SHBundle
spherical harmonic synthesis/analysis until very high degree/order

Matthias Roth, Markus Antoni, Balaji Devaraju,
Matthias Weigelt, Nico Sneeuw
Institute of Geodesy, University of Stuttgart
bundle@gis.uni-stuttgart.de
http://www.gis.uni-stuttgart.de/research/projects/bundles/

Short Bundle History
The bundle was started in the year 1994 by Nico Sneeuw. After several additions, it was distributed to a few researchers who added some of their own functions. However, the individual development from this point onward resulted in different versions of the bundle.
In 2014 we decided to combine the different versions again, using the source code management system git which helps us to track changes:
- we moved non-SH-functions to other bundles (uberall, visBundle),
- removed doublets (still keeping some for compatibility reasons),
- merged similar functions and
- enhanced the bundle by adding new functions.

Legendre functions
X-number stabilized (stable until very high degree/order)
test of addition theorem:

SH coefficients
- storage format (ICSI, JSC) & conversions
- parser for ICGEM format
- complex SH coefficients

SH visualization

SH synthesis & analysis
on regular grids or pointwise

uberall
fast, text-based waitbar

twainbar

getopt
parameter input in quantity-value style, allows to define default parameters

multmat/multmatvec
multiplies two matrices (or a matrix and a vector), where each line represents a rotation matrix or a point at a certain time

skyplot
polar coordinate plot using elevation and azimuth

graypatch
highlight periodic events

bubble_voronoi
Voronoi diagram with radius restricted cells

colbrew
generate different colormaps: e.g. colour-blind friendly, specify min-min-max values