AFIDS (Automated
Fusion of Image Data System)
Release 4.0d Update Document
09 JUNE 2006

With Release of Version 4.0d, the AFIDS co-registration software package includes some new capabilities and upgrades:

1) Quickbird registration and processing has been upgraded, and the NITF file version now supports the creation of registered Multispectral bands.

2) A number of miscellaneous bugs have been corrected, and several minor software tweaks have been made to improve reliability and performance.

AFIDS (Automated
Fusion of Image Data System)
Release 4.0c Update Document
01 MAY 2006

With Release of Version 4.0c, the AFIDS co-registration software package includes some new capabilities and upgrades:

1) A number of miscellaneous bugs have been corrected, and several minor software tweaks have been made to improve reliability and performance.

2) The open source gnuplot library has been added to the AFIDS package to allow two and three Dimensional vector drawing.

3) The vif file notification server/client/receiver code has been added to the AFIDS package.

4) AFIDS now runs natively under Red Hat Linux Enterprise 3 and 4, and Solaris OS 8, 9, and 10. This means that in addition to standard runtime operations, users with source code and the appropriate compilers can compile their own vicar code.

**AFIDS (Automated
Fusion of Image Data System)
Release 3.0j Update Document
28 FEBRUARY 2006**

With Release of Version 3.0j, the AFIDS co-registration software package includes some new capabilities and upgrades:

1) The registration accuracy of NTM and Quickbird imagery has been significantly enhanced through the fine tuning of multiple CIB resolutions

2) An image calibration regression fit program has been provided in support of the AMT project.

**AFIDS (Automated
Fusion of Image Data System)
Release 3.0i Update Document
31 JANUARY 2006**

With Release of Version 3.0i, the AFIDS co-registration software package includes some new capabilities and upgrades:

1) The CTV (CarTlab Viewer) has been upgraded to display NITF metadata.

2) Miscellaneous minor updates.

**AFIDS (Automated
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Release 3.0h Update Document
18 JANUARY 2006**

With Release of Version 3.0h, the AFIDS co-registration software includes some new capabilities and upgrades:

1) AFIDS now runs under Sun Solaris 10 (in addition to Solaris 8,9; and Red Hat Linux Enterprise 3 and 4).
2) Raw Landsat formats (e.g., L0R; others) are now supported in Master and Secondary processing, allowing the production of orthorectified Landsat images from the uncorrected input images.
3) Aster Master/Secondary processing now uses Aster Band 2 (Red) for coregistration purposes. This should significantly improve the overall reliability of Aster registration.
4) RPC software has been significantly improved (although the current AFIDS is not changed).
5) The User Guide and on-line help files were upgraded to reflect the changes and miscellaneous corrections and updates of release 3.0h.

**NLC (NTM Logger / Chipper)
Release 1.3 Update Document
09 AUGUST 2005**

With the Release of NLC Version 1.3, the NLC includes several upgrades:

1) The NLC interface has been reworked to provide two new functional capabilities:
   o The interface will now accept an existing DEM Elevation Mosaic as input. Previously, the NLC generated the required DEM mosaic automatically using the AFIDS/SRTM Global DEM. However, if the Global DEMs were not online, then a DEM could not be generated. The NLC will now accept a separate DEM mosaic generated separately in AFIDS/VICAR format.
   o An optional Control Point can now be entered by the user to improve the accuracy and refinement of the output chip's georeference. In addition, the Control Point provides a path way for resolving the "check your DTED" error, which can occur when the rpcs are less accurate than usual.
2) The NLC now runs under Red Hat Linux Enterprise 3, along with Solaris 8 and 9.

AFIDS (Automated
Fusion of Image Data System)
Release 3.0b Update Document
09 AUGUST 2005

With Release of Version 3.0b, the AFIDS co-registration software includes a new capability and some upgrades:

1) The Registered Image Difference (RID) Connected Components change detection tool is now available. The purpose of this utility is to create a visual color-coded mask of the change detection (image subtraction) between two dates, using spectral thresholds and custom filters to focus on the specific characteristics of the desired target set.
2) The ability to georeference image data when no CIB is available by introducing a single Control Point.
3) A number of rpc and georeference accuracy enhancements.
4) NTM image coregistration enhancements.

NLC (NTM Logger / Chipper)
Release 1.2 Update Document
06 MAY 2005

With the Release of JADE Version 1.2, the NLC includes several upgrades:

1) A command-line chipper script ("chipscript.pdf") that inputs an NITF image and an elevation file, and outputs a single GeoTIFF "chip" file with rpc labels and georeferencing. Use of the script is described in Section 6 of the NLC Users Guide.

2) Delivery (on 28APR05) of 850GBs of void-filled 30m SRTM DEM data ("AFIDS/SRTM L2 World DEM database") and 30m Landsat Band 3 global data. The DEM data includes 19240 1x1 degree files, with DTED L1 used were SRTM data were unavailable. The Landsat data consists of 959 5x5 degree files, and supports AFIDS co-registration processing. This data must be copied onto the sponsor's disk systems for direct use by the NLC and AFIDS software.

3) A new NLC user interface with reduced number of Steps, simplification of menus, and automatic generation of elevation mosaic files (invisible to the user, using the AFIDS/SRTM database above). Users can also now generate a single chip, and have greater control and error-trapping over the number and area where chips are generated in a selected Sub-Area.

- How to Generate a Single Chip: In Step 2, select "Entire Image or Large Subarea," and enter the required source filenames. For the given parent image, enter the "top line" and "left sample" (y,x) coordinates anchoring the upper left corner of the single desired chip. In the "right sample" and "bottom line" slots, enter the number "999999" (six nines), set your desired chip size (in the 'Chipping Parameters' section, and click the 'Start' button. The NLC will then generate one chip using the specified starting coordinates and output chip sizes. Note that the output chip's filename specifies the chip's pixel position as "_1_1," which follows the convention that use of the offsets is to create a new "parent" image.
- Sub Image Area Clarifications: The following scenarios describe the results from alternative subarea coordinate specifications. (TL= Top Line; LS= Left Sample; RS= Right Sample; BL= Bottom Line).
  - TL=3000, LS=5000, RS=6024, BL=4024; Chip Size = 1024 – When 1024 is added to provide Bottom and Right ending coordinates, and the output chip size is also 1024, one might expect to get a single chip out. However, that will only happen if the overlap is set to zero. With an overlap greater than 0, four images can be expected as output.
  - TL=3000, LS=5000, RS=blank, BL=blank – In this case, and any other case where the ending coordinates are less than the starting coordinates, the offset coordinates are subtracted from the parent image's total number of lines and samples and used as the ending coordinates.
  - TL=3000, LS=5000, RS=5001, BL=3001; Chip Size = 1024 – In this case, the ending coordinates are greater than the starting coordinates, but less than the Chip Size. The ending coordinates are set to the Chip Size.

4) The generation of a chip's four-corner georeference has been speeded-up, reducing the overall time required to generate a chip. This was accomplished by modifying the rpc (rational polynomial coefficients) software to generate a grid based on the parent image's dimensions. Each chip now uses that grid as a lookup table to determine its latitude and longitude four-corner coordinates instead of calculating them individually.

5) Updated NLC Users Guide for v1.2, and on-line Help.

**AFIDS (Automated
Fusion of Image Data System)
Release 2.9 Update Document
06 MAY 2005**

With Release of Version 2.9, the AFIDS co-registration software includes several upgrades:

1) Support for NTM data co-registration using rational polynomial coefficients (rpc(s)) for the spacecraft projection model and all georeferencing calculations.

2) Fast and larger area CIB mosaic preparation from CDROM or hard disk.

3) Semi-automated DEM and Landsat image mosaicking using the AFIDS/SRTM L2 World DEM database, and the AFIDS/Landsat Band 3 Global database.

4) For Quickbird, Ikonos, or NTM images with rpc(s), the ability is provided to output the image with improved rpc's in GeoTIFF format (rpc update capability).

5) For Quickbird, Ikonos, or NTM images with rpc(s), the ability is provided to correlate images with extremely bad rpc offsets by selecting a single tiepoint in two images. The resulting updated rpc(s) will be as accurate as the image correlation process provides.

6) Increased full scene capacity in the Change Detection demonstration software.

7) Upgraded AFIDS User Guide and on-line Help.