Description of Calibration Parameter Files Updates Effective 01 October, 2000

Introduction:

Ten CPFs were issued on September 28, 2000 as a part of the routine CPF updates. These CPFs contain important radiometric and geometric updates as well as the routine updates involved with every new quarter. A brief summary of the changes incorporated in these CPFs is given below.

CPF files in effect:

Quarter:	Period Covered:	New Filename:
4th Q 2000	01 October – 31 December 2000	L7cpf20001001_20001231.01
3rd Q 2000	19 July – 30 September 2000	L7cpf20000719_20000930.03
3rd Q 2000	01 July – 18 July 2000	L7cpf20000701_20000718.03
2nd Q 2000	01 April – 30 June 2000	L7cpf20000401_20000630.03
1st Q 2000	01 January - 31 March 2000	L7cpf20000101_20000331.05
4th Q 1999	09 December - 31 December 1999	L7cpf19991209_19991231.06
4th Q 1999	24 November - 08 December 1999	L7cpf19991124_19991208.06
4th Q 1999	01 October - 23 November 1999	L7cpf19991001_19991123.06
3rd Q 1999	01 July - 30 September 1999	L7cpf19990701_19990930.09
2nd Q 1999	01 April – 30 June 1999	L7cpf19990401_19990630.12

General Updates

GROUP = FILE_ATTRIBUTES

As always we have updated the following in the file_attributes portion of the CPF. The Effectivity period has been updated for the new quarter, and the CPF_File_Name was changed in each update as well as the new 4th quarter 2000 CPF.

GROUP = UT1_TIME_PARAMETERS

The standard updates to the predicted UT1 parameters required to cover the time period for the upcoming quarter were made to the CPF covering that period. Additionally, the UT1 parameters for the 01 April – 30 September 2000 quarter replaced the predicted values with actual values.

Updates to Geometric Coefficients:

The ETM+ to Landsat 7 attitude control system alignment recalibration has been completed based on data through 8/26/2000. The new alignment was tested in combination with the previously completed scan mirror calibration update on 14 new scenes spanning the 7/19/2000 through 8/26/2000 time period. The geodetic mean accuracy shows that the primary effect of the calibration update is to remove an approximately 60 meter along-track residual bias which was introduced following the update to the flight software Celestial Sensor Assembly alignment information.

GROUP = ATTITUDE_PARAMETERS

The Attitude_To_ETM_Matrix parameters were updated based on calibrations that were conducted after the new alignment matrix was uploaded to Landsat 7.

GROUP = MIRROR_PARAMETERS

The new Mirror_Parameters were updated to incorporate changes to the scan mirror calibration. The angles in the ANGLES_SME1_SAM Group, were updated for both the Forward along, and Reverse cross, track directions.

Updates to Radiometric Coefficients

Calibrations have been conducted from trended data that enabled the Landsat Project Science Office to update the Band 6 Bias. B6 Biases as calculated by: new_bias = gain * 0.31 + current_bias where 0.31 is our desired correction. The table below contains the new gain values as well as the Vsh. The Vsh is the last element in each detector array and is updated in the B6_VIEW_COEFFS. Also, the bias accuracy has increased due to the thousands decimal place being added to each value. The Vsh accuracy is expressed to the 9^{th} decimal place.

Detector	Vsh	B6 Low Bias	B6 High Bias
Det 1	0.9863	29.825	-69.566
Det 2	1.0002	28.782	-71.614
Det 3	0.9889	24.286	-80.409
Det 4	0.9982	28.685	-71.789
Det 5	0.9839	26.768	-75.532
Det 6	0.9960	26.941	-75.194
Det 7	0.9854	24.678	-79.610
Det 8	0.9972	26.463	-76.120

GROUP = B6_VIEW_COEFFS

The Vsh was updated for each detector 1 – 8.
The new Band 6 Bias was updated on four places.

GROUP = ACCA_BIASES_LOW

The B6L_ACCA_Bias was changed to include the new B6 Biases.

GROUP = ACCA_BIASES_HIGH

The B6H_ACCA_Bias was changed to include the new B6 Biases.

GROUP = DETECTOR_BIASES_B6_LOW

The B6L_Bias_Current field has been updated to include the new B6 Biases.

GROUP = DETECTOR_BIASES_B6_HIGH

The B6H_ Bias_Current field has been updated to include the new B6 Biases.