

IVS 3D VIEWS

It's All About Fledermaus – An Award Winning Software Solution



Welcome . . .
To Our Tenth Year
Anniversary
Newsletter!

Inside you'll find our *Views* on topics related to our flagship Fledermaus Software Suite; from features and facts, tips and training, to where you can meet us in the coming year. We hope these *Views* will be of benefit in your use of Fledermaus.

Over the past 10 years we have, without a doubt, added many new features and increased functionality of the Fledermaus Software Suite in both products and services. Additionally, we are very excited that Fledermaus is now being used in the waters of every continent; even as far away as onboard ships in the Antarctic!

In the last couple of years, as we continued to experience growth in the diversity of our clients, we realized the need to expand our product line and introduced Fledermaus Standard and Professional, and the free viewer iView3D. This product expansion enables us to offer IVS 3Ds visualization technology to a wider audience of clients in the government, companies and academic institutions. We can say with enthusiasm that this new product selection offers a better fit, flexibility and more cost effective packaging for our expanding client-user group.

Our dedicated investment in innovative 3D visualization research and technology continues to allow us to offer a growing suite of unparalleled products, support and services.

I'd like to close with our best wishes to all of our partners and clients and hope we can meet at one of the conferences we are attending this year.

Cheers!
Lindsay Gee



Enter Into The Dynamic World Of 3D Interaction

The Fledermaus visualization software suite encompasses a large set of powerful, interactive and automatic visualization tools that offer some of the most effective means to explore, QC, manipulate, process, extract and gain knowledge from your spatial data.

Many people who see Fledermaus at presentations and at shows see only the front end visualization application and don't realize that the program, in its entirety, consists of a suite of applications and tools that work together to prepare simply, more than a pretty picture!

Below is a list of applications included with Fledermaus Professional.

Fledermaus	DMagic	AvgGrid	iView3D
PFMDirect	ROV Manager	CrossCheck	RoutePlanner
FM Command	Omniviewer	Image Viewer	Movie Client

IVS 3D *Views* will be showcasing these and many other undiscovered gems of Fledermaus Professional and Standard, keeping you abreast of some of the most innovative visualization research and findings in the industry.

Look inside for this Editions' features!



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HOT FEATURES & FACTS

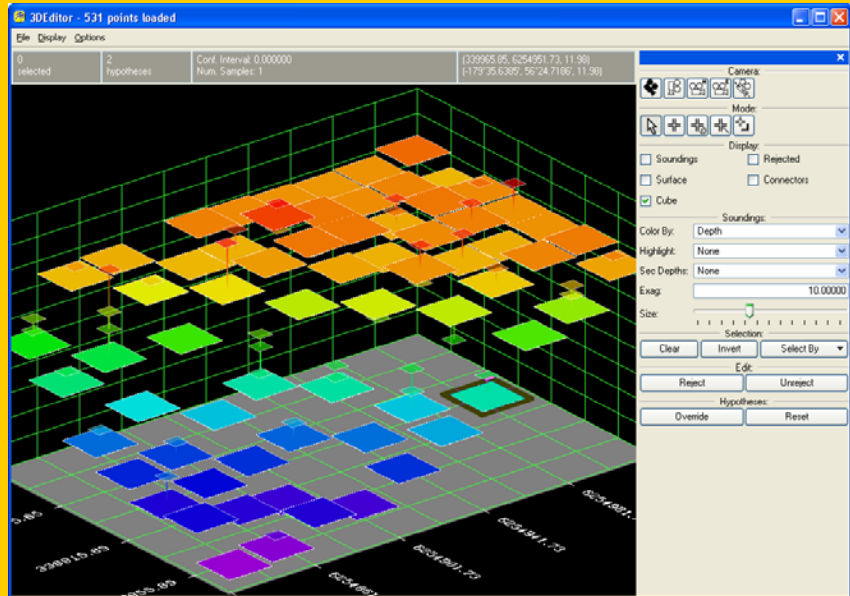
AUTO-PROCESSING (CUBE)

Modern multi-beam sonars are producing greater and greater densities of data; however, all of this data has some uncertainty in the measurements. Errors in positioning, sensors, and ship motions can add up, causing problems in data. The idea of selecting one sounding out of a group to represent the depth of an area is problematic because of these errors.

Starting in version 6.1, Fledermaus now incorporates the CUBE algorithm that provides a better way to process survey data.

The CUBE algorithm works by statistically calculating the most likely depth (a hypothesis) for the surface using all of the known information including errors. The process relies on having the horizontal and vertical total propagated error (TPE) for each data point. This may already be in the data file, but if not the TPE is calculated as part of the process.

If the data is not consistent (features or outliers in the data), multiple hypotheses are generated. Fledermaus includes tools for automatically or interactively choosing the correct hypothesis and outputting the resulting surface to a file with an estimate of uncertainty. Using this system, a human operator has to inspect less data since only the hypotheses have to be checked instead of each sounding, although the sounding information is still available if required.



The CUBE algorithm is integrated with the Area Based Editing module of Fledermaus (PFM). When building a new PFM with PFMDirect, enable the "Use Auto-Processing (CUBE)" toggle to build the PFM and generate hypotheses. Hypotheses can be edited in the 3D Editor by clicking the "Cube" toggle as shown in the image above. In this image, the currently chosen hypothesis is displayed as a large rectangular plate and the alternate hypotheses are displayed as smaller rectangular plates.

The CUBE algorithm implemented in Fledermaus comes directly from research by Dr. Brian Calder at the Center for Coastal and Ocean Mapping at the University of New Hampshire. IVS 3D is a member of the industrial consortium at CCOM, and is excited to be able to offer the first commercial implementation of this world leading research.

ShiftScape™

One significant update to Fledermaus over the years was the incorporation of the ShiftScape™ rendering engine. ShiftScape™ is a set of advanced algorithms that automatically adjust the amount of detail in a scene based on the performance of your machine. This means that you can load huge scenes in Fledermaus and easily view them without having to change the mesh gap by hand. ShiftScape™ works for almost all object types including DTMs, points, lines and images and can be controlled with the *Auto* toggle in the object's attributes. The effects of ShiftScape™ can be seen when zooming into a large DTM: as the viewpoint gets closer to the surface, more and more detail is displayed. These algorithms now allow Fledermaus to scale instantly from high-end systems, such as the SGI Onyx, to your laptop computer.



FLEDERMAUS FACTS

The word *fledermaus* is the German word for bat. Back in the days of yore in a university lab we were working on a novel device for navigating through 3D data spaces. This device uses a joystick handle, but can be moved in three dimensions and turned in any direction for a full six degrees of freedom it was like a computer mouse that flies.

Originally we called this device the Fledermaus Controller but as a device name, Bat was much easier to say. However, we liked the name Fledermaus so much that eventually when the company was formed it became the name of our flagship visualization software suite.



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TIPS & TRAINING

FLEDERMAUS TIPS

Adding Annotations to Shade Files

Have you ever wanted to add a small note directly on a SonarDTM object? Maybe to label an area or to highlight a special feature?

Before starting, all you need are the standard three components for building an FM object – a .dtm, a .geo and a .shade file. The first step is to use the 'imageconvert' command line application to convert the .shade file to a standard image file so that it can be edited in your favorite image-editing program such as Photoshop.

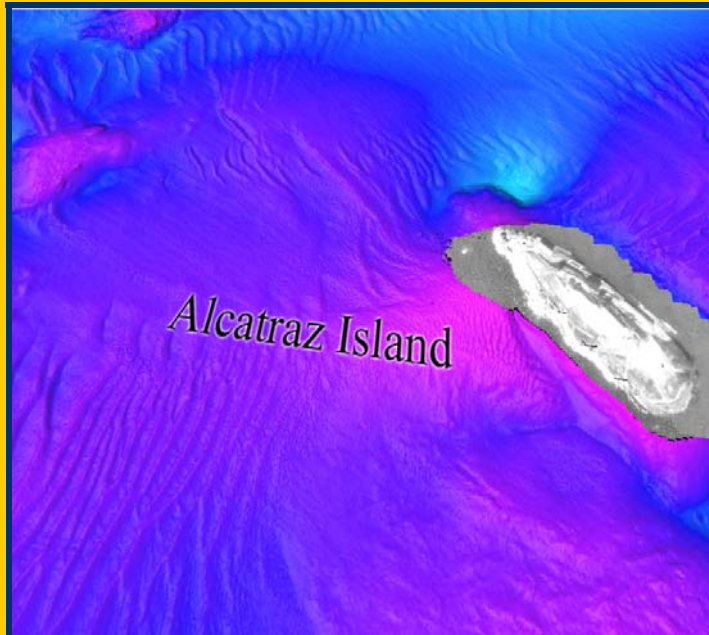
```
cmdop imageconvert -in mybestdtm.shade -intype tdr - out
shade.tif -outtype tif
```

By using any standard image-editing program you can now add any text labels or notations to the image. After making the changes, we can then use imageconvert one more time to convert the TIFF file back to a .shade file. Continuing the example from above, the syntax would be:

```
cmdop imageconvert -in shade.tif -intype tif -out
mybestdtm_2.shade -outtype tdr
```

The only step left is to assemble the object in DMagic as you normally would, except the new shade file is used instead of the original one. The image below is a simple example of what can be done.

As of version 6.1 the ImageViewer application can do the shade to TIFF conversions directly. Simply load the TIFF or shade and save it in the desired format.



more than just another pretty picture they say . . .

FLEDERMAUS TRAINING

Hundreds of users have successfully participated in both tailored and general Fledermaus workshops over the years.

Aside from client specific and customized training, IVS 3D offers an annual workshop series which include a beginner to intermediate 3 day workshop on Fledermaus Standard, a 3 day advanced topics workshop on Fledermaus Professional and a combined 5 day Fledermaus Standard/Professional workshop.

Both tailored and general workshops are structured in a modular way so they can be customized to fit individual needs. In most cases we bundle training for special purposes to enable our customers a quick and efficient project launch.

Please give us a call if you'd like to discuss our workshop options. You may also visit <http://ivs3d.com/support/training.html> for workshop details and to download our training modules and their applicable data sets for self-study purposes.

What's being said about our new Advanced Topics Workshop:

"The Fledermaus Advanced workshop was so worth taking. I learned new concepts and practical exercises. I would highly recommend this course!"

"I found the Advanced Workshop to be good for both a refresher of area based mapping and advanced editing techniques. Very worthwhile."

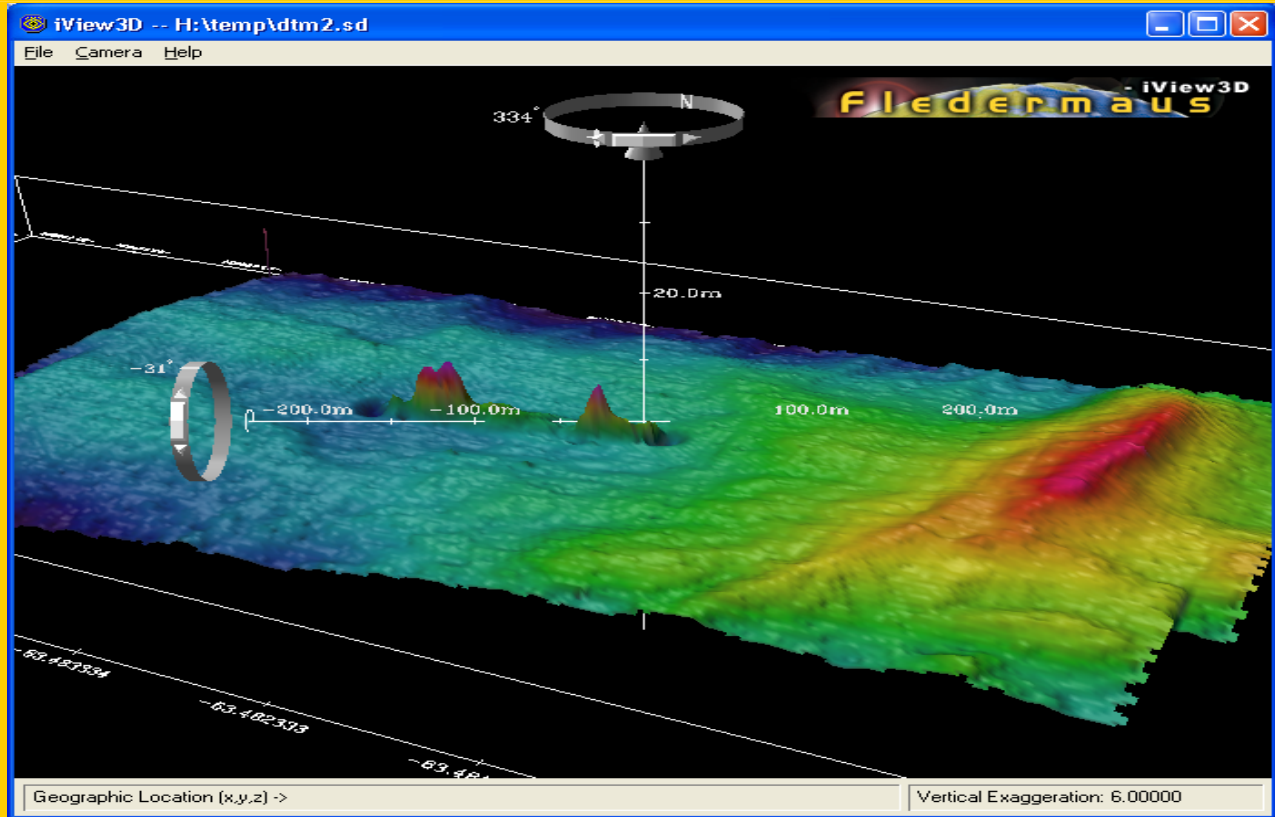
"The Advanced Topics Workshop was an excellent course!! Truly appreciated the availability of two instructors to answer all our questions. Keep up great work!"

"I learned a lot and met some excellent contacts in the field!"

"A lot of good material in this course. I'd say 'Take the Course!' And I learned how to say 'eh!'"

iView3D . . . **Free** for the Viewing

iView3D, IVS 3D's free viewer, provides the powerful viewing capabilities of Fledermaus where you can view surfaces, images, points, lines and many other supported data types.



iView3D may be downloaded from our web site @ http://ivs3d.com/download/iview3d_download.html

iView3D allows you to freely distribute data to anyone! This is great for your clients, as iView3D allows you to present the best image while giving clients the ability to actually interact with your data using the effective 3D interface from Fledermaus.

Using iView3D you may create a complex scene and demonstrate it interactively in iView3D through a custom flight path you prepared using the full fledged Fledermaus system. Similar to a movie, the flight path will take your clients through a tour of your scene using the full power of the ShiftScape rendering engine. At any time they also have the ability to view the scene fully and interactively when desired.

iView3D is available for Windows, Mac OSX, Linux, Sun, and SGI. You can be confident that your data will be shown at its best on any of these systems, since iView3D

and Fledermaus use industry standard OpenGL display technology.

Features:

- View data in the ".sd" or ".scene" format.
- Same powerful ShiftScape™ rendering engine as used in Fledermaus.
- Supports most Fledermaus data types - DTMs, images, points, lines, models, etc.
- Easy to use widget based interface.
- Supports basic geo-referencing information.
- Vertical exaggeration control.
- Show or hide objects in the scene.
- Supports split-screen stereo.
- Supports flightpaths.

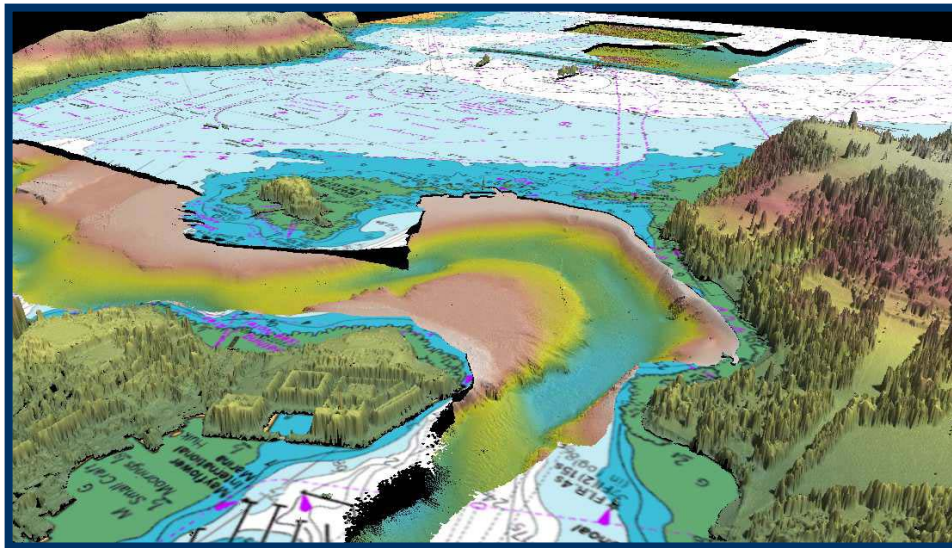
For the creation, editing and other analysis of data, you'll need to use the full Fledermaus package.



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IVS 3D Global Events 2005 Calendar

Event	Location	Date
GEOTOOLS 2005	Myrtle Beach, SC	March 7-10
HYDRO 2005	San Diego, CA	March 29-31
3 rd EGM-IHO	Monaco	April 11-14
EGS-AGU-EUG	Vienna, Austria	April 25-29
OTC	Houston, TX	May 2-5
SHALLOW SURVEY	Plymouth, UK	September 12-15
OCEANS 2005	Washington, DC	September 19-23
AGU	San Francisco, CA	December 5-9



Bathymetry, topography and chart from Common Data Set, Shallow Survey 2005 – Plymouth, UK

IVS 3D specializes in interactive 3D visualization software and services. Our products are aimed at high-end scientific visualization applications such as interactive 3D exploration of ocean floor surfaces, hydrographic QC, submarine cable routes, and complex climate data sets. The software tools and products also have application in a wide range of fields including environmental impact assessment, mining, geology, and dredge planning.

Celebrating 10 years of innovation and excellence this year, Fledermaus has established itself as an industry leading software for visualizing sub-sea surfaces and associated attributes. Specializing in dynamically presenting extremely large geo-spatial data sets for real-time 3D exploration, interaction, quality control analysis and processing, Fledermaus allows data to be widely used and useful to many disciplines and activities related to analysis of the land and sea environment.

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