

# CERES Software Bulletin 95-17

## Quality Control Report Routines in CERESLIB

Alice Fan (t.f.fan@larc.nasa.gov)  
Joe Stassi (j.c.stassi@larc.nasa.gov)

### 1.0 Purpose

This bulletin describes the Fortran 90 routines for writing a standard CERES report header to Quality Control (QC) reports. These routines reside in the “qcheader” module in the CERES library cereslib.a under the CERESLIB directory (/opt/net/cereslib/).

### 2.0 QC Report Subroutine

The QCheader module has two routines available to the user:

- WriteHeader
- NewPage

#### 2.1 WriteHeader

The WriteHeader subroutine writes out a standard CERES QC header starting at a new page. It has the following calling sequence.

```
CALL WriteHeader(OUnit, &  
                PrintForm, Title, Page, ProcessDate,&  
                Satellite, Instrument, SysRelease, SoftwareVer, ProdName, &  
                Temporal, Channel)
```

It takes one required input parameter Output Unit (OUnit) and up to eleven optional input parameters, which means the simplest calling statement only needs an output unit.

OUnit: Output Unit number, it is the integer file handle returned from opening a QC file using the “OpenFile” routine found in the “io” module of cereslib.a.

All of the eleven optional parameters are character strings of length 30. Default values are assigned to the following four optional parameters:

- (1) PrintForm: Print Format, is either portrait (“P”, “p”) or landscape (“L”, “l”) and default is portrait.
- (2) Title: QC report title, the default is “CERES QC Report”.
- (3) Page: Page number to be printed, the default value is 1.
- (4) ProcessDate: Process Date, the default value is current day and time.

The next five optional parameters are by default retrieved from the Process Control File (PCF) file. They remain constant during a PGE. They are:

- (5) Satellite: Satellite Name
- (6) Instrument: Instrument Name
- (7) SysRelease: System Release
- (8) SoftwareVer: Software Version
- (9) ProdName: Product Name

The logical identifiers for these parameters are 9992, 9993, 9994, 9995, and 9996 respectively. If users include these logical identifiers in the USER DEFINED RUNTIME PARAMETERS section of the PCF file, the associated values are output to the QC report. These logical identifiers are reserved for this use for all CERES subsystems and may not be used for any other purpose. For example:

```

9992|Satellite|TRMM
9993|Instrument|CERES
9994|System Release|1
9995|Software Version |Version 9
9996|Product name|Cookie Dough

```

The final two parameters are left blank if the user does not supply values for them.

- (10) Temporal: Temporal Span
- (11) Channel: Channel Name

If the user specifies any of the optional eleven parameters in the calling statement, they will overwrite the default values or values from the PCF.

## 2.2 NewPage

The NewPage subroutine allows users to start at a new page without printing the CERES header. It has the following calling sequence:

```
CALL NewPage(OUnit, Page)
```

It takes two input parameters:

- (1) OUnit: Output Unit is the file handle returned from opening a QC file using the “Open-File” routine of the “io” module in cereslib.a.Toolkit.
- (2) Page: Page Number is an integer number to be printed.

## 2.3 Using WriteHeader and NewPage

To use these two subroutines, the user needs to open a QC file(s) in “Write” and “Format” mode. The QC file names are to be specified in the PRODUCT OUTPUT FILES section or SUPPORT OUTPUT FILES section in the PCF. The logical identifiers are arbitrary. For example, two QC files may be created using the following two entries in the PCF.

```
300|861001_03_QC_Cookie|/home/saisun15-1h/fan/CloudQC|||1
```

301|861001\_03\_QC\_SFC|/home/saisun15-1h/fan/CloudQC|||1

Section 3.1 shows the calling examples for the above two subroutines in a test program. Section 3.2 is the output for the test program.

## 3.0 QC Report Examples

### 3.1 Calling Examples in the Test Program

```
PROGRAM test_qc
USE CERES_STATUS, ONLY : OK
USE QCheader, ONLY : WriteHeader, NewPage, I
USE IO, ONLY : OpenFile
IMPLICIT NONE

INTEGER OpenStatus, CookieUnit, SFCunit
CALL OpenFile(LogicID=300, status=OpenStatus, handle=CookieUnit, &
              mode="W", format="F")
CALL WriteHeader( Ounit = CookieUnit, Title= "CERES CLOUD QC Report", &
                 Temporal = "861001_03")

!Write the meat of your QC report, after writing out the header.
!
Write(CookieUnit, 100)
100 Format("The Science Algorithms run are :")
DO I = 1, 2
Write(CookieUnit, 101)
END DO
101 format("=====")
!
! NewPage subroutine will write out a new page control character ^L to the QC file.
!
CALL NewPage(CookieUnit, 2 )
!
! Open another QC report
!
CALL OpenFile(LogicID=301, status=Openstatus, handle=SFCunit,mode="W", &
              format="F")
CALL WriteHeader( Ounit = SFCunit, Title= "CERES Time-Space Averaging", &
                 ProdName = "SFC",Printform ="L")
END PROGRAM test_qc
```

## 3.2 Output from the Test Program

\*\*\*\*\*File "861001\_03\_QC\_Cookie" in portrait form\*\*\*\*\*

CERES CLOUD QC Report

PAGE: 1	CERES PRODUCT: Cookie Dough
DATE PROCESSED : 11/19/1995 09:12:03	SATELLITE : TRMM
TEMPORAL SPAN : 861001_03	INSTRUMENT : CERES
SYSTEM RELEASE : 1	CHANNEL:
SOFTWARE VERSION : Version 9	

The Science Algorithms run are :

=====  
=====

^L

PAGE : 2

Note: The "^L" character in file "861001\_03\_QC\_Cookie" is written by the NewPage routine. It will start a new page.

\*\*\*\*\* File "861001\_03\_QC\_SFC" in landscape form\*\*\*\*\*

CERES Time-Space Averaging

PAGE : 1	CERES PRODUCT: SFC
DATE PROCESSED : 11/19/1995 09:12:03	SATELLITE: TRMM
TEMPORAL SPAN :	INSTRUMENT: CERES
SYSTEM RELEASE : 1	CHANNEL:
SOFTWARE VERSION : Version 9	