

# User Manual

# STAFF v2.0

[09/01/2013]

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3. 4. 5.	<ul> <li>Export as file</li></ul>	7 8 10 12 12 13 14 15 16

# **Document History**

Name	Туре	Description	Date	Version
Vincent Malisse	Document creation	First version of the user manual.	09/01/2013	V0.1

# Publication

This document is for all Staff users.

# References

Reference

Description

Version

# Introduction

## Delivery

The Staff viewer is a web based application that can show the timelines for several types of solar measurements like X-Ray, EUV, Solar wind, Interplanetary Magnetic Field, ... The data is imported in near-real time and can go back several years. The viewer also allows the user to zoom in or out a time frame and to combine the plots as desired.

## Definitions

Term	Description
AFFECTS <u>A</u> dvanced <u>F</u> orecast <u>F</u> or <u>E</u> nsuring <u>C</u> ommunications <u>T</u> hrough <u>S</u> pace.	
	(http://www.affects-fp7.eu/)
Staff	<u>S</u> olar <u>T</u> imelines viewer for <u>AFF</u> ECTS.
STCE	Solar-Terrestrial Centre of Excellence

# Prerequisites

- Javascript should not be blocked from the user's webbrowser.
- Staff has been tested on Internet Explorer, Safari, Chrome and Firefox.

# List of Tables and Images

[each table or screenshot should have a small caption like "table1" or "image1" that caption you can bookmark and copy into this link with a hyperlink. ]

### Tables

Link	Description
Table1	Downsample levels
Table2	Known Issues

### Images

Link	Description
Image1	General overview
Image2	Links
Image3	Menu – File
Image4	Exporting data
Image5	Exporting image
Image6	Menu – Advanced
Image7	Plot Information
Image8	Statistics
Image9	Menu – About
Image10	Contact form
Image11	Links
Image12	Help
Image13	About
Image14	Dataset selection
Image15	Timerange selection
Image16	Plot area

# **Quick Overview**

☐ Handy links × (♀! vincent_malis ← → C ☐ sun-ts-dev.oma.be	lisse - Yahool   🗴 💽 Bart messaged you 🛛 X 🗋 Space Weather Forecast x 😧 💽 Staff - Solar Timelines vie: X	- □ ×				
	Welcome to STAFF Solar Timelines viewer for AFFects					
File Advanced	About 2					
<ul> <li>Dataset Selection</li> <li>Timerange Selection</li> </ul>	3 4					
Plot (06 Jan 2013 10:50:1	10 UTC - 09 Jan 2013 14:26:10 UTC) 5					
1e-2	<ul> <li>GOES X-Ray flux 0.05-0.4 nm (quicklook) - 866 data points (averaged - 5 minutes)</li> <li>GOES X-Ray flux 0.1-0.8 nm (quicklook) - 866 data points (averaged - 5 minutes)</li> </ul>	-				
1e-3 X						
1e-4 M 1e-5 E C						
≥ 1e-6 B 1e-7	A server and and a server and a server					
1e-B	R. L. Manual M. Manual M. N. Market M.					
1e-9 <b>HP T IN State ()</b>	303:36 07.1ar.2013.120 <sup>2</sup> 07.1ar.2013.120 <sup>2</sup> 08.1ar.2013.13 <sup>2,6</sup> 08.1ar.2013.13 <sup>2,6</sup> 09.1ar.2013.13 <sup>2,6</sup> 09.					

Image1: First view when opening the web page.

- 1. Links to several third party websites related to Staff. Links open in a new window.
- 2. Menu for some advanced options like export, additional information and help.
- 3. Clicking slides a part of the page open and allows the user to (de)select timelines.
- 4. Clicking slides a part of the page open and allows the user to change the time window
- 5. This part shows the actual plot.

## 1. Links



Image2: links

From left to right each image is a link to:

- The AFFECTS web site.
- The European FP7 project web site.
- The homepage of the Royal Observatory of Belgium.
- The STCE homepage.

## 2. Menu

Note: All dialogs can be closed by clicking on the cross on the top right.

	File	Advanced	About	
ſ	Export as f	ileselection	-	
	Export as image			

Image3: Menu – File

If you hover over the menu item "File" a dropdown is shown with the following options:

#### • Export as file...

Allows the user to export the current shown plot as data to a txt, xls or csv formatted file. When clicking the menu-item a popup dialog will open allowing the user to review the data.

Clicking on the export button ( ) gives the user the option to export that timeline to a certain fileformat and whether the full dataset should be exported. The export is per timeline, not for the full plot.

Note: Exporting the full dataset is potentially dangerous as it can be a huge amount of data.

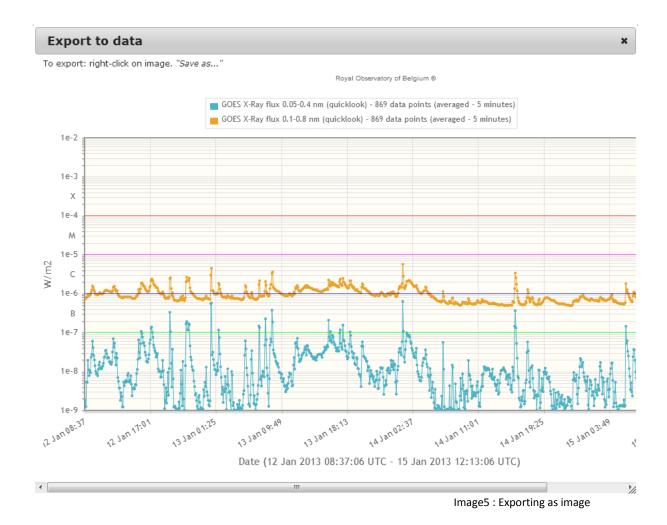
Interplanetary Magn	netic Field (IMF): ACE IMF Bt (quicklook)	
Datetime (dd/MM/yyyy H	H.mm.ss.nnnnn) Value (nI)	
06/01/2013 11:41:3P	7.65	
06/01/2013 11:46:3		
	Select the export options. By default, raw data is exported, by	
06/01/2013 11:56:3	unchecking the "Export raw data" checkbox only plot data is exported.	
06/01/2013 12:02:3		
06/01/2013 12:06:3	© Export to Excel file	
06/01/2013 12:11:3	© Export to CSV file	
06/01/2013 12:16:3	© Export to Text file	
06/01/2013 12:21:3		
06/01/2013 12:26:3	🗷 Export raw data	
06/01/2013 12:31:3		
	Caution! Exporting raw data could result in downloading massive information. Use at own risk.	
06/01/2013 12:41:3		
06/01/2013 12:46:3	🖌 🖌	
06/01/2013 12:51:3	· · · · · · · · · · · · · · · · · · ·	
06/01/2013 12:56:3		
06/01/2013 13:01:30.0	/.4	
06/01/2013 13:06:30.0	6.32	
06/01/2013 13:11:30.0	6.1	
06/01/2013 13:16:30.0	5.44	
06/01/2013 13:21:30.0	6.36	
06/01/2013 13:26:30.0	6.32	
06/01/2013 13:31:30.0	7.1	
06/01/2013 13:36:30.0	7.02	
06/01/2013 13:41:30.0	6.7	
06/01/2013 13:46:30.0	7.38	
06/01/2013 13:51:30.0	7.6	
06/01/2013 13:56:30.0	7.2	

Vith the buttons OK/Cancel (

the user can confirm or cancel the options.

#### Export as Image... ٠

Allows the user to export the current shown plot as an image. When clicking the menu-item a popup dialog will open allowing the user to review the prepared image, including the copyright print. By right-clicking the image and selecting "Save as..." in the popup menu, the image can be saved to disc.



**Note:** The full image will be downloaded. The dialog can only show part of the image at one time due to size constraints. The full image can be reviewed by using the horizontal scrollbar.

File	Advanced About	
<ul> <li>Datase</li> </ul>	Information	
→ Timera	Statistics	

Image6: Menu – Advanced

If you hover over the menu item "File" a dropdown is shown with the following options:

#### • Information...

This option will show where the information comes from which can be files, a database or some ground station.

Plot Information ×				
Interplanetary Magnetic Field (IMF)				
file datetimestamp: file sample rate:	20130108_ace_mag_1m.txt 08/01/2013 01:01:00 mi nT	ш		
file datetimestamp: file sample rate:	20130107_ace_mag_1m.txt 07/01/2013 01:01:00 mi nT			
file datetimestamp: file sample rate:	20130106_ace_mag_1m.txt 06/01/2013 01:01:00 mi nT			
file datetimestamp:	20130108_ace_mag_1m.txt 08/01/2013 01:01:00 mi	7/1		

Image7: The information about the current plot.

#### • Statistics...

This option will open a new page that shows for each plot the oldest datapoint, the newest datapoint, the lowest value, the highest value and the amount of records of the raw data. Not all datasets have the same timerange, that is why this page can be useful to retrieve a valid plot. If a plot turns out empty, this should be the first place to look.

-dev.oma.be/Statistics						
EE 04-41-	45					
ff Statis	tics –					
Datetime format: dd/MM/yyy						
Jatetime format: dd/mm/yyy	/y HH:mm:55.555					
EUV						
Category	Sub-Category	Minimum Datetimestamp	Maximum Datetimestamp	Minimum Value	Maximum Value	Record Count
Lyra Aluminium	science - centiseconds	06/01/2010 17:02:10.535	28/08/2012 05:49:38.051	1.3772897E-8	1.7940023E38	1888562635
Lyra Herzberg	science - centiseconds	06/01/2010 17:02:10.535	28/08/2012 05:49:38.051	1.0077209E-6	2.5376821E32	1890981425
Lyra Lyman Alpha	science - centiseconds	08/01/2010 17:02:10.535	28/08/2012 05:49:38.051	1.7285969E-7	2.1040114E38	1888668581
Lyra Zirkonium	science - centiseconds	06/01/2010 17:02:10.535	28/08/2012 05:49:38.051	1.0843656E-9	2.3985018E38	1888284232
Geomagnetic	:					
Category	Sub-Category	Minimum Datetimestamp	Maximum Datetimestamp	Minimum Value	Maximum Value	Record Count
Ak Chambon-La-Forêt	quicklook - days			0.0	0.0	0
Ak Dourbes	quicklook - days			0.0	0.0	0
K Chambon-La-Forêt	quicklook - days			0.0	0.0	0
K Dourbes	quicklook - days			0.0	0.0	0
Kp (K values planetary index)	quicklook - days	27/09/2011 22:00:00.000	25/12/2011 21:00:00.000	1.0	7.0	32
	· Manuatia Fiel					
Category	y Magnetic Fiel Sub-Category	Minimum Datetimestamp	Maximum Datetimestamp	Minimum Value	Maximum Value	Record Coun
ACE IMF Bt	auicklook - minutes	04/11/2012 00:00:00.000	09/01/2013 11:59:00.000	0.1	23.0	94597
ACE IMF BX	quicklook - minutes	04/11/2012 00:00:00.000	09/01/2013 11:59:00.000	-15.4	17.3	94597
ACE IMF By	quicklook - minutes	04/11/2012 00:00:00.000	09/01/2013 11:59:00.000	-21.2	21.5	94597
ACE IMF Bz	quicklook - minutes	04/11/2012 00:00:00.000	09/01/2013 11:59:00.000	-19.4	20.4	94597
Ace IMF Phi	quicklook - minutes	04/11/2012 00:00:00.000	09/01/2013 11:59:00.000	0.6030912	359.1449	95341
ACE IMF Bt	science - minutes	06/02/1998 00:00:00.000	20/07/2012 23:59:00.000	0.18	9999.99	7601760
ACE IMF Bx	science - minutes	06/02/1998 00:00:00.000	20/07/2012 23:59:00.000	-49.51	9999.99	7601760
ACE IMF By	science - minutes	06/02/1998 00:00:00.000	20/07/2012 23:59:00.000	-50.94	9999.99	7601760
ACE IMF Bz	science - minutes	06/02/1998 00:00:00.000	20/07/2012 23:59:00.000	-55.57	9999.99	7601760
Ace IMF Phi	science - minutes	06/02/1998 01:22:00.000	19/07/2012 11:57:00.000	0.03871336	359.9754	5129785

Image8: Statistics

**Note:** This screen can be set next to the normal application for re-use. **Note:** Statistics are updated once a day.

File Advanced	About	
<ul> <li>Dataset Selection</li> </ul>	Contact	
Timerange Selection	Links/References	
Plot (12 Jan 2013 09:58:	Help 15 Jan 2013 13 About	34:45 UTC)

Image9: Menu - About

If you hover over the menu item "About" a dropdown is shown with the following options:

#### • Contact...

This allows a user to contact the site administrator. The user just needs to fill in the required data similar like sending an email.

Contact	×
Do you have remarks or questions? You can drop them here.	
Name:	
E-mail:	
Subject:	
Message:	
	✓ ※
	▼
	Image10 - Contact form
	Image10 : Contact form.

With the buttons OK/Cancel (  $\checkmark$  💥 ) the user can send or cancel the email.

#### • Links/References...

Shows a popup with links to related sites.



### • Help...

Shows a popup with a quick help guide on the topics of the application. Navigation is also through a menu.

Help	×
Staff Manual Select a topic from the drop down menu.	
Topics	E
Purpose	
Navigating (how to)	
Dataset Selection	
Timerange Selection	
The Plot Area	
FAQ	
۲	
	Image12 : Help

×

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#### About...

Shows quick information about Staff.

## About STAFF

STAFF - <u>S</u>olar <u>T</u>imelines viewer for <u>Aff</u>ects Version: 2.0

#### Why?

Staff is developed to allow a user easy access to huge amounts of timeline data.

#### What?

With a few clicks the user can see different types of plots even simultaneously if desired.

With the power of Staff, the user can effectively use it for Space Weather Forecasting, data analysis, publication and correlations between different types of data. In addition the data can be exported to image or data file for further usage.

#### How?

Staff is developed with Java, html and javascript technology on top of a PostGreSql database. Due to the downsampling of the data, the load time of the website is fast and clean, in addition, the site uses little parameters and only sends postbacks when absolutely necessary allowing pleasant user interaction.

Image13 : About

## 3. Dataset Selection

Clicking on the bar opens a part of the website previously not visible.

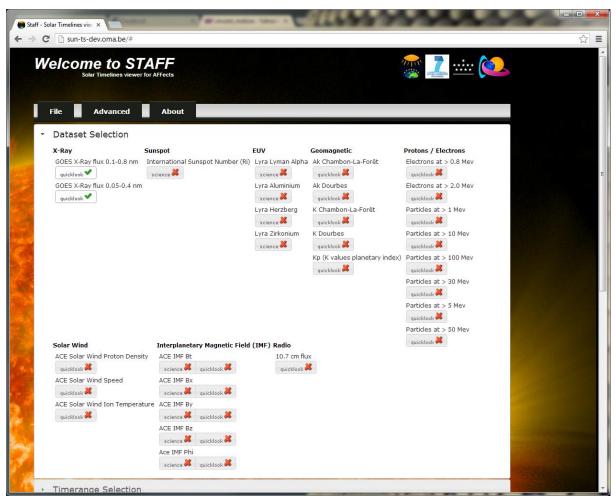


Image14: dataset selection

This part allows you to select any selection of the available timeline data sets. A green V marker (  $^{\checkmark}$ 

) means the plot is selected, a red cross marker ( $^{\bigstar}$ ) is unselected.

By default the GOES X-Ray long and short bands are selected.

**Note:** Though perhaps personal preference, more than 3 selections make the plots very hard to read.

# 4. Timerange Selection

When clicking on the bar a new part of the website opens allowing the user to select a desired time range and order the application to draw the plot with the selected settings.

<ul> <li>♦ Staff - Solar Timelines vie: ×</li> <li>← → C</li> <li>C sun-ts-dev.oma.be/#</li> </ul>	a and the last of	1144 9 9 9 9	
Welcome to STAF Solar Timelines viewer for AF	FFets About		
Dataset Selection			
Timerange Selection			
<ul> <li>Start: 12/01/2013</li> <li>Duration: Last 3 Days</li> </ul>		06 (UTC)	
*	Draw		*
Plot (12 Jan 2013 08:37:06	UTC - 15 Jan 2013 12:13:06 UTC)		
	<ul> <li>GOES X-Ray flux 0.05-0.4 nm (quicklook) - 869 data points</li> <li>GOES X-Ray flux 0.1-0.8 nm (quicklook) - 869 data points</li> </ul>		
1e-2			
1e-3			1
x 1e-4			
M 1e-5			
CE C	1. when same he	1.	
1e-6	Mindel March	the the	
1e-7	i. 1. , ait. h		

Image15: Timerange selection

The user can select a defined time range using start – end datetimes or select a pre-defined duration ranging from the last minute to the last year. By default the last three days is selected.

Using the and buttons the application will calculate a shift in the selected timerange earlier or later. Eg. When a timerange of 3 months was selected, the buttons will shift the start and end time by 3 months. This action can be repeated. Notice that when the duration radiobutton was selected, it will be unselected and the start-end radiobutton will be selected instead.

**Note:** The timerange automatically adds 5% when selecting a duration so that the current time does not fall of the plot.



The draw button ( ) will execute the selections the user made and fetch the data from the server to draw the plot. Notice that when the user changed something the button turns red



) indicating the drawn plot might not correspond to the user's selections.

# 5. Plot Area

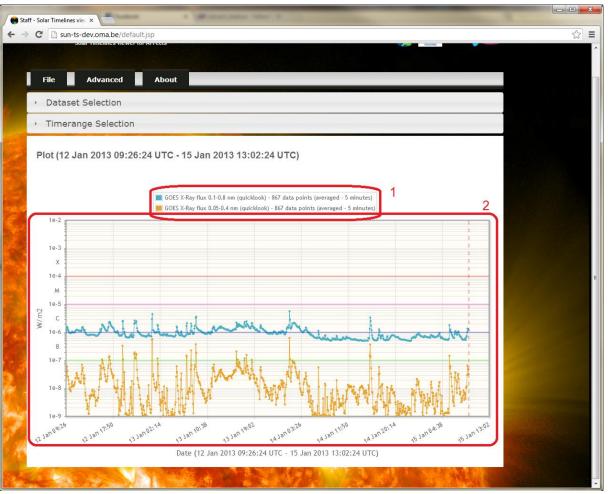


Image16: Plot area

The plotarea consists of :

#### 1. The legend

This contains information about which color each dataset has as well if it is quicklook, science or predictions, how many points where selected from the dataset and if it is averaged and to what level. In this case the blue curve is the goes Long quicklook data on 5 minute averages that has 867 data points.

#### 2. The plot

The plots are dynamically adapted to the selected plots. That means that each plot can have a different Y-axis defined (linear or logarithmic) or show different markers. The label on the Y-Axis is defined by the selected dataset. Multiple Y-axes are possible.

The X-axis is dynamically built up depending on the timerange selected and the dataset selected. The vertical striped red line is the current datetime. If you drag a square on the plot the application will horizontally zoom in on the data. As long as you don't use the draw button the application will remember the previous zoom level and by doubleclicking the plot area the application will zoom out again.

**Note**: Due to the limitations of the used plotting library, zooming will not go further than about an hour. Zooming in further can be done by using the timerange selection option.

To improve speed, the amount of datapoints is limited to 2000 per selected dataset. The Staff application determines the correct downsampel level based on the highest resolution of the raw (not downsampled) data and the selected timerange. It is therefore possible that a zoomed in plot has more datapoints than a zoomlevel higher.

Following table gives the downsample levels supported by Staff. However, datasets are downsampled only, if the highest resolution is minutes, there will be no second or millisecond data for example.

Milliseconds		
Centiseconds		
Deciseconds		
Seconds		
Minutes		
Hours		
Days		
Carrington Rotations		
Years		
Table1: downsampel levels.		

# **Known Issues**

Id	Issue	Solution / Workaround
1	Zooming via dragging a square is limited (to up about an hour)	Zoom in using the start-stop time range option.
2	An error occurred: TypeError: Cannot call method 'getTop' of undefined at I.H.jqplot.CanvasGridRenderer.draw (http://sun-ts- dev.oma.be/Scripts/JQPlot/jquery.jqplot.min.js:57:70671) at I.draw (http://sun-ts- dev.oma.be/Scripts/JQPlot/jquery.jqplot.min.js:57:18813) at N.draw (http://sun-ts- dev.oma.be/Scripts/JQPlot/jquery.jqplot.min.js:57:40375) at Function.H.jqplot (http://sun-ts- dev.oma.be/Scripts/JQPlot/jquery.jqplot.min.js:57:1350) at CreateGraph0 (http://sun-ts- dev.oma.be/default.jsp:724:14) at <anonymous>:1:1</anonymous>	The plot library has some bugs. Try selecting less plots at the same time. Recommend a maximum of three axes.
3	I selected 2 plots, but only 1 shows	Try to draw again, this happens occasionally.
4	The page gives me an unresponsive script message.	Close the page and try again with less timelines.

Table2:known issues

# Appendix

[add appendices if any]



#### Acknowledgement

The research leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) under the grant agreement  $n_\circ$  263506 (AFFECTS).

