



## **The Portal to the Universe**

**Global Cornerstone Project**

**Design document**

*Enabling access to astronomy multimedia resources – including news, blogs, images, videos, events, podcasts, vodcasts ...*

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## 1. Overview

In today's world of rapid fire astronomical discovery, it is often hard to keep track of the myriad of new press releases, images, animations and illustrations that make their way onto the internet on a daily - and often hourly - basis. While astronomy content is among some of the most popular online, even in mainstream forums like iTunes and Digg.com, it is often hard for astronomy content consumers (even the most tech savvy ones) to efficiently learn what's new, what's up, and what's on the horizon in the astronomical community.

Laypeople, press, educators, decision-makers and even the scientists themselves deserve better access to astronomy content (press releases, blogs, images, videos, podcasts, background information etc...). As a community, we need a single point of entry into all the cosmic discoveries that take place on a daily basis – a global one-stop portal for astronomy-related resources. Modern technology and the standardization of metadata make it possible to tie all the suppliers of such information together with a single, almost self-updating portal.

The Portal to the Universe seeks to provide a single gateway to online astronomy content, serving as an index and an aggregator. PTTU will feature: news-, image-, blog- and video- aggregation; a comprehensive directory of observatories, facilities, astronomical societies, amateur astronomy societies, space artists, science communication university programs; and Web 2.0 collaborative tools for astronomy multimedia community interaction such as ranking of the different services according to popularity. Additionally, a range of “widgets” (small applications) will be developed to tap live into the existing resources.

Our vision for the Portal is three-fold:

1. **Enabling access:** To aggregate (pull) from content providers incl. all astronomy-related dynamic content (e.g. RSS feeds of blogs, images, news, etc) and distribute (push) to the users;
2. **Index and archive:** To collect and maintain a central repository of links to useful information, including resources such as educational materials and more, addresses for all astronomy stakeholders such as amateur clubs, planetariums, observatories etc.
3. **Enabling communication and collaboration:** Create and maintain a network of all stakeholders.

PTTU homepage will feature a selection of these resources, with editorially determined defaults based on assessment of the target groups' behaviour and needs, but will gradually move toward a live community-based set of defaults determined by the real preferences of the visitors. The visitors may naturally tailor their own *MyPortal* with the content and widgets they wish to use.

Editorially PTTU is a selective aggregator with a non-painful editorial mechanism in place.

PTTU will have the latest content first.

In this document we outline the PTTU's topics and target audience (below), provide a site map (section 2), describe its 4 main sections – MyPortal, AstroFeeds, AstroWidgets, and AstroPages – in detail (section 3), discuss partnerships with other websites that PTTU will work with synergistically (section 6) and layout how the Portal will be implemented (section 7).

### 1.1. Topics and Moderation

While focusing primarily on astronomy and planetary science, the PTTU will also include content on Earth Science such as atmospheric phenomena, remote sensing, and factual accounts of space politics.

Since there will be featured content appearing on the PTTU front page and getting showcased in both the AstroFeeds and AstroWidgets sections, care will be needed to moderate the content appearing in those sections. This need arises from three hard to avoid problems: many content providers periodically include material that is personal rather than scientific in nature (for instance discussing upcoming travel or their recent experiences with weather or earthquakes); it is a very small step from reporting on astronomy politics to editorializing on science politics; sometimes content providers discuss the "War on Intelligent Design" in language that is insensitive to people's belief systems; and occasionally content is

created that is factually very wrong. To prevent this content from making it into featured sections of the website, all featured areas will be moderated for content and accuracy.

A complete moderation policy appears in Appendix A. The goal of the moderation policy is to promote through the featured sections of PTTU the sharing of factually accurate material that is sensitive to people of all social, political, racial, and other orientations and backgrounds. Users using PTTU to subscribe to feeds will still be able to view this content, however non-moderated content will be presented with the warning, "Content submitted to the PTTU does not necessarily reflect the views and ideas of the PTTU staff or IAU." Similarly, this warning would appear as a popup window when users leave PTTU to go to linked in content provider's websites (this pop-up could be permanently dismissed by logged in users).

## **1.2. Target Audience**

Astronomy content holds a special role in culture: almost everyone at some point becomes inquisitive about the stars and planets, and in the case of astronomy, science sells. In designing the PTTU, we will work to address the specific needs of the press, public information officers, professional and amateur astronomers, and informal educators, while at the same time making the site as friendly to the public as possible.

## **1.3. Languages**

The PTTU will be initially be implemented in English, however it is being designed to facilitate future foreign language editions. A list of model projects and potential partners is listed in Appendix B. In general, three different design strategies will be used to facilitate future foreign language translation: All text areas will be created as variables with a single file containing the variable names and text such that new language files can easily be created and switched between; the database behind PTTU is being designed with language variables in place for storing language information for all users and content; and potential translators are being identified.

## **2. Site Map**

The following is a sitemap of the Portal to the Universe.

1. Homepage / MyPortal
  - a. Main Page
    - i. Main Section
      1. Latest Press releases: (title, excerpt, image), links, reviews
      2. Latest Blogs: (title, excerpt, image)
      3. Most Popular Widgets
    - ii. Right Sidebar
      1. Search
      2. Twitter Feeds
      3. Latest Images
      4. Latest Video
      5. Latest Podcast
      6. Most Popular (title only): PR, Blog, Cast, Images
  - b. Aggregator
    - i. Main Section: Subscribed feeds laid out much like Google Reader
    - ii. Right Sidebar: Listing of all feeds aggregated and view options
  - c. Favourites
    - i. Main: Display laid out similar to MyPortal homepage with most recently added favourites
    - ii. Right Sidebar: Additional Favourites and ability to view by date or content type
  - d. Account Settings: Form to view and edit all account settings from Database
2. AstroNews

- a. Public Site
  - i. Main Table: Most recent with links
  - ii. Right Sidebar: Most talked about
- b. Press Site (must login)
  - i. Main: View sortable table
  - ii. Right Sidebar: Search
- c. PIO Site (must login)
  - i. Main: Press release flag
  - ii. Right Sidebar: Listing of persons previous press releases that leads to unedited listing of related blog posts.
- 3. AstroFeeds: Modeled after iTunes (for all of these: link to complete directory at top, featured fill main, most popular down right column)
  - a. Main Page: Grid of selected from each category (Featured and Newest)
  - b. AstroBlogs
  - c. AstroCasts (podcasts and vodcasts)
  - d. AstroImages
  - e. Advanced Search
- 4. AstroWidgets: Modeled after iGoogle (for all of these: link to complete directory at top, featured fill main, most popular down right column)
  - a. Main Page: Grid of selected from each category
  - b. Image / Video Embeds: sun of the moment, auroral oval
  - c. Sky Observing Tools: Starry Night tool
  - d. Satellite Observing Tools: ISS locator
  - e. Weather Tools: Clear Sky Clock
  - f. Toys
  - g. Advanced Search
- 5. AstroPages (yellow pages)
  - a. Main Page: Lots of pre-selected searches and basic search
  - b. Advanced Search

In addition to this page-specific content, the PTTU theme will have the following set features:

- 1. Header
  - a. Main Image: Randomized, with credit
  - b. Left Tool Bar: Sitemap, About, Contact
  - c. Right Tool Bar: Login, Account, MyPortal Configure
- 2. Left Sidebar
  - a. Links to all pages (PTTU Main Pages and Partner Pages)
  - b. Sponsor icons
- 3. Right Sidebar
  - a. Search / link to advanced search
  - b. Submit links
  - c. Most Recent N Twitters
  - d. Most popular content
  - e. Most recent image feeds
  - f. Most recent podcast feeds
  - g. Most recent video feeds
- 4. Footer

### **3. Detailed Project Description**

One of the keys to making the public side of this site acceptable to the new media content providing community will be maintaining assurances that it will not remove readers, but rather will help encourage users to visit new sites. Allowing new content sources a chance to rise to the surface is an important part of this, as is guaranteeing that users will never receive more than an excerpt of content via the portal.

#### **3.1. Homepage / MyPortal**

Once a user has logged in to PTTU, they will be able to view a MyPortal custom homepage. The custom homepage allow users to determine how they want modules of content to be displayed. This customization provides users multiple pages available only on login. Specifically, it will allow the generation of a custom front page, an aggregator of personally selected text, audio, video and image content, and a scrapbook of favourite content (like exists within LiveJournal). Together, this suite of pages is called MyPortal. Customization of the PTTU front page will allow users to order modules (for instance placing observing tools at the top of their MyPortal page), select how many items each module displays (for instance 15 news items instead of the default), and will also allow users to create an aggregator page that will display initially default featured content, but will allow users to subscribe to text, audio, video and image content. The scrapbook feature will allow favourite content to be placed into user created galleries.

##### *3.1a. Default Homepage*

The default homepage will serve as a gateway to what is most recent and most highly ranked on the Portal. In a standard three-column format, users will have ready access to news, observing tools, current images, vodcasts/videos and blogs. There will also be links to each of the Gateways and Mini-Portals and search engines to the site, allowing a 1-click search for images, news, and views on any given topic.

##### *3.1b. MyPortal Homepage*

The homepage should be configurable in the same way that an MSNBC home page and iGoogle are configurable. Specifically, users should be able to rearrange how different content appears on the page, including the number of stories and which widgets and images are shown in the sidebars. This can best be implemented by treating each section of the page as a module that is related to its parent Gateway, and loops through a user requested number of pieces of content from that Gateway. In this way, the user preferences need only describe in what order content is called, and how many pieces of that content are retrieved.

##### *3.1c. MyPortal Aggregation*

The aggregation page within MyPortal will replicate much of the functionality of the Google Reader with some added twists. Specifically, it will allow users to view subscribed to feeds either grouped by content type (e.g. Images, Blogs, Pod/Vodcasts), in order of creation date, or sorted by feed name. The aggregator should include a player to allow linked in MP3 audio files and video files to be played through PTTU, or for selected content to be automatically downloaded to the users hard drive. Users should also have the option to have content older than N days automatically hide itself and to bulk mark content as already read. Within the aggregation site, users will also have the ability to mark content as being a " MyPortal Favorite."

##### *3.1d. MyPortal Favorites*

Modeled after the LiveJournal favourites feature, this aspect allows users to store links to favourite content. Favourite content is then displayed in the same format as their "MyPortal" homepage with the most recent appearing first. The right sidebar links going to additional options, such as view by type, view by date, and search favourites.





### **3.2. AstroNews**

The AstroNews site will serve two purposes:

1. to distribute coverage of the news to the public organized around press releases, and
2. to provide the press with a private gateway to all the tools they need to do their job.

#### **3.2a. *Public Site***

The public side of AstroNews will focus attention on the coverage of press releases by mainstream and independent online content sources. Specifically, as webpages appear containing links to the press release or keywords tracking back to the press release, they will appear associated with the press release on the editorial side of the PTTU interface. Once approved for posting, these stories will appear associated with their parent press release as links.

Fully implemented, each press release will appear as a 100-word excerpt with picture (if available), and beneath the excerpt, links to the top (by click through) linked-in articles, and/or most recent linked in articles. Clicking on either the title of the article or a "more" link will take a user through to a page containing the same press release excerpt, as well as a complete list of linked in content and a link to the original press release. These links should include info on ranking and post dates. An algorithm describing the order of these links will need to be determined and it should be based on clicks per unit time, total number of clicks, and user rankings. There will also be an accompanying "Embed," that will allow bloggers to place on their blogs a dynamically updating version of the press release's PTTU summary and links list. This will encourage blog audiences to come to PTTU, and facilitate involvement, as people work to be one of the featured links on a press release.

#### **3.2b. *Press Site (login required)***

On the press side, journalists will be able to find all the resources they need to stay on top of the news. Specifically, they will have access to embargoed content, links to journals, contact information for PIO officers (content pulled from AstroPages), and ways to subscribe to email alerts. The default display will show all press releases in a tabular display with columns for: Post Date, Embargo Lift Date/Time, Title, Institution, Keywords. These columns will each offer 1-click sorting. Users can then use controls above the table to search the content in any of the columns to limit displayed content. Clicking on any of the Press Release titles will take users to a PTTU Page on the release that includes all the content submitted by the PIO as well as links to any related stories that have been written once the embargo is lifted.

Search engines for this part of the portal should be allow: Text search (free form, text entry), Keyword search (drop down, multi-select enabled), and institution/agency search (free form text entry or drop down).

Over all layout:

- Main section: top will be search and beneath will be tabular display as described above
- Right sidebar: Most talked within past 1, 3, and 7 days
- Left sidebar: Quick links to relevant astropage searches

To get PIO buy-in on this plan, it is required that we have a set plan for granting permission to the embargoed side, and that there are penalties in place for breaking embargo or distributed journal articles that are not yet available. One way to facilitate buy in is to work with Steve Maran and partner with the AAS press office.

As we move into the new area of new media, defining who has press credentials is becoming more and more difficult. We will need to define this with the potential partners below. As we link out to everyone covering stories, we also need to be aware of potential bad / inaccurate coverage and moderate links that appear to the public, while leaving those links visible to the PIO officers, so they can take measures to mitigate damage.

#### **3.2c. *PIO Site (login required)***

To make the press side most functional, an easy to use press release submission form will need to be created. This form will request the following data: release link, journal article link, PIO contact info,

scientist contact info, keywords (use AVM taxonomy), an field for uploading a text only version of the press release for emailing with attached images, and a way to upload a pdf of any associated journal article for use in the embargoed area. As contacts are linked to the press release, their data should be verified in the AstroPages.

The stories linked-in on the PIO side should be unfiltered so the PIO can get a full picture of how their story is being covered, but should include a disclaimer that it is unfiltered. An easy way to get these links would be to create a Google search RSS feed for each press release dynamically.

To get PIO buy-in on this plan, it is required that we have a set plan for granting permission to the embargoed side, and that there are penalties in place for breaking embargo or distributed journal articles that are not yet available. One way to facilitate buy in is to work with Steve Maran and partner with the AAS press office.

**The AstroNews public subpage.**

The screenshot shows the 'Portal to the Universe' website interface. At the top, there's a navigation bar with 'Home', 'About PTU', 'Sitemap', 'Collaborative Area', and 'Contact us'. Below this is a search bar and a 'Press Login' section with fields for 'Login' and 'Password'. The main content area is titled 'AstroNews Highlights | Link' and features a list of news items, each with a thumbnail image and a brief summary. The items include:

- #1 Hazy red sunset on extrasolar planet**: 01 Jan. 2009 04:24:23 UT | ESA/Hubble: the NASA/ESA Hubble Space Telescope has given astronomers a fascinating new insight into the atmosphere of a planet in orbit around another star. The observations provide evidence of the presence of hazes in the... [read more...](#)
- #2 Astronomers discover youngest exoplanet**: 01 Jan. 2009 04:24:23 UT | NRC: German astronomers reported this week that they have discovered the youngest extrasolar planet found to date, a world that is still... [read more...](#)
- #3 Deep Impact spacecraft flies past Earth**: 01 Jan. 2009 02:48:02 UT | NASA: NASA's Deep Impact spacecraft flew past Earth on New Year's Eve, a maneuver that puts the spacecraft on course for an extended mission to another... [read more...](#)
- #4 LSST Receives \$30 Million from Bill Gates**: 01 Jan. 2009 01:02:03 UT | LSST: The Large Synoptic Survey Telescope (LSST) Project is pleased to announce receipt of two major gifts... [read more...](#)
- #5 Jets Are a Real Drag**: 01 Jan. 2009 01:02:03 UT | CfA: Astronomers have found the best evidence yet of matter spiraling outward from a young, star-forming star in fountain-like jets... [read more...](#)
- #6 Astronomers discover youngest exoplanet**: 01 Jan. 2009 04:24:23 UT | NRC: German astronomers reported this week that they have discovered the youngest extrasolar planet found to date, a world that is still... [read more...](#)
- #7 Deep Impact spacecraft flies past Earth**: 01 Jan. 2009 02:48:02 UT | NASA: NASA's Deep Impact spacecraft flew past Earth on New Year's Eve, a maneuver that puts the spacecraft on course for an extended mission to another... [read more...](#)
- #8 LSST Receives \$30 Million from Bill Gates**: 01 Jan. 2009 01:02:03 UT | LSST: The Large Synoptic Survey Telescope (LSST) Project is pleased to announce receipt of two major gifts... [read more...](#)
- #9 Jets Are a Real Drag**: 01 Jan. 2009 01:02:03 UT | CfA: Astronomers have found the best evidence yet of matter spiraling outward from a young, star-forming star in fountain-like jets... [read more...](#)

At the bottom, there is an 'Additional news' section with a list of recent articles and their dates. The footer includes logos for the IAU and IAU initiative, and a list of organizational associates like AAS, INSU, and others.

### **3.3. AstroFeeds**

The AstroFeeds sections of PTTU will have an Apple iTunes-style interface that prominently displays editorially chosen “Featured” feeds, a small list of the newest content, and searchable index of all feeds that are available, with several predefined searches in place as links (for instance, 'observing'). NASA contacts have also suggested that we index twitter-style microblogs created by official mission and observatory EPO programs.

To appear in the AstroFeed's listing, a feed must be submitted via a standard webform. This form will contain fields for show name, production team, rss link, and web address (see database design), as well as a series of flags, such as "Explicit Content" and keywords. Anyone can submit a feed, and once submitted, PTTU moderators will confirm the feed is astronomy related and that appropriate tags have been used. The index will be all-inclusive, but the content featured by default will be based on editorial oversight and user ratings, again, following the model of iTunes.

Users exploring content within the AstroCasts section of PTTU will be able to access show descriptions (submitted when the show is submitted), and synopsis of individual shows that are drawn from shows' RSS feeds. We will strongly encourage shows to also begin tagging their shows with AVM-like taxonomy keywords that will allow users to search for individual show episodes on given topics. In this way, an individual who simply wants content on black holes will be able to find individual episodes of podcasts and vodcasts that address black holes, while someone else that wants to find shows that address observational astronomy will be able to easily search on show series descriptions. This ability to search individual shows does not currently exist in any of the major podcast directories, and will allow educators to search for content of all formats – from pdf to mp3 – to provide their students as ancillary materials. In addition to being able to perform user-defined keyword searches, the search engine will also offer several pre-defined searches that will draw on the most frequently searched terms.

As with the iTunes interface, PTTU will not store on its own servers any of the feed content, but will rather access content hosted on the individual feed's servers. On the PTTU server we will store user reviews, hit counts, keywords, and contact information (rss address, URL address, Name, description, etc).

While it will be possible for PTTU users to access and even to subscribe to media through PTTU media players and an aggregator, they will not be able to access non-rss feed-based material like show notes. These materials will be accessible through links that take users off site. It would be useful to include a mini-viewer that will allow PTTU users to see previews of websites they are about to visit when they hover over PTTU links to external pages.

The quality – both of audio and of video content – of podcasts is highly variable. While the Portal will work to promote the best material through featured status, it must somehow leave room for shows to improve over time and earn featured status, while at the same time not promoting that content until it is ready. There is no easy way to do this, but the most sensitive way to do this may be to have a standard warning (that can be permanently dismissed by logged in users), that reminds users that content submitted to the PTTU does not necessarily reflect the views and ideas of the PTTU staff or IAU. This disclaimer would appear automatically anytime remote content is played through PTTU media players.

#### **3.3a. *AstroBlogs***

While it is possible to play remote audio or video content in its entirety through PTTU, similar display of text should not be attempted due to issues with content providers potentially losing advertising revenues through such content scrapping. Instead, it should be possible for PTTU users to view 100 word excerpts from blogs on PTTU, where these 100 words are drawn directly from the content providers rss feeds. From these previews, users will be able to select to: link out of PTTU to the content providers website, subscribe to the content's rss feed via an external aggregator, or add the content to an aggregator built within PTTU. This built in aggregator, which will work for both text-based and multi-media based content, will allow users to subscribe to the same content (which may include advertisements) that is

visible through readers like Google Reader. This aggregator will need a disclaimer on it that not all content reflects the opinions or understanding of the PTTU staff or the IAU.

A sub-section for official twitter feeds should be included as well.

### 3.3b. AstroCasts

Podcasts and Vodcasts come in many forms ranging from straight audio to enhanced podcasts to vodcasts suitable for iPhone or HD TV. In some cases, one show will be available in all of the above formats! To try and share all of these formats at once, the AstroCasts will include all formats listed above sorted by keywords and popularity. Once in the AstroCasts section of the websites, users will be able to decide to display all formats or only a particular format. This versatility will allow users of video iPods to get a good combination of content, while



A template: The above iTunes interface should serve as a guide in designing the AstroFeeds interface

### **3.3c. *AstroImages***

AstroImages will use the same software engine as the AstroCasts and AstroBlogs above, however, rather than featuring a media player, or a text excerpt, users will be presented with an image preview window that displays the remotely hosted image. These preview images should be presented with a title in a clean grid of medium-sized (150px by 150px) featured images, and a smaller side grid (75px by 75px) of other graphics feeds. Users will also be able to subscribe to the AstroImages feeds through the PTTU's aggregator.

This gateway specifically provides a way for individuals to follow image content being syndicated by imagers or institutions through a remote website. The images available through AstroImages will all be remotely hosted.

While AstroImages will have a search engine that is based on the VAMP metadata. This search will allow have two interfaces: a simple keyword search or an advanced VAMP search engine. Both forms will allow users to include or exclude videos and amateur data from their searches.

Creating a powerful image search engine will require content providers to include VAMP metadata in their images. This will require significant community buy in and it will be necessary to educate to actively mentor imagers and image providing programs on how to use tools that streamline the addition of key words to their images.

Since the joint AstroImages / AstroWall search engine will allow amateur images to be included or excluded, it will be necessary to define who is an amateur imager within the context of PTTU. This is not easy to define since many universities have educational telescopes do not take the level of images one would expect from a major national facility. At the same time, top tier amateur astronomers are capable of acquiring high quality images that can be used for science. A starting point may be to state that images acquired on telescopes that require time application through a research-based time allocation committee are considered professional, while images from other facilities can petition for non-amateur status based on quality and scientific merit of images.

### **3.4. AstroWidgets**

While given a light-hearted name, the AstroWidgets section of PTTU will contain both serious observing tools and whimsical astronomy based games. This index will feature content built using the Google gadgets API that allows developers to create stand alone web tools that function both on iGoogle homepages and as stand alone content on individual websites. Through this interface, users will be able to search for, review, share, and utilize astronomy tools ranging from StarryNight's planetarium gadget, to weather gadgets, to interactives that allow users to play online astronomy trivia games.

These user submitted "toys" will be broadly divided into three categories: observing tools, information conduits, and games, and within each of these categories they will be tagged using the adapted VAMP metadata. The information content will be further sub-divided into image gadgets, streaming and streaming content gadgets. The observing tools page will also be sub-divided, with sections dedicated to calculators (airmass, twilight time, sidereal time, etc) and dynamic sky information (Satellite trackers, weather tools, etc).

New Toys will be submitted via a standard webform that will be modelled on the Sourceforge model that allows new versions to easily be linked into along with documentation, but will take things one step farther and will allow users to add toys to either their iGoogle homepage, their PTTU homepage, or to get the code necessary to embed the toys in stand alone websites.

By utilizing the Google Gadget API, we will be guaranteeing the broadest possible user base, and putting ourselves into a position where we can point users at extensive documentation and support tools, rather than having to create that user support for ourselves. We will also be able to launch the PTTU with a large selection of Toys already in place.

Because technology is evolving quickly, and gadgets often get abandoned by their developer and then break during browser updates, it will be necessary to have a mechanism for burying deprecated gadgets. Once gadgets are incompatible with both the current and previous browser interfaces, they should be deleted from PTTU. Additionally, any gadget that ceases to function will be tagged as frozen,

and will be removed if not fixed within 30 days. To facilitate this level of management, each Toy's listing in the AstroWidgets gateway will have a "Report Problem" field that will notify moderators and the email address listed in the Toys information. This will allow the moderators to track the problem, and encourage the developer to fix it.

### 3.4a. Image/Video Feeds

Image and video feeds, such as NASA Picture of the Day, offer viewers a taste of the most visually stunning content emerging from the world of astronomy. At this time, many of these feeds do not have easy to find RSS feeds. As part of growing the PTTU, we will also need to train content providers to better showcase their feed addresses.

### 3.4b. Sky Observing Tools

Observing tools include everything from planetarium software to sidereal clocks to airmass calculators. The number of these tools presently existing is somewhat limited, but a community of potential users is ready to use whatever is produced. Through the PTTU we can facilitate community development of the most necessary applications.

### 3.4c. Satellite Observing Tools

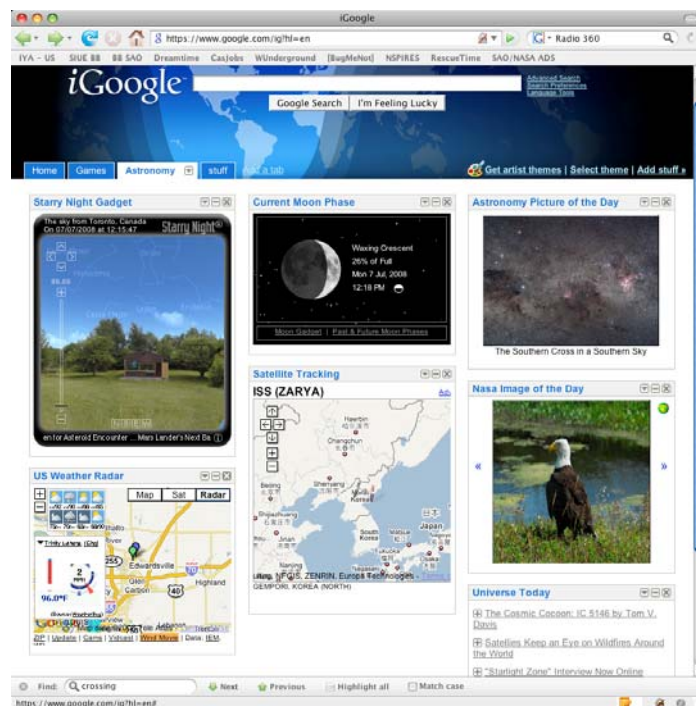
Many examples already exist, including multiple trackers at both HumanSpaceFlight (<http://spaceflight.nasa.gov/realdata/tracking/>) and Heaven's Above (<http://heavens-above.com/>) What is missing is an easy way to embed these tools into custom homepages, but through PTTU we can encourage site providers to facilitate the creation of these tools.

### 3.4d. Weather Tools

Numerous weather gadgets exist, ranging from the Clear Sky Clock to AccuWeather. All that is needed is a way to pull all these tools together, and PTTU offers the solution.

### 3.4e. Toys

This final category offers a catch all area for puzzles, trivia games, and other spare time consumers that are designed for fun more than for science or observing.



**Existing Widgets in iGoogle:** The iGoogle Gadget API and development tools will allow PTTU to pull in existing tools and to encourage develop of new tools by a broad and existing community of programmers.

### 3.5. AstroPages

The AstroPages will be a “Yellow Pages” of the astronomical community. It will include listings from all possible partners, from space artists to optical engineers, in a single, searchable listing. It should be possible to search by keyword, (scientist, educator, print journalist, etc), or geography (Texas, Mali, etc), with Google Mapping possible in the final version. (A complete input form options list is in Appendix E.)

To utilize AstroPages, users will access content through a search form that allows them to search for a specific name, search on a keyword (nominally from a drop down menu) and on a region (drop down menu). They can select to use one or all of these ways of querying the database. In this way a user can either get a list of all Planetariums in the database, everything that is within a specific region, or all astronomy observatories in a region. A list of predefined searches will also be offered on the front page of AstroPages. This list will include “Amateur Astronomy Clubs,” “Observatories,” “Astronomy/Planetary Science Departments,” in the user’s region and other terms that users frequently search.

In order for the AstroPages to be seen as successful, they will need to be seen as the premier access point for all searches. This puts AstroPages in direct competition with other sites that attempt to maintain indexes for the benefit of their members. Rather than being in competition with organizations such the Astronomical League or Sky and Telescope, it is in PTTU's best interests to create allow their AstroPages content to easily be remotely queried and posted on other websites.

Toward this end, it will be important to allow AstroPages to be queried via standard SQL calls using a CasJobs like interface. In this way, remote sites could mirror the content of AstroPages, encouraging the community to work together to keep this particular index current, while making the index useful across a wide range of purposes. With an easy to deploy method of embedding AstroPages content on non-PTTU webpages, it will be possible for clubs to list on their websites the result of AstroPage queries that list all local astronomy stores, or for high school clubs to link via an AstroPages query to all local universities as a resource for their students.

## 4. Content Submission

Part of the PTTU theme is a link on every page to "Submit Content!" Clicking this link will take users to a unified submission form that will allow content to be quickly Submitted to all areas of the website. This should be a Dynamic form that adds new fields as users indicate what type of content they are trying to submit. It should also have the ability to verify that the URL of the content being submitted doesn't already exist. If it does, the users should be given the opportunity to update existing content or submit an new form of content linked to the same URL.

It is important to moderate all incoming links and to use captcha software to verify that whoever is inputting content is a real human. It is also important to consider follow up on links not submitted by the content owner through a login. It is possible that people can use these submission forms to try, for instance, to redirect APOD to some random image site. ***Open Issue: Does content submission require login?***

When sites close, move, or restructure, they do not generally notify content directories. To keep PTTU current, it is necessary to perform yearly emails to AstroPage constituents to request updates. It is also necessary to build into the AstroFeeds and AstroWidgets software a "Last Updated" field, and when feeds / software have not been updated for 3 months, the PTTU should automatically email the content owner to inquire if continued linking is called for. ***Open Issue: To stale feeds continue to be archived?***

## 5. Advanced Search

In addition to a content submission form being available on all pages, an advanced search link will also be available on each page. This link will take users to a page that will contain a text search and the ability to select content based on type, date range, and location where applicable.

Along with allowing users to do a variety of detailed searches, the right hand tool bar of the advanced screen will also show case a series of pre-defined searches, and will list "Your IP address places you in Location X, below are astronomy programs near you."



## **6. Partner Programs**

The following projects are not being developed by the PTTU staff, however they will be linked into PTTU on its sidebar along with the main pages above. This list may be added to as long as the new pages do not add more workload beyond their ability to substantially enhance PTTU.

### **6.1. Astrosphere**

"Astrosphere" will be an astronomy specific version of Digg.com that will allow users to share and comment on astronomy content anywhere on the web. Unlike PTTU, this side will be minimally moderated. Technologically, it will use the Pligg.com software. This site will be run by Fraser Cain and will be hosted by Astrosphere New Media Association, a US non-profit (Director: Pamela Gay).

### **6.2. AstroTwitter**

The aim of AstroTwitter is to help answer the question "What are we looking at?" This will be achieved by providing real-time information on the web in the form of telescope feeds – nominally named Simple Telescope Markup Language (STML). These STML feeds will be analogous to RSS (Really Simple Syndication), which is widely used to deliver the latest news, blog posts and podcasts directly to desktops using software aggregators or feed-readers. Rather than deliver news items, STML feeds will provide observing positions, information about the observatory/telescope, and public-friendly descriptions of the object(s) being observed. Using a model based on RSS allows each observatory to publish their own feed with complete control over the content they provide. It should be possible to provide an aggregate feed of the "10 latest observations" to the Portal To The Universe, and to create special feeds that aggregate telescopes based on wavelength, geography, and/or aperture.

### **6.3. Cosmos Portal**

*Provisional Concept:* The PTTU will be working with the Cosmos Portal to promote the Cosmos Portal becoming a social network and social content sharing website.

### **6.4. Cosmic Clearinghouse**

The final vision for the Cosmic Clearinghouse sees it as a place where people can search through all educational resources available. This idea builds on the foundations of NASA's Teach Space Science (<http://teachspacescience.org/cgi-bin/ssrtop.plex>) and also on comPADRE's Astronomy Center (<http://www.astronomycenter.org/>). The ASP has expressed interest in creating this resource, and they are currently in negotiations with the AAS to potentially take over Astronomy Center and adapt it. In order for this transformation to happen, significant funding will be required and at this time (July 28, 2008), a grant application has not been submitted. Since the Cosmic Clearinghouse cannot be expected to exist by the December one PTTU launch date, it is suggested that the PTTU should initially link through to both the Teach Space Science and the existing Astronomy Center. It should also be noted that comPADRE lead, Bruce Mason, has indicated we can adapt their structure and scrape data from their existing databases. As time allows, we should consider building a custom query to comPADRE from PTTU.

## **7. Making it Happen**

### **7.1. Technical Infrastructure**

PTTU will be built within an open source framework that encourages the eventual creation of community created extensions and tools. Three guiding principles are being used to select technology: 1) Making it possible to easily integrate PTTU with existing technological infrastructure at ESO/ESA in Garching; 2) Allowing easy creation of new tools both by project staff and volunteers; and 3) Allowing easy moderation and input of content. To meet these three goals we will use the Django web framework (<http://www.djangoproject.com/>) to create PTTU. We will also encourage people building standalone

applications to use Google Code and the Google API's to promote community compatibility and collaboration.

In building PTTU, 4 basic interfaces will be created: An administrative dashboard, a moderation interface, user interface (configuration and submit), and the PTTU content displays.

The administrative dashboard will allow new features to be added to the PTTU, and will allow users to be granted moderation privileges to some or all facets of PTTU. This dashboard is for PTTU super users, and will make it possible to make PTTU-wide changes.

The moderation interface will allow users with correct permission to view incoming content to various areas of the website – press releases, submitted AstroWidgets, etc – and will allow the user to accept or reject content. When content is rejected, the interface will prompt the moderator for a brief explanation (with common reasons selectable from a drop down menu), and these comments will be sent to the content provider to help them create better content in the future.

The AstroSubmit interface will be a user submission tool, and will additionally allow users to customize their experience with in PTTU.

The front end of PTTU is described in detail above. It will be dynamically created based on the settings and selections above. Broadly, the administrative dashboard will determine what modules are available, the moderation interface will determine what content is publicly available for display in each of the modules, and the user interface will customize how much content appears where to the user. The PTTU is then built dynamically for each person based on decisions made at each level.

## **7.2. Project Management**

The implementation of this project is led by the ESA/Hubble under leadership of Lars Lindberg Christensen. ESA/Hubble is prepared to sponsor a considerable amount of manpower for the construction and first year or two of operation. A half-time editor/developer, Pamela Gay, will be hired from 1, June. Some volunteer assistance is foreseen/required to curate the large amount of information. The work will be done in close cooperation with the IAU IYA2009 Secretariat.

To make this site possible, contractors for parts of the development work may be also be necessary, and can be contracted through <http://www.scriptlance.com/> and <http://www.elance.com/>

### **7.2a. Committee Members**

1. Lars Lindberg Christensen (ESA/Hubble): [lars@eso.org](mailto:lars@eso.org) (chair)
2. Pedro Russo (Portugal, IYA/IAU): [prusso@eso.org](mailto:prusso@eso.org)
3. Suzanne Jacoby (USA, LSST Corporation) : [sjacoby@lsst.org](mailto:sjacoby@lsst.org)
4. Pamela Gay (USA, Southern Illinois University Edwardsville): [pamela@starstryder.com](mailto:pamela@starstryder.com)
5. Jan Pomierny (Poland, Astronomia.pl): [j.pomierny@astronomia.pl](mailto:j.pomierny@astronomia.pl)
6. Raquel Shida (Brazil, ESA/Hubble): [rshida@eso.org](mailto:rshida@eso.org)
7. Lars Holm Nielsen (Denmark, ESA/Hubble): [lnielsen@eso.org](mailto:lnielsen@eso.org)
8. Daniel Fischer (Germany, Interstellarum Magazine): [dfischer@astro.uni-bonn.de](mailto:dfischer@astro.uni-bonn.de)
9. Fraser Cain (USA, Universe Today): [info@universetoday.com](mailto:info@universetoday.com)
10. Edward Gomez (UK, LCOGT): [egomez@lcogt.net](mailto:egomez@lcogt.net)
11. Mark Newhouse (USA, NOAO): [newhouse@noao.edu](mailto:newhouse@noao.edu)

### **7.2b. Community Involvement**

The portal to the universe will seek input from the community both through direct inquiry and through tracking of behaviors. Specifically, the site will be tracked in the following ways:

1. Users will be able to comment on Press Releases, Feeds (main feed not individual entries), and on Widgets. They will also be able to leave stars.
2. We will use ranking algorithms (Appendix G)

## **7.3. Deliverables**

1. One The Portal to the Universe website with all the functionality described above.

2. Operation of same for one year during 2009
3. Evaluation report by 1, March 2010

#### **7.4. Timeline**

- 2007 – April 2008: Concept development
- 15 March 2008 Definition of target group
- 1 April Definition of content types
- 1 May Further specification of content
- Technical solutions
- 1 June 2008 Half-time Editor/developer takes up duty
- June 2008 Negotiations with content providers
- 15 July 2008 Contracts with content providers signing
- 1 August 2008 Seed content for all databases inplace
- 1 September 2008 Main development work commences
- 1 October 2008: First Prototype for internal tests
- 1 November 2008: Alpha release
- 1 December 2008: Beta release
- 1 January 2009: Release!
- 2009 Operation
- Jan-Feb 2010 Close-out & Evaluation

## **Appendix A. Moderation**

The central working principle of PTTU is to facilitate distribution of online astronomy content. At the same time, it must be recognized that not all astronomy content is equal, and in some cases online content is simply wrong. In order to balance this guiding principle with reality, it becomes necessary to provide moderation to all default content appearing on PTTU, and to also display disclaimers within the non-moderated sections. It is hoped that the knowledge that PTTU is moderated will encourage content providers to produce a higher quality of content and to better fact check their materials. To make this hope a reality, the PTTU must adopt openness and a willingness to mentor as project philosophies. Specifically, moderators must provide content providers with reasons for why their content is being rejected, and also be willing to help mentor content providers working to improve their product.

Recognizing that not all content is geared at K-12 students, PTTU will not reject content on the grounds that it uses profanity or sexual innuendo, however such content must be tagged with explicit labels. Failure to label content will get content rejected from the site. Under no circumstances will hate be tolerated, and language that is considered bigoted toward ethnic or religious groups, or those of alternative lifestyles will be strictly forbidden.

This is first and foremost a site for communicating science. Featured sites will be selected based in part on the proportion of their content dedicated to space, planetary science, and related topics science topics.

## **Appendix B. Foreign Language Editions**

**B.1. Language Files**

**B.2. Similar Projects**

**B.3. Volunteers**

## **Appendix C. Account Preferences**

The following fields should be accessible via account preferences:

### User Info

- Name
- Address1
- Address2
- City
- State
- PostalCode
- Country
- Birthday
- Willing to Moderate
- Interested in being sent free stuff
- Interested in being emailed alerts
- Member if Press / PIO (Form to seek accreditation)
- Content Provider (Form to register and manage feeds)
- Interested in Translating

Additional account preferences, such as layout of the front page and editing of aggregated lists, will each have their own pages.

## Appendix D. Seed Content

### D.1. Astronomy News Aggregators

For comparison an incomplete but perhaps representative sample of existing “Similar but different sites” websites are given.

- <http://www.waa.at/news.shtml> - a particularly interesting example as:
  - Many (most?) news appear (i.e. close to the proposed model)
  - It is moderated (as the first lines of each release are even translated English <-> German) (i.e. not exactly what is proposed here – using RSS feeds and not do a lot of costly editorial work)
  - ~2 news items per day (~60 per month)
  - Has a bit of German bias
- <http://www.spacetoday.net> (right column)
  - Many press releases but also lots of media stories on spaceflight and space science (50-60 per day)
  - Bias towards spaceflight
  - Overwhelming amount of media stories (maybe just the sheer amount?)
  - Runs on RSS feeds it seems
- [http://www.astrotreff.de/forum.asp?FORUM\\_ID=48](http://www.astrotreff.de/forum.asp?FORUM_ID=48) - very active amateur astronomy board, often missing the original sources, though
- <http://www.astronews.com/> - German portal
  - Moderated
  - Appealing design (not just a list of releases)
  - Advertisements
- <http://news.earthsky.org/>
  - RSS feeds from BBC science. UPI, Reuters
  - Unformatted
  - Unsorted
  - No timestamp
- <http://spaceweather.com/>
  - NEA count
  - NEA “near-miss” info
  - Solar wind speed
  - Solar flares
  - Daily sunspot picture (SOHO)
- <http://antwrp.gsfc.nasa.gov/apod/astropix.html>
  - No introduction necessary ☺
- <http://www.sec.noaa.gov/SWN/index.html>
  - Lots of 1. Generation space weather widgets
- <http://news.sky-map.org/>
  - Combination of RSS feeds and positional info plotted on a star map
  - Info not filtered
  - Rather difficult to get the overview
  - Targeted towards scientists?
- <http://www.interactions.org/cms/>
  - For particle physicists
  - Very close to the proposed model for our Portal
  - Filtered news (RSS feeds), no visuals however
  - Other resources (image bank, universities etc.)

## **D.2. Press Release Mirrors**

Mirroring the releases (which has one advantage, namely more stable archiving; science institutions often don't maintain their release archives very well, change URLs often etc.) Also some releases are just being mailed around, \*without\* any primary WWW presence; this happens quite often with releases from AAS meetings by individual astronomers which can nevertheless be quite good, though)

- <http://www.spaceref.com> - digests everything that comes around, sometimes even leaked documents from inside space agencies (because it's from the same source as NASA Watch). Biased towards space.
- <http://www.eurekaalert.org/bysubject/space.php> - run by the AAAS, release posted by the institutions themselves (i.e. 1. Generation). Low on multimedia.
- <http://www.newswise.com/libraries/scinews> - nice presentation, but no filter for only space stuff.
- <http://www.spacedaily.com> - tons of stuff grabbed together from press releases (but they are not credited directly, and the dates aren't even guaranteed to be correct!), the AFP and writers
- <http://www.spaceflightnow.com> - another mix of mirrored press releases with questionable dates and occasional lengthy stories mainly by a famous CBS space reporter
- <http://groups.google.com/group/sci.space.news/topics?hl=en&lr=&safe=off> web copy of a Usenet group that's been around for ages

## **D.3. Blogs**

No central index presently exists. One is under development.

## **D.4. Podcasts**

For a near complete listing of current and past podcasts, see iTunes.

## **D.5. Vodcasts**

For a near complete listing of current and past podcasts, see iTunes.

## **D.6. Image Feeds**

These are very hard to find. A complete list is under development.

## **D.7. Data Form**

The following information is being sought from all content providers:

- Site Name:
- Site URL:
- Site RSS feed:
- Site byline:
- Tagline (1-sentence description is):
- Site is [Clean] [Explicit] [Somewhere in between]
- For office use only: Contact name and email



## **Appendix E. Ranking Algorithms**

Ranking algorithm: ranking of the Portal content as seen on iTunes. Weighted average of:

- Freshness
- Clicks
- Ratings
- Comments
- Number of clickthrus
- Editorial decisions

Care should be taken to prevent this from being gamable.

The user will see: What is being read most right now/yesterday/last week while allowing old stories with great blogs that trickle in over several days to raise later

Recognizing that not all content is equal, we will display feeds sorted by above ranking schema (with new feeds appearing to the side, and defined as shows that are younger than 6 months and that have less than 50 ratings). This model is similar to how iTunes lists shows.

## Appendix F. AstroPages

The AstroYellow Pages will be a fully searchable directory of astronomy stakeholders.

### F.1. Content for Entries

The following fields will exist in the submit form (assuming OpenID is used):

- Organization Name\*
- Organization Category (drop down)\*
  - o Observatories
  - o Planetariums / science centers
  - o Astronomical Society and groups
  - o Space artist
  - o Astronomy-related travel
  - o Educational
  - o Equipment Manufacturer
  - o Public Advocacy groups (e.g. International Dark Skies Association)
  - o Public Outreach group (e.g. Night Sky Network)
  - o Publications (e.g. Sky & Telescope)
  - o Research departments (e.g. Southwest Research Institute)
  - o Retailers
- Organisation status (drop down)
  - o not-for-profit
  - o educational
  - o for profit
- Description (100 words)
- Main site URL
- Image gallery URL
- Video gallery URL
- Educational material URL
- Responsible person for public/press inquiries (drop down)
  - o Name
  - o E-mail
  - o Phone number
  - o Cell phone number
  - o Time zone
- Additional Contacts (reloads form with new fields)
  - o Name
  - o Role
  - o E-mail
  - o Phone number
  - o Cell phone number
  - o Time zone
- Public Address
- Public City
- Public Country
- Public Phone
- City\*
- State\*
- Address\*
- Zipcode\*
- Country (drop down)\*

\* This Field is required for listings in AstroPages, but not for iAstro or SpaceBook.

## **F.2. Existing Content Repositories**

Data to seed the AstroPages can be scraped from the following organizations

1. Astronomers Without Borders
2. Astronomical League
3. Sky and Telescope
4. 100 Hours of Astronomy (I & II)
5. Sidewalk Astronomers

Existing amateur group lists that can also be scraped exist at these URLs:

1. <http://www.skyandtelescope.com/community/organizations>
2. <http://astronomylinks.com/>
3. <http://whitepages.amsky.com/>
4. <http://www.astronomyclubs.com/>

## **Appendix G. Ranking Algorithms**

Ranking algorithm: ranking of the Portal content as seen on iTunes. Weighted average of:

- Freshness
- Clicks
- Ratings
- Comments
- Number of clickthrus
- Editorial decisions

Care should be taken to prevent this from being gamable.

- The user will see:
  - What is being read most right now/yesterday/last week
  - Allow old stories with great blogs that trickle in over several days to raise later
- Recognizing that not all content is equal, we will display feeds sorted by above ranking schema (with new feeds appearing to the side, and defined as shows that are younger than 6 months and that have less than 50 ratings). This model is similar to how iTunes lists shows.

