

Fledermaus Software Release Notes

Version 6.7.0

7 January 2008

This release adds a few new features but is mostly focused on improving existing functionality and incorporating a number of bug fixes.

Fledermaus Standard Version:

Avggrid:

- Two new gridding algorithms have been added: a deep surface, which selects the deepest record in each bin, and a root mean square (RMS) surface, which calculates the RMS value for each bin.

Dmagic:

- Two new algorithms have been added for slope calculations as well as additional options for the existing algorithm:
 - o The pre-6.7.0 algorithm is now available by selecting "Simple". You also now have the choice of choosing how the final slope is chosen, either based on a direction, the maximum/minimum of all eight slopes, or the average of the eight.
 - o The "Fitted Plane" option uses the algorithm from *Burrough* [see reference] which fits a plane over a 3x3 window of cells. This is the same algorithm used by ESRI software for slope calculation.

Burrough, P. A. and McDonell, R.A., 1998. *Principles of Geographical Information Systems* (Oxford University Press, New York), p. 190.

- o To improve slope calculations when directionality is a strong concern, the "Balanced" algorithm has also been added, which centers the slope calculation over the middle of the cell. This algorithm also allows the sign of the slope to be preserved, which improves the calculation of a 2nd derivative slope calculation.

FMCommand / Cmdop:

- A new command line applet, sdtodxf, has been added to directly export a Fledermaus 3D line file to DXF format.

Fledermaus:

- A new option has been added for projecting S-57 data to Survey 21 when being imported into Fledermaus.
- DXF/DWG Import capability has been added to the 64-bit Windows version.
- Animated Surfaces are now saved directly in the scene file. Previously only a link was saved to the external SD file.
- Fixed a bug with adding a single point in a scene file.
- Fixed a potential crash when importing point files with labels.

Fledermaus Professional Version: (Includes everything from standard)

PFMDirect

- Increased the maximum number of input files in a single PFM to 8192.
- Fixed a bug with soundings flagged as 'designated' being incorrectly designated when importing HDCS data.
- Fixed a problem when importing ASCII files with lines larger than 256 characters.
- A number of fixes for reading and exporting BDI format files have been implemented.

Fledermaus

- Added a new option to create a sounding density surface from a PFM data set. This surface is based only on accepted records in contrast to the built in PFM density surface which includes both accepted and rejected records.

This is a maintenance release which fixes a number of smaller issues. In addition a 64 bit Linux version of the software has been added to the list of standard release platforms.

Fledermaus Standard Version:

General:

- Improvements to the Linux installer to better integrate the software into various Linux distributions.

Imageviewer:

- Improved the floating point GeoTiff writer for improved compatibility with other 3rd party applications.

Dmagic:

- Surfaces can now be exported as floating point GeoTiff files (the exportsurface command line application was also updated to add this feature).
- Fixed a bug under Windows that caused a crash when importing GMT/NetCDF surface files.

**Fledermaus Professional Version:
(Includes everything from standard)**

PFMDirect:

- The MPA tide format reader was changed to interpret months in the range of 1-12 instead of 0-11.
- A problem appending Shoals TOF files to a PFM was fixed.

Fledermaus:

- Added support for writing Bathymetric Attributed Grid files for Linux platforms in addition to Windows.

Crosscheck:

- Fixed a memory leak.

This release is primarily a maintenance which contains a several important PFM/Cube related fixes but also includes several new features. In particular the Space Navigator device now works on the Macintosh and Linux platforms in addition to Windows. Notable changes are detailed below. Fledermaus professional users, using version 6.5 or 6.4.1 should upgrade to this release as soon as possible to get the PFM fixes included with this release. VesselManager has also been overhauled in this release adding support for multiple vehicles when using standard NMEA messages, and support for receiving data directly from a network.

Fledermaus Standard Version:

Fledermaus:

- Added Space Navigator device support for the Macintosh and Linux platforms as well as Windows.
- Added enhanced control to the route so that the start and end node can be manipulated.
- Improved Autocad DXF/DWG import.
- Improved Shapefile import (z support in multipoint shapes, better support for reading height from the associated DBF files).
- Minor improvements to the surface difference algorithm.

Imageviewer:

- Added ability to read floating point GeoTIFF files

Avggrid:

- Fixed a potential (up to 1) cell shift in how a point contributes to the surface being built.

Dmagic:

- Added ability to read images and DEM files in BIL (Binary Interleaved) format.
- Added ability to read float point GeoTIFF files as surfaces

**Fledermaus Professional Version:
(Includes everything from standard)**

PFMDirect:

- Added a new tide format used to apply tidal correction of FAU files.
- Added an option to build PFM data sets using the "Survey 21" projection.
- Added support to read SURF4 formatted files
- Added support to read Reson PDS2000 files (Requires a new version of PDS2000)
- A memory leak building PFMs with GSF files that contain pings with a variable number of beams was fixed.
- A problem was fixed building pfms that could in certain circumstances lead to some corruption of the PFM and problems unloading soundings.

Fledermaus:

- When importing S-57 files, a new option to project the data on the fly to UTM is now available.
- Writing of Bathymetric Attributed Grid (BAG's) is supported from CUBE based PFM data sets (when projected into UTM).
- Added the CARIES export format when exporting soundings from PFM data sets.
- Fixed a bug when filtering soundings from the cube surface for Geographic, PFM files when using the "Filter off the slope" option.

VesselManager:

- The user interface, in particular the setup section, has been completely overhauled in this release for better ease of use and support of new features.
- Data can now be received as network UDP data as well as through the serial port.
- Multiple vehicles are now supported when using NMEA messages. Previously this was limited to use with the custom format.

This release adds a number of powerful new features, such as S-57 importing, automatic Google Earth export tiling, and support for the Space Navigator interaction device on Windows. This release also includes the introduction of some major enhancements to PFMDirect that can greatly speed up the build time, as well as a number of bug fixes.

Both Fledermaus Standard and Professional:

- Fixed Linux 32 bit dongle issues.
- Added support for dongles on Windows 64 bit machines.
- Added support for Linux 64 bit.
- Added support for new “driverless” dongles (BLUE)
- Added support on Windows 32-bit platforms for the Space Navigator interaction device.

NOTE: The drivers that are currently packaged with the Space Navigator will not work with Fledermaus. The latest drivers from the 3Dconnexion (<http://www.3dconnexion.com/>) need to be downloaded and installed.

- New ability to import S-57 chart data as vector and point objects in Fledermaus.
- New option to reverse the profile window color to allow easier printing.
- Improved ESRI Shapefile reading that now supports more entity types.
- Added ability to save a screen capture dialog in JPEG format.
- 3D Objects and Images are automatically geo-referenced on load if possible.

Fledermaus Standard Version:

Routeplanner:

- Added end nodes to the node list.
- Added enhanced control to the route so that the start and end node can be manipulated.

Imageviewer:

- Improved KML (Google Earth) export to support:
 - o Compressed files (KMZ)
 - o Automatic tiling of large data files
 - o Creation of web ready files for hosting on the Internet

Avggrid:

- Added ability for the ASCII reader to automatically skip up to a 100 lines of header data per file.

Dmagic:

- Added a new “clamp” option to the histogram rescaling of a DTM. This option will set areas outside of the min and max to the lowest and largest values respectively. The default option remains “clip” which sets all values outside the selected area to 0.

**Fledermaus Professional Version:
(Includes everything from standard)**

PFMDirect:

- Greatly improved build speed using a new caching algorithm.
- Improved memory usage when loading large numbers of files.
- Fixed a potential crash when using CUBE with very large data sets.

This release is focused on expanding the supported platforms to include the latest operating systems and hardware. This includes native support on Intel based Macs, as well as a special new version of Fledermaus designed to run on 64-bit versions of Windows, including XP 64 and Vista 64-bit. The 32-bit Windows version of Fledermaus has also been updated to support Vista 32 bit. In addition to these new versions, a number of useful improvements and bug fixes have been added.

Both Fledermaus Standard and Professional:

- New Universal Binary distribution to allow native support on both PowerPC and Intel based Macs.
- New 64-bit Windows distribution that supports Windows XP 64 as well as Windows Vista 64 bit.
- Support for Windows Vista 32 bit.

Fledermaus Standard Version:

Fledermaus:

- Greatly improved the speed of loading textured mapped objects.

Routeplanner:

- Improved rendering of the profile line for better visibility
- Improved rendering when moving a route
- Usability improvements for selecting a route for profiling, particularly the endpoints of the route.
- Routes can now be exported as a navigation file readable by VesselManager.
- Routes can also now be brought into Fledermaus as a true 3D pipe object using the "linetomodel" command line applet.

Imageviewer:

- New ability to export an image or SD file to a KML file (Google Earth).

Movieclient:

- New ability to set a specific range of frames for rendering
- Fixed a smoothing bug affecting the last frame in a flight path

Avggrid:

- You can now specify the gridding type on the command line
- You can specify an input pattern filter for files (such as *.data)

Dmagic:

- Added support for reading GMT Version 4 Surfaces

**Fledermaus Professional Version:
(Includes everything from standard)**

Fledermaus:

- New ability to export records from a PFM directly from the source files.
- New option for CUBE filtering using IHO depth guidelines.
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PFMDirect:

- New method for creating TPE based on IHO accuracy guidelines.
- Improvements for calculating multibeam errors when the input files do not contain all navigation parameters.
- New options for 'unloading by saving' for formats that support the functionality.
- Can now use up to 10 extra attributes in a PFM.
- Improved accuracy for attributes stored in a PFM.

Version 6.3

2 August 2006

This release combines a number of new features and data parsers along with general improvements and fixes throughout the software suite. The complete switch to a new image handling library will provide both increased speed and better memory usage, especially for Windows users. These enhancements are available both when reading and writing very large image files.

Fledermaus Standard Version:

General:

- All image functionality converted to use the new image handling library
- Created a license server installation package
- Created a licensing wizard for license setup and troubleshooting
- Added support for LAS format (versions 1.0 and 1.1)
- Added support for SMA BDI format
- Added support for XSE format

- Cleaned up parser for HTF data format

Movieclient:

- Added ability to do background rendering
(On graphics cards that support auxiliary buffers)
- Added a batch mode
- Added background color choice

Imageviewer:

- Standardized GUI to match other 2D applications
- Added status display to top of window
- Added mode icons at top right
- Added projection capability to convert between geographic and UTM

Avggrid:

- Added ability to project data files during gridding
- Added support for polar stereographic data
- Export to an ASCII file now includes all fields from the input data

Fledermaus:

- Fixed color map legend display so depth based color maps never change
- Added option to display integer interval color map legends
- Greatly improved DXF reading, supporting all versions of DXF
- Added ability to import DWG files
- "Create Mapsheet" moved to tools menu
 - o Added optional north arrow
 - o Added distance scale
 - o Add option to create geographic Mapsheets

Dmagic:

- Added ability to save an image of the color map legend
- Added support for reading CARIS BASE surfaces
- Added support for reading BAG format surfaces
- Added ability to interpolate grids

Crosscheck:

- Added ability to export X,Y,Z, difference to an ASCII file

Command Line Tools / FMCommand:

- Added a mkscene applet (for making .scene files)
- Added a surface difference applet

Routeplanner:

- Added ability to export a flight-path along a route
- Standardized GUI to match other 2D applications
- Added color map legend display
- Improved how routes are drawn
- Control points now in color
- Cross-profile functionality
- Option to calculate route distance over ground
- Added warning about loading geo data sets

Fledermaus Professional Version: (Includes everything from standard)

PFMDirect:

- Ability to delete one or more lines from a PFM data set
- Created an advanced error model section for CUBE builds
- Added ability to set a fixed CUBE capture distance

Fledermaus/PFM:

- Changed PFM surface names from 'filtered' to 'edited'
- Added ability to run CUBE filter using a fixed distance
- Added ability to set selected hypothesis using the feature sounding flag
- Added ability to use depth based color maps with PFM data sets

This version is a maintenance release designed to roll in any patches from 6.2.0, as well as any bug, packaging, and documentation fixes not yet released.

Fledermaus Standard Version:

General:

- Fixed jpeg saving issues on unix and Macintosh platforms

DMagic:

- Reduced memory usage for the slope surface calculations.
- Added the ability to unload surfaces to save memory in dmagic along with other minor user interface tweaks.
- Added the ability to reverse North/South ordering when reading raw binary data. Also added the ability to specify the geographic bounds in the import dialog.
- Fixed a bug when exporting a surface as 8bit raw binary data.
- The statistics dialog now works for scalars as well as DTM's.
- Fixed a bug in the ERMapper surface importer so the 'DataFile' parameter is properly handled. Also fixed an issue which could lead to improper geo-bounds when reading ERMapper files.

Fledermaus:

- Fixed a bug where filled polygon ESRI shape files were not being filled.
- Greatly improved our handling of filled polygon files. Badly formed ESRI shape files (ones with intersecting edges) no longer cause Fledermaus to crash.
- Added the ability to specify a sampling interval when saving a profile from the profile dialog.

Avggrid:

- Minor GUI tweaks to make the display work better on low resolution screens.

Imageviewer:

- Fixed a problem saving TDR shade files and enhanced the output to allow writing either TDR shade or scalar files.
- A number of fixes to solve potential application crash problems.

Movieclient:

- Some improvements to the movie smoothing of turntable based flight paths.

**Fledermaus Professional Version:
(Includes everything from standard)**

PFMDirect:

- Fixed possible corruption of a PFM when the user assigns the record and subrecord values to the extra attribute fields.

Fledermaus/3D Editor:

- The PFM soundings export dialog now supports exporting soundings from a polygon selection as well as the rectangular selection.

Crosscheck:

- Significantly improved crosschecks memory usage.
- Numerous small GUI improvements and fixes for potential crash issues.

This release combines a number of new features and data parsers along with general improvements and fixes throughout the software suite. Rendering speed has been greatly improved – it is up to 20 times faster on the Windows platforms. The other platforms have improved speed as well although not as dramatically. This affects all rendering from DMagic, to Fledermaus, to the 3D Editor. Version 6.2 introduces a new architecture for handling imagery and the Imageviewer application has been rewritten to use it. Large image support is greatly improved as is the speed when working with these images. In future versions more functions of DMagic and Fledermaus will also use this new imagery handling architecture. DMagic contains some of the most visible changes as the project menu has been combined in the File menu and some of the menu options have been renamed to improve clarity. The vessel tracking module of the software has been completely rewritten and includes greatly enhanced functionality. The PFM structure has been improved. Now all the components of a PFM are contained within a directory structure. At the top level you will only see the filename.pfm file and an associated filename.pfm.data/ directory that contains everything related to the given PFM file.

Fledermaus Standard Version:

General:

- Greatly improved rendering speed for all objects in Fledermaus and DMagic.
- Improved installation manual.

DMagic:

- The project menu has been removed and its functions are now incorporated into the File menu. The import gridded and ungridded data menu names have been renamed for clarity.
- A new masking tool dialog is available from the tools menu. It allows you to mask (knock holes in) a DTM based on a separate DTM or image file.
- If a geo file is loaded with a DTM, the shading dialog will now show real sun azimuth and elevation angle measurements in degrees.
- The color map range displayed is now tied to the encoded scalar range of DTM's and Scalars rather than tied to the .geo file. This solves many inconsistency problems especially when working with Scalar and DTM files together.
- The imagery import dialog have be improved for clarity and ease of use.

Fledermaus:

- The ESRI shapefile parser was completely re-written from scratch. All shapefiles except the mesh shape should now be supported.
- Images can be saved in jpeg format.
- Completely redesigned real-time vehicle tracking functionality.

- Much better support for accurate measurements of distances for
 - Vehicle to Vehicle
 - Vehicle to nearest point on a line object
 - Distance to surface below vehicle
 - Distance to any SD object in the scene or to a fixed location
- Distance alarms when the point of approach crosses a threshold
- Much improved multiple view handling
- Track the vehicle route history
- Profiling below the vehicle and special options to track points of approach in narrow channels.
- Support for both geographic and projected coordinate systems
- Much better control of vehicle dimensions and identification of the instrumentation positions on the vehicle itself.

Avggrid:

- When gridding a cropped region, the background color of the grid bounds part of the GUI changes to more vividly indicate that a cropped gridding operation is taking place.
- Bug fixes and minor improvements.

Imageviewer:

- Imageviewer is now built on a completely new image handling layer which handles huge images in a much improved fashion. Many of the I/O interfaces to image formats have been updated to take advantage of this new engine. Tiff image handling in particular has been greatly improved.
- Saving of jpeg images on all platforms is now supported.
- Unsupported image formats or format variants are handled more gracefully now and properly informs users when a problem is found.

Movieclient:

- Improved smoothing especially with flight paths made in the turntable mode.
- General bug fixes and code optimization.

FMCommand/Cmdop:

- Major cleanup of the applets provided by cmdop. Removed obsolete applets and enhanced the help of most applets.
- Numerous ease of use improvements to running commands.
 - Properly remembers recently used directories
 - Double clicking file names inserts them into the command at the cursor rather than always appending them.
 - A command history makes it easy to repeat commands or see a trail of activity.
 - All applets provide feedback of when they complete.

**Fledermaus Professional Version:
(Includes everything from standard)**

New Point Parsing Format Support For:

- SHOM Pivot format
- LADS Lidar format
- Danish FGE (A geographic format variant of the FAU format)

PFMDirect:

- Unload support for the Hypack HS2 data format.
- Minor interface improvements.

Fledermaus/3D Editor:

- Greatly enhanced target/contact support based on storing contacts in the NAVO XML format. Targets can be viewed, edited, deleted, or added in the main 3D surface view or within the 3D editor. Image snippets can be viewed and associated with specific targets.
- Number user interface improvements for better clarity and usability. New sounding, CUBE, and target editing modes.
- Optimized tracking of edits in the 3D editor.

Crosscheck:

- Added support for the IHO Special Order statistics.
- General bug fixes and interface improvements.
- Improved the slider for controlling the visualization of point differences.

VesselManager:

- The old ROVManager program has been renamed VesselManager.
- Much improved configuration options and NMEA support.
- Supports auto projection to UTM and polar stereographic projections.

This release is primarily a maintenance release to roll in all the patches from 6.1.4, as well numerous other bug fixes that were not released as patched. In addition, significant improvements have been made to both the installation manual and the licensing procedures. These improvements have been made to make the software easier to install and troubleshoot errors.

Fledermaus Standard Version:

General:

- Fixed reading data from an Isotrak II device on Mac OS/X.
- Improved installation manual.

DMagic:

- Improved reading of DEM files to support more variations. Added toggle in importer for ESRI variants.

Fledermaus:

- Fixed bug with cutting sections of a line file on import.
- Improved geo-referencing of 3d points.
- Fixed occasional bug with the display of scene names in the title bar.
- Added ability to clear a scene from Fledermaus.

Avggrid:

- Adjusted interface to better display cell size precision.
- Fixed potential clipping of the maximum values in a DTM.
- Fixed duplicate overwrite message when export data.

Imageviewer:

- Colour picker is fixed for grayscale images.

Movieclient:

- Fixed improper display of mpeg settings when in image only mode.
- Fixed crash on Windows platform.

FMCommand/Cmdop:

- Cleaned up dtmmask help text.
- Documented how to use labels with mkpoint3d.

- Added new multiplatform dialog for display of dongle and host ids.

Fledermaus Professional Version: (Includes everything from standard)

PFMDirect:

- After creating a configuration file, it is selected in the list of files.
- Added auto-detection of hemisphere lat/lon files.
- Clarified the labels and example for setting the Z-range.
- Fixed typo in "Swedish National Grid".
- Fixed a bug in unloading single beam data stored in the SURF format.
- Added better detection of SURF single beam files.
- Improved the field mapping for custom filters in PFM configuration files.
- Added code to reset the append wizard each time it starts.
- Added mappings for extra HS2 attributes used in error attribution.
- Fixed an unload problem with Neptune files that were compressed and a different endianness.
- Fixed problems with using custom filters and CUBE at the same time.
- Added code to clear the checked flag after appending new data.
- Added ability for more formats (other than ASCII) to unload by saving.
- Improved reading and writing of B93 files.
- Fixed appending for data that is in the Swedish National Grid projection.
- Clean up of the custom filter set up interface.
- Fixed minor bugs with the display of the progress bar during build and append operations.
- Added additional information to the append results dialog to help diagnose problems.
- Added code for setting up and running custom filters during an append operation.
- Fixed problem with some FAU files not being read properly (endianness detection issue).
- Fixed unload problem with FAU data that does not have any beam angle information.
- Added ability to provide a manual data range for each extra attribute.
- Added code to auto match attribute names with source file field names.
- Fixed area based filter when run from the PFM build wizard.

Fledermaus:

- Added the ability to read an XML target file (up to 256 targets) and use during the CUBE filtering process.
- Ability to export XYZ plus attributes to an ASCII file from a PFM.
- Changed the default for setting checked areas to "selection" for safety reasons.

- Fixed a bug preventing a bin from being marked as suspect if it was already marked as checked.
- Fixed a bug with marking data from a custom filter as modified.

Crosscheck:

- changed reference surface creation dialog to force the saving of the surface.

Version 6.1.4 is primarily a minor enhancement/bug fix release. Notable changes in this version include:

Fledermaus Standard Version:

General:

- Support for dongles on Mac and Linux.

FMCommand/cmdop:

- Added dtmmerge program to merge multiple DTM files together.

Bugs:

- Fixed a bug in rendering the last frame of movies.
- Other minor bug fixes.

Fledermaus Professional Version: (Includes everything from standard)

PFMDirect:

- Added support for custom filters as one of the stages of the build wizard.
- Ability to store configuration files for PFMDirect to simplify repetitive builds.
- PFMDirect can apply tides to FAU format files.
- Updated flags for TOF/HOF format.
- Updated support for ARE files to allow conversion between geographic and UTM coordinate systems.
- CUBE algorithm can now be run on Neptune files.

3D Editor:

- Added a slice-based editing mode to limit the soundings displayed in the 3D Editor to strips of data.

PFM:

- When applying CUBE filter soundings algorithm, added support for ignoring soundings around a set of targets.

Bugs:

- Fixed problems with OMG, HS2, and Neptune formats.
- Other minor bug fixes.

Version 6.1.3 is primarily a minor enhancement/bug fix release. Notable changes in this version include:

Fledermaus Standard Version:

General:

- For each program, added the date and time the program was compiled to the About dialog box.

fledermaus:

- Added an option in the General Preferences dialog to reset the docking windows interface.
- Can now display metric values in the 'Create Map Sheet...' dialog.
- Fixed some problems with extended character sets.
- Added an indication of the units for label sizes when generating contours.
- Can now change the color map for line files in Fledermaus by clicking the 'Change Color' button.

dmagic:

- The 'Project > Import from .sd or .scene' now works on a variety of objects and will properly extract geotiffs from files.
- When shading files, areas in the shade file that contain no data are now always black (previously they could be black and/or a dark purple).
- The importer for the 'Surfer Grid' format can now automatically detect ASCII or binary Surfer files.

avggrid:

- Files become disabled in the file list if they cannot be read.

Bug fixes:

- Fixed a problem importing certain ArcInfo Shape files.
- Fixed a problem using the 3D grid class.

Fledermaus Professional Version: (Includes everything from standard)

PFM:

- In the Tools menu, added an 'Export Shoal Sounding' option, which writes the shoal sounding in each bin of the selected area to a file.
- Fixed corruption issues on the PC when working with PFM files over 2 Gigabytes.

- Add units to indicate what the constant error fields should be when using CUBE.
- Fixed a problem unloading a CUBE PFM when there were no soundings in a bin and the hypothesis was modified.
- Fixed a problem in the CUBE export sounding procedure when the chosen hypothesis only contains a single sounding.
- PFM datasets do not lose custom color map ranges so easily.
- Added a CUBE Options dialog to control the current hypothesis resolution algorithm and the capture distance.

Data formats:

- Addition of the B93 format (NIMA) Reader.
- Addition of the HS2 (Hypack) Reader (read only).
- Added SURF support for reading and calculating TPE values.

3D Editor:

- When editing CUBE nodes, now support setting a custom hypothesis in bins where no hypotheses were generated.
- After editing a section of data with the 3D Editor and committing edits, only the modified section of the surface is reloaded in the main display. This greatly speeds up editing on large surfaces.
- Polygon selection now works properly when editing CUBE hypotheses.

fmcommand/cmdop:

- Import/Conversion of Mercator Charts
- Optimizations to the pfmadddline program.
- Added options to xyztofph to move the camera vertically up or down, or to tilt the camera up or down.

Bug fixes:

- Fixed problems writing HTF/HTB files.

This release contains a few significant functional enhancements and includes all of the patches released from 6.1.1. This maintenance release of notable fixes and improvements includes:

Fledermaus Standard Version:**General:**

- Fixed a problem building Geographic PFM with longitude coordinates in the [-180, 360] degree range. (as opposed to only [-180, 180]).
- Fixed serial port I/O problems on the MacOS 10.x platform. ROVManager now works on that platform as does all the 3D input devices used for flight mode in Fledermaus.

iView3D:

- The top number keys on the keyboard can be used as shortcut keys to toggle on/off the 1st ten data sets loaded.
- A new preferences dialog allows iView3D to startup in stereo mode.

dmagic:

- In the File > Export Surface dialog an option was added to write out a GMT/NetCDF digital terrain file.
- The File > Import Imagery dialogs have improved support for using a TDR shade file as the image to work with. (It will automatically read georeferencing data from a .geo file of the same base name.)
- Fixed a significant memory leak when shading surfaces, which could cause dmagic to run out of memory with larger data sets.
- Fixed an incorrect default output name in the File > Import Imagery dialogs when an image contained a filename with extra dots in it. For example "westCoast.250m.tif".

avggrid:

- Fixed a bug in the shoal biased surface generation that caused the rejection flag on soundings to be ignored.

fledermaus:

- Surface contouring now supports creating labeled contour lines.
- For Line3D objects, the line width attribute was not properly saved when written to a scene file.
- The profiling dialog has a new feature. Normally if you click and drag it displays statistics about the dragged area, however if you just click on the profile then Fledermaus will place the 3D selection point at the point along the profile that matches in the main display. This makes it

much easier to correlate a profile location with its 3D location in the scene.

- Fixed a potential crash problem when using the resample and drape option for a 3D line object.

fmcommand/cmdop:

- The cvttm, cvtutm, tmtogeoimage, and utmtogeoimage applets now properly support projection of longitudes in the full [-180, 360] degree range instead of just [-180, 180].
- Greatly reduced the memory requirements of dtmmerge.
- Fixed a problem that caused the Fledermaus license to disappear if you tried to install it when it was already in the correct location.

Fledermaus Professional Version: (Includes everything from standard)

General:

- Fixed a significant PFM problem that could cause some corruption as the PFM file got extremely large.

pfmdirect:

- Modified the VISE format unloader to handle files that don't have a consistent number of beams per ping.
- Improved the reading of area files when specifying PFM bounds.
- Fixed a bug in the GSF reader that prevented the along track corrector from being applied properly.

fledermaus:

- The export soundings dialog from a PFM is much more sophisticated. It allows more control over what data is exported and can unproject CUBE/PFM soundings if necessary. Data can be exported as simple ascii or in the NAVO/Caris GIS import format.
- CUBE/PFM filtering now pays attention to the surface slope when used as a rejection filter.
- New 3D editor point measurement tool. You can now interactively measure distance and bearings from one point to another.
- Fixed a bug that cause PFM target snippets not to display.

ROVManager:

- Improved the update rate. Previously it was too slow and could fall behind on certain circumstances.
- Added support for the generic NMEA strings for reading data from a single vehicle. (\$GPGGA & \$GPHDT are now supported.)

This release is primarily a bug fix and minor update release. It also integrates all of the patches released as 6.1.0b into the full distributions. For platforms specific fixes, the special rendering hack for Macintosh platforms has been removed as Apple has now fixed the bug that we had to work around. If you are using Panther you must upgrade to at least version 10.3.4 of the Mac OS. The Linux distribution was also improved to remove possible conflicts with KDE related libraries. Notable fixes and improvements include:

General:

- Added support for ESRI style tiff world files.
- Fixed a bug reading EXIF jpeg files.
- Updated the tiff and geotiff libraries.
- Fixed a problem reading Transverse Mercator geotifs.

iView3D:

- Fixed a bug that caused movie playback to not function.
- Updated iView to match the latest Fledermaus scene file format.

avggrid:

- Fixed a memory leak when gridding a PFM index file.

dmagic:

- Fixed a bad error check when importing a HIPS grid file.
- Fixed a problem in the Project->New Project dialog when entering the slash (path separator) character.

fledermaus:

- Fixed a crash in the dynamic PFM update when using polygon select to load soundings.
- Fixed a show/hide file/line problem which occurred if the files were not added to the PFM in alphabetical order.
- Now no 3D device is selected by default. The 1st time the preferences will open and request that you select the appropriate 3D device that you are using.
- When starting a 3D device the software now attempts to figure out if you selected the wrong device and inform you of that.
- Added a -flightpath command line option which brings up the movieplayback dialog upon startup.
- Fixed a bug that prevented the active point SD object type from properly triggering the attached action.
- Fixed a memory leak when using the create mapsheet option.

PFMDirect:

- Fixed problem with unloading CARIS HDCS data.
- Fixed some memory leaks reads HDCS data.
- Added extra error checks for disabled beams in HDCS data.
- Fixed a memory leak in the basic I/O parser when reading subrecords.
- Fixed an issue setting the southern hemisphere when cubeing a PFM.
- Fixed a HDCS project browser bug when selecting just one line of data
- Fixed a problem that prevented standard deviation from being calculated when building a CUBE based PFM.

movieclient:

- Added a -pushback command line argument. Necessary to properly render movies if the user changed the pushback slider within Fledermaus before creating a movie flight path.

cdmop:

- Updates to pfminitialize and pfmaddline.
- Added a new program: hyd93toxyz which converts Hyd93 (.b93) sounding files to ascii xyz.
- Fixed an error check in scalarmask and setbound applets.
- dtmmerge was not showing up in the list of available applets.
- Added cvttm companion to cvtutm for improved handling of Transverse Mercator files (with different central scale factors).

imageviewer:

- Added a warning if an image file failed to save
- Added a feature to resample images by cell size
- Fixed a bug that prevented entering zero as a valid geo-coordinate in the x-bounds.

omniviewer:

- Fixed the display of many HTF attributes

General PFM:

- Fixed a situation when reading TPE measurements for soundings could get out of sync with the beam structure.
- We now read TPE data from SURF files (assumes it is variance)
- Numerous improvements to the loading and unloading of Neptune data including much improved flag handling.
- Fixed a sub-record inconsistency between the parser and the PFM attributes.
- Fixed a subtle PFM readbin problem. (caused an occasional flag set/read problem)
- Optech GCS Fixes
 - Dynamic update fix in 3D editor for polygon selected region
 - Setting suspect flags from HOF files
 - Setting the 1st return for TOF files as a secondary depth

- Greatly improved the speed of dynamic unloading when the PFM contains many source files.
- Better handling of extra files in the HDCS day directory and zero sounding processedDepth files.

Standard vs Professional Editions of Fledermaus:

Starting with version 6.1 of Fledermaus, the software suite is now available in two configurations: *Standard* and *Professional*.

- *Standard* - The Standard configuration contains the main visualization functionality including the programs Fledermaus, DMagic, AvgGrid, ImageViewer, Movieclient, FMCommand, and cmdop (minus any functionality for working with PFMs or ROVs).
- *Professional* - The Professional configuration contains all of the features in the Standard configuration plus tools for Area Based Editing (PFMs), routeplanning, and ROVs. The following applications are also included in the Professional version: PFMDirect, Routeplanner, OmniViewer, CrossCheck, ROVManager, Wave-400, and Wave-1000. Any customers who own Fledermaus and did not explicitly purchase the Standard Edition are entitled to receive the professional version of the software.

Auto-Processing (Cube):

One of the main enhancements with version 6.1 of Fledermaus revolves around a new method of auto processing data of point editing within the PFM data structure called *CUBE* (Combined Uncertainty and Batymetry Estimator.) For more information on CUBE processing, see Chapter 6 of the Area Based Editing Manual. Integral to the CUBE process is the assignment of error estimation for point data being feed in the area based editing/CUBE process. PFMDirect supports numerous enhancements to provide robust total propagated error modeling, along with other more simplistic methods for error attribution.

The main idea behind CUBE is to statistically generate a set of possible heights for a surface (also called hypotheses), taking into account the uncertainty of soundings. CUBE hypotheses are attached to a PFM file and can be generated via PFMDirect by enabling the *Auto-Processing (CUBE)* toggle at the top of the interface. Once CUBE hypotheses have been generated and errors specified using PFMDirect, the hypotheses can be viewed in Fledermaus by opening the PFM. The hypotheses can also be edited in the 3D Editor by enabling the *Cube* toggle in the 3D Editor interface. After processing is complete, the Tools menu in the PFM Attribute area in Fledermaus contains options for writing out the CUBE surface or running filters based on the surface.

Application-Specific Changes:

Besides the new functionality for working with CUBE datasets and the changes with Standard and Professional configurations, many applications contain enhancements some of which are listed here:

- *Fledermaus:*
 - Support was added for the new Patriot 3D Flight device (the successor of the IsoTrak II). Better support was incorporated for reading serial ports on the Mac. In the object Attribute panels, a new dialog was added to Transform (rotate, translate, or scale) the vertices of a solid model. Also, a button was added to easily rotate a vertical image.
 - Numerous minor interface tweaks and enhancements.
 - Improvements to the surface series class.
 - A new 3D point object type that can trigger actions like launching a web browser or running a movie when clicked is now supported.
- *Dmagic:*
 - Added an importer for Arcview ASCII Grid files.
 - Interface enhancements to the surface slope calculator.
 - Many smaller interface improvements for ease of use or clarity.
 - Fixed problems that sometimes caused dialog boxes not to disappear properly.
- Avggrid
 - Added an 'Export to Scalar/Geo File' command on the File menu.
 - User interface improvements to the export points option.
- *PFMDirect:*
 - Fixed a bug with appending files. The Verify PFM utility now properly modifies data file paths. Better support was included for working with HTF/HTB files.
 - Major updates to support CUBE based processing.
 - Improvements to the Neptune Multibeam format parser to properly read tide corrected files.
- 3D Editor
 - Improved support for the dynamic unload of HOF/TOF files. Bug fixes with some of the coloring modes. Major updates to support new CUBE functionality.
- Movieclient
 - Better support for antialiasing of movies.
- Crosscheck
 - Support to show the measurement points on the reference surface and color code them by the difference amount.

General Changes:

This is primarily a bug fix release that integrates the current set of released patches. The following programs have had updates.

PFMDirect:

- Fixed crash when trying to load / unload CARIS HDCS data.
- Fixed reverse ordering of files in the PFM structure.
- Fixed the survey line numbering issue.
- Activated optimized unloading for all formats.
- Fixed problem with unloading to new files (ASCII format only)
- Improved error checking for when unloads fail
- Fixed broken progress bar for appending and unloading

Dmagic and Avggrid:

- Fixed crash when gridding CARIS HDCS data.

Imageviewer changes:

- fixes: much faster file loading, selection box, and alpha mask.
- new features: colour picker, alpha mask(transparency) by colour

Imageviewer can now load large images quickly for efficient processing. A new colour picker and alpha mask by colour feature allow you to make specific colours in your image transparent for draping.

Movie Client:

- Fixed render magnification and anti aliasing issues.

Fledermaus:

- Fixed specifying a pfm file on the command line.

General Changes:

This is a major new release of the software system and features a completely re-written user interface that is native on all platforms (Exceed is no longer required on Windows platforms for example.) Although the interface has been greatly modernized the overall usage methods remain the same and users of older versions will soon feel at home. In addition to the Windows, Linux, Sun, and SGI platforms, as of release 6, the Macintosh OS X platform is now supported. All platforms share an identical set of features although integration options with other vendor's tools may vary according to their platform availability.

For the graphical applications, the CmapEditor and CmapCreate programs have been removed from the distribution. Their functionality is now included as part of the DMagic application. The MapMaker and DXFViewer programs have also been depreciated with their functions now part of Fledermaus. New graphical applications making their appearance as part of version 6 include FMCommand, CrossCheck, and OmniViewer as described below.

Previous versions of Fledermaus included a wide variety of data processing command line applications (over 100 programs) in addition to the graphical applications. All the functionality of these applications is preserved in version 6 however the programs have been integrated into a single command line processing program called cmdop. The functions of this program can be directly scripted on the command line or accessed in a more user-friendly GUI format through the new FMCommand program.

The processing of XYZ type data and Multibeam Sonar formats has been greatly enhanced through a new I/O architecture. The new infrastructure provides consistent functionality between applications that read point data such as PFMDirect and AvgGrid. The new OmniViewer program provides a spreadsheet like view of any data format supported by the new I/O architecture.

New Applications/Significant Enhancements:

- FMCommand
 - This graphical program provides four functions. It aids setup and installation of the software and verification of licensing issues. It supports running and managing the 3D input devices such as the Bat and Logitech 3D mouse. Most importantly, it provides a graphical gateway to access the wide functionality of the command line programs. These programs often supplement the overall system tools and support many data processing tasks. You can run the tools within the GUI of the FMCommand program. Finally a launch

bar with icons is provided in order to run all the graphical programs within the visualization system.

- CrossCheck
 - Provides a powerful interactive analysis program for doing point vs surface comparisons. It can perform main line vs crossline survey analysis for IHO order 1 and 2 statistics or generalized comparisons.
- OmniViewer
 - Provides a graphical spreadsheet like view of data contained in any format supported by the new point and multibeam I/O architecture.
- Fledermaus
 - A new native interface for all supported computing platforms provides substantial usability improvements and streamlined data flow, but still maintains familiarity to existing users of the software.
 - New mapmaker output has been considerably improved and supports both geographic and UTM projected data sets.
 - New support for GeoWall and similar dual projector stereo display systems by supporting split screen visualization.
 - New profiling dialog consistent with that of DMagic and RoutePlanner. New options include interactive distance and slope measurements and the ability to save both the profile data and images of the profile display.
 - The GeoPicking panel now includes a table to store and manage picked locations. Point and line objects can be interactively constructed from the point table.
- DMagic:
 - New native user interface with substantial usability improvements. While current users will still feel at home with the new interface many improvements have been made to improve data flow and integrate more functionality into the application. Key differences include integrating the shader into the main window display, integrating color map editing within DMagic, and improving the preparation of mapping imagery onto surfaces.
 - DMagic, Fledermaus and RoutePlanner all share a common surface profiling tool that includes many enhancements.
- AvgGrid
 - Major improvements to the user interface to improve usability and support new features.
 - Integrated support to process point data from any format supported by the new OmniReader parsing engine.
 - A detailed configuration panel allows precise control over what and how data is gridded.
- Routeplanner

- New native user interface with substantial usability improvements along with a profile tool consistent with that of DMagic and Fledermaus are the major changes here.
- PFMDirect
 - Integrated support for the new OmniParser I/O engine.
 - Improved support for reading Caris HDCS formats.
 - Faster data unloading engine.
- cmdop
 - New command line data processing application that integrates in a single application all the command line processing programs of the previous release (about 95 of them).

General Changes:

This version is primarily a bug fix releases although a few new features have been implemented. A new applet utmtogeimage complements the geotoutmimage program providing a function to un-project an image file from UTM back to geographic space.

New Applications/Significant Enhancements:

- utmtogeimage
 - Supports the projection of an image with UTM coordinates back into an image with geographic coordinates.
- DMagic: New support for importing Caris weighted grid files into dmagic for further visualization and processing in Fledermaus. This functionality requires that Caris be installed on the system as well as Fledermaus.

Minor Enhancements/Bugs Fixed:

- Fledermaus – surface differencing on geographic data sets contained a bug that assumed the cells are square. This is true in projected data but not geographic coordinates.
- Reading tiled tiff images often failed – now fixed.
- Added write support for the BMP image format. Previously only reading bmp files was supported.
- Support the idea of tiff world files for other image formats. If you have a filename with the same base name as an image with the last two characters in the extension changed to “fw”. Then the system will try to read that file for georeferencing data. This file has the same format as a tiff world file. For example test.bmp will look for a test.bfw file for georeferencing. For jpeg files, test.jpg will check for test.jfw.
- DMagic: Added some missing hourglass cursors in dmagic and made sure assembled files get the .sd extension added by default if not entered by the user. In the extract region, custom bound extraction is now the default. Fixed a bug when switching projects after using the shading tool with scalars in the previous project.
- avggrid: You can now export scalar (.scalar) files as well as dtm (.dtm) files by specifying a filename that ends in .scalar. This makes it much easier to grid a data set for draping on a DTM at a later time in dmagic.
- pfmddirect/avggrid: Fixed a problem gridding more than 320 GSF files in multiple directories.
- Fledermaus: The 3D editor z-range now updates when lines visibility state is toggled on and off.

- Improvements in the rovmanager and Fledermaus ROV display abilities when working over data sets with geographic coordinates as opposed to UTM coordinates.
- pfmdirect – Fixed a bug building PFM data structures with UTM coordinates in the southern hemisphere.
- Documentation – Updates to the installation manual to correct the bash shell setup on UNIX platforms. Also added better samples to show how to setup network licensing.
- Updated the Caris HIPS reader to reduce the number of dependencies on environment variables.

General Changes:

This version is primarily a bug fix releases although a few new features have been implemented. The pfmdirect program has substantial improvements to the unloading of pfm data back to the originating format.

New Applications:

- dtmmask
 - Knocks a hole in a given SD surface based on one or more other surfaces. Very handy when you have a large overview surface within smaller high resolution surfaces in the same region.
- mksurfseries
 - Allows the construction of an animated surface from a series of SonarDTM SD files.
- linetodxf
 - Converts an ascii xyz line file (such as that exported by the Fledermaus 3D line object) into an Autocad DXF R12 file.

Minor Enhancements/Bugs Fixed:

- The pfmdirect program used to create PFM data structures for Fledermaus has had a number of improvements when unloading data to make it much faster. C&C Binary formatted files are now properly detected as well.
- mkvcurtain supports more flexible ascii files for geo-referencing including xyz as well as xy and is less fussy about the separator.
- Scenes that include BasicDTM objects now have the object embedded in the scene file rather than saving a pointer to the original file. This is in line with how scenes are normally saved by default.
- On the Sun platform the shared libcstd++ library is no longer required thus simplifying installation.
- The gasciitoscalar command line program to import gridded ascii data now supports the same feature set as the dmagic importer.
- In grdtoscalar the -invert option wasn't functioning properly.
- Imageviewer – If a regular tif image (not a geotif) was opened then the dialog box option to add geo-referencing was inaccessible.
- Dmagic – you can now view a shade file without loading the corresponding DTM file.
- The command line shade program now has a color map assigned by default if not specified and support for depth based color maps has been implemented.
- Reading GSF multibeam files under windows failed if they didn't have an associated index file unless the GSFTMPDIR environment

variable was set. The reader will now obey the variable if set but still work if not.

- Avggrid – When entering the format for multiple variable ascii files the pulldown menu to select which variable to grid didn't always make all the variables immediately available. This has been fixed.

Version 5.2

7 February 2002

General Changes:

This version combines many improvements in the area based editing (PFM related) tools provided by Fledermaus. In addition a useful new graphical program called imageviewer has been added. Along with basic image viewing this application provides useful tools for adding and managing geo-referencing data with images, reading and writing tiff world files, and many image editing features including resampling, format conversion, transformations, cropping, and alpha (transparency) channel support among other features. All the applications in the Fledermaus suite are now aware of tiff world files. Thus if a “.tfw” file exists that has the same base name as an image file the program will automatically read the data to extract useful geo-referencing data about the image. A new waveform viewer for Lidar data has been added although only the SHOALS lidar systems and data formats are currently supported.

The area based editing module now supports loading data from a wide range of formats including: Ascii, GSF, Caris, C&C Binary, Shoals 400 and 1000, HTF (Hydrographic Transfer Format), Atlas, VICE, and Simrad Neptune among others.

The ROV Manager application for passing realtime data streams to Fledermaus for ROV objects has been mostly rewritten.

New Applications:

- Imageviewer
 - Very handy application for image viewing, georeferencing, resampling, cropping, and other imagery transformations.
- Gshhstolines
 - Extract shoreline vector data from the freely available xxx database for a given area and create an SD file to load into Fledermaus.
- Geoutmtoimage
 - Reproject a geographic tif image into a UTM image.
- Imageingester
 - Extract data from SD files and imbed the data into a source image file producing a new combined image file.
- Crosscheck
 - A new application for doing cross line analysis with GSF sonar multibeam data.

- Waveditor
 - An application for viewing SHOALS lidar waveform data.

Changes to Fledermaus:

- Major improvement to the File > Create Mapsheet option. You can now directly create printable quick charts for both projected and geographic data sets. The resulting charts are appropriately labeled and annotated.
- A default view can be specified upon startup.
- New integration features allow 3rd party systems to imbed Fledermaus within a larger system.
- The ROV realtime object type in Fledermaus has been greatly enhanced providing support for loadable ROV models, navigation offset and size information and the ability to track distance and heading to multiple target locations.
- Major PFM (Area based editing) enhancements. Support for user configurable PFM data structures, PFM attribute support. A variable highlight surface color by attribute was added among other things. The sounding selection algorithm has a number of interface improvements to facilitate more robust operation.

Changes to the 3D Editor within Fledermaus:

- Different cursors for different editing modes and full support for keyboard short cuts.
- A user definable configuration file allows the launching and data communication between the 3D editor and 3rd party applications.
- Substantially improved support for Lidar data including second depth display and management.
- The ability to move the actively edited area in the compass directions without leaving the editor.

Changes to Avggrid:

- Support for new data formats. We currently read data from the following formats: Ascii, GSF, Caris, C&C Binary, C&C Trace, Shoals 400 and 1000, HTF (Hydrographic Transfer Format), Atlas, VICE, and Simrad Neptune among other.
- Better support for reading extra attributes from most multibeam formats.

Changes to DMagic:

- You can create texture mapped (draped imagery) SD files directly from the GUI. (mktextureDTM is no longer required).
- Better profiling support for geographic data sets.

- New importers for DTED, and GUTM surface formats.

Changes to PFMDirect:

- This application has been completely rewritten. In addition to featuring a native interface on all platforms it provides robust functionality for building PFM data structures for area based editing. Data loading, gridding, PFM construction and unloading are all supported within pfmDirect now.
- Projection of geographic to UTM can now be done on the fly when necessary.
- Basic area filter support can now be enabled.

Version 5.1.1

25 July 2002

General Changes:

This is primarily a bug fix release that addresses several issues found in the main 5.1 release. The only general change is to the directory selection file dialog. It now shows file names that appear in the directory along with the directories.

Changes to Fledermaus:

- Improved compatibility with older 3D line SD files.

Changes to Avggrid:

- Fixed a bad memory leak when parsing ASCII files.
- Improvements parsing some of the supported multibeam formats.

Changes to DMagic:

- Fixed a problem in the NAVO Chartr Grid file.
- Robustness improvements to the importation of gridded ASCII.

Changes to DMagic:

- Fixed a bug that prevented the NAVO Chartr Grid file format from importing correctly.
- Improved the importation of gridded ASCII files to make it much more robust.

Changes to PFMDirect:

- Minor fixes and user interface improvements.

Changes to HTFConvert:

- Removed PFM related options as this functionality is now handled using PFMDirect.

General Changes:

This is a major new release for the visualization system that incorporates numerous new and improved features. A summary of the major changes include:

- Shiftscape™ – a new rendering engine for Fledermaus
- Enhanced turntable mouse interface.
- Substantially upgraded functionality for PFM editing.
- Greatly enhanced 3D editor for PFM sounding class.
- Simplified tools for directly importing data in Fledermaus.
- Improved 3D point and 3D line class.
- A redesigned solid model class for Fledermaus.
- Enhanced file selection dialog.
- A new 2D route planning application.
- Etopo2 and other new surface importers for Dmagic.
- A new graphical tool (PFMDirect) for creating PFM's.
- A new color map creation/editing application.
- Support for depth based color maps.

The file selection dialog has been upgraded to add support for a recently used popup that lets you quickly navigate to recently used directories. This is shared among all applications thus if you save a file to a particular location in Dmagic then run Fledermaus, that directory will appear in the list. On a Windows system, a new popup lets you jump to the different disks available on a given system.

Changes to Fledermaus:

The most noticeable changes to the system are in the Fledermaus application itself. This includes a new rendering engine called ShiftScape™ that greatly improves the rendering capabilities of Fledermaus. ShiftScape™ automatically degrades the quality of objects when exploring to make the best possible use of your graphics hardware. All of the visualization types have been upgraded to take advantage of the new rendering engine.

The turntable interface includes new functionality including a labeled scale bar along the axis that gives the ability to measure vertical and horizontal distances directly in the virtual 3D world. The widgets can also show the current view compass direction and view angle above the data.

The point editing features of the Fledermaus PFM data object have been greatly enhanced with new options to deal with sounding selection and surface coloring options. A redesigned and more powerful 3D editor allows one to quickly and efficiently edit the sounding (point) data that makes up the surface.

Changes to DMagic:

Dmagic now includes a *Recent Projects* menu under the *Project* menu. New surface import options include an importer for the Etopo2 database and the final survey grid format used by Navoceano. Also, the *File > Import XYZ* menu option now launches the Average Gridder application.

New Applications:

RoutePlanner

This application replaces the existing Routeplanner application with a much richer feature set and advanced tools for pipe route planning. It takes advantage of Fledermaus's ShiftScape™ rendering engine to present a detailed visualization of the surface data for route layout. New tools allow the interactive route planning with precise controls for route parameters such as the radius of curvature for any given segment. Profiling tools allow the interactive profiling of data along the route.

PFMDirect

This graphical application is a support tool for Fledermaus's PFM editing class. It lets you interactively create PFM data sets from a wide variety of input point formats including, ASCII, GSF (Generic Sensor Format), HDCS (Caris), HTF (Hydrographic Transfer Format), and Shoals (Lidar). It provides support tools and the ability to do things such as grid the data via avggrid for a quick first look.

CMapCreate

A graphical application to create and edit color maps for Fledermaus. This application supports both the original color maps format and the new depth based color maps now available in version 5.1. A powerful interactive graphical interface eases the work in building new color maps and editing existing ones.

General Changes:

This release is primarily a bug fix and minor feature release.

Fledermaus now supports the latest NAVO editor within the PFM class.

Bug fixes:

Improved the X-Window resource files to make sure applications maintain a consistent look and feel. Previously some text entry fields didn't have the proper background color to indicate if there were editable or not.

The command line shade program on the UNIX platforms was fixed to match the PC version and support was added for draping scalars.

Bug fixes to the tdextract and tdrappend programs.

The solid model Fledermaus class now reads geo-referencing data properly.

The new depth based color maps can be displayed in Fledermaus now.

Version 5.0.2

13 December 2001

General Changes:

Fledermaus now supports building and editing PFM 4.02 files.

The licensing has been updated to use the latest flexlm libraries. This does not affect node-locked licenses, but servers running a network license must install a new daemon. Please contact info@ivs.unb.ca for more information.

Added a new applet called imagemanip that supports many operations on images.

Bug fixes:

Fixed a number of image processing bugs found in Dmagic, resampler, quilt, imagemanip, and mktexturedtm.

Cleaned up importing imagery data sets in lat/lon coordinates in Dmagic.

Version 5.0.1

26 October 2001

General Changes:

Added ability to control the screen size or run scripts when switching in or out of stereo mode on an SGI.

Bug fixes:

Fixed Device3Dserver on the SGI.

Version 5.0.0

12 October 2001

General Changes:

Version 5.0 includes a number of significant changes to the Fledermaus software package. These include:

- New turntable mouse interface.
- Enhanced support of image data and Geotiff.
- Upgraded support for sub-surface data.
- Expanded import of other data – DXF, Arcview, USGS DEM, etc.
- New PFM sounding data processing and editing object.
- New internal data types – 3D grid, 3D lines and polygons, ROV tracking, and vertical image.
- Network licensing and improved install procedure.
- Cross platform – SGI, SUN, and PC (Windows and Linux).
- New PDF version manual.

Changes to Fledermaus:

The most noticeable change is the new mouse based turntable interface. This replaces both the previous 7 widget based turntable interface and the mouse flight mode. The 3D flight mode using the Bat remains the same. The new mouse interface is based on a centered on view approach to the data and requires minimal use of the widget controls. It allows a dynamic scaling of the vertical exaggeration of the scene and also allows recording of a flight path for use in the movieclient applet.

The modes in Fledermaus have been re-organized to explore, select and polygon select. This directly supports the mouse based turntable mode to minimize the use of the widgets for exploration and moves the action for picking to the left mouse button in both select modes. The new polygon select mode allows the digitizing of a line or polygon and saving to a line object or ASCII XYZ file. Profiling is still undertaken with the right mouse

button, but now generates a line on the surface that remains as the profile is moved or the scene explored.

SD objects that are created in Fledermaus during processing can now be saved. Recent SD and scene files are stored and listed for easy reload. Various data can be imported directly into Fledermaus under import data – DXF and Arcview files, ASCII points and line files. A new 3D interaction window has been added to provide 2 separate views of the same data.

A number of new internal data objects have been added:

- 3D grid – with geo-referenced based units may be draped on the surface.
- Vertical image – direct load of image files such as subsurface or water column data.
- 3D lines – in association with the polygon select mode to save digitized lines and polygons.
- ROV object – for display of tracked vehicle.
- PFM soundings – disk based bin and index format for the process and editing of extremely large multi-attribute data such as multibeam sonar.

Changes to Dmagic:

Import of a number of data types have been added including:

- Arcview grid
- USGS DEM
- Binary grid
- ERMapper grid
- SURF ASCII grid

Surfaces that have been loaded in Dmagic can now be exported as ASCII grid, Arcview grid or binary heights.

The surface shader interface has been modified to support some new functionality. The direction of the illumination is indicated and a shade manager has been added to allow saving and reload of shade parameters.

When assembling objects for Fledermaus the option has been added to append a scalar to the SD object. This will allow the scalar value to be displayed in Fledermaus in addition to the XYZ of the cursor position.

Changes to Average Gridder:

The following data types are now supported for import: C&C, IVS and STB binary, and GSF files. Once scanned data from all formats can be exported as ASCII, C&C, STB or IVS binary files. The data can be

cropped on import by setting the bounds to defined limits. The limits can be set either in the visualization window or by entry of coordinates.

The main display uses texture mapping to maintain an image of the data during zoom and pan. The level of the texture mapping will depend on each platform and can be varied to suit or the image turned off during zoom or pan.

Three types of gridded surfaces can now be produced; weighted average, median filter or shallow bias.

Miscellaneous:

A number of new of applets have been added to support import of data from other applications including:

- arconvert – for Arcview project files.
- dxftexplore – for DXF drawing files

Licensing has been extended to network multi-user licenses, and these can be across different platforms (SGI, Sun and PC) on the same network.

The reference manual has been re-written and is now distributed as a PDF file that can be started from the Help menu. Updates will also be distributed via the support section of the IVS web site.