
Landsat 7 Calibration Parameter File Release Version Description Document

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Data Center
Sioux Falls, South Dakota

1 Preface

This Calibration Parameter File (CPF) Change Description Document is controlled by the Landsat 7 Data Handling Facility (DHF) Change Control Board (L7 DCCB) and accompanies the release of CPFs for the 1st Quarter of 2001.

Comments and questions regarding this document should be directed to:

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2 Overview

This document details the Calibration Parameter Files (CPFs) released for the quarter beginning 01 January 2001 and the changes made to them.

3 Reason for CPF Issuance and Changes

This release is a routine quarterly release for the 1Q2001 CPF as well as slight refinements in the geometric sections of the two previous CPFs due to refined attitude knowledge made possible by the July alignments to the Celestial Sensor Array.

Additionally, changes to the Impulse Noise coefficients have been included in these three CPFs. These Impulse Noise changes are minor enough that it was not deemed necessary to reissue these prior CPFs at this time for these changes. The Impulse Noise coefficients will be added to these prior CPFs when other additions are made to them.

4 List of CPFs in Effect

The following table shows the CPFs in effect at the end of the 4th Quarter 2000 and those valid for the 1st Quarter of 2001. Note that only two of the 4Q2000 CPFs have been updated and a new CPF added for 1Q2001.

Period Covered	4Q2000 CPF Name	1Q2001
01 January 2001 – 31 March 2001	n/a	L7CPF20010101_20010331.01 (NEW)
01 October – 31 December 2000	L7CPF20001001_20001231.01	L7CPF20001001_20001231.02 (NEW!)
19 July - 30 September 2000	L7CPF20000719_20000930.03	L7CPF20000719_20000930.04 (NEW!)
01 July - 18 July 2000	L7CPF20000701_20000718.03	L7CPF20000701_20000718.03 (no change)
01 April - 30 June 2000	L7CPF20000401_20000630.03	L7CPF20000401_20000630.03 (no change)
01 January - 31 March 2000	L7CPF20000101_20000331.05	L7CPF20000101_20000331.05 (no change)
09 December - 31 December 1999	L7CPF19991209_19991231.06	L7CPF19991209_19991231.06 (no change)
24 November - 08 December 1999	L7CPF19991124_19991208.06	L7CPF19991124_19991208.06 (no change)
01 October – 23 November 1999	L7CPF19991001_19991123.06	L7CPF19991001_19991123.06 (no change)
01 July - 30 September 1999	L7CPF19990701_19990930.09	L7CPF19990701_19990930.09 (no change)
01 April - 30 June 1999	L7CPF19990401_19990630.12	L7CPF19990401_19990630.12 (no change)

5 List of Changed Units

5.1 New Additions to CPF File Structures:

There were no changes to the CPF file structure with any of the CPFs released this quarter.

5.2 Modifications to Existing CPF Values

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

5.2.1 File: L7CPF20010101_20010331.01

This is an initial of this CPF to cover this new quarter. The contents are based on the CPF file from 4Q2000 (File: L7CPF20001001_20001231.01) with the following changes:

5.2.1.1 GROUP= ATTITUDE_PARAMETERS

The Attitude parameters have been updated due to changes identified by geodetic calibrations. Changes to the Attitude parameters have been propagated back to 19 July 2000 coinciding with a series of alignment maneuvers commanded to the satellite in July. Additionally, IAS Configuration Change Request CCR 1352 details a 1 second clock correction that was introduced to the IAS code. Previous calibrations have been conducted with the 1-second clock error. These new calibrations have updated our Attitude Parameters based on the changes that have been made for the 1-second clock update. Future calibrations may identify minor changes to all Attitude Parameters going back to launch.

5.2.1.2 GROUP= IMPULSE_NOISE

In January of 2000, an additional parameter subgroup, IN_SIGMA_THRESHOLD, was added to the CPF in the IMPULSE_NOISE group. The October release of IAS v4.3 activated this CPF change within the code, allowing the specification of two separate threshold parameters for the detection of Impulse Noise. (Please refer to CPF Definition Document at http://edcwww.cr.usgs.gov/17dhf/dccb_folder/dccb_pdf/IAS-207-2.pdf) These changes were made to the Impulse Noise characterization algorithm to handle the two distinct cases of Impulse Noise, where the pixels on either side of the noise spike are either equal or unequal. For further details on the Impulse Noise parameter changes refer to (hyperlink).

5.2.1.3 GROUP= UT1_TIME_PARAMETERS

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

5.2.1.4 GROUP=FILE_ATTRIBUTES

Routine changes to show new filename and effectivity dates.

5.2.2 File: L7CPF20001001_20001231.02

Changes made to the .01 version of this CPF include the following groups:

5.2.2.1 GROUP= ATTITUDE_PARAMETERS

(see explanation in 5.2.1.1)

5.2.2.2 GROUP= IMPULSE_NOISE

(see explanation in 5.2.1.1)

5.2.2.3 GROUP= UT1_TIME_PARAMETERS

UT1 parameters have been updated to incorporate changes from predicted values to actual measured values as computed at the Naval Observatory

Routine changes to show new filename

5.2.2.4 GROUP=FILE_ATTRIBUTES

Routine changes to show new filename

5.2.3 File L7CPF20000719_20000930.04

Changes made to the .03 version of this CPF include the following groups:

5.2.3.1 GROUP= ATTITUDE_PARAMETERS

(see explanation in 5.2.1.1)

5.2.3.2 GROUP= IMPULSE_NOISE

(see explanation in 5.2.1.1)

5.2.3.3 GROUP= UT1_TIME_PARAMETERS

UT1 parameters have been updated to incorporate changes from predicted values to actual measured values as computed at the Naval Observatory

5.2.3.4 GROUP=FILE_ATTRIBUTES

Routine changes to show new filename

6 Operational Changes to be expected with New CPFs

There are no major changes to operations or performance expected due to these CPFs. Slight refinements in geometric and radiometric accuracy can be expected with typical increased geometric accuracy on the order of tens of meters in the along-track direction. The changes to the Impulse Noise parameters have resulted in a decrease in processing time and Lmask size for scenes processed in the IAS for night r0r characterizations. These should also be visible in Day characterizations and also in Level 1 products when the detector gains or biases are calculated from the IC region although this method is not currently in wide use due to ongoing variations in the IC.