

Department of the Interior  
US Geological Survey

# **Landsat 7 Calibration Parameter File Release**

## **Version Description Document**

**Version 18.0**

**October 2004**



# Landsat 7 Calibration Parameter File Release

## Version Description Document

1 October 2004

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## **Executive Summary**

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The Version Description Document (VDD) is required by the Landsat Program Configuration Control Board for all software releases put into the operational environment. This VDD is the primary configuration control document used to track and control versions of Calibration Parameter files released to the operational environment. It is a summary of the features and contents of the CPF changes, and identifies and describes the version of the CPFs being delivered.

*Keywords: Version Description Document (VDD), Calibration Parameter File (CPF).*

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## **Section 1 Preface**

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This Calibration Parameter File (CPF) Change Description Document is controlled by the Mission Management Office System Engineering (MMOSE) and the Landsat 7 Data Handling Facility (DHF) Change Control Board (L7 DCCB) and accompanies the release of CPFs for the 4<sup>th</sup> Quarter of 2004.

Comments and questions regarding this document should be directed to:

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## **Section 2 Overview**

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This document details the Calibration Parameter Files (CPF) released for the quarter beginning 01 October 2004 and the changes made to them.

## **Section 3 Reason for CPF Issuance and Changes**

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This release is a routine quarterly release for the 4<sup>th</sup> quarter of 2004 and contains 12 updated CPFs.

To address ~0.4% change in responsivity of detector #12 in band 7, which occurred on May 14, 2004, the CPF for the 2<sup>nd</sup> quarter 2004 has been split into two periods: April 1, 2004 to May 13, 2004 and May 14, 2004 to Jun 30, 2004. The partial-quarter CPF effective May 14, 2004, along with the 3Q2004 and 4Q2004 CPFs, contain updates to the gain parameters of detector #12 in band 7.

Bias locations have also been updated beginning with the 1Q2004 (5 CPFs) and attitude parameters refined for the period after September 30, 2002 (12 CPFs).

In addition, the standard changes to the CPF attributes have been made to all CPFs, and to the UT1 parameters for the new (4<sup>th</sup> quarter 2004) and previous two calendar quarters (4 CPFs).

## Section 4 List of CPFs in Effect

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The following table shows the CPFs in effect for each time period since the Launch of Landsat 7, as well as the preceding CPFs.

Period Covered	3Q2004 CPF Name	4Q2004 CPF Name
1 October 2004 – 31 December 2004	N/A	L7CPF20041001_20041231.01 (NEW)
1 July 2004 – 30 September 2004	L7CPF20040701_20040930.01	L7CPF20040701_20040930.02
14 May 2004 – 30 June 2004	L7CPF20040401_20040630.02	L7CPF20040514_20040630.03
1 April 2004 – 13 May 2004	L7CPF20040401_20040630.02	L7CPF20040401_20040513.03
1 January 2004 – 31 March 2004	L7CPF20040101_20040331.03	L7CPF20040101_20040331.04
1 October 2003 – 31 December 2003	L7CPF20031001_20031231.04	L7CPF20031001_20031231.05
8 August – 30 September 2003	L7CPF20030701_20030930.04	L7CPF20030808_20030930.05
1 July – 7 August 2003	L7CPF20030701_20030930.04	L7CPF20030701_20030807.05
1 June 2003 – 30 June 2003	L7CPF20030601_20030630.03	L7CPF20030601_20030630.04
1 April 2003 – 31 May 2003	L7CPF20030401_20030531.03	L7CPF20030401_20030531.04
1 January 2003 – 31 March 2003	L7CPF20030101_20030331.03	L7CPF20030101_20030331.04
1 October – 31 December 2002	L7CPF20021001_20021231.04	L7CPF20021001_20021231.05
1 July – 30 September 2002	L7CPF20020701_20020930.04	L7CPF20020701_20020930.04
1 April – 30 June 2002	L7CPF20020401_20020630.04	L7CPF20020401_20020630.04
1 January – 31 March 2002	L7CPF20020101_20020331.05	L7CPF20020101_20020331.05
1 October – 31 December 2001	L7CPF20011001_20011231.06	L7CPF20011001_20011231.06
01 July 2001 – 30 September 2001	L7CPF20010701_20010930.06	L7CPF20010701_20010930.06
01 April 2001 – 30 June 2001	L7CPF20010401_20010630.07	L7CPF20010401_20010630.07
01 January 2001 – 31 March 2001	L7CPF20010101_20010331.08	L7CPF20010101_20010331.08

01 October – 31 December 2000	L7CPF20001001_20001231.09	L7CPF20001001_20001231.09
19 July – 30 September 2000	L7CPF20000719_20000930.11	L7CPF20000719_20000930.11
01 July – 18 July 2000	L7CPF20000701_20000718.10	L7CPF20000701_20000718.10
01 April – 30 June 2000	L7CPF20000401_20000630.10	L7CPF20000401_20000630.10
01 January – 31 March 2000	L7CPF20000101_20000331.12	L7CPF20000101_20000331.12
09 December – 31 December 1999	L7CPF19991209_19991231.13	L7CPF19991209_19991231.13
24 November – 08 December 1999	L7CPF19991124_19991208.13	L7CPF19991124_19991208.13
01 October – 23 November 1999	L7CPF19991001_19991123.13	L7CPF19991001_19991123.13
01 July – 30 September 1999	L7CPF19990701_19990930.16	L7CPF19990701_19990930.16
01 April – 30 June 1999	L7CPF19990401_19990630.19	L7CPF19990401_19990630.19

## **Section 5 List of Changed Units**

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### **5.1 New Groups or Fields to CPF File Structures**

No new groups or fields were added in this release.

### **5.2 Deleted Groups or Fields in the CPF File Structures**

No groups or fields were deleted in this release.

### **5.3 Modifications to Existing CPF Values**

The following changes were made to those CPFs newly generated or modified this quarter:

#### **5.3.1 File: L7CPF20041001\_20041231.01**

This is the new CPF for the 4<sup>th</sup> Quarter of 2004. The contents are based on the CPF file from 3Q2004 (File: L7CPF2004701\_20040930.01) with the following changes:

##### **5.3.1.1 GROUP=FILE\_ATTRIBUTES**

Routine changes to show new filenames and effective dates.

##### **5.3.1.2 GROUP=ATTITUDE\_PARAMETERS**

Attitude parameters have been revised to reflect the results of minor changes detected through sensor alignment calibrations. The affected parameter is Attitude\_To\_ETM\_Matrix.

##### **5.3.1.3 GROUP=BIAS\_LOCATIONS**

Bias location parameters have been updated to compensate for subtle changes caused by continued mechanical wear of the scanning mirror assembly and calibration shutter assembly. The affected parameters are Reverse\_Bias\_Location\_30 and Reverse\_IC\_Region\_30.

##### **5.3.1.4 GROUP=DETECTOR\_GAINS**

Band 7 detector gains have been refined based upon analysis from the LPSO at NASA GSFC to reflect a change in responsivity of the detector #12. The affected parameters are B7L\_Current and B7H\_Current.

##### **5.3.1.5 GROUP=UT1\_TIME\_PARAMETERS**

UT1 parameters have been updated based on estimated values as computed at the Naval Observatory.

5.3.2 File: L7CPF20040701\_20040930.02

Changes made to the .01 version of this CPF include the FILE\_ATTRIBUTES, ATTITUDE\_PARAMETERS, BIAS\_LOCATIONS, DETECTOR\_GAINS and UT1\_TIME\_PARAMETERS groups, as previously described.

5.3.3 File: L7CPF20040514\_20040630.03

This new partial-quarter CPF is derived from the CPF file from 2Q2004 (File: L7CPF20040401\_20040630.02) and includes changes to the FILE\_ATTRIBUTES, ATTITUDE\_PARAMETERS, BIAS\_LOCATIONS, DETECTOR\_GAINS and UT1\_TIME\_PARAMETERS groups, as previously described.

5.3.4 File: L7CPF20040401\_20040513.03

This new partial-quarter CPF is derived from the CPF file from 2Q2004 (File: L7CPF20040401\_20040630.02) and includes changes to the FILE\_ATTRIBUTES, ATTITUDE\_PARAMETERS, BIAS\_LOCATIONS, and UT1\_TIME\_PARAMETERS groups, as previously described.

5.3.5 File: L7CPF20040101\_20040330.04

Changes made to the .03 version of this CPF include the FILE\_ATTRIBUTES, ATTITUDE\_PARAMETERS, and BIAS\_LOCATIONS groups, as previously described.

5.3.6 File: L7CPF20031001\_20031231.05

Changes made to the .04 version of this CPF include the FILE\_ATTRIBUTES and ATTITUDE\_PARAMETERS groups, as previously described.

5.3.7 File: L7CPF20030808\_20030930.05

Changes made to the .04 version of this CPF include the FILE\_ATTRIBUTES and ATTITUDE\_PARAMETERS groups, as previously described.

5.3.8 File: L7CPF20030701\_20030807.05

Changes made to the .04 version of this CPF include the FILE\_ATTRIBUTES and ATTITUDE\_PARAMETERS groups, as previously described.

5.3.9 File: L7CPF20030601\_20030630.04

Changes made to the .03 version of this CPF include the FILE\_ATTRIBUTES and ATTITUDE\_PARAMETERS groups, as previously described.

5.3.10 File: L7CPF20030401\_20030531.04

Changes made to the .03 version of this CPF include the FILE\_ATTRIBUTES and ATTITUDE\_PARAMETERS groups, as previously described.

5.3.11 File: L7CPF20030101\_20030331.04

Changes made to the .03 version of this CPF include the FILE\_ATTRIBUTES and ATTITUDE\_PARAMETERS groups, as previously described.

5.3.12 File: L7CPF20021001\_20021231.05

Changes made to the .04 version of this CPF include the FILE\_ATTRIBUTES and ATTITUDE\_PARAMETERS groups, as previously described.

## **Section 6 Operational Changes to be Expected with New CPFs**

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No significant operational changes are expected with this release.

Attitude parameter updates should help maintain geometric/geodetic accuracy.

Updates to the bias location parameters will maintain and improve bias and random noise values extracted for each scene although these changes should be subtle to users.

Due to changes to relative gains of detector #12 in band 7, striping that could be previously visually observed in homogenous regions in band 7 should be now removed.