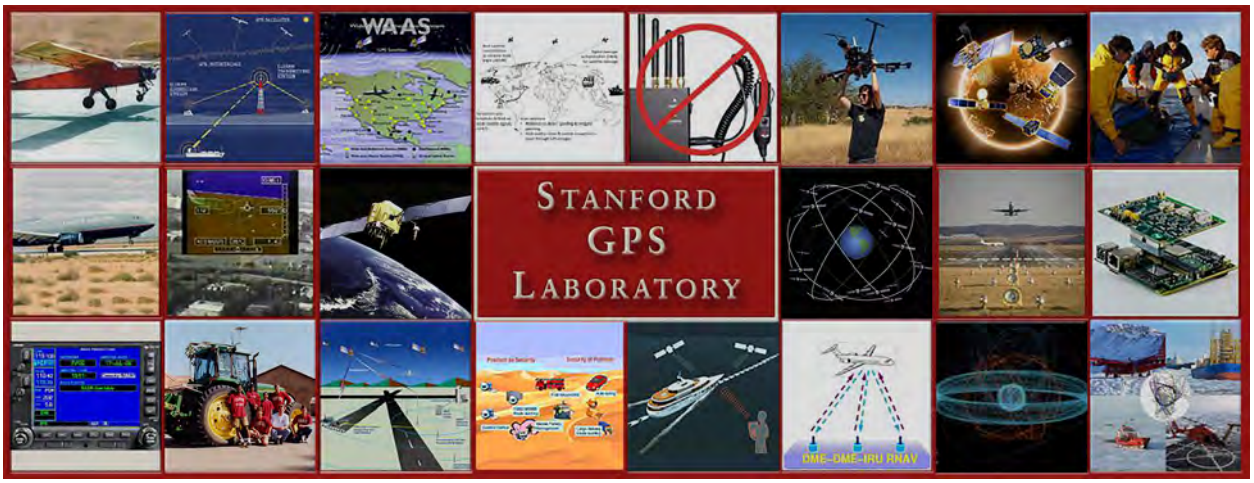

Stanford GPS Lab Website Maintenance User Guide

January 2017

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GPS Lab Website Basics

As of December 2016, the GPS Lab website is state-of-the-art in terms of current website development and deployment. The site was implemented using a website content management system (CMS) called **Drupal**.

Content management systems typically separate site content from display and delivery. The content is stored in a hierarchical tree of data blocks, called "nodes"—essentially a database—and each node includes display parameters that determine its importance and position on the webpage where the block appears. This separation of content and display attributes enables the site to be "mobile-responsive," meaning that the content blocks on each site page reformat on the fly to fit the screen size and aspect ratio of whatever device the site is being viewed on—computer screen, tablet, smart phone, etc.

Drupal is an "open source" content management system, meaning that people and institutions worldwide, including Stanford, participate in its development and evolution. Open source software is made available without charge to anyone wishing to use it.

Content Entry/Editing in the Drupal GPS Lab Website

Unlike "old fashioned" websites in which you would typically use an external HTML/CSS editing program such as Adobe Dreamweaver to create web pages locally and then upload them to a web server, the Drupal CMS contains built-in site/page editing tools.

While it is still possible to prepare content using external tools, any text you create with external tools will need to be copied from the creation tool and pasted into a Drupal text entry "form" on a given page. Likewise, you may create/process images/photos using external image tools, but the processed image/photo will then need to be uploaded to the page where it will be displayed using Drupal's image upload tools.

Drupal's Two Modes: Site Display and Site Editing

You can think of Drupal as a Web application that has a "read-only" **Display Mode** and an interactive **Content Editing Mode**. In Display Mode, anyone can view all the site's public pages. There's no need to Log into Drupal to view the site's pages; you can simply enter the site's URL, gps.stanford.edu, and the home page will appear. From there on, you simply use menus, sub-menus and links to navigate around the site—like you would on any website.

However, in order to use the GPS Lab website's Content Editing Mode, there are two requirements:

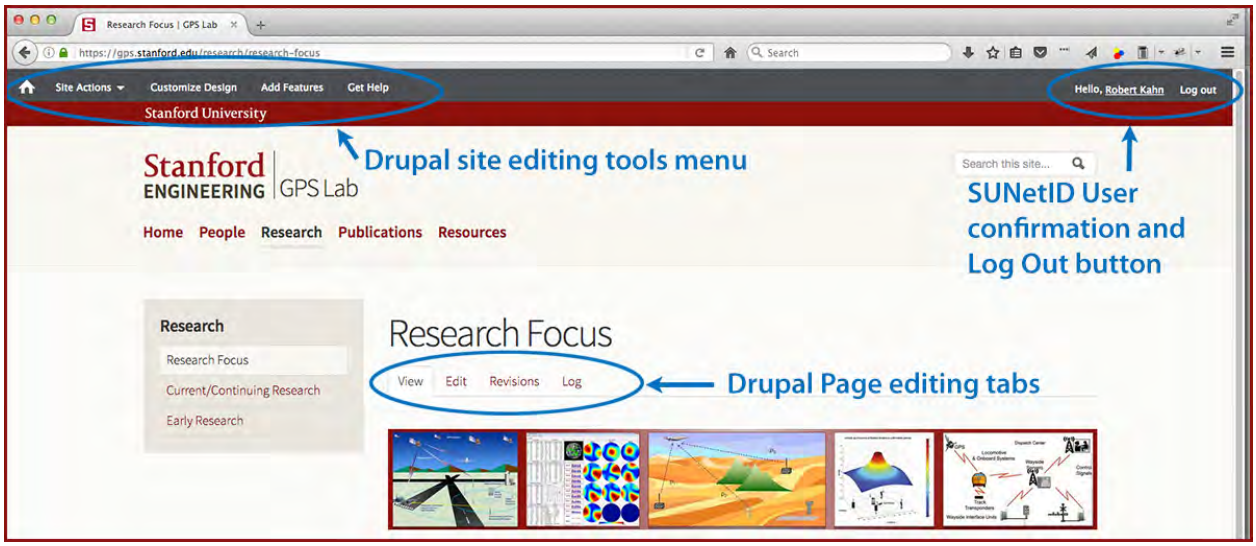
1. You must be logged into Drupal with your SUNet ID and Password.
2. Your SUNet ID must be designated in Drupal's user database as a **site owner.**

Logging Into the GPS Lab Website for Site Editing

By default, Drupal always opens the GPS Lab website In Display Mode. Anyone can view the site in Display Mode. To access the GPS Lab's Drupal site editing tools, site owners must login to the site with their SUNet ID and password.

When you view the GPS Lab website in your browser—Internet Explorer, Google Chrome, Firefox, Apple Safari, etc.—you'll notice that every page in the site has a red stripe across the top the top with **Stanford Universit**y on the left side of the stripe and **SUNetID Login** on the right side. To log into the site, simply click the SUNetID Login button, as shown below on the Research Focus page of the GPS Lab site.

When a GPS Lab Site Owner logs into the site with their SUNet ID and password, the site interface changes from Site Display mode to Site Editing mode shown below:



As you can see in the screen shot above, the page changes in four visually distinct ways:

1. A gray menu bar appears above the red stripe across the top of the page.
2. A 5-item Drupal Site Tools drop-down menu is displayed at the left end of the gray bar.
3. Confirmation of SUNet ID login, along with a "Hello" greeting and Log out button is displayed at the right end of the gray menu bar.
4. A set of four Page editing tabs appears beneath the page title.

Note: Anyone with a SUNet ID can log into the GPS Lab website by clicking the SuNetID Login button and entering their SUNet ID and password on the SuNet ID Login page. Doing so will cause Drupal to add the user's SUNet ID to its user database and automatically classify that person as a "SUNet ID User." However, there will be no visual indication that the SUNet user has logged in. No gray menu bar will appear above the red stripe and no editing tabs will appear below the page title. The GPS Lab website will only display the Drupal editing features shown and noted above to logged in users whose SUNet IDs have been classified as Site Owners in Drupal's user database.

GPS Lab Website Page Types

The GPS Lab website uses four types of Drupal web pages:

1. **Basic Drupal web pages** — These pages all contain an optional "feature image" to the right of the page title and a single body block that encompasses the page width and expands to whatever length is required to hold the page's content. The body block may contain images, text and links to other pages/website. The SBAS Ionospheric Working Group page in the Resources section is an example of a basic page.
2. **Drupal Landing pages** — Pages that display a table-of-contents-like linked list of other web pages in a section of the site. Each page in the list typically includes a small, square thumbnail image, accompanied by a short blurb about the page to which the thumbnail and entry title link. Each entry on a landing page is comprised of a small body block with an associated image. The Current/Continuing Research page is an example of a landing page.
3. **The Drupal Home page** — a unique page with various types of content blocks, but no main body block.
4. **The Drupal People, Faculty, Staff and Students pages** in the People section — these pages are generated/updated automatically whenever a new person is added to the site's people list, either via the gpslab Stanford Workgroup or manually.

The sections below provide more information about each of these page types for editing purposes.

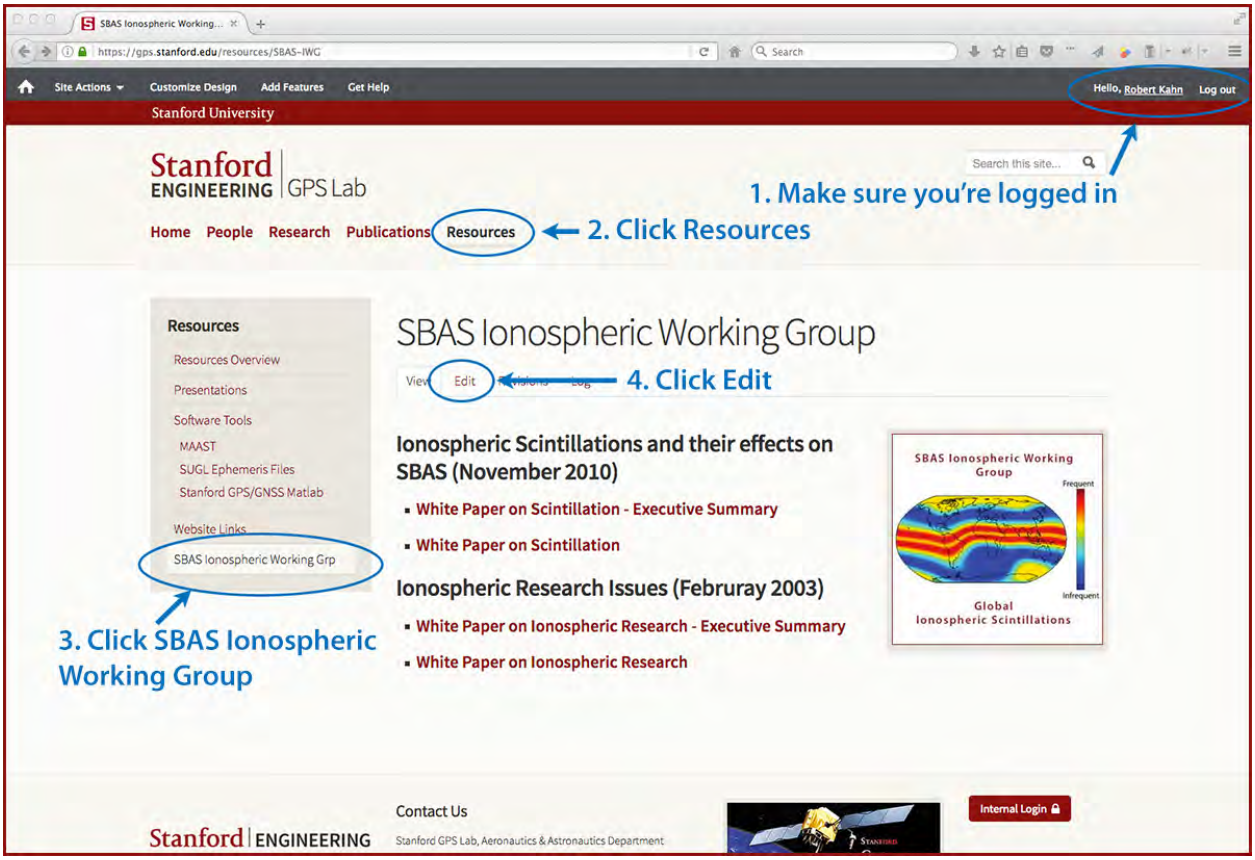
Basic Drupal Web Pages

Basic Drupal pages are used to display content, images and links on a particular topic. A majority of the pages in the GPS Lab website are basic Drupal pages.

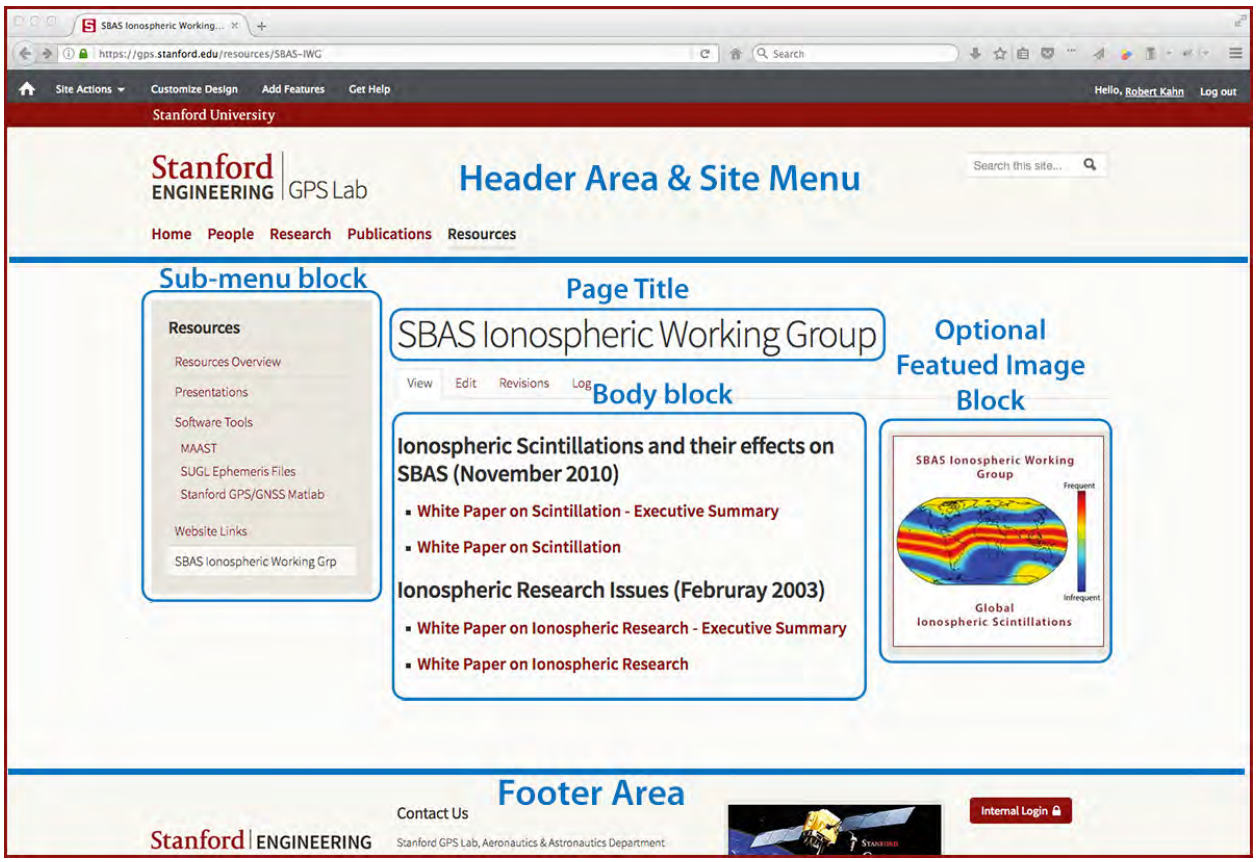
To show the structure of a basic Drupal web page, we will use the SBAS Ionospheric Working Group page in the Resources section as an example. To access this page, do the following:

1. Make sure you're logged in as a site owner.
2. Click Resources on the main menu
3. Click SBAS Ionospheric Working Group on the sub-menu in the left sidebar.

You will now see the SBAS Ionospheric Working Group web page, as shown below.



Below is another screen shot identifying the structural components of the page.



As you can see in the labeled screen shot above, a basic Drupal page contains the following display and/or content elements or blocks:

- **Header area** — Appears on all site pages; Includes site identity information, main site menu and site search box. Nothing in the header area is directly editable. The site menu items are controlled by an editable Main Menu page.

- **Footer area** — Appears on all site pages; Includes contact information, logo or other image and optional Internal (Private Pages) Login button. The contact and logo blocks are editable.

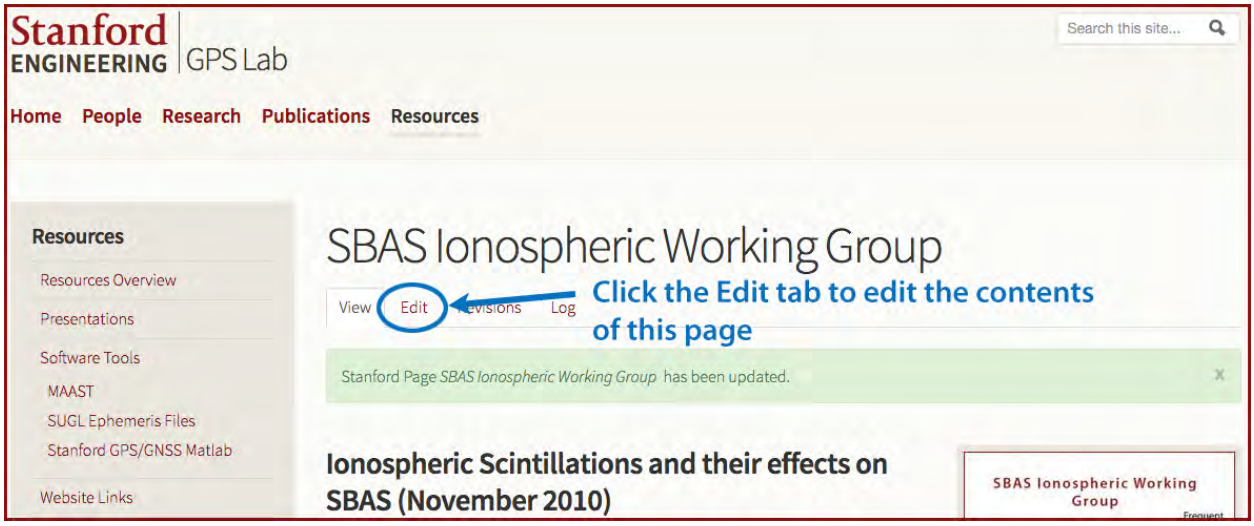
- **Page Title** — Controlled by whatever is entered in the Page Title box on the "Page Edit Form" for this page.

- **Sub-menu Block** — This sub-menu block appears in the left sidebar area of the page because the "Page Edit Form" for this page indicates that this page provides a menu link from its parent "Resources" menu item.

- **Body Block** — The main content of this page appears in this editable block.

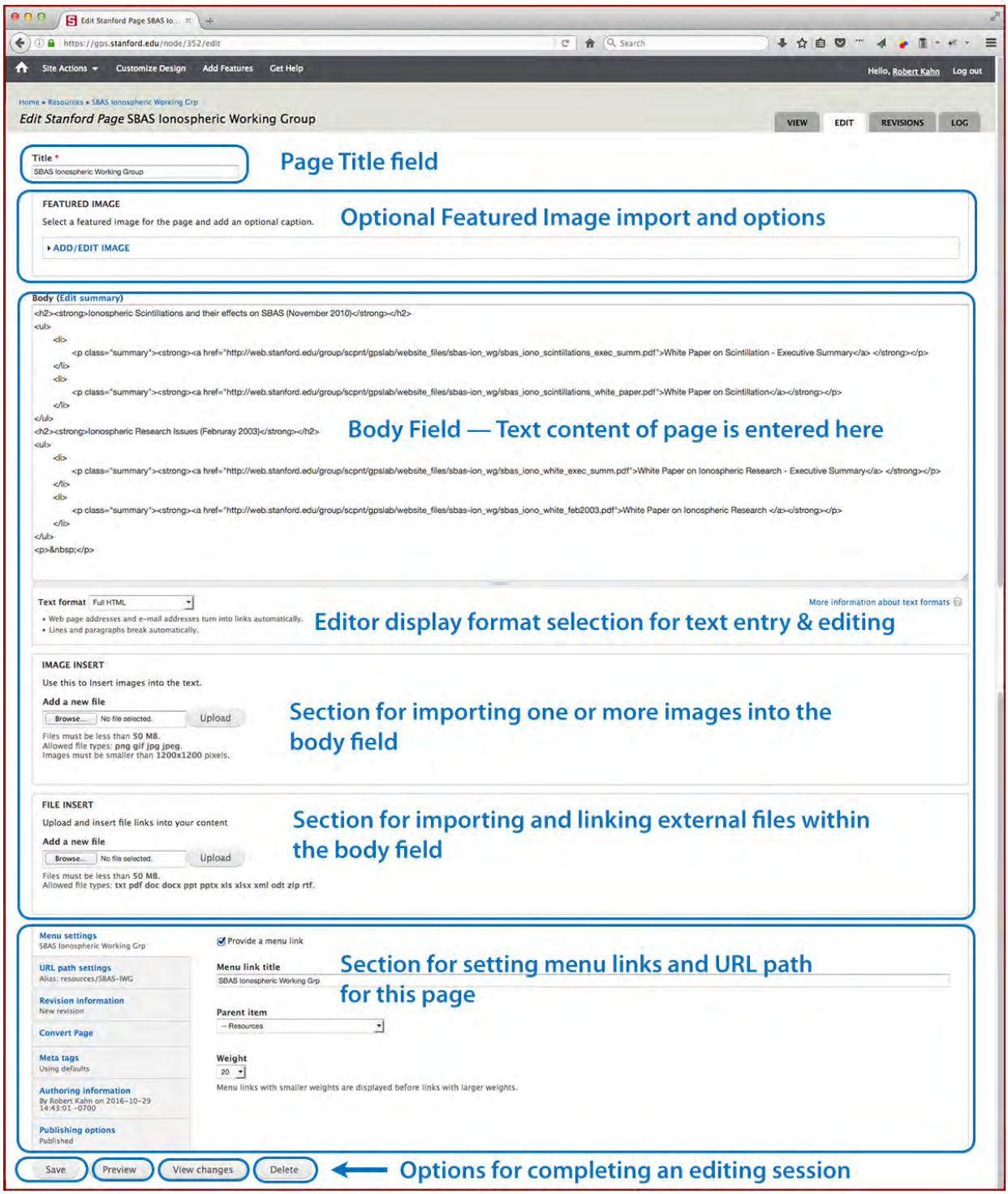
- **Optional Featured Image** — If a "featured image" is uploaded for this page, that images appears in this space; otherwise, this featured image space is empty, and the width of the body block is increased to encompass this space.

To edit the contents of a Drupal page, click the **Edit tab** beneath the title text as shown below.



Clicking the Edit tab open a Drupal "form" for editing the contents of and certain parameters for this page.

Below is a screen shot of the editing form for the SBAS Ionospheric Working Group page.



We will discuss details for using the editing features on this form in a later chapter.

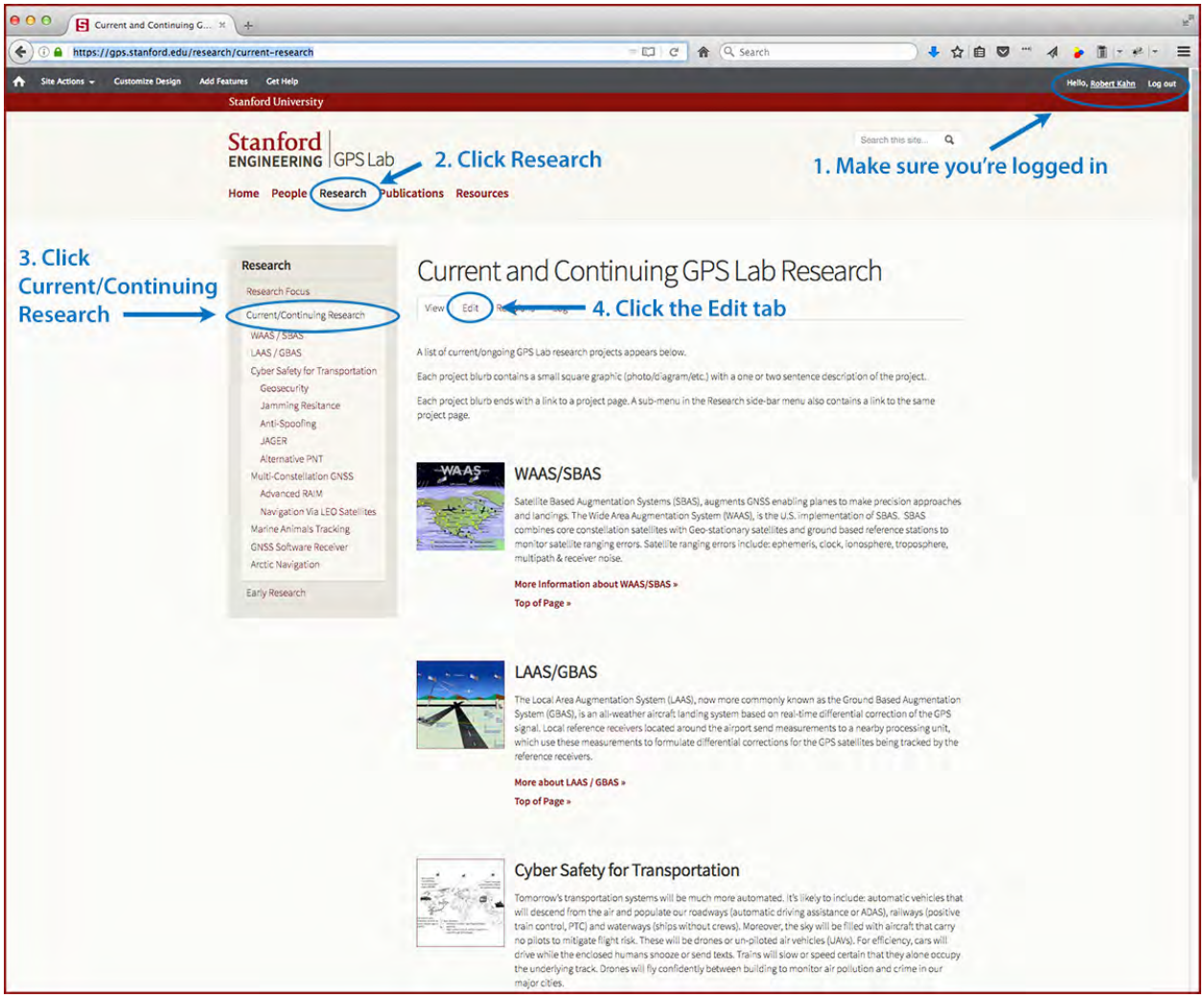
Landing Pages

Drupal landing pages are typically used to provide an overview of a website section. The often appear at the top of a menu section and effectively provide a linked table of contents for the pages in that section.

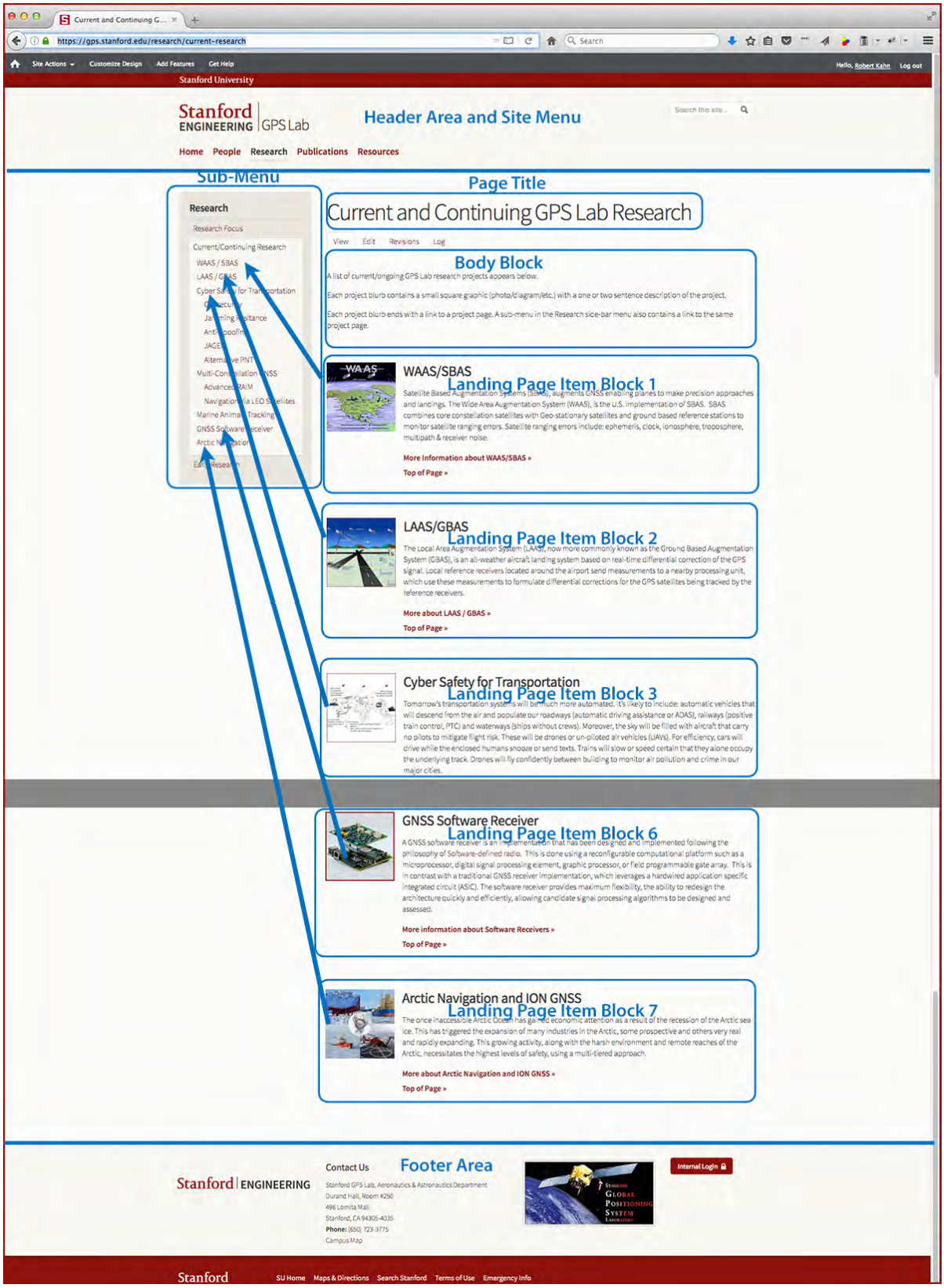
To show the structure of a landing page, we'll use the Current and Continuing GPS Lab Research page, in the Research section, as an example. To access this page, do the following:

1. Make sure you're logged in as a site owner.
2. Click Research on the main menu
3. Click Current/Continuing Research on the sub-menu in the left sidebar.

You will now see the Current and Continuing Research landing page, the top part of which is shown below.



Below is another screen shot, showing the structural components of this landing page.



As you can see, a landing page is essentially a basic Drupal page—with an added series of one or more landing page item blocks. Each item block contains an optional small, square thumbnail image that acts like a bullet and a short item description block. An item page link and other optional links appear beneath the text description in each item block.

Each item's thumbnail image links to the web page associated with that item, as does the primary link beneath the text description. Also, each item block is typically associated with a corresponding item in the left sidebar sub-menu. In this way, the landing page serves as a linked table of contents for a given section of the website—in this case, the current and continuing research section of the site.

Note: The Stanford Jumpstart Engineering rendition of Drupal actually offers three types of layouts for Landing Pages:

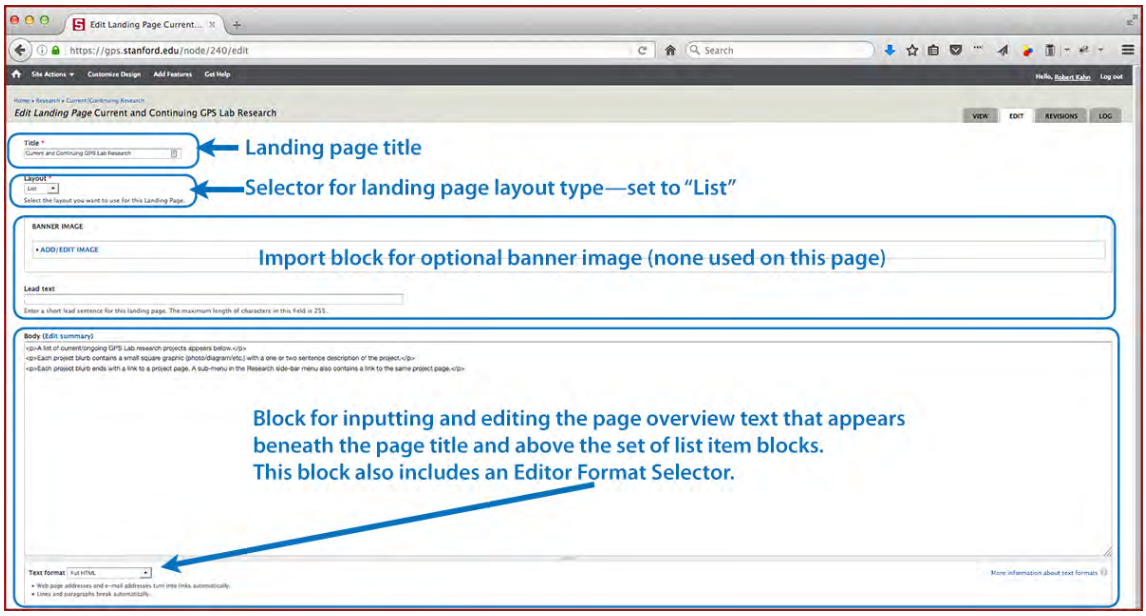
1. **List** — The version shown above utilizing small square thumbnail images adjacent to item descriptions with links below.

2. **Blocks** —Each thumbnail image, description and associated links occupy a shaded block that is 1/3 the width of the main content area (3 blocks per row), with the length of each block determined by the amount of text it contains.

3. **Cards** — Each thumbnail image and title are displayed in a square, red card, 1/3 the width of the main content area, with the text description and links below each card (3 cards and description blocks per row).

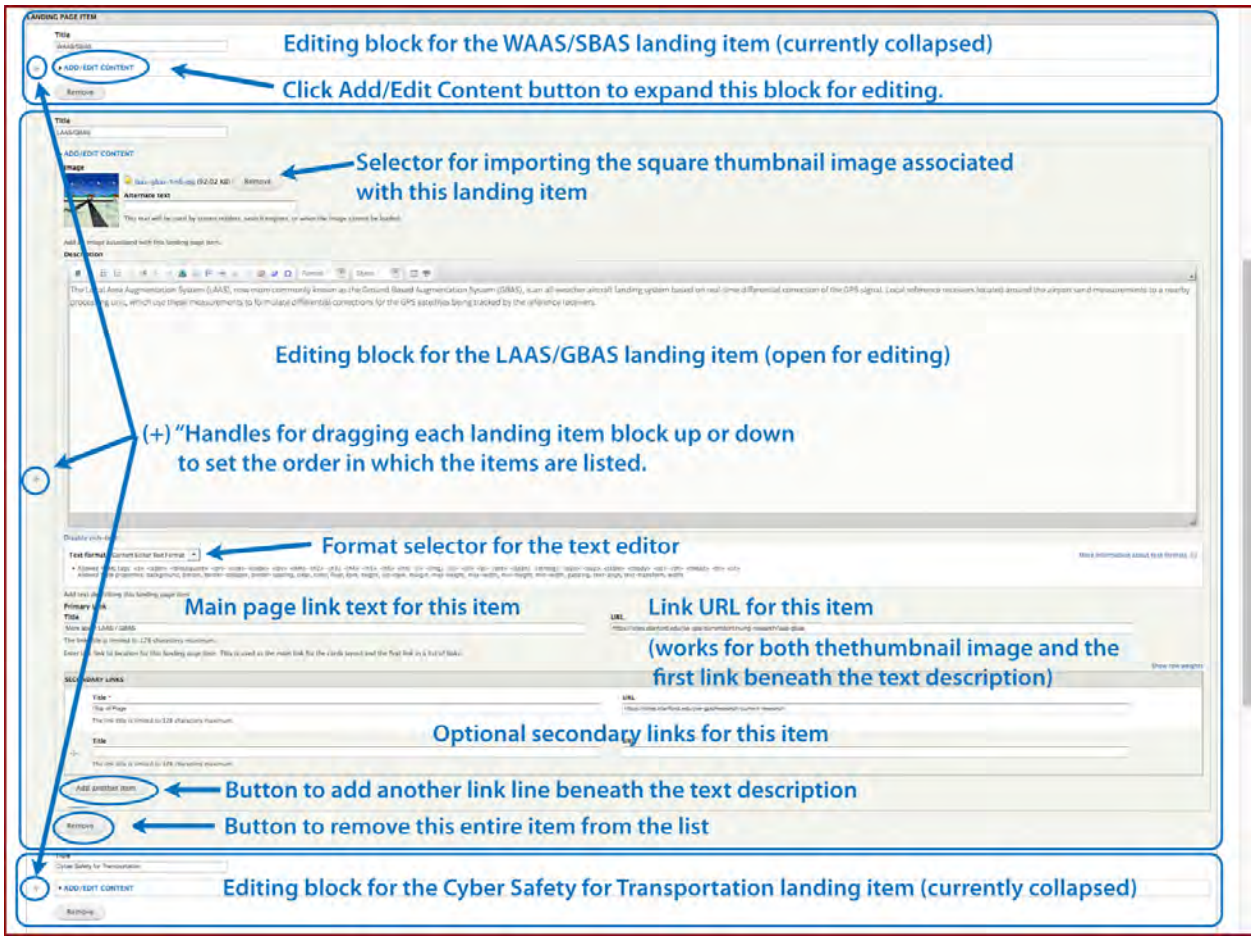
In the GPS Lab website, only the List version of the Landing page is used.

Clicking the Edit tab on a landing page opens a Drupal form for editing the various sections of the page. Below are three screen shots showing the top section, middle section and bottom section of the Drupal editing form for the Current/Continuous Research landing page.



Except for the List type selector, you'll recognize all the labeled elements above from the editing form for basic Drupal pages, described at the beginning of this chapter.

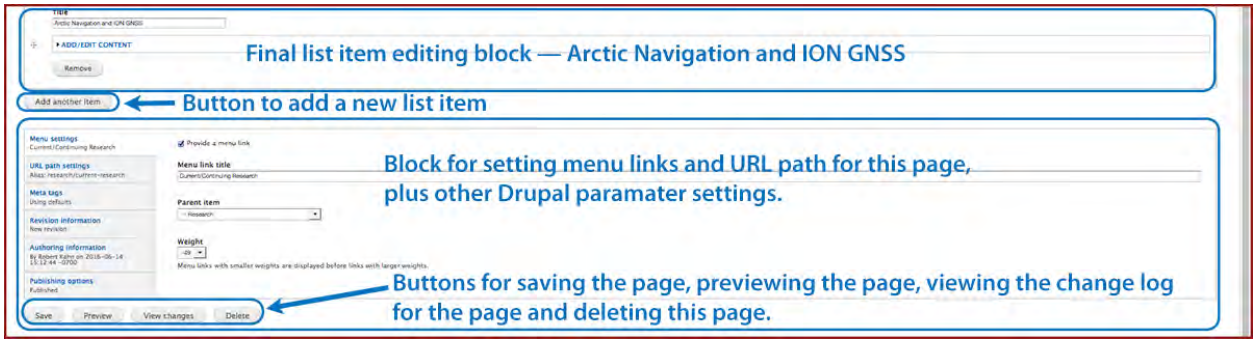
Below is a screen shot from the middle section of the editing form for the Current/Continuing Research landing page.



Each list item on this landing page has an associated editing block. When you open the editing form for this page, all of these item blocks are collapsed, making it easier to see the list items on the page.

If you need to reorder the items in the list, it's easier to do this when the editing blocks are all collapsed. As shown in the screen shot above, a (+) next to each block serves as a "handle" for dragging a list item up or down in the list to change the order in which the items are displayed.

Finally, below is a screen shot of the bottom of the landing page editing form.



Except for the final list item editing block and the button for adding a new list item, the bottom portion of the landing page editing form is identical to the bottom section of the basic Drupal page editing form.

If you are only editing the content on existing pages, you'll never need to change the existing settings in the bottom section of a page editing form. However, you always need to remember to click the Save button to save any changes you made and return the page to Drupal's page view mode.

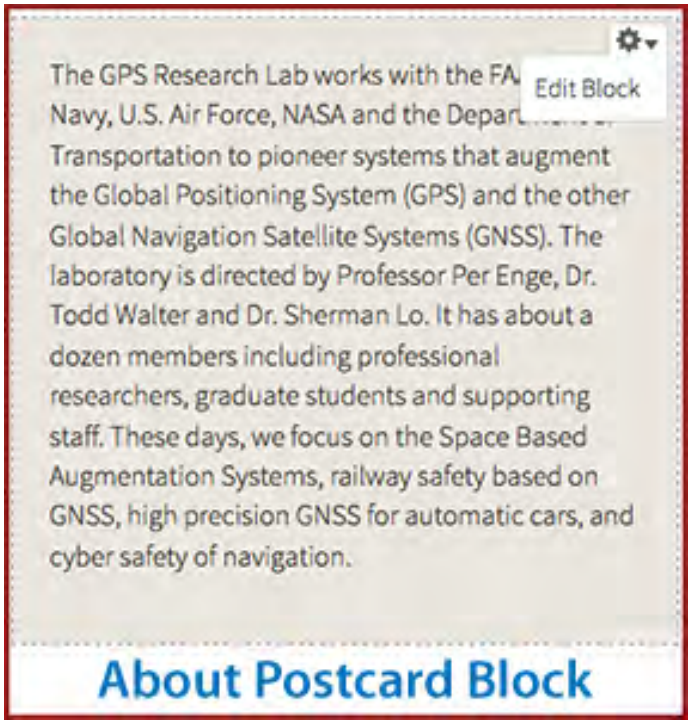
The GPS Lab Home Page

Like other Drupal pages in the GPS Lab website, the home page has a standard header section that contains the red stripe with Stanford University on the left and the SUNet ID Login button on the right. It also contains the Stanford Engineering Lab logo and the GPS Labe site identification, above the main site menu, and it has the same standard footer section that appears on all pages in the site.

However, unlike other Drupal pages, the home page has no "body" section and no sidebars with sub-menus. Instead, the home page features four independent, editable content blocks called "Stanford Postcard Blocks." If you are logged into Drupal as a site owner, and if you roll your mouse over the upper right corner of any of these postcard blocks, a drop-down menu will appear enabling you to edit the contents of that block.

Screen shots of these postcard blocks with their Edit buttons visible are shown below.

The About Postcard Block

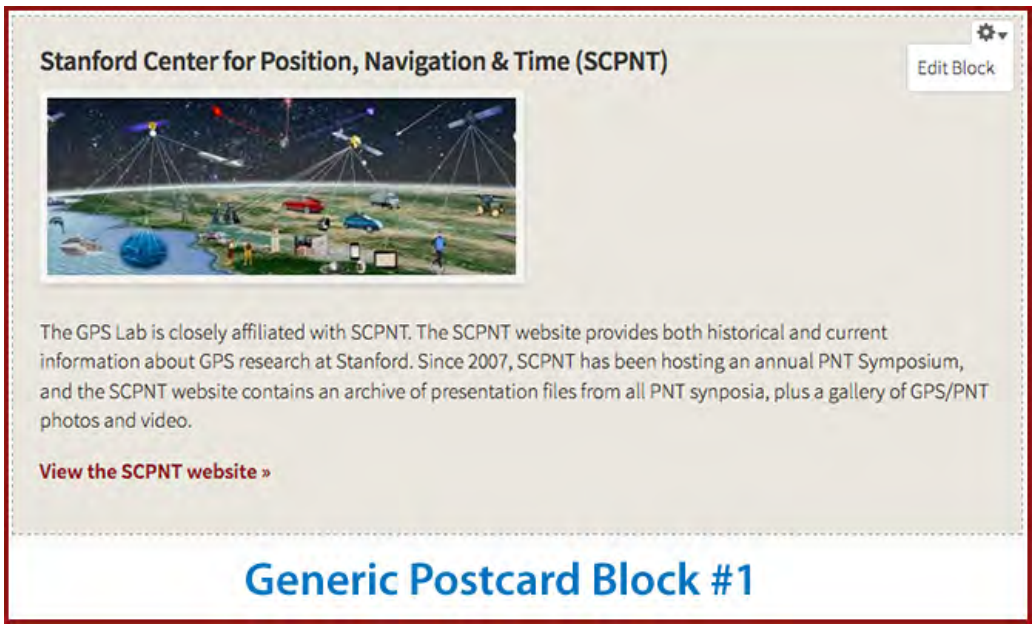


This block currently contains only text, although it can also contain a "feature image." The editing form for this block is identical to the editing form for a basic Drupal page.

The Banner Image Block

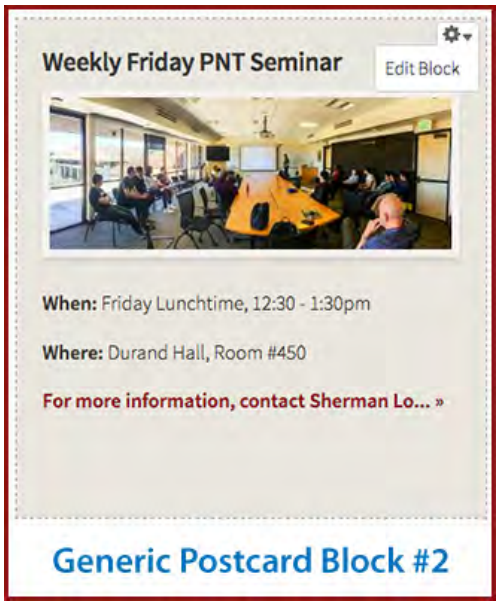
This block is designed to contain a wide (~2:1 aspect ratio) image. The editing form for this block simply enables you to replace the existing image with a different one.

Generic Postcard Block #1



This block currently contains a "feature image" and information about SCPNT, with a link to the SCPNT website. The form for editing this block is identical to the form for editing a basic Drupal page, described in the first section of this chapter.

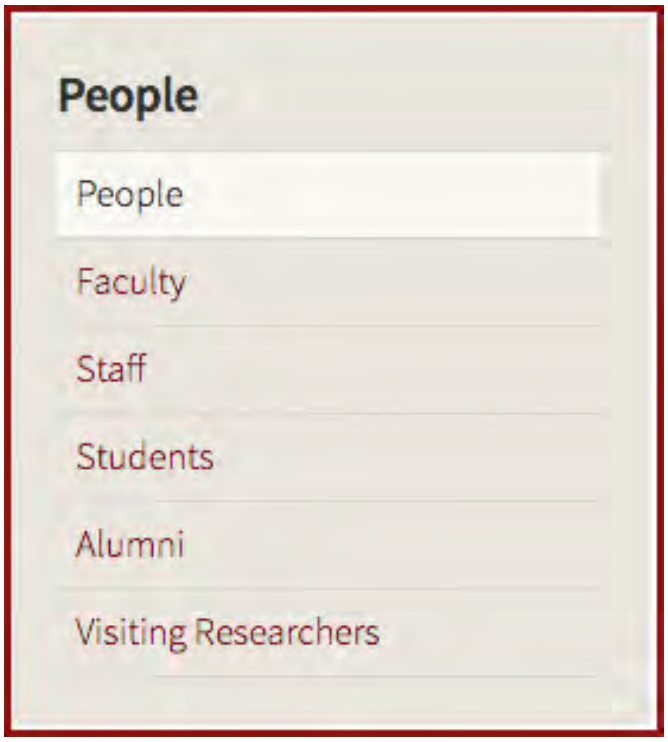
Generic Postcard Block #2



This block also contains a "feature image" with information about the GPS/PNT weekly Friday seminars. The link in the block opens Sherman Lo's page in the People section of the website. Again, the form for editing this block is identical to the form for editing a basic Drupal page, described in the first section of this chapter.

Pages in the GPS Lab People Section

If you click on People in the main menu of the GPS Lab website, you'll see a page that displays a GPS Lab group photo "feature image" at the top of the page, followed by a 4-column matrix of square photos with names and titles beneath, displayed in three groups: Faculty, Staff and Students.



As indicated in the People section sub-menu shown above, each of these groups—Faculty, Staff and Students—has its own web page. Also, there are web pages for Alumni and Visiting Researchers in the People section of the website.

The Alumni and Visiting Researchers pages are standard Drupal pages, edited with the basic Drupal page form described in the first section of this chapter.

However, the People, Faculty, Staff and Students pages are all generated automatically. In other words, these pages are not directly editable.

Besides the Alumni and Visiting Researchers pages, the only pages that site owners can edit in the People section are the pages for individual people. Moreover, most of the individual people pages obtain their information automatically from the Stanford CAP (Community Academic Profiles) system aka Stanford Profiles.

Making additions or changes to pages in the People, Faculty, Staff and Students pages in the People section of the GPS Lab website is a rather complex process. Thus, we will devote a whole chapter of this user guide to editing and maintaining the People section.

Uploading and Generating URLs for External PDF and Other Files

In the GPS Lab website, the Publications section contains bibliographic information on over 600 published papers, conference presentations, books and doctoral theses. A large percentage of the titles in the Publications section are linked either to PDF full-text copies of the document or to a publisher's website where the document full text resides.

Furthermore, the Research and Resources sections of the GPS Lab website also have pages that link to PDF, PPTX, KEY, DOCX and other types of document and presentation files. To maintain good response times on Stanford's Drupal web server, site owners have been advised by Stanford Web Services—the group that maintains the Drupal servers—to store external files linked from pages of Drupal websites on other servers or on web services, such as Stanford Box.

For SCPNT and the GPS Lab, we have addressed this issue by storing PDF publications files and various other files that are linked from pages in our SCPNT and GPS Lab websites on Stanford's AFS web server—the server where the original SCPNT website was located until August 2016, when the new Drupal version of the SCPNT website was launched.

This chapter has four main sections:

1. Obtaining the necessary authorization/permissions to access the SCPNT group folder on the AFS server
2. Setting up an FTP application or web-based AFS file transfer application to access the SCPNT group web folder on the Stanford AFS web server
3. Uploading PDF and other files to the SCPNT group web folder on the Stanford AFS web server
4. Creating link URLs for accessing files in the SCPNT group web folder from pages in the new Drupal SCPNT and GPS Lab websites.

Authorization and Permissions to Access the SCPNT Group Folder on AFS

In order to store and/or retrieve files from the SCPNT group web folder on the AFS server, your SUNet ID needs to be authorized to log into the AFS server, and granted Read and Write privileges for accessing the SCPNT group folder.

As of December 15, 2016 the SUNet IDs for the following SCPNT/GPS Lab website owners have been granted these permissions:

1. Bob Kahn (SUNet ID = rakahn)
2. Tom Langenstein (SUNet ID = poiuy
3. Per Enge (SUNet ID = penge)
4. Todd Walter (SUNet ID = twalter)
5. Sherman Lo (SUNet = deadalus)

Setting Up Secure FTP Access the SCPNT Group Folder on AFS

While there are other ways to access the AFS server—e.g. using a UNIX terminal and SSH—the easiest way for Mac and PC users is to use a File Transfer Protocol or FTP software program.

Stanford Essential Software offers free file transfer software applications for both Mac and Windows computers:

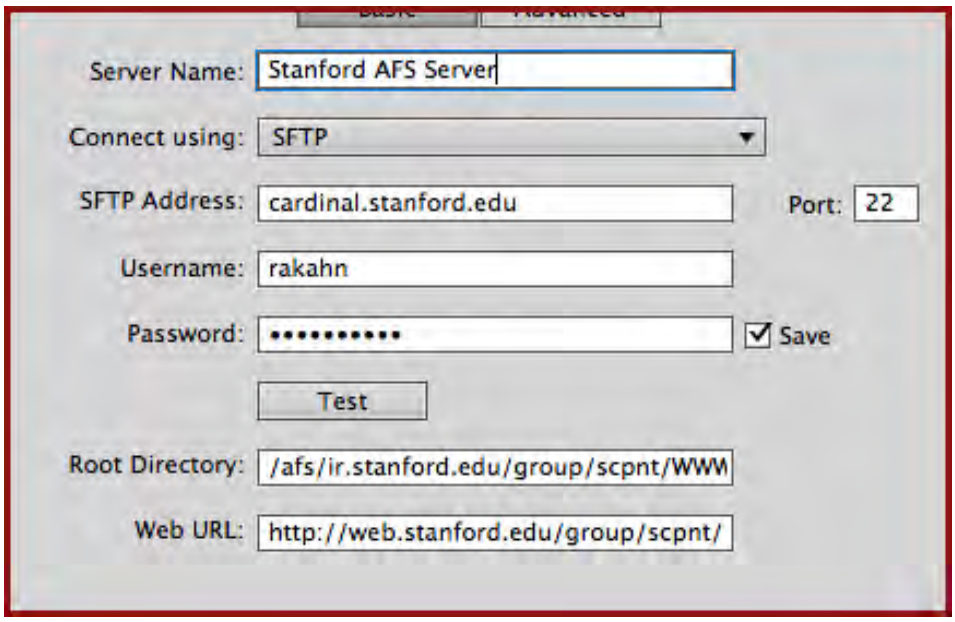
- **Fetch**—A secure FTP application for Mac OS X 10.7 and later
- **SecureFX**—A secure FTP application for Windows
- **Open AFS** — A secure web application for transferring files to and from AFS (alternative to FTP)

To download and install an FTP software application or set up Open AFS, visit this URL:

https://uit.stanford.edu/software

Once you have installed a file transfer application, you must configure it for accessing the SCPNT group WWW folder on the AFS server.

Below is a typical server configuration panel showing the necessary information for accessing the SCPNT group folder on AFS. (This example server setup form is from Adobe Dreamweaver, but the information it displays is applicable for any FTP software.)

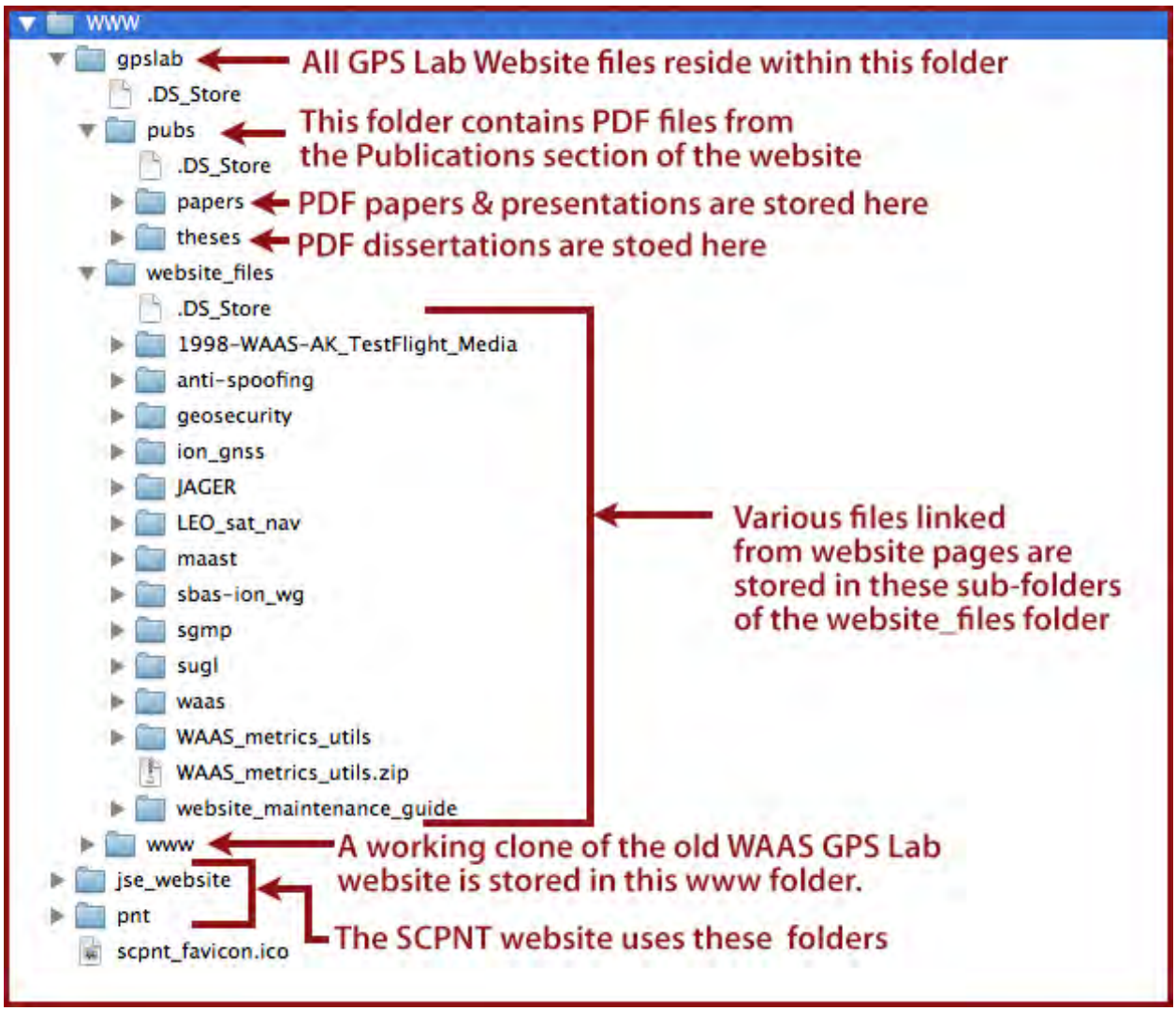


The important fields on the form shown above are as follows:

- Connect Using **SFTP, Port 22** (That is, use Secure FTP via Port 22, not plain FTP)
- SFTP Address or Server Address: **cardinal.stanford.edu**
- Username: **Your SUNet ID**
- Password: **Your SUNet ID password**
- Root Directory or Remote Path: **/afs/ir.stanford.edu/group/scpnt/WWW**

Often, the FTP server setup form will provide some kind of Test button that will enable you to confirm a secure connection to the server.

In any case, once you have connected to the **/scpnt/WWW** group folder on AFS, the file tree shown below provides a visual map showing the locations of various types of files stored there.



Uploading Files to the SCPNT Group Folder on AFS

Now that you know how to connect to the scpnt group folder on AFS and see the folder tree inside the gpslab folder there, you are ready to upload new files to the AFS server and then provide links to the files you've added from pages in the GPS Lab website.

Hypothetical Example #1

Suppose Todd Walter gives a presentation entitled "Satellite Selection for Multi-Constellation SBAS" at the 2016 IONGNSS conference. Now, Todd wants to add a PDF copy of his presentation to the All Publications page and also to the Conference Papers page in the Publications section of the GPS Lab website.

The PDF file is named: **Walter_IONGNSS_2016_SatSelection.pdf** (Note: A best practice is to use no spaces or punctuation marks other than hyphen (-) or underscore (_) in the names of file stored on a web server.)

With his PDF file readily accessible on his laptop, Todd fires up his trusty copy of Secure FX and logs into the scpnt group folder on AFS. Then using the graphical user interface provided by SecureFX, Todd simply drags his PDF presentation file from its location on his laptop into the /gpslab/pubs/papers folder on the server.

Hypothetical Example #2

Suppose Sherman Lo has been working on JAGER, and he has created a PDF document that he wants to link to the JAGER page in the Research section of the GPS Lab website.

Sherman's PDF file is named: **Lo_IONITM_2016_rv3b.pdf**

With his PDF file readily accessible on his MacBook Pro, Sherman fires up Fetch and logs into the scpnt group folder on AFS. Using Fetch's GUI, Sherman checks the sub-tree of folders inside the website_files folder and notices that there is no JAGER sub-folder.

No problem. Using Fetch, Sherman creates a JAGER sub-folder inside the website_files folder and then drags his PDF file into the JAGER folder he just created.

Creating URLs for Linking to Files Stored in the SCPNT Group Folder on AFS

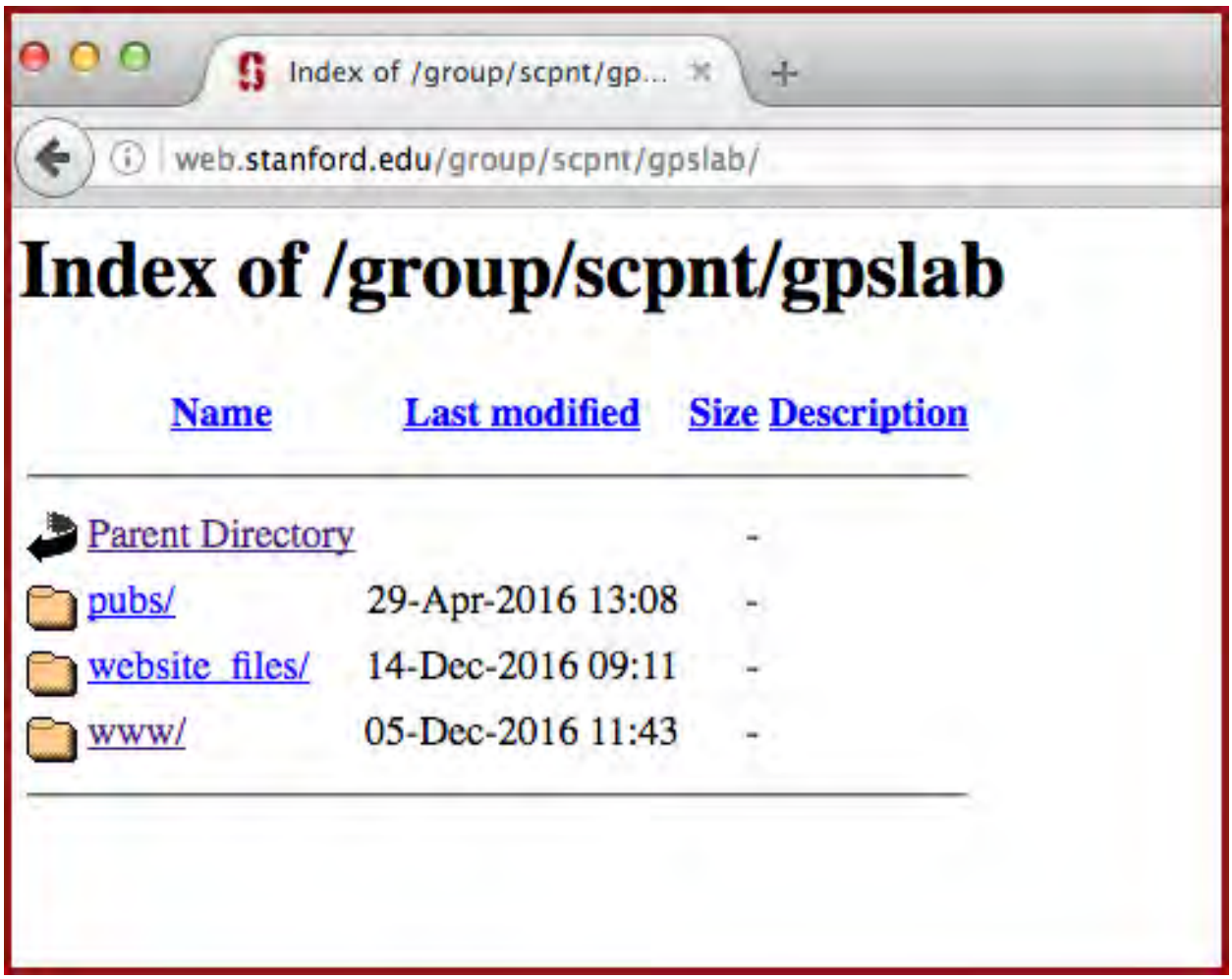
We now have two hypothetical examples of uploading PDF files to the scpnt group folder on AFS. The remaining task is generating the correct URLs that will enable these PDF files to be accessed from pages in the GPS Lab website.

Base URL for GPS Lab Files in the SCPNT Group Folder on AFS

The base or prefix URL for accessing GPS Lab website files stored in the scpnt group (WWW) folder on AFS is:

http://web.stanford.edu/group/scpnt/gpslab/

If you enter this base URL into a web browser, you will simply see a list of the pubs, website_files and www folders that are located inside the gpslab folder in the scpnt group folder on AFS. The screen shot below shows this index or directory listing.



Full URL for GPS Lab Files in the SCPNT Group Folder on AFS

Using the base URL as a starting point, you simply add any remaining sub-folders in the path to the base URL, and then add the file name at the end of the path to complete the URL.

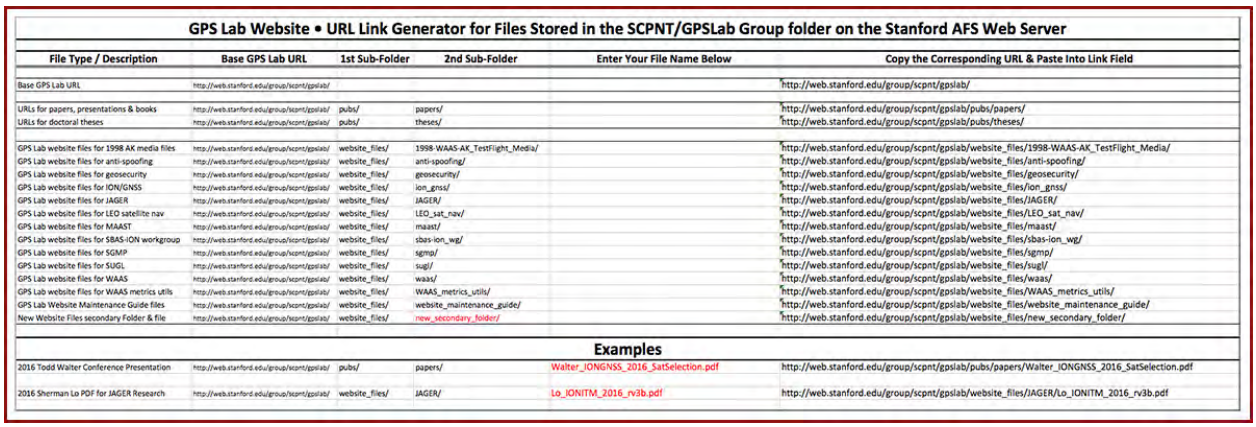
In hypothetical example #1, Todd's PDF was uploaded to the papers folder, inside the pubs folder. Todd's PDF file name was: **Walter_IONGNSS_2016_SatSelection.pdf.** Therefore, the full path URL for accessing Todd's file would be:

http://web.stanford.edu/group/scpnt/gpslab/pubs/papers/Walter_IONGNSS_2016_SatSelection.pdf

In hypothetical example #2, Sherman's PDF was uploaded to a new folder named JAGER, located inside the website_files folder. Sherman's paper was entitled: L**o_IONITM_2016_rv3b.pdf**. Therefore, the full path URL for accessing Sherman's file would be:

http://web.stanford.edu/group/scpnt/gpslab/website_files/JAGER/Lo_IONITM_2016_rv3b.pdf

To facilitate generating these long URLs, we have created a Microsoft Excel Spreadsheet that generates the full URL of any file that you have uploaded into a sub-folder of the /gpslab sub-folder on the AFS server. Below is a screen shot of this spreadsheet and a URL link for downloading it.



GPS Lab Website • URL Link Generator for Files Stored in the SCPNT/GPSLab Group folder on the Stanford AFS Web Server

File Type / Description	Base GPS Lab URL	1st Sub-Folder	2nd Sub-Folder	Enter Your File Name Below	Copy the Corresponding URL & Paste Into Link Field
Base GPS Lab URL	http://web.stanford.edu/group/scpnt/gpslab/				http://web.stanford.edu/group/scpnt/gpslab/
URLs for papers, presentations & books	http://web.stanford.edu/group/scpnt/gpslab/	pubs/	papers/		http://web.stanford.edu/group/scpnt/gpslab/pubs/papers/
URLs for doctoral theses	http://web.stanford.edu/group/scpnt/gpslab/	pubs/	theses/		http://web.stanford.edu/group/scpnt/gpslab/pubs/theses/
GPS Lab website files for 1998 AK media files	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	1998-WAAS-AK_TestFlight_Media/		http://web.stanford.edu/group/scpnt/gpslab/website_files/1998-WAAS-AK_TestFlight_Media/
GPS Lab website files for anti-spoofing	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	anti-spoofing/		http://web.stanford.edu/group/scpnt/gpslab/website_files/anti-spoofing/
GPS Lab website files for geosecurity	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	geosecurity/		http://web.stanford.edu/group/scpnt/gpslab/website_files/geosecurity/
GPS Lab website files for ION/GNSS	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	ion_gnss/		http://web.stanford.edu/group/scpnt/gpslab/website_files/ion_gnss/
GPS Lab website files for JAGER	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	JAGER/		http://web.stanford.edu/group/scpnt/gpslab/website_files/JAGER/
GPS Lab website files for LEO satellite nav	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	LEO_sat_nav/		http://web.stanford.edu/group/scpnt/gpslab/website_files/LEO_sat_nav/
GPS Lab website files for MAAST	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	maast/		http://web.stanford.edu/group/scpnt/gpslab/website_files/maast/
GPS Lab website files for SBAS-ION workgroup	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	sbas-ion_wg/		http://web.stanford.edu/group/scpnt/gpslab/website_files/sbas-ion_wg/
GPS Lab website files for SGMP	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	sgmp/		http://web.stanford.edu/group/scpnt/gpslab/website_files/sgmp/
GPS Lab website files for SUGL	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	sugl/		http://web.stanford.edu/group/scpnt/gpslab/website_files/sugl/
GPS Lab website files for WAAS	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	waas/		http://web.stanford.edu/group/scpnt/gpslab/website_files/waas/
GPS Lab website files for WAAS metrics utils	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	WAAS_metrics_utils/		http://web.stanford.edu/group/scpnt/gpslab/website_files/WAAS_metrics_utils/
GPS Lab Website Maintenance Guide files	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	website_maintenance_guide/		http://web.stanford.edu/group/scpnt/gpslab/website_files/website_maintenance_guide/
New Website Files secondary Folder & file	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	new_secondary_folder/		http://web.stanford.edu/group/scpnt/gpslab/website_files/new_secondary_folder/
Examples					
2016 Todd Walter Conference Presentation	http://web.stanford.edu/group/scpnt/gpslab/	pubs/	papers/	Walter_IONGNSS_2016_SatSelection.pdf	http://web.stanford.edu/group/scpnt/gpslab/pubs/papers/Walter_IONGNSS_2016_SatSelection.pdf
2016 Sherman Lo PDF for JAGER Research	http://web.stanford.edu/group/scpnt/gpslab/	website_files/	JAGER/	Lo_IONITM_2016_rv3b.pdf	http://web.stanford.edu/group/scpnt/gpslab/website_files/JAGER/Lo_IONITM_2016_rv3b.pdf

Click Here to Download the URL Generator Excel Spreadsheet

Using the AFS Web Server GPS Lab URL Generator Spreadsheet

1. Open the spreadsheet in Microsoft Excel

2. Enter the filename with extension (e.g. my_file.pdf) in the **Enter Your File Name Below** column and in the row corresponding to the **2nd Sub-Folder** location where you uploaded your file.

   For example, if you uploaded a PDF full-text file for a conference paper into the **/gpslab/pubs/papers** sub-folder, then you would enter the filename in the cell to the right of the **/papers** cell.

3. After you've entered the filename, its full-path URL will appear in the adjacent URL column to the right.

4. Select the full-path URL cell and copy it to your computer's clipboard. (Note: Copy the whole cell; if you select/highlight the cell contents, you will copy the cell's formula; you want the cell's value.)

5. In the Body section of the GPS Lab website page you are editing, make sure that is set in the Text Format drop-down menu beneath the body section text is set to **Content Editor Text Format.**

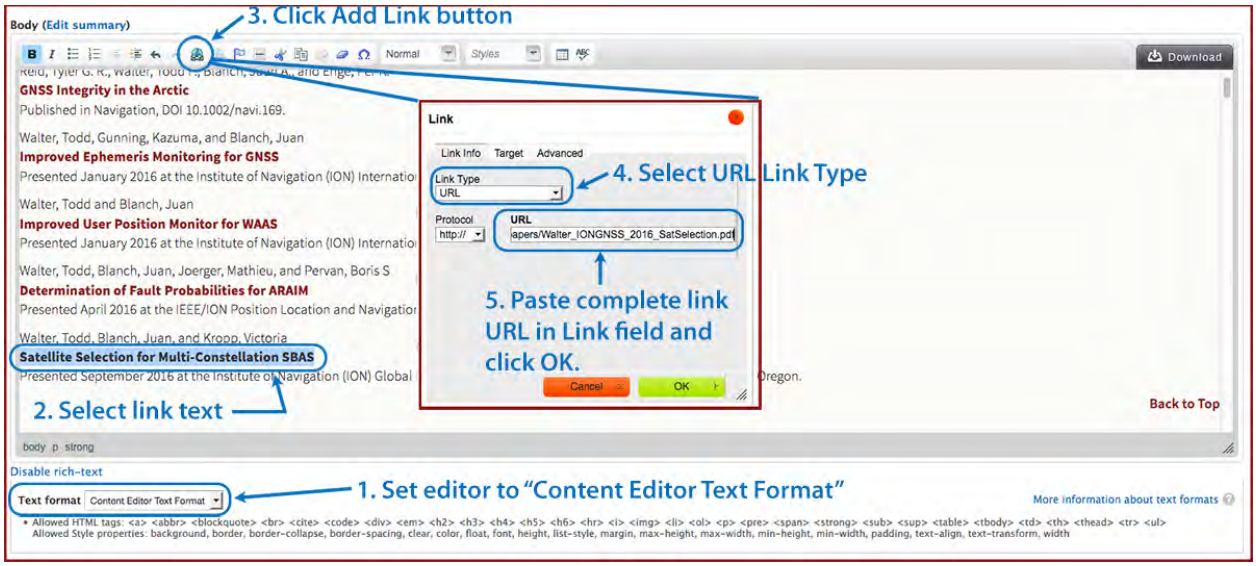
6. Select the text or object to which you want to add a URL link.

7. Click the Add Link button in the tool bar at the top the body text section.

8. In the Link entry box that opens, select **http://** as the Link Type.

9. Paste the URL that you copied from the URL Generator spreadsheet into the Link field, and then click OK to close the Link box.

   The screen shot below shows this process.



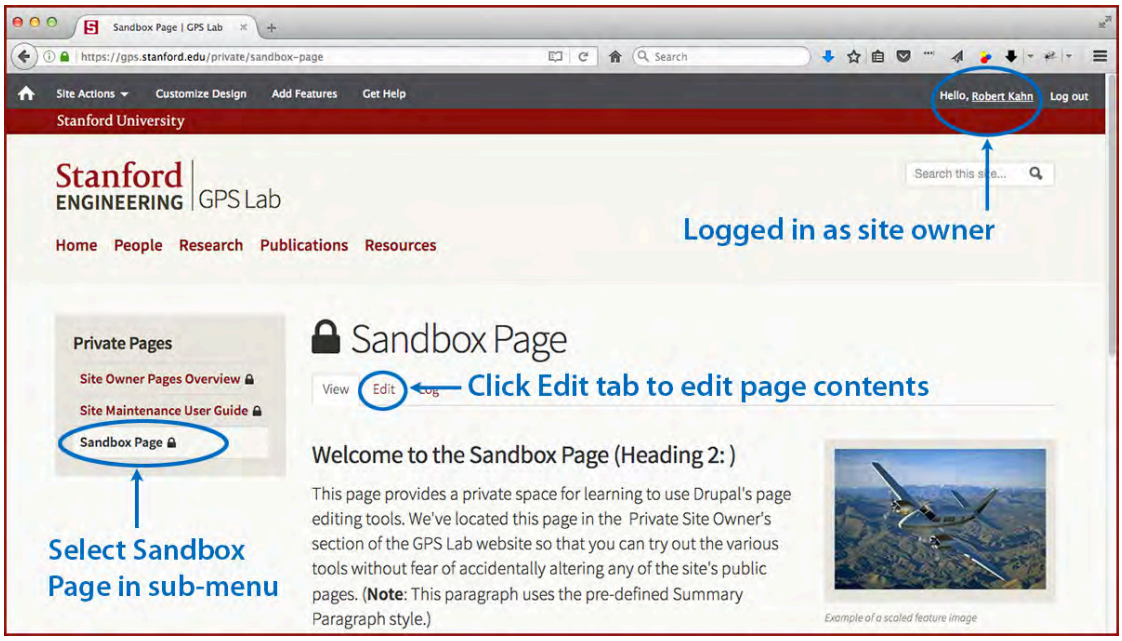
10. Click the **Save** button at the bottom of the Drupal page editing form to save the changes you made to the page.

In the next chapter, we'll provide more details about Drupal's web page editing tools.

Using Drupal's Web Page Editing Tools

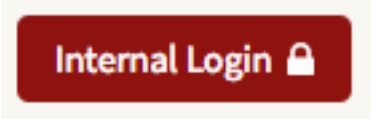
As noted earlier, when you are signed into Drupal as a site owner, a gray menu stripe appears above the red stripe across the top of each web page in the site. In addition, **View**, **Edit**, **Revisions** and **Log** tabs appear beneath the title of each page. To edit the contents of any page in the site, you simply click the **Edit** tab on that page, as shown below.

Drupal's Web Page Structure



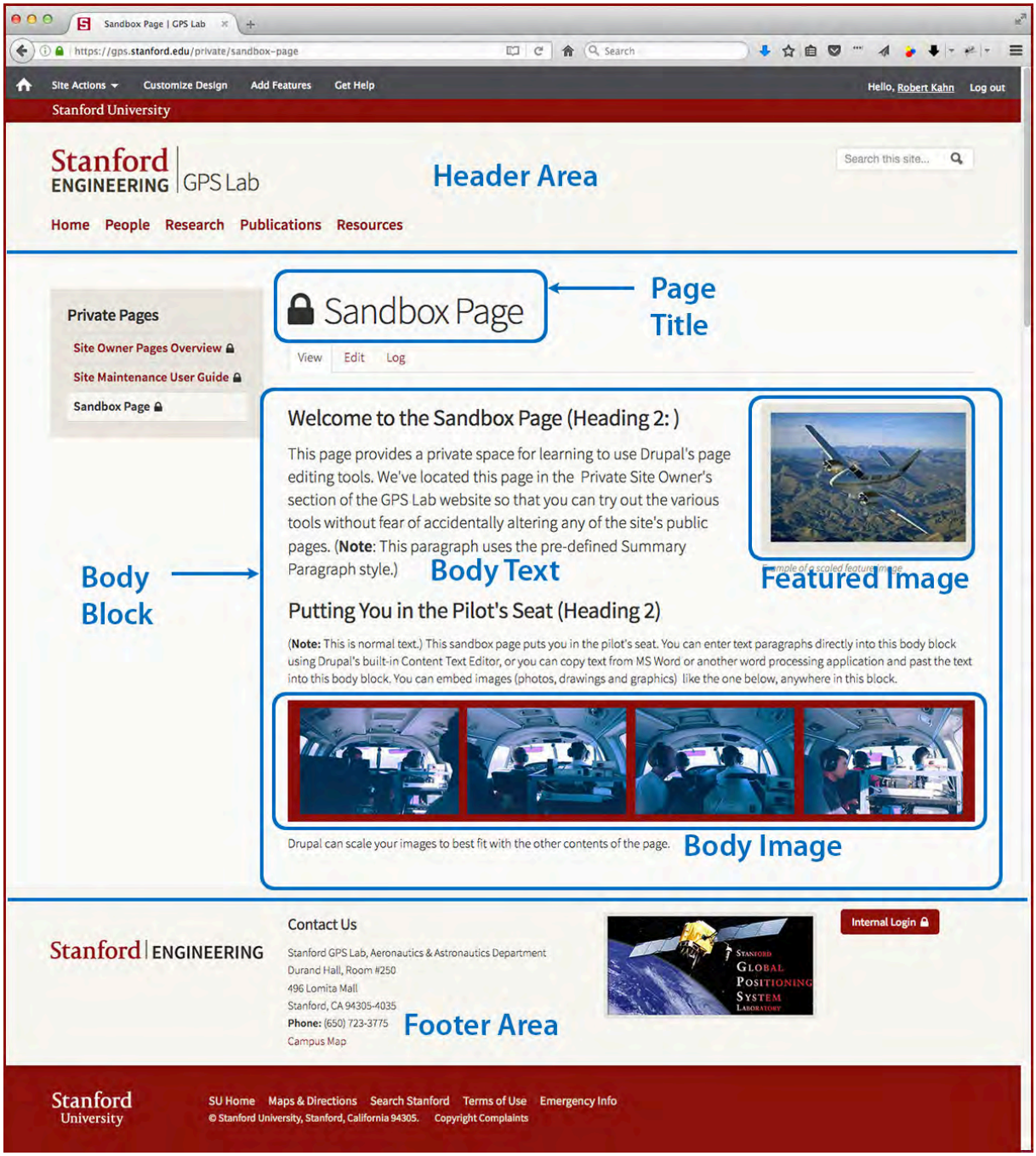
The page shown above is the Sandbox Page, located in the private section of the GPS Lab website, accessible only to logged-in site owners. This Sandbox Page provides you a private space for learning about and experimenting with Drupal's editing tools. Because this page is located in the private site owner's section of the GPS Lab website, you can feel free to experiment with the contents of this page as much as you like without fear of inadvertently altering any of the site's public pages. Throughout this chapter, we will use this page to demonstrate Drupal's content editing features.

To open the Sandbox Page for editing:



1. Click the **Internal Login** button at the right end of the footer on any page in the site.
2. Select **Sandbox Page** at the bottom of the sub-menu in the left sidebar.
3. Click the **Edit** tab beneath the Sandbox Page title.

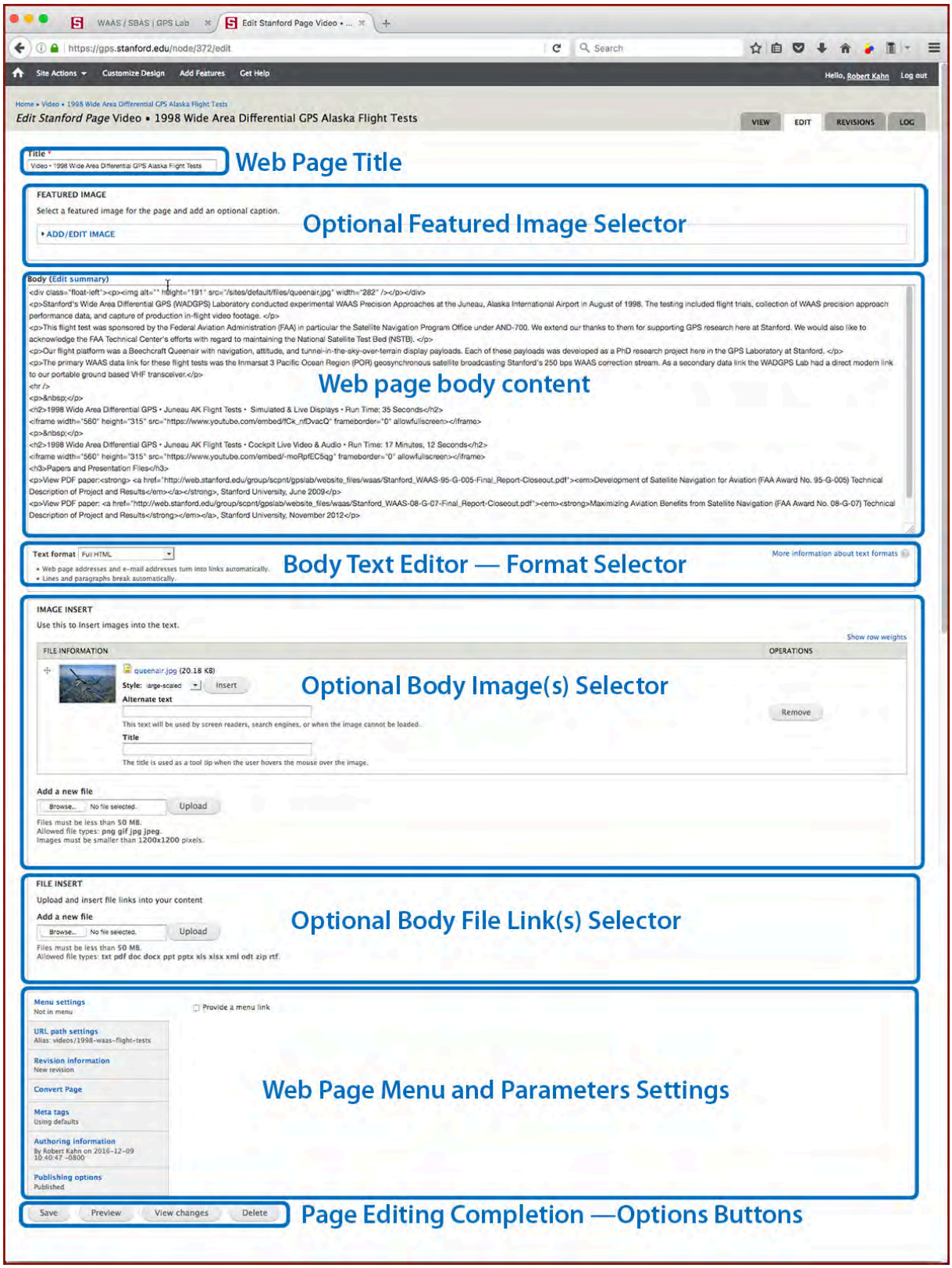
The screen image below shows the basic sections of the Sandbox page.



Notice that all basic pages in the GPS Lab website have the following editable sections:

- Page Title — Appears in large type at the top of the page
- Optional Featured Image—If present, always appears in the upper right corner of the Body block and is automatically scaled to fit the size of the body block.
- Body Block — The main content of the page; text, images, links, tables, etc.

When you click the **Edit** button on any basic page or landing page in the site, a Drupal page editing form appears, as shown in the labeled screen image below.



Web Page Title

Each Drupal web page must have a unique, identifying title. The title appears in large text, beneath the header section of the page.

Simply type the title you want into the Title box at the top of the Drupal page editing form.

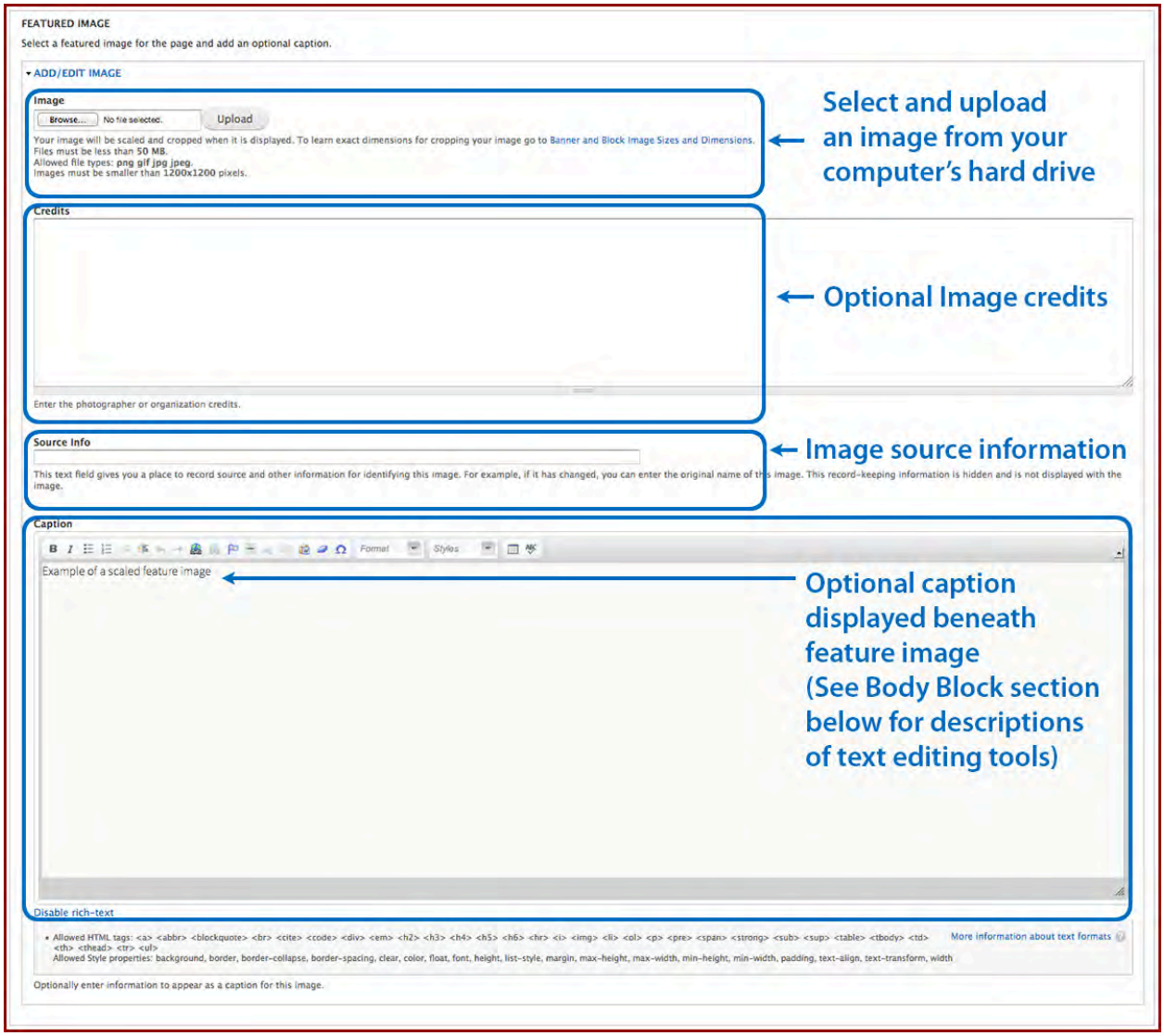
Note: If the page you are editing will be accessible from a menu, then Drupal will use the words you enter in the Title box, separated by hyphens, in the menu—unless you specify otherwise. Drupal will also use the words from the title in the URL for this page—unless you specify otherwise.

Optional Feature Image

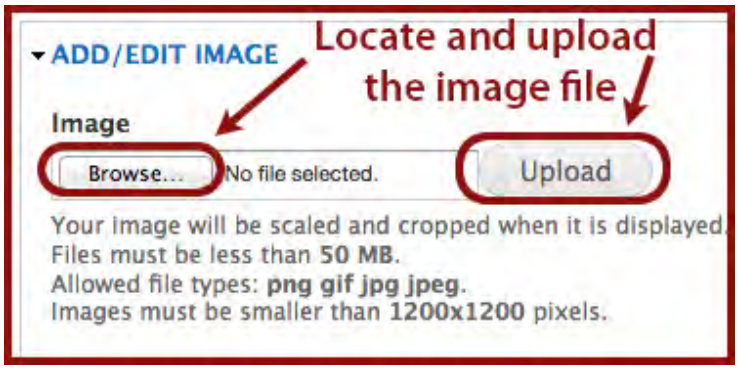
The Drupal layout features of the GPS Lab website have been configured so that each standard page in the site can display an optional "feature image" in the upper right corner of the page's Body Block.

By default, the Featured Image section of the editing form is closed. If you wish to add a featured image to the page, simply click the **Add/Edit Image** button to open the Feature Image selection and captioning section of the form.

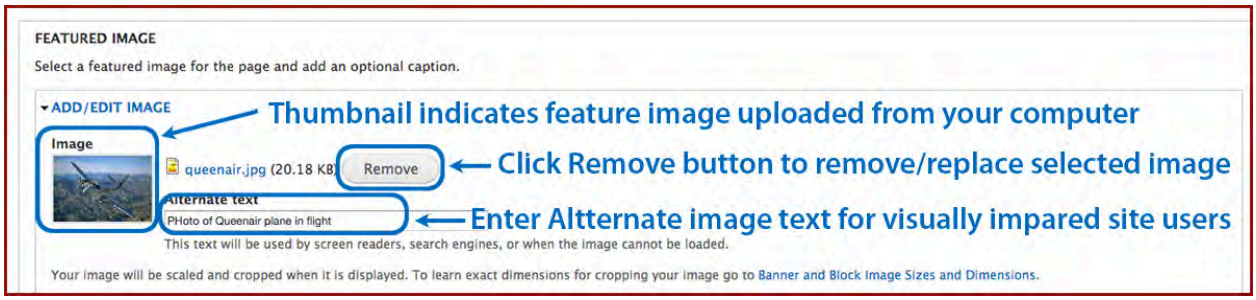
The screen image below shows the open Feature Image selection section of the editing form.



In the top section, click the **Browse** button to select the feature image file from your computer's hard drive. Once you have selected the image, click the **Upload** button to upload the image into Drupal's image database for the site.



Once you have selected and uploaded an image file, its thumbnail and file name appear in the Image section, and the **Browse** and **Upload** buttons are replaced with a **Remove** button.

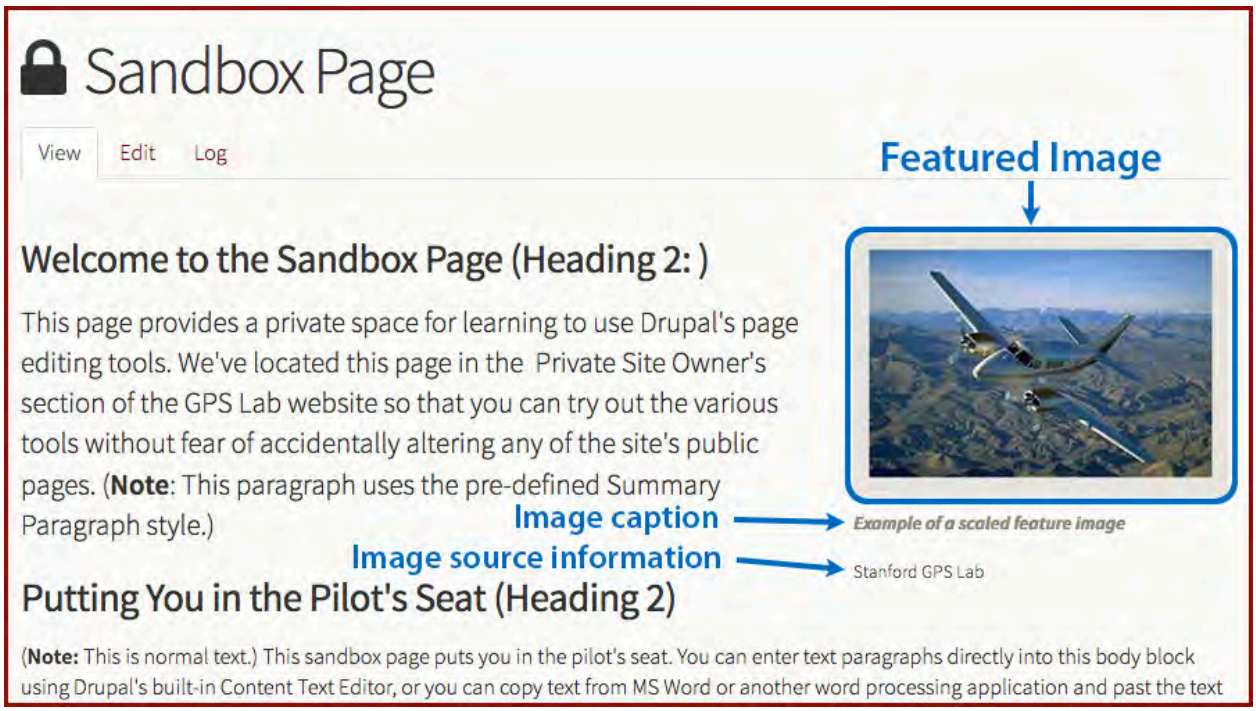


Note: It is a good practice to enter an image description in the **Alternate Tex**t box for use by visually impaired visitors to the site.

The remaining blocks in the Featured Image section are optional:

- If you enter image credits, they will be displayed beneath the image caption.
- You can enter caption text that will be displayed beneath the image. You can style the caption text using the editing tools at the top of the caption box. These tools are described in detail in the next section of this chapter.
- You can enter image source information for record keeping purposes. Image source information is not displayed on the web page.

Below is an example of the featured image on the Sandbox web page. Notice that the image is automatically surrounded by a frame to indicate that it is “featured.”



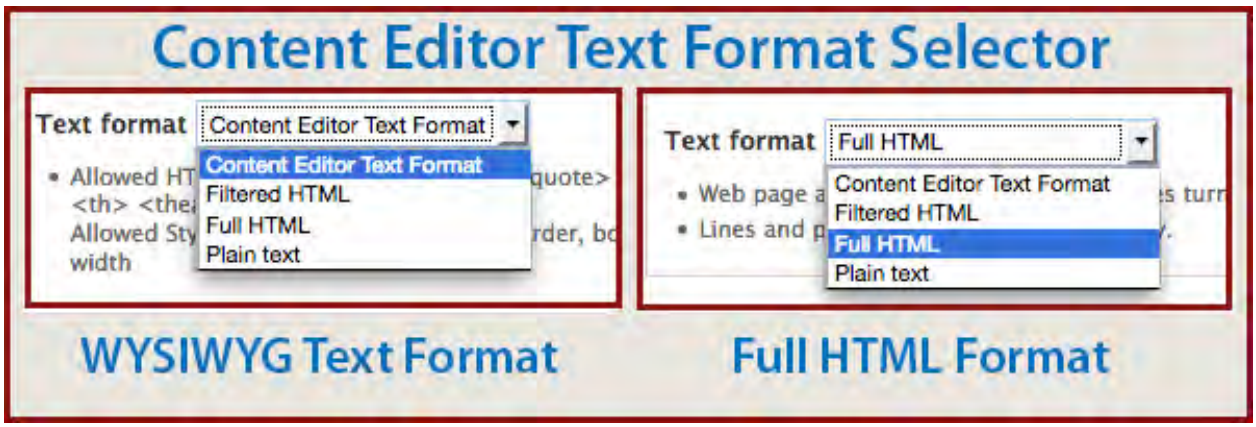
The Drupal Text Editor

Every standard Drupal web page contains a Body block, which in addition to an optional featured image typically includes one or more paragraphs of text and optional images that can be located anywhere in the text area. The text may or may not include links to other pages or even other websites. Links are displayed in red text. Images can also serve as links. However, the only indication that an image is also a link is that the cursor turns into a pointing finger when you move the cursor over it.

Note: On touch-sensitive devices, such as tablets and smart phones, there is no indication that an image is also a "link button," so the image itself must convey the visual message that it is a button to be tapped.

Selecting a Text Editor Format

The Body block section of every standard Drupal web page comprises an editing "box," with an editor Text Format drop-down selector beneath it. This Text Format selector controls the appearance of the editing box and the features available for entering/editing the text contents in the editing box—that is, the text contents that appear on the web page.



The Text Format selector provides four options, only two of which—shown above—should be used:

- **Text Format**—Essentially a WYSIWYG (What-You-See-Is-What-You-Get) editor that displays the contents of the Body block as you would see it in a typical word processing application, such as Microsoft Word. If you are typing text into the Body block or editing existing text in the block, this is the easiest format to use. Also, you can paste text into this box that you copied from a text editor or word processing application. If the Body block contains *only text and images*, without any special HTML coding, you can save the page with this format selected for the editor.

- **Filtered HTML**—Ignore this option; it is not useful for general text entry/editing purposes.

- **Full HTML**—In this mode, the editor accepts only valid HTML code for the entire contents of the Body block. Full HTML mode essentially gives you full control over the styling of the text and image contents on the page. If you are familiar with HTML coding, you can enter coded text directly into the editor box in this mode. Alternatively, you can paste HTML code, copied from an HTML editor such as Adobe Dreamweaver, directly into the editor box in this mode.

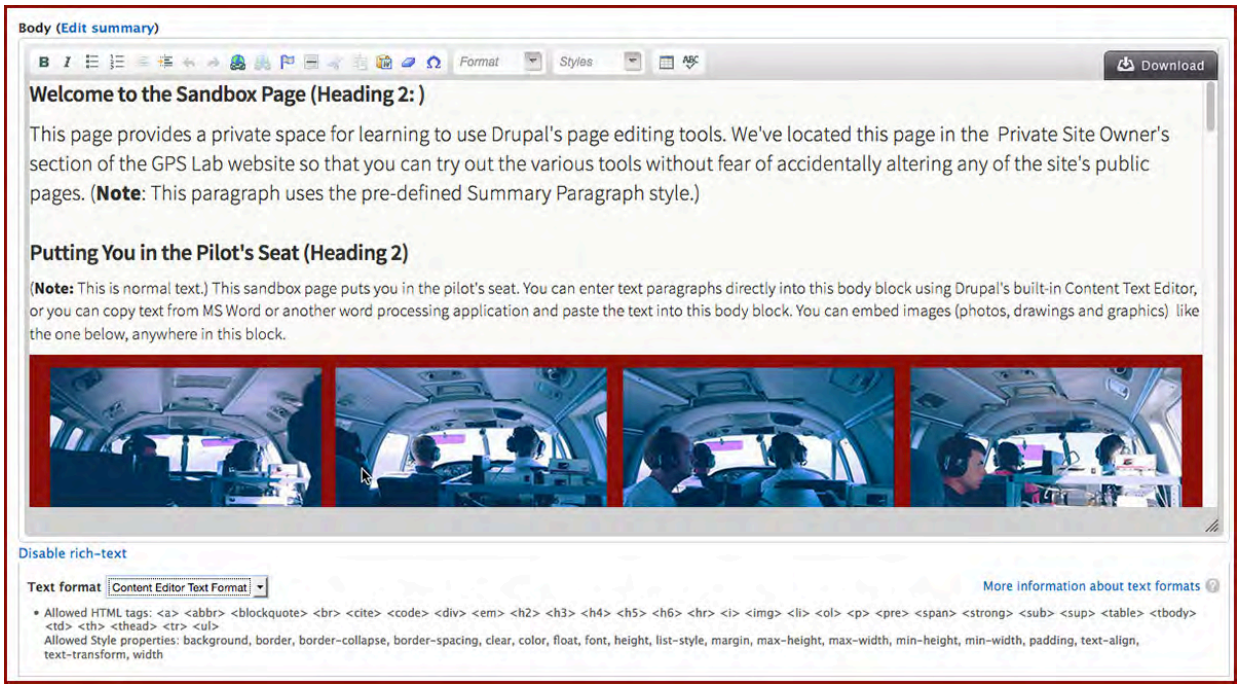
  Note 1: If you enter text into the editor in Full HTML mode, you must save the page with the editor in Full HTML mode to ensure that the page displays correctly in your browser.

  Note 2: If you enter text content into the editor in Full HTML mode and then switch the editor to Text Format mode, your HTML code may get changed in the process, yielding undesired results. Thus, if you use Full HTML mode to create content, it is best not to switch the editor to Text Format mode before saving the page.

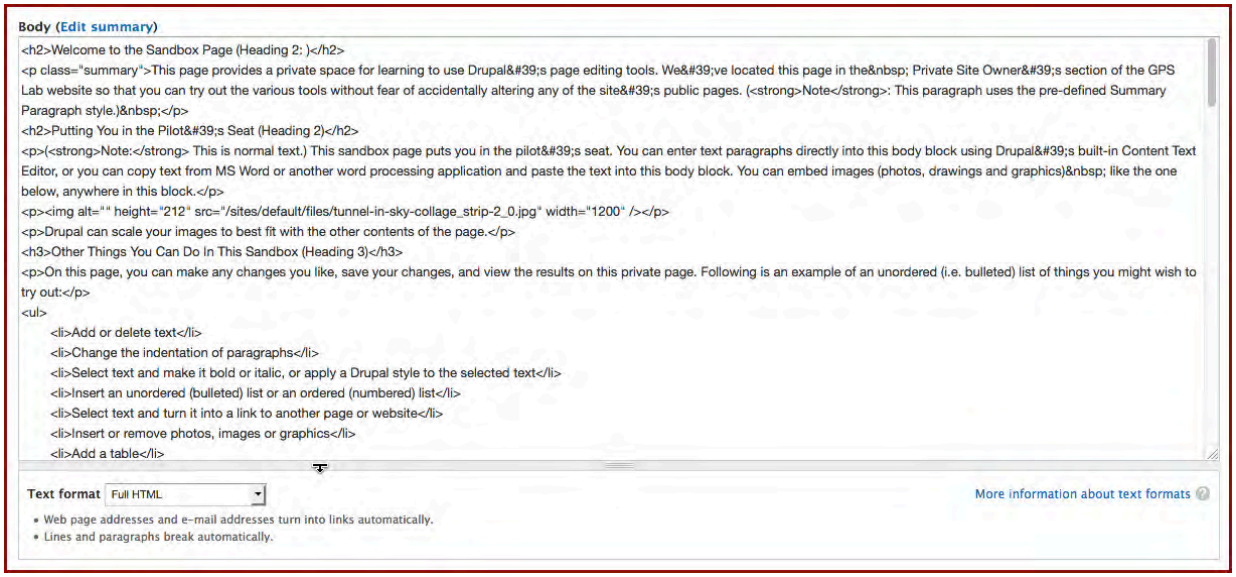
  Note 3: If you entered the contents of the page in Text Format mode, the page will still display correctly if you switch the editor to Full HTML mode before saving the page. In other words, it is fine to use Text Format mode to enter text content and the switch the editor to Full HTML mode before saving the page, but the converse—entering text content in Full HTML mode and then switching the editor to Text Format may cause the page to display incorrectly.

- **Plain Text**— Ignore this option; it is not useful for general text entry/editing purposes.

Below is a screen image showing the top portion of the Sandbox web page with the editor set to **Text Format** mode. Notice the tool bar that appears along the top edge of the editor box in this mode. The HTML tags listed beneath the editor format selector are the tags that will display properly when the editor is set to Text Format mode.



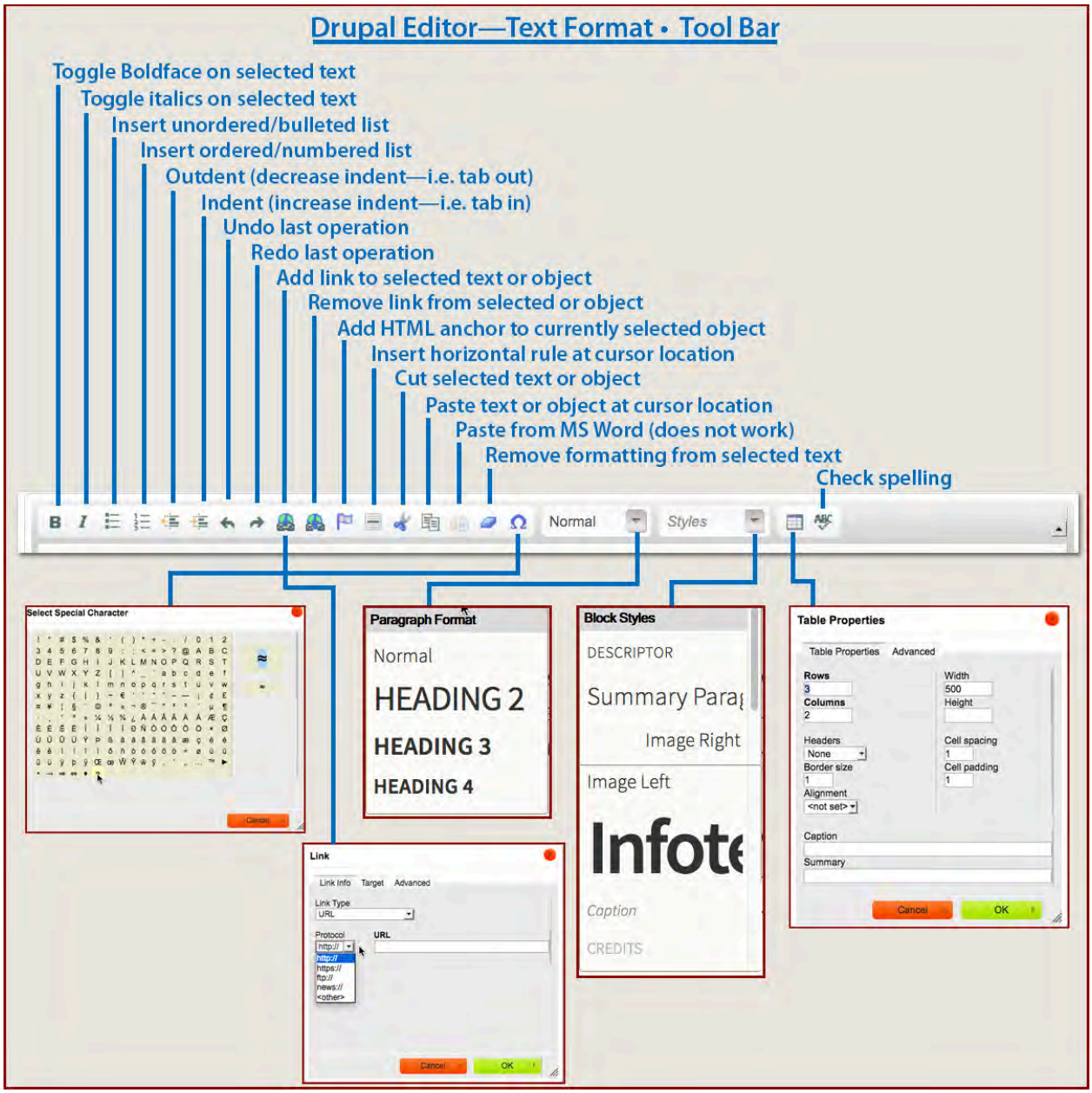
The screen image below shows the same portion of the Sandbox web page with the editor switched to **Full HTML** mode. Notice that in **Full HTML** mode, the editor has no tool bar, nor any other editing aids. It is just a simple scrolling box for entering HTML code.



The Text Editor Tool Bar

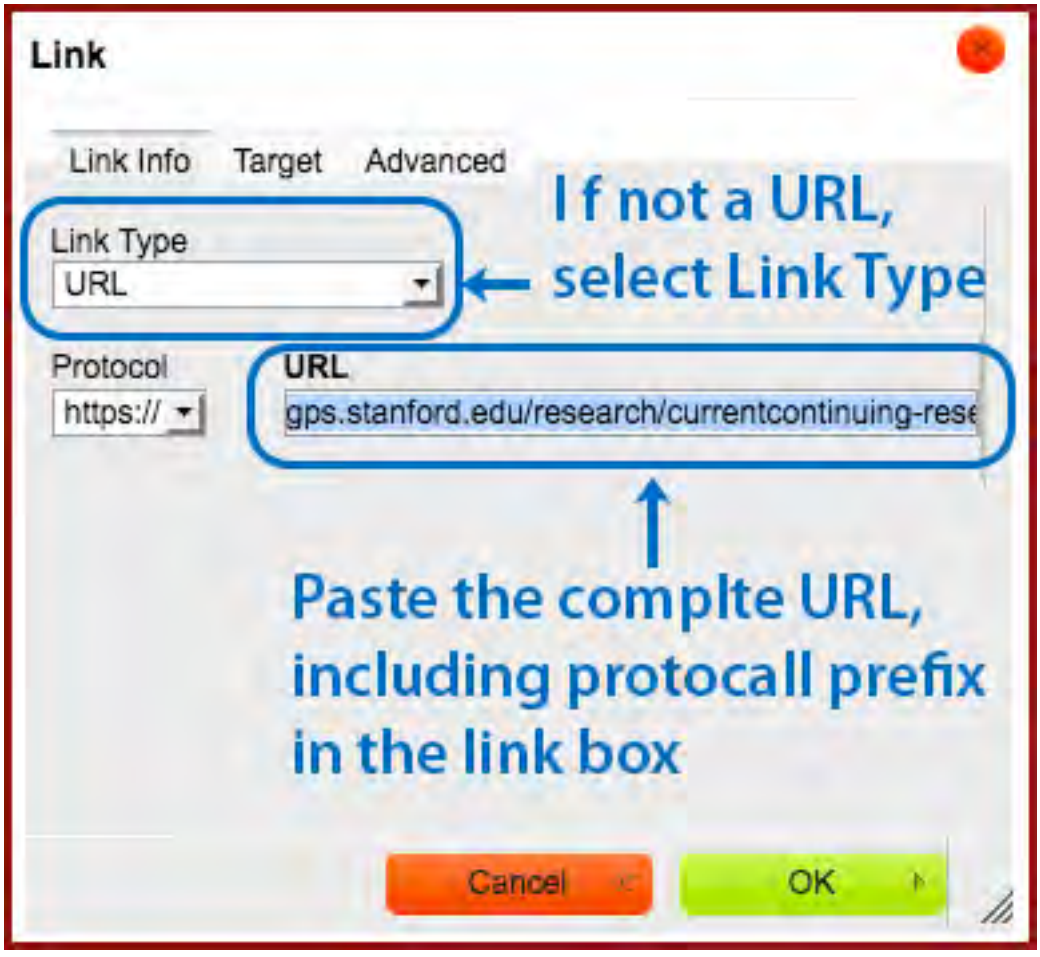
When the Text Format selector is set to Full Text, a toolbar is displayed across the top border of the editor box. Similar to Microsoft Word and other word processing/text editing applications, the buttons on this toolbar provide shortcuts styling and performing various operations on selected text and/or objects in the editor box.

Below is a screen image of the toolbar, with brief descriptions of the functions of each button on the toolbar.



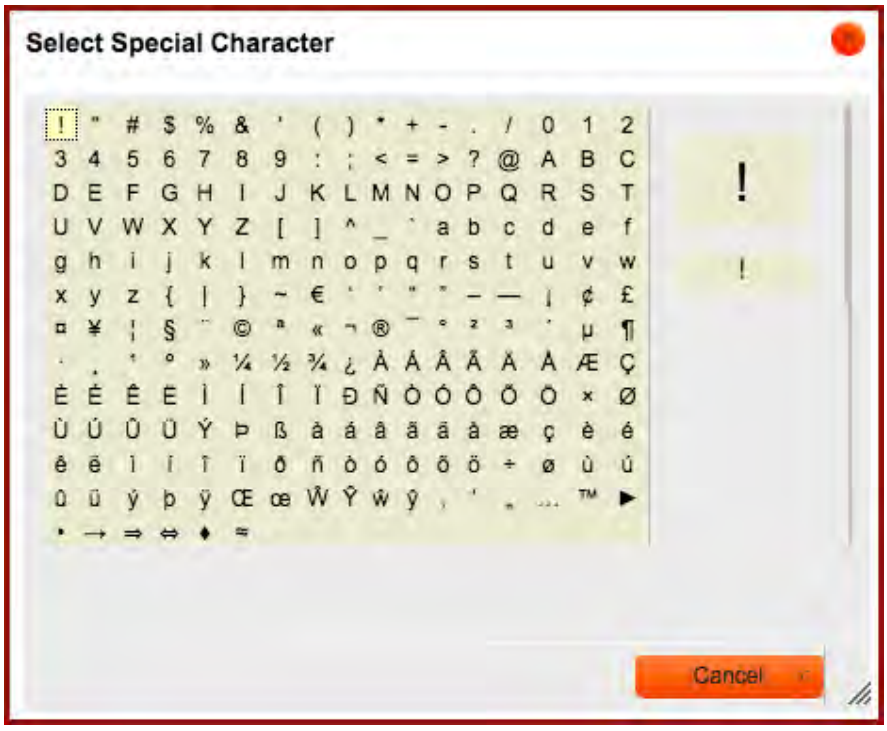
Following are a few notes about the functions of these buttons.

- **Bold/Italics** buttons—Select one or more words in the text and use these buttons to apply/remove boldface or italics to emphasis to the selected text
- **Insert unordered/ordered lists** buttons—Place the cursor between paragraphs in the text, and click the unordered list button to insert a bulleted list, or click the ordered list button to insert a numbered list. Clicking the Return/Enter key twice after entering the last list item closes the list entry.
- **Outdent/Indent** buttons—Place the cursor at the beginning of a paragraph and click the outdent button to remove an existing indent (tab); click the indent button to insert an indent (tab) in front of the paragraph.
- **Undo/Redo**—Click one of these buttons to undo or redo your most recent text operation in the editor box.
- **Add Link button**—Select a text segment or an object (e.g. an image), and click the Add Link button to open the Link panel, shown below.



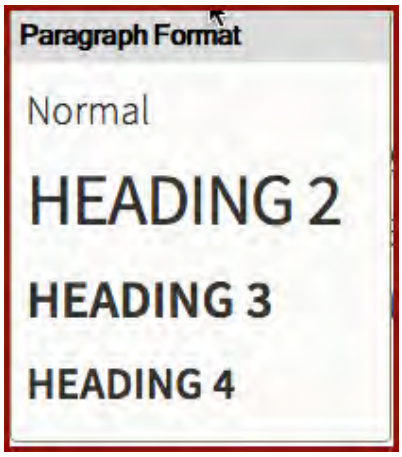
If the http://, https:// or other protocol prefix is included in the URL, you don't need to select a protocol from the drop-down menu; simply paste the entire URL in the box.

- **Remove link** button—Select text or an object to which a link has already been applied and then click the Remove Link button to remove the link from that object.
- **Add HTML Anchor** button—Select any paragraph, list or other object in the text and click the Anchor button to add an HTML anchor to the selected object's opening HTML tag. You can add links from somewhere else in the Body block to any anchored objects.
- **Insert Horizontal Rule** button—Place the cursor between paragraphs or objects in the editor box and click the Insert Horizontal Rule button to insert a thin line across the width of the Body block at that point.
- **Cut and Paste** buttons—Select any text segment and click the Cut button to remove that segment from the text. You can then use the Paste button to paste the cut text at a different location.
- **Paste from MS Word** button—This button appears to be inactive.
- **Remove Formatting** button—Place the cursor in a paragraph to which style formatting has been applied, and click the Remove Formatting button to remove the style. (see **Style Text menu** below).
- **Insert Special Character** button—Place the cursor at the point in a text paragraph where you want to insert a special character, and click the Insert Special Character button to open the Special Character panel where you can select the special character to insert.



Whatever character you click will be inserted at the cursor position in the text.

- **Paragraph Formatting** menu—Place the cursor anywhere in a paragraph and click the Paragraph Formatting drop-down menu button to select a heading level (h2, h3, or h4) for that paragraph.



If the paragraph has already been assigned a heading level, you can click the **Normal** option at the top of the menu to return the paragraph format to normal text.

- **Styles Text** menu—The GPS Lab website includes seven pre-defined CSS styles (HTML classes) that can be applied to selected text paragraphs for various purposes.

Place the cursor anywhere in a paragraph and click the Paragraph Styles drop-down menu button to select a style to apply to that paragraph. As indicated above, you can return styled paragraphs to normal by placing the cursor in the paragraph and clicking the **Remove Formatting** button.

The screen image below from the Sandbox web page, shows examples of the seven styles available in the Styles Text menu.

Pre-defined Drupal Text Styles (Heading 3)

This Drupal website has seven pre-defined paragraph styles.

Summary Paragraph Style (Heading 4)

As we've seen before, this paragraph has the Summary Paragraph style applied to it.

Descriptor Style (Heading 4)

THIS PARAGRAPH HAS THE DESCRIPTOR STYLE APPLIED TO IT. (NOTICE THAT IT'S ALL CAPS.)

Image Right Style (Heading 4)

This paragraph is set up to force an **embedded image to be right-justified** with the text to its left. The remainder of this text is simply for placeholder purposes. Stanford's Wide Area Differential GPS (WADGPS) Laboratory conducted experimental WAAS Precision Approaches at the Juneau, Alaska International Airport in August of 1998. The testing included flight trials, collection of WAAS precision approach performance data, and capture of production in-flight video footage. This flight test was sponsored by the Federal Aviation Administration (FAA) in particular the Satellite Navigation Program Office under AND-700. We extend our thanks to them for supporting GPS research here at Stanford. We would also like to acknowledge the FAA Technical Center's efforts with regard to maintaining the National Satellite Test Bed (NSTB).

Image Left Style (Heading 4)

This paragraph is set up to force an **embedded image to be left-justified** with the text to its right. The remainder of this text is simply for placeholder purposes. Stanford's Wide Area Differential GPS (WADGPS) Laboratory conducted experimental WAAS Precision Approaches at the Juneau, Alaska International Airport in August of 1998. The testing included flight trials, collection of WAAS precision approach performance data, and capture of production in-flight video footage.Our flight platform was a Beechcraft Queenair with navigation, attitude, and tunnel-in-the-sky-over-terrain display payloads. Each of these payloads was developed as a PhD research project here in the GPS Laboratory at Stanford. The primary WAAS data link for these flight tests was the Inmarsat 3 Pacific Ocean Region (POR) geosynchronous satellite broadcasting Stanford's 250 bps WAAS correction stream. As a secondary data link the WADGPS Lab had a direct modem link to our portable ground based VHF transceiver.

Infotext style (Heading 4)

The Infotext style displays a paragraph in extremely large, bold text

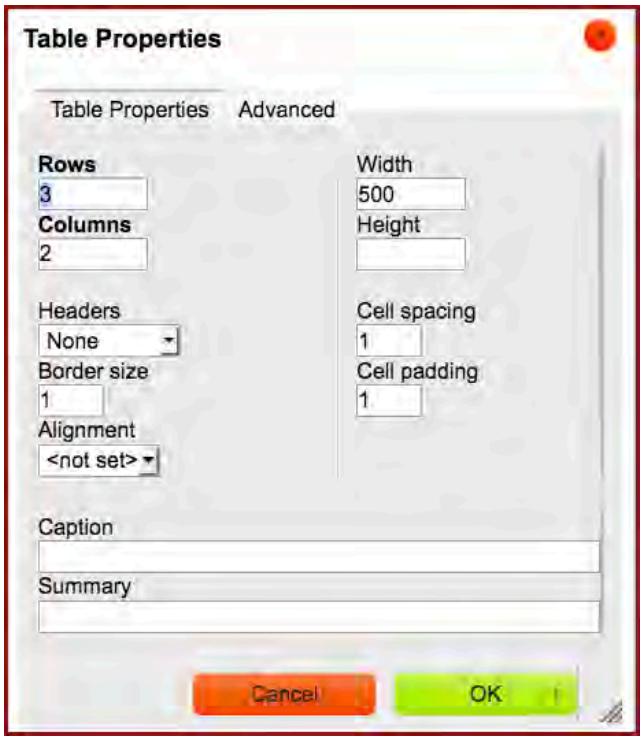
Caption Style (Heading 4)

You can use the Caption style on captions that appear beneath images. This style produces very small, light gray italicized text, as you can see.

Credits Style (Heading 4)

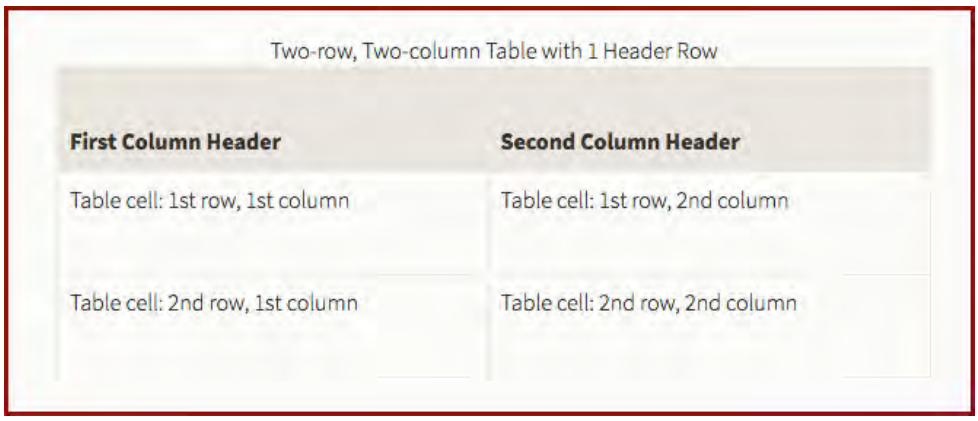
The credits style can be used beneath image to display credits for the image source. As you can see, the Credits style produces text in very small, very light-colored, all caps text.

- **Insert Table** button—Place the cursor after a paragraph or between two paragraphs, and click the **Insert Table** button to insert a table to open the Table PropertiesT Panel for inserting a table at that location in the Body block contents.

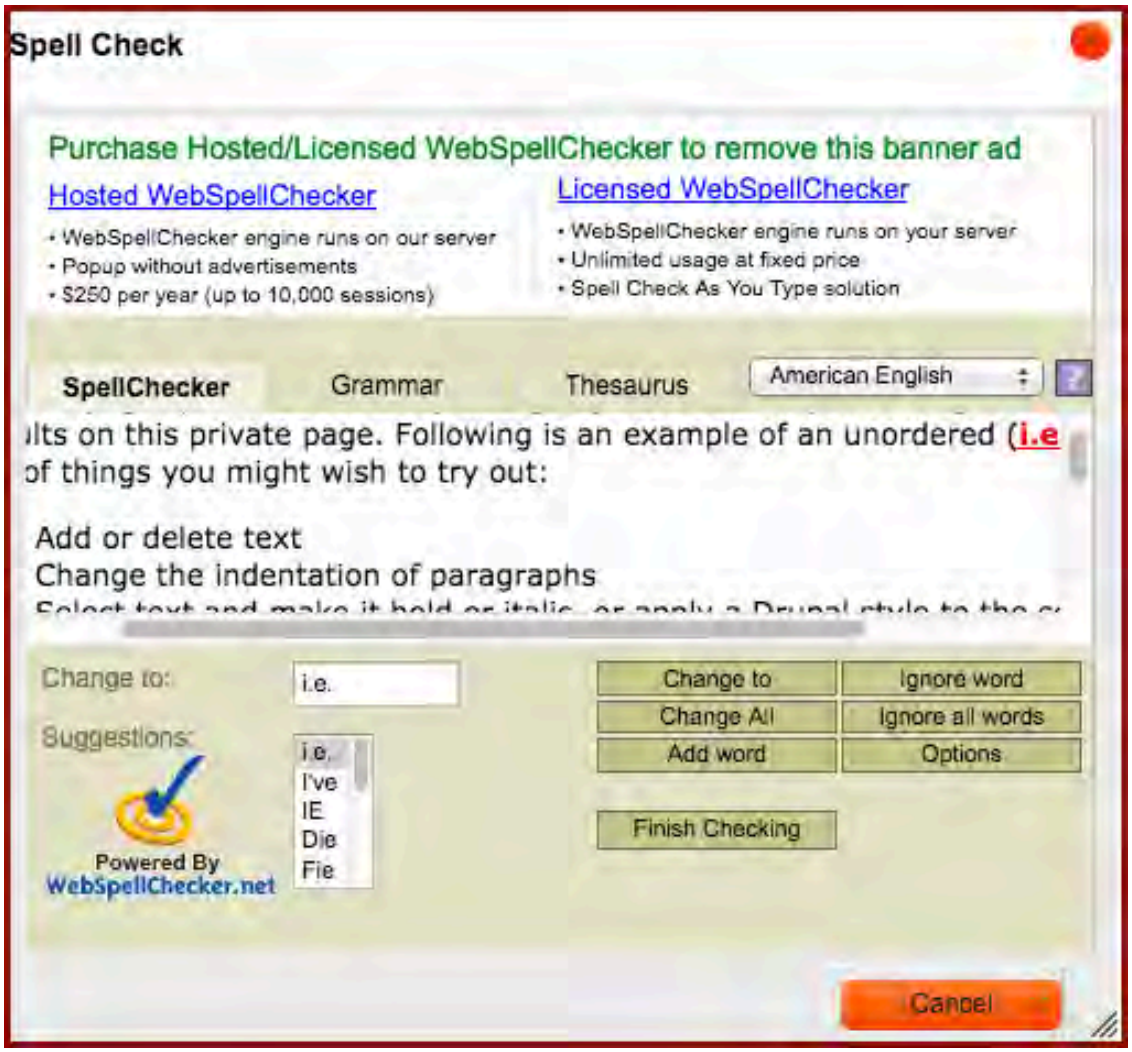


In this panel, you can specify the number of rows and columns the table will contain as well as the number of header rows, border size, and the spacing and padding between cells. You can also specify a caption that will appear above the table and a summary of the table contents that will not appear on the web page.

Below is an example of a two-row, two-column table with a single header row that appears as an example in the Sandbox web page.



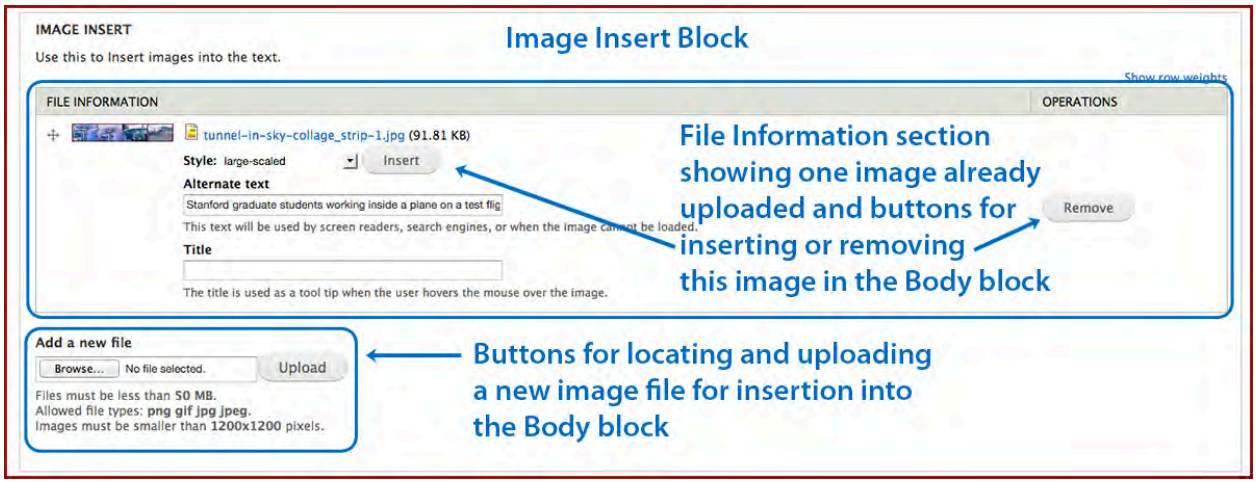
- **Check Spelling** button—Clicking the Spell Check button opens the Spell Check panel, which contains not only a spelling checker, but also a grammar checker and a thesaurus, as shown in the screen image below.



Adding and Removing Images in the Body Block

In addition to adding/editing text in Body block of a web page, you can browse for images on your computer—photos, drawings, charts, or other graphic images—and upload them into Drupal's image database. Once an image has been uploaded, indicated by a thumbnail and file name of the image appearing in the **File Information** section of the **Image Insert** block, located beneath the Body block, you can insert that image anywhere in the Body block text. Likewise, you can remove images from the page and from Drupal's site database.

The screen image below shows the **Insert Image** block with one image already uploaded with its thumbnail image and file name displayed in the File Image section.

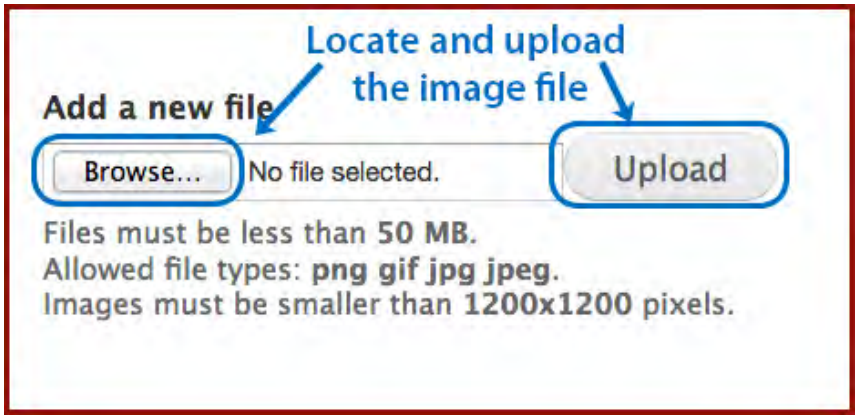


Uploading and Inserting an Image into the Body Block

To upload and insert an image into the Body block text, follow these steps:

1. In the Body block, place the cursor at the position where you want the image to appear. Typically, this will be between paragraphs, although there may be cases in which you wish to insert an image within a line of text.

2. Scroll down to the **Image Insert** block beneath the Body block. If other images have already been uploaded, locate the last section of the Image Insert block with the heading **Add a new file**, as shown below.

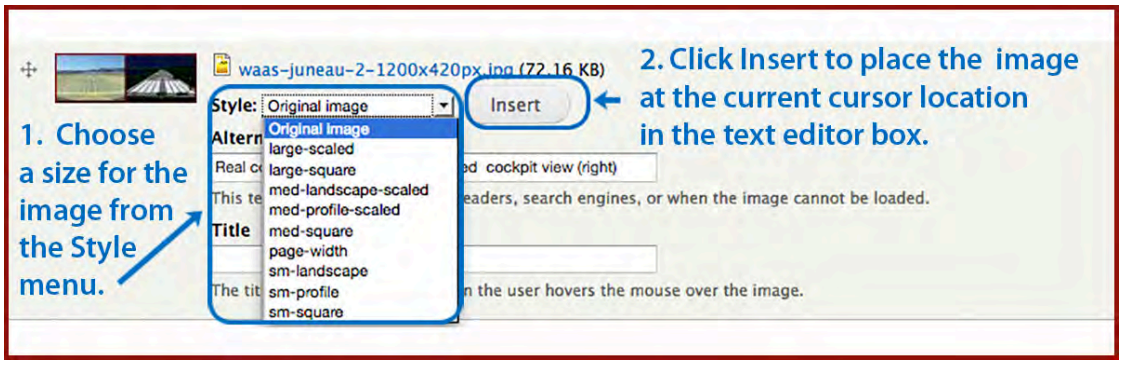


3. Click the **Browse** button to locate the image you want from your computer's hard drive, and then click **Upload** to add that image to Drupal's image database for the GPS Lab website.

sWhen the image has been uploaded, a thumbnail, along with the image file name appear in the Image Insert block, which moves up beneath the previous Add New Image block in the File Information area of the Image Insert block.

4. Click the Style drop-down menu to choose the size to which you want the image scaled on the page.

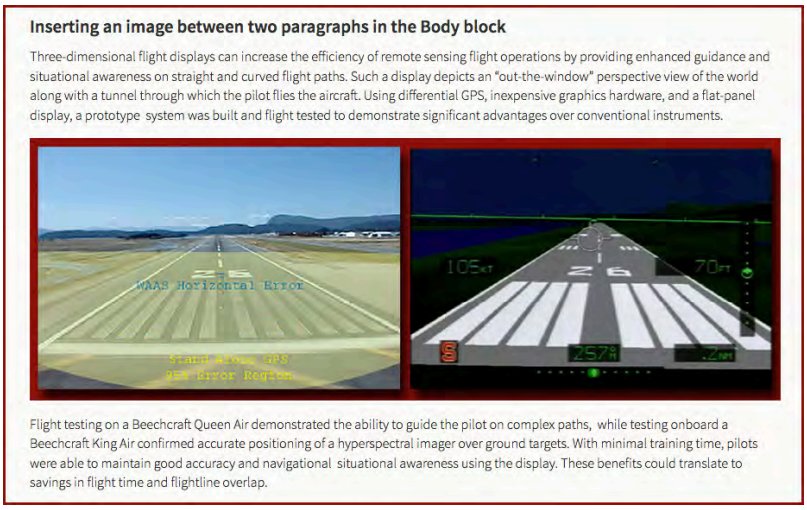
   If you choose “Original Image,” the image will not be scaled unless its width is greater than 1200 pixels. You can experiment with other scaling choices to find one that best suits the web page layout.



5. Click the Insert button to insert the image into the Editor box at the current cursor position.

   - If the Editor is set to “Text Format,” you’ll see the image the way it will appear on the page.
   - If the Editor is set to “Full HTML,” the HTML code (<img> tag) for the image will appear correctly positioned in the page code.

The screen capture below shows the example image above as it appears on the live page.

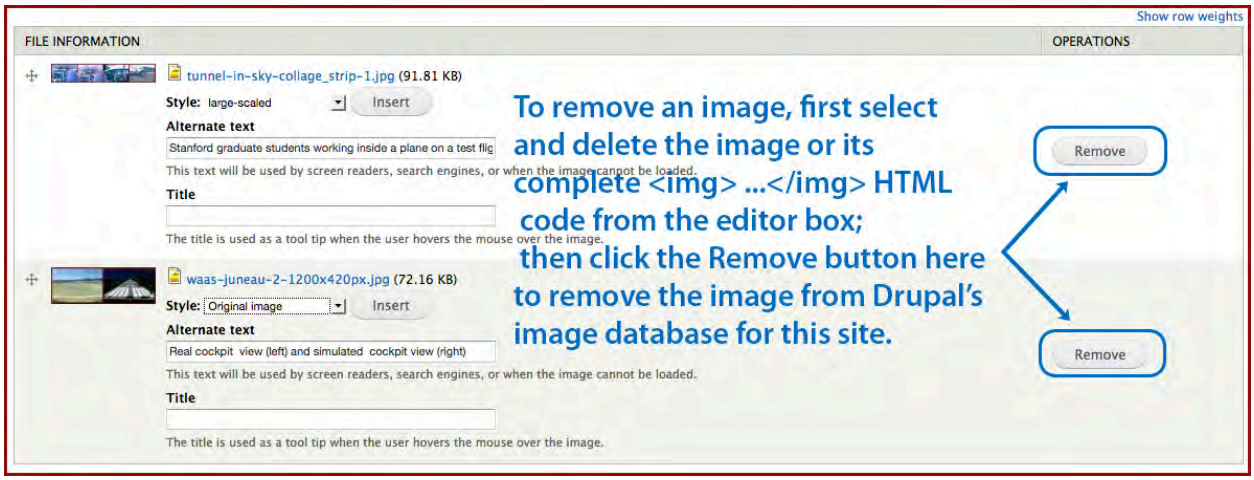


Removing an Image from the Body Block

To remove an existing image from the Body block of a web page, first delete the image from the Editor box.

- If the Editor is set to **Text Format**, select the image itself in the Editor box and press the Delete key on your keyboard.
- If the Editor is set to **Full HTM**L, locate and select the entire HTML image tag for the image—for example: ****—then press Delete on your keyboard.

Once you have deleted the image from the Editor box, scroll down to the Image Insert area beneath the Editor box, locate the section containing the image there, and click the **Remove** button to remove the image from Drupal's image database for this website.



Clearing the Site Cache

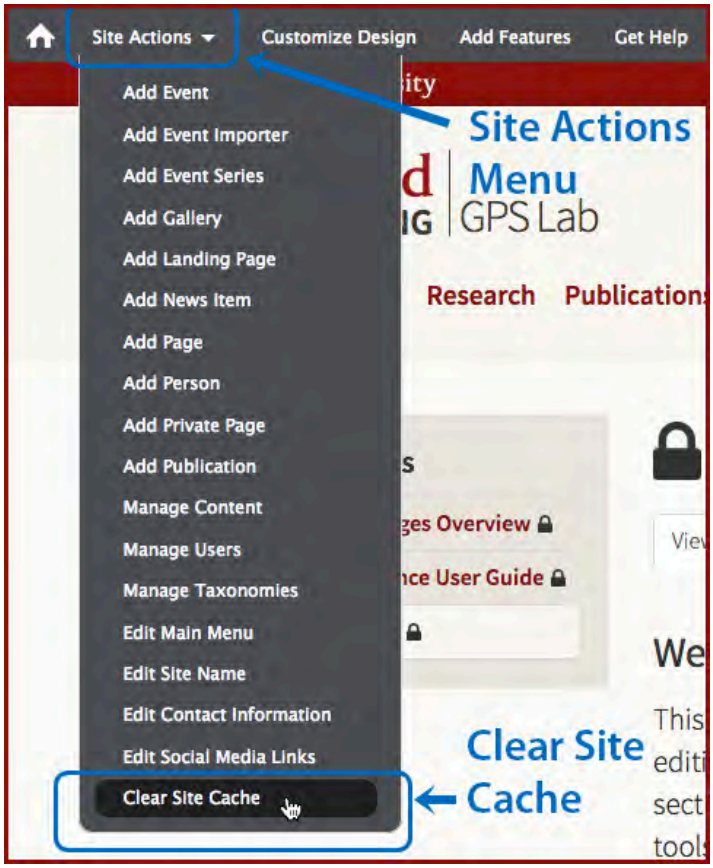
To expedite page loading times and improve general site performance, Drupal caches page content and settings. When you edit the content of a page in the site, Drupal sets up an editing space for your SUNet account outside the main site cache. Thus, when you save the changes you made to a page, you may not see the changes you made when Drupal closes the page editing form and switches back to Display mode for that page. Likewise, other people visiting the site will still see the cached version of the site pages, including the page you just finished editing.

Drupal periodically clears and rebuilds the site cache, so eventually, the changes you made to a given page will be cached and displayed. However, the best practice each time you save changes you made to a page is to then manually clear the site cache.

To manually clear the site cache, simply do the following:

1. Click on the **Site Action**s drop-down menu at the left end of the gray menu bar that runs across the top of each page when you are logged in as a site owner.

2. Click **Clear Cache** at the bottom of the menu. (It can take Drupal a minute or so to clear the cache, so be patient.)



Note: If you click on the Site Actions menu and release your mouse button without scrolling down to the Clear Site Cache, Drupal will open the Site Actions menu page, shown below. Clicking the **Clear Site Cache** link at the bottom of the Site Actions menu page achieves the same result.