

SPEDAS 4.0 Release Notes

- Enhancements and Bug Fixes
 - Added support for IGRF-13 field model, now used when transforming to/from GSM coordinates
 - Added interactive highlight_time_interval tool, for shading or cross-hatching selected time intervals in tplot
 - Extended valid range for isdaylightsavingtime utility
 - Updated SPICE standard SP planetary kernel to de438.bsp, updated time_ephemeris routine to reflect no leap second in 2020
 - Added option for alternate data source in noaa_load_kp routine
 - Added nmorlet and kermiton_k options to wavelet analysis tool
 - Added more robust parameter handling to tplot_fill_color.pro
 - Added CDF compression info to cdf_info.pro
 - Enhanced DEPEND_1 metadata handling in cdf_info_to_tplot.pro
 - Added support for GET_VARBLOCKINGFACTOR in cdf_info.pro for IDL versions 8.6.1 and later
 - Improved support for varying-cadence data in wavelet routine wav_data.pro
 - Improved handling of negative spikes, added subtract_average and use_nn_median options to clean_spikes.pro
 - Improved support for handling integer data in deriv_data.pro
 - Enhanced store_data.pro to check for invalid characters in variable names and replace with dollar signs
 - Added support for aacgmidl_v2 external library, coefficient tables
 - Added "window=-1" option to makepng.pro, to make PNGs from all open windows
 - Enhanced cdf_info_to_tplot routine to ignore blank UNITS attributes
 - Added support for spectra variables in hapi_load_data routine
 - Enhanced curve fitting routine fit.pro
 - Added support for "smex_epoch" keyword to cdf2tplot and cdf_info_to_tplot
 - Fixed a crash in spd_flipbookify routine when there isn't a tplot window
 - Fixed file_http_copy routine to avoid crashing in Linux and Mac environments when trying to set socket parameters in HTTP requests
 - Added support for SPEDAS_DATA_DIR environment variable
 - Tested for compatibility with version 10.6 of the GEOPACK library (including IGRF-13 updates), now recommending this GEOPACK version for SPEDAS users
 - Fixed integer truncation bug in dynamic power spectrum routine
 - Added support for perpendicular bulk velocity subtraction in slice_2d routine
- Plugin updates
 - MMS
 - Fixed bug that leads to "Service not found." errors when downloading MMS data from the SDC
 - Added new tools for identifying Science Region of Interest (SRoI) segments
 - Added routine and examples for MMS LMN transformations

- Added functionality to include various types of vectors in MMS formation plots
 - Several more bug fixes and improvements to the MMS routines, crib sheets and test suite
 - ERG (ARASE)
 - Updated to plugin version 8.10 from Arase development team
 - THEMIS
 - Updated FGM wave survey code to use 8Hz FGL data when available
 - Updated THEMIS summary plot routines to use alternate sites for keogram panel, and avoid crashing if no keogram data is available
 - Added site name as subtitle to keogram panels in summary plots
 - Updated ground computed moments to use spd_download rather than file_retrieve
 - Improved degapping performance of SCM calibration routine (avoid dropping second half of burst for a small data dropout)
 - Added routine contributed by Toshi Nishimura to compute densities from spacecraft potential
 - Bug fix to keogram calibrations (fixes non-monotonic magnetic latitudes in calibrated products)
 - POES
 - Set default duration of POES summary plots to 1 day
 - MICA
 - Added load routines and crib sheets for working with MICA induction magnetometer data
 - CLUSTER
 - Added GUI plugin, command line load routine, and crib sheet for loading CLUSTER data from CDAWeb
 - ICON
 - Updated ICON crib sheets to reflect data availability during test phase
 - WIND
 - Added support for WIND 3dp load routine to get metadata from master CDF file
 - FAST
 - Removed obsolete k0_load functions, fixed fa_k0_load and istp_fa_load_k0 routines
 - Added crib sheet for finding density, velocity, etc. from FAST ESA L2 data
- Experimental Features
 - Added support for Chris Piker's DAS2 library and DLM, enabling use of DAS2 servers to download data
 - Added prototype load routines and crib sheets for loading Cassini, Juno, and Galileo data via DAS2