World Wide Telescope

Alyssa A. Goodman, Harvard University

Part 1:

WWT as a Preview of 21st Century e-Research in Astronomy

Part 2:

WWT and the Astronomical Literature

Part 3:

Synthesis: Communities, Tours, Collections, and More

Q & A

AAS, 2008: WWT as an "Open Secret"

1-minute demo of WWT

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Q & A

What do these (buzz) words really mean?

"e-Research" • "Semantic Web" • "Modular Apps"

"Ontology"

"GIS/Layering"

"Search"

What's needed?

"Progressive Resolve"

"Registration"

"Side-by-Side Comparison"

"Selection"

"Readable Labels"

"Highlighting"

"Zoom"

"Custom Site"

"Measurement"

"Inference"

"Off-the-Desktop"

LONG BEACH CONVENTION CENTER

From: Yan Xu
Subject: RE: (non WWT) press conference attendance for AG or Tuesday AM
Date: December 31, 2008 2:56:23 AM EST
To: Yan Xu , Alyssa Goodman , Megan Watzke
Cc: Becki Culbert (Swift Group) , Curtis G. G. Wong <curtisgwong@msn.com> , Jens Kauffmann , Rosalind Reid

I just found Megan's earlier email, which mentioned that the press will be in room 204 of Convention Center It is probably not too far from our room 308.

Our setup and presentation will be in the same room: #308 (Exhibition Hall C).

Thanks,
Yan

Email with Room Numbers (result of search)

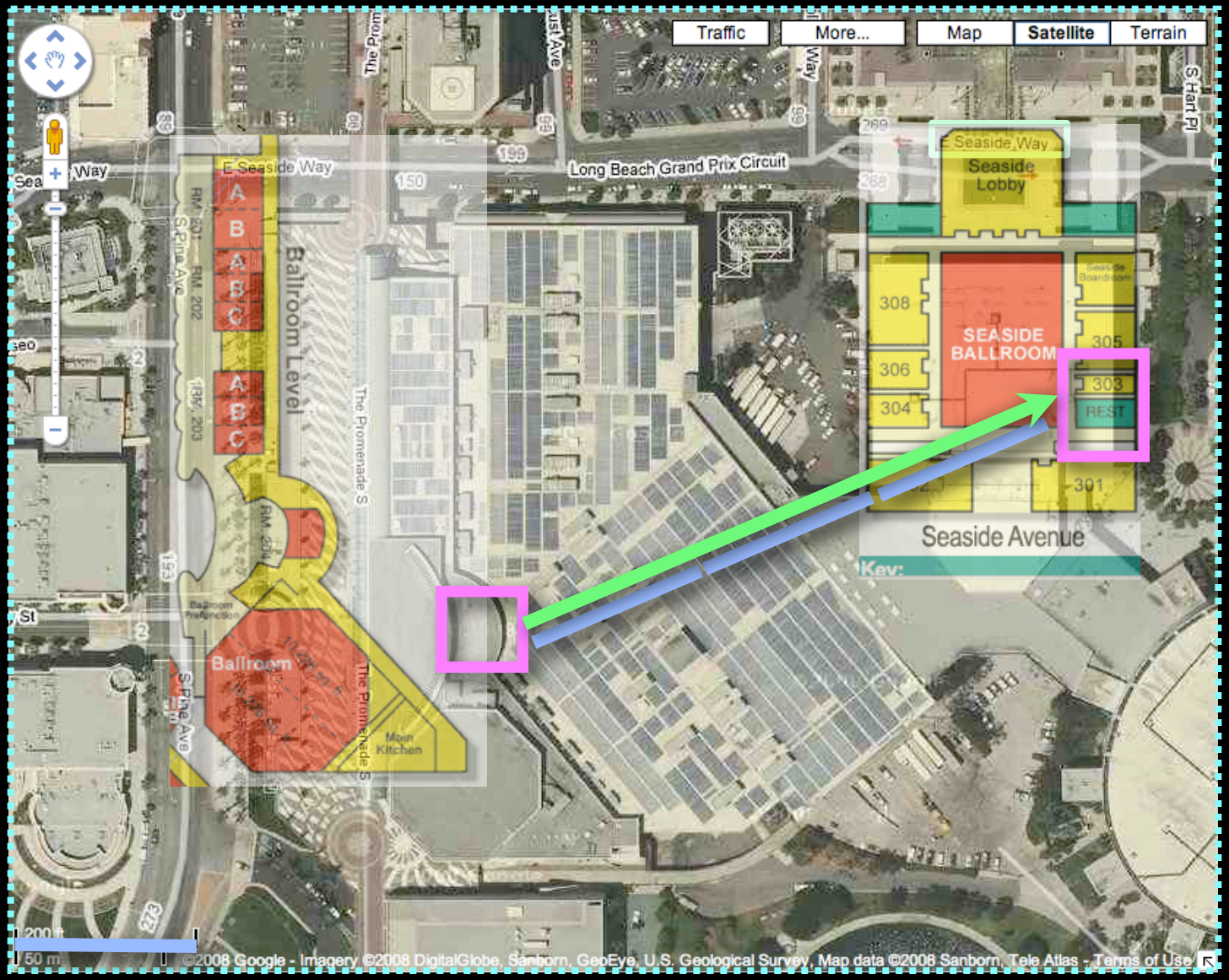
Requires "**Ontology**"

Interior Map on Long Beach CC Web Site

Requires "**GIS/Layering**"

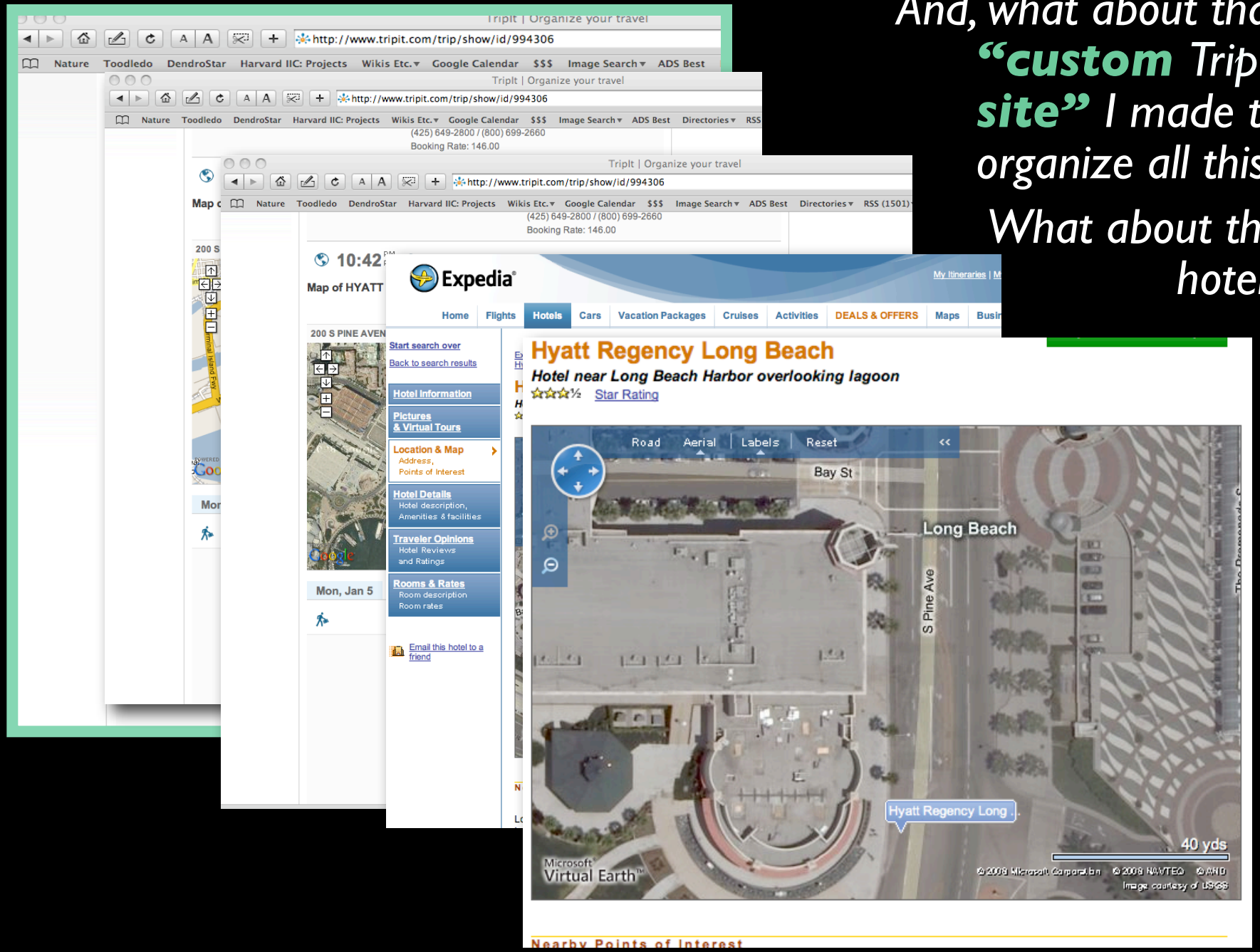
Area Map, with Photos & Street Names from Google Maps

Requires "**Search**"



...requires: **"Selection"** ; **"Registration"**;
"Readable Labels" ; **"Highlighting"**; & **"Measurement"**

in order to yield: **"Inference"**: *...Wow, that's about 600 feet, hope we can change the room!*



And, what about that ***"custom TripIt site"*** *I made to organize all this?*

What about the hotel?

"Inference": *...Oh, that building with the funky paths outside is the Hyatt... what if I...*

Search
Go

Long Beach Overview
Long Beach Hotels
• Hyatt Regency Long Beach
Flights to Long Beach
Long Beach Deals

More On Long Beach
Before You Go
Things to Do
Restaurants
Map
Traveler Photos
Forum

Long Beach Deals
Discount Hotels
Hotel & Air
All Travel Offers

Free Newsletter

Interested in **Hyatt Regency Long Beach** and **Long Beach**?

We'll send you updates with **the latest deals, reviews and articles for Hyatt**

Hyatt Regency Long Beach

Hotel class: ★★★★☆

Rooms: 510

COMPARE PRICES

- Hotel photos
- Map this hotel
- Hotel amenities
- Virtual tour

200 South Pine Avenue, Long Beach, CA 90802

Property Type: Hotel

Full service hotel with water views from rooms. Walking distance to 100 shops and restaurants, Aquarium of the Pacific. Centrally located for easy...

more »

TripAdvisor Traveler Rating:

104 Reviews

Excellent	21
Very good	43
Average	17
Poor	17
Terrible	6

Write a review

TripAdvisor Popularity Index:

#14 of 38 hotels in Long Beach

Call now to book: 1-800-45-HOTEL
from hotels.com

Check Rates and Availability: $236 Avg. Price

Check-in: 10/2/2009 mm/dd/yyyy
Check-out: 10/9/2009 mm/dd/yyyy
Adults: 1

- [x] Expedia.com
- [x] LongBeach.Hyatt.com
- [x] Travelocity
- [x] Priceline.com
- [x] Orbitz.com
- [x] hotels.com
- [ ] HotelClub.com
- [ ] Gtahotels.com

CHECK RATES!

Opens one window for each offer. Please disable pop-up blockers.

Click here for best prices for Hyatt Regency Long Beach

- **Hyatt Regency Long Beach**: Great rooms from $115 Smart Deal
  Expedia.com Photos, Reviews and the Guaranteed Lowest Prices
- **Hyatt Regency Long Beach**: Save Up To 50% On Hotels Smart Deal
  Orbitz.com View Hotel Photos, Reviews & More Compare & Save on Hotels at Orbitz
- **Hyatt Regency Long Beach**: Official Site Smart Deal
  LongBeach.Hyatt.com Best Rates Guaranteed. Book Direct.
- **Hyatt Regency Long Beach**: Official Site. Smart Deal

TripAdvisor Traveler Reviews

TripAdvisor Traveler Rating:

And now for "e-Research" with WWT...

"Progressive Resolve"

"Zoom"

"Search"

"Selection"

"GIS/Layering"

"Registration"

"Side-by-Side Comparison"

"Readable Labels"

"Highlighting"

"Custom Site"

"Inference"

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"Ontology"

"Measurement"

And now for "e-Research" with WWT...

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"Inference"

"Off-the-Desktop"

"Ontology"

"Measurement"

Going **“Off-the-Desktop”**

More information: See the IIC’s “Scientists Discovery Room” project pages

Slideshow: Tabletop Computers *Continued*

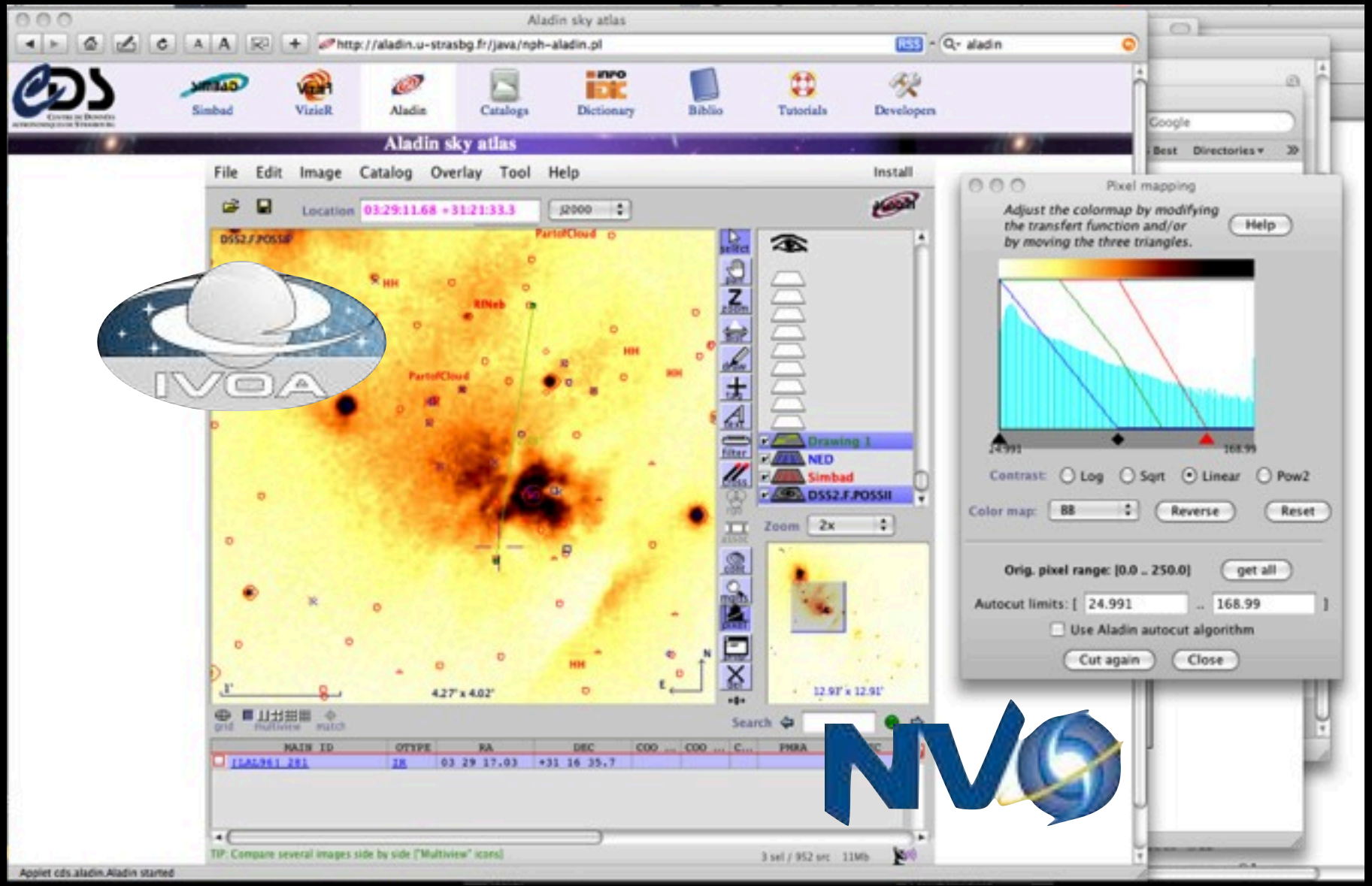
By Meredith Ringel Morris

First Published December 2008

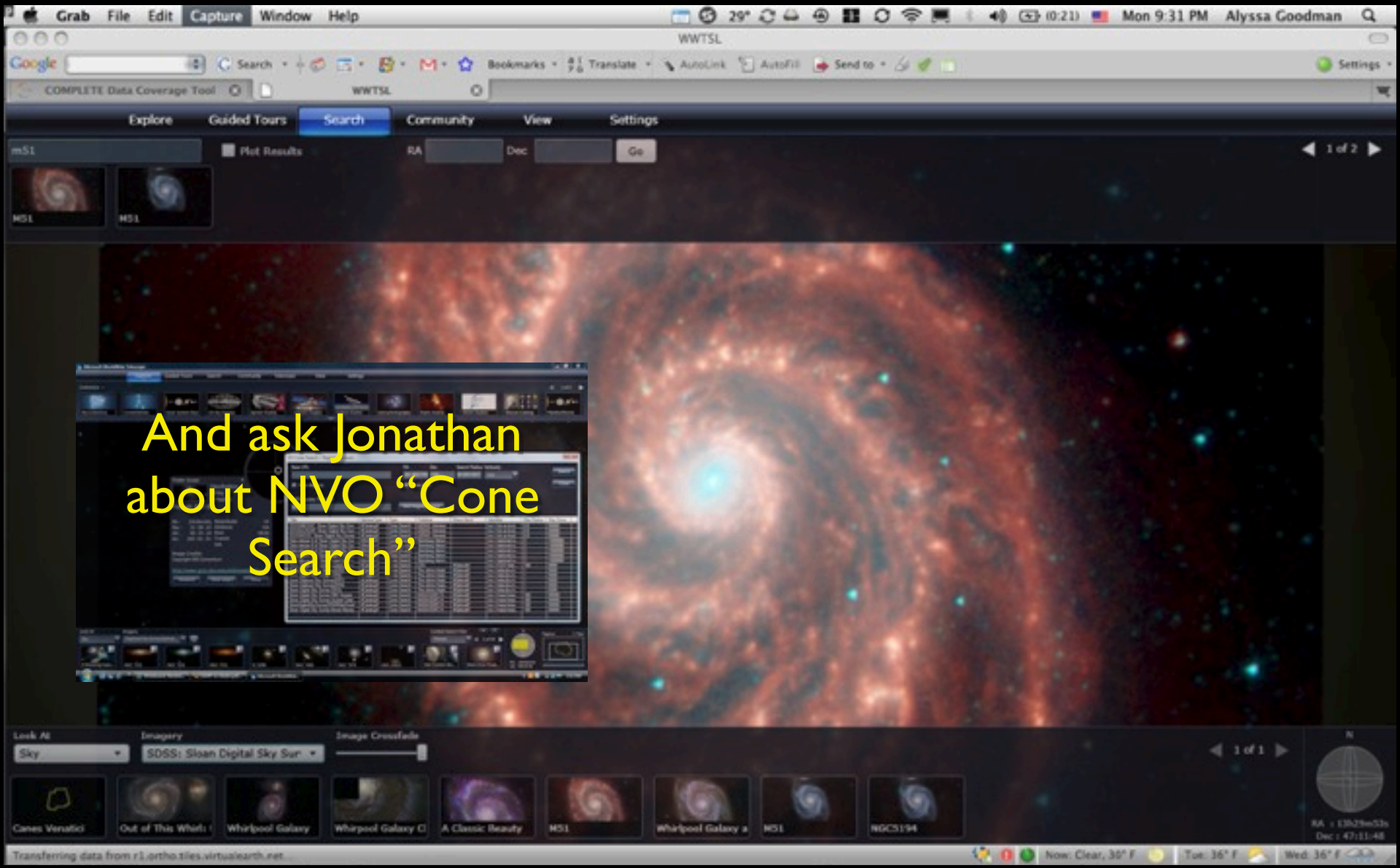
Email Print Comments (1) Reprints Newsletters

UBITABLE: Users can interact with surface computers through auxiliary devices, such as laptops, phones, and PDAs. The display on the auxiliary device can convey private or sensitive content to a single user, while group-appropriate content can appear on the tabletop display. Chia Shen and her colleagues at Mitsubishi Electric Research Laboratories, in Cambridge, Mass., have explored auxiliary interactions with surface computers in their UbiTable project, in which two people with laptops collaborate over a tabletop display. Recently, Shen expanded the UbiTable into an interactive room called the WeSpace. People can share data on their laptops with other people in the room, using both a table and a large display wall. Here, three Harvard University astrophysicists discuss radio and IR spectrum images using the WeSpace.

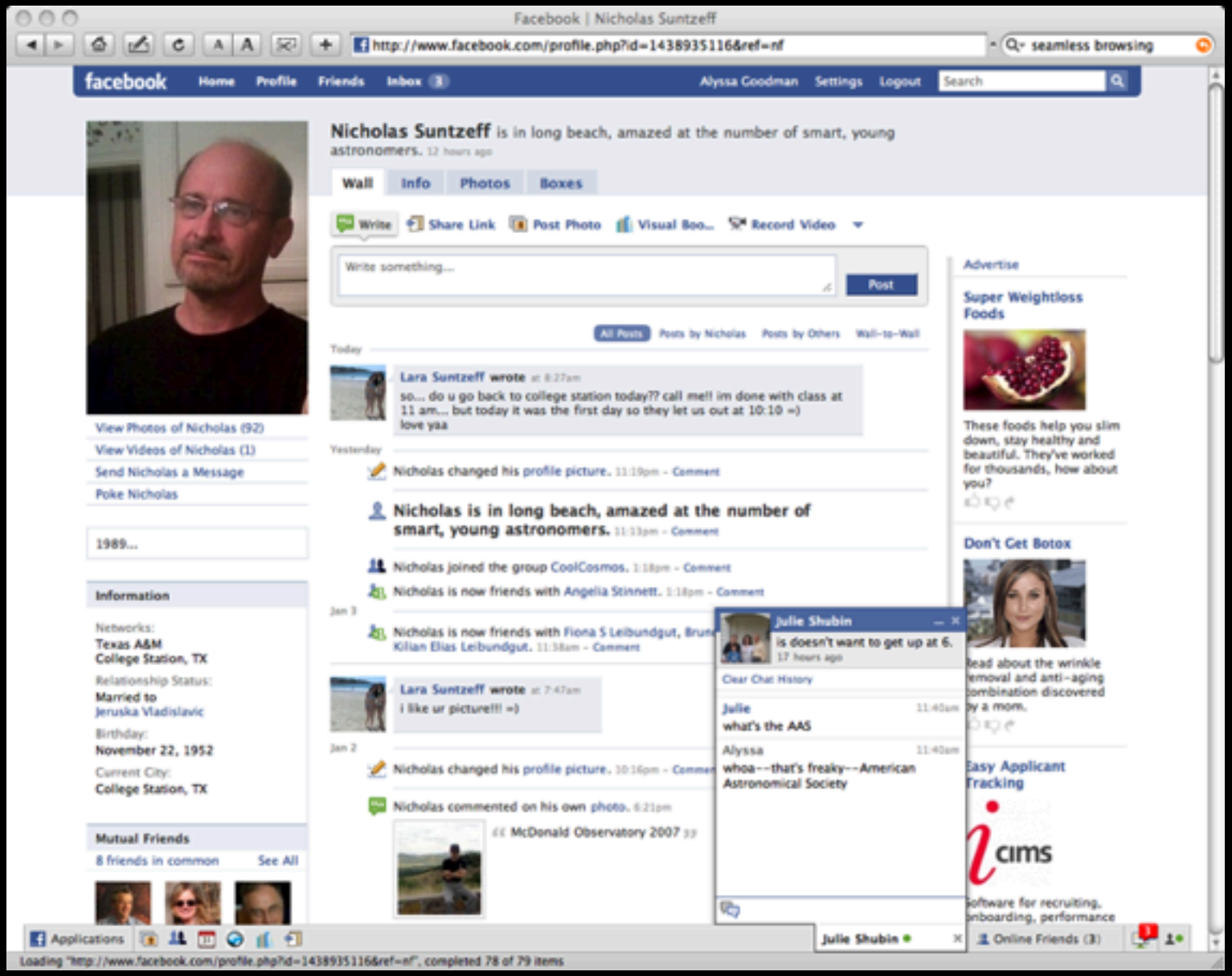
What if the Viewer were WWT?



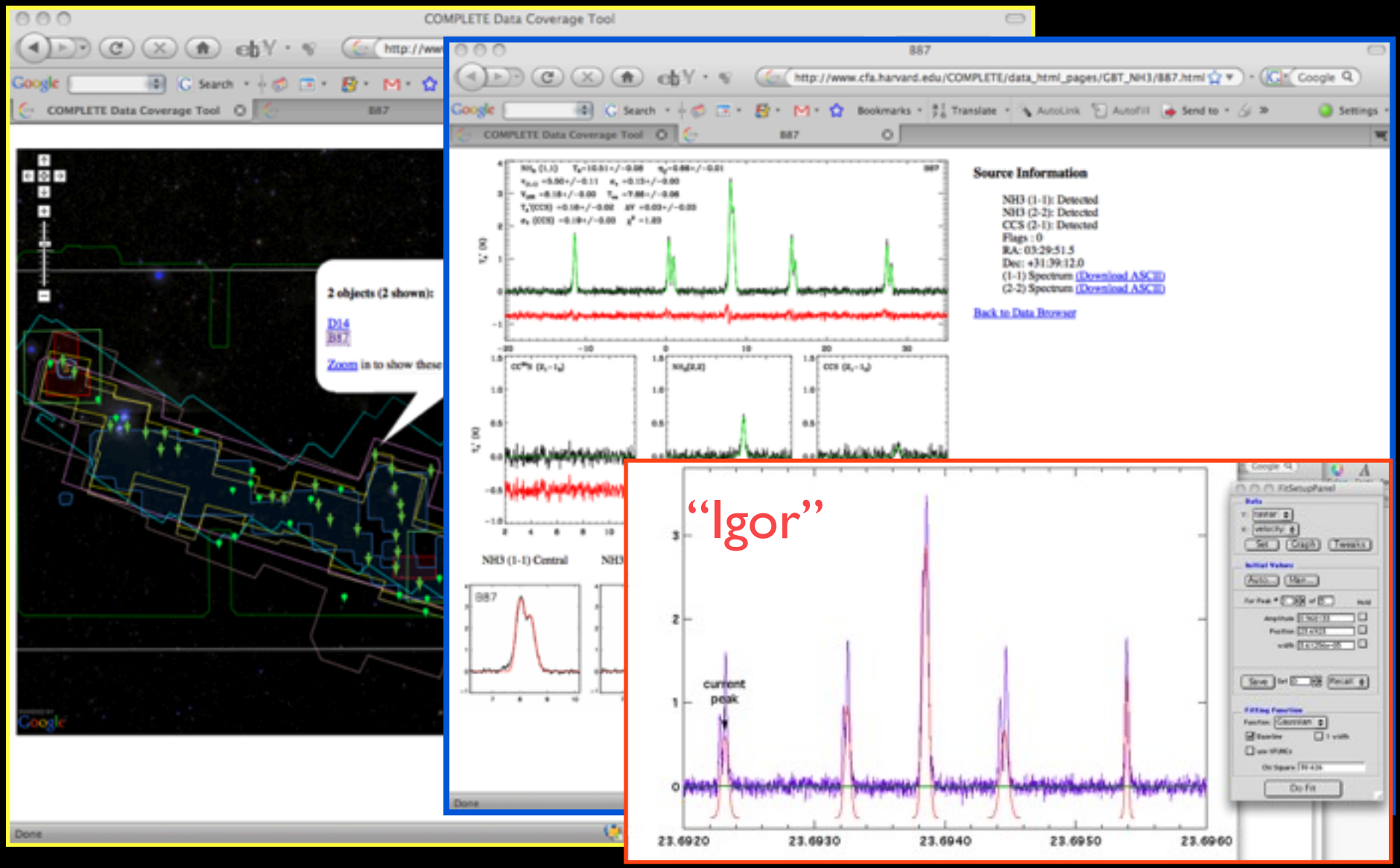
(alpha) Web Version of WWT



“Modular (& Embeddable) Apps”



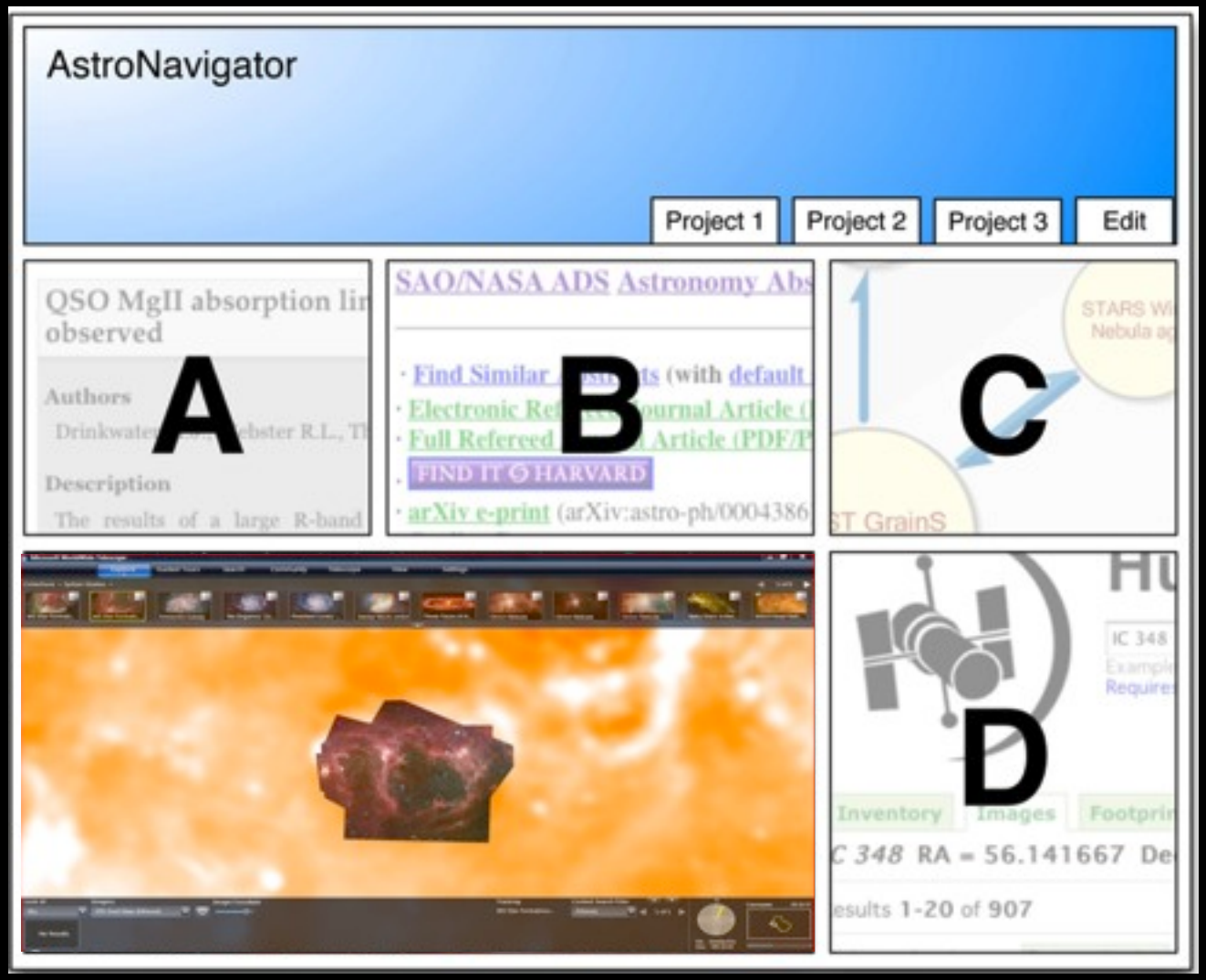
Embedded & Modular Tools



tools created by Jonathan Foster, CfA/COMPLETE

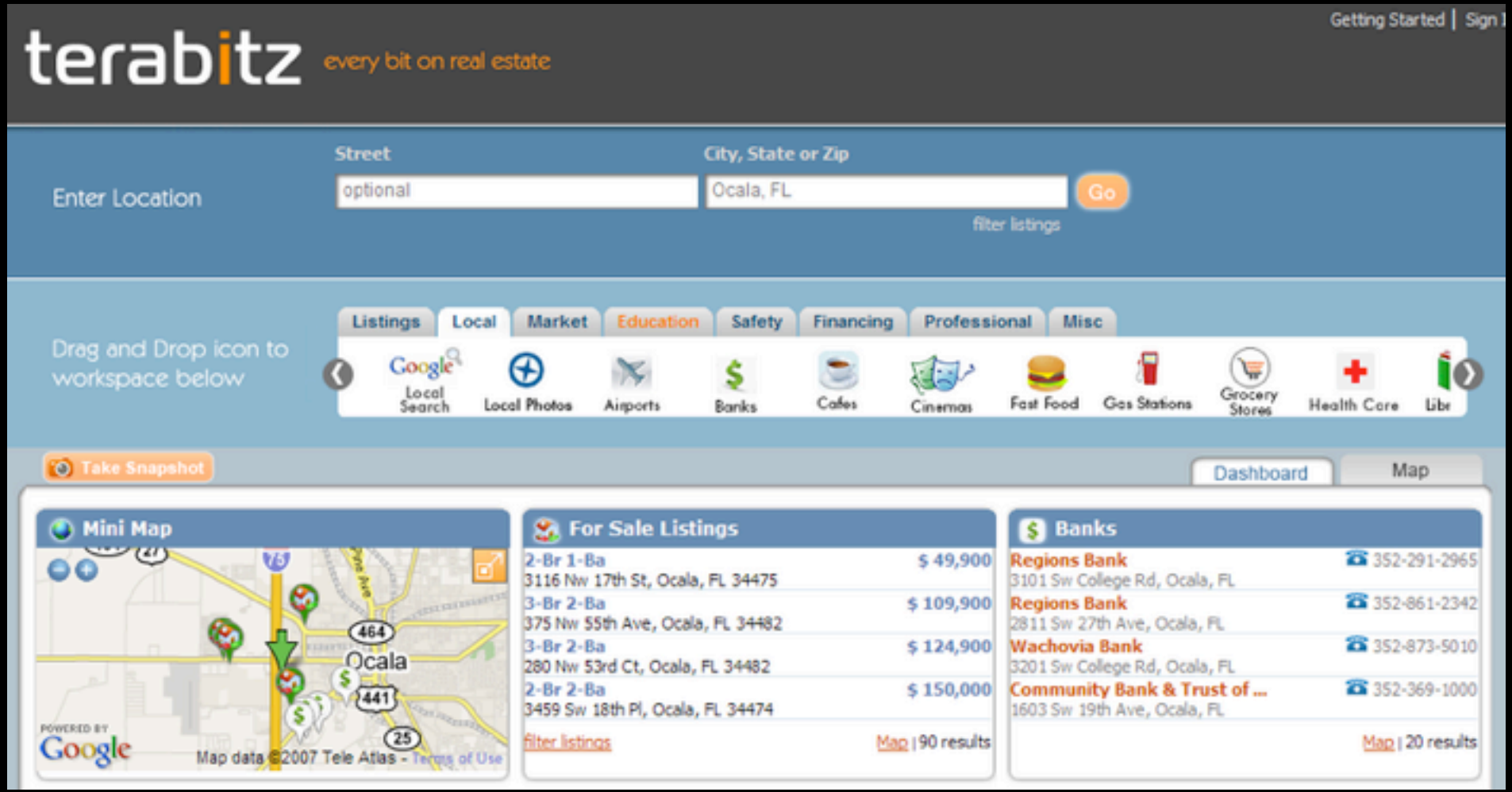
Seamless Astronomy

(now part of the WWT Academic Program!)

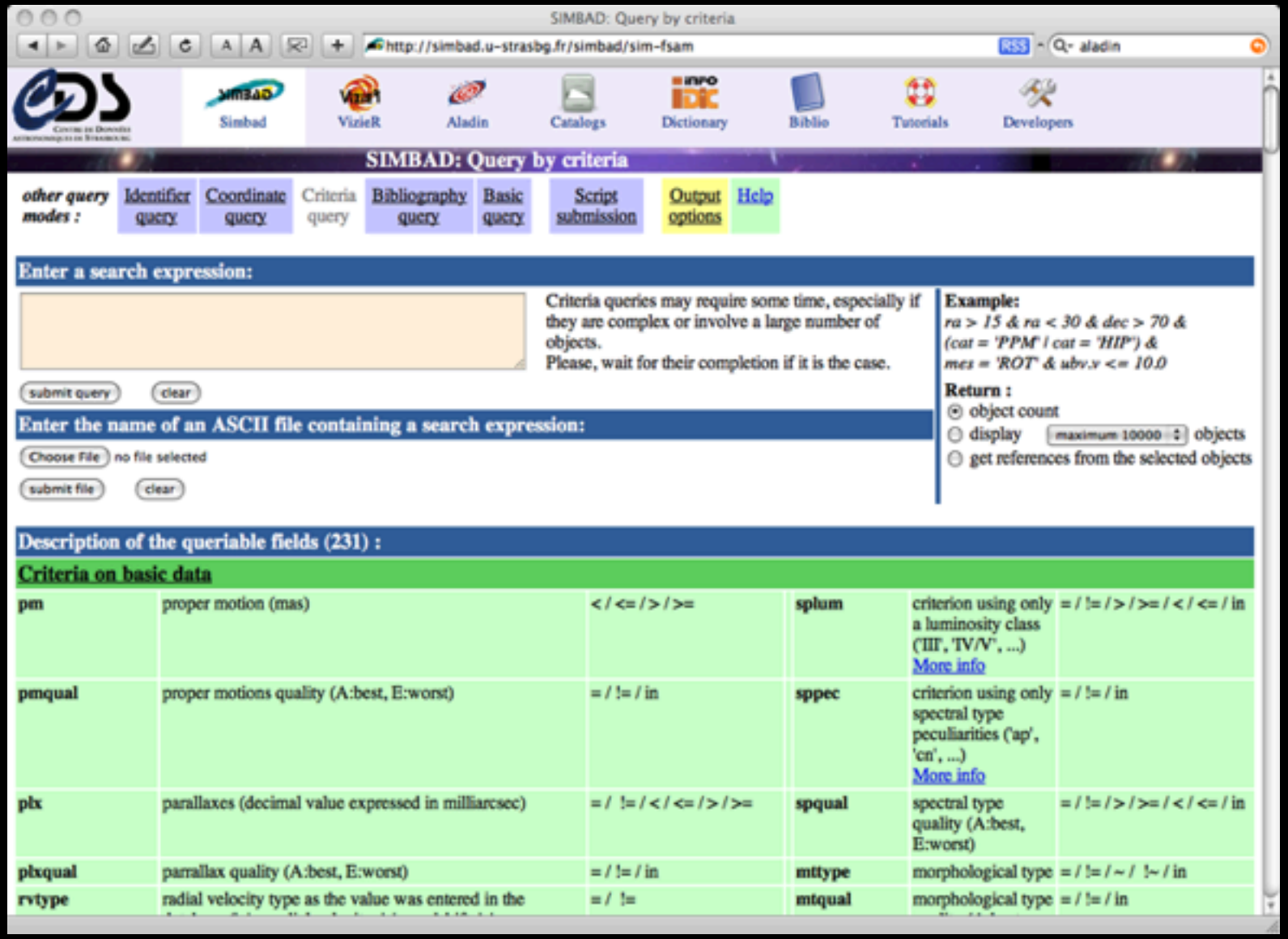


Mockup based on work of Eli Bressert, excerpted from Goodman et al. NASA AISRP proposal, 2008

astrobitz?


terabitz
every bit on real estate
Getting Started | Sign I
Enter Location
Street
optional
City, State or Zip
Ocala, FL
Go
filter listings
Drag and Drop icon to workspace below
Listings
Local
Market
Education
Safety
Financing
Professional
Misc
Google Local Search
Local Photos
Airports
Banks
Cafes
Cinemas
Fast Food
Gas Stations
Grocery Stores
Health Care
Take Snapshot
Dashboard
Map
Mini Map
Ocala
464
441
25
Google
Map data ©2007 Tele Atlas - Terms of Use
For Sale Listings
2-Br 1-Ba $ 49,900
3116 Nw 17th St, Ocala, FL 34475
3-Br 2-Ba $ 109,900
375 Nw 55th Ave, Ocala, FL 34482
3-Br 2-Ba $ 124,900
280 Nw 53rd Ct, Ocala, FL 34482
2-Br 2-Ba $ 150,000
3459 Sw 18th Pl, Ocala, FL 34474
filter listings
Map | 90 results
Banks
Regions Bank 352-291-2965
3101 Sw College Rd, Ocala, FL
Regions Bank 352-861-2342
2811 Sw 27th Ave, Ocala, FL
Wachovia Bank 352-873-5010
3201 Sw College Rd, Ocala, FL
Community Bank & Trust of ... 352-369-1000
1603 Sw 19th Ave, Ocala, FL
Map | 20 results

CDS (PLASTIC/SAMP) is on the right track...



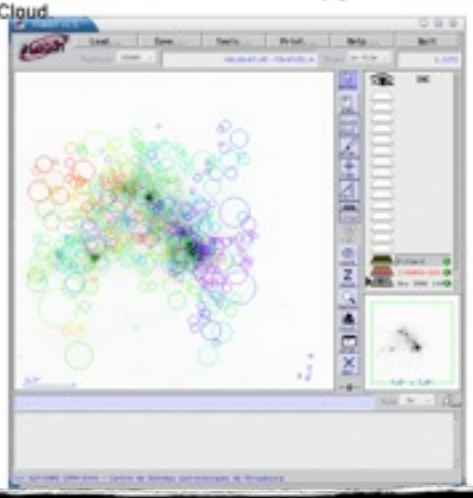
What we get

- Write the following expression in the **filter definition** box:

  {draw rainbow($[VELOC_HC],120,200) circle($[EXTENSION_RAD]|}

- This filters draws a circle which radius is proportionnal to the extension radius of the shell (EXTENSION_RAD) and wich colour scales with the heliocentric velocity of the bubble (VELOC_HC) (between 120 and 200 km/s) with a rainbow palette.
- For more informations on the filters syntax, please press the **Help on Syntax** button or **get the manual**.
- Press **Apply**.

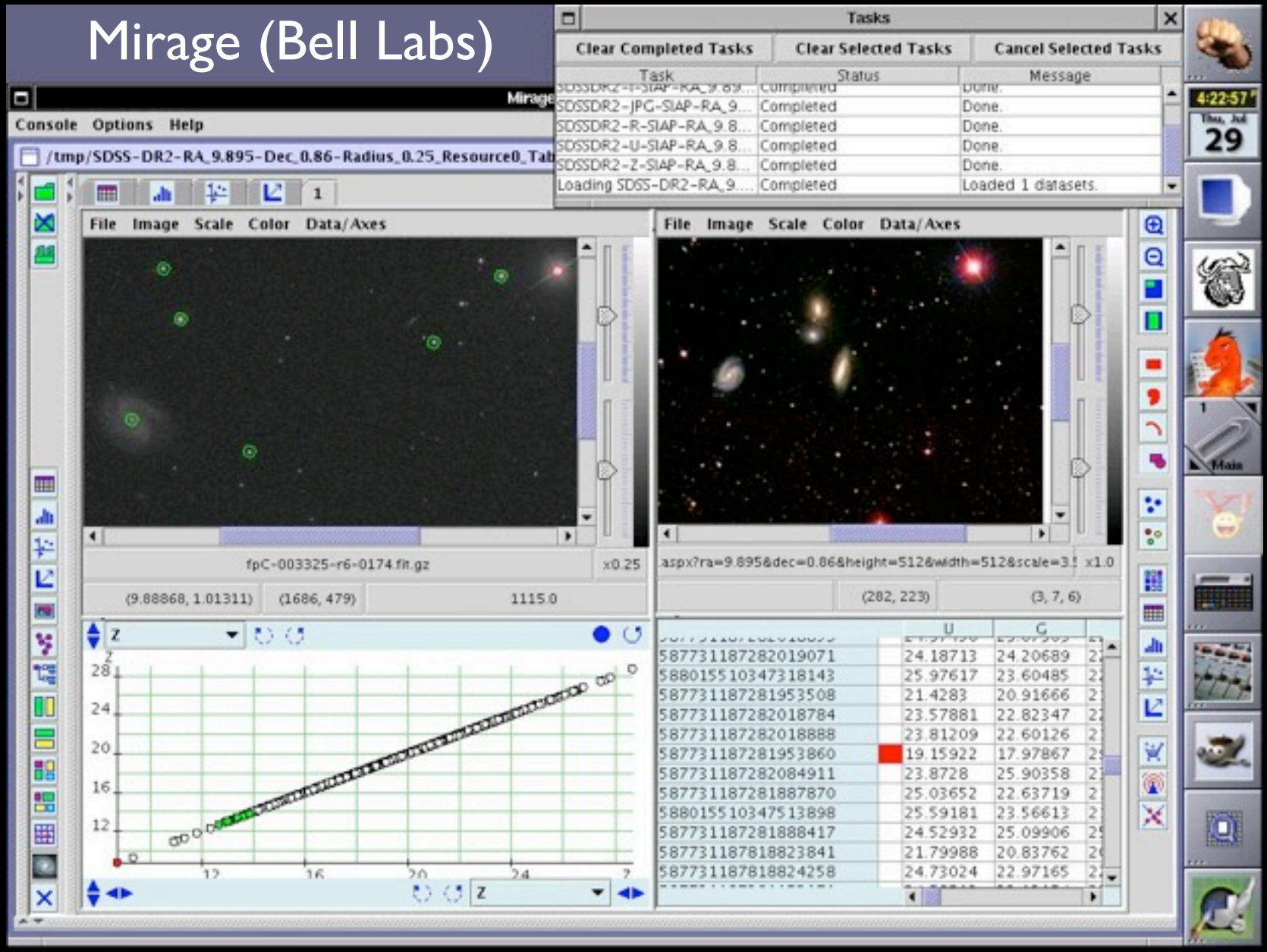
We can now observe the distribution of the HI shells with their position, size and velocities. Note the colour view of the velocity gradient of the Small Magellanic Cloud.



vs.

What the "public" gets

Mirage (Bell Labs)



cf. Avizo (Mercury Systems); some aspects of GenePattern; Taverna...

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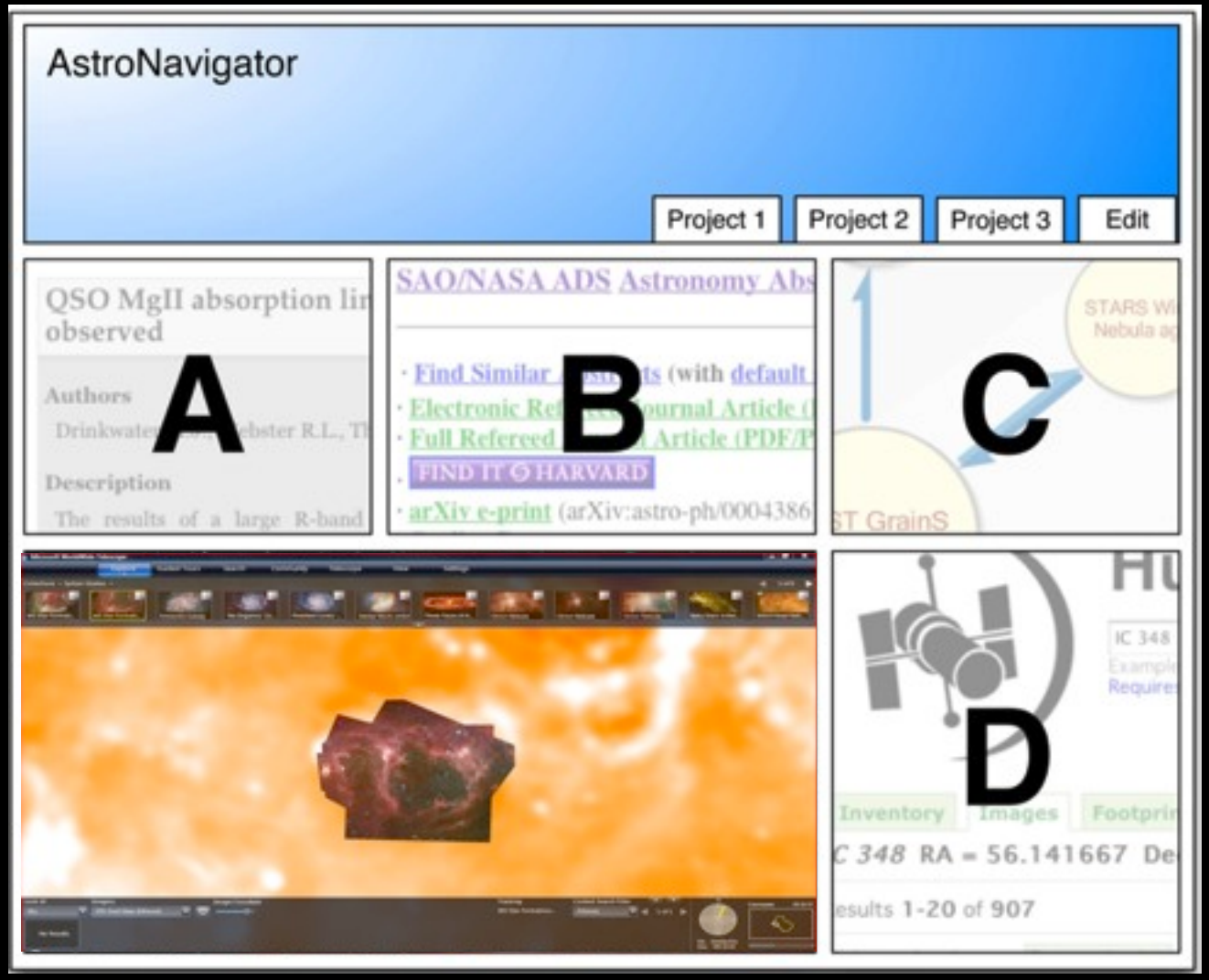
Q & A

30-second demo of WWT to ADS

Seamless Astronomy

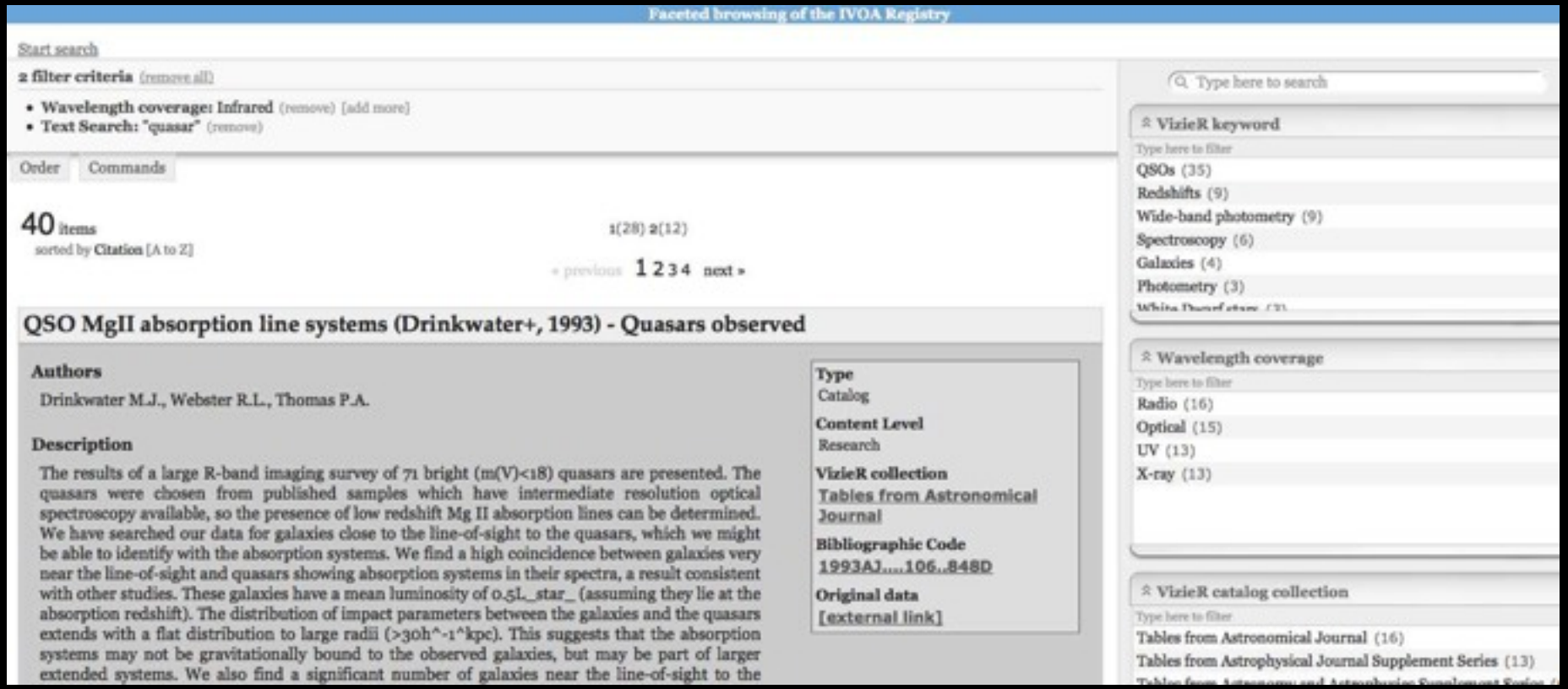
(now part of the WWT Academic Program!)



Mockup based on work of Eli Bressert, excerpted from NASA AISRP proposal by Goodman, Muench, Christian, Conti, Kurtz, Burke, Accomazzi, McGuinness, Hendler & Wong, 2008

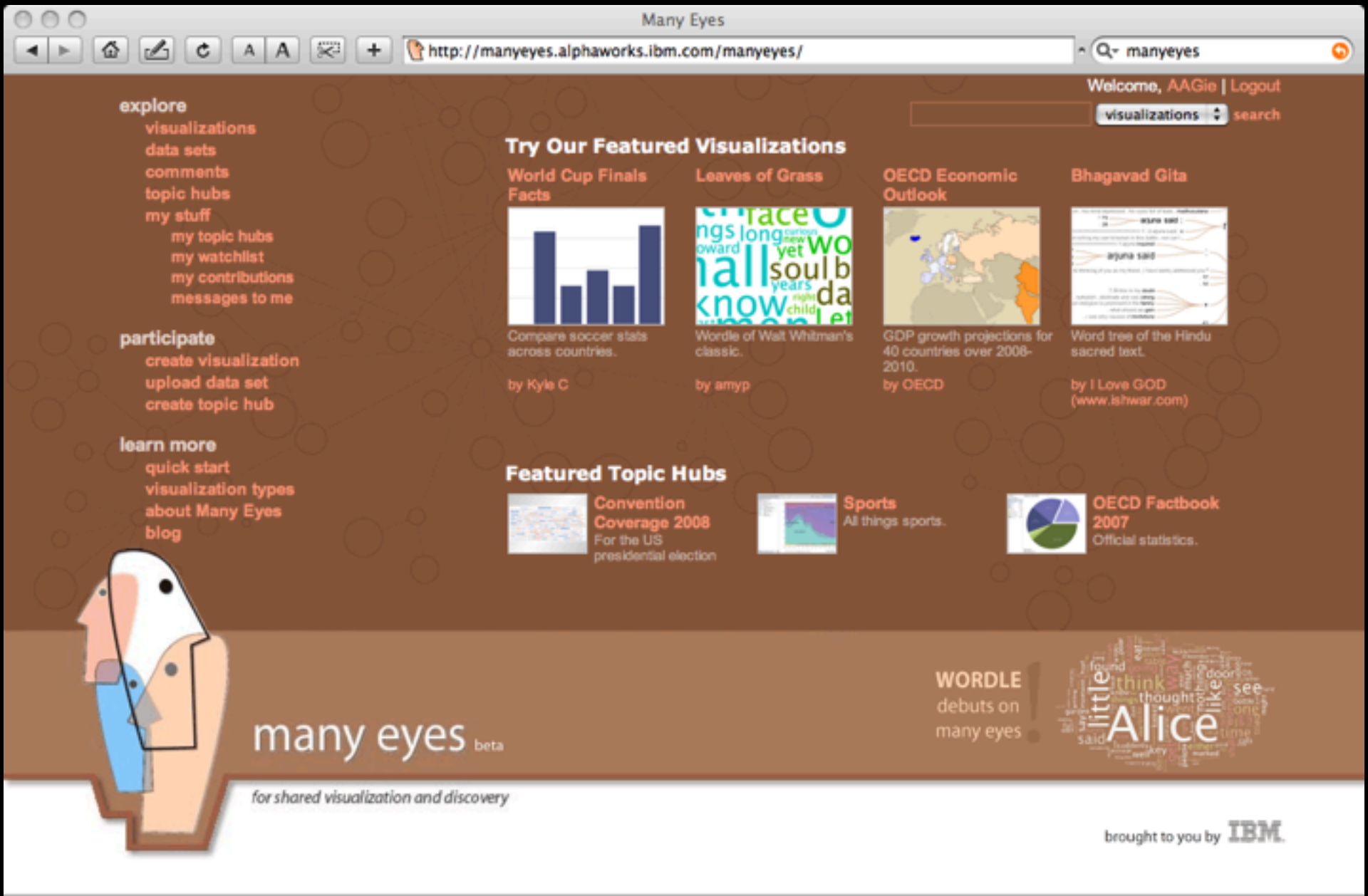
Prototype "Faceted" Browsing

(using very lightweight ontology)



courtesy Douglas Burke, CfA/IIC

Incorporating "InfoViz"



Plugging in Existing Search & Retrieval Tools *(e.g. MAST)*

Hubble Legacy Archive

IC 348 Search Reset advanced search

Examples: M101, 14 03 12.6 +54 20 56.7 r=0.2d, more...

Requires Firefox, Safari, or compatible browser

Inventory | Images | Footprints | NICMOS Grism (ST-ECF) | Help

IC 348 RA = 56.141667 Dec = 32.162778 r = 0.200000 [03:44:34.000 +32:09:46.00]

Results 1-20 of 907 sorted by StartTime Show 20 results per page Previous 1 2 3 4 5 6 7 8 9 ...

Click column heading to sort list - Click rows to select Reset selection

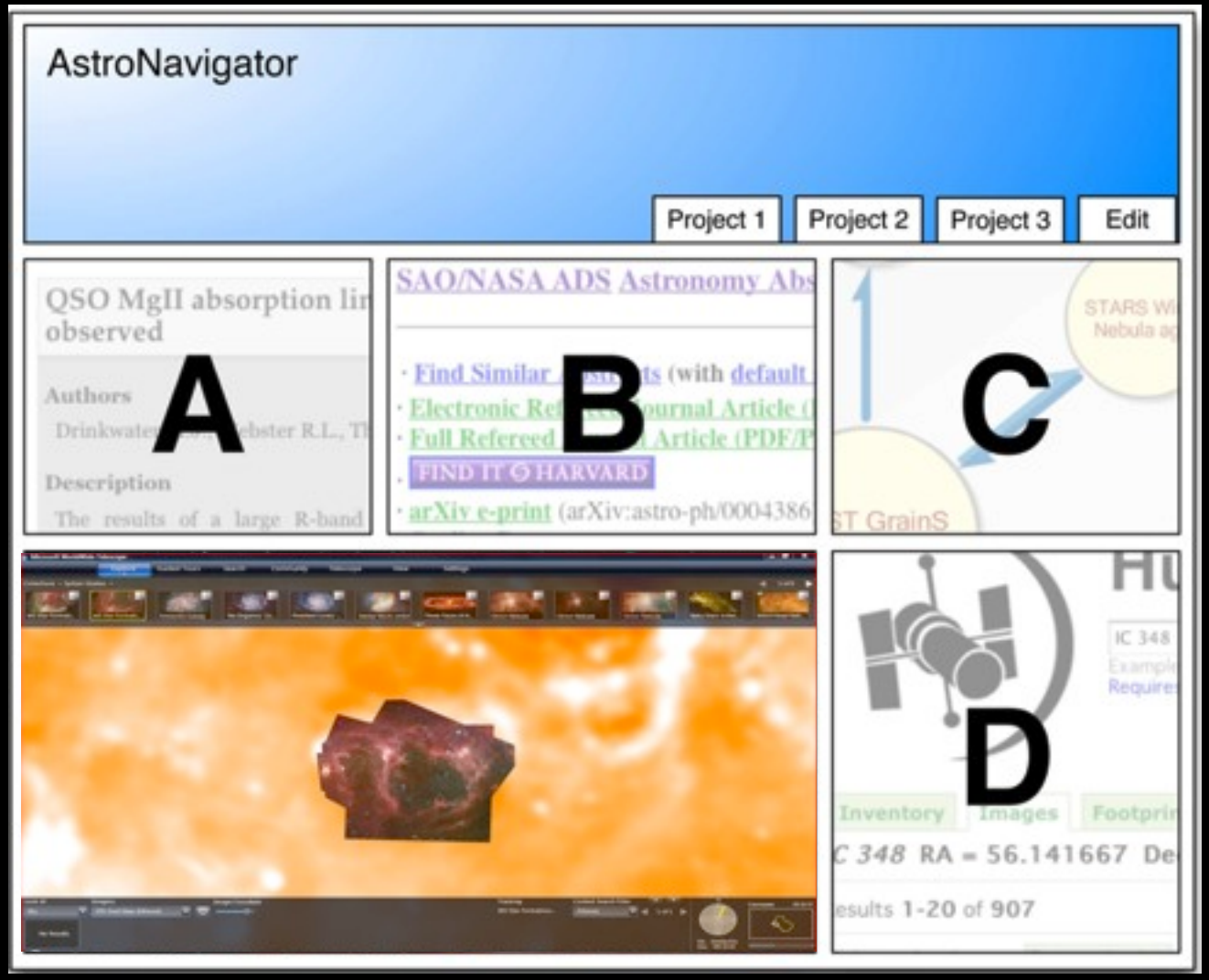
Text boxes under columns select matching rows Apply Filter Clear Filter

Display	Download	RA	DEC	Level	Target	Detector	Aperture	Spectral_Elt	NExposures	ExpTime	
Display	FITS	03:44:25.8	31:58:14.9	1	HI-LATITUDE-FIELD	STIS/CCD	50CCD	MIRVIS	1	200	2001-
Display	FITS	03:44:25.8	31:58:14.9	1	HI-LATITUDE-FIELD	STIS/CCD	50CCD	MIRVIS	1	200	2001-
MAST Preview	DADS	03:44:13.07	32:02:39.8	1	IC348-PSF2	WFPC2	PC1	F850LP	1	40	2001-
MAST Preview	DADS	03:44:13.1	32:02:39.7	1	IC348-PSF2	WFPC2	PC1	F850LP	1	40	2001-
MAST Preview	DADS	03:44:17.18	32:02:29.5	1	IC348-POS2	WFPC2	PC1	F850LP	1	400	2001-
Display	FITS	03:44:29.9	31:58:04.6	2	ANY	STIS/CCD	50CCD	MIRVIS	1	420	2001-
MAST Preview	DADS	03:44:17.18	32:02:29.5	1	IC348-POS2	WFPC2	PC1	F850LP	1	400	2001-

courtesy Alberto Conti & Carol Christian, NASA/STScI

Seamless Astronomy

(now part of the WWT Academic Program!)



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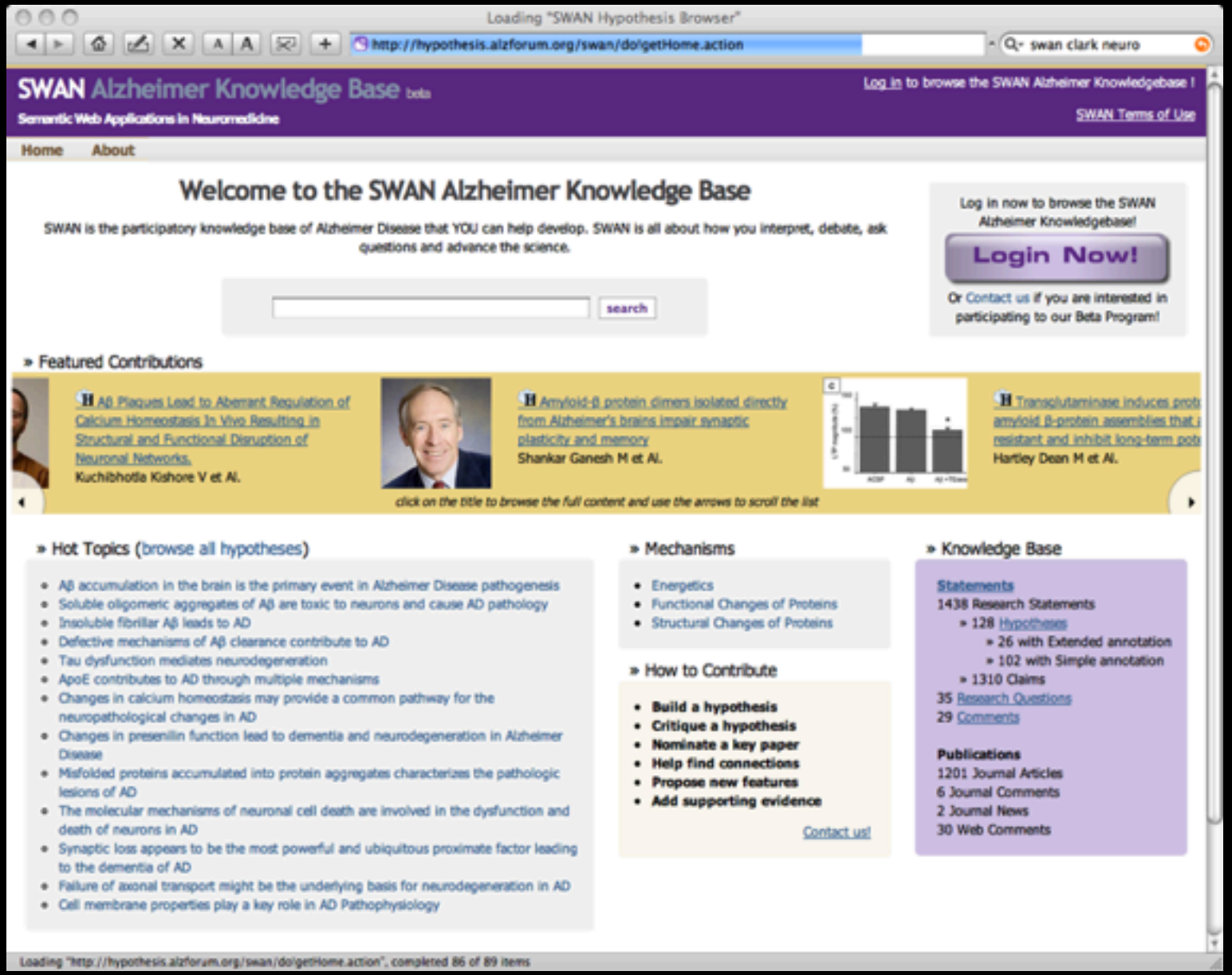
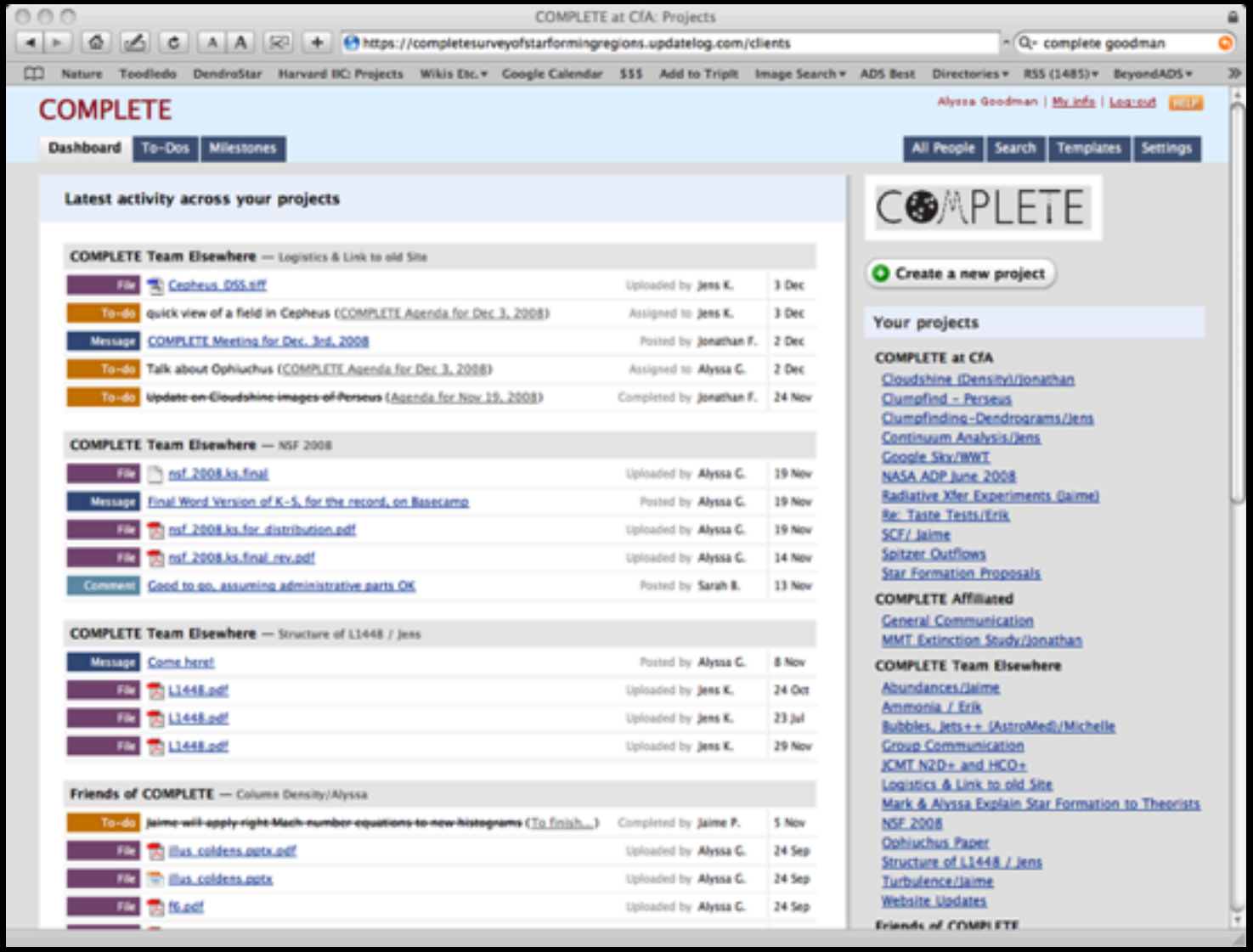
Q & A

"Semantic" Science

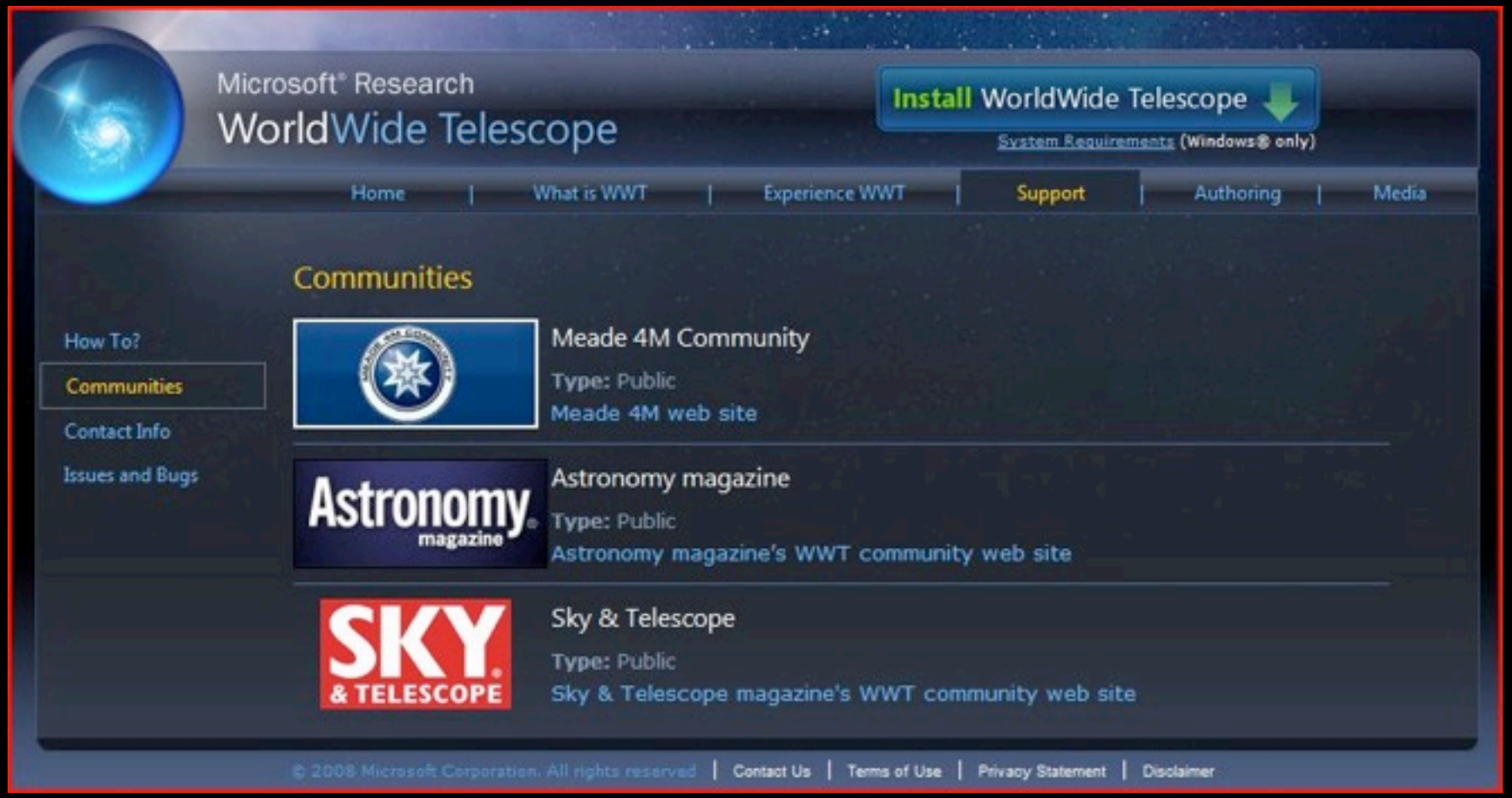
(& "Social" or Group Science)



Groupware


COMPLETE at CfA: Projects
https://completesurveyofstarformingregions.updatelog.com/clients
complete goodman
Nature Teodledo DendroStar Harvard IIC: Projects Wikis Etc. Google Calendar $$$ Add to TripIt Image Search ADS Best Directories RSS (1485) BeyondADS
COMPLETE
Alyssa Goodman | My Info | Log out HELP
Dashboard To-Dos Milestones All People Search Templates Settings
Latest activity across your projects
COMPLETE Team Elsewhere — Logistics & Link to old Site
File Cepheus_DSS.tiff Uploaded by Jens K. 3 Dec
To-do quick view of a field in Cepheus (COMPLETE Agenda for Dec 3, 2008) Assigned to Jens K. 3 Dec
Message COMPLETE Meeting for Dec. 3rd, 2008 Posted by Jonathan F. 2 Dec
To-do Talk about Ophiuchus (COMPLETE Agenda for Dec 3, 2008) Assigned to Alyssa G. 2 Dec
To-do ~~Update on Cloudshine images of Perseus~~ (Agenda for Nov 19, 2008) Completed by Jonathan F. 24 Nov
COMPLETE Team Elsewhere — NSF 2008
File nsf_2008_ks_final Uploaded by Alyssa G. 19 Nov
Message Final Word Version of K-S, for the record, on Basecamp Posted by Alyssa G. 19 Nov
File nsf_2008_ks_for_distribution.pdf Uploaded by Alyssa G. 19 Nov
File nsf_2008_ks_final_rev.pdf Uploaded by Alyssa G. 14 Nov
Comment Good to go, assuming administrative parts OK Posted by Sarah B. 13 Nov
COMPLETE Team Elsewhere — Structure of L1448 / Jens
Message Come here! Posted by Alyssa G. 8 Nov
File L1448.pdf Uploaded by Jens K. 24 Oct
File L1448.pdf Uploaded by Jens K. 23 Jul
File L1448.pdf Uploaded by Jens K. 29 Nov
Friends of COMPLETE — Column Density/Alyssa
To-do ~~Jaime will apply right Mach number equations to new histograms~~ (To finish...) Completed by Jaime P. 5 Nov
File illus_coldens.pptx.pdf Uploaded by Alyssa G. 24 Sep
File illus_coldens.pptx Uploaded by Alyssa G. 24 Sep
File f6.pdf Uploaded by Alyssa G. 24 Sep
COMPLETE
Create a new project
Your projects
COMPLETE at CfA
Cloudshine (Density)/Jonathan
Clumpfind - Perseus
Clumpfinding-Dendrograms/Jens
Continuum Analysis/Jens
Google Sky/WWT
NASA ADP June 2008
Radiative Xfer Experiments (Jaime)
Re: Taste Tests/Erik
SCF/ Jaime
Spitzer Outflows
Star Formation Proposals
COMPLETE Affiliated
General Communication
MMT Extinction Study/Jonathan
COMPLETE Team Elsewhere
Abundances/Jaime
Ammonia / Erik
Bubbles, Jets++ (AstroMed)/Michelle
Group Communication
JCMT N2D+ and HCO+
Logistics & Link to old Site
Mark & Alyssa Explain Star Formation to Theorists
NSF 2008
Ophiuchus Paper
Structure of L1448 / Jens
Turbulence/Jaime
Website Updates
Friends of COMPLETE

later today... demo of WWT communities



Think about WWT Tours as collaborative tools, too...

Our Future

“e-Research” • “Semantic Web” • “Modular Apps”

“Unsolicited Advice” for 2009 from www.microsoft-watch.com

“3. Make incubation projects the top development priority.

Simply some of your best work in 2008 came from incubation projects. Keep them coming and better reward employees for their innovation. Give your customers more products like Live Mesh, Photosynth and WorldWide Telescope.

Incubation projects:

- Engage enthusiasts
- Create positive buzz
- Show how Microsoft can truly innovate.

...Then there's Google. Yes, Google. Gmail is now a modularized product. Gmail users choose which features they want to add on, stuff coming out of Google incubation development. Outstanding.”