GDL – GNU Data Language

presented by Sylwester Arabas
(slayoo@igf.fuw.edu.pl)

The GDL team:
Marc Schellens, Alain Coulais, Joel Gales, Sylwester Arabas,
and many, many more volunteers around the world!

(Marc is the primary author and the maintainer of GDL)
What’s GDL (and IDL/PV-WAVE)

http://www.ittvis.com/

- GDL\(^a\) is developed with the aim of providing a free/libre/open-source drop-in replacement for IDL\(^\circ\).

- IDL (ITT VIS Interactive Data Language):
  - is a tool for data analysis and visualisation
  - is a programming language (’77)
  - is a popular software package in astrophysics, atmospheric physics, hyperspectral and medical imaging (in some cases a de facto standard)
  - is proprietary and expensive
  - is related with GDL as Matlab with Octave/Scilab, etc.

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GDL rendering the Mandelbrot¹ set

¹Benoit B. Mandelbrot: 20 November 1924 (Warsaw, Poland) – 14 October 2010 (Cambridge, MA, USA)
GDL reading weather-radar data (HDF5) & doing wavelet analysis
GDL in a web interface generating SVG plots
GDL plotting MODIS satellite images (reading data from HDF4)
GDL rendering weather forecast animation (reading from GRIB)
GDL writing a 3D surface plot to a PNG file under Cygwin (by Mateusz Turcza)
GDL rendering images of polar aurorae on Saturn (reading FITS) (by Renée Prangé & Laurent Pallier)
GDL & LIDAR data analysis (reading data from netCDF, by Michał Piądłowski)
Calling GDL from Python and vice versa (Numpy & matplotlib)
What's GDL

Reasons behind

It works!

How it works?

Packages

It’s alive!

GDL – GNU Data Language
## What’s GDL

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  (incl. Juan A. Añel, Markus Dittrich, Takeshi Enomoto, Sébastien Fabbro, Orlando Garcia Feal, Gaurav Khanna, Justin Lecher, Sebastien Maret, Lea Noreskal, Orion Poplawski, Marius Schamschula, Gürkan Sengün, Thierry Thomas, . . . )

• More help and feedback needed...
  • upgrades/enhancements to existing packages (Debian/Ubutnu!)
  • new packages (OpenSUSE, Homebrew, Cygwin, Slackware, Solaris, . . . )
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- It works!
- How it works?

### Packages

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<tr>
<th>Packages</th>
<th>Arch (AUR)</th>
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<th>Fink</th>
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- **GRIB_API**: – (Arch (AUR)), + (Debian, Fedora, Fink, FreeBSD, Gentoo, Hmug, MacPorts, Ubuntu)
- **HDF4**: – (Arch (AUR)), + (Debian, Fedora, Fink, FreeBSD, Gentoo, Hmug, MacPorts, Ubuntu)
- **HDF5**: + (Arch (AUR), Debian, Fedora, Fink, FreeBSD, Gentoo, Hmug, MacPorts, Ubuntu)
- **ImageMagick**: + (Arch (AUR), Debian, Fedora, Fink, FreeBSD, Gentoo, Hmug, MacPorts, Ubuntu)
- **libproject**: – (Arch (AUR), Debian, Fedora, Fink, FreeBSD, Gentoo, Hmug, MacPorts, Ubuntu)
- **netCDF**: – (Arch (AUR)), + (Debian, Fedora, Fink, FreeBSD, Gentoo, Hmug, MacPorts, Ubuntu)
- **GDL → Python**: + (Arch (AUR, Debian, Fedora, Fink, FreeBSD, Gentoo, Hmug, MacPorts, Ubuntu)
- **Python → GDL**: – (Arch (AUR, Debian, Fedora, Fink, FreeBSD, Gentoo, Hmug, MacPorts, Ubuntu)
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- CALL_EXTERNAL (dlopen() interface by Christoph Fuchs)
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- cmake build files for GDL (thanks to Maxime Lenoir)
- over 50 new library routines (incl. wavelet transforms)

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- enhance (rewrite?) the plotting code (GDL↔plplot)

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