy, and Configuration Code Implementation" internal paper for detail description of the CERES environment parameters. URL:http://asd-www.larc.nasa.gov/ceres/intern_doc/

Appendix A
Acronyms and Abbreviations

ADM	Angular Distribution Models
ASCII	American Standard Code Information Interchange
ASDC	Atmospheric Sciences Data Center
AVG	Monthly Regional, Average Radiative Fluxes and Clouds
CERES	Clouds and the Earth's Radiant Energy System
CERESLib	CERES Library
DAAC	Distributed Active Archive Center
DMT	Data Management Team
EOS	Earth Observing System
EOSDIS	EOS Data Information System
EOS-AM	EOS Morning Crossing Mission
EOS-PM	EOS Afternoon Crossing Mission
ERBE	Earth Radiation Budget Experiment
ERBS	Earth Radiation Budget Satellite
F90	Fortran 90
FOV	Field-of-View
FSW	Hourly Gridded Single Satellite Fluxes and Clouds
GB	Gigabytes
GGEO	Geostationary data
HDF	Hierarchical Data Format
HDF-EOS	Hierarchical Data Format - Earth Observing System
KB	Kilobytes
LaRC	Langley Research Center
LaTIS	Langley TRMM Information System
LW	Longwave
MB	Megabytes
MCF	Metadata Control File
∝m	micrometer, micron
met	metadata file
∝m	microns
MM	Two-digit Month
N/A	Not Applicable
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
PCF	Process Control File

PMOA	Post Meteorological, Ozone, and Aerosol
QC	Quality Control
SAIC	Science Applications International Corporation
SARB	Surface and Atmospheric Radiation Budget
SRBAVG	Monthly TOA and SRB Averages
SFC	Hourly Gridded Single Satellite TOA and Surface Fluxes and Clouds
SMF	Status Message File
SW	Shortwave
SYN	Synoptic Radiative Fluxes and Clouds
TISA	Time Interpolation and Spatial Averaging
TOA	Top-Of-the-Atmosphere
TRMM	Tropical Rainfall Measuring Mission
TSI	Time Space Interpolation of clouds and TOA fluxes
UT	Universal Time
YYYY	Four-digit Year
ZAVG	Monthly Zonal and Global Average Radiative Fluxes and Clouds

Appendix B
Error Messages for CER10.1P1

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 CER10.1P1 diagnostic messages. Each table entry includes a message pneumonic, the message content, the source module and the recommended action that should be taken when the message is encountered.

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 the appropriate ACTION failed, then call the responsible persons in Table 3-1.
5. In all cases, log all steps that were taken after the PGE failure, and send a copy to the responsible persons.

Action Key Definitions:

Key	Action
1	Go to the appropriate directory to check for the file availability and file permission.
2	Check file existence in directory. $CERESHOME/tisa_avg/data/ancillary/static.
3	Check for permission on $CERESHOME/tisa_avg/data/data_8/out_comp.
4	Check directory $CERESHOME/tisa_avg/data/ for input files.
5	Error in closing file. Check for permission then call the responsible persons.
6	Check for input file permission.
7	Check for write permission and then call the responsible persons.
8	Warning message. Call the responsible persons.
9	Warning message. Code check for analyst.
10	Code errors. Call the responsible persons.
11	Check the hrs.h@($CERESHOME/tisa_avg/src/include7_10) file in the source code/include directory.

B.1 Error Messages for CER10.1P1.

Table B-1. TK Message Table for CER10.1P1

Message/Error Type		Module Name	Action Key
TISAVG_E_OPEN_ERROR	ERROR...Opening GEORC file	georc	1
TISAVG_E_OPEN_ERROR	ERROR...Opening SRBAVG files	hdf_file	1
TISAVG_E_OPEN_ERROR	ERROR...Opening grid for a opened HDF file	hdf_file	1
TISAVG_M_CLOSE_ERROR	MESSAGE...Error detaching grid	hdf_file	8
TISAVG_M_CLOSE_ERROR	MESSAGE...Error closing hdf file	hdf_file	2
TISAVG_E_SRBAVG_WRT_ERR	ERROR...Error writing data onto HDF file	hdf_file	7
TISAVG_E_SUBSYS_HR	ERROR...Error hours in day for the processing subsystem	init_subsys	11
TISAVG_E_BAD_PARAM_INT	ERROR...Error if there is a measurement for the hour and the data is default value	interp_algrthms	8
TISAVG_E_OPEN_ERROR	ERROR...Opening HDF file for write	io_data_mod	1
TISAVG_E_OPEN_ERROR	ERROR...Open_interp_file	output_interp_data	1
TISAVG_E_OPEN_ERROR	ERROR...Opening qc report file	qc_avg	1
TISAVG_F_SOLDEC_ERR	FATAL...Calculating solar declination angles, distance corrected solar constants	sol_stats	10
TISAVG_E_ACCESS_RTN	ERROR...Routine call need at least one input parameter	sol_stats	6
TISAVG_F_CDM_OPEN_ERR	FATAL...Unable to fill sw directional model table	sw_dirmod_rtns	10
TISAVG_W_GET_PCF_PARAM_UNKNOWN	WARNING...Run time param read is not successful	sys_param	8
TISAVG_E_OPEN_ERROR	ERROR...Reading valid region data	valid_regions	6
TISAVG_E_POLAR_FLAG_ERROR	ERROR...Getting the polar flag for a given zone	weights_flags	6

Appendix C
Sample ASCII (PCF in) File Listing(s) for CER10.1P1

C.1 Sample ASCII (PCFin) File Listing for CER10.1P1

```
#####################################
# PCF required directories for CER10.1P1
#####################################
MoaDir              = $CERESHOME/tisa_grid/data/out_comp/data/PMOA
AncDir              = $CERESHOME/tisa_avg/data/ancillary/static
ggeoDir             = $CERESHOME/ggeo/data/out_comp/data
tisavg_InputDir.1   = $CERESHOME/tisa_grid/data/out_comp/data/SFC
tisavg_OutputDir.1  = $CERESHOME/tisa_avg/data/data_10/out_comp
tisavg_ExpOutDir.1  = $CERESHOME/tisa_avg/data/data_10/out_exp
LogDir              = $CERESHOME/tisa_avg/data/data_10/runlogs

#####################################
# Output file names
#####################################
SS10_SRBAVG1        = CER_SRBAVG1_$SS10_$PS10_$CC10.YYYYMM
SS10_SRBAVG2        = CER_SRBAVG2_$SS10_$PS10_$CC10.YYYYMM
SS10_VALIDREG       = CER_NVREG_$SS10_$PS10_$CC10.YYYYMM
SS10_QC             = CER_NQCRP_$SS10_$PS10_$CC10.YYYYMM
SS10_RANGE          = CER_NRGRP_$SS10_$PS10_$CC10.YYYYMM

#####################################
# Ancillary file names
#####################################
Anc_SW03            =  NIISW03.19971101
Anc_LWAT            =  NIILWAT.19971101
Anc_LWSM            =  NIILWSM.19971101
Anc_LWWN            =  NIILWWN.19971101
Anc_LWSP            =  NIILWSP.19971101
Anc_DIRMOD          = CERES_DIR_MODEL.19971212
Anc_alb             = Refl_Coef.19971107
Anc_georc           =  georc.19971212
Anc_ggeo            = CER_GGEO_CERES_Composite_007002.199801
Anc_validreg        = valid_regions.19980316
Anc_range           = range_values.19980204
Anc_range           =  range_values.19980204
```

```
#####################################
# Log file names
#####################################
Logfile.1       = CER10.1P1_LogStatus_$SS10_$PS10_$CC10.YYYYMM
Logfile.2       = CER10.1P1_LogReport_$SS10_$PS10_$CC10.YYYYMM
Logfile.3       = CER10.1P1_LogUser_$SS10_$PS10_$CC10.YYYYMM

############################
# CERES baseline Metadata
############################
PGEName                 = CER10.1P1
SamplingStrategy        = TRMM-PFM-VIRS
ProductionStrategy      = ValidationR2
CERDataDateYear         = 1998
CERDataDateMonth        = 01
CERDataDateDay          = 01
ConfigurationCode       = 001000
SWsccr                  = 000
DATAsccr                = 000
INSTR                   = PFM

#####################################
# PGE specific runtime parameters
#####################################
subsystem_id                    = 10
generate_qc                     = Y
generate_plot                   = Y
Version                         = 2
multi-satellite                 = S
first_zone                      = 1
last_zone                       = 180
geo_data_exist                  = Y
num_days_per_moa_files          =1
file_format                     = HDF
max_days_in_mnth                = 31
Satellite_Instrument            = CERES
Ancillary_Data_Set              = ERBE_ADMs
TK_Ver                          = SCF B.0 TK5.2.7
testcase                        = N

#####################################
# Input  file names
#####################################
SS10_Inputfile1.1  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ001
SS10_Inputfile1.2  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ002
SS10_Inputfile1.3  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ003
```

SS10_Inputfile1.4 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ004
SS10_Inputfile1.5 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ005
SS10_Inputfile1.6 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ006
SS10_Inputfile1.7 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ007
SS10_Inputfile1.8 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ008
SS10_Inputfile1.9 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ009
SS10_Inputfile1.10 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ010
SS10_Inputfile1.11 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ011
SS10_Inputfile1.12 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ012
SS10_Inputfile1.13 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ013
SS10_Inputfile1.14 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ014
SS10_Inputfile1.15 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ015
SS10_Inputfile1.16 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ016
SS10_Inputfile1.17 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ017
SS10_Inputfile1.18 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ018
SS10_Inputfile1.19 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ019
SS10_Inputfile1.20 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ020
SS10_Inputfile1.21 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ021
SS10_Inputfile1.22 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ022
SS10_Inputfile1.23 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ023
SS10_Inputfile1.24 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ024
SS10_Inputfile1.25 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ025
SS10_Inputfile1.26 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ026
SS10_Inputfile1.27 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ027
SS10_Inputfile1.28 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ028
SS10_Inputfile1.29 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ029
SS10_Inputfile1.30 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ030
SS10_Inputfile1.31 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ031
SS10_Inputfile1.32 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ032
SS10_Inputfile1.33 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ033
SS10_Inputfile1.34 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ034
SS10_Inputfile1.35 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ035
SS10_Inputfile1.36 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ036
SS10_Inputfile1.37 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ037
SS10_Inputfile1.38 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ038
SS10_Inputfile1.39 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ039
SS10_Inputfile1.40 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ040
SS10_Inputfile1.41 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ041
SS10_Inputfile1.42 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ042
SS10_Inputfile1.43 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ043
SS10_Inputfile1.44 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ044
SS10_Inputfile1.45 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ045
SS10_Inputfile1.46 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ046
SS10_Inputfile1.47 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ047
SS10_Inputfile1.48 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ048
SS10_Inputfile1.49 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ049

```
SS10_Inputfile1.50  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ050
SS10_Inputfile1.51  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ051
SS10_Inputfile1.52  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ052
SS10_Inputfile1.53  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ053
SS10_Inputfile1.54  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ054
SS10_Inputfile1.55  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ055
SS10_Inputfile1.56  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ056
SS10_Inputfile1.57  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ057
SS10_Inputfile1.58  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ058
SS10_Inputfile1.59  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ059
SS10_Inputfile1.60  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ060
SS10_Inputfile1.61  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ061
SS10_Inputfile1.62  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ062
SS10_Inputfile1.63  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ063
SS10_Inputfile1.64  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ064
SS10_Inputfile1.65  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ065
SS10_Inputfile1.66  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ066
SS10_Inputfile1.67  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ067
SS10_Inputfile1.68  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ068
SS10_Inputfile1.69  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ069
SS10_Inputfile1.70  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ070
SS10_Inputfile1.71  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ071
SS10_Inputfile1.72  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ072
SS10_Inputfile1.73  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ073
SS10_Inputfile1.74  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ074
SS10_Inputfile1.75  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ075
SS10_Inputfile1.76  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ076
SS10_Inputfile1.77  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ077
SS10_Inputfile1.78  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ078
SS10_Inputfile1.79  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ079
SS10_Inputfile1.80  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ080
SS10_Inputfile1.81  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ081
SS10_Inputfile1.82  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ082
SS10_Inputfile1.83  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ083
SS10_Inputfile1.84  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ084
SS10_Inputfile1.85  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ085
SS10_Inputfile1.86  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ086
SS10_Inputfile1.87  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ087
SS10_Inputfile1.88  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ088
SS10_Inputfile1.89  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ089
SS10_Inputfile1.90  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ090
SS10_Inputfile1.91  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ091
SS10_Inputfile1.92  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ092
SS10_Inputfile1.93  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ093
SS10_Inputfile1.94  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ094
SS10_Inputfile1.95  = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ095
```

SS10_Inputfile1.96 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ096
SS10_Inputfile1.97 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ097
SS10_Inputfile1.98 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ098
SS10_Inputfile1.99 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ099
SS10_Inputfile1.100 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ100
SS10_Inputfile1.101 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ101
SS10_Inputfile1.102 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ102
SS10_Inputfile1.103 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ103
SS10_Inputfile1.104 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ104
SS10_Inputfile1.105 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ105
SS10_Inputfile1.106 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ106
SS10_Inputfile1.107 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ107
SS10_Inputfile1.108 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ108
SS10_Inputfile1.109 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ109
SS10_Inputfile1.110 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ110
SS10_Inputfile1.111 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ111
SS10_Inputfile1.112 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ112
SS10_Inputfile1.113 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ113
SS10_Inputfile1.114 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ114
SS10_Inputfile1.115 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ115
SS10_Inputfile1.116 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ116
SS10_Inputfile1.117 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ117
SS10_Inputfile1.118 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ118
SS10_Inputfile1.119 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ119
SS10_Inputfile1.120 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ120
SS10_Inputfile1.121 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ121
SS10_Inputfile1.122 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ122
SS10_Inputfile1.123 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ123
SS10_Inputfile1.124 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ124
SS10_Inputfile1.125 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ125
SS10_Inputfile1.126 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ126
SS10_Inputfile1.127 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ127
SS10_Inputfile1.128 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ128
SS10_Inputfile1.129 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ129
SS10_Inputfile1.130 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ130
SS10_Inputfile1.131 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ131
SS10_Inputfile1.132 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ132
SS10_Inputfile1.133 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ133
SS10_Inputfile1.134 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ134
SS10_Inputfile1.135 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ135
SS10_Inputfile1.136 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ136
SS10_Inputfile1.137 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ137
SS10_Inputfile1.138 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ138
SS10_Inputfile1.139 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ139
SS10_Inputfile1.140 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ140
SS10_Inputfile1.141 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ141

SS10_Inputfile1.142 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ142
SS10_Inputfile1.143 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ143
SS10_Inputfile1.144 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ144
SS10_Inputfile1.145 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ145
SS10_Inputfile1.146 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ146
SS10_Inputfile1.147 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ147
SS10_Inputfile1.148 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ148
SS10_Inputfile1.149 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ149
SS10_Inputfile1.150 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ150
SS10_Inputfile1.151 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ151
SS10_Inputfile1.152 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ152
SS10_Inputfile1.153 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ153
SS10_Inputfile1.154 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ154
SS10_Inputfile1.155 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ155
SS10_Inputfile1.156 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ156
SS10_Inputfile1.157 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ157
SS10_Inputfile1.158 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ158
SS10_Inputfile1.159 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ159
SS10_Inputfile1.160 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ160
SS10_Inputfile1.161 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ161
SS10_Inputfile1.162 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ162
SS10_Inputfile1.163 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ163
SS10_Inputfile1.164 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ164
SS10_Inputfile1.165 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ165
SS10_Inputfile1.166 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ166
SS10_Inputfile1.167 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ167
SS10_Inputfile1.168 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ168
SS10_Inputfile1.169 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ169
SS10_Inputfile1.170 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ170
SS10_Inputfile1.171 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ171
SS10_Inputfile1.172 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ172
SS10_Inputfile1.173 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ173
SS10_Inputfile1.174 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ174
SS10_Inputfile1.175 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ175
SS10_Inputfile1.176 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ176
SS10_Inputfile1.177 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ177
SS10_Inputfile1.178 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ178
SS10_Inputfile1.179 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ179
SS10_Inputfile1.180 = CER_SFCB_$SS9_$PS9_$CC9.YYYYMMZ180
PMoaFile.1 = CER_PMOA_$SS12_$PS12_$CC9_1.YYYYMMF1
PMoaFile.2 = CER_PMOA_$SS12_$PS12_$CC9_1.YYYYMMF2
PMoaFile.3 = CER_PMOA_$SS12_$PS12_$CC9_1.YYYYMMF3
PMoaFile.4 = CER_PMOA_$SS12_$PS12_$CC9_1.YYYYMMF4