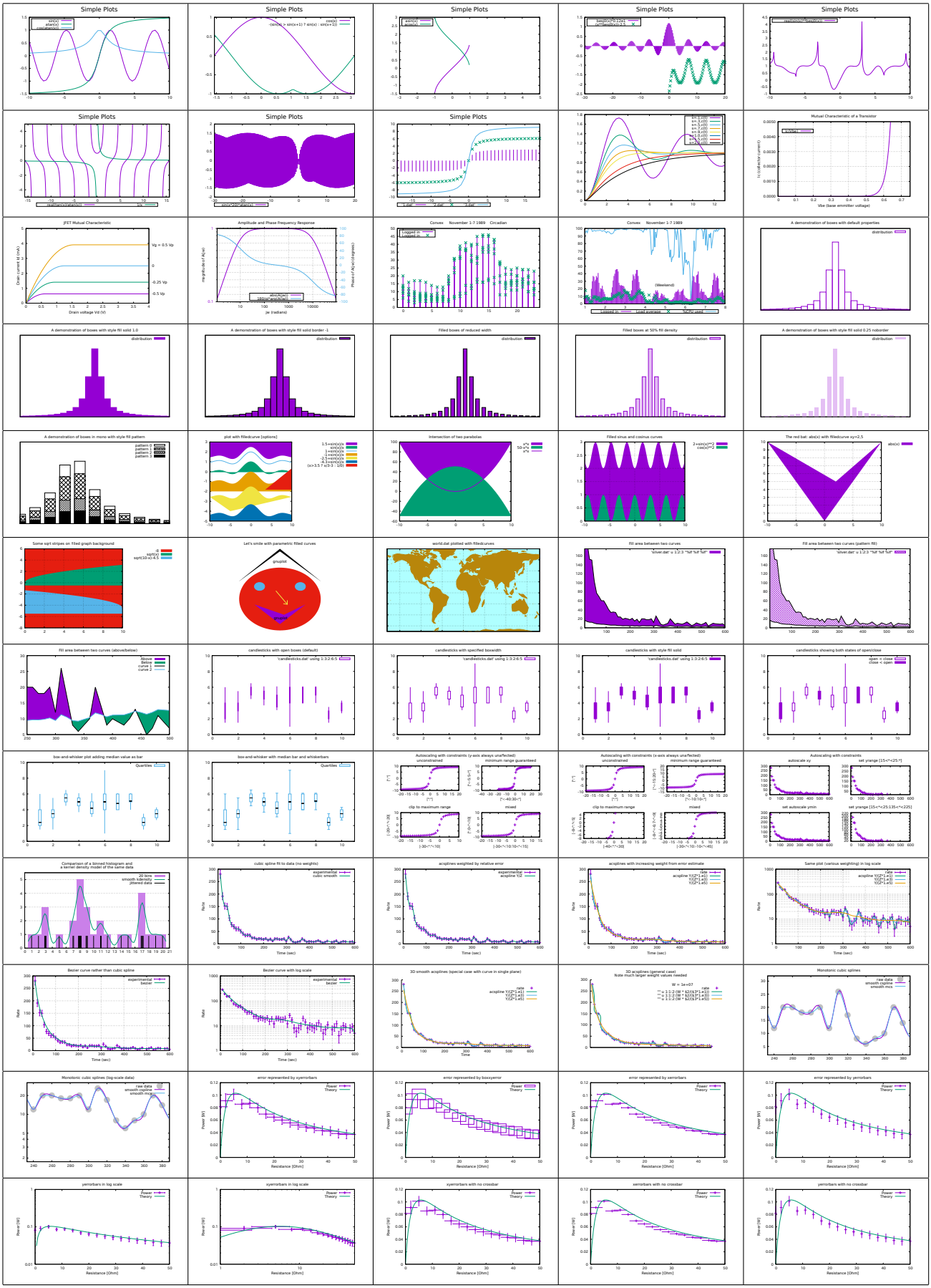
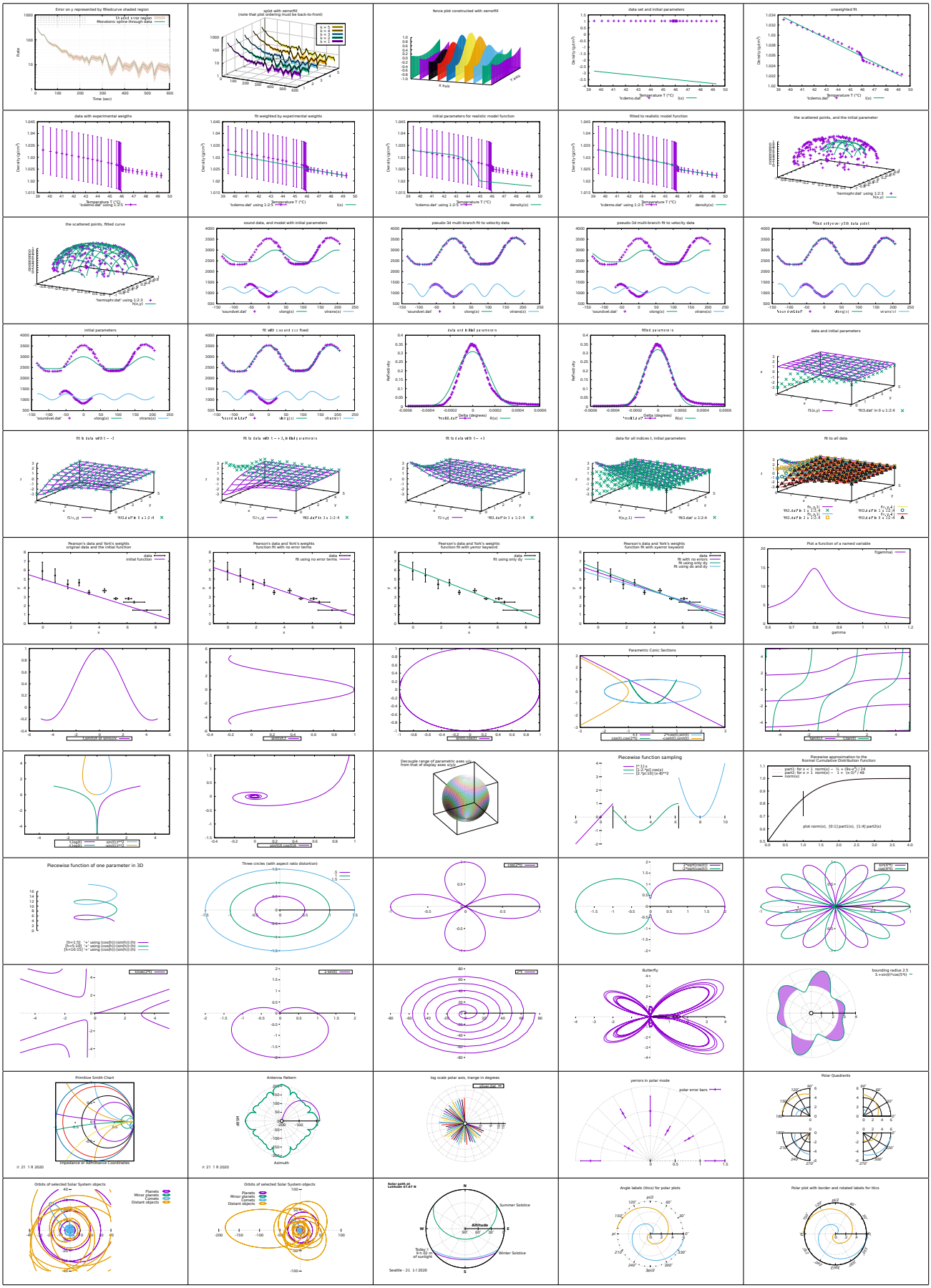
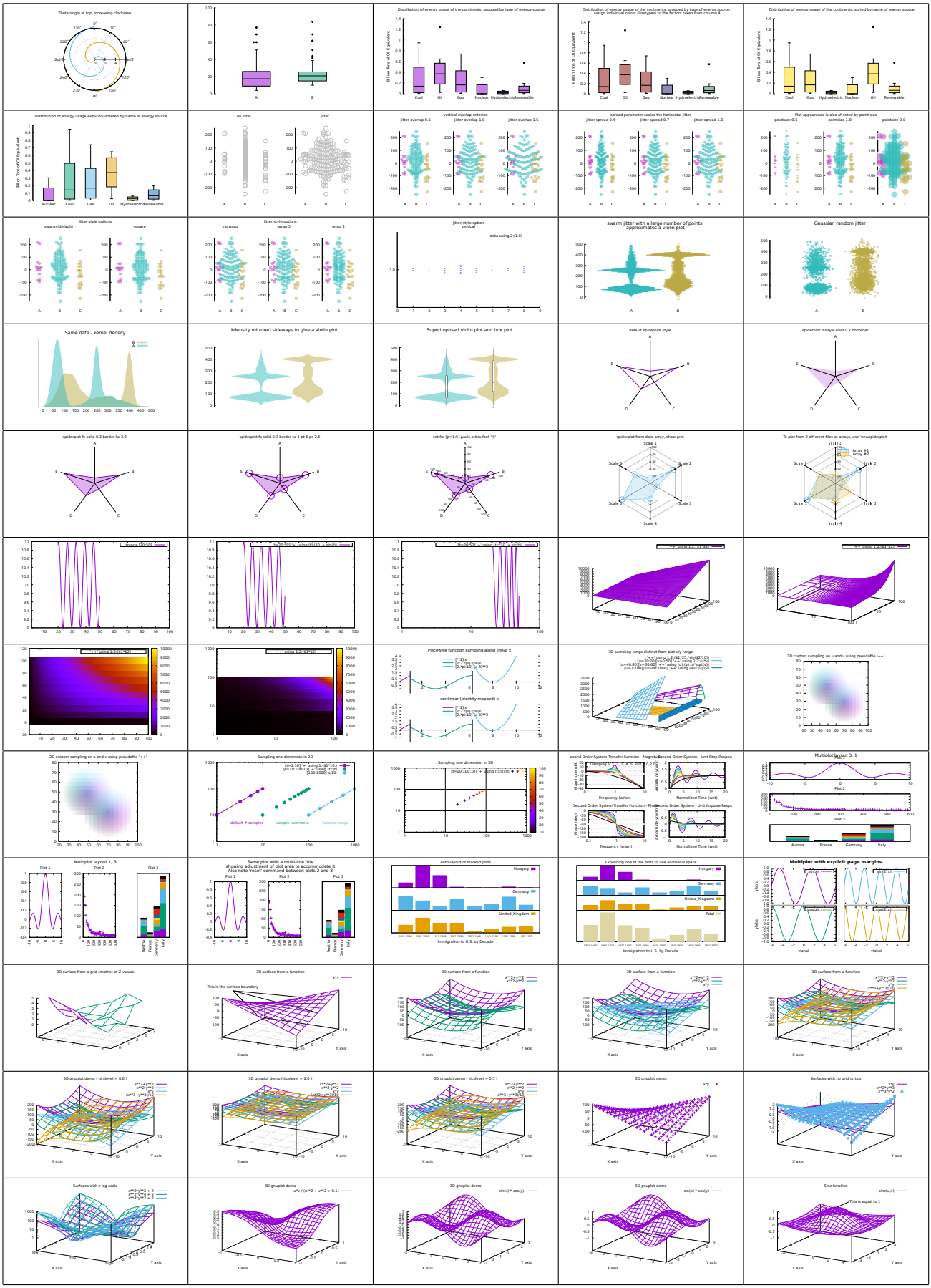
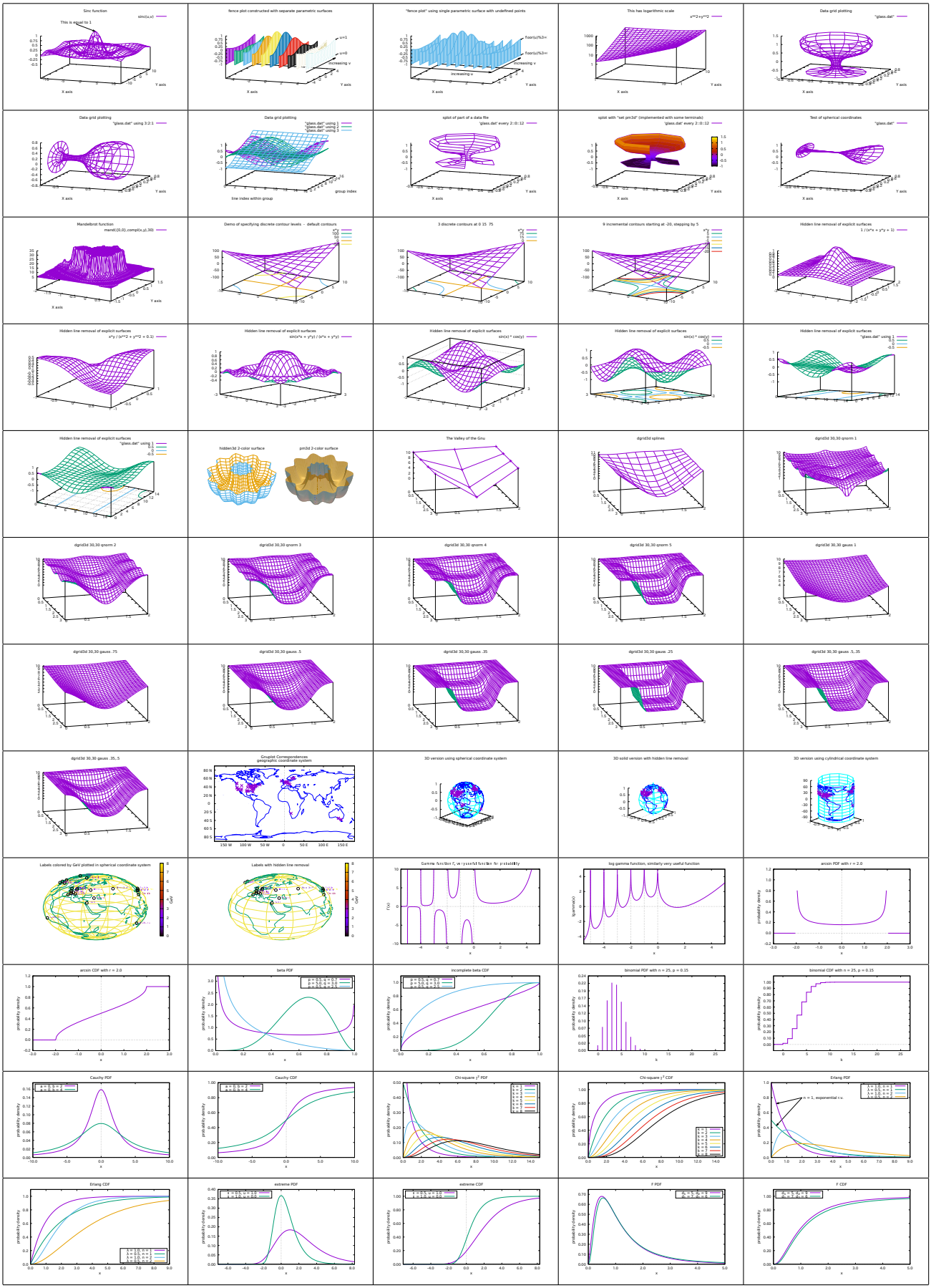
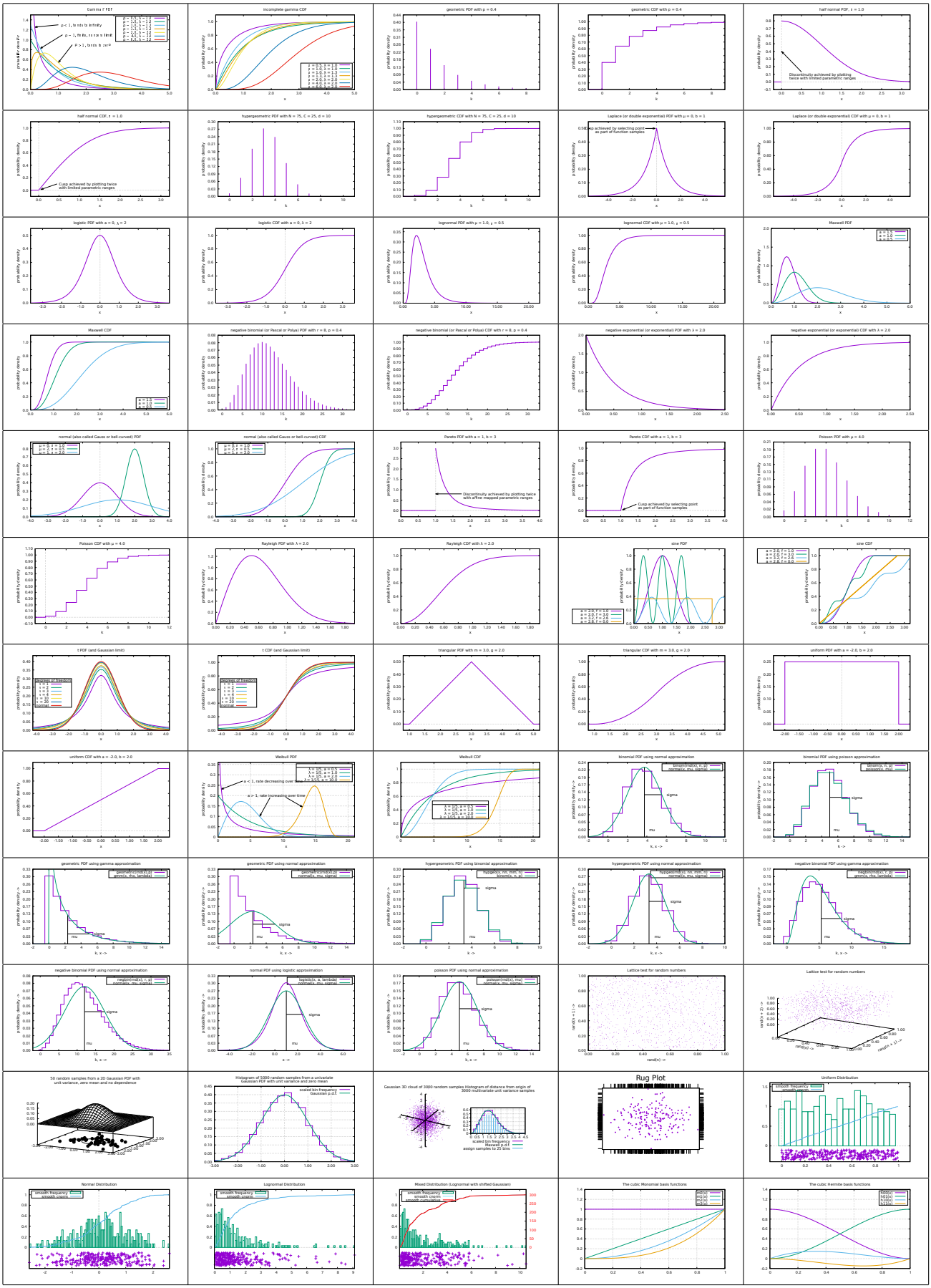
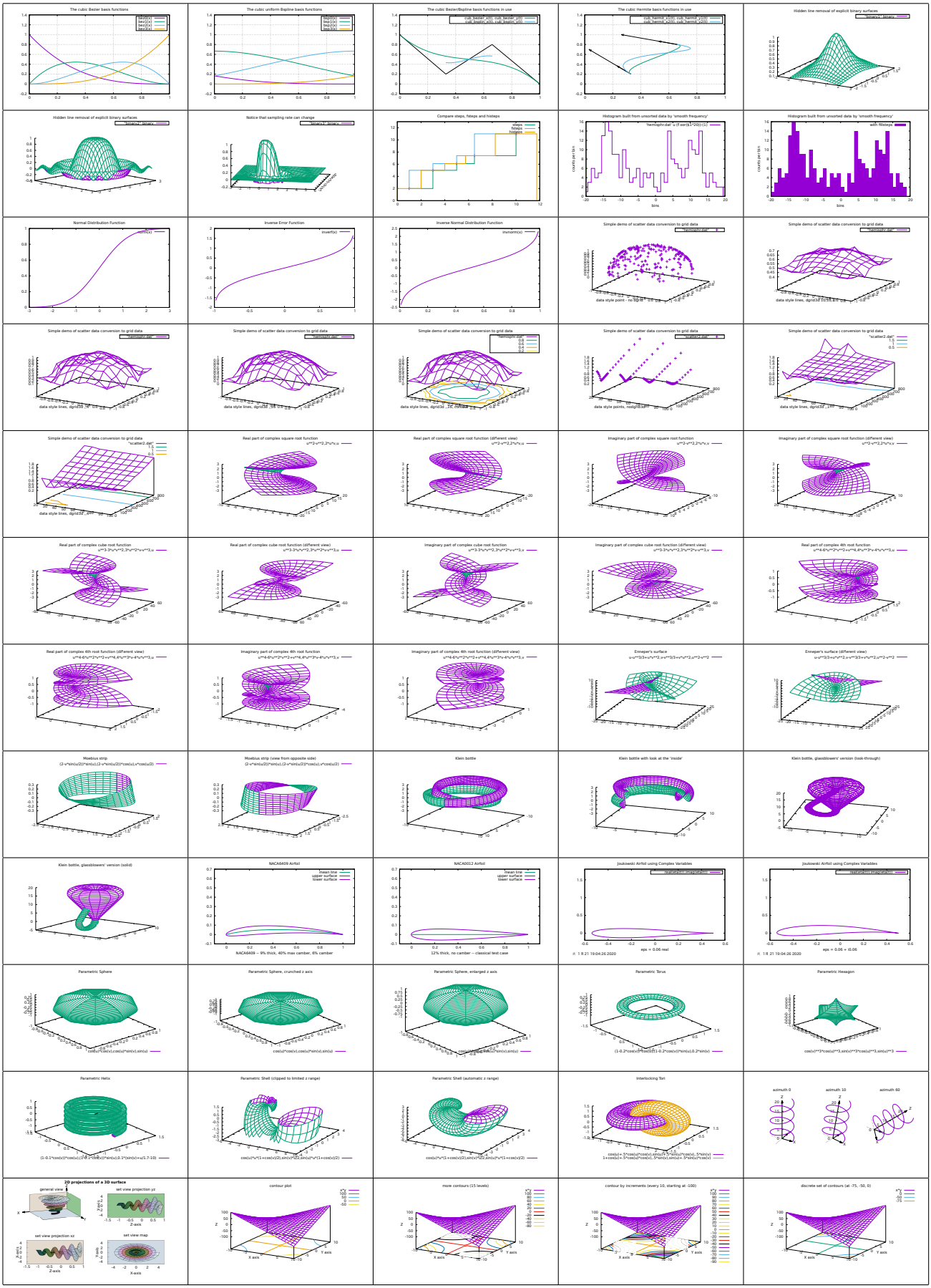

Simple Plots
Simple Plots
Simple Plots
Simple Plots
Simple Plots
Simple Plots
Simple Plots
Simple Plots
Mutual Characteristic of a Transistor
JFET Mutual Characteristic
Amplitude and Phase Frequency Response
Convex November 1-7 1989 Circadian
Convex November 1-7 1989
A demonstration of boxes with default properties
A demonstration of boxes with style fill solid 1.0
A demonstration of boxes with style fill solid border -1
Filled boxes of reduced width
Filled boxes at 50% fill density
A demonstration of boxes with style fill solid 0.25 noborder
A demonstration of boxes in mono with style fill pattern
plot with filledcurve [options]
Intersection of two parabolas
Filled sinus and cosinus curves
The red bat: abs(x) with filledcurve x=+2.5
Some sqrt stripes on filled graph background
Let's smile with parametric filled curves
world.dat plotted with filledcurves
Fill area between two curves
Fill area between two curves (pattern fill)
Fill area between two curves (above/below)
candlesticks with open boxes (default)
candlesticks with specified boxwidth
candlesticks with style fill solid
candlesticks showing both states of open/close
box-and-whisker plot adding median value as bar
box-and-whisker with median bar and whiskerbars
Autocaling with constraints (y-axis always unaffected)
Autocaling with constraints (x-axis always unaffected)
Autocaling with constraints
Comparison of a binned histogram and a kernel density model of the same data
cubic spline fit to data (no weights)
acsplines weighted by relative error
acsplines with increasing weight from error estimate
Same plot (various weighting) in log scale
Bezier curve rather than cubic spline
Bezier curve with log scale
3D smooth acsplines (special case with curve in single plane)
3D acsplines (general case)
Monotonic cubic splines
Monotonic cubic splines (log-scale data)
error represented by xyerrorbars
error represented by boxyerror
error represented by xerrorbars
error represented by yerrorbars
yerrorbars in log scale
xyerrorbars in log scale
xyerrorbars with no crossbar
xerrorbars with no crossbar
yerrorbars with no crossbar

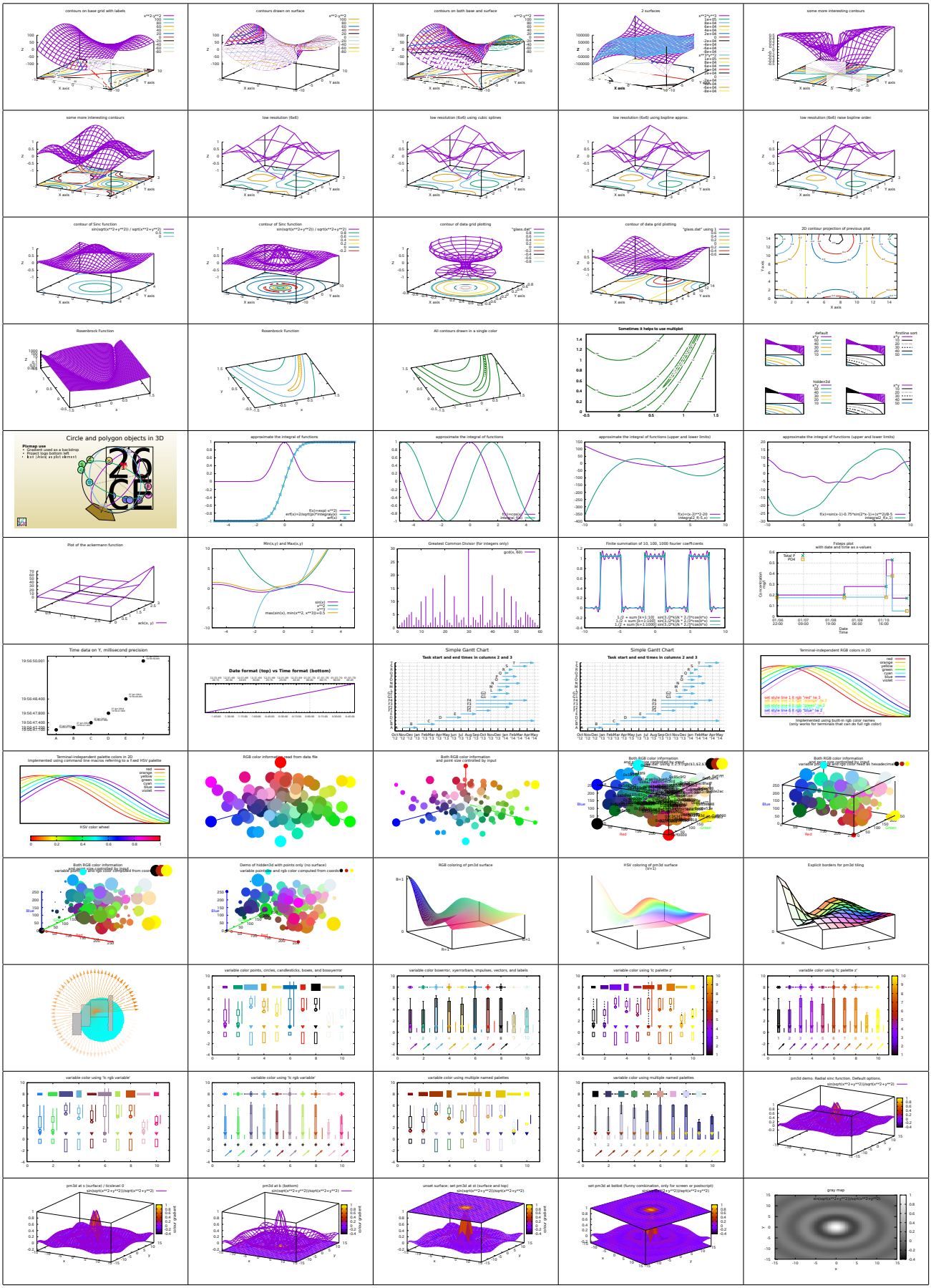

Error on y represented by filledcurve shaded region
splot with zerrorfill
(note that plot ordering must be back-to-front)
fence plot constructed with zerrorfill
data set and initial parameters
unweighted fit
data with experimental weights
fit weighted by experimental weights
initial parameters for realistic model function
fitted to realistic model function
the scattered points, and the initial parameter
the scattered points, fitted curve
sound data, and model with initial parameters
pseudo-3d multi-branch fit to velocity data
pseudo-3d multi-branch fit to velocity data
fitted surface with data point
initial parameters
fit with c and ccc fixed
data and initial parameters
fitted parameters
data and initial parameters
fit to data with t = -1
fit to data with t = +1
fit to data with t = +3
data for all indices t, initial parameters
fit to all data
Pearson's data and York's weights
original data and the initial function
Pearson's data and York's weights
function fit with no error terms
Pearson's data and York's weights
function fit with yerror keyword
Pearson's data and York's weights
function fit with xyerror keyword
Plot a function of a named variable
Parametric Conic Sections
Piecewise function sampling
Piecewise approximation to the
Normal Cumulative Distribution Function
Piecewise function of one parameter in 3D
Three circles (with aspect ratio distortion)
Butterfly
bounding radius 2.5
Primitive Smith Chart
Impedance or Admittance Coordinates
Antenna Pattern
Azimuth
log scale polar axis, trange in degrees
yerrors in polar mode
polar error bars
Polar Quadrants
Orbits of selected Solar System objects
Planets
Minor planets
Comets
Distant objects
Orbits of selected Solar System objects
Planets
Minor planets
Comets
Distant objects
Solar path at
Latitude: 47.67 N
N
S
E
W
Summer Solstice
Winter Solstice
Altitude
Azimuth
Seattle - 21 1 I 2020
Angle labels (tics) for polar plots
Polar plot with border and rotated labels for tics

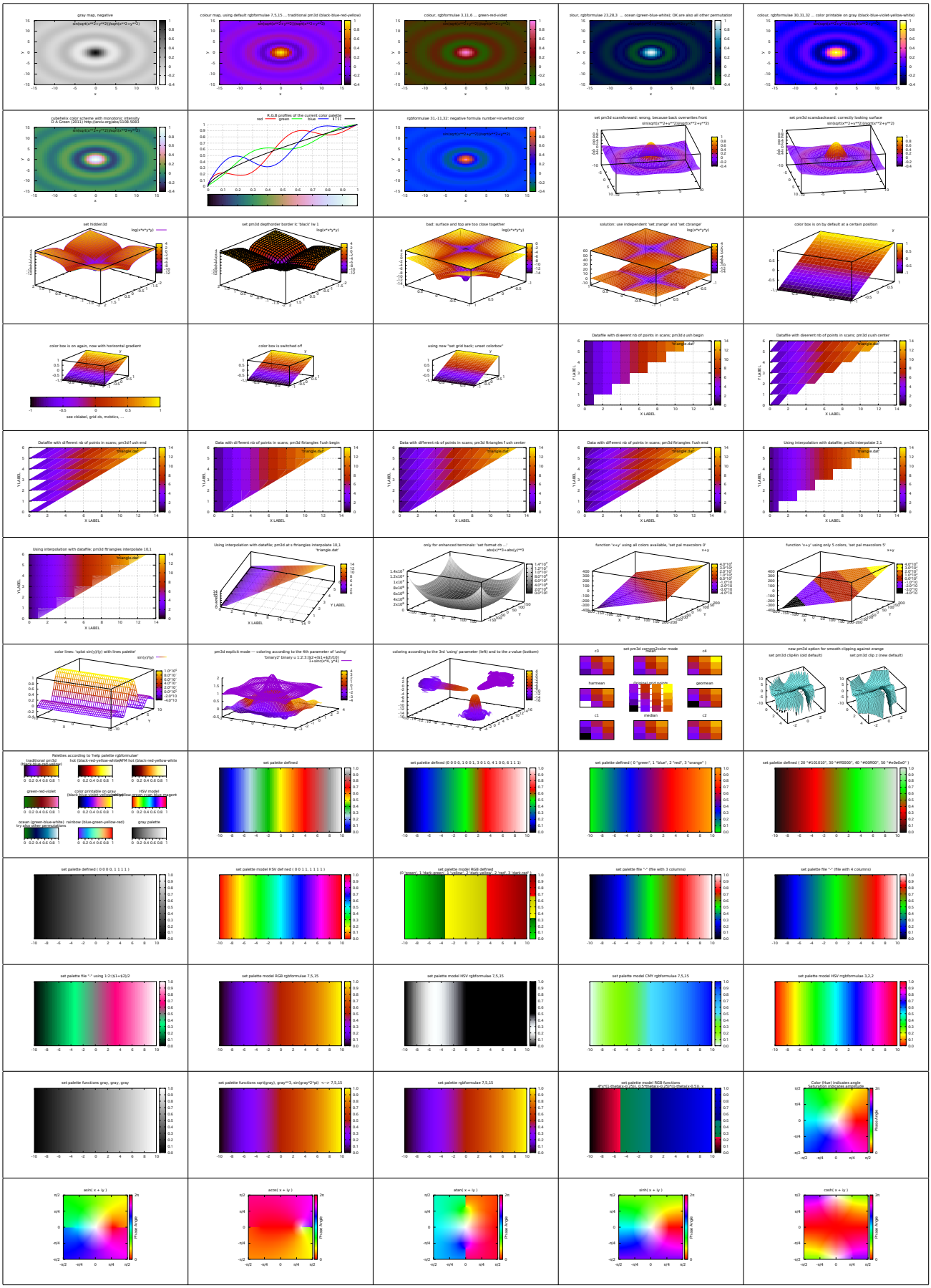

Theta origin at top, increasing clockwise
Distribution of energy usage of the continents, grouped by type of energy source
Distribution of energy usage of the continents, grouped by type of energy source, assign individual colors (linetypes) to the factors taken from column 4
Distribution of energy usage of the continents, sorted by name of energy source
Billion Tons of Oil Equivalent
Coal
Oil
Gas
Nuclear
Hydroelectric
Renewable
Distribution of energy usage explicitly ordered by name of energy source
no jitter
jitter
vertical overlap criterion
jitter overlap 0.5
jitter overlap 1.0
jitter overlap 1.5
spread parameter scales the horizontal jitter
jitter spread 0.4
jitter spread 0.7
jitter spread 1.0
Plot appearance is also affected by point size
pointsize 0.5
pointsize 1.0
pointsize 2.0
Jitter style options
swarm (default)
square
no wrap
wrap 5
wrap 3
Jitter style option
vertical
data using 2:(1.0)
swarm jitter with a large number of points approximates a violin plot
Gaussian random jitter
Same data - kernel density
kdensity mirrored sideways to give a violin plot
Superimposed violin plot and box plot
default spiderplot style
spiderplot fillstyle solid 0.2 noborder
spiderplot fs solid 0.3 border lw 3.0
spiderplot fs solid 0.3 border lw 1 pt 6 ps 2.5
set for [p=1:5] paxis p tics font ',9'
spiderplot from data array, show grid
To plot from 2 different files or arrays, use 'newspiderplot'
Piecewise function sampling along linear x
nonlinear (identity mapped) x
3D sampling range distinct from plot xiy range
3D custom sampling on u and v using pseudofile '++'
2D custom sampling on u and v using pseudofile '++'
Sampling one dimension in 2D
default # samples
sample increment
function range
Sampling one dimension in 3D
Multiplot layout 3, 3
Plot 1
Plot 2
Plot 3
Austria
France
Germany
Italy
Same plot with a multi-line title
showing adjustment of plot area to accommodate it
Also note 'reset' command between plots 2 and 3
Auto-layout of stacked plots
Hungary
Germany
United_Kingdom
Total
Immigration to U.S. by Decade
Expanding one of the plots to use additional space
Multiplot with explicit page margins
3D surface from a grid (matrix) of Z values
3D surface from a function
This is the surface boundary
X axis
Y axis
3D gnuplot demo (ticslevel = 0.0)
3D gnuplot demo (ticslevel = 2.0)
3D gnuplot demo (ticslevel = 0.5)
3D gnuplot demo
Surfaces with no grid or tics
Surfaces with z log scale
3D gnuplot demo
3D gnuplot demo
3D gnuplot demo
Sinc function
This is equal to 1

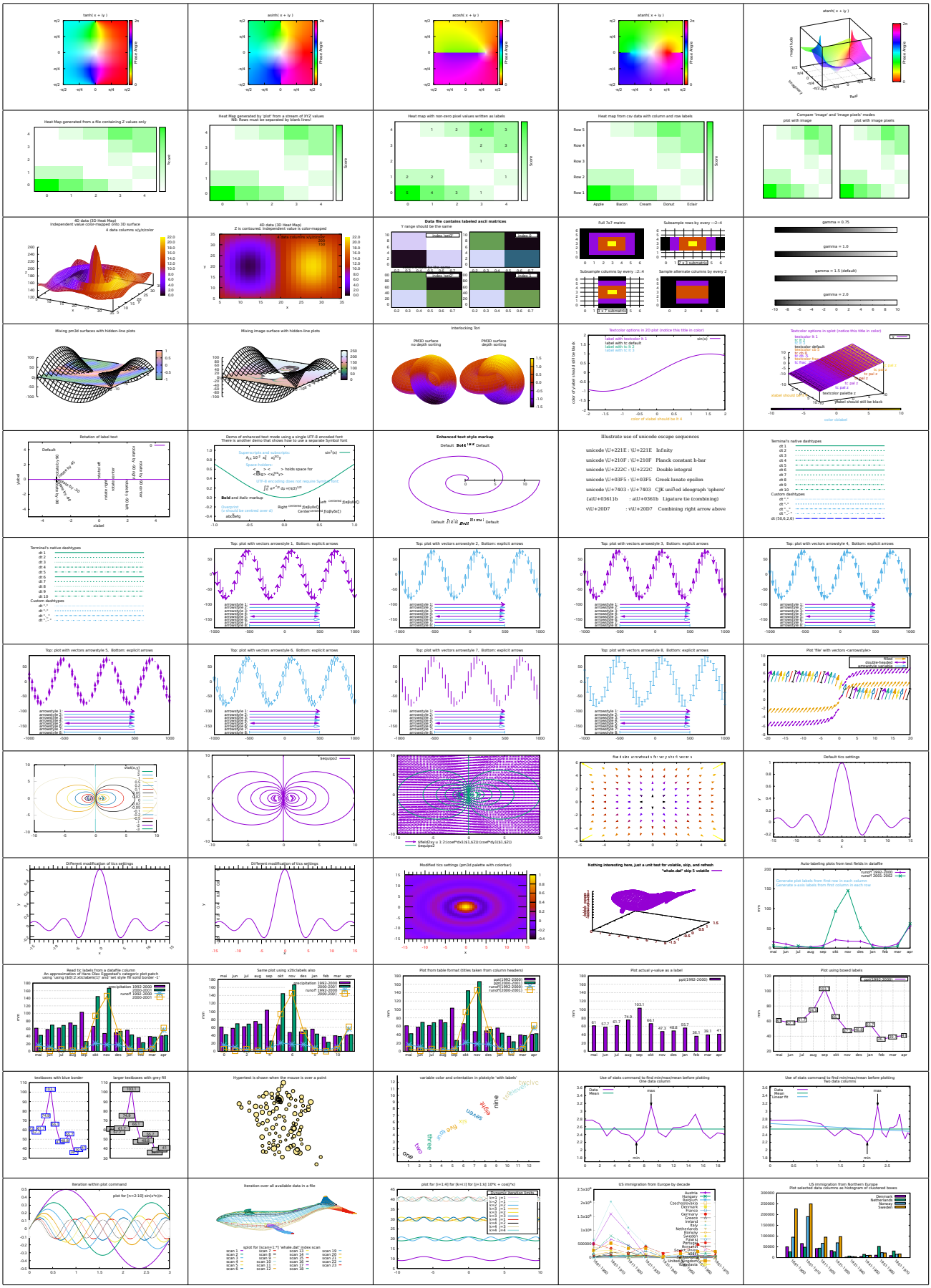

Sinc function
fence plot constructed with separate parametric surfaces
"fence plot" using single parametric surface with undefined points
This has logarithmic scale
Data grid plotting
Data grid plotting
Data grid plotting
splot of part of a data file
splot with "set pm3d" (implemented with some terminals)
Test of spherical coordinates
Mandelbrot function
Demo of specifying discrete contour levels - default contours
3 discrete contours at 0 15 75
9 incremental contours starting at -20, stepping by 5
Hidden line removal of explicit surfaces
Hidden line removal of explicit surfaces
Hidden line removal of explicit surfaces
Hidden line removal of explicit surfaces
Hidden line removal of explicit surfaces
Hidden line removal of explicit surfaces
hidden3d 2-color surface
pm3d 2-color surface
The Valley of the Gnu
dgrid3d splines
dgrid3d 30,30 qnorm 1
dgrid3d 30,30 qnorm 2
dgrid3d 30,30 qnorm 3
dgrid3d 30,30 qnorm 4
dgrid3d 30,30 qnorm 5
dgrid3d 30,30 gauss 1
dgrid3d 30,30 gauss .75
dgrid3d 30,30 gauss .5
dgrid3d 30,30 gauss .35
dgrid3d 30,30 gauss .25
dgrid3d 30,30 gauss .5,.35
dgrid3d 30,30 gauss .35,.5
Gnuplot Correspondences
geographic coordinate system
3D version using spherical coordinate system
3D solid version with hidden line removal
3D version using cylindrical coordinate system
Labels colored by GeV plotted in spherical coordinate system
Labels with hidden line removal
Gamma function Γ, very useful function for probability
log gamma function, similarly very useful function
arcsin PDF with r = 2.0
arcsin CDF with r = 2.0
beta PDF
incomplete beta CDF
binomial PDF with n = 25, p = 0.15
binomial CDF with n = 25, p = 0.15
Cauchy PDF
Cauchy CDF
Chi-square χ^2 PDF
Chi-square χ^2 CDF
Erlang PDF
Erlang CDF
extreme PDF
extreme CDF
F PDF
F CDF

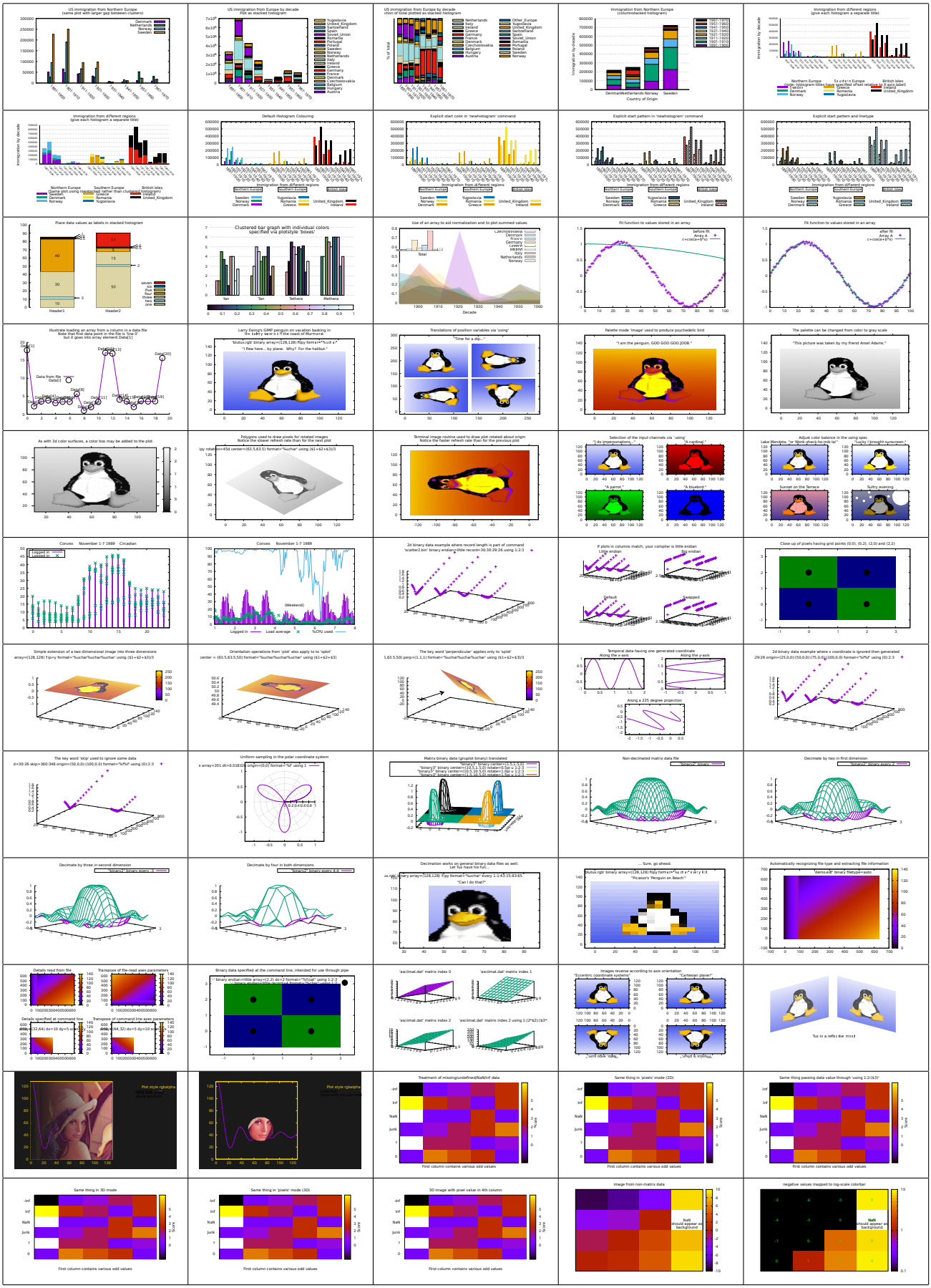

Gamma PDF
incomplete gamma CDF
geometric PDF with p = 0.4
geometric CDF with p = 0.4
half normal PDF, τ = 1.0
half normal CDF, τ = 1.0
hypergeometric PDF with N = 75, C = 25, d = 10
hypergeometric CDF with N = 75, C = 25, d = 10
Laplace (or double exponential) PDF with μ = 0, b = 1
Laplace (or double exponential) CDF with μ = 0, b = 1
logistic PDF with a = 0, s = 2
logistic CDF with a = 0, s = 2
lognormal PDF with μ = 1.0, σ = 0.5
lognormal CDF with μ = 1.0, σ = 0.5
Maxwell PDF
Maxwell CDF
negative binomial (or Pascal or Polya) PDF with r = 8, p = 0.4
negative binomial (or Pascal or Polya) CDF with r = 8, p = 0.4
negative exponential (or exponential) PDF with λ = 2.0
negative exponential (or exponential) CDF with λ = 2.0
normal (also called Gauss or bell-curved) PDF
normal (also called Gauss or bell-curved) CDF
Pareto PDF with a = 1, b = 3
Pareto CDF with a = 1, b = 3
Poisson PDF with μ = 4.0
Poisson CDF with μ = 4.0
Rayleigh PDF with λ = 2.0
Rayleigh CDF with λ = 2.0
sine PDF
sine CDF
t PDF (and Gaussian limit)
t CDF (and Gaussian limit)
triangular PDF with m = 3.0, g = 2.0
triangular CDF with m = 3.0, g = 2.0
uniform PDF with a = -2.0, b = 2.0
uniform CDF with a = -2.0, b = 2.0
Weibull PDF
Weibull CDF
binomial PDF using normal approximation
binomial PDF using poisson approximation
geometric PDF using gamma approximation
geometric PDF using normal approximation
hypergeometric PDF using binomial approximation
hypergeometric PDF using normal approximation
negative binomial PDF using gamma approximation
negative binomial PDF using normal approximation
normal PDF using logistic approximation
poisson PDF using normal approximation
Lattice test for random numbers
Lattice test for random numbers
50 random samples from a 2D Gaussian PDF with unit variance, zero mean and no dependence
Histogram of 5000 random samples from a univariate Gaussian PDF with unit variance and zero mean
Gaussian 3D cloud of 3000 random samples Histogram of distance from origin of 3000 multivariate unit variance samples
Rug Plot
Uniform Distribution
Normal Distribution
Lognormal Distribution
Mixed Distribution (Lognormal with shifted Gaussian)
The cubic Monomial basis functions
The cubic Hermite basis functions

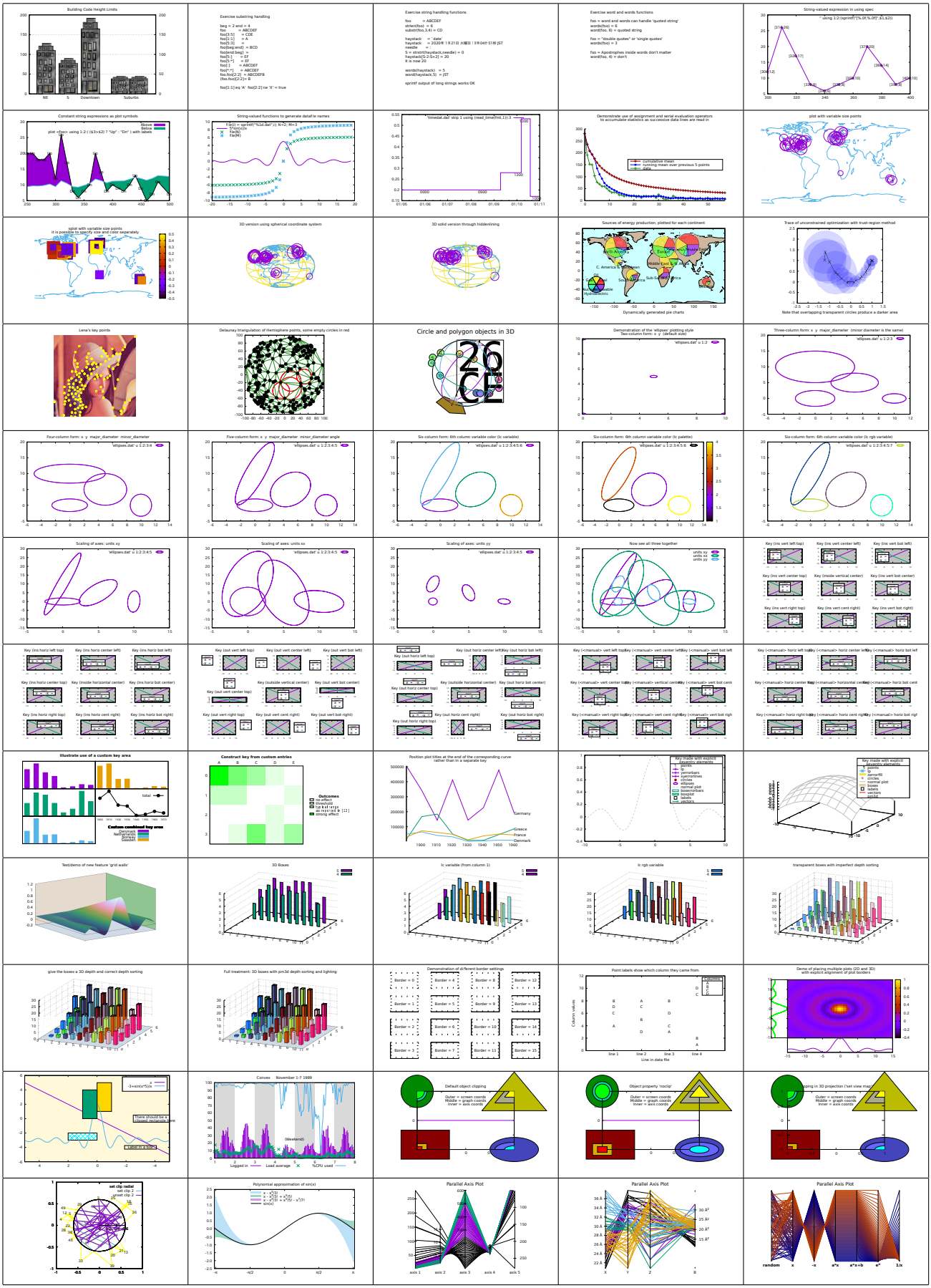

The cubic Bezier basis functions
The cubic uniform Bspline basis functions
The cubic Bezier/Bspline basis functions in use
The cubic Hermite basis functions in use
Hidden line removal of explicit binary surfaces
Hidden line removal of explicit binary surfaces
Notice that sampling rate can change
Compare steps, fsteps and histeps
Histogram built from unsorted data by 'smooth frequency'
Histogram built from unsorted data by 'smooth frequency'
Normal Distribution Function
Inverse Error Function
Inverse Normal Distribution Function
Simple demo of scatter data conversion to grid data
Simple demo of scatter data conversion to grid data
Simple demo of scatter data conversion to grid data
Simple demo of scatter data conversion to grid data
Simple demo of scatter data conversion to grid data
Simple demo of scatter data conversion to grid data
Simple demo of scatter data conversion to grid data
Real part of complex square root function
Real part of complex square root function (different view)
Imaginary part of complex square root function
Imaginary part of complex square root function (different view)
Real part of complex cube root function
Real part of complex cube root function (different view)
Imaginary part of complex cube root function
Imaginary part of complex cube root function (different view)
Real part of complex 4th root function
Real part of complex 4th root function (different view)
Imaginary part of complex 4th root function
Imaginary part of complex 4th root function (different view)
Enneper's surface
Enneper's surface (different view)
Moebius strip
Moebius strip (view from opposite side)
Klein bottle
Klein bottle with look at the 'inside'
Klein bottle, glassblowers' version (look-through)
Klein bottle, glassblowers' version (solid)
NACA6409 Airfoil
NACA0012 Airfoil
Joukowski Airfoil using Complex Variables
Joukowski Airfoil using Complex Variables
Parametric Sphere
Parametric Sphere, crunched z axis
Parametric Sphere, enlarged z axis
Parametric Torus
Parametric Hexagon
Parametric Helix
Parametric Shell (clipped to limited z range)
Parametric Shell (automatic z range)
Interlocking Tori
2D projections of a 3D surface
contour plot
more contours (15 levels)
contour by increments (every 10, starting at -100)
discrete set of contours (at -75, -50, 0)

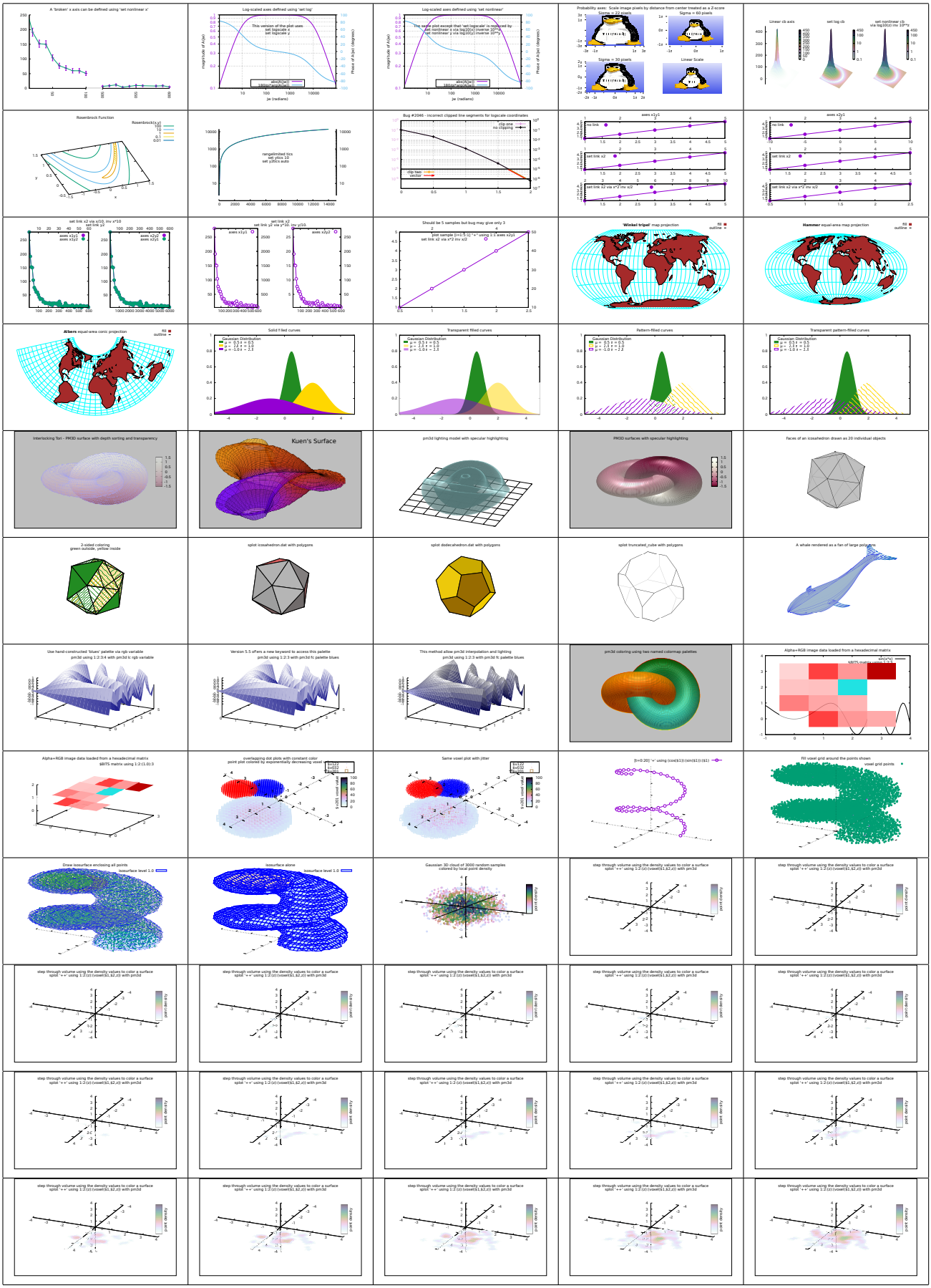

contours on base grid with labels
contours drawn on surface
contours on both base and surface
2 surfaces
some more interesting contours
some more interesting contours
low resolution (6x6)
low resolution (6x6) using cubic splines
low resolution (6x6) using bspline approx.
low resolution (6x6) raise bspline order.
contour of Sinc function
contour of Sinc function
contour of data grid plotting
contour of data grid plotting
2D contour projection of previous plot
Rosenbrock Function
Rosenbrock Function
All contours drawn in a single color
Sometimes it helps to use multiplot
default
firstline sort
hidden3d
Circle and polygon objects in 3D
approximate the integral of functions
approximate the integral of functions
approximate the integral of functions (upper and lower limits)
approximate the integral of functions (upper and lower limits)
Plot of the ackermann function
Min(x,y) and Max(x,y)
Greatest Common Divisor (for integers only)
Finite summation of 10, 100, 1000 fourier coefficients
Fatigue plot
with date and time as x-values
Time data on Y, millisecond precision
Date format (top) vs Time format (bottom)
Simple Gantt Chart
Task start and end times in columns 2 and 3
Simple Gantt Chart
Task start and end times in columns 2 and 3
Terminal-independent RGB colors in 2D
Terminal-independent palette colors in 2D
Implemented using command line macros referring to a fixed HSV palette
RGB color information read from data file
Both RGB color information
and point size controlled by input
Both RGB color information
Both RGB color information
Demo of hidden3d with points only (no surface)
RGB coloring of pm3d surface
HSV coloring of pm3d surface
Explicit borders for pm3d tiling
variable color points, circles, candlesticks, boxes, and boxyerror
variable color boxerror, xyerrorbars, impulses, vectors, and labels
variable color using 'rc palette z'
variable color using 'rc palette z'
variable color using 'rc rgb variable'
variable color using 'rc rgb variable'
variable color using multiple named palettes
variable color using multiple named palettes
pm3d demo. Radial sinc function. Default options.
pm3d at s (surface) / ticslevel 0
pm3d at b (bottom)
unset surface; set pm3d at st (surface and top)
set pm3d at bottbt (funny combination, only for screen or postscript)
gray map

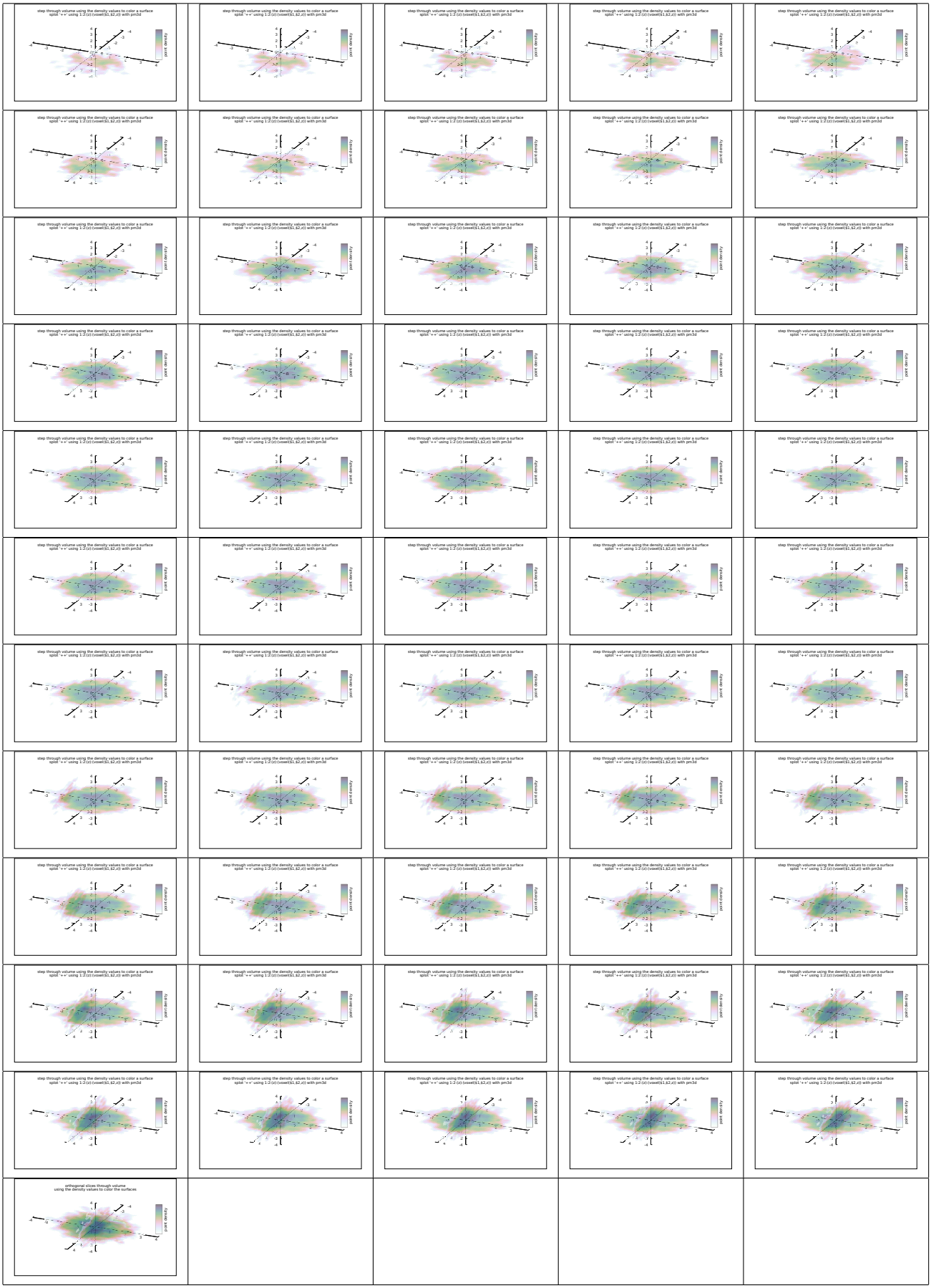

gray map, negative
colour map, using default rgbformulae 7,5,15 ... traditional pm3d (black-blue-red-yellow)
colour, rgbformulae 3,11,6 ... green-red-violet
olour, rgbformulae 23,28,3 ... ocean (green-blue-white); OK are also all other permutation
colour, rgbformulae 30,31,32 ... color printable on gray (black-blue-violet-yellow-white)
cubehelix color scheme with monotonic intensity
D A Green (2011) http://arxiv.org/abs/1108.5083
R,G,B profiles of the current color palette
red
green
blue
rgbformulae 31,-11,32: negative formula number=inverted color
set pm3d scanforward: wrong, because back overwrites front
set pm3d scansbackward: correctly looking surface
set hidden3d
set pm3d depthorder border lc 'black' lw 1
bad: surface and top are too close together
solution: use independent 'set zrange' and 'set cbrange'
color box is on by default at a certain position
color box is on again, now with horizontal gradient
see cblabel, grid cb, mcbtics, ...
color box is switched off
using now "set grid back; unset colorbox"
Datafile with diverent nb of points in scans; pm3d f ush begin
Datafile with diverent nb of points in scans; pm3d f ush center
Datafile with different nb of points in scans; pm3d f ush end
Data with diferent nb of points in scans; pm3d ftriangles f ush begin
Data with different nb of points in scans; pm3d ftriangles f ush center
Data with different nb of points in scans; pm3d ftriangles f ush end
Using interpolation with datafile; pm3d interpolate 2,1
Using interpolation with datafile; pm3d ftriangles interpolate 10,1
Using interpolation with datafile; pm3d at s ftriangles interpolate 10,1
only for enhanced terminals: 'set format cb ...'
function 'x+y' using all colors available, 'set pal maxcolors 0'
function 'x+y' using only 5 colors, 'set pal maxcolors 5'
color lines: 'splot sin(y)/(y) with lines palette'
pm3d explicit mode — coloring according to the 4th parameter of 'using'
coloring according to the 3rd 'using' parameter (left) and to the z-value (bottom)
set pm3d colour2color mode
new pm3d option for smooth clipping against zrange
set pm3d clip1in (old default)
set pm3d clip z (new default)
Palettes according to 'help palette rgbformulae'
traditional pm3d
hot (black-red-yellow-white)
RAM hot (black-red-yellow-white)
green-red-violet
color printable on gray
HSV model
ocean (green-blue-white)
rainbow (blue-green-yellow-red)
gray palette
set palette defined
set palette defined (0 "green", 1 "blue", 2 "red", 3 "orange")
set palette defined (20 "#101010", 30 "#ff0000", 40 "#00ff00", 50 "#e0e0e0")
set palette defined (0 0 0 0, 1 1 1 1)
set palette model HSV def red (0 0 1 1, 1 1 1 1)
set palette model RGB defined
set palette file "-" (file with 3 columns)
set palette file "-" (file with 4 columns)
set palette file "-" using 1:2:(($1+$2)/2
set palette model RGB rgbformulae 7,5,15
set palette model HSV rgbformulae 7,5,15
set palette model CMY rgbformulae 7,5,15
set palette model HSV rgbformulae 3,2,2
set palette functions gray, gray, gray
set palette functions sqrt(gray), gray**3, sin(gray*2*pi) <--> 7,5,15
set palette rgbformulae 7,5,15
set palette model RGB functions
Color (Hue) indicates angle
Saturation indicates amplitude
asin(x + iy)
acos(x + iy)
atan(x + iy)
sinh(x + iy)
cosh(x + iy)






Building Code Height Limits
NE
S
Downtown
Suburbs
Exercise substring handling
Exercise string handling functions
Exercise word and words functions
String-valued expression in using spec
Constant string expressions as plot symbols
String-valued functions to generate datafile names
Demonstrate use of assignment and serial evaluation operators to accumulate statistics as successive data lines are read in
plot with variable size points
splot with variable size points
3D version using spherical coordinate system
3D solid version through hiddenlining
Sources of energy production, plotted for each continent
Dynamically generated pie charts
Trace of unconstrained optimization with trust-region method
Lena's key points
Delaunay triangulation of Hemisphere points, some empty circles in red
Circle and polygon objects in 3D
Demonstration of the 'ellipses' plotting style
Three-column form: x y major_diameter (minor diameter is the same)
Four-column form: x y major_diameter minor_diameter
Five-column form: x y major_diameter minor_diameter angle
Six-column form: 6th column variable color (lc variable)
Six-column form: 6th column variable color (lc palette)
Six-column form: 6th column variable color (lc rgb variable)
Scaling of axes: units xy
Scaling of axes: units xx
Scaling of axes: units yy
Now see all three together
Illustrate use of a custom key area
Construct key from custom entries
Position plot titles at the end of the corresponding curve rather than in a separate key
Test/demo of new feature 'grid walls'
3D Boxes
lc variable (from column 1)
lc rgb variable
transparent boxes with imperfect depth sorting
give the boxes a 3D depth and correct depth sorting
Full treatment: 3D boxes with pm3d depth sorting and lighting
Demonstration of different border settings
Point labels show which column they came from
Demo of placing multiple plots (2D and 3D) with explicit alignment of plot borders
There should be a filled rectangle here
Convex November 1-7 1989
Default object clipping
Object property 'noclip'
Polynomial approximation of sin(x)
Parallel Axis Plot
Parallel Axis Plot
Parallel Axis Plot


A 'broken' x axis can be defined using 'set nonlinear x'
Log-scaled axes defined using 'set log'
Log-scaled axes defined using 'set nonlinear'
Probability axes: Scale image pixels by distance from center treated as a Z-score
Rosenbrock Function
Bug #2046 - incorrect clipped line segments for logscale coordinates
Should be 5 samples but bug may give only 3
'Winkel tripel' map projection
Hammer equal-area map projection
Albers equal-area conic projection
Solid filled curves
Transparent filled curves
Pattern-filled curves
Transparent pattern-filled curves
Interlocking Tori - PM3D surface with depth sorting and transparency
Kuen's Surface
pm3d lighting model with specular highlighting
PM3D surfaces with specular highlighting
Faces of an icosahedron drawn as 20 individual objects
2-sided coloring
green outside, yellow inside
splot icosahedron.dat with polygons
splot dodecahedron.dat with polygons
splot truncated_cube with polygons
A whale rendered as a fan of large polygons
Use hand-constructed 'blues' palette via rgb variable
Version 5.5 offers a new keyword to access this palette
This method allow pm3d interpolation and lighting
pm3d coloring using two named colormap palettes
Alpha+RGB image data loaded from a hexadecimal matrix
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overlapping dot plots with constant color
Same voxel plot with jitter
Fill voxel grid around the points shown
Draw isosurface enclosing all points
isosurface alone
Gaussian 3D cloud of 3000 random samples
step through volume using the density values to color a surface


step through volume using the density values to color a surface
splot '++' using 1:2:(z):(voxel($1,$2,z)) with pm3d
point density