



IUGONET

Metadata DB for Upper Atmosphere

超高層大気長期変動の全地球上ネットワーク観測・研究
Inter-university Upper atmosphere Global Observation NETwork

Training session

SPEEDAS-GUI & IUGONET Type-A

The 3rd ISEE Symposium
PWING-ERG conference and school on the inner
magnetosphere

on March 8-12, 2021

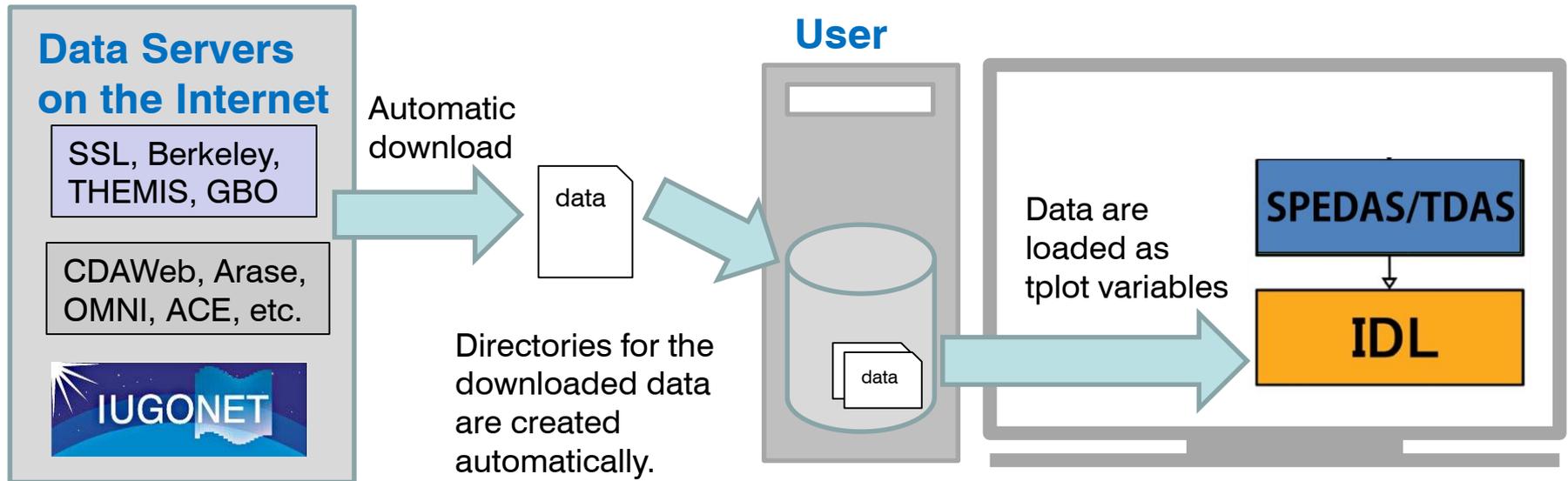
1. Basic operation of IUGONET data service (IUGONET Type-A)
2. Basic operation of the GUI tool of SPEDAS

Space Physics Environment Data Analysis Software : SPEDAS

Users can easily load and visualize various kinds of data by a few commands with SPEDAS.

1. Set a time period
2. Load *** data
3. Plot the loaded data

```
timespan, 'yyyy-mm-dd'
xxx_load ***
tplot, + + +
```



If you use the GUI tool, **only a few simple clicks of your mouse** are required to make the same plot as that created by the SPEDAS commands above.



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Inter-university Upper atmosphere Global Observation NETWORK

How to use IUGONET Type-A

Access to IUGONET Type-A (<http://search.iugonet.org>)

IUGONET Web Service
Upper Atmosphere x(DL) x Web Technology
Inter-University Upper Atmosphere Global Observation NETWork

Type-A

[UDAS web Unavailable.](#) | [Rules of the Road](#) | [About Type-A](#)

IUGONET DataSet

LIST
MAP

Instrument/Project	Observed Region	ERG Campaign		
Satellite:				
<input type="checkbox"/> AKEBONO	<input type="checkbox"/> CHAMP	<input type="checkbox"/> COSMIC		
Ground-Based:				
<input type="checkbox"/> SMART (Telescope)	<input type="checkbox"/> DST (Telescope)	<input type="checkbox"/> FMT (Telescope)	<input type="checkbox"/> Refractor (Telescope)	<input type="checkbox"/> Muon (Telescope)
<input type="checkbox"/> Geomagnetic Indices	<input type="checkbox"/> WDC Geomag., Kyoto	<input type="checkbox"/> Geomag., Kakioka	<input type="checkbox"/> MAGDAS/CPMN	<input type="checkbox"/> MM210
<input type="checkbox"/> Induction	<input type="checkbox"/> Magnetometer	<input type="checkbox"/> SuperDARN	<input type="checkbox"/> EISCAT	<input type="checkbox"/> Imager
<input type="checkbox"/> PWING/PsA	<input type="checkbox"/> OMTI	<input type="checkbox"/> Lidar	<input type="checkbox"/> Ionosonde	<input type="checkbox"/> Riometer
<input type="checkbox"/> VLF/ELE	<input type="checkbox"/> MU Radar	<input type="checkbox"/> EA Radar	<input type="checkbox"/> MF Radar	<input type="checkbox"/> MW Radar
<input type="checkbox"/> VHF Radar	<input type="checkbox"/> GPS Receiver	<input type="checkbox"/> AWS	<input type="checkbox"/> BL/LT/WP Radar	<input type="checkbox"/> Radiosonde
<input type="checkbox"/> X-Band Radar	<input type="checkbox"/> Others			

Keyword:
 Timespan: To [Set Detail](#)

Information

Delay of data update due to system update, 1 Dec. 2020.
 IUGONET is currently in the process of updating the data system. It may take some time to see Quick-look images of after November 2020 on IUGONET Type-A. Please wait for a while until it is reflected.

ASCII Downloader was added, 19 Dec. 2019.
 We added new function "ASCII Downloader" to convert CDF/netCDF to ASCII files, on UDAS web.

Capture Image:

Check/Clear All

Numerical Data [MM210 Kagoshima magnetometer 1 min resolution data distributed by ERG-SC](#) Download ASCII ↓

mm210_mag_kag_1min_hdz_x (North-South magnetic field at Kagoshima)

mm210_mag_kag_1min_hdz_y (East-West magnetic field at Kagoshima)

mm210_mag_kag_1min_hdz_z (Vertical magnetic field at Kagoshima)

mm210_mag_kag_1min_hdz_x_dpwrspc (Dynamic power spectrum of North-South magnetic field at Kagoshima)

mm210_mag_kag_1min_hdz_y_dpwrspc (Dynamic power spectrum of East-West magnetic field at Kagoshima)

Search data

IUGONET Web Service
Upper Atmosphere xIDL x Web Technology
Type-A

Inter-University Upper Atmosphere Global Observation NETWork

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IUGONET DataSet

LIST **MAP**

Instrument/Project	Observed Region	ERG Campaign
Satellite:		
<input type="checkbox"/> AKEBONO	<input type="checkbox"/> CHAMP	<input type="checkbox"/> COSMIC
Ground-Based:		
<input type="checkbox"/> SMART (Telescope)	<input type="checkbox"/> DST (Telescope)	<input type="checkbox"/> FMT (Telescope)
<input type="checkbox"/> Geomagnetic Indices	<input type="checkbox"/> WDC Geomag., Kyoto	<input type="checkbox"/> Geomag., Kakioka
<input type="checkbox"/> Inductance	<input type="checkbox"/> Magnetometer	<input type="checkbox"/> SuperDARN
<input checked="" type="checkbox"/> PWING/PsA	<input type="checkbox"/> QMFI	<input type="checkbox"/> Ladar
<input type="checkbox"/> VLF/ELF	<input type="checkbox"/> MU Radar	<input type="checkbox"/> EA Radar
<input type="checkbox"/> VHF Radar	<input type="checkbox"/> GPS Receiver	<input type="checkbox"/> AWS
<input type="checkbox"/> X-Band Radar	<input type="checkbox"/> Others	

Keyword: _____

Timespan: _____ To _____

Information

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Capture Image:

- Check/Clear All
- Numerical Data [MM210 Kagoshima magnetometer 1 min resolution data distributed by ERG-SC](#)
- mm210_mag_kag_1min_hdz_x (North-South magnetic field at Kagoshima)
- mm210_mag_kag_1min_hdz_y (East-West magnetic field at Kagoshima)
- mm210_mag_kag_1min_hdz_z (Vertical magnetic field at Kagoshima)
- mm210_mag_kag_1min_hdz_x_dpwrspc (Dynamic power spectrum of North-South magnetic field at Kagoshima)
- mm210_mag_kag_1min_hdz_y_dpwrspc (Dynamic power spectrum of East-West magnetic field at Kagoshima)
- mm210_mag_kag_1min_hdz_z_dpwrspc (Dynamic power spectrum of Vertical magnetic field at Kagoshima)

This function converts CDF/netCDF to ASCII files, and enables you to download it to your local PC. It is useful for easy reading on your analysis software and confirmation of actual numerical values immediately. In addition, it is also very effective for comparing several research field data on universal platform for data fusion.

Select the LIST or MAP search.

You can limit the search results by selecting the Instrument/Project from the list or inputting the keyword that you want to search.

Input the timespan you want to search the data
2021/01/01 (from)
2021/01/07 (to)

Click "Search" button

Search result (list display)

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IUGONET DataSet LIST MAP

Instrument/Project	Observed Region	ERG Campaign
Satellite:		
<input type="checkbox"/> AKEBONO	<input type="checkbox"/> CHAMP	<input type="checkbox"/> COSMIC
Ground-Based:		
<input type="checkbox"/> SMART (Telescope)	<input type="checkbox"/> DST (Telescope)	<input type="checkbox"/> FMT (Telescope)
<input type="checkbox"/> Geomagnetic Indices	<input type="checkbox"/> WDC Geomag., Kyoto	<input type="checkbox"/> Geomag., Kakioka
<input type="checkbox"/> Induction	<input type="checkbox"/> Magnetometer	<input type="checkbox"/> SuperDARN
<input checked="" type="checkbox"/> PWING/PsA	<input type="checkbox"/> OMTI	<input type="checkbox"/> Lidar
<input type="checkbox"/> VLF/ELF	<input type="checkbox"/> MU Radar	<input type="checkbox"/> EA Radar
<input type="checkbox"/> VHF Radar	<input type="checkbox"/> GPS Receiver	<input type="checkbox"/> AWS
<input type="checkbox"/> X-Band Radar	<input type="checkbox"/> Others	<input type="checkbox"/> BL/LT/WP Radar
<input type="checkbox"/> Refractor (Telescope)	<input type="checkbox"/> Muon (Telescope)	<input type="checkbox"/> MAGDAS/CPMN
<input type="checkbox"/> EISCAT	<input type="checkbox"/> Imager	<input type="checkbox"/> Riometer
<input type="checkbox"/> Ionosonde	<input type="checkbox"/> MF Radar	<input type="checkbox"/> MW Radar
<input type="checkbox"/> Radiosonde		

Keyword:

Timespan: To [Set Detail](#)

Search Results:
 Text Plot
 Contains Summary Plot, Create Plot (Select one or more variables from list below and press 'Plot')

Ground-based

PWING/PsA

- Numerical Data [64Hz induction magnetometer data for Athabasca in CDF](#)
- Numerical Data [64Hz induction magnetometer data for Gakona in CDF](#)
- Numerical Data [64Hz induction magnetometer data for Husafell in CDF](#)
- Numerical Data [64Hz induction magnetometer data for Istok \(near Norilisk\) in CDF](#)
- Numerical Data [64Hz induction magnetometer data for Kapuskasing in CDF](#)
- Numerical Data [64Hz induction magnetometer data for Nyrola in CDF](#)
- Numerical Data [64Hz induction magnetometer data for Zhigansk in CDF](#)
- Numerical Data [CDF data of cosmic noise absorption measured with the 30MHz broadbeam riometer at Athabasca, Canada.](#)
- Numerical Data [CDF data of cosmic noise absorption measured with the 30MHz broadbeam riometer at Gakona, Alaska \(US\).](#)
- Numerical Data [CDF data of cosmic noise absorption measured with the 30MHz broadbeam riometer at Husafell, Iceland.](#)
- Numerical Data [CDF data of cosmic noise absorption measured with the 30MHz broadbeam riometer at Istok \(near Norilisk\), Russia.](#)

You can switch between the text and QL-plot display modes.

If you click "Plot", the search results are shown by QL plots of each dataset.

List of the search results is shown here.

If you click the title of each dataset, you can see the detailed information of the data.

Search result (QL plot display)



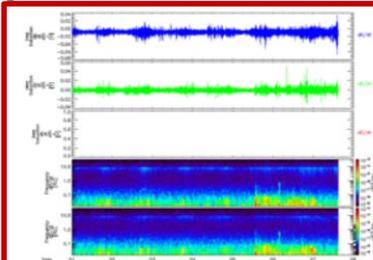
IUGONET DataSet

Instrument/Project	Observed Region	ERG Campaign
Satellite:		
<input type="checkbox"/> AKEBONO	<input type="checkbox"/> CHAMP	<input type="checkbox"/> COSMIC
Ground-Based:		
<input type="checkbox"/> SMART (Telescope)	<input type="checkbox"/> DST (Telescope)	<input type="checkbox"/> FMT (Telescope)
<input type="checkbox"/> Geomagnetic Indices	<input type="checkbox"/> WDC Geomag., Kyoto	<input type="checkbox"/> Geomag., Kakioka
<input type="checkbox"/> Induction	<input type="checkbox"/> Magnetometer	<input type="checkbox"/> SuperDARN
<input checked="" type="checkbox"/> PWING/PsA	<input type="checkbox"/> OMTI	<input type="checkbox"/> Lidar
<input type="checkbox"/> VLF/ELF	<input type="checkbox"/> MU Radar	<input type="checkbox"/> EA Radar
<input type="checkbox"/> VHF Radar	<input type="checkbox"/> GPS Receiver	<input type="checkbox"/> AWS
<input type="checkbox"/> X-Band Radar	<input type="checkbox"/> Others	
Keyword: <input type="text"/>		
Timespan: 2021/01/01 To 2021/01/07 Set Detail		
<input type="button" value="Search"/>		

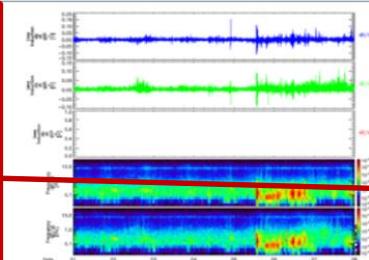
Search Results: Contains Summary Plot, Create Plot (Select one or more variables from list below and press Plot) Plot
[Text](#) [Plot](#) [<Prev](#) Numerical: 2021/01/01 00:00:00 - 2021/01/08 00:00:00, Plot/Movie: 2021/01/07, Timespan: 1 3 7 [Next>](#)

Ground-Based

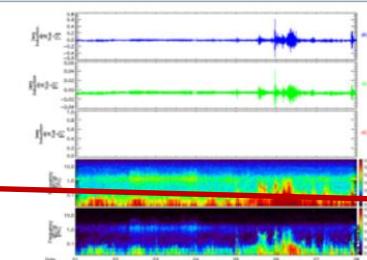
PWING/PsA



[Numerical Data 64Hz induction magnetometer data for Athabasca in CDF](#)



[Numerical Data 64Hz induction magnetometer data for Gakona in CDF](#)



[Numerical Data 64Hz induction magnetometer data for Husafell in CDF](#)

You can select the time interval from 1 or 3 or 7 days. The default is 7 days.

Search results are shown as QL plots here.

If you click the QL plot or the title of the dataset, you can see the detailed information of the data.

Metadata display

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Type-A
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UDAS web Unavailable. | Rules of the Road | About Type-A

IUGONET DataSet

[LIST](#) [MAP](#)

Instrument/Project	Observed Region	ERG Campaign
--------------------	-----------------	--------------

Satellite:
 AKEBONO CHAMP COSMIC

Ground-Based:
 SMART (Telescope) DST (Telescope) FMT (Telescope) Refractor (Telescope) Muon (Telescope)
 Geomagnetic Indices WDC Geomag., Kyoto Geomag., Kakioka MAGDAS/CPMN MM210
 Induction Magnetometer SuperDARN EISCAT Imager
 PWING/PsA QMTI Lidar Ionosonde Riometer
 VLF/ELF MU Radar EA Radar MF Radar MW Radar
 VHF Radar GPS Receiver AWS BL/LT/WP Radar Radiosonde
 X-Band Radar Others

Keyword:
Timespan: To [Set Detail](#)

[List](#) > [Instrument/Project](#) > [Ground-Based](#) > [PWING/PsA](#) Analyze: [UDAS web](#)

Numerical Data 64Hz induction magnetometer data for Athabasca in CDF

[<Prev](#) Plot: 2021/01/01 00:00:00 - 2021/01/08 00:00:00, Select Date: 2021 | 01 | 07 | [Next>](#)

Timespan [day(s)]: [1](#), [3](#), [7](#)

dh/dt
dD/dt
dz/dt

Scroll down

The metadata display page shows the detailed information of the dataset, such as QL plot, contact person, and data use policy.

You can select the start date of the QL plot and time interval (1, 3, or 7 days).

Metadata display

Description:

The induction magnetometer data observed at Athabasca, Canada. The data consist of variations of three-dimensional (H, D, and Z components) geomagnetic field taken with a sampling rate of 64 Hz, and some engineering parameters for the instrument, such as the sensitivity and phase difference. The digital data are distributed in the Common Data Format (CDF) through the ERG-SC repository. Important Notes: 1. For frequencies below ~1Hz, use the following equation to obtain amplitude values in units of nT/s: $dB/dt \text{ (nT/s)} = \text{data (V)} / \text{quick_sensitivity}$. The value of quick_sensitivity is given in global attributes. For frequencies above ~1Hz, use the exact sensitivity curve to obtain absolute amplitude of waves. 2. Please note that the positive direction (polarity) of H, D, and Z are different depending on the station. For example, in February 2011, the polarity is ATH: positive=northward, eastward, upward; MGD: positive=northward, eastward, downward; PTK: positive=northward, eastward, downward; MSR: positive=southward, westward, upward; STA: positive=northward, eastward, downward. Please see http://stdb2.isee.nagoya-u.ac.jp/magne/magne_stations.html for the latest information.

Acknowledgement: 1. Please contact Kazuo Shiokawa (shiokawa at isee.nagoya-u.ac.jp) before using the data for any publications and/or presentations. 2. References: Shiokawa, K., R. Nomura, K. Sakaguchi, Y. Otsuka, Y. Hamaguchi, M. Satoh, Y. Katoh, Y. Yamamoto, B. M. Shevtsov, S. Smirnov, I. Poddelsky, and M. Connors, The STEL induction magnetometer network for observation of high-frequency geomagnetic pulsations, Earth Planets Space, 62(6), 517-524, doi:10.5047/eps.2010.05.003, 2010.

ReleaseDate: 2011-04-01T00:00:00

ExpirationDate: 2199-12-31T00:00:00

Contact (Principal Investigator):

Kazuo Shiokawa, Institute for Space and Earth Environmental Research, Nagoya University, shiokawa (at) isee.nagoya-u.ac.jp

Contact (Publisher):

Kanako Seki, Institute for Space and Earth Environmental Research, Nagoya University, seki (at) isee.nagoya-u.ac.jp

Contact (MetadataContact):

Tomoaki Hori, Institute for Space and Earth Environmental Research, Nagoya University, horit (at) isee.nagoya-u.ac.jp

Contact (MetadataContact):

ISEE IUGONET Metadata Management Group, Institute for Space and Earth Environmental Research, Nagoya University, stel-iugonet (at) isee.nagoya-u.ac.jp

Access Information:

Acknowledgement: 1. Please contact Kazuo Shiokawa (shiokawa at isee.nagoya-u.ac.jp) before using the data for any publications and/or presentations. 2. References: Shiokawa, K., R. Nomura, K. Sakaguchi, Y. Otsuka, Y. Hamaguchi, M. Satoh, Y. Katoh, Y. Yamamoto, B. M. Shevtsov, S. Smirnov, I. Poddelsky, and M. Connors, The STEL induction magnetometer network for observation of high-frequency geomagnetic pulsations, Earth Planets Space, 62(6), 517-524, doi:10.5047/eps.2010.05.003, 2010.

URL: <https://ergsc.isee.nagoya-u.ac.jp/index.shtml>

Availability: Online

Access Rights: Open

Format: CDF

Processing Level: Uncalibrated

Measurement Type: Magnetogram

Time Span:

StartDate: 2005-09-09T00:00:00

StopDate: -P180D

Observed Region: Earth.NearSurface.Ionosphere.ERegion

Observed Region: Earth.Magnetosphere

Keywords: EARTH SCIENCE Atmosphere Sun-earth Interactions Ionosphere/Magnetosphere Dynamics Magnetic Fields/Magnetic Currents

Instrument:

Name: Induction Magnetometer at Athabasca of ISEE Magnetometer Data

Description: Induction Magnetometer at Athabasca of ISEE Magnetometer Data. This induction magnetometer measures variations of 3-D vector geomagnetic field with a sampling rate of 64 Hz controlled by the PC clock signal.

Data description:

This information is useful for writing scientific papers.

Data use policy

Contact person:

You can easily contact PIs of the dataset.

Data location and file format:

You can access the webpage of the data

Information of instrument

Scroll down

Metadata display

```

Observatory:
Name: ISEE Magnetometer Athabasca station
Description: ISEE Magnetometer station at Athabasca, Canada.
Contact (GeneralContact):
Kazuo Shiohawa, Institute for Space and Earth Environmental Research, Nagoya University, shiohawa (at) isee.nagoya-u.ac.jp
Contact (MetadataContact):
Tomoaki Hori, Institute for Space and Earth Environmental Research, Nagoya University, horit (at) isee.nagoya-u.ac.jp
Contact (MetadataContact):
ISEE IUGONET Metadata Management Group, Institute for Space and Earth Environmental Research, Nagoya University, stel-iugonet
(at) isee.nagoya-u.ac.jp
Location:
ObservatoryRegion: Earth.Surface
CoordinateSystemName: WGS84
Latitude: 54.60
Longitude: 246.36
    
```

Information of
observatory

Observed Data:

Basic SPEDAS
commands (for the
command line interface)
to load and plot the data.

```

How to Plot (SPEDAS-CUI #Basic):
IDL> thm_init
THEMIS> timespan, ['2020-12-26 00:00:00', '2021-01-02 00:00:00']
THEMIS> iug_load_gmag_isee_induction, site='ath'
THEMIS> tplot, 'isee_induction_db_dt_ath'
    
```

```

How to Plot (SPEDAS-CUI #Advanced ["Quick-Look was created with this command]):
IDL> thm_init
THEMIS> timespan, ['2020-12-26 00:00:00', '2021-01-02 00:00:00']
THEMIS> iug_load_gmag_isee_induction, site='ath'
THEMIS> tdpwrspc, 'isee_induction_db_dt_ath', nboxpoints=8192
THEMIS> zlim, 'isee_induction_db_dt_ath_x_dpwrspc', 0.000000001, 0.001
THEMIS> zlim, 'isee_induction_db_dt_ath_y_dpwrspc', 0.000000001, 0.001
THEMIS> zlim, 'isee_induction_db_dt_ath_z_dpwrspc', 0.000000001, 0.001
THEMIS> options, 'isee_induction_db_dt_ath_x_dpwrspc', 'ytitle', 'Frequency!CdH/dt'
THEMIS> options, 'isee_induction_db_dt_ath_y_dpwrspc', 'ytitle', 'Frequency!CdZ/dt'
THEMIS> options, 'isee_induction_db_dt_ath_z_dpwrspc', 'ytitle', 'Frequency!CdZ/dt'
THEMIS> options, 'isee_induction_db_dt_ath_x_dpwrspc', 'ysubtitle', '[Hz]'
THEMIS> options, 'isee_induction_db_dt_ath_y_dpwrspc', 'ysubtitle', '[Hz]'
THEMIS> options, 'isee_induction_db_dt_ath_z_dpwrspc', 'ysubtitle', '[Hz]'
THEMIS> tplot_options, 'region', [0.05, 0, 1, 1]
THEMIS> tplot, ['isee_induction_db_dt_ath_x', 'isee_induction_db_dt_ath_y', 'isee_induction_db_dt_ath_z',
'isee_induction_db_dt_ath_x_dpwrspc', 'isee_induction_db_dt_ath_y_dpwrspc',
'isee_induction_db_dt_ath_z_dpwrspc']
    
```

Advanced SPEDAS
commands to
customize the plot

```

How to Plot (SPEDAS-GUI):
Step 1: Start SPEDAS GUI Program.
Step 2: Choose [Data] -> [Load Data from Plug-in].
Step 3: Choose [IUGONET] Tab.
Step 4: Uncheck 'Use Single Day'.
Step 5: Set Start Time: '2020-12-26 00:00:00' and Stop Time: '2021-01-02 00:00:00'.
Step 6: Choose Instrument Type: 'geomagnetic_field_induction'.
Step 7: Choose Data Type: 'STEL#', Site or parameter(s)-1: 'ath' and parameter(s)-2: '*'.
Step 8: Push [->] button. (Please wait a few minutes).
Step 9: Push [Done] button.
Step 10: Choose [Plot] -> [Plot Layout Options].
Step 11: Choose 'stel_induction_db_dt_ath' and push [Line->] button.
Step 12: Push [OK] button.
    
```

How to load and plot
with **GUI of SPEDAS**.

```

How to Plot (M-UDAS #Basic):
Note: Integrated Software M-UDAS based on MATLAB, http://www.iugonet.org/product/analysis/m-udas/
> iug_load_gmag_isee_induction('2020-12-26 00:00:00', '2021-01-02 00:00:00', 'site', 'ath');
> plot(isee_induction_ath_time, isee_induction_ath_db_dt);
> datetick('x', 'mm/dd');
    
```

MATLAB command to
load and plot the data
with M-UDAS.



IUGONET

Metadata DB for Upper Atmosphere

超高層大気長期変動の全地球上ネットワーク観測・研究
Inter-university Upper atmosphere Global Observation NETwork

Hand on of SPEDAS-GUI

Prepare **64 bit Operating System**.

1. Access the following URL

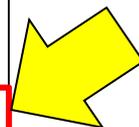
<http://themis.ssl.berkeley.edu/software.shtml>

2. Download **SPEDAS 4.1** zip file for your operating system (Win or Mac), and then unzip it to your desktop.

3. **Executable files (SPEDAS 4.1, October 2020)**. These zip files contain executable files that can be run directly without installing anything else. They include a Virtual Machine (VM) version of IDL and they open the SPEDAS GUI but they do not include a command line tool, nor the TDAS or SPEDAS IDL source code. They also include Geopack.

IDL 8.5.1

- [TDAS 12.1 + SPEDAS 4.1 , Windows 64bit executable with IDL 8.5.1, CDF 3.7.1, Geopack 10.6 \(~55 MB\)](#)
- [TDAS 12.1 + SPEDAS 4.1 , MacOS 64bit executable with IDL 8.5.1, CDF 3.7.1, Geopack 10.6 \(~70 MB\)](#)
- [TDAS 12.1 + SPEDAS 4.1 , Linux 64bit executable with IDL 8.5.1, CDF 3.7.1, Geopack 10.6 \(~70 MB\)](#)
- [TDAS 12.1 + SPEDAS 4.1 , Linux 64bit executable with IDL 8.5.1, CDF 3.7.1, Geopack 7.6 \(~70 MB\)](#)



- [1] Unzip the zipped SPEDAS file.
- [2] Double-click the executable file named 'spedas' in the directory 'spedas_v_3/spd_gui'.



Click the icon 'spd_gui'.

名前	更新日時
idl85	2017/08/11 8:09
colors1.tbl	2013/04/16 14:52
gmag_stations.txt	2015/11/03 14:35
grammar.sav	2014/02/20 10:34
idl.ico	2017/07/14 11:34
parse_tables.sav	2014/02/20 10:34
PutRsp.dat	2014/06/27 14:13
spd_gui.sav	2017/07/14 11:34
spd_gui_running_history.txt	2017/08/12 5:55
spedas.exe	2017/07/14 11:34
spedas.ini	2017/07/14 11:34
spin_harmonic_template.dat	2013/04/16 14:52
splash.bmp	2017/07/14 11:34

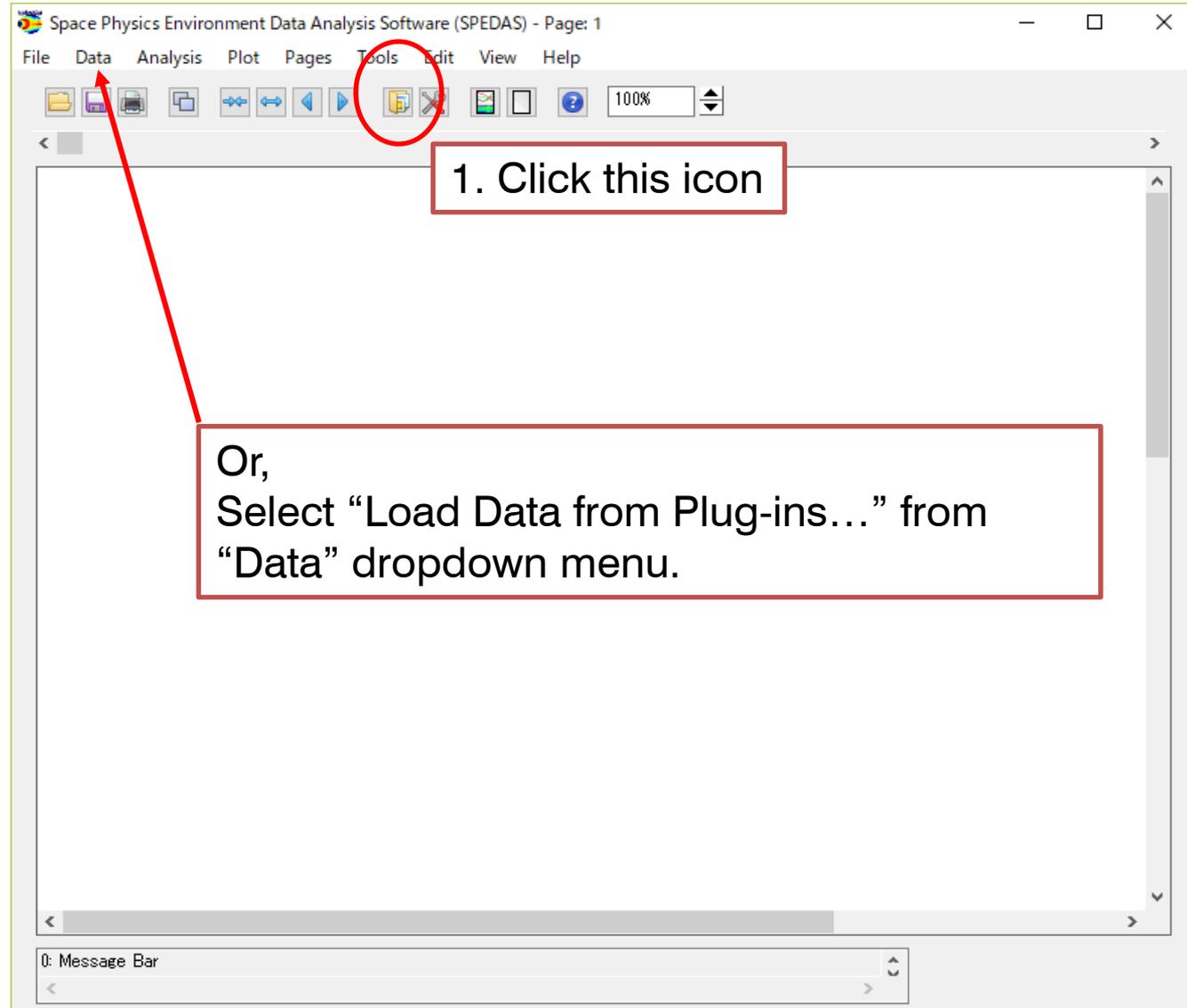
Double-click the executable file named 'spedas'

- [3] IDL Virtual Machine window opens on your PC, so please **click the 'spd_gui' button.**

How to Use SPEDAS-GUI part1

- **Load data**
- **Plot data**
- **Save figure, data, and your work**

Load Dst index



1. Click IUGONET Tab

2. Uncheck "Use Single Day"

3. Set Date and Time
Start Time: 2012-03-04/00:00:00
Stop Time: 2012-03-11/00:00:00

4. Change Instrument Type
geomagnetic_field_index

Note: # means that the load procedure has been developed in collaboration with the ERG Science Center.

Done

(2019-01-30/07:55:59) 21: Valid End Time Entered

The screenshot shows the IUGONET GUI interface. At the top, there are tabs for SECS, THEMIS, THEMIS Derived Products, and WIND. Under these tabs, various instrument names are listed: ACE, BARREL, DSCOVR, ELFIN, FAST, GOES, ICON, Geomagnetic Indices, IUGONET, Lomonosov, MAVEN_PFP, MMS, OMNI, and POES.

The main area is titled "IUGONET Data Selection:" and contains several input fields and a table. The "Start Time" is set to 2012-03-04/00:00:00 and the "Stop Time" is set to 2012-03-11/00:00:00. There is a checkbox for "Use Single Day" which is unchecked. The "Instrument Type" is set to "geomagnetic_field_index".

Below the instrument type, there is a table with three columns: "Data Type:", "Site or parameter(s)-1:", and "Parameter(s)-2:". The table contains the following entries:

Data Type:	Site or parameter(s)-1:	Parameter(s)-2:
Dst_index	*(all)	*
AE_index	WDC_kyoto	final
ASY_index		prov
Wp_index		

Two red boxes with white text provide instructions: "1. Choose three parameters" with a list: - Dst_index, - *(all), - *. A second box says "2. Click the arrow" with a red circle around a blue arrow button in the table's right margin.

At the bottom of the selection area, there is a note: "Note: # means that the load procedure has been developed in collaboration with the ERG Science Center." Below this note is a "Delete All Data" button. At the very bottom of the GUI is a "Done" button and a status bar showing "(2019-01-30/07:55:59) 21: Valid End Time Entered".

IUGONET

SECS THEMIS THEMIS Derived Products WIND

ACE BARREL DSCOVR ELFIN FAST GOES ICON Geomagnetic Indices IUGONET Lomonosov MAVEN_PFP MMS OMNI POES

IUGONET Data Selection: Data Loaded:

Start Time: 2012-03-04/00:00:00
Stop Time: 2012-03-11/00:00:00
 Use Single Day

Instrument Type: geomagnet

Data Type: Site

Dst_index	*(all)
AE_index	WDC_J
ASY_index	
Wp_index	

Clear

Note: # means that the load p...
in collaboration with the

Done

(2019-01-30/07:55:59) 21: Valid End Time Entered

Display of Data Use Policy

Rules of Data Use:

i The DST data are provided by the World Data Center for Geomagnetism, Kyoto, and are not for redistribution (<http://wdc.kugi.kyoto-u.ac.jp/>). Furthermore, we thank the geomagnetic observatories (Kakioka [JMA], Honolulu and San Juan [USGS], Hermanus [RSA], Alibag [IIG]), NiCT, INTERMAGNET, and many others for their cooperation to make the Dst index available. The distribution of DST data has been partly supported by the IUGONET (Inter-university Upper atmosphere Global Observation NETwork) project (<http://www.iugonet.org/>) funded by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan.

OK キャンセル

1. Click "OK"

The screenshot displays the IUGONET GUI interface. At the top, there are tabs for different data sources: SECS, THEMIS, THEMIS Derived Products, and WIND. Under THEMIS Derived Products, the 'IUGONET' tab is selected. The main area is divided into two panels: 'IUGONET Data Selection' on the left and 'Data Loaded' on the right.

IUGONET Data Selection:

- Start Time: 2012-03-04/00:00:00
- Stop Time: 2012-03-11/00:00:00
- Use Single Day
- Instrument Type: geomagnetic_field_index
- Data Type: Dst_index, AE_index, ASY_index, Wp_index
- Site or parameter(s)-1: *(all), WDC_kyoto
- Parameter(s)-2: *, final, prov

Data Loaded:

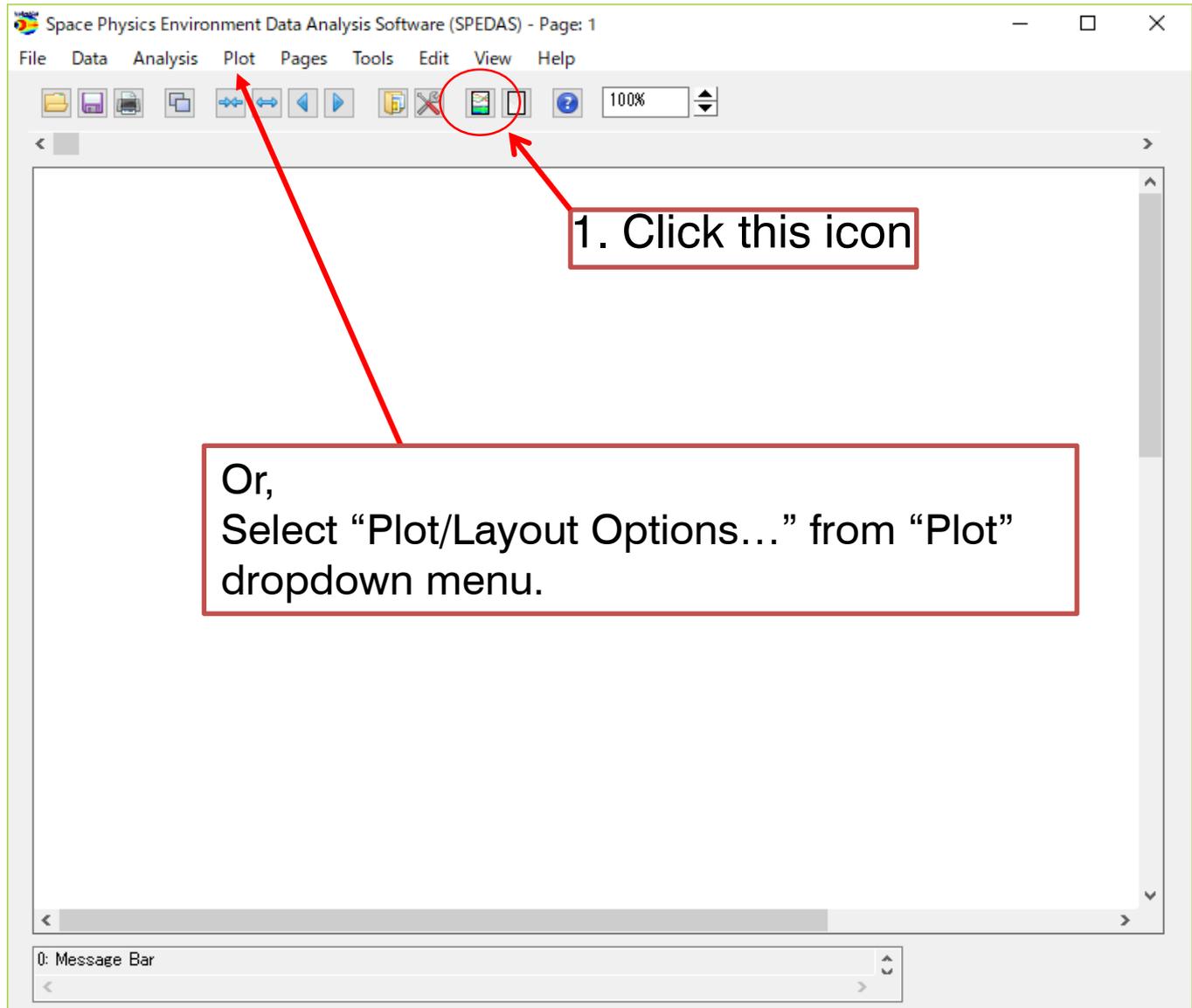
- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:30:00 to 2012-03-10/00:00:00]

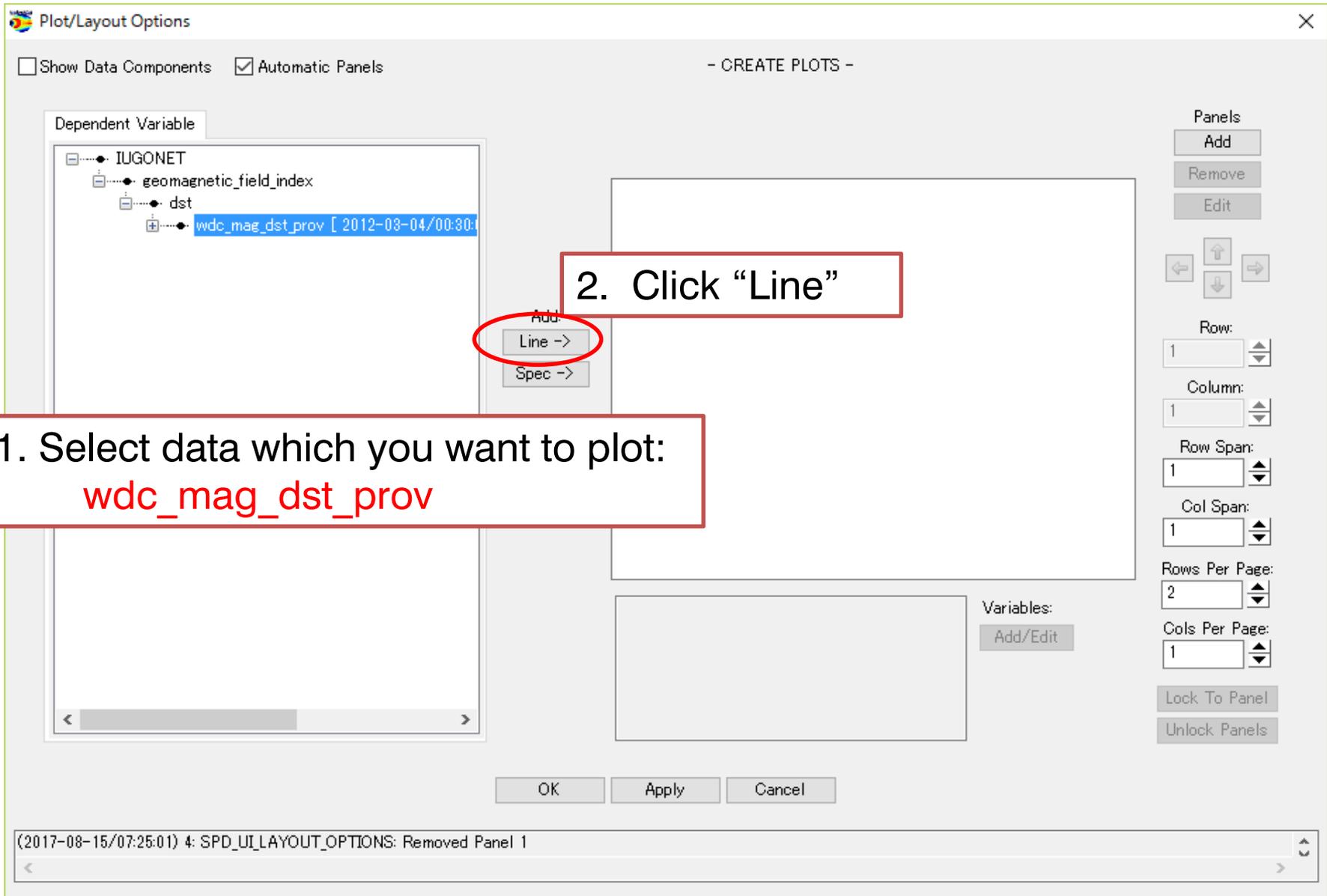
A red box highlights the 'dst' folder and its contents in the 'Data Loaded' panel. Another red box highlights the text '1. Data was loaded successfully!' overlaid on the 'Data Loaded' panel.

At the bottom of the GUI, there is a 'Done' button circled in red. A red box highlights the text '2. Click "Done"' overlaid on the 'Done' button.

At the bottom left, a status bar shows: (2019-01-30/08:03:41) 22: IUGONET Data Loaded Successfully

Plot data





Plot/Layout Options

Show Data Components Automatic Panels - CREATE PLOTS -

Dependent Variable

- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:30:00]**

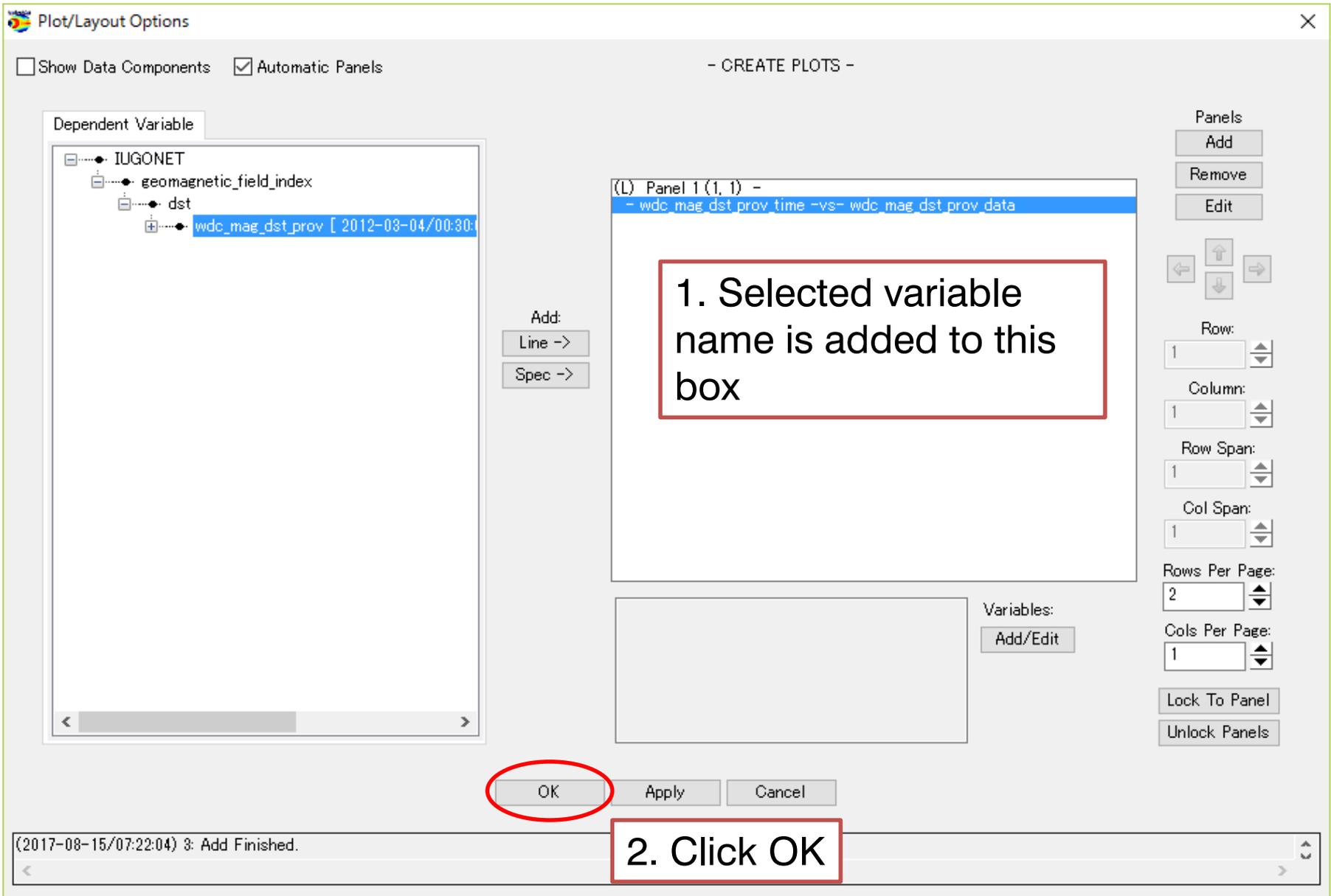
2. Click "Line"

1. Select data which you want to plot:
wdc_mag_dst_prov

Line ->

OK Apply Cancel

(2017-08-15/07:25:01) 4: SPD_UI_LAYOUT_OPTIONS: Removed Panel 1



Plot/Layout Options

Show Data Components Automatic Panels

- CREATE PLOTS -

Dependent Variable

- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:30:00]

Add:
Line ->
Spec ->

(L) Panel 1 (1, 1) -
- wdc_mag_dst_prov time -vs- wdc_mag_dst_prov data

1. Selected variable name is added to this box

Variables:
Add/Edit

Row: 1
Column: 1
Row Span: 1
Col Span: 1
Rows Per Page: 2
Cols Per Page: 1
Lock To Panel
Unlock Panels

OK Apply Cancel

(2017-08-15/07:22:04) 3: Add Finished.

2. Click OK

Basic Operation of SPEDAS GUI

PanelX(Y,Z)
X: panel serial number
Y: row index of the panel
Z: column index of the panel

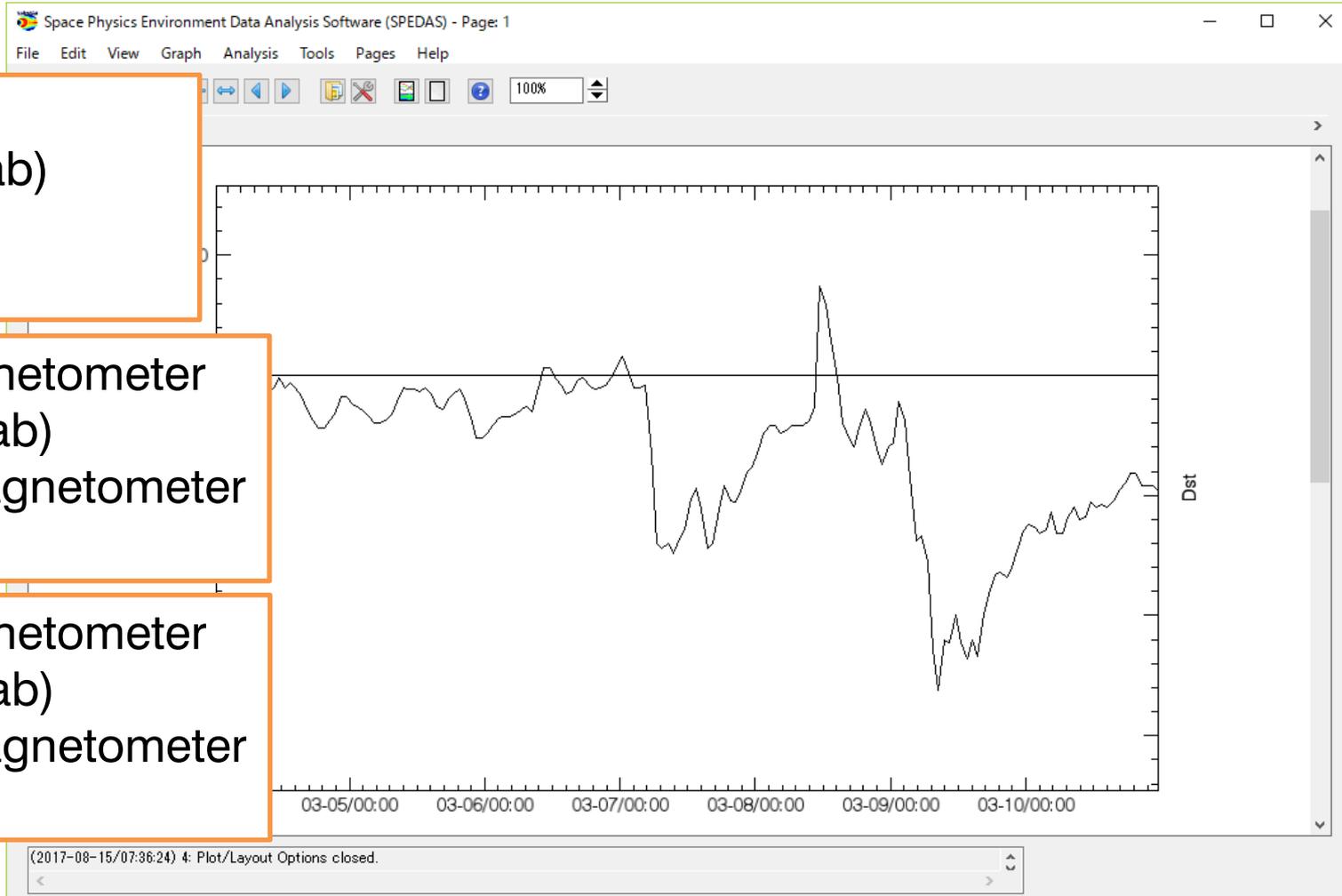
You can add, remove, and edit panels with these buttons.

You can move panels and change the number of panels per page.

Lock to panel:
Lock panel axes to currently selected panel.

The screenshot shows the 'Plot/Layout Options' dialog box. On the left, the 'Dependent Variable' tree shows 'IUGONET' expanded to 'geomagnetic_field_index' and 'dst', with 'wdc_mag_dst_prov [2012-03-04/00:30:00]' selected. In the center, a panel list shows '(L) Panel 1 (1, 1) -' with the description '- wdc_mag_dst_prov time -vs- wdc_mag_dst_prov data'. On the right, a control panel includes buttons for 'Add', 'Remove', and 'Edit' (circled in red), directional arrows, and dropdown menus for 'Row', 'Column', 'Row Span', 'Col Span', 'Rows Per Page', and 'Cols Per Page'. A 'Lock To Panel' button is also circled in red. At the bottom, there are 'OK', 'Apply', and 'Cancel' buttons. A status bar at the bottom left shows '(2017-08-15/07:22:04) 3: Add Finished.'

Load other three data



The screenshot shows the IUGONET GUI interface. At the top, there are tabs for different data sources: ACE, BARREL, ELFIN Lomo, FAST, GOES, Geomagnetic Indices, **IUGONET**, and MA. The **IUGONET** tab is selected and circled in red. Below the tabs, there is a section for "IUGONET Data Selection" with fields for "Start Time" (2012-03-04/00:00:00) and "Stop Time" (2012-03-11/00:00:00). The "Instrument Type" is set to "geomagnetic_field_index". Below this, there are three columns: "Data Type", "Site or parameter(s)-1", and "Parameters". The "Data Type" column contains "Dst_index", "AE_index", and "ASY_index". The "Site or parameter(s)-1" column contains "* (all)" and "WDC_kyoto". The "Parameters" column contains "min", "hour", "prov_min", and "prov_hour". A red box highlights the "AE_index", "* (all)", and "*" entries. A red box highlights a blue arrow button below the "Parameters" column. To the right, a "Data Loaded" window shows a tree view of the loaded data, including "IUGONET", "geomagnetic_field_index", "dst", "wdc_mag_dst_prov", and "ae". A red box highlights the "ae" entry. At the bottom, a status bar shows the message "(2017-08-15/07:41:44) 2: IUGONET Data Loaded Successfully".

1. Select **IUGONET** tab

2. Select magnetic_field_index

3. Select **AE_index, *(all), ***

4. Click arrow

5. Data is loaded

Note: # means that the load procedure has been developed in collaboration with the ERG Science Center.

Done

(2017-08-15/07:41:44) 2: IUGONET Data Loaded Successfully

1. Select **geomagnetic_field_fluxgate**

2. Select **magdas#**, **asb** & **her**, *

3. Click arrow

4. Data is loaded

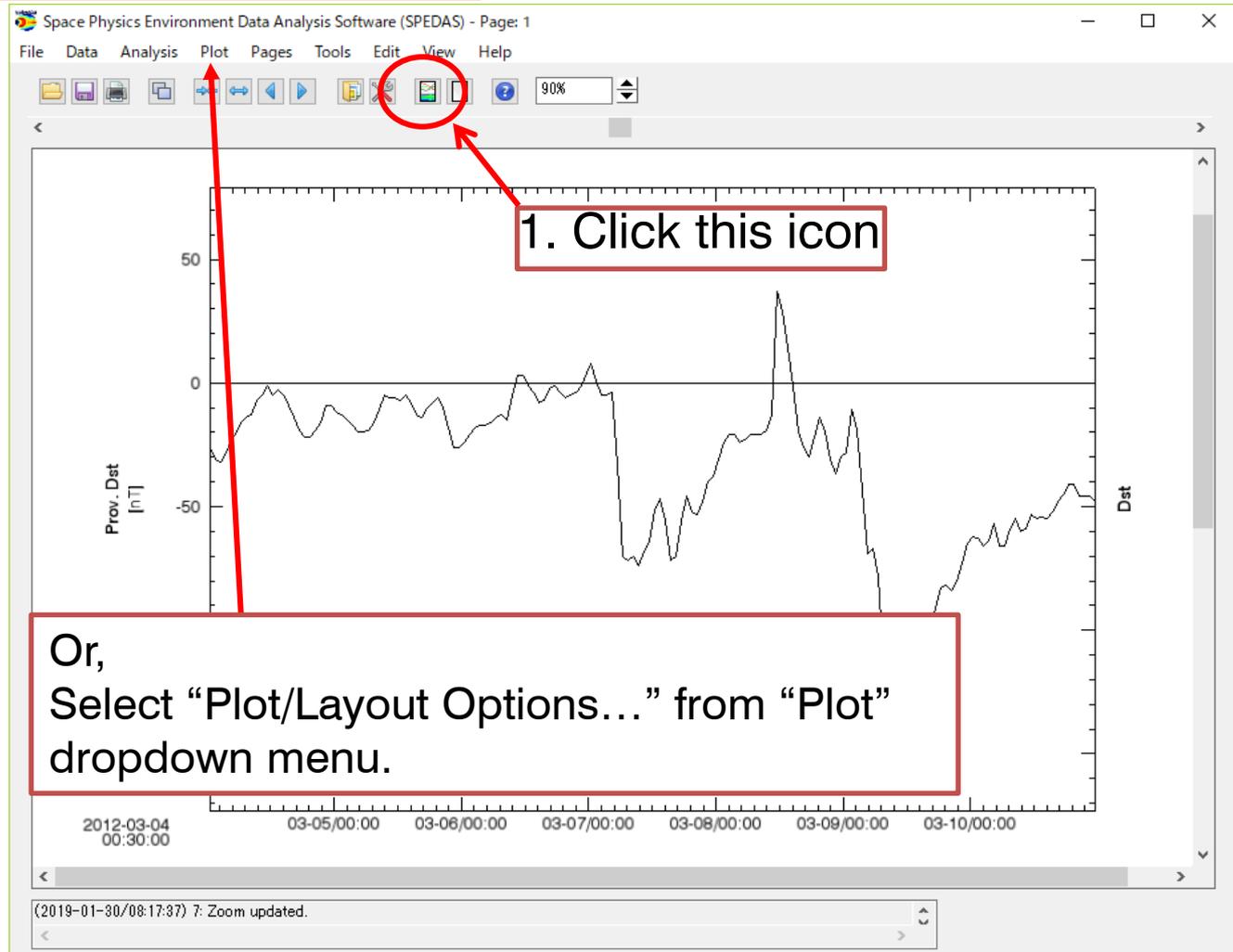
5. Click Done

Note: # means that the load procedure has been developed in collaboration with the ERG Science Center.

(2017-08-17/16:40:28) 28: IUGONET Data Loaded Successfully

Add plot

wdc_mag_ae_prov_1min



Space Physics Environment Data Analysis Software (SPEDAS) - Page: 1

File Data Analysis Plot Pages Tools Edit View Help

90%

1. Click this icon

Or,
Select "Plot/Layout Options..." from "Plot"
dropdown menu.

Prov. Dst [nT]

Dst

2012-03-04 00:30:00 03-05/00:00 03-06/00:00 03-07/00:00 03-08/00:00 03-09/00:00 03-10/00:00

(2019-01-30/08:17:37) ? : Zoom updated.

1. Click Add

2. Select `wdc_mag_ae_prov_1min`

3. Click "Line"

4. Data are added

5. Click OK

Plot/Layout Options

Show Data Components Automatic Panels

- CREATE PLOTS -

Dependent Variable

- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:30:00 to 201
 - ae
 - wdc_mag_ae_prov_1min [2012-03-04/00:00:00 to 201**
 - geomagnetic_field_fluxgate
 - asb
 - magdas_mag_asb_1sec_f [2012-03-04/00:00:00 to 201
 - magdas_mag_asb_1sec_hdz [2012-03-04/00:00:00 to 201
 - her
 - magdas_mag_her_1sec_f [2012-03-04/00:00:00 to 201
 - magdas_mag_her_1sec_hdz [2012-03-04/00:00:00 to 201

Line -> Spec ->

(L) Panel 1 (1, 1) -
- wdc_mag_dst_prov_time -vs- wdc_mag_dst_prov_data
Panel 2 (2, 1) -
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_0
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_1
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_2
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_3
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_4

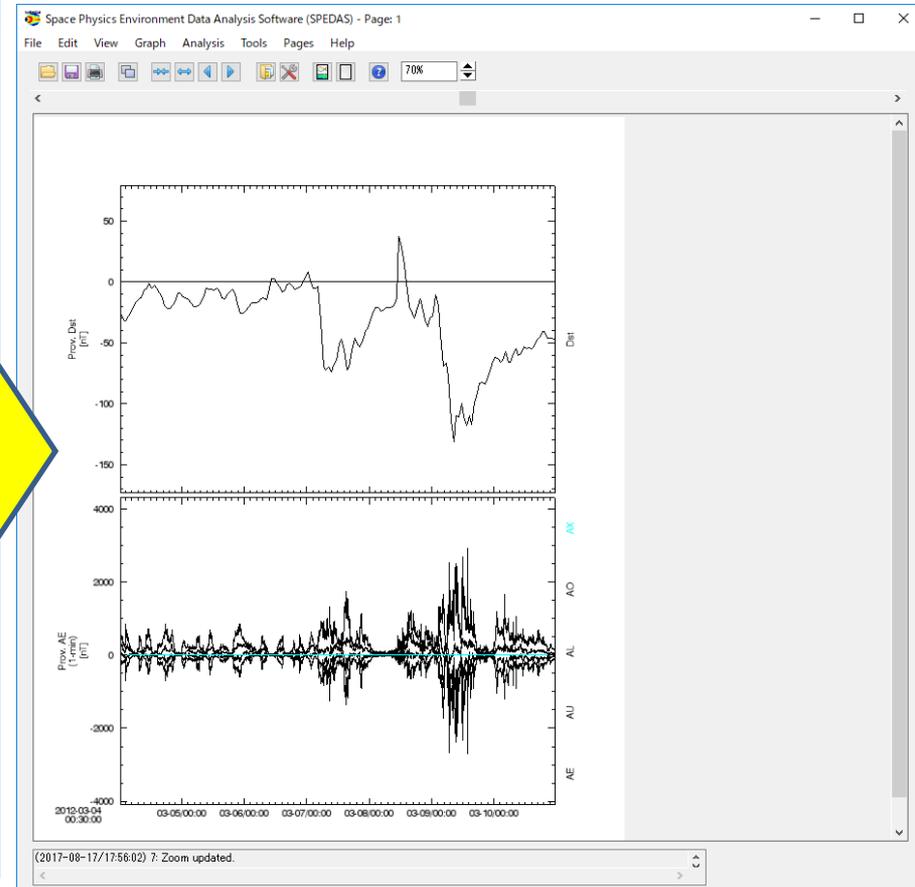
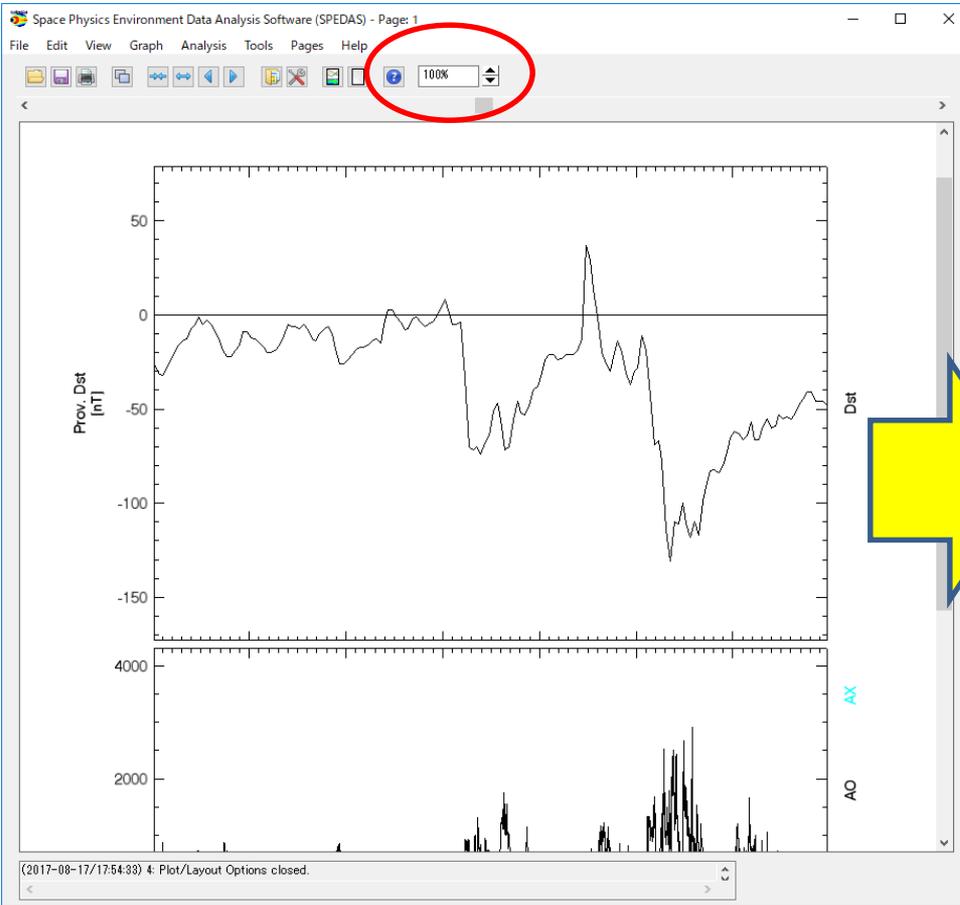
Variables:
Add/Edit

Row: 2
Column: 1
Row Span: 1
Col Span: 1
Rows Per Page: 2
Cols Per Page: 1
Lock To Panel
Unlock Panels

OK Apply Cancel

(2017-08-17/17:22:52) 6: Add Finished.

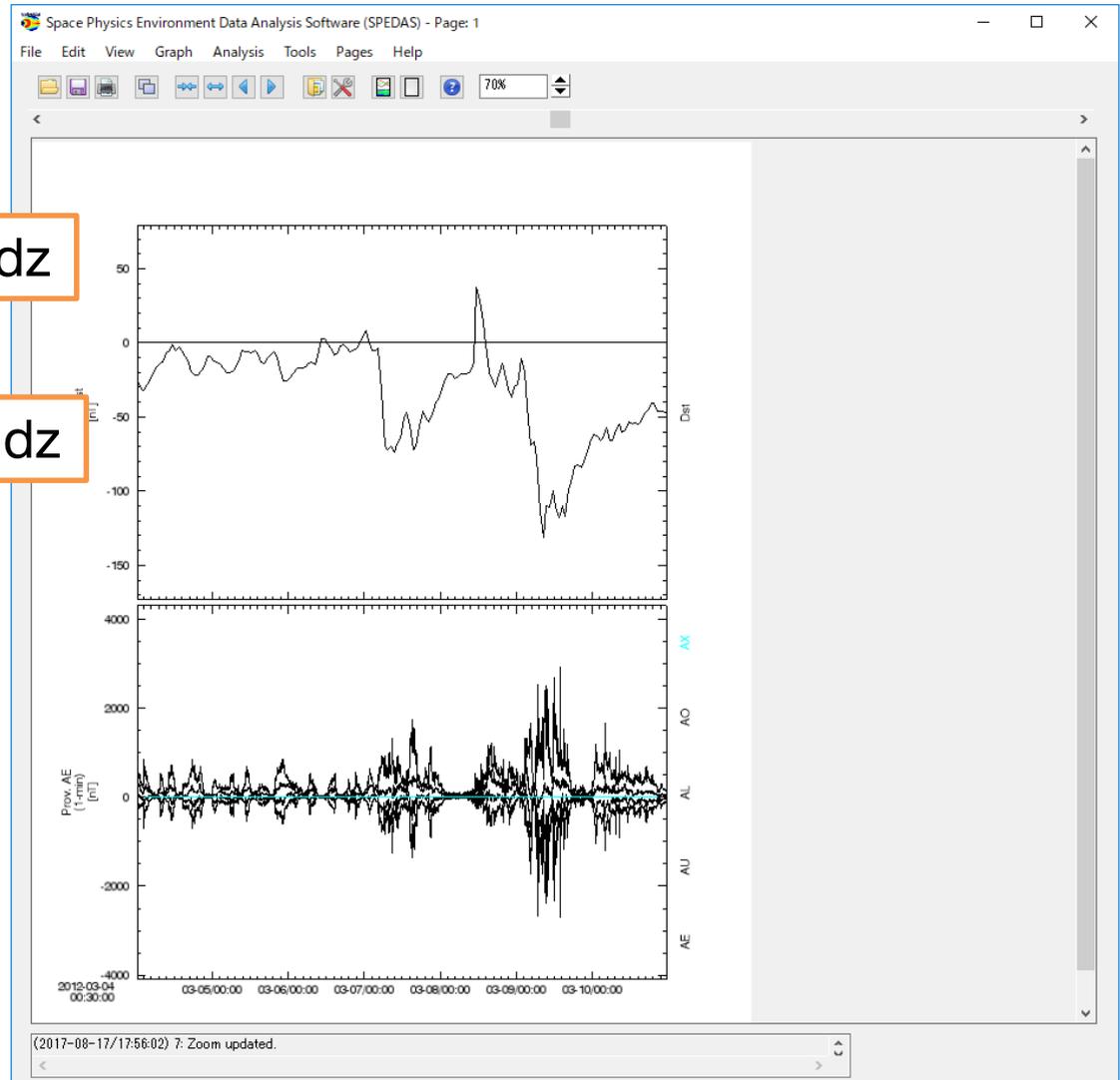
1. Click black triangles



Plot other two data

magdas_mag_her_1sec_hdz

magdas_mag_asb_1sec_hdz



Plot/Layout Options

Show Data Components Automatic Panels

- CREATE PLOTS -

Dependent Variable

- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:30:00 to 201
 - ae
 - wdc_mag_ae_prov_1min [
 - geomagnetic_field_fluxgate
 - asb
 - magdas_mag_asb_1sec_f [2012-03-04/00:00:00 t
 - magdas_mag_asb_1sec_hdz [2012-03-04/00:00:0
 - her
 - magdas_mag_her_1sec_f [2012-03-04/00:00:00 t
 - magdas_mag_her_1sec_hdz [2012-03-04/00:00:0

2. Click Line

Add:
Line ->
Spec ->

(L) Panel 1 (1, 1) -
- wdc_mag_dst_prov_time -vs- wdc_mag_dst_prov_data
Panel 2 (2, 1) -
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_0
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_1
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_2
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_3
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_4
Panel 3 (3, 1) -
- magdas_mag_her_1sec_hdz_time -vs- magdas_mag_her_1sec_hdz_x
- magdas_mag_her_1sec_hdz_time -vs- magdas_mag_her_1sec_hdz_y
- magdas_mag_her_1sec_hdz_time -vs- magdas_mag_her_1sec_hdz_z

3. Data are added

1. Select magdas_mag_her_1sec_hdz

Panels

Add
Remove
Edit

Row: 3
Column: 1
Row Span: 1
Col Span: 1
Rows Per Page: 4
Cols Per Page: 1

Lock To Panel
Unlock Panels

Variables:
Add/Edit

OK Apply Cancel

(2017-08-17/18:01:17) 5: Add Finished.

1. Select `magdas_mag_asb_1sec_hdz`

2. Click Line

3. Data are added

4. Click OK

Plot/Layout Options

Show Data Components Automatic Panels

- CREATE PLOTS -

Dependent Variable

- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:30:00 to 2012-03-04/00:30:00]
 - ae
 - wdc_mag_ae_prov_1min [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - geomagnetic_field_fluxgate
 - asb
 - magdas_mag_asb_1sec_f [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_asb_1sec_hdz [2012-03-04/00:00:00 to 2012-03-04/00:00:00]**
 - her
 - magdas_mag_her_1sec_f [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz [2012-03-04/00:00:00 to 2012-03-04/00:00:00]

Add:
Line ->
Spec ->

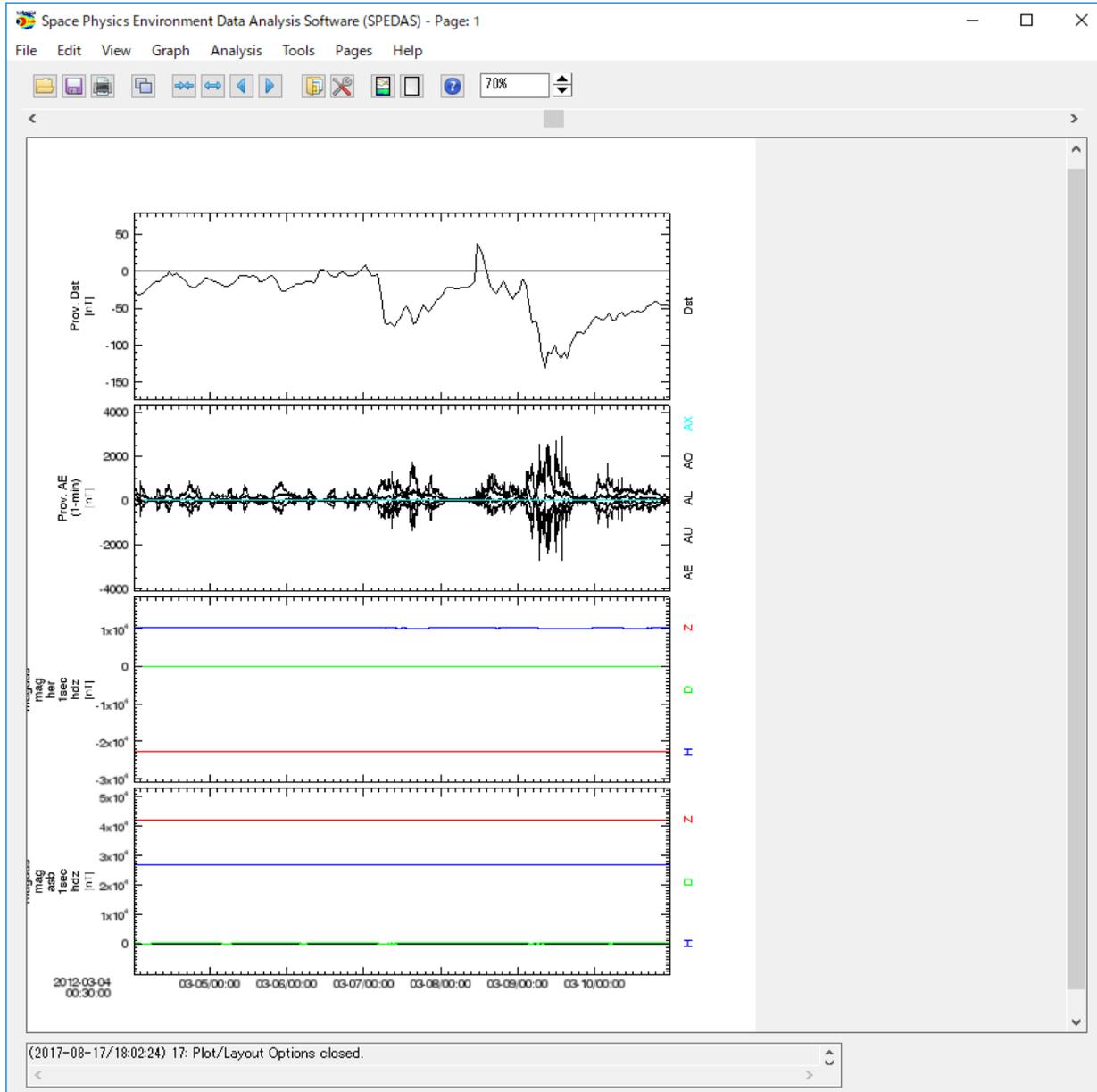
(L) Panel 1 (1, 1) -
- wdc_mag_dst_prov_time -vs- wdc_mag_dst_prov_data
Panel 2 (2, 1) -
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_0
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_1
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_2
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_3
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_4
Panel 3 (3, 1) -
- magdas_mag_her_1sec_hdz_time -vs- magdas_mag_her_1sec_hdz_x
- magdas_mag_her_1sec_hdz_time -vs- magdas_mag_her_1sec_hdz_y
- magdas_mag_her_1sec_hdz_time -vs- magdas_mag_her_1sec_hdz_z
Panel 4 (4, 1) -
- magdas_mag_asb_1sec_hdz_time -vs- magdas_mag_asb_1sec_hdz_x
- magdas_mag_asb_1sec_hdz_time -vs- magdas_mag_asb_1sec_hdz_y
- magdas_mag_asb_1sec_hdz_time -vs- magdas_mag_asb_1sec_hdz_z

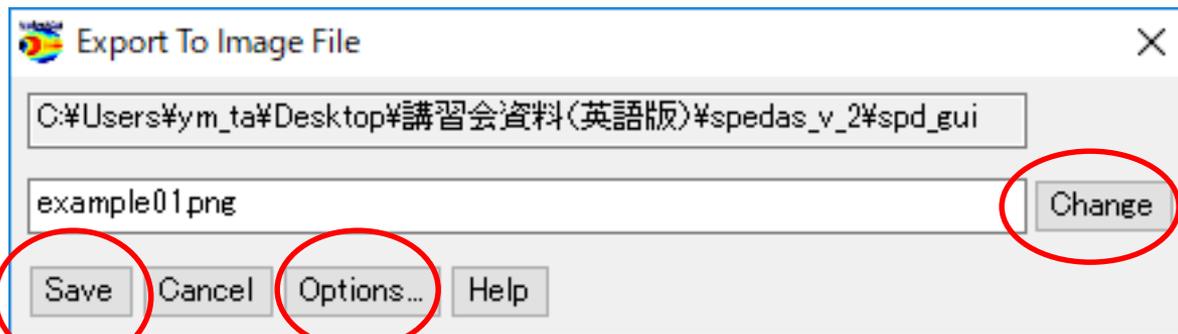
Variables:
Add/Edit

OK Apply Cancel

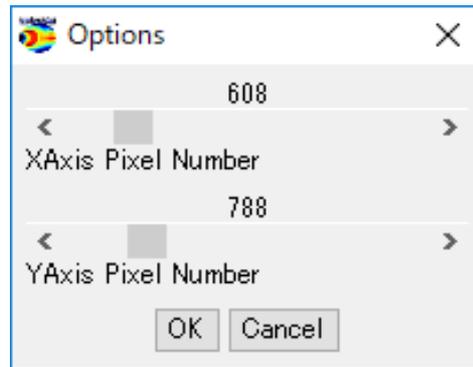
(2017-08-17/18:01:56) 8: Add Finished.

Basic Operation of SPEDAS GUI





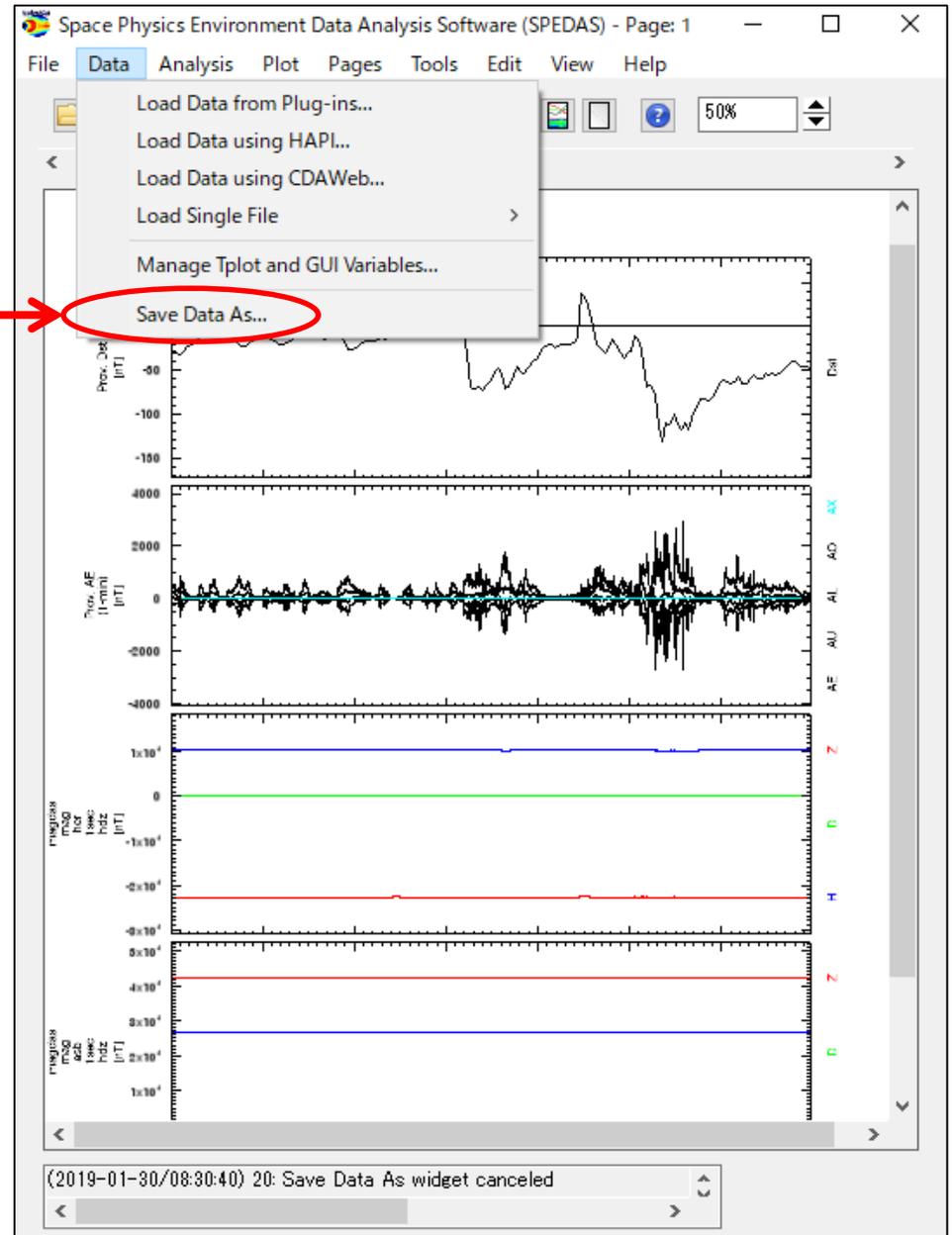
Back to previous



Click "Save"

Save data as ASCII

1. Select
Data – Save Data As



Basic Operation of SPEDAS GUI

1. Select data which you want to save
magdas_mag_her_1sec_hdz_x

2. check this box

3. Select time interval

4. check this box

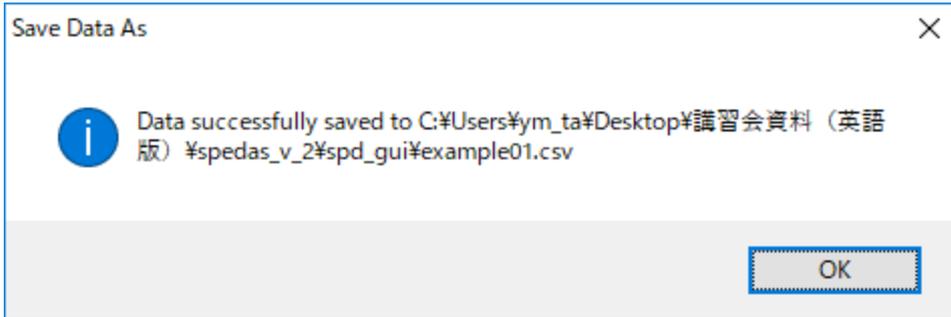
6. Select save folder

7. Input file name (data is saved in csv format)

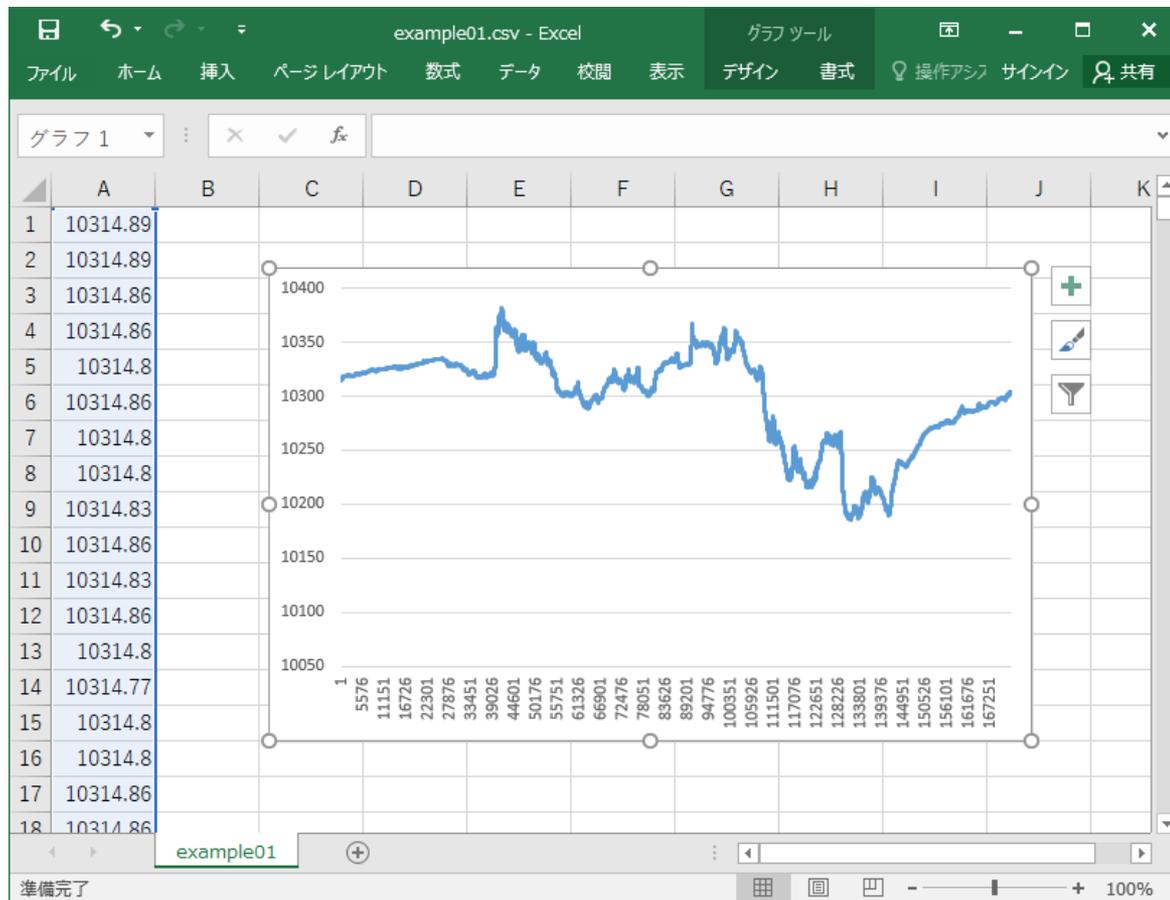
5. Click Save

8. Click "save"

Basic Operation of SPEDAS GUI

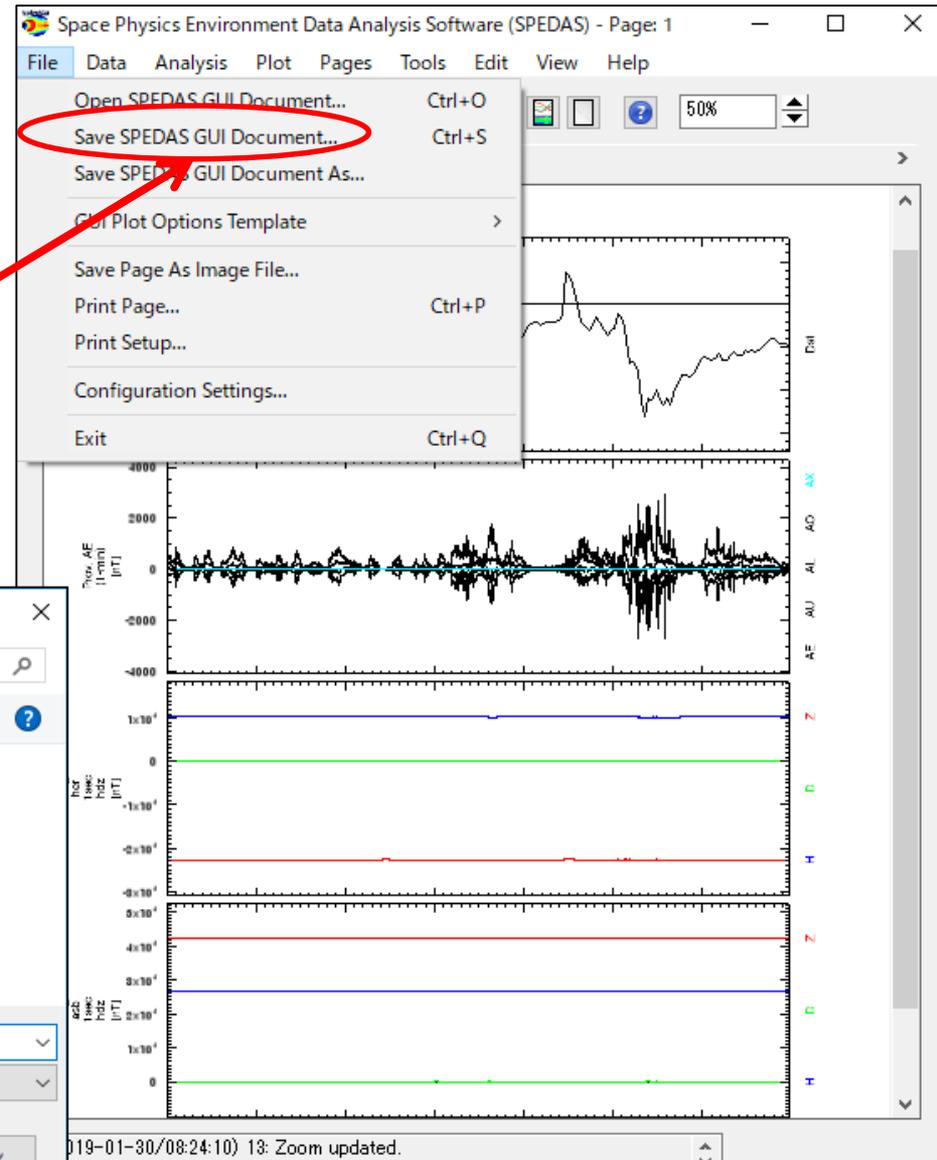


An ASCII data file was successfully saved!!!



Save your workspace

1. Select
File – Save SPEDAS GUI Document



2. Select save folder

3. Input file name

4. Click “save”

※ SPEDAS Document is written in XML format



IUGONET

超高層大気長期変動の全地球上ネットワーク観測・研究
Inter-university Upper atmosphere Global Observation NETWORK

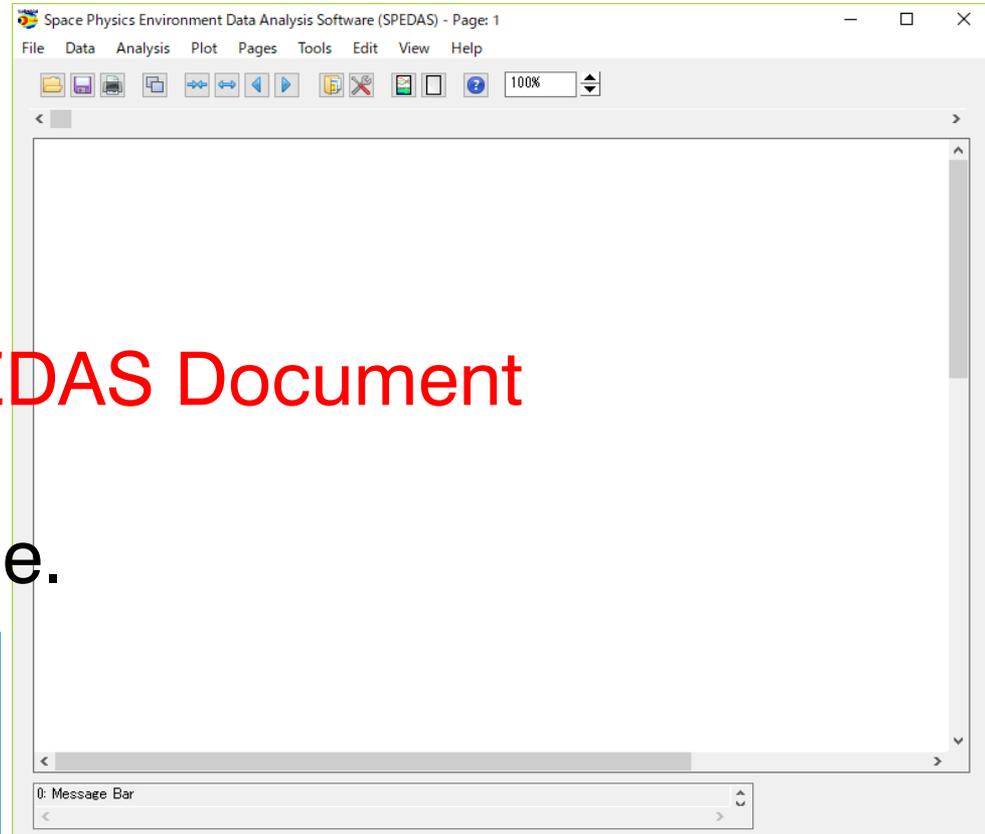
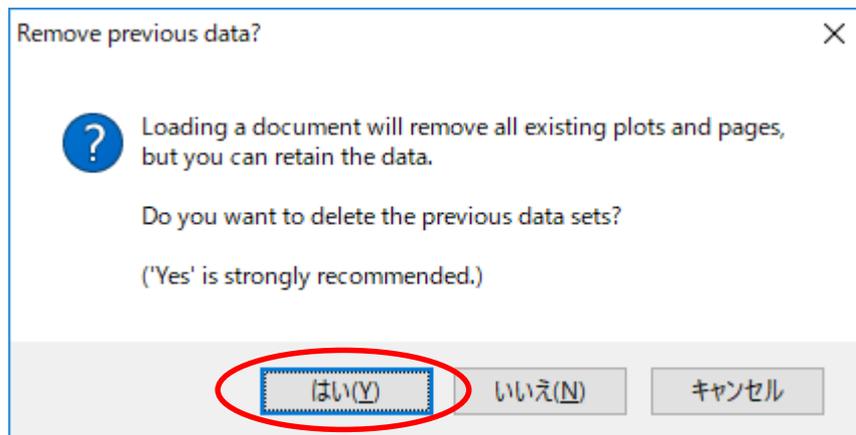
Metadata DB for Upper Atmosphere

How to Use SPEDAS-GUI part2

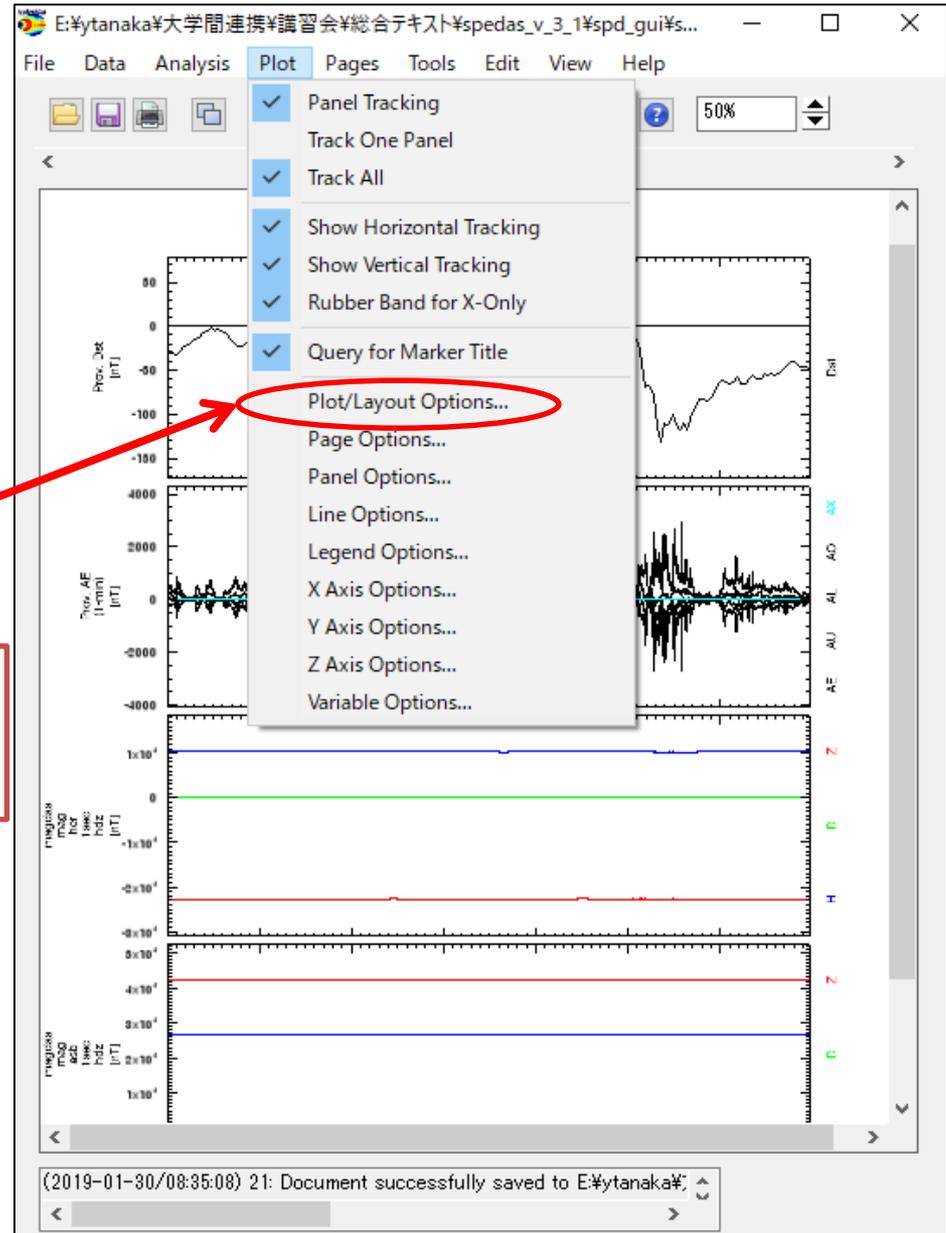
- **Restore your work**
- **Manage axis**
- **Process and data**

Restore part1 workspace

1. Exit SPEDAS
2. Run SPEDAS again
3. Select **File- Open SPEDAS Document**
4. Click **“Yes”**
5. Select the saved tgdf file.



Remove plot



1. Select
Plot – Plot/Layout Options

Plot/Layout Options

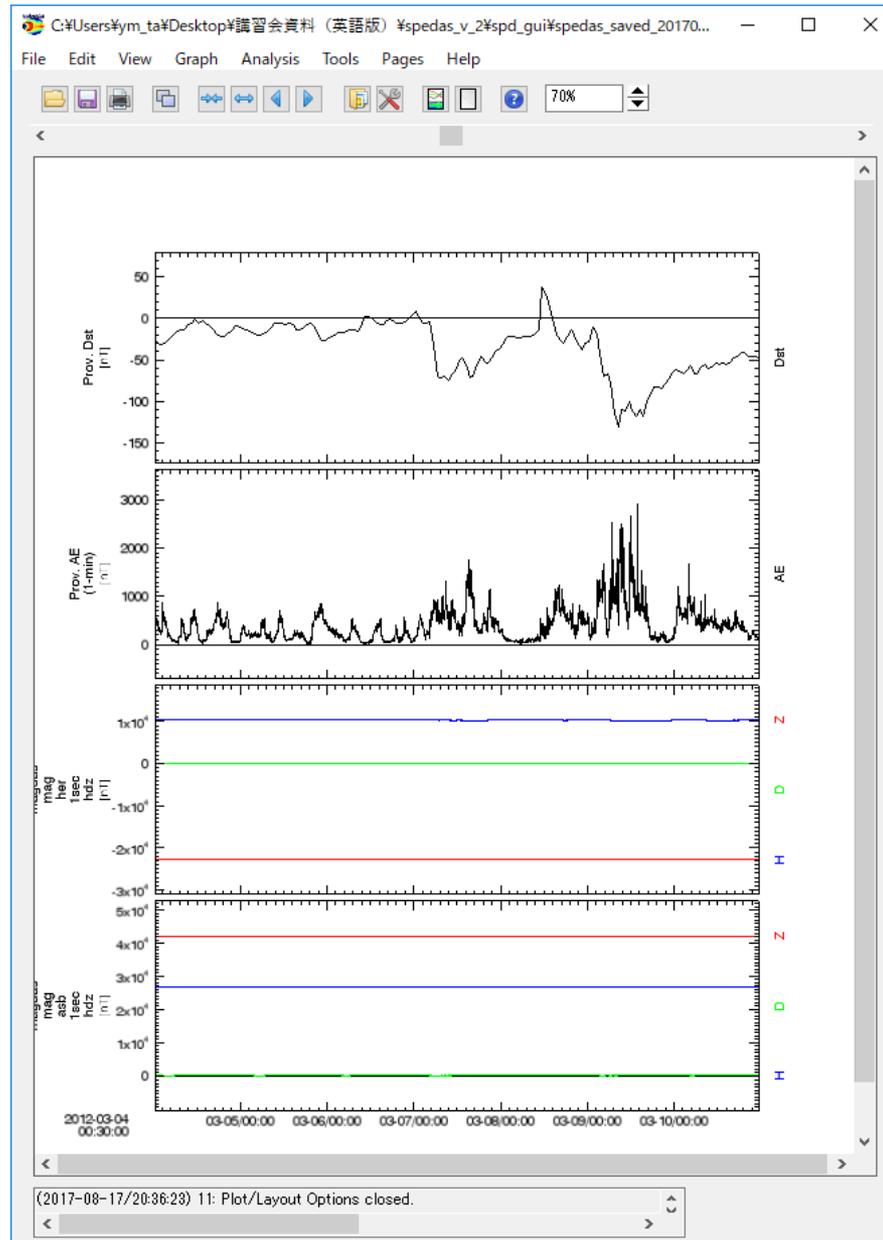
1. Select `wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_4` in the right-hand panel.

2. Click "Remove"

3. Remove `wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_3`
`wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_2`
`wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_1` in the same way

4. Click OK

Basic Operation of SPEDAS GUI



Change X range (time scale) (1)



Reduces X range
by major tick
marker



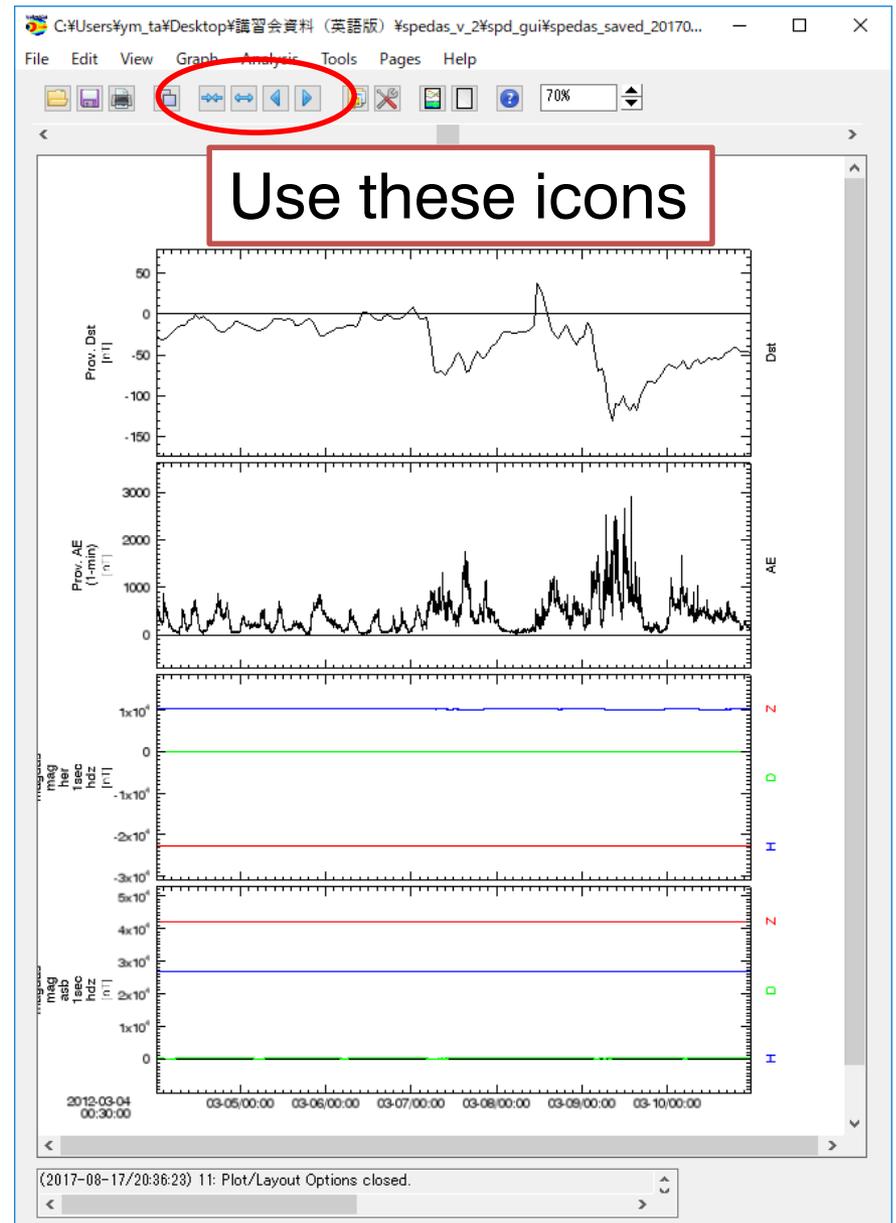
Expands X range
by major tick
marker



Shift left X range
by major tick
marker

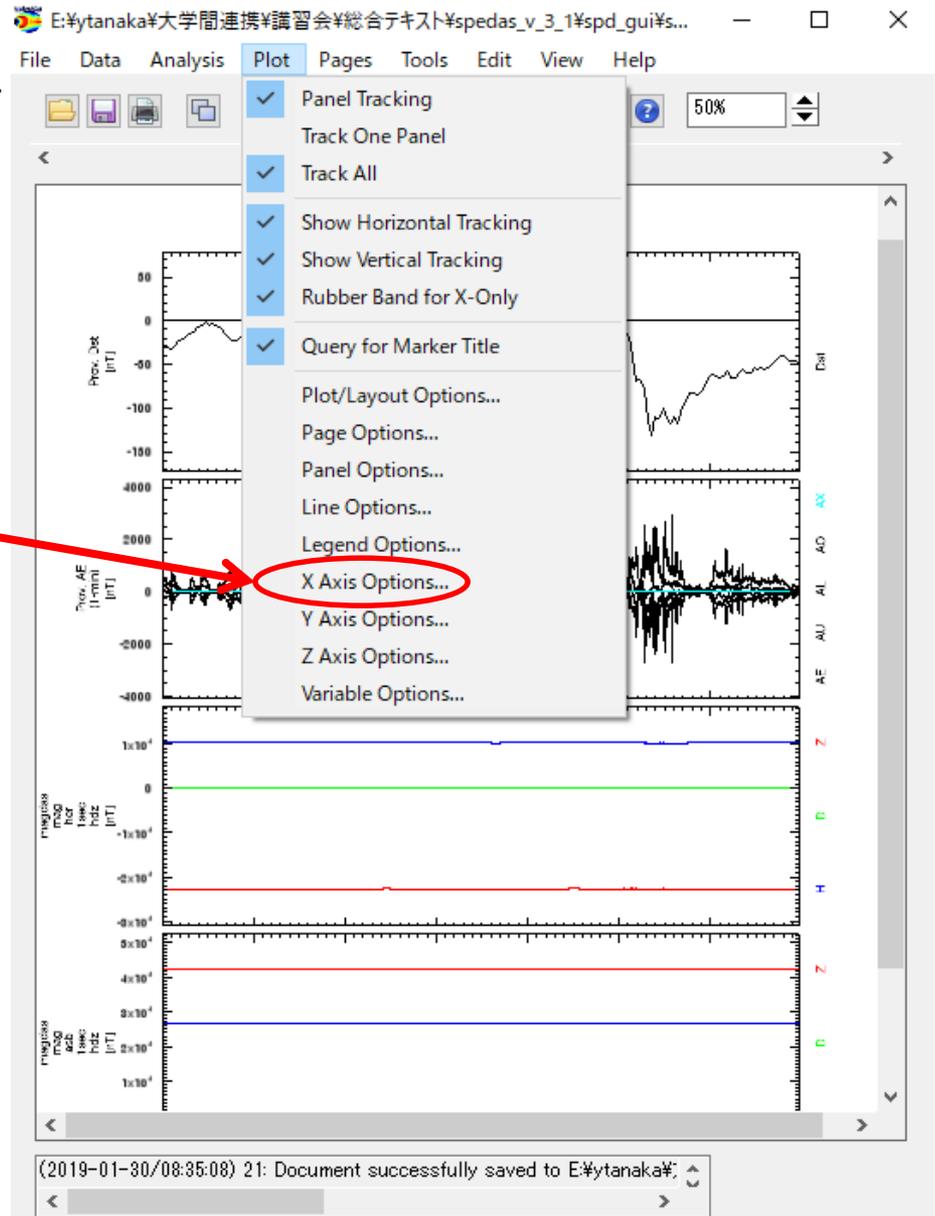


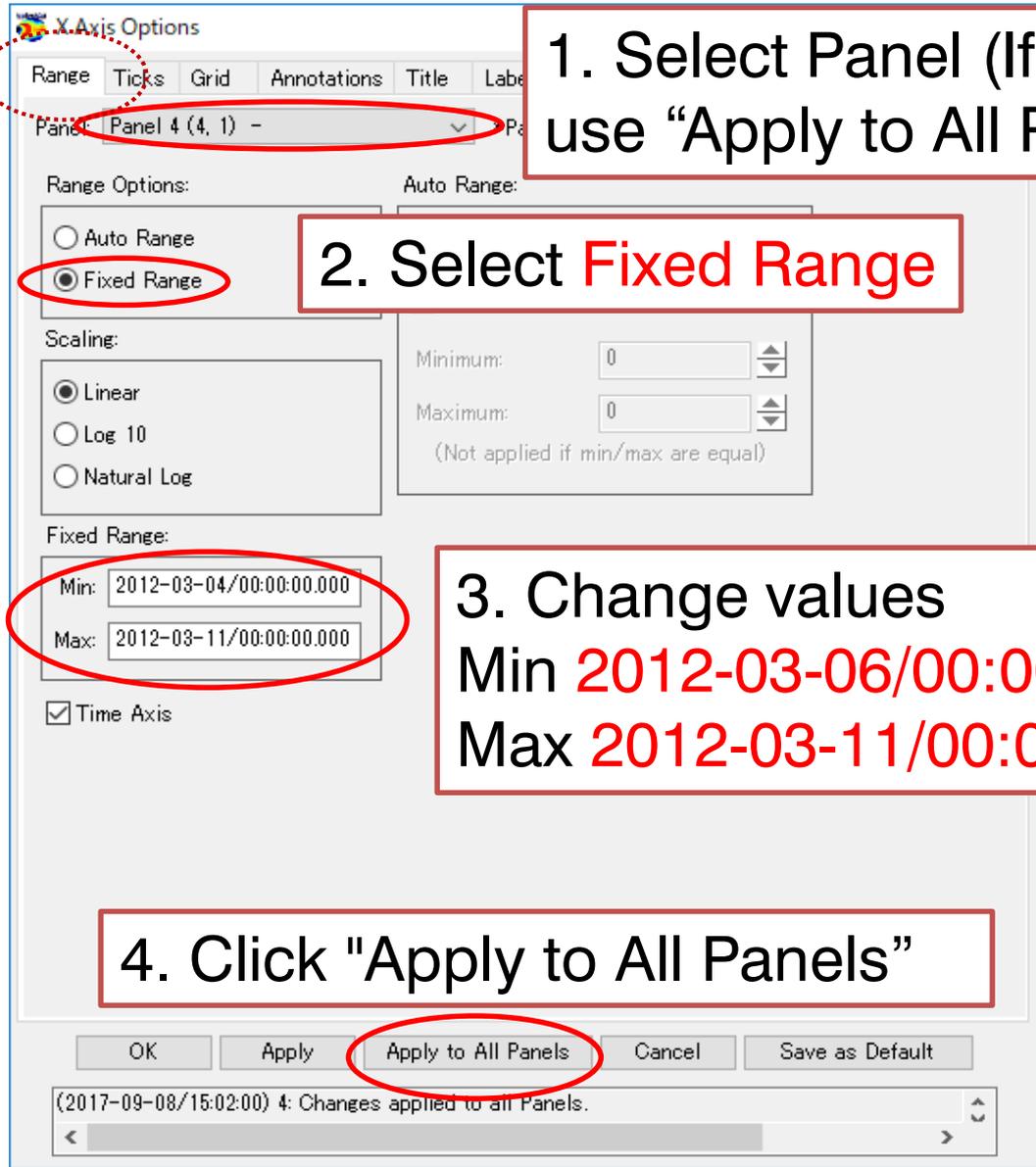
Shift right X range
by major tick
marker



Change X range (time scale) (2)

1. Select
Plot – X Axis Options





1. Select Panel (If panel is locked, use "Apply to All Panels".)

2. Select **Fixed Range**

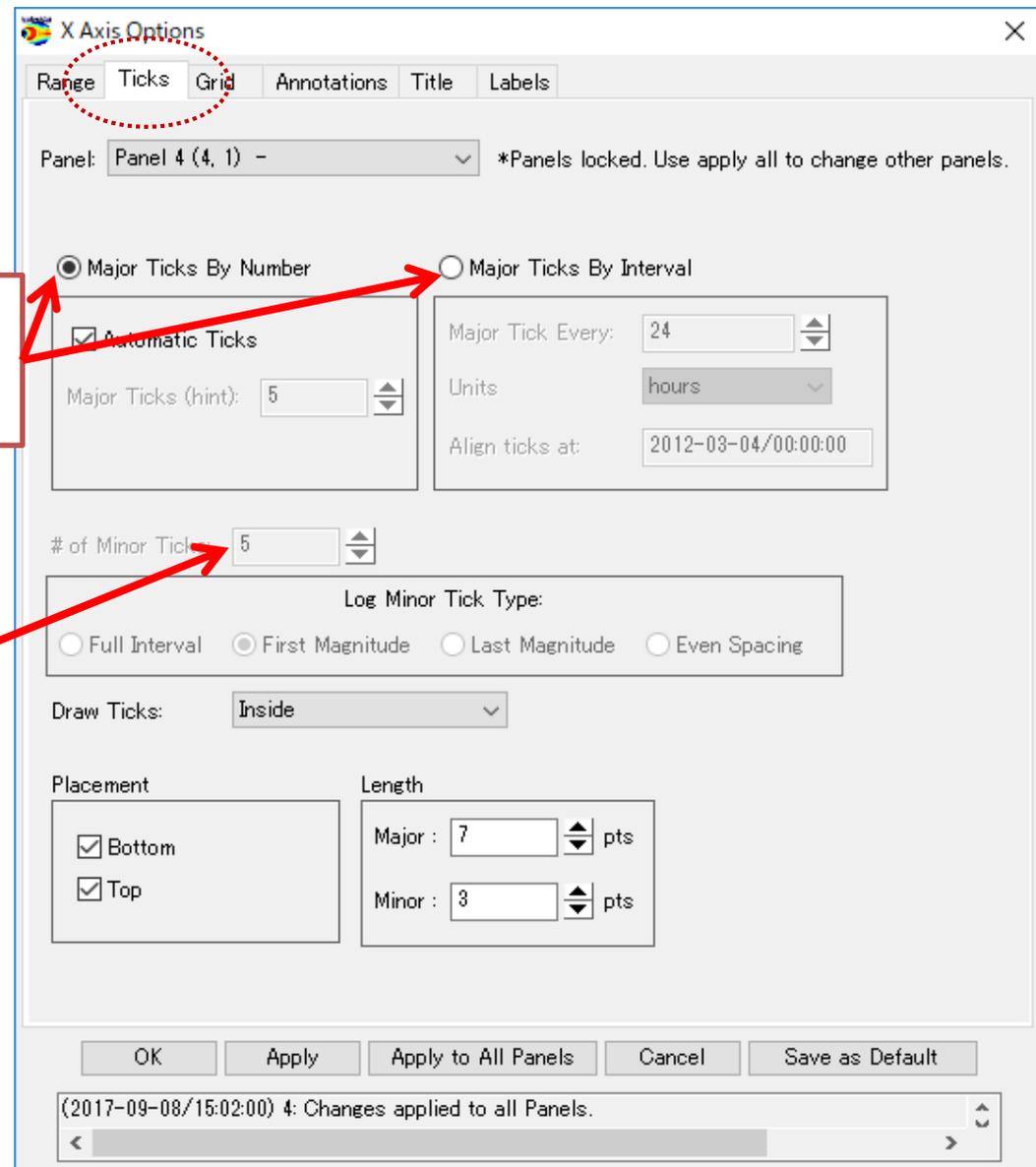
3. Change values
Min **2012-03-06/00:00:00.000**
Max **2012-03-11/00:00:00.000**

4. Click "Apply to All Panels"

Customize ticks

1. Select Major Ticks By Number or Interval.

2. Input the number into # (Number or Interval) of Minor Ticks



X Axis Options

Range Ticks Grid Annotations Title Labels

Panel: Panel 4 (4, 1) - *Panels locked. Use apply all to change other panels.

Major Ticks By Number
 Major Ticks By Interval

Automatic Ticks

Major Ticks (hint): 5

Major Tick Every: 24

Units: hours

Align ticks at: 2012-03-04/00:00:00

of Minor Ticks: 5

Log Minor Tick Type:

Full Interval
 First Magnitude
 Last Magnitude
 Even Spacing

Draw Ticks: Inside

Placement

Bottom
 Top

Length

Major: 7 pts

Minor: 3 pts

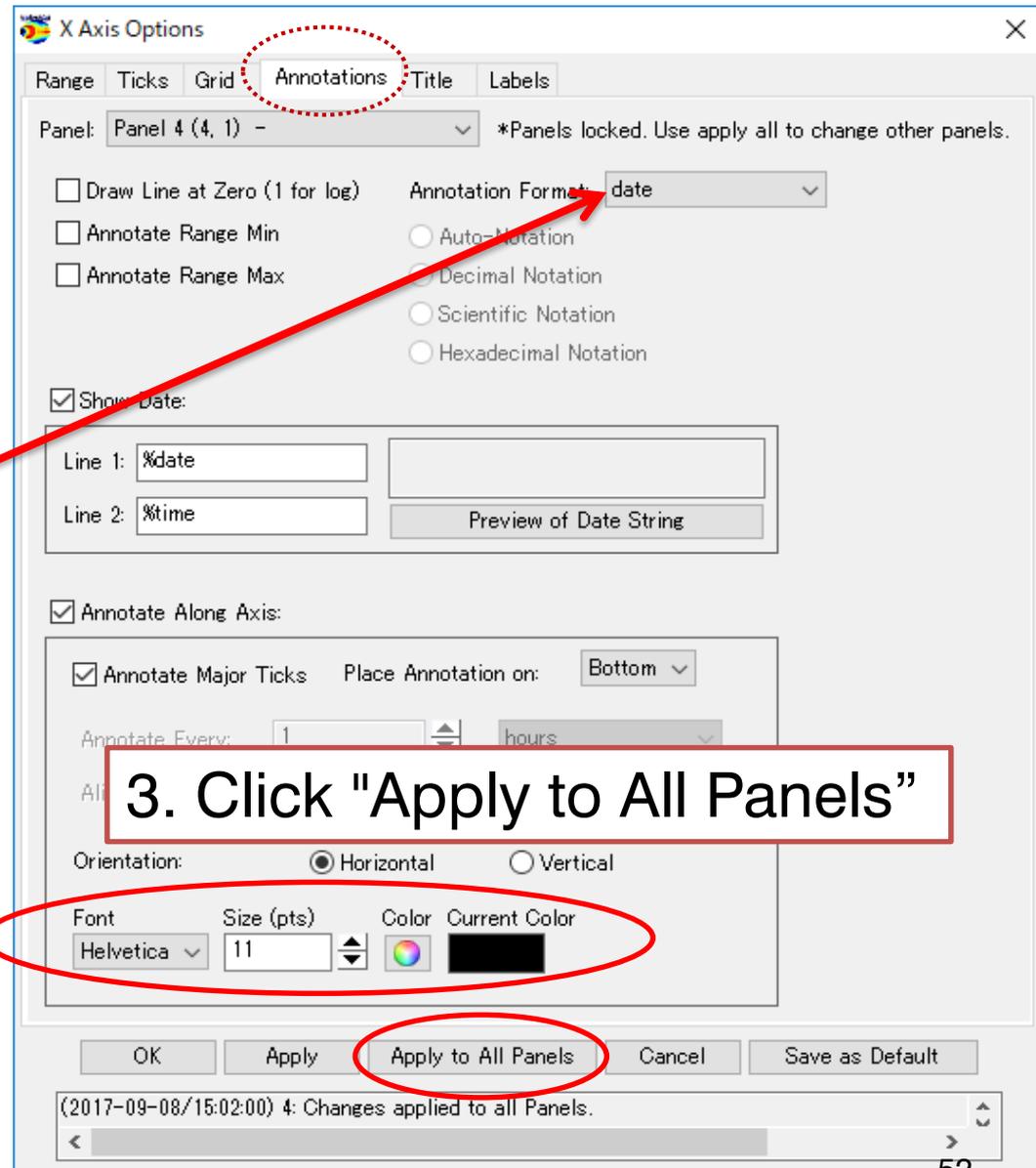
OK Apply Apply to All Panels Cancel Save as Default

(2017-09-08/15:02:00) 4: Changes applied to all Panels.

Change annotations

1. Select your favorite format in the pull-down menu of Annotation Format.

2. If you want to change the character font, size, and color, select your favorite format in the pull-down menu here.



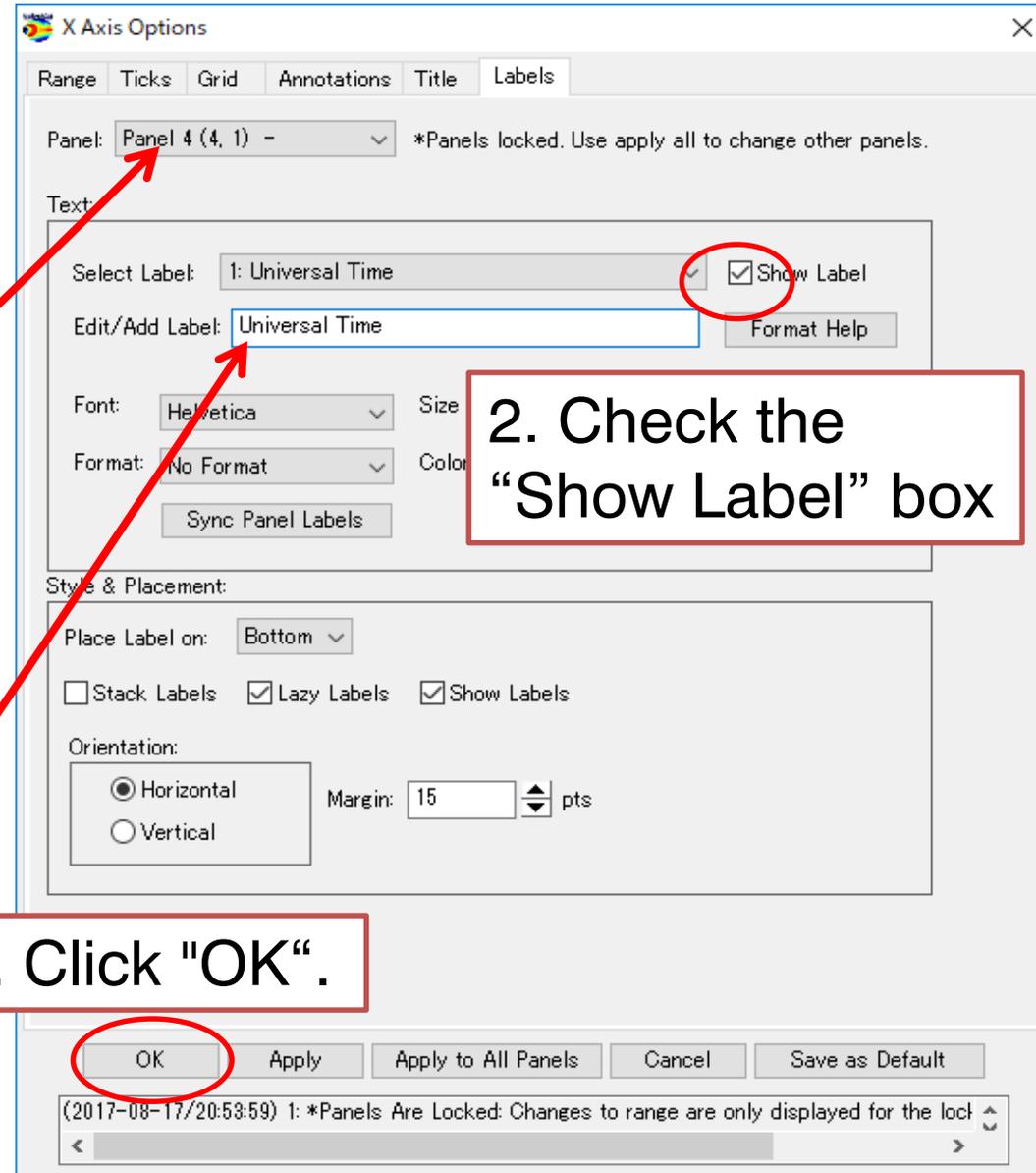
3. Click "Apply to All Panels"

Customize labels (of X axis)

1. Select Panel 4
(bottom panel)

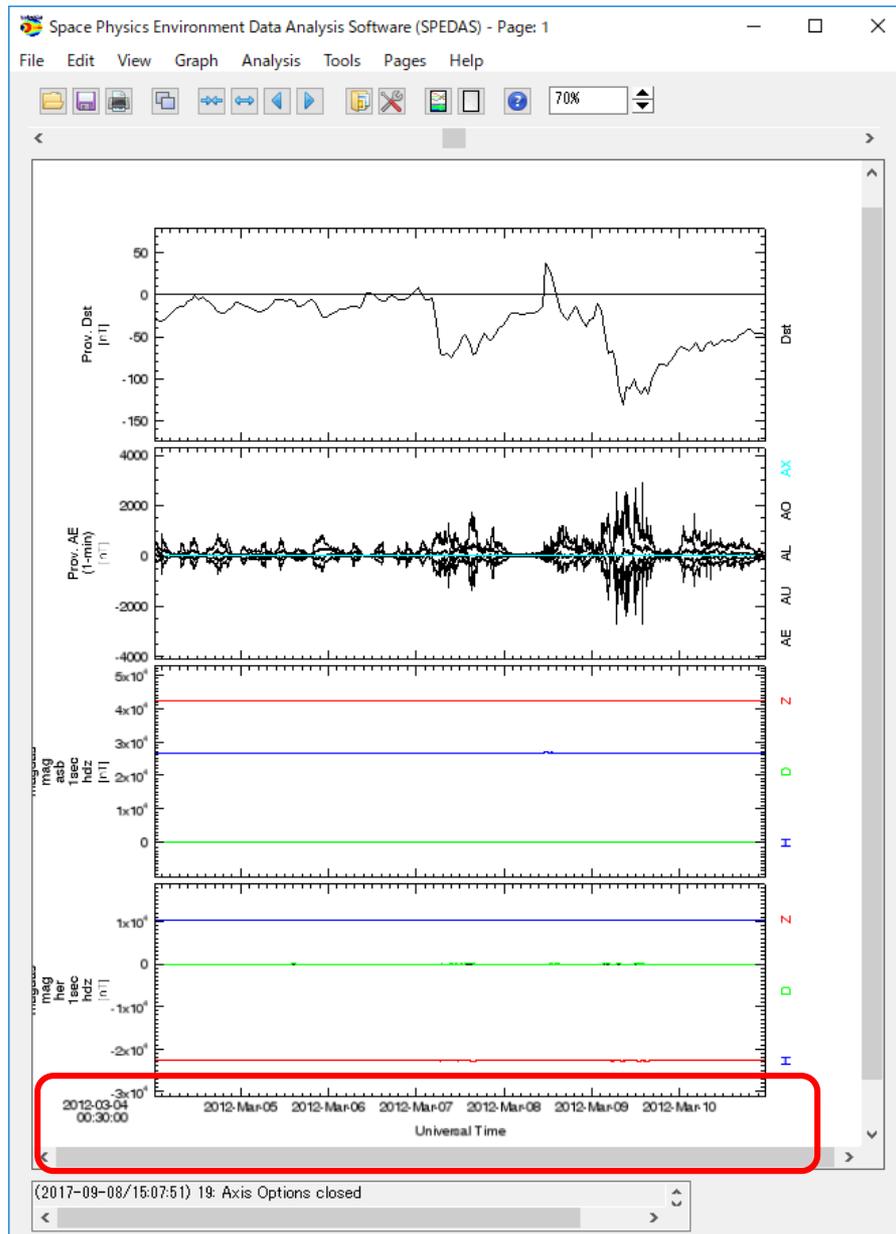
3. Type "Universal
Time " on the Edit/Add
Label

4. Click "OK".



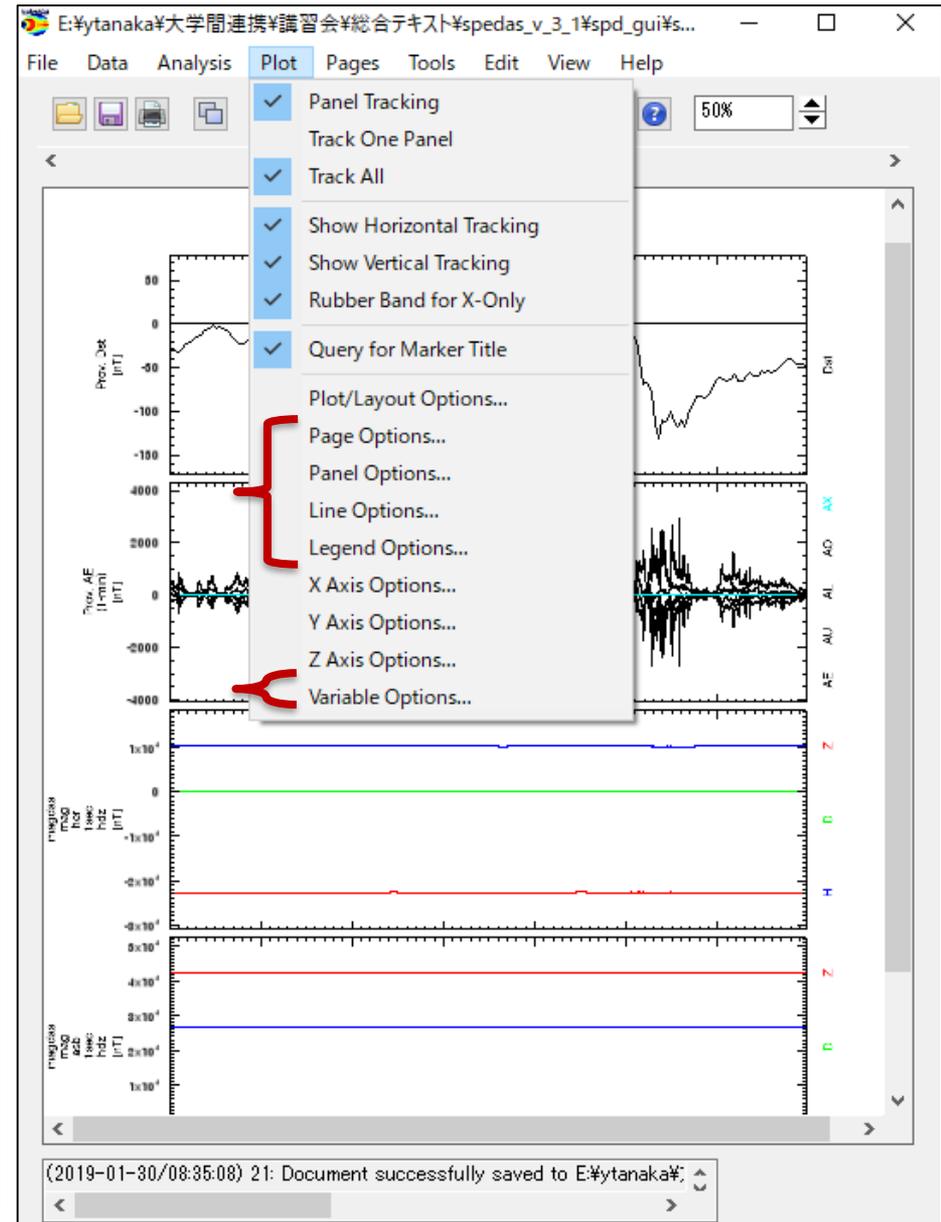
2. Check the
"Show Label" box

Basic Operation of SPEDAS GUI



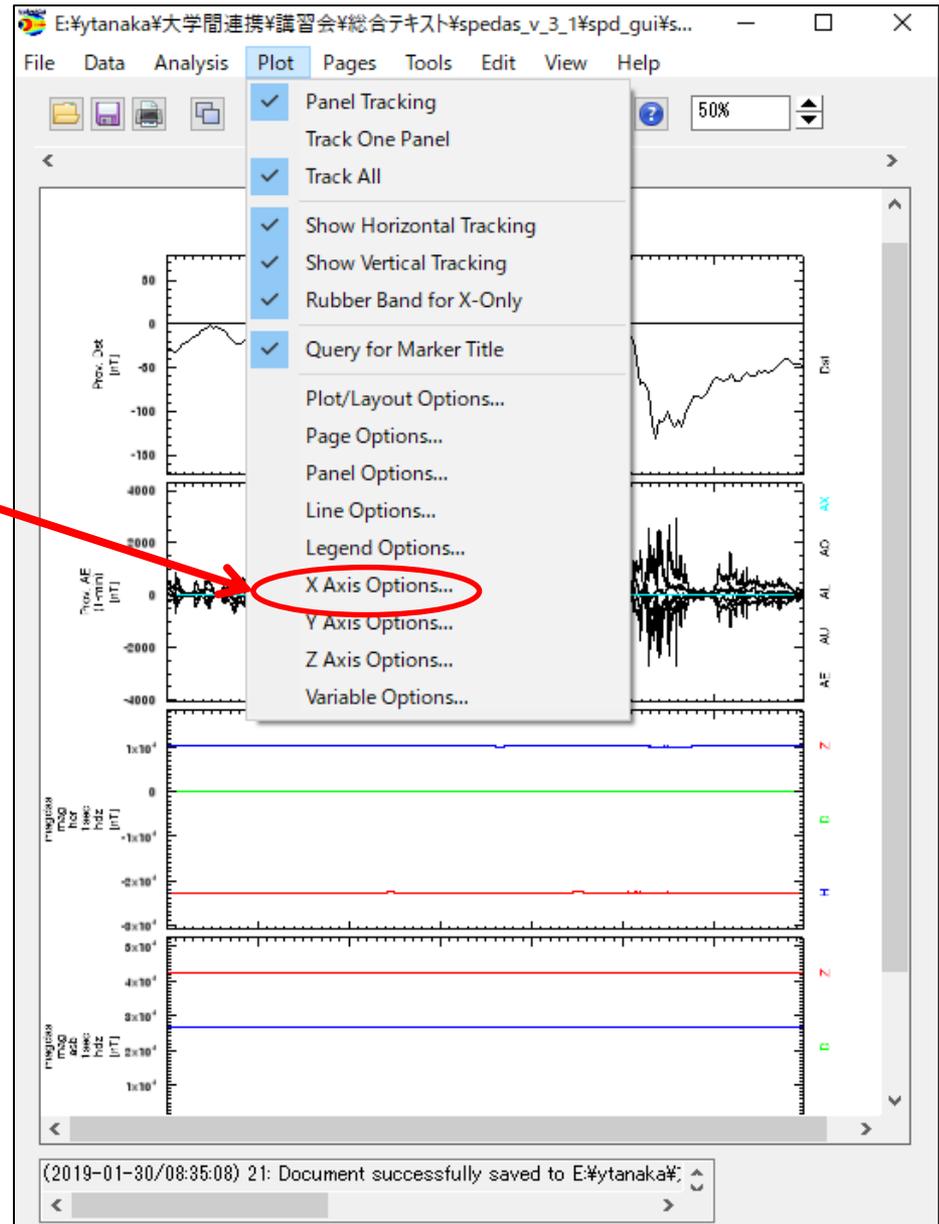
Other options

- **Page Options...**
Customize the text and layout of the page.
- **Panel Options...**
Customize the title and color of each panel.
- **Line Options...**
Customize the line and symbol of each plot panel.
- **Legend Options...**
Customize the legend which appears when you put the mouse cursor on the plot.
- **Variable Options...**
Display the values of the selected parameters under the time label.



Reset X range (time scale)

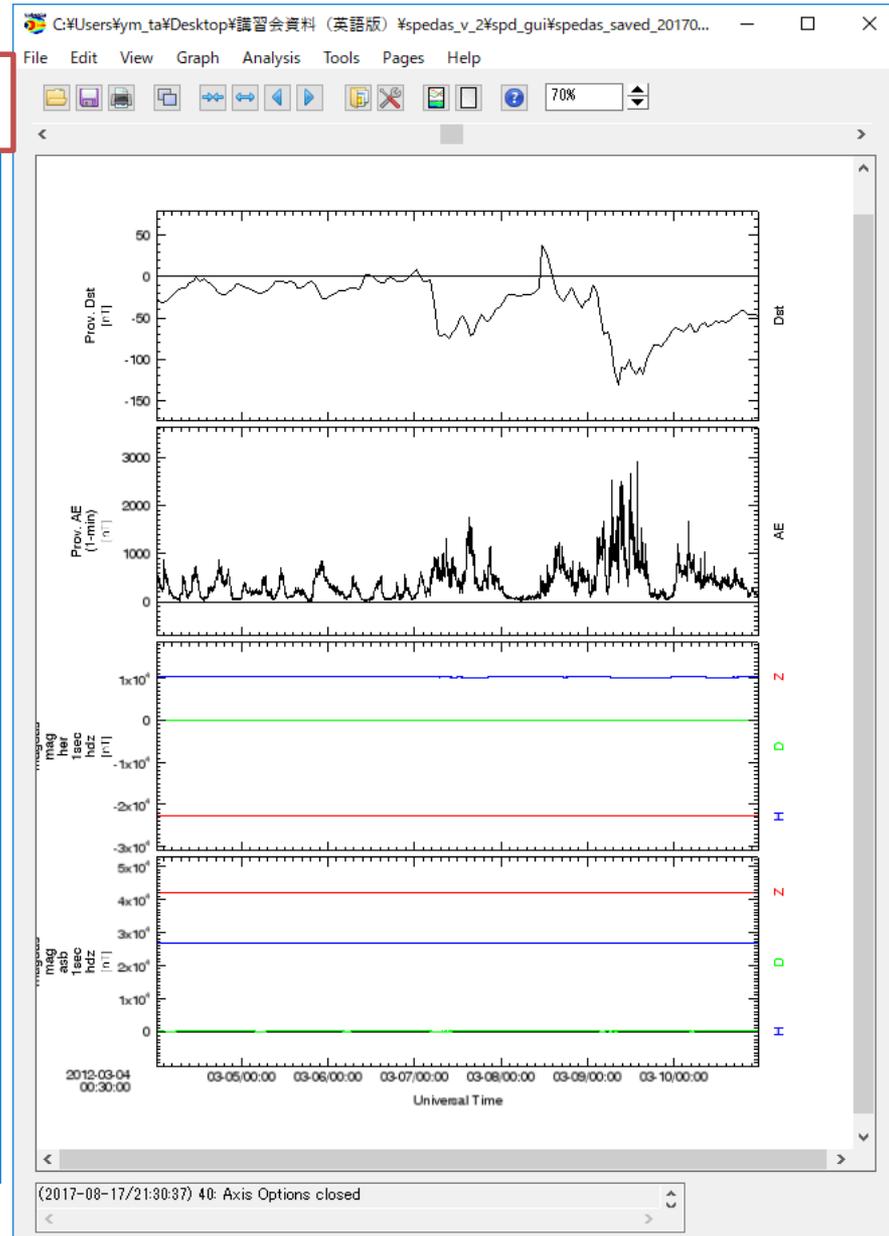
1. Select X Axis Options



1. Select (L) Panel 1 (1, 1) -

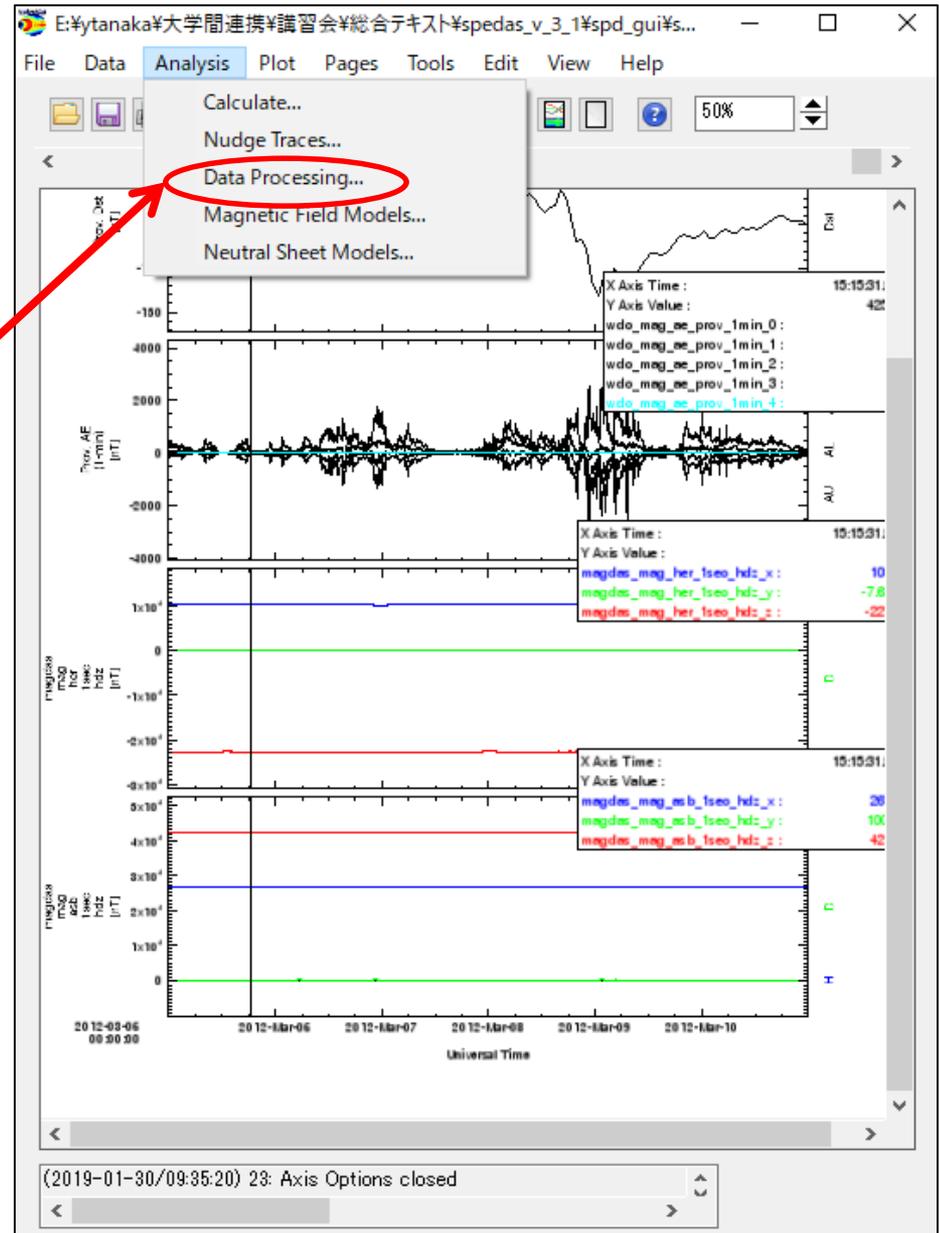
2. Select Auto Range

3. Click "OK"



Data processing (subtract average)

1. Select
Analysis – Data Processing



4. Click Subtract Average

1. Select data you want to process
magdas_mag_asb_1sec_hdz
magdas_mag_her_1sec_hdz

2. Click right arrow

3. Active Data are added

4. Click Subtract Average

Loaded Data

- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/
 - ae
 - wdc_mag_ae_pr
 - geomagnetic_field_flux
 - asb
 - magdas_mag_asb_1sec_f [2012-1
 - magdas_mag_asb_1sec_hdz [201
 - her
 - magdas_mag_her_1sec_f [2012-0
 - magdas_mag_her_1sec_hdz [201

Active Data

- magdas_mag_asb_1sec_hdz: 2012-03-04/00:00:00 to 201
- magdas_mag_her_1sec_hdz: 2012-03-04/00:00:00 to 201

Subtract Average

Subtract Median

Smooth Data...

High Pass filter...

Block Average...

Clip...

Deflag...

Degap...

Interpolate...

Clean Spikes...

Time Derivative...

Wavelet Transform...

Power Spectrum...

Coordinate Transform...

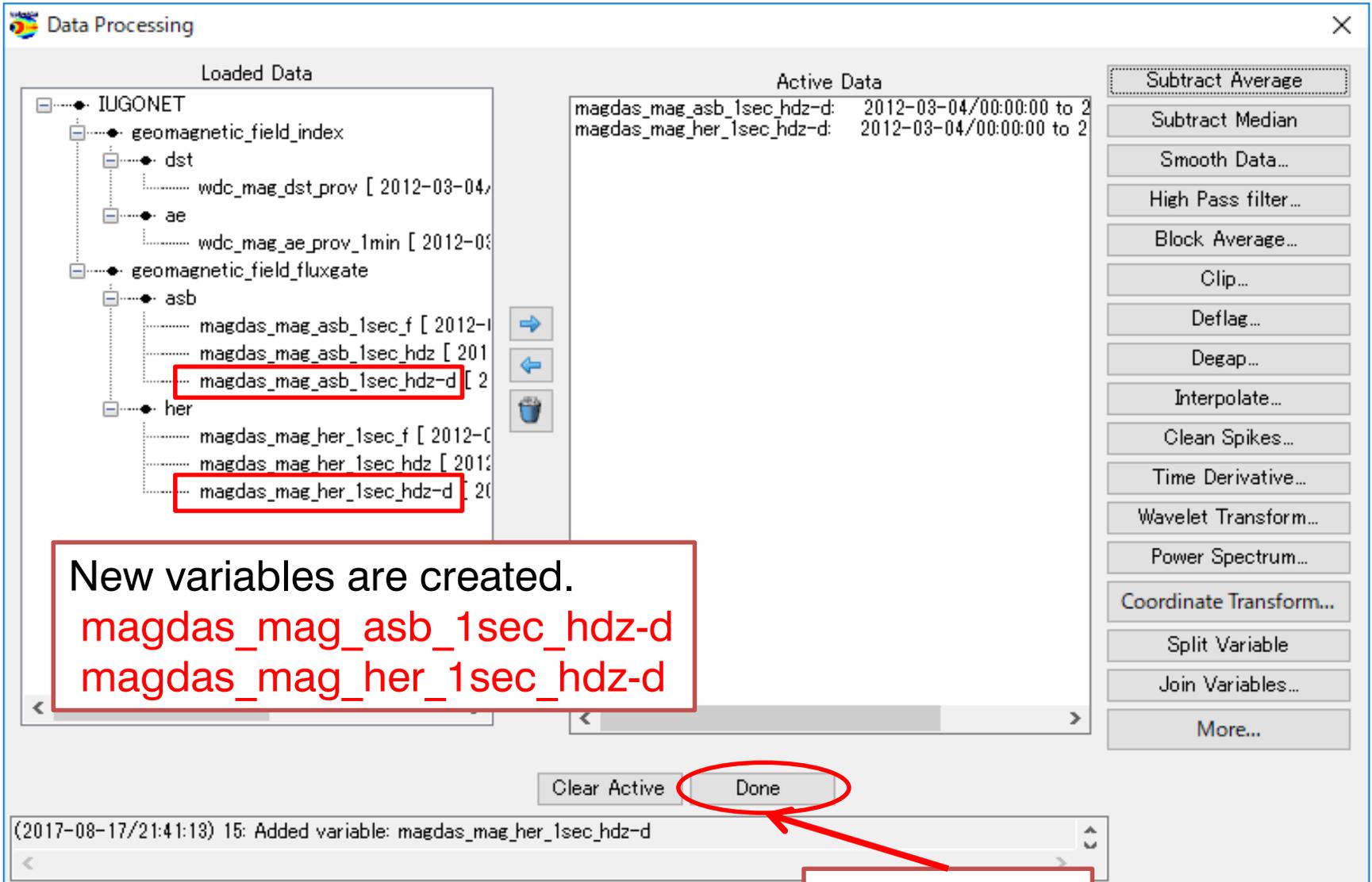
Split Variable

Join Variables...

More...

Clear Active Done

(2017-08-17/21:40:49) 13: Variables set to active: magdas_mag_asb_1sec_hdz,magdas_mag_her_1sec_hdz



Loaded Data

- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - ae
 - wdc_mag_ae_prov_1min [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - geomagnetic_field_fluxgate
 - asb
 - magdas_mag_asb_1sec_f [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_asb_1sec_hdz [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_asb_1sec_hdz-d [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - her
 - magdas_mag_her_1sec_f [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz-d [2012-03-04/00:00:00 to 2012-03-04/00:00:00]

Active Data

- magdas_mag_asb_1sec_hdz-d: 2012-03-04/00:00:00 to 2012-03-04/00:00:00
- magdas_mag_her_1sec_hdz-d: 2012-03-04/00:00:00 to 2012-03-04/00:00:00

Buttons: Subtract Average, Subtract Median, Smooth Data..., High Pass filter..., Block Average..., Clip..., Deflag..., Degap..., Interpolate..., Clean Spikes..., Time Derivative..., Wavelet Transform..., Power Spectrum..., Coordinate Transform..., Split Variable, Join Variables..., More...

Buttons: Clear Active, Done

Status Bar: (2017-08-17/21:41:13) 15: Added variable: magdas_mag_her_1sec_hdz-d

New variables are created.

magdas_mag_asb_1sec_hdz-d
magdas_mag_her_1sec_hdz-d

1. Click Done

Open "Plot/Layout Options"

Show Data Components Automatic Panels

- CREATE PLOTS -

Dependent Variable

- IUGONET
 - geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:30:00 to 2012-03-04/00:30:00]
 - ae
 - wdc_mag_ae_prov_1min [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - geomagnetic_field_fluxgate
 - asb
 - magdas_mag_asb_1sec_f [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_asb_1sec_hdz [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_asb_1sec_hdz-d [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - her
 - magdas_mag_her_1sec_f [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz-d [2012-03-04/00:00:00 to 2012-03-04/00:00:00]

3. Click line

Line ->

2. Select magdas_mag_her_1sec_hdz-d

1. Remove Panel 3 and 4

Panels

Add

Remove

Edit

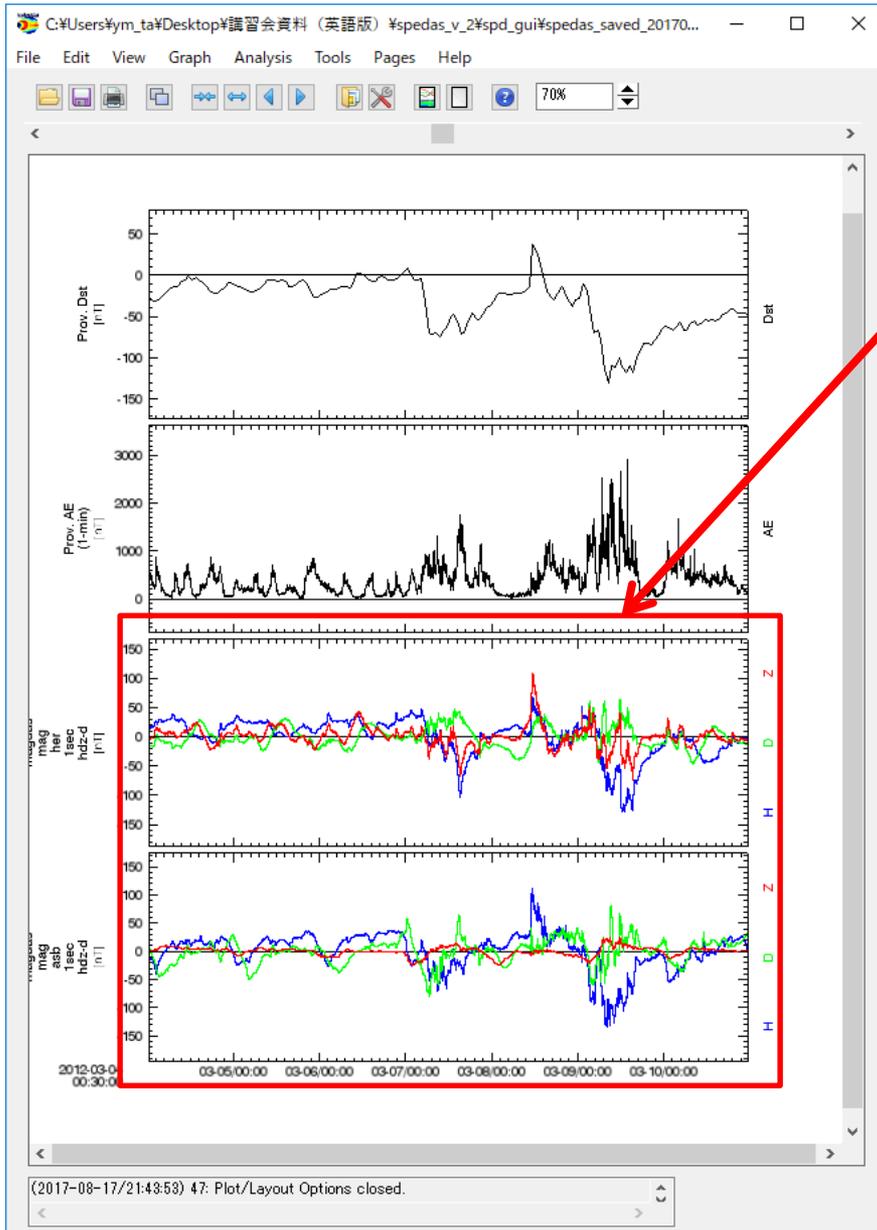
```
(L) Panel 1 (1, 1) -  
- wdc_mag_dst_prov_time -vs- wdc_mag_dst_prov_data  
Panel 2 (2, 1) -  
- wdc_mag_ae_prov_1min_time -vs- wdc_mag_ae_prov_1min_0  
Panel 3 (3, 1) -  
- magdas_mag_her_1sec_hdz-d time -vs- magdas_mag_her_1sec_hdz-d  
- magdas_mag_her_1sec_hdz-d time -vs- magdas_mag_her_1sec_hdz-d  
- magdas_mag_her_1sec_hdz-d time -vs- magdas_mag_her_1sec_hdz-d
```

4. Data are added

5. Then, add the other variable, magdas_mag_asb_1sec_hdz-d to panel in the same way.

OK

6. Click OK



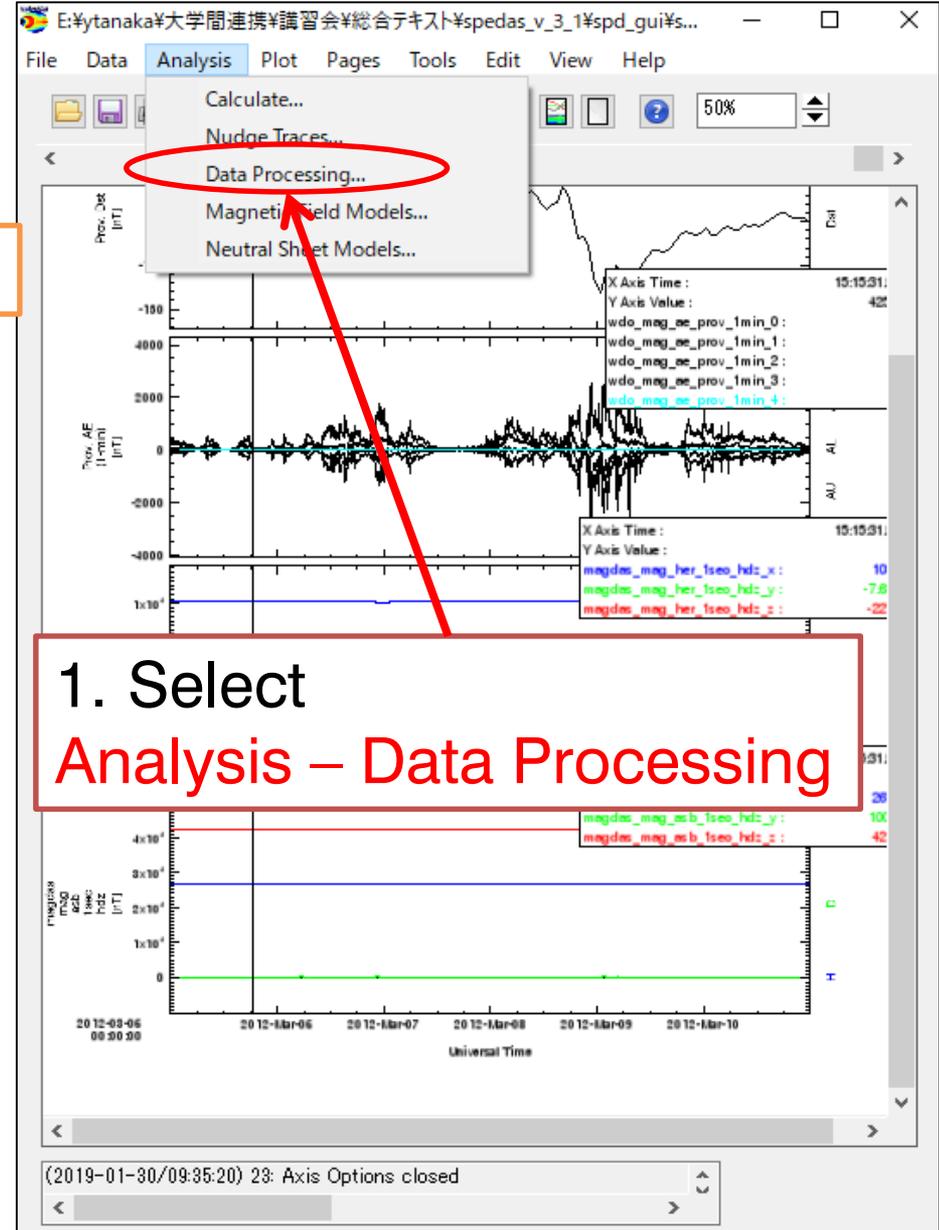
Subtracted average!

Data processing (power spectrum)

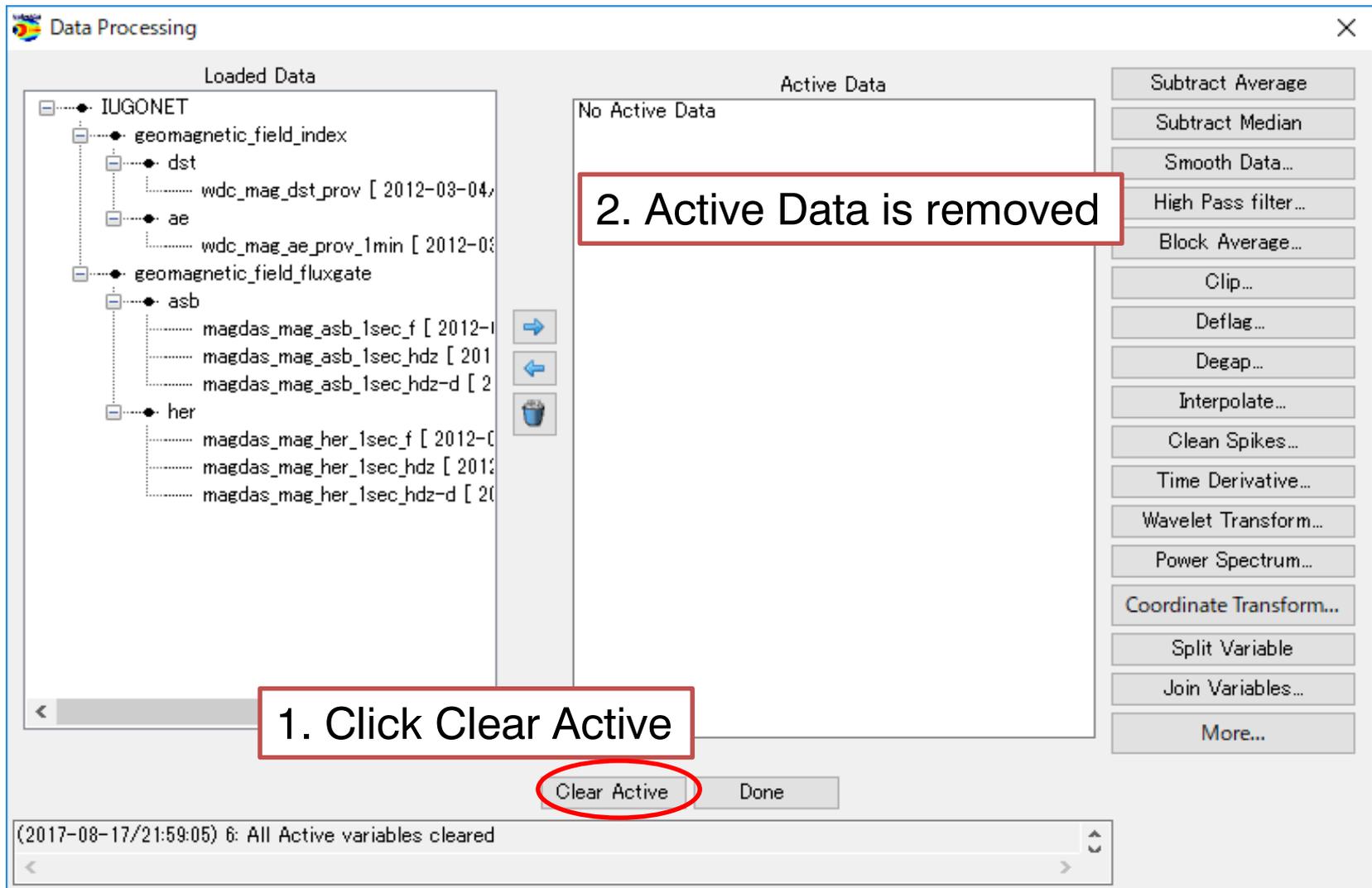
magdas_mag_her_1sec_hdz_x

Hint1: Use “Data Processing” for calculating (if you will get an option dialog, use default value)

Hint2: Use “Spec” for plotting



The screenshot shows the SPEDAS GUI with the 'Analysis' menu open. The 'Data Processing...' option is circled in red. A red arrow points from this option to a red-bordered box containing the instruction: "1. Select Analysis – Data Processing". The background displays several plots, including a time-series plot of magnetic field data and a power spectrum plot. The status bar at the bottom indicates "(2019-01-30/09:35:20) 23: Axis Options closed".



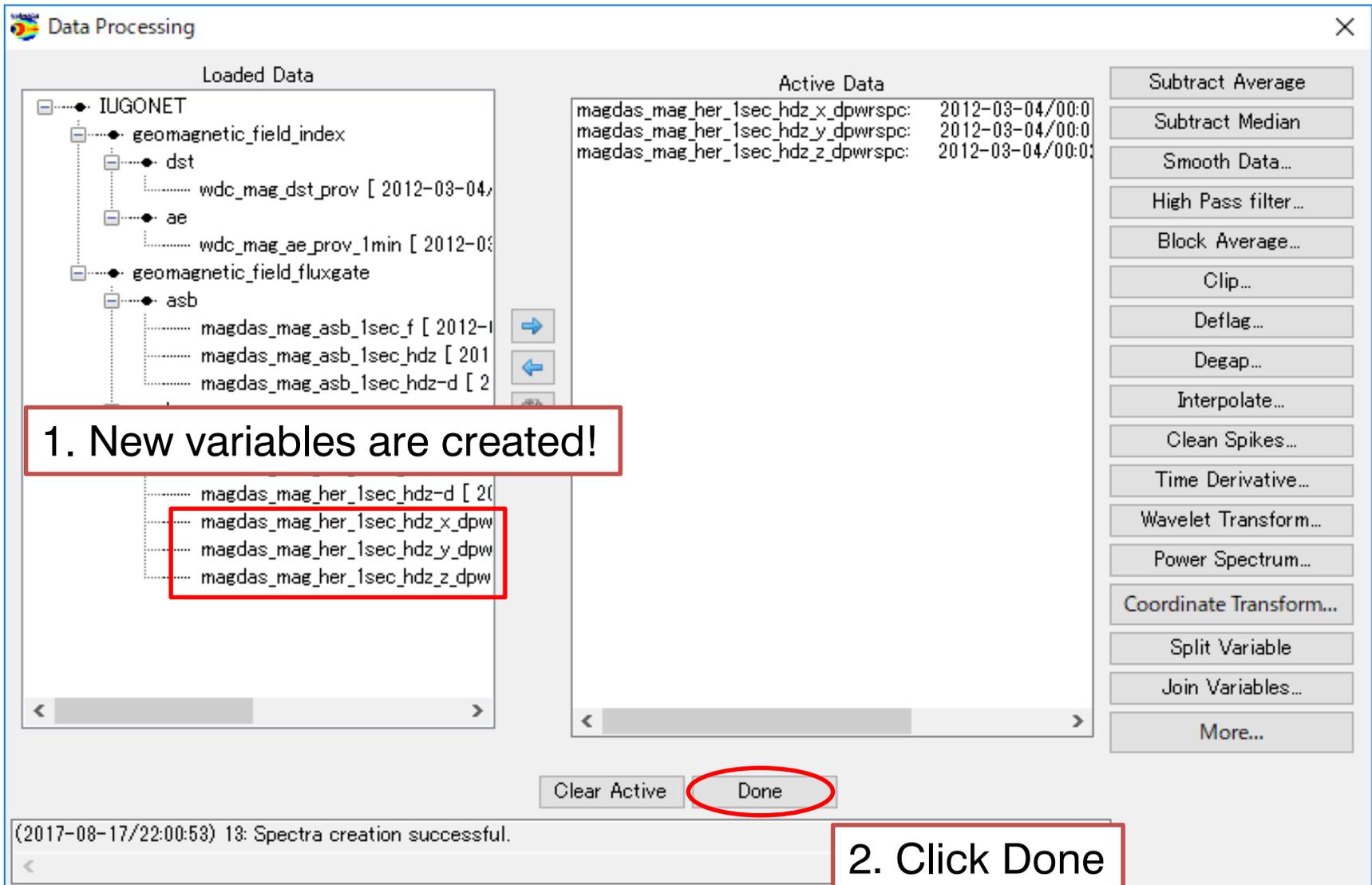
The screenshot shows the SPEDAS GUI Data Processing window. On the left, the 'Loaded Data' tree lists variables under 'IUGONET', including 'geomagnetic_field_index', 'dst', 'ae', 'geomagnetic_field_fluxgate', 'asb', and 'her'. In the center, the 'Active Data' panel is empty, displaying 'No Active Data'. A red-bordered box with the text '2. Active Data is removed' is overlaid on this panel. At the bottom, the 'Clear Active' button is circled in red, with a red-bordered box containing the text '1. Click Clear Active' pointing to it. A status bar at the bottom left shows the message '(2017-08-17/21:59:05) 6: All Active variables cleared'. On the right side, a vertical toolbar contains various processing buttons such as 'Subtract Average', 'Subtract Median', 'Smooth Data...', 'High Pass filter...', 'Block Average...', 'Clip...', 'Deflag...', 'Degap...', 'Interpolate...', 'Clean Spikes...', 'Time Derivative...', 'Wavelet Transform...', 'Power Spectrum...', 'Coordinate Transform...', 'Split Variable', 'Join Variables...', and 'More...'.

The screenshot displays the SPEDAS GUI interface with the following elements and annotations:

- 1. Select data**: A red box highlights the data item `magdas_mag_her_1sec_hdz` in the `Loaded Data` tree.
- 2. Click right arrow**: A red box highlights the right-pointing arrow button next to the selected data item.
- 3. Active Data are added**: A red box highlights the `Active Data` panel, which now contains `magdas_mag_her_1sec_hdz: 2012-03-04/00:00:00 to 201`.
- 4. Click Power Spectrum**: A red box highlights the `Power Spectrum...` button in the right-hand menu, with a red arrow pointing to it from the box.
- 5. Click OK**: A red box highlights the `OK` button in the `Power Spectra Options` dialog box, with a red arrow pointing to it from the box.

The `Power Spectra Options` dialog box includes the following settings:

- Dynamic
- Suffix: `_dpwrspc`
- Window Size: `256`
- Window Shift: `128`
- Set Time Range:
 - Start Time: `2007-03-23/00:00:00`
 - Stop Time: `2007-03-24/00:00:00`
 - Use Single Day
- Bins: `3`
- Remove NaNs From Input?
- No Line No Hanning Not Per Hz



1. New variables are created!

Variable Name	Time Range
magdas_mag_her_1sec_hdz_x_dpwrspc	2012-03-04/00:0
magdas_mag_her_1sec_hdz_y_dpwrspc	2012-03-04/00:0
magdas_mag_her_1sec_hdz_z_dpwrspc	2012-03-04/00:0

2. Click Done

(2017-08-17/22:00:53) 13: Spectra creation successful.

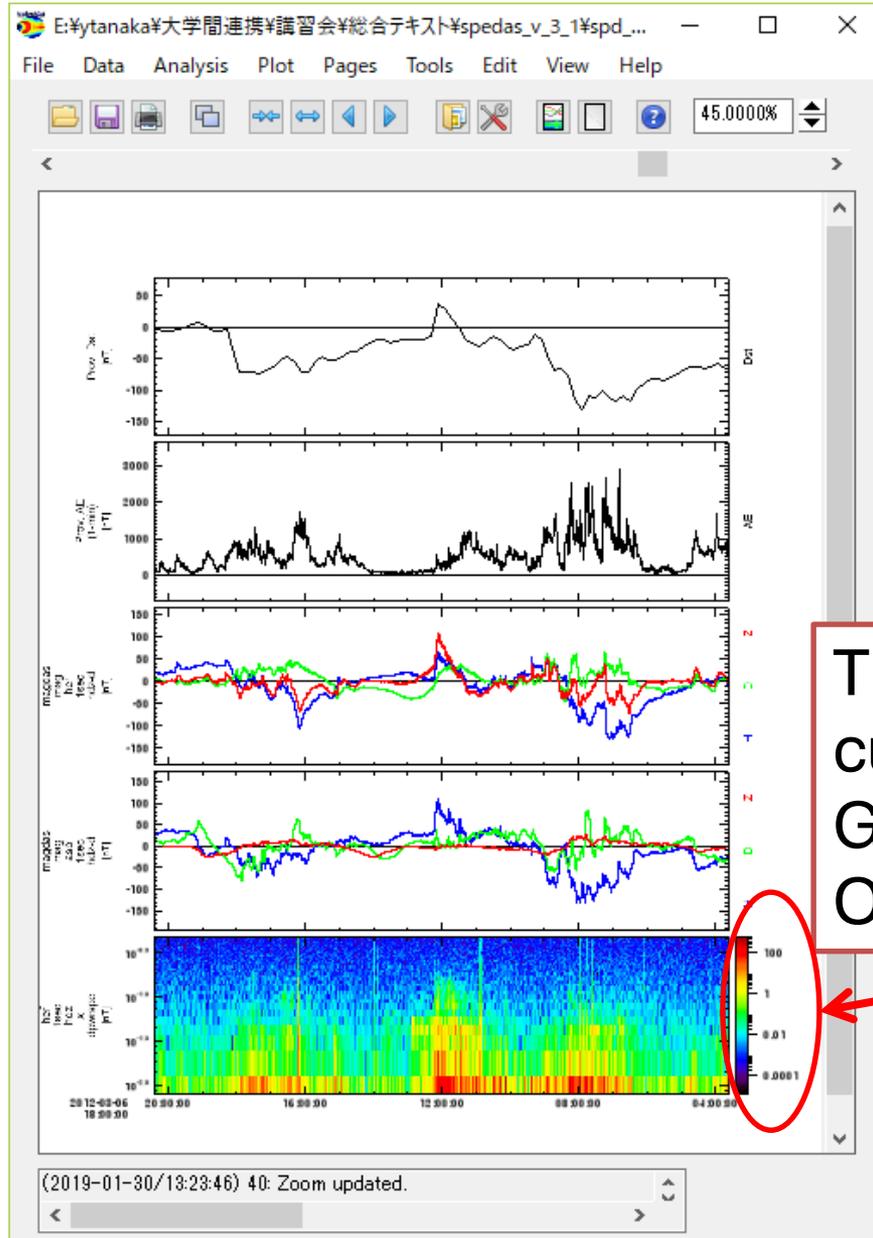
Open "Plot/Layout Options"

The screenshot shows the 'CREATE PLOTS' dialog box in the SPEDAS GUI. The interface includes a tree view of dependent variables on the left, a list of plot panels in the center, and a panel configuration sidebar on the right. Four red callout boxes with white text provide step-by-step instructions:

- 1. Select magdas_mag_her_1sec_hdz_x_dpwrspc**: Points to the selected variable in the 'Dependent Variable' tree.
- 2. Click Spec**: Points to the 'Spec ->' button at the bottom of the tree view.
- 3. Data are added**: Points to the newly added variable in the 'Panel 5 (5, 1)' list.
- 4. Click OK**: Points to the 'OK' button at the bottom of the dialog.

Additional UI elements include checkboxes for 'Show Data Components' and 'Automatic Panels', a 'Variables: Add/Edit' button, and a status bar at the bottom showing '(2017-08-17/22:01:31) 3: Add Finished.'

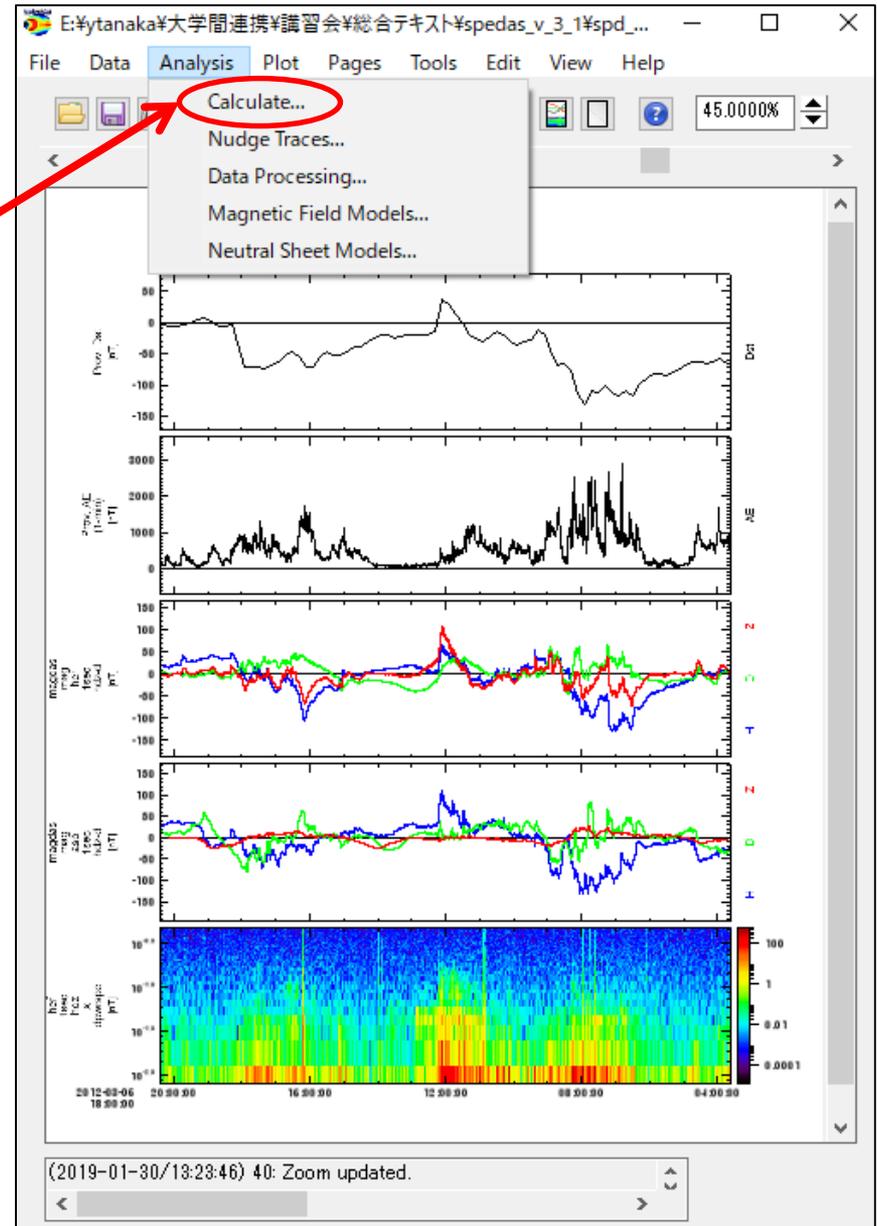
Basic Operation of SPEDAS GUI



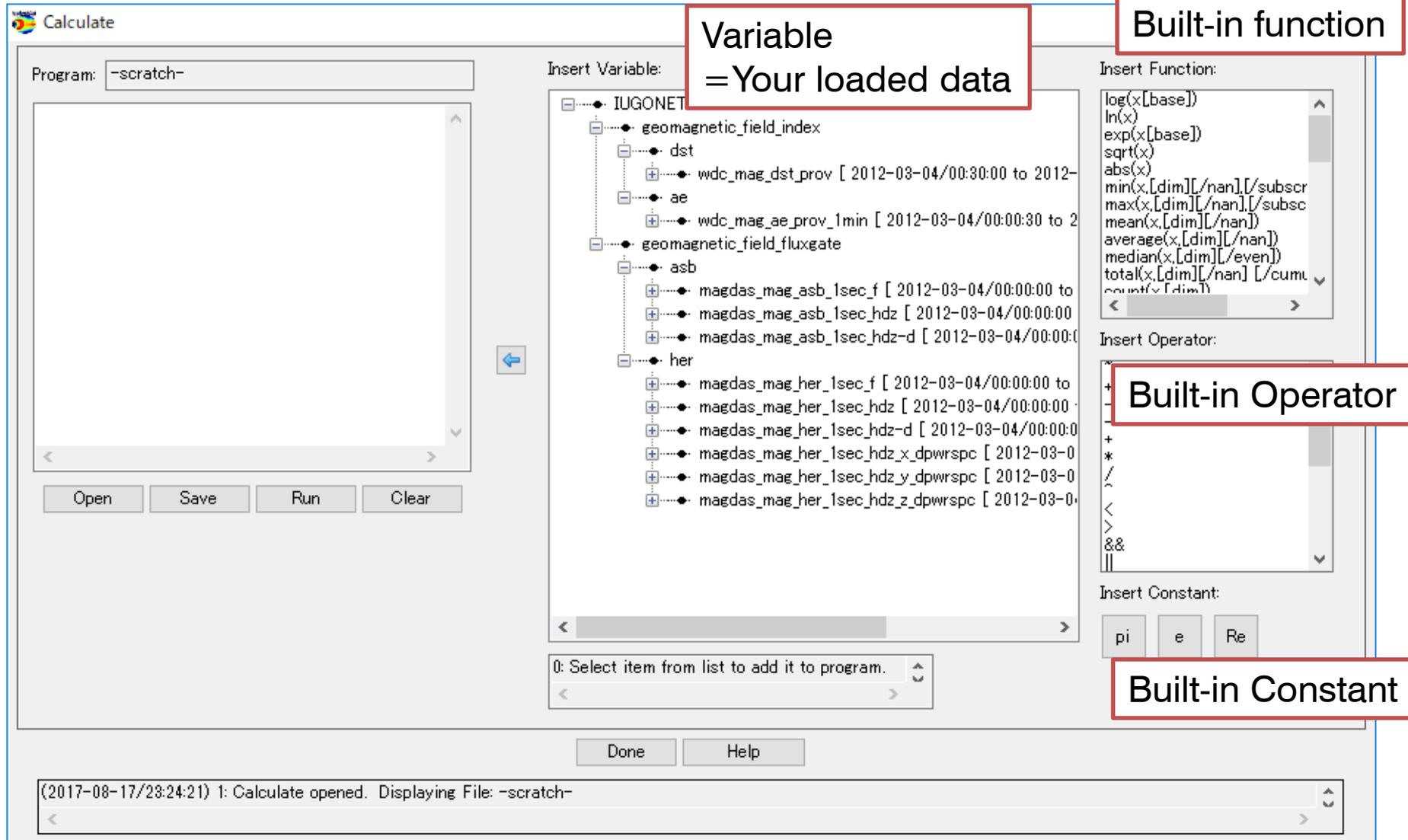
This color bar can be customized in Graph - Z Axis Options.

Calculate (Equation editor)

1. Select
Analysis – Calculate...

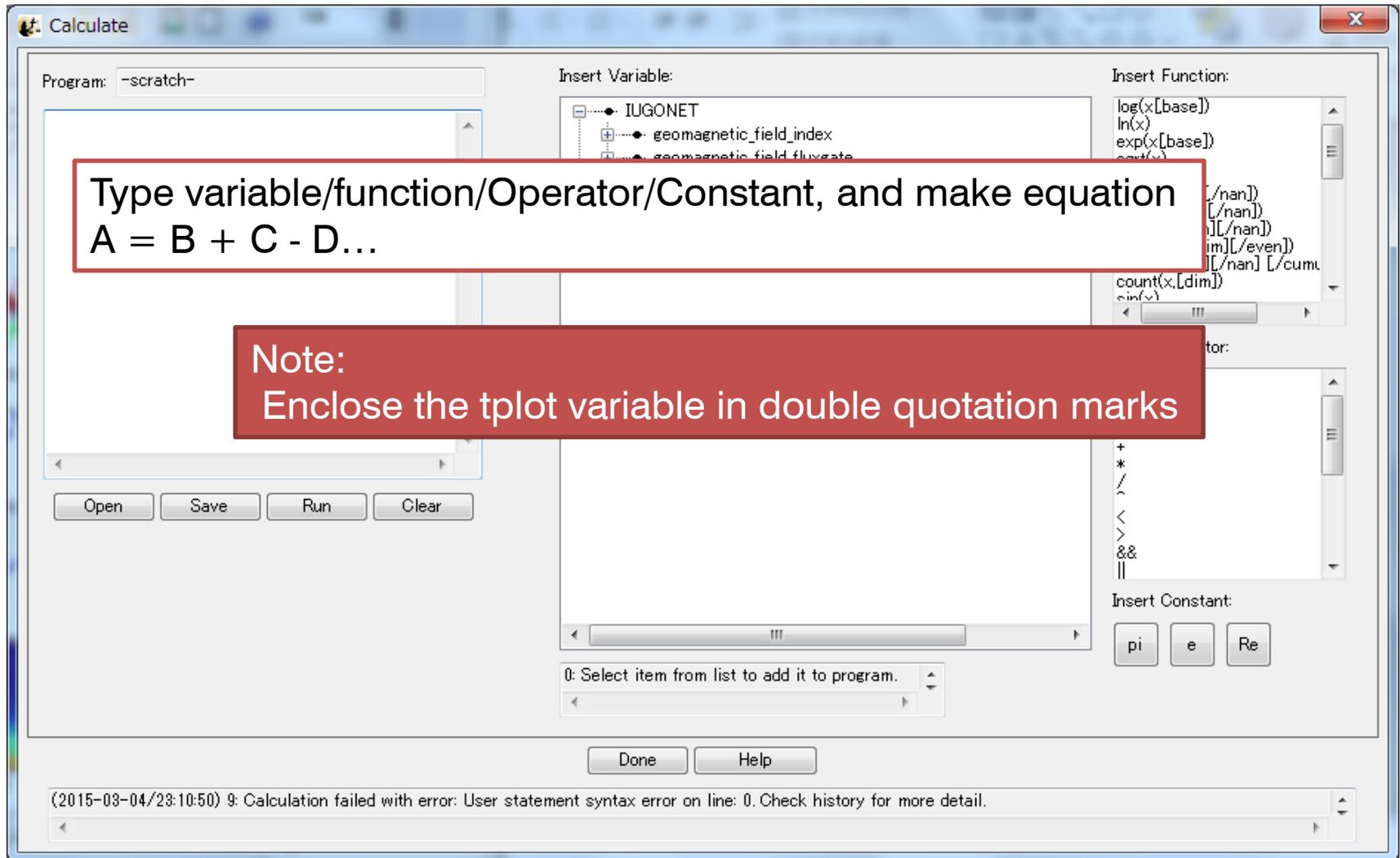


Equation Editor for SPEDAS



The screenshot displays the SPEDAS Equation Editor interface. On the left, the 'Program' field is set to '-scratch-' and contains a large empty text area for the equation. Below it are 'Open', 'Save', 'Run', and 'Clear' buttons. The central 'Insert Variable' panel shows a tree structure of data variables under the 'IUGONET' root, including 'geomagnetic_field_index', 'dst', 'wdc_mag_dst_prov', 'ae', 'wdc_mag_ae_prov_1min', 'geomagnetic_field_fluxgate', 'asb', 'magdas_mag_asb_1sec_f', 'magdas_mag_asb_1sec_hdz', 'magdas_mag_asb_1sec_hdz-d', 'her', 'magdas_mag_her_1sec_f', 'magdas_mag_her_1sec_hdz', 'magdas_mag_her_1sec_hdz-d', 'magdas_mag_her_1sec_hdz_x_dpwrspc', 'magdas_mag_her_1sec_hdz_y_dpwrspc', and 'magdas_mag_her_1sec_hdz_z_dpwrspc'. A red box highlights the text 'Variable = Your loaded data' next to this panel. The right side features an 'Insert Function' list with various mathematical functions like log, ln, exp, sqrt, abs, min, max, mean, average, median, total, and count. A red box highlights the text 'Built-in function' above this list. Below the function list is an 'Insert Operator' panel with symbols for addition, subtraction, multiplication, division, less than, greater than, and logical operations. A red box highlights the text 'Built-in Operator' above this panel. At the bottom right is an 'Insert Constant' panel with buttons for pi, e, and Re. A red box highlights the text 'Built-in Constant' above this panel. At the bottom of the window are 'Done' and 'Help' buttons. A status bar at the very bottom shows the message: '(2017-08-17/23:24:21) 1: Calculate opened. Displaying File: -scratch-'.

Make an equation using the loaded variables



The screenshot shows the 'Calculate' window in the SPEDAS GUI. The window title is 'Calculate'. It features a 'Program:' field with '-scratch-' selected. Below it is a large text area for entering equations. To the right, there are three panels: 'Insert Variable:' showing a tree view with 'IUGONET' expanded to show 'geomagnetic_field_index' and 'geomagnetic_field_fluxrate'; 'Insert Function:' listing various mathematical functions like log, ln, exp, count, and sin; and 'Insert Constant:' with buttons for pi, e, and Re. At the bottom, there are 'Open', 'Save', 'Run', and 'Clear' buttons, and a 'Done' and 'Help' button. A status bar at the very bottom displays an error message: '(2015-03-04/23:10:50) 9: Calculation failed with error: User statement syntax error on line: 0. Check history for more detail.'

Program: -scratch-

Insert Variable:

- IUGONET
 - geomagnetic_field_index
 - geomagnetic_field_fluxrate

Insert Function:

- log(x[,base])
- ln(x)
- exp(x[,base])
- count(x[,dim])
- sin(x)

Insert Constant:

- pi
- e
- Re

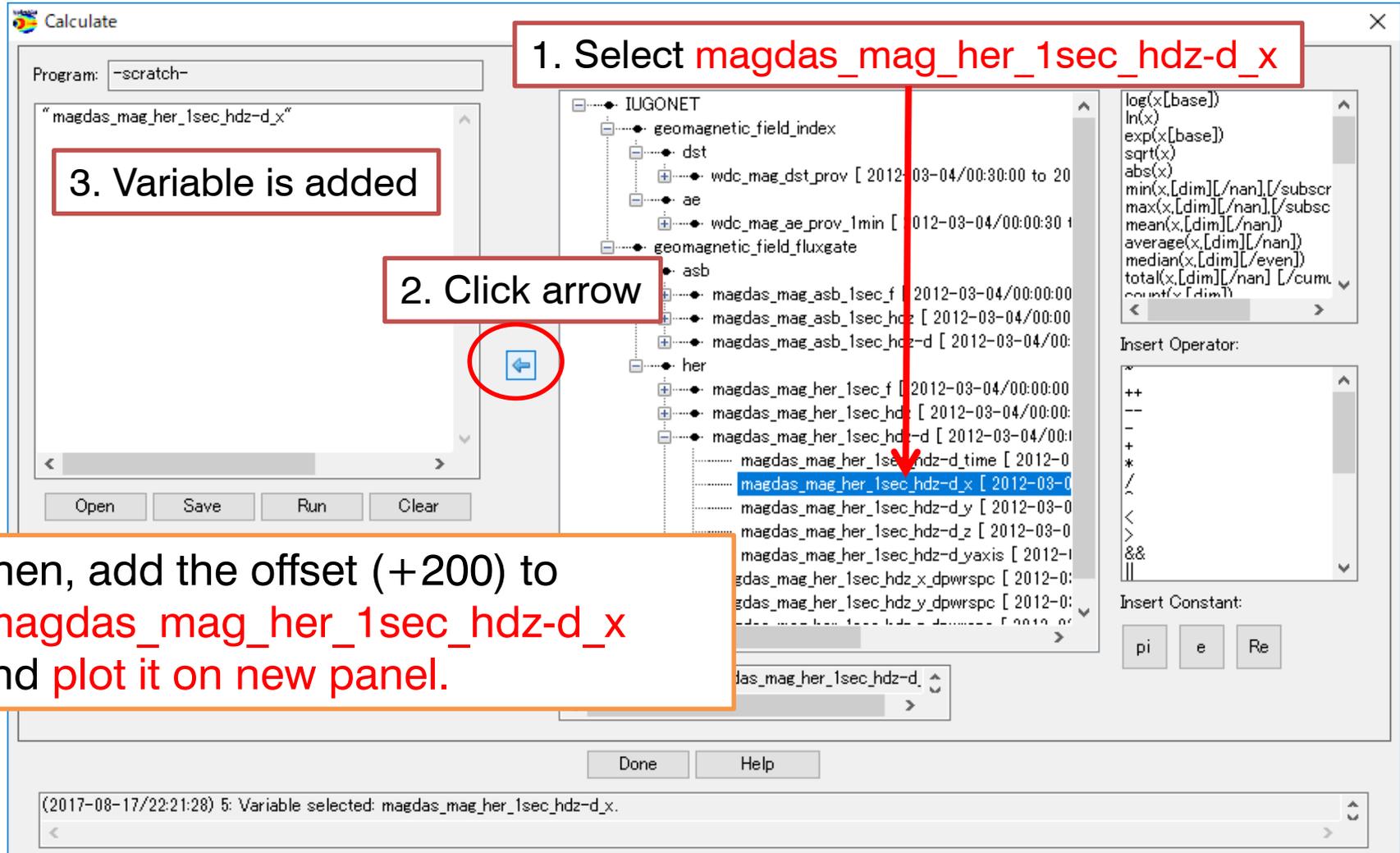
0: Select item from list to add it to program.

Done Help

(2015-03-04/23:10:50) 9: Calculation failed with error: User statement syntax error on line: 0. Check history for more detail.

Type variable/function/Operator/Constant, and make equation
 $A = B + C - D...$

Note:
Enclose the tplot variable in double quotation marks



1. Select **magdas_mag_her_1sec_hdz-d_x**

2. Click arrow

3. Variable is added

Then, add the offset (+200) to **magdas_mag_her_1sec_hdz-d_x** and plot it on new panel.

Program: -scratch-

"magdas_mag_her_1sec_hdz-d_x"

IUGONET

- geomagnetic_field_index
 - dst
 - wdc_mag_dst_prov [2012-03-04/00:30:00 to 2012-03-04/00:30:00]
 - ae
 - wdc_mag_ae_prov_1min [2012-03-04/00:00:00 to 2012-03-04/00:30:00]
 - geomagnetic_field_fluxgate
 - asb
 - magdas_mag_asb_1sec_f [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_asb_1sec_hdz [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_asb_1sec_hdz-d [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - her
 - magdas_mag_her_1sec_f [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz-d [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz-d_time [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz-d_x [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz-d_y [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz-d_z [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz-d_yaxis [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz_x_dpwrspc [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz_y_dpwrspc [2012-03-04/00:00:00 to 2012-03-04/00:00:00]
 - magdas_mag_her_1sec_hdz_z_dpwrspc [2012-03-04/00:00:00 to 2012-03-04/00:00:00]

log(x[base])
ln(x)
exp(x[base])
sqrt(x)
abs(x)
min(x,[dim][nan],[/subscr
max(x,[dim][nan],[/subscr
mean(x,[dim][nan])
average(x,[dim][nan])
median(x,[dim][even])
total(x,[dim][nan] [/cum
count(x,[dim])

Insert Operator:

++
--
+
*
/
^
<
>
&&
||

Insert Constant:

pi e Re

Done Help

(2017-08-17/22:21:28) 5: Variable selected: magdas_mag_her_1sec_hdz-d_x.

Note: one line, never return

"magdas_mag_her_1sec_hdz-d_x_ofst" = "magdas_mag_her_1sec_hdz-d_x" + 200

The screenshot shows the SPEDAS GUI interface. On the left, a text editor window contains the code `z-d_x_ofst" = "magdas_mag_her_1sec_hdz-d_x" + 200`, which is circled in red. Below the editor are buttons for "Open", "Save", "Run", and "Clear". The "Run" button is circled in red. A red arrow points from the "Run" button to the code editor. In the center, a hierarchical tree view shows the variable structure. The variable `magdas_mag_her_1sec_hdz-d_x_ofst` is circled in red. A red box with the text "1. Click Run" is positioned below the "Run" button. Another red box with the text "2. A new variable is created" is positioned below the tree view. At the bottom, a "Done" button is circled in red, with a red box containing the text "3. Click done" above it. On the right side, there are panels for mathematical functions and operators. The status bar at the bottom left displays "(2017-08-17/22:53:49) 14: Calculation complete".

1. Click Run

2. A new variable is created

3. Click done

Open "Plot/Layout Options"

The screenshot shows the 'CREATE PLOTS' dialog box in the SPEDAS GUI. The interface includes a tree view of dependent variables on the left, a list of panels in the center, and a control panel on the right. Annotations in red boxes and circles highlight specific actions:

- 1. Select Panel 3 and Remove it**: A red box highlights the list of panels, and a red circle highlights the 'Remove' button on the right.
- 2. Select**
`magdas_mag_her_1sec_hdz-d_y`
`magdas_mag_her_1sec_hdz-d_x_ofst`
- 3. Click Line**: A red box highlights the 'Line ->' button in the 'Dependent Variable' tree.
- 4. Data are added**: A red box highlights the selected variables in the panel list.

At the bottom, there are 'OK', 'Apply', and 'Cancel' buttons. A status bar at the very bottom shows the message: (2017-08-17/22:54:53) 4: Add Finished.

Open "Plot/Layout Options"

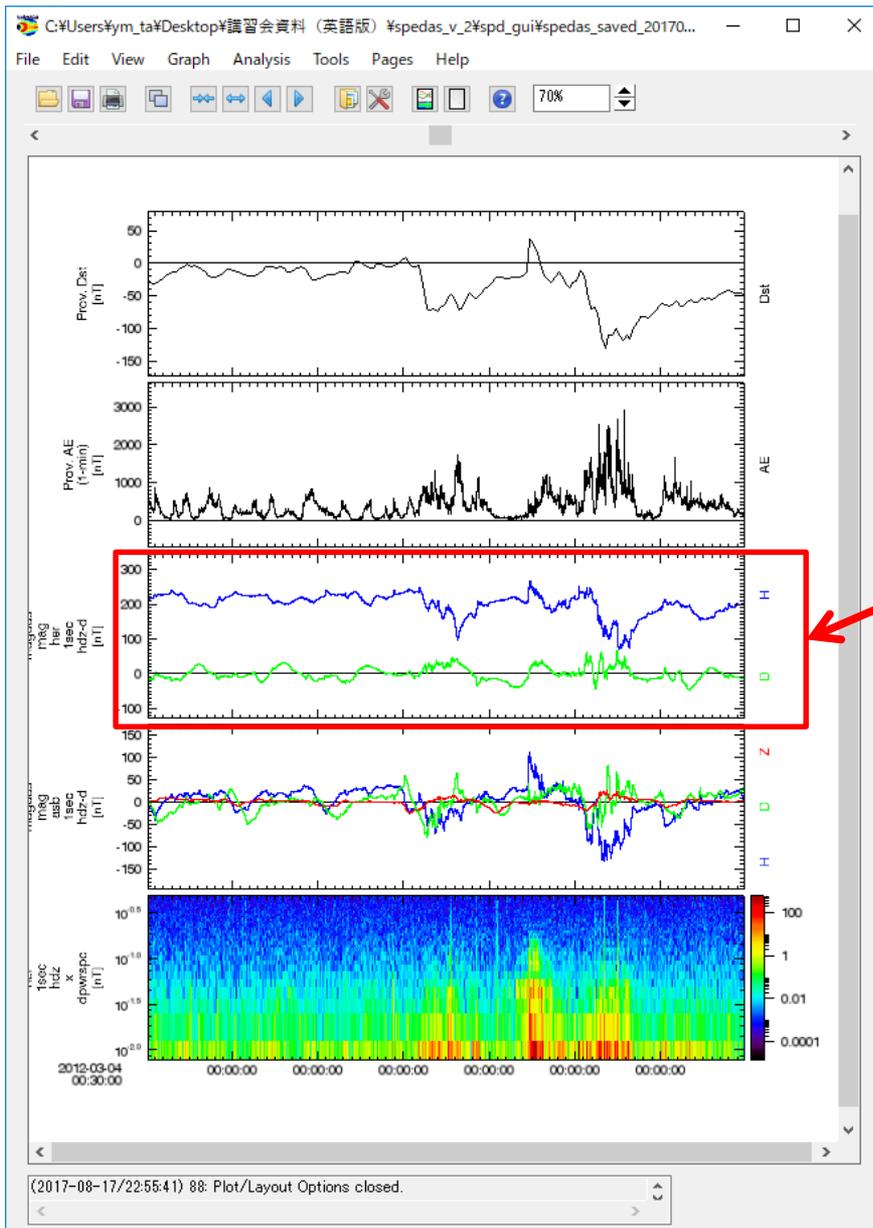
The screenshot shows the "Plot/Layout Options" dialog box in the SPEDAS GUI. The dialog is titled "Plot/Layout Options" and has a subtitle "- CREATE PLOTS -". It contains several sections and controls:

- Checkboxes:** "Show Data Components" (unchecked) and "Automatic Panels" (checked).
- Dependent Variable:** A tree view showing a hierarchy of variables under "IUGONET". The variable "magdas_mag_her_1sec_hdz-d_x_ofst" is selected.
- Panel List:** A list of panels with their coordinates and descriptions. Panel 6 (3, 1) is highlighted in blue. A red box and arrow point to the "Row:" field in the "Panel 6 (3, 1)" entry, which is set to 3.
- Row and Column Settings:** "Row:" is set to 3, "Column:" is set to 1. A red box highlights the "Row:" field.
- Page Settings:** "Rows Per Page:" is set to 5, "Cols Per Page:" is set to 1. A red box highlights the "Rows Per Page:" field.
- Buttons:** "Add", "Line ->", "Spec ->", "Remove", "Edit", "Lock To Panel", "Unlock Panels", "OK", "Apply", "Cancel". The "OK" button is circled in red.
- Status Bar:** At the bottom, it shows "(2017-08-17/22:55:16) 7: SPD_UI_LAYOUT_OPTIONS: Row set to 3." A red box highlights the "OK" button and the status bar text.

Annotations in the image include:

1. Change the value of Row to 3
2. Panel 6 is changed to (3, 1)
3. Click OK

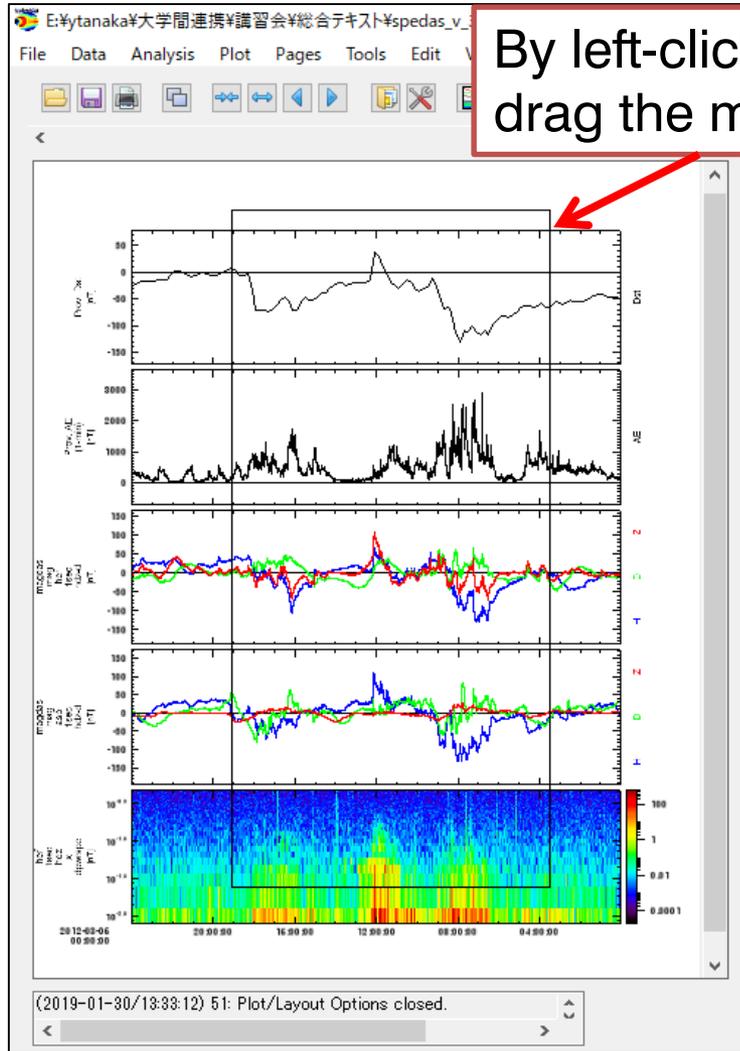
Basic Operation of SPEDAS GUI



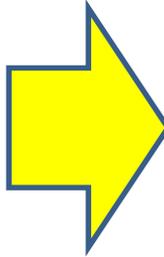
Offset (+200nT)
was added to the H
comp.



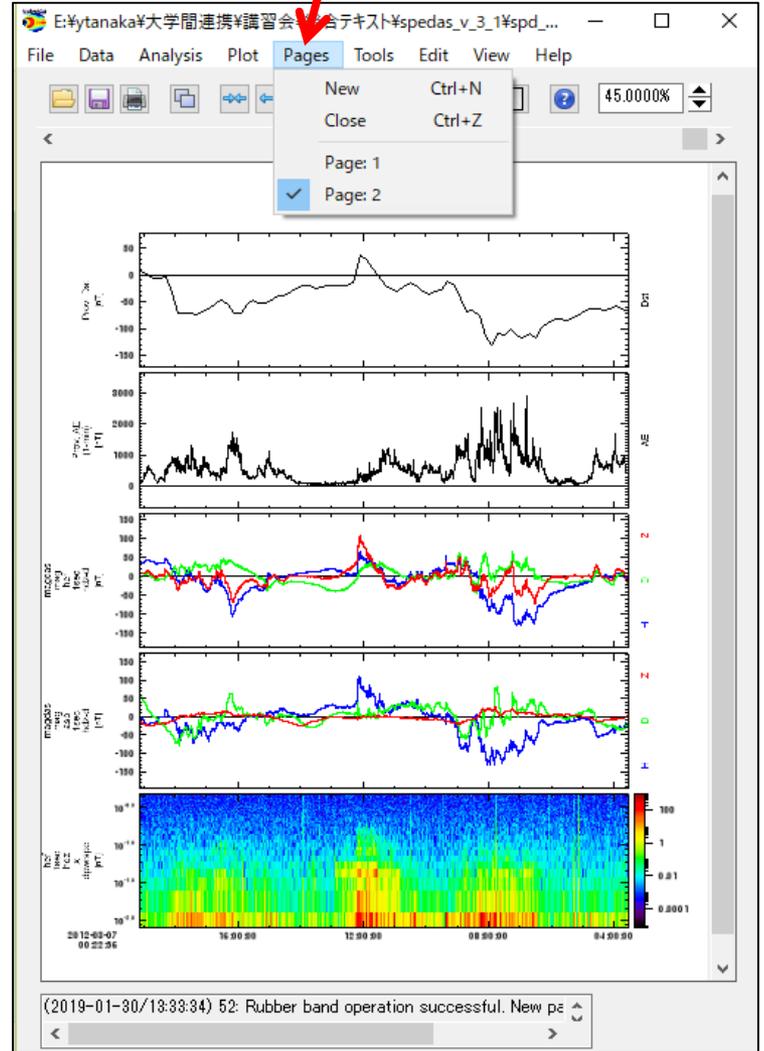
Expand X range using the mouse



By left-click and drag the mouse



A new page opens





IUGONET

Metadata DB for Upper Atmosphere

超高層大気長期変動の全地球上ネットワーク観測・研究
Inter-university Upper atmosphere Global Observation NETWORK

How to Use SPEDAS-GUI part3

Additional data loading

Load your ASCII file (1)

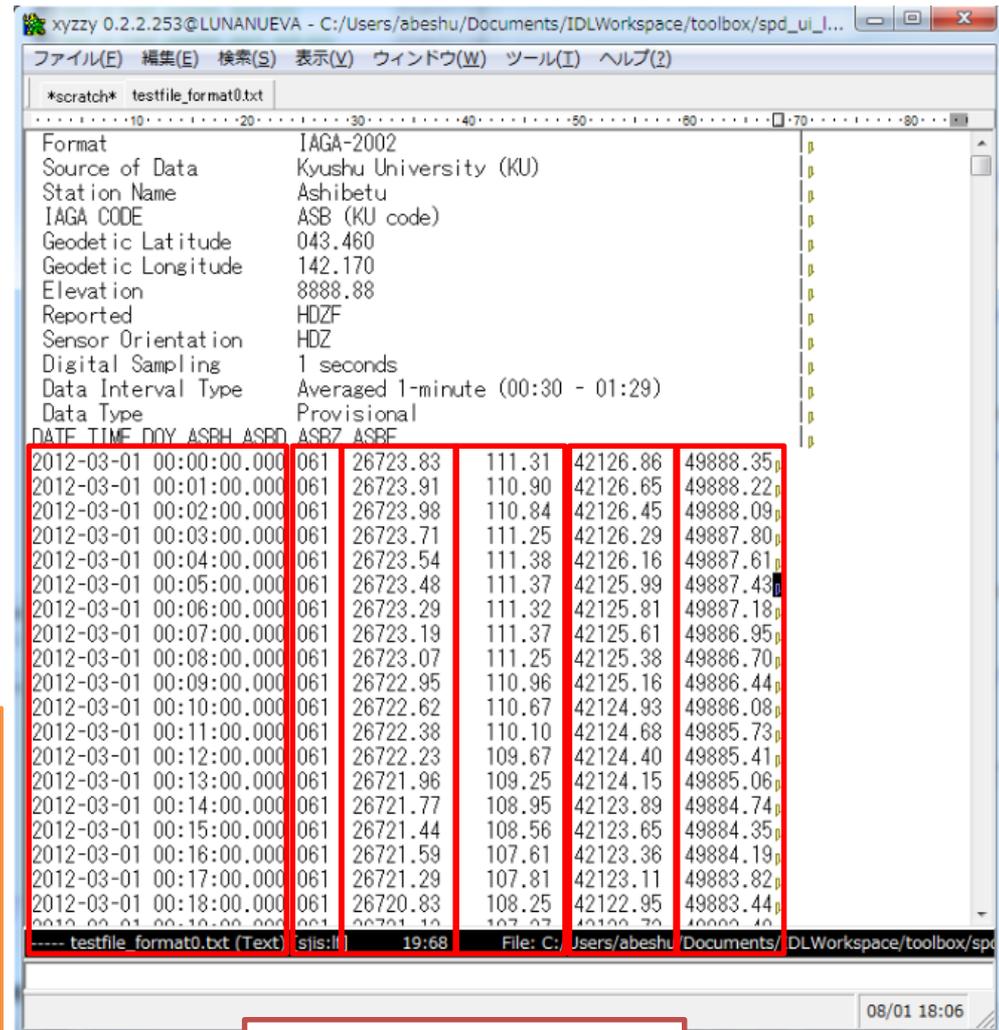
Sample1: magnetometer data

HEADER(13 lines)

Data(1440lines)

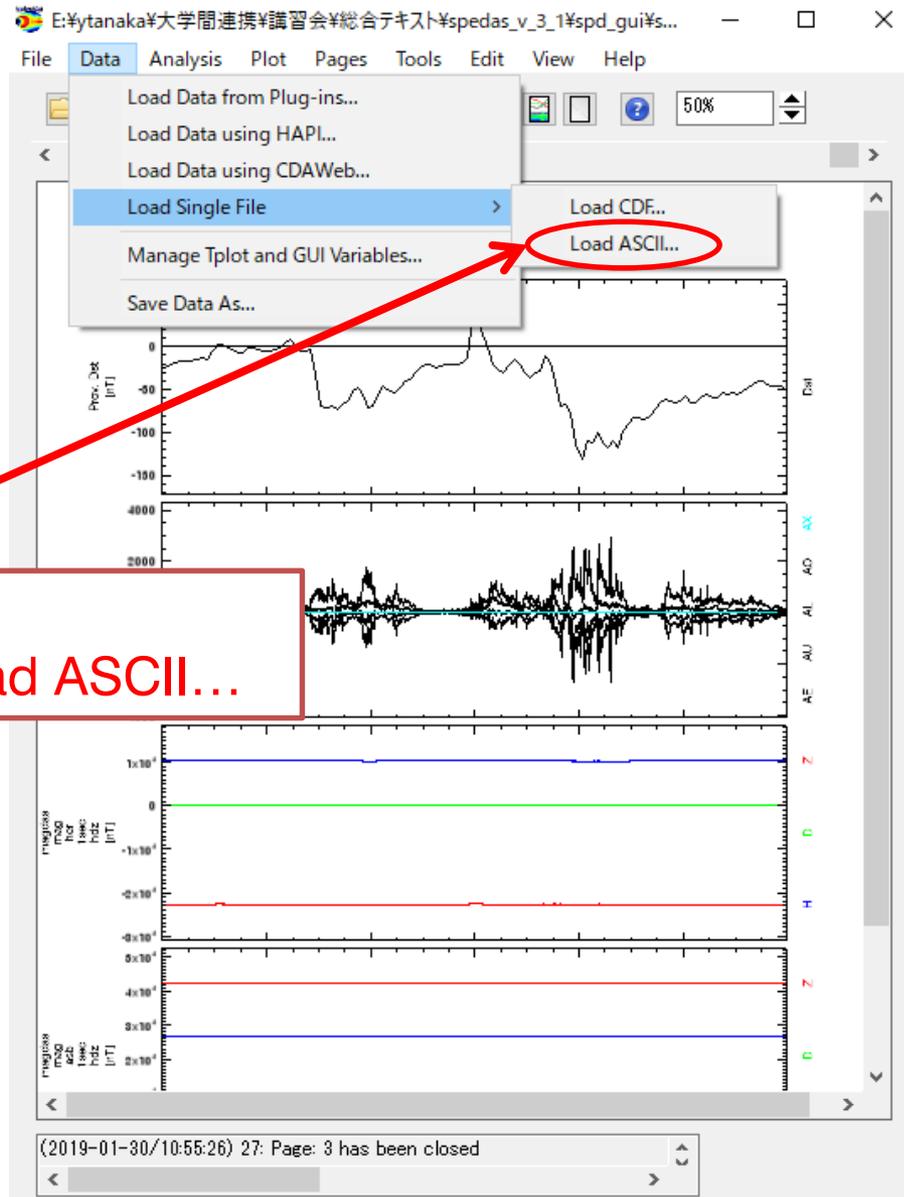
This example reads an ASCII file from

<http://data.icswse.Kyushu-u.ac.jp/gmag/data/ASB/Min/2012/ASB20120301pmin.min>

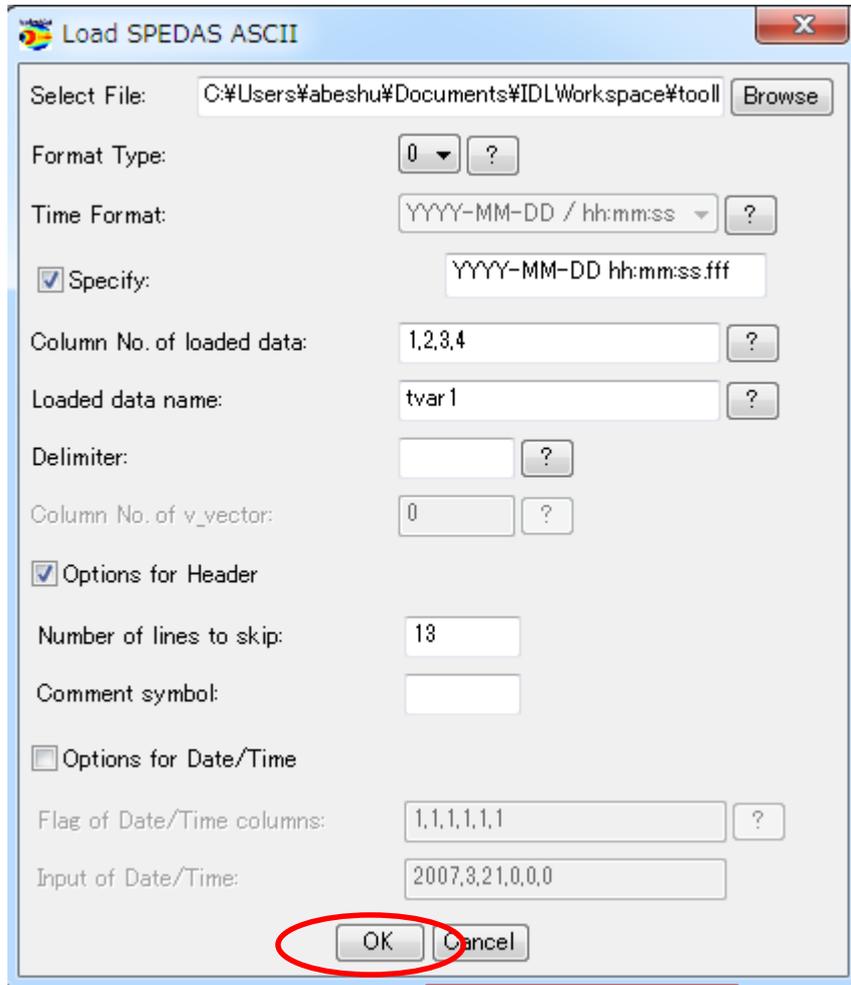


Format	AGA-2002				
Source of Data	Kyushu University (KU)				
Station Name	Ashibetu				
IAGA CODE	ASB (KU code)				
Geodetic Latitude	043.460				
Geodetic Longitude	142.170				
Elevation	8888.88				
Reported	HDZF				
Sensor Orientation	HDZ				
Digital Sampling	1 seconds				
Data Interval Type	Averaged 1-minute (00:30 - 01:29)				
Data Type	Provisional				
DATE TIME DOY ASPH ASPD	ASB7 ASBF				
2012-03-01 00:00:00.000	061	26723.83	111.31	42126.86	49888.35
2012-03-01 00:01:00.000	061	26723.91	110.90	42126.65	49888.22
2012-03-01 00:02:00.000	061	26723.98	110.84	42126.45	49888.09
2012-03-01 00:03:00.000	061	26723.71	111.25	42126.29	49887.80
2012-03-01 00:04:00.000	061	26723.54	111.38	42126.16	49887.61
2012-03-01 00:05:00.000	061	26723.48	111.37	42125.99	49887.43
2012-03-01 00:06:00.000	061	26723.29	111.32	42125.81	49887.18
2012-03-01 00:07:00.000	061	26723.19	111.37	42125.61	49886.95
2012-03-01 00:08:00.000	061	26723.07	111.25	42125.38	49886.70
2012-03-01 00:09:00.000	061	26722.95	110.96	42125.16	49886.44
2012-03-01 00:10:00.000	061	26722.62	110.67	42124.93	49886.08
2012-03-01 00:11:00.000	061	26722.38	110.10	42124.68	49885.73
2012-03-01 00:12:00.000	061	26722.23	109.67	42124.40	49885.41
2012-03-01 00:13:00.000	061	26721.96	109.25	42124.15	49885.06
2012-03-01 00:14:00.000	061	26721.77	108.95	42123.89	49884.74
2012-03-01 00:15:00.000	061	26721.44	108.56	42123.65	49884.35
2012-03-01 00:16:00.000	061	26721.59	107.61	42123.36	49884.19
2012-03-01 00:17:00.000	061	26721.29	107.81	42123.11	49883.82
2012-03-01 00:18:00.000	061	26720.83	108.25	42122.95	49883.44
2012-03-01 00:19:00.000	061	26721.10	107.27	42122.70	49883.06

Data(6 columns)



1. Select
Data – Load Single File – Load ASCII...



Load SPEDAS ASCII

Select File: C:\Users#abeshu\Documents\IDLWorkspace\tool\ Browse

Format Type: 0 ?

Time Format: YYYY-MM-DD / hh:mm:ss ?

Specify: YYYY-MM-DD hh:mm:ss.fff

Column No. of loaded data: 1,2,3,4 ?

Loaded data name: tvar1 ?

Delimiter: ?

Column No. of v_vector: 0 ?

Options for Header

Number of lines to skip: 13

Comment symbol:

Options for Date/Time

Flag of Date/Time columns: 1,1,1,1,1 ?

Input of Date/Time: 2007,3,21,0,0,0

OK Cancel

1. Click "Browse", and select **'testfile_format0.txt'**.

2. Format Type: Select **0**

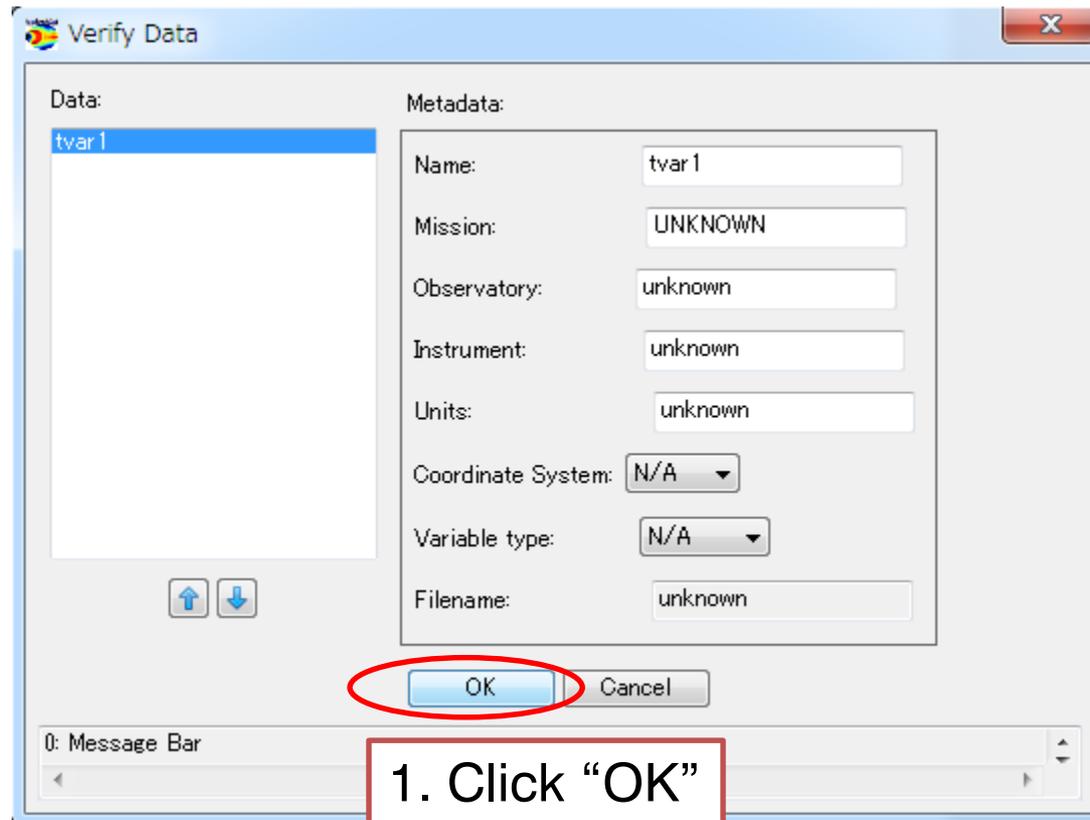
3. Time Format: Check **Specify**, and put **'YYYY-MM-DD hh:mm:ss.fff'**

4. Column No. of loaded data: put **'1,2,3,4'**

Note: Column number starts from 0.

5. Options for Header: Check **the box**, and put **'13'** to Number of lines of skip.

6. Click OK

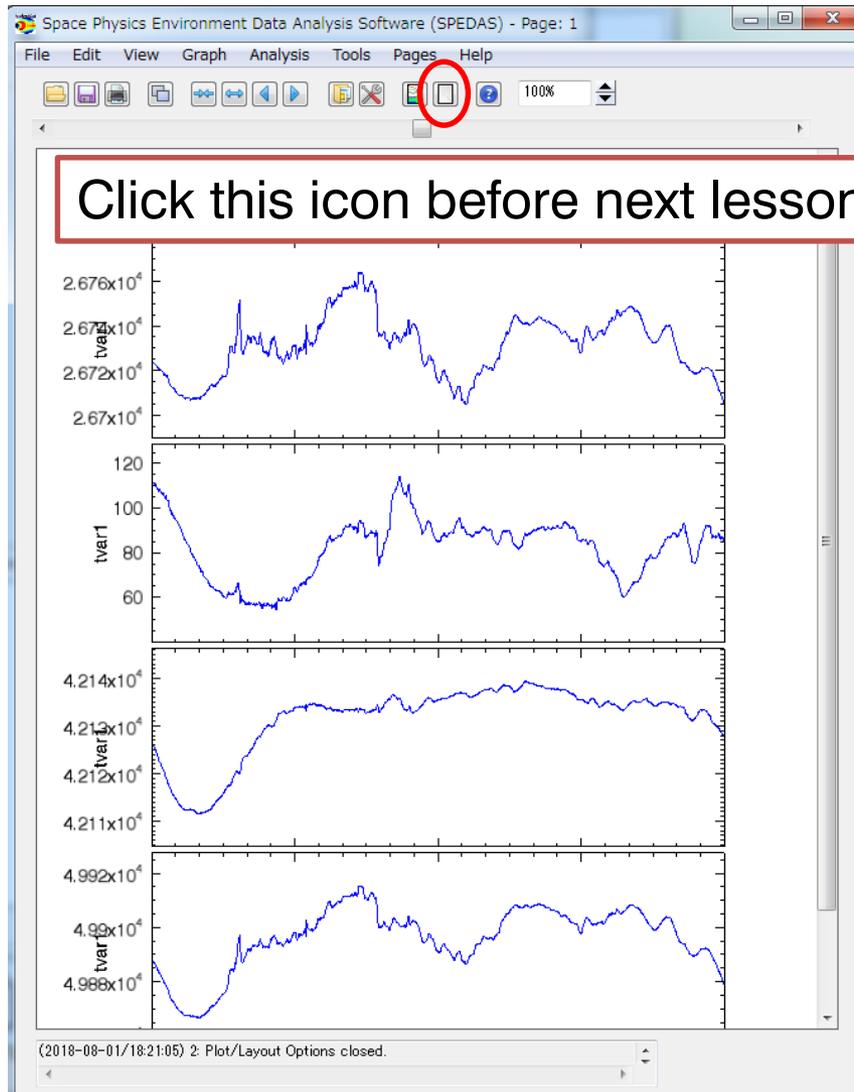


Open "Plot/Layout Options"

The screenshot shows the 'Plot/Layout Options' dialog box in the SPEDAS GUI. The dialog has a title bar with a close button (X) and a subtitle '- CREATE PLOTS -'. It contains several sections: 'Dependent Variable' on the left, a central 'Add:' section with 'Line ->' and 'Spec ->' buttons, a list of panels on the right, and a 'Variables:' section at the bottom right. Five red callout boxes with white text provide instructions:

1. Click +, and select **tvar1_0**
2. Click Line
3. Data are added
4. Repeat the same process to **tvar1_1**, **tvar1_2**, and **tvar1_3**
5. Click "OK"

The 'Dependent Variable' section shows a tree structure with 'UNKNOWN' at the top, followed by 'unknown', and then 'tvar1' and its sub-variables 'tvar1_time', 'tvar1_0', 'tvar1_1', 'tvar1_2', 'tvar1_3', and 'tvar1_yaxis'. The 'Add:' section has a '+' button circled in red. The 'Line ->' button is also circled in red. The 'Variables:' section has an 'Add/Edit' button. The 'Panels' section on the right shows a list of panels: 'Panel 1 (1, 1) - tvar1_time -vs- tvar1_0', 'Panel 2 (2, 1) - tvar1_time -vs- tvar1_1', 'Panel 3 (3, 1) - tvar1_time -vs- tvar1_2', and 'Panel 4 (4, 1) - tvar1_time -vs- tvar1_3'. The 'Panel 1' entry is highlighted in blue. The 'OK' button at the bottom is circled in red.



Magnetometer data written in ASCII(IAGA-2002) format are plotted.



Basic Operation of SPEDAS GUI

Load your ASCII file (2)

Sample2: EISCAT radar data

HEADER(starts from %)

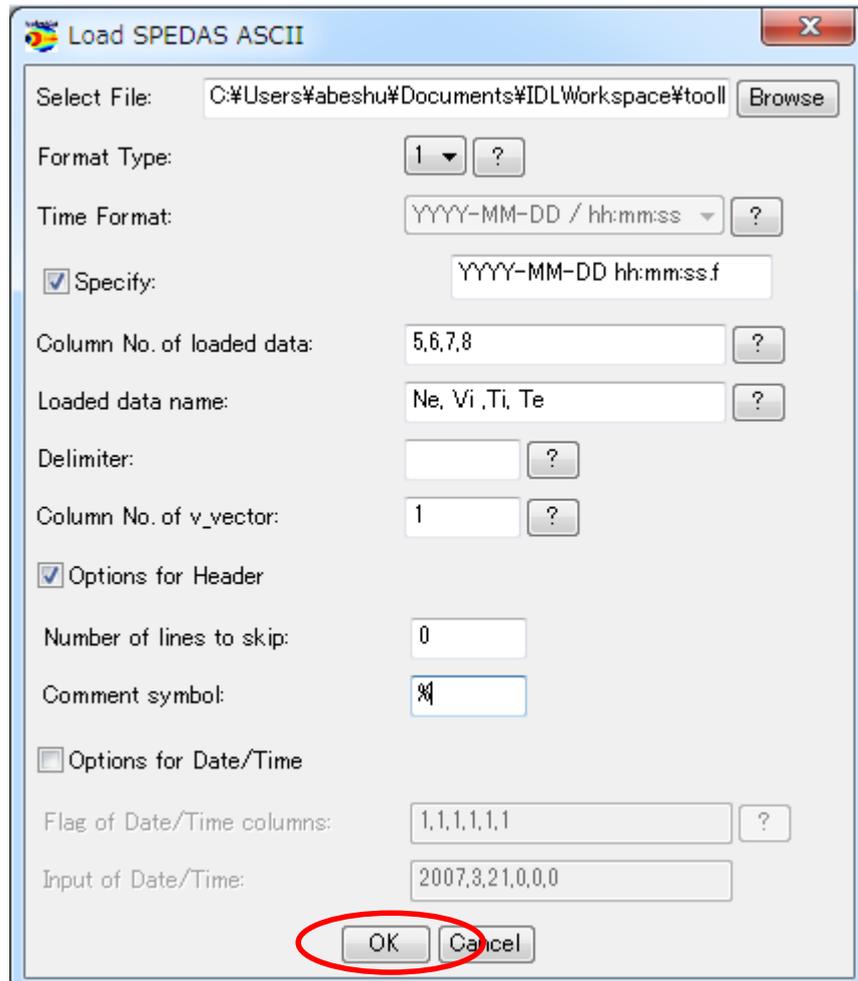
Data(11520lines)

%	% Data format (Vi: positive is away from the radar):																		
%	S	E	TIME	ALT	LAT	LONG	log(Ne)	Vi	Ti	Te	errNe	errVi	errTi	errTe	AZ	EL	0+Ne	log(Co)	RANGE
%	YYMMDD	HHMMSS.S	HHMMSS.S	km	deg	deg	m ⁻³	m/s	K	K	m ⁻³	m/s	K	K	deg	deg	%	rad/s	km
20140108	180124.0	180200.0	180200.0	77.5	78.05	16.00	10.17	5	796	796	8.71	5	85	85	184.50	81.60	0	5.00	78.4
20140108	180124.0	180200.0	180200.0	81.1	78.05	15.99	10.35	14	219	219	8.59	2	25	25	184.50	81.60	0	4.76	81.9
20140108	180124.0	180200.0	180200.0	84.9	78.04	15.99	10.36	11	123	123	8.44	2	11	11	184.50	81.60	0	4.51	85.8
20140108	180124.0	180200.0	180200.0	89.1	78.04	15.99	10.35	8	167	167	8.52	3	9	9	184.50	81.60	0	4.24	90.0
20140108	180124.0	180200.0	180200.0	93.3	78.03	15.99	10.29	-6	61	61	8.36	3	2	2	184.50	81.60	1	0.00	94.3
20140108	180124.0	180200.0	180200.0	97.5	78.03	15.99	10.98	6	21	213	10.59	4	10	207	184.50	81.60	0	3.67	98.6
20140108	180124.0	180200.0	180200.0	101.3	78.02	15.98	10.16	20	283	129	9.33	7	62	92	184.50	81.60	0	3.41	102.4
20140108	180124.0	180200.0	180200.0	105.0	78.02	15.98	10.34	-16	127	205	9.38	7	20	72	184.50	81.60	0	3.13	106.1
20140108	180124.0	180200.0	180200.0	109.1	78.01	15.98	10.21	7	289	252	9.11	12	38	80	184.50	81.60	0	2.82	110.3
20140108	180124.0	180200.0	180200.0	113.6	78.01	15.98	10.04	44	244	398	9.06	16	37	137	184.50	81.60	0	2.48	114.8
20140108	180124.0	180200.0	180200.0	119.1	78.00	15.98	9.84	113	394	714	8.94	42	69	270	184.50	81.60	0	2.09	120.4

Data(19 columns)

http://pc115.seg20.nipr.ac.jp/www/eiscatdata/esr/ascii/42m_ascii/2014/20140108_42m0_ipy0_0060.txt

Open File – Load Your Data – Load ASCII



Load SPEDAS ASCII

Select File: C:\Users\#abeshu#Documents#IDLWorkspace#tool [Browse]

Format Type: 1 [?]

Time Format: YYYY-MM-DD / hh:mm:ss [?]

Specify: YYYY-MM-DD hh:mm:ss.f

Column No. of loaded data: 5,6,7,8 [?]

Loaded data name: Ne, Vi, Ti, Te [?]

Delimiter: [?]

Column No. of v_vector: 1 [?]

Options for Header

Number of lines to skip: 0

Comment symbol: % [?]

Options for Date/Time

Flag of Date/Time columns: 1,1,1,1,1 [?]

Input of Date/Time: 2007,8,21,0,0,0

[OK] [Cancel]

5. Click OK

1. Click "Browse", and select **'testfile_format1.txt'**.

2. Format Type: Select **1**

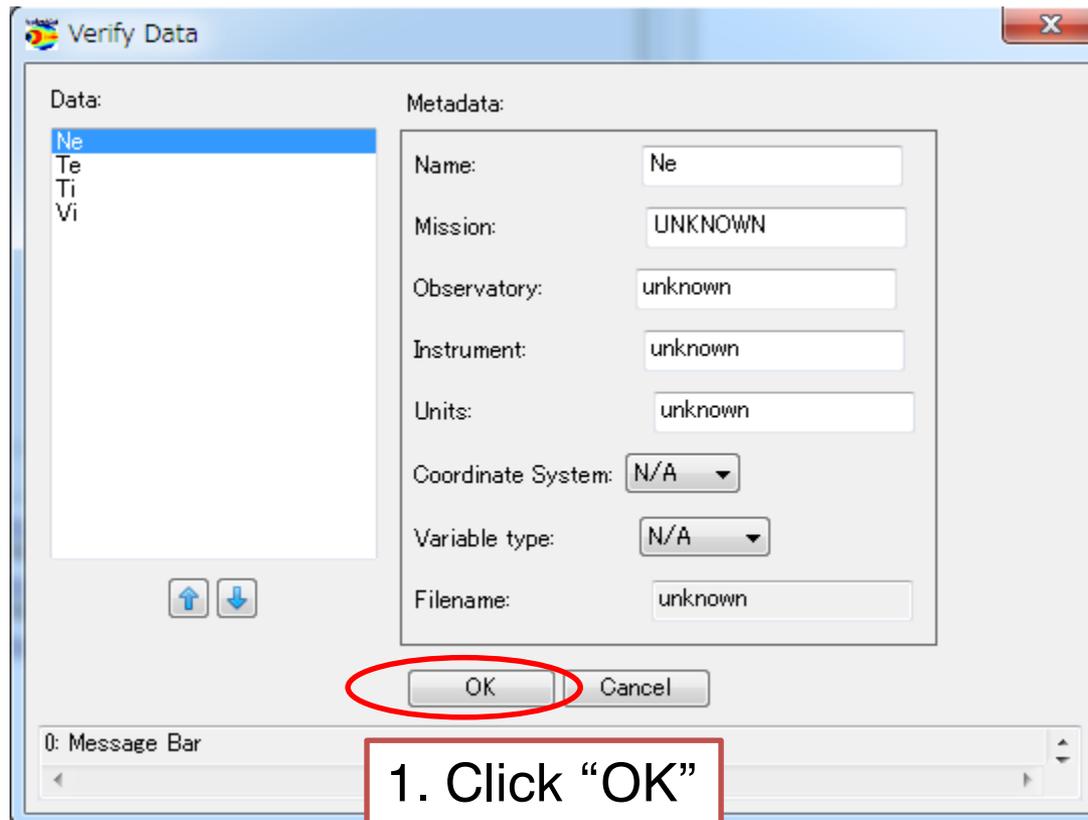
3. Time Format: Check **Specify**, and put **'YYYY-MM-DD hh:mm:ss.f'**

4. Column No. of loaded data: put **'5,6,7,8'**

5. Loaded data name: put **'Ne, Vi, Ti, Te'**

6. Column No. of v_vector: put **'1'**

7. Options for Header: Check **the box**, and put **'%'** to Comment symbol



Open "Plot/Layout Options"

The screenshot shows the 'Plot/Layout Options' dialog box in the SPEDAS GUI. The dialog has a title bar with a close button (X). Below the title bar, there are two checkboxes: 'Show Data Components' (unchecked) and 'Automatic Panels' (checked). The main area is titled '- CREATE PLOTS -'. On the left, there is a tree view under 'Dependent Variable' with a tree icon. The tree contains 'UNKNOWN', 'unknown', and 'unknown'. Under 'unknown', there are several variables: 'tvar1', 'tvar1_time', 'tvar1_0', 'tvar1_1', 'tvar1_2', 'tvar1_3', 'Ne', 'Vi', 'Ti', and 'Te'. The 'Ne' variable is selected and highlighted in red. A red box labeled '1. Select Ne' points to it. To the right of the tree is an 'Add:' section with two buttons: 'Line ->' and 'Spec ->'. The 'Spec ->' button is circled in red, with a red box labeled '2. Click Spec' pointing to it. In the center-right, there is a list of panels: '(L) Panel 1 (1, 1) -', '- Ne time -vs- Ne yaxis -vs- Ne', 'Panel 2 (2, 1) -', '- Vi time -vs- Vi yaxis -vs- Vi', 'Panel 3 (3, 1) -', '- Ti time -vs- Ti yaxis -vs- Ti', and 'Panel 4 (4, 1) -', '- Te time -vs- Te yaxis -vs- Te'. The first panel is highlighted in blue, with a red box labeled '3. Data are added' pointing to it. At the bottom, there are three buttons: 'OK', 'Apply', and 'Cancel'. The 'OK' button is circled in red, with a red box labeled '5. Click "OK"' pointing to it. A red box labeled '4. Repeat the same process to Vi, Ti, and Te' is positioned above the 'OK' button. On the right side of the dialog, there is a 'Panels' section with 'Add', 'Remove', and 'Edit' buttons, and a grid configuration section with 'Row', 'Column', 'Row Span', 'Col Span', 'Rows Per Page', and 'Cols Per Page' controls. At the bottom left, there is a status bar with the text '(2018-08-01/18:24:07) 12: Add Finished.'

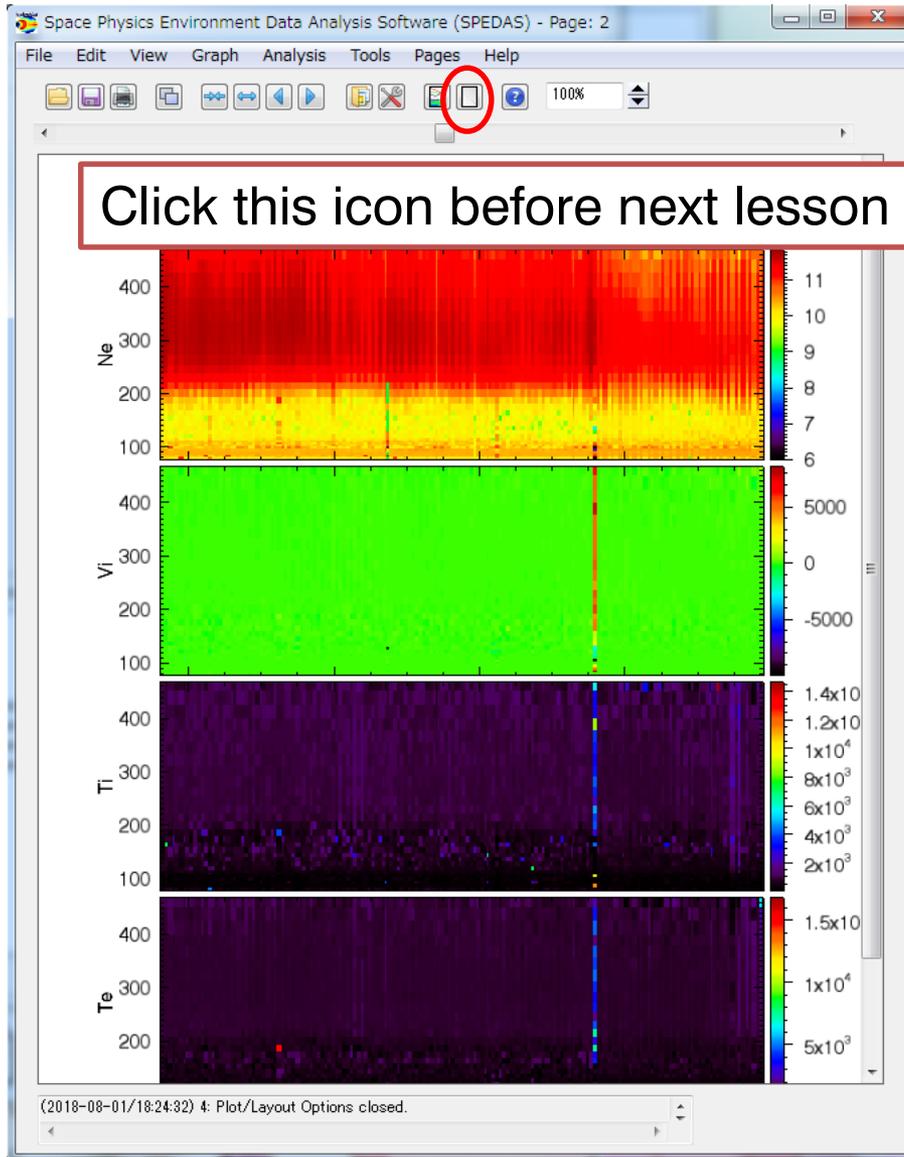
1. Select **Ne**

2. Click **Spec**

3. Data are added

4. Repeat the same process to **Vi, Ti, and Te**

5. Click "OK"



EISCAT radar data written in ASCII format are plotted in spectrogram.

SPEDAS is a grass-roots data analysis software for the Space Physics community, which was developed by scientists and programmers of the UC Berkeley's Space Sciences Laboratory, UCLA's IGPP and other contributors.

References:

Angelopoulos et al., The Space Physics Environment Data Analysis System (SPEDAS), Space Sci. Rev., 215:9, doi:10.1007/s11214-018-0576-4, 2019.