
WorldWide Telescope
Microsoft
Research

The WorldWide Telescope

Alyssa A. Goodman

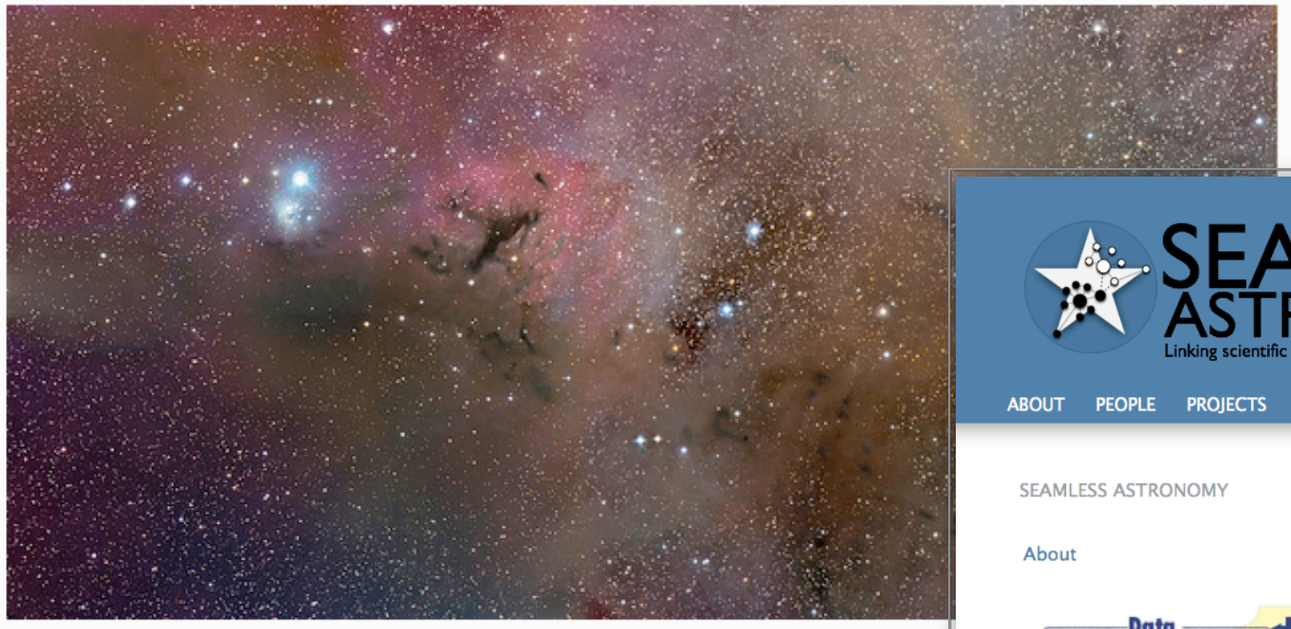
Professor of Astronomy

Harvard University

WWT software created by Curtis Wong & Jonathan Fay at Microsoft Research

flickr from YAHOO! You Contacts Groups Explore Upload

Actions Share ← Newer Older →



perseus_optical

Wide field image of Perseus star-forming clouds.

Comments and faves

astrometry.net (12 months ago)

Hello, this is the blind astrometry solver. Your results are:
(RA, Dec) center:(54.3378035839, 31.6779385177) degrees
(RA, Dec) center (H:M:S, D:M:S):(03:37:21.073, +31:40:40.579)
Orientation:179.64 deg E of N

Pixel scale:9.32 arcsec/pixel

Parity:Reverse ("Left-handed")
Field size :5.55 x 2.68 degrees

Your field contains:
The star oPer
NGC 1333
IC 348

View in World Wide Telescope

SEAMLESS ASTRONOMY

Linking scientific data, publications, and communities

ABOUT PEOPLE PROJECTS PUBLICATIONS PRESENTATIONS SOFTWARE CFA DATA (BETA) EVENTS

SEAMLESS ASTRONOMY

About

The **Seamless Astronomy Group** at the **Harvard-Smithsonian Center for Astrophysics** brings together astronomers, computer scientists, information scientists, librarians and visualization experts involved in the development of tools and systems to study and enable the next generation of **online astronomical research.**

Current projects include research on the development of systems that seamlessly integrate scientific data and literature, the semantic interlinking and annotation of scientific resources, the study of the impact of social media and networking sites on scientific dissemination, and the analysis and visualization of astronomical research communities. Visit our project page to find out more.

Sponsors of Seamless Astronomy include NASA, NSF and Microsoft Research.

Contact us. For inquiries or questions, please email Sarah Block at sblock@cfa.harvard.edu. Alternatively you can contact or visit us at:
SEAMLESS ASTRONOMY TEAM
HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS
60 GARDEN STREET, MS 42
CAMBRIDGE, MA 02138

The figure (above) diagrams the relationship between astronomical research and the data and literature sources that the research draws upon. The researcher stands between the literature and data, taking information from each, integrating their own analysis tools, and then producing new publications and results that feed back into these source regimes.

Twitter
Documents
Links

Latest Announcements

Latest Feed Items

albertoconti: http://t.co/pdmrdJSs (Introducing Evernote Clearly: One Click for Distraction-Free Online Reading)

albertoconti: Evernote Clearly: One Click for Distraction-Free Online Reading « Evernote Blogcast http://t.co/vTOMgWUh

albertoconti: @thenakedshort but your argument can be reversed: supporting commercial crew now would have made #JWST science impossible.

albertoconti: RT @Unstrung: RT @jeff_foust Bolden says FY2013 NASA budget proposal will "adequately" support key priorities: SLS/MPCV, ISS/Comm'l Crew ...

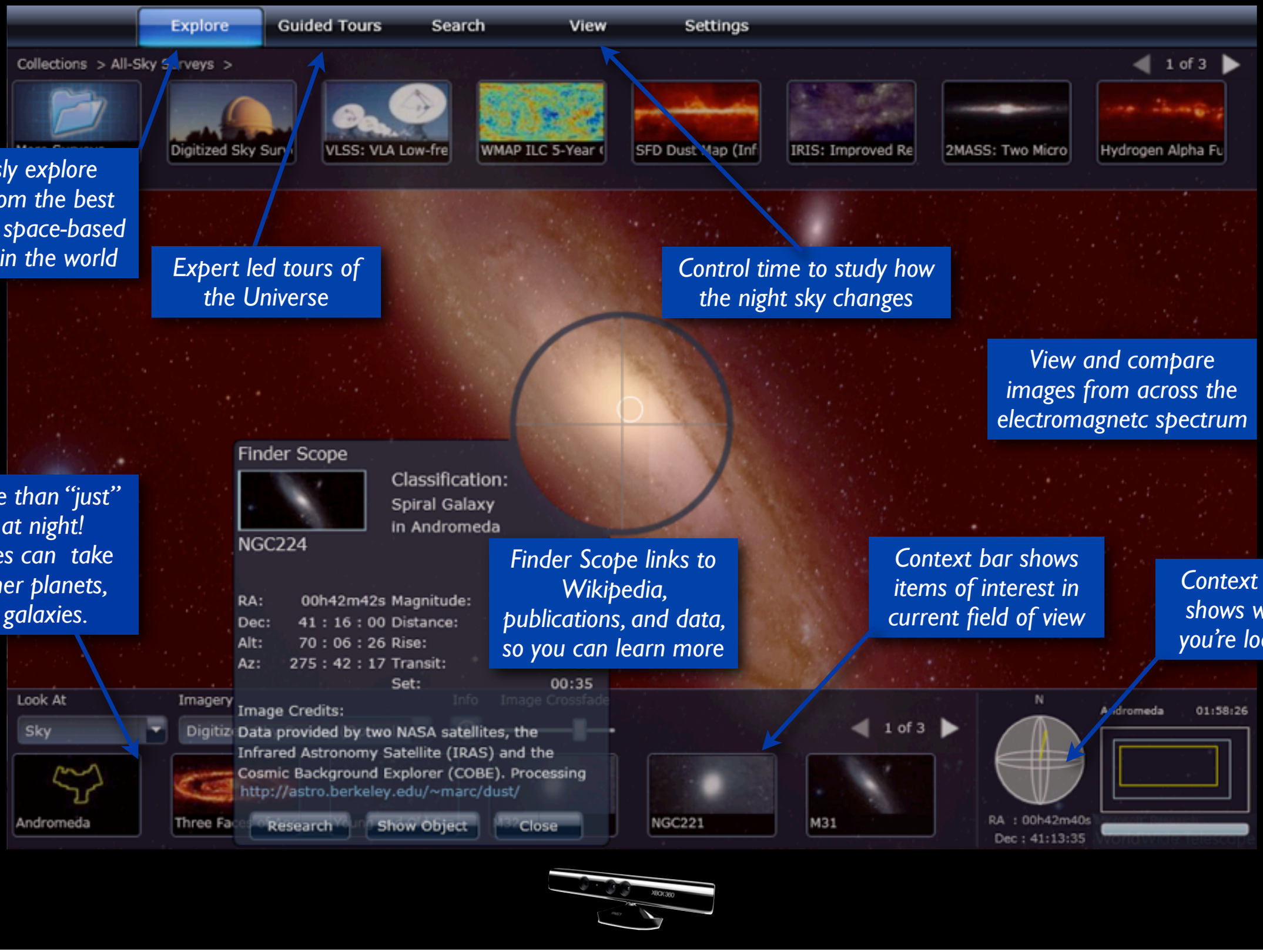
augustmuench: #feedly just rocked my rss world. (already damaged #greader, you may go now).

augustmuench: google scholar profile: my citations were growing w/nice linear trend right up to 2008 aka when I started working on sw/service/training.

doug_burke: RT @edsu: Interesting take on responsive UIs and Ajax http://t.co/6s8LUqnv

Microsoft® Research WorldWide Telescope

Experience WWT at **worldwidetelescope.org**



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Much more than "just" the sky at night! 3D features can take you to other planets, stars & galaxies.

Finder Scope links to Wikipedia, publications, and data, so you can learn more

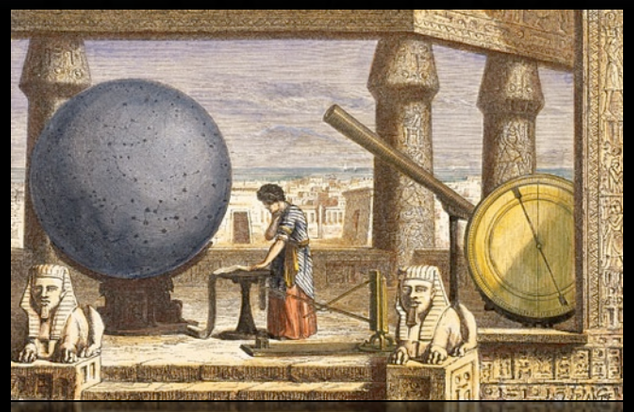
Context bar shows items of interest in current field of view

Context globe shows where you're looking.

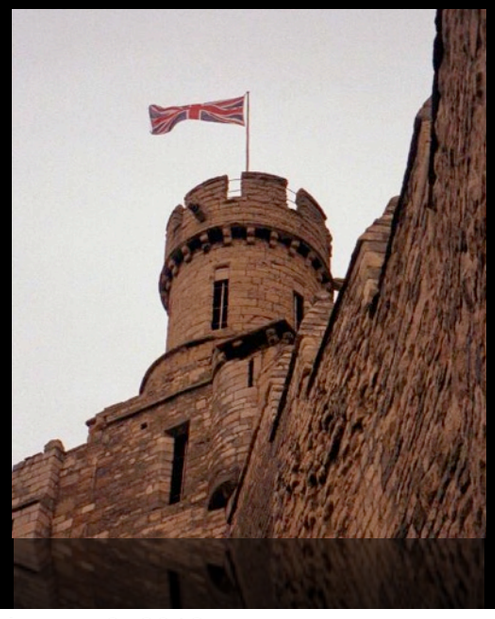
3500 years of Observing

Stonehenge, 1500 BC

Ptolemy in Alexandria, 100 AD



Observatory Tower, Lincolnshire, UK, c. 1300



Galileo, 1600

The "Scientific Revolution"

Reber's Radio Telescope, 1937

NASA/Explorer 7 (Space-based Observing) 1959

"The Internet"

Long-distance remote-control/ "robotic" telescopes 1990s

"Virtual Observatories" 21st century

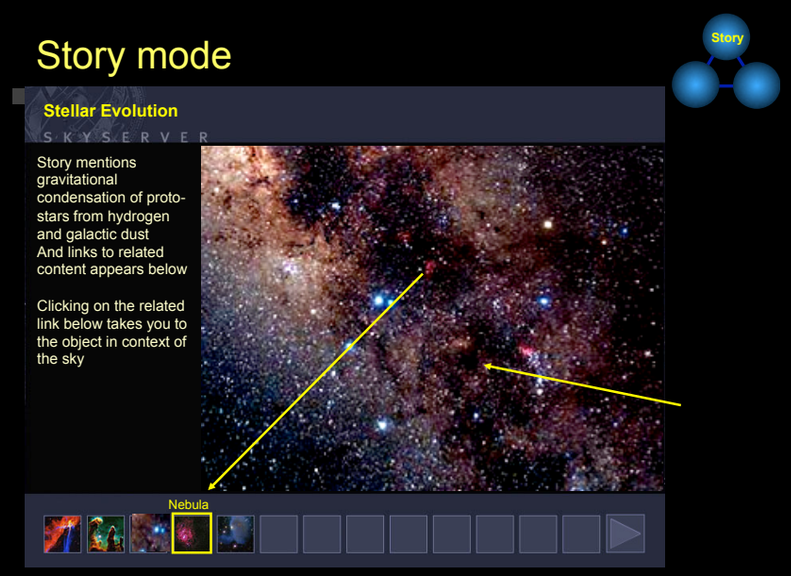
2005

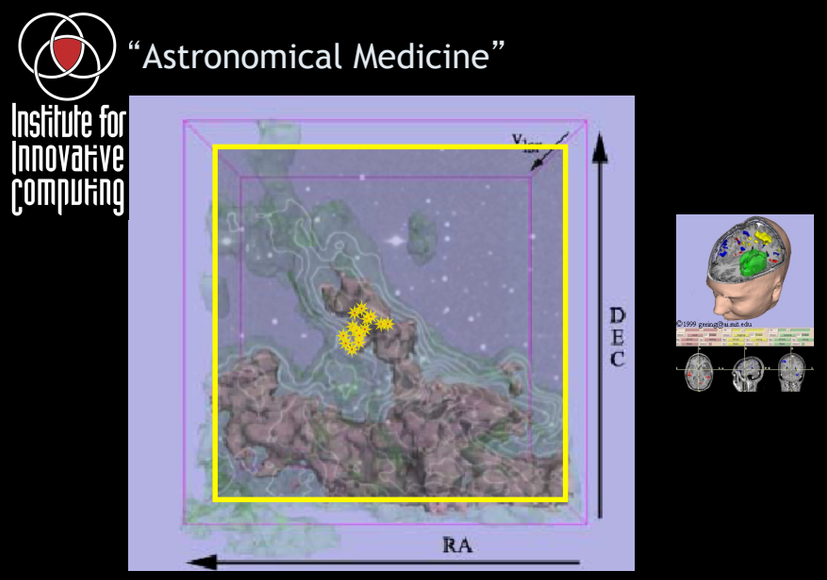
Curtis Wong

Microsoft Research

Alyssa Goodman

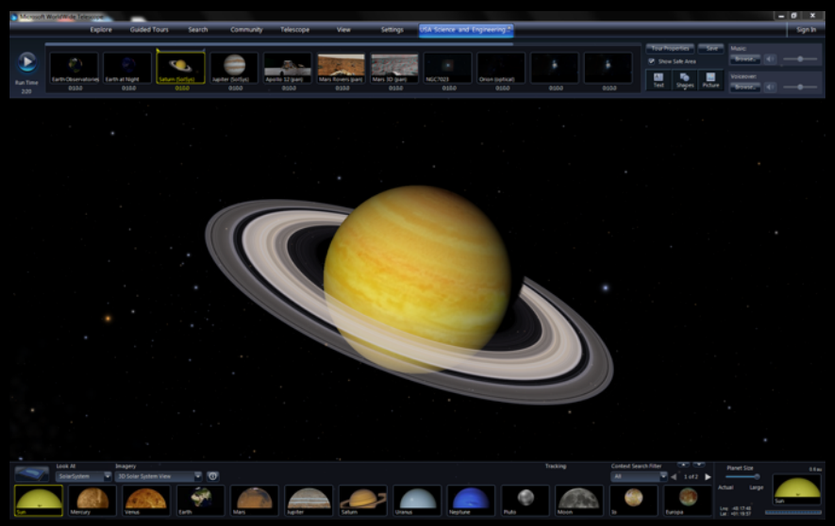
Harvard University

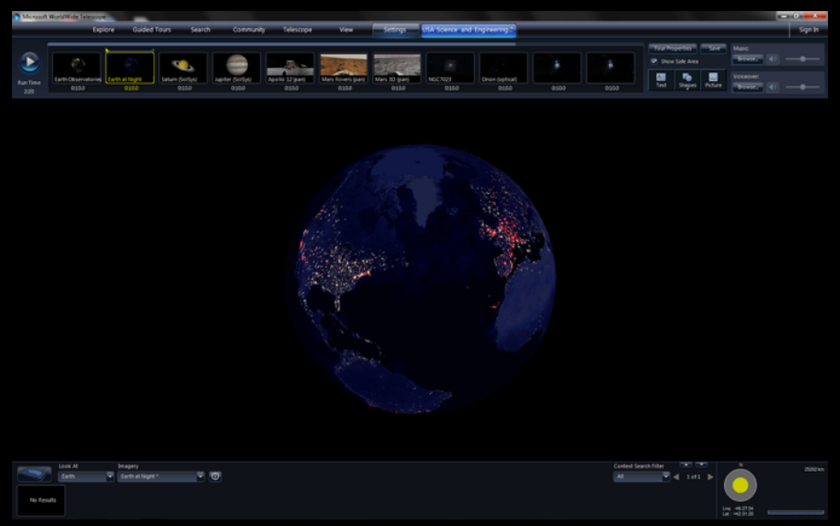


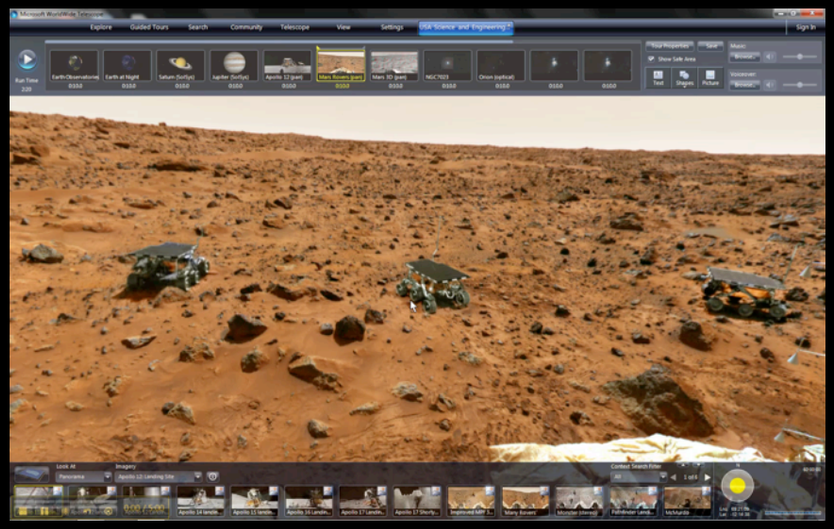


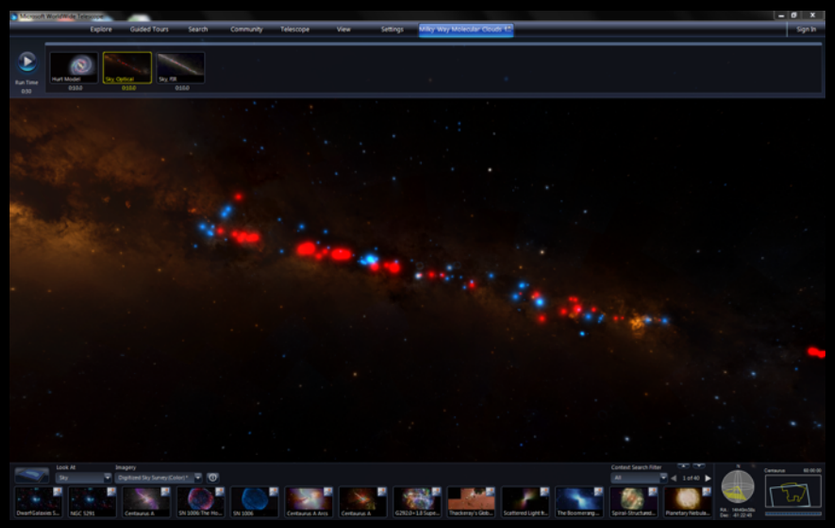
A joint venture of FAS-Astronomy & HMS/BWH-Surgical Planning Lab;
Work shown here is from the 2005 Junior Thesis of Michelle Borkin, Harvard College.

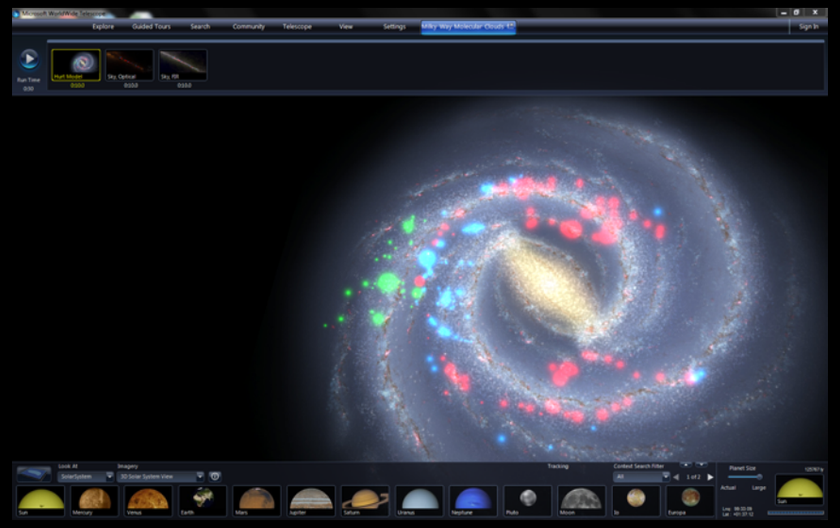
2013

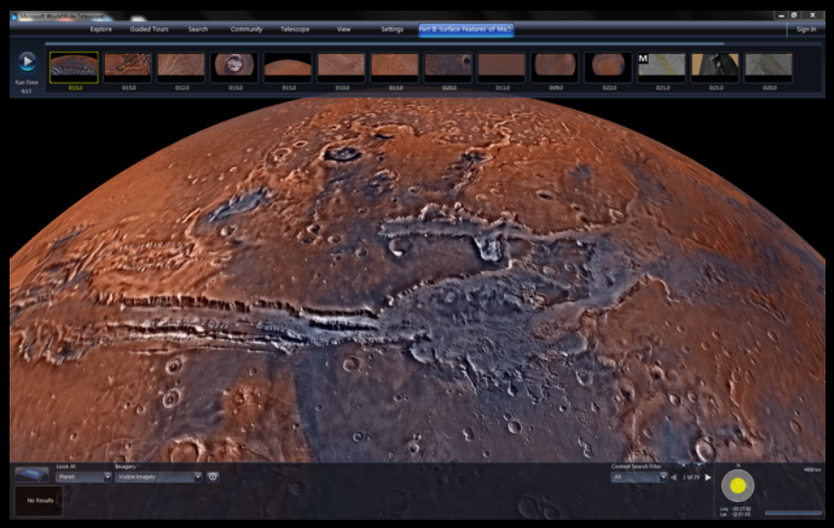


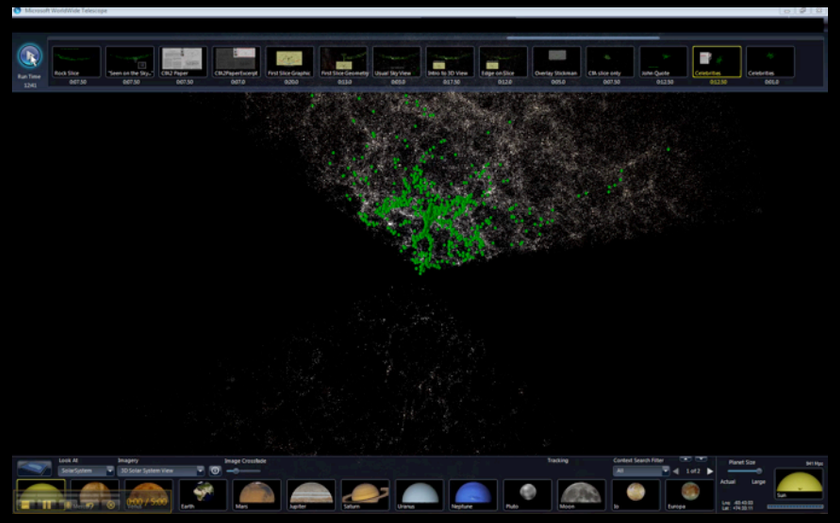








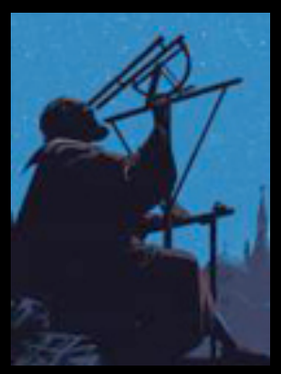


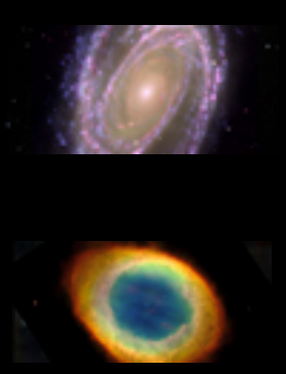


Experience WWT at **worldwidetelescope.org**

WWT Ambassadors

"Tours"





WWT VizLabs

WWT in Research

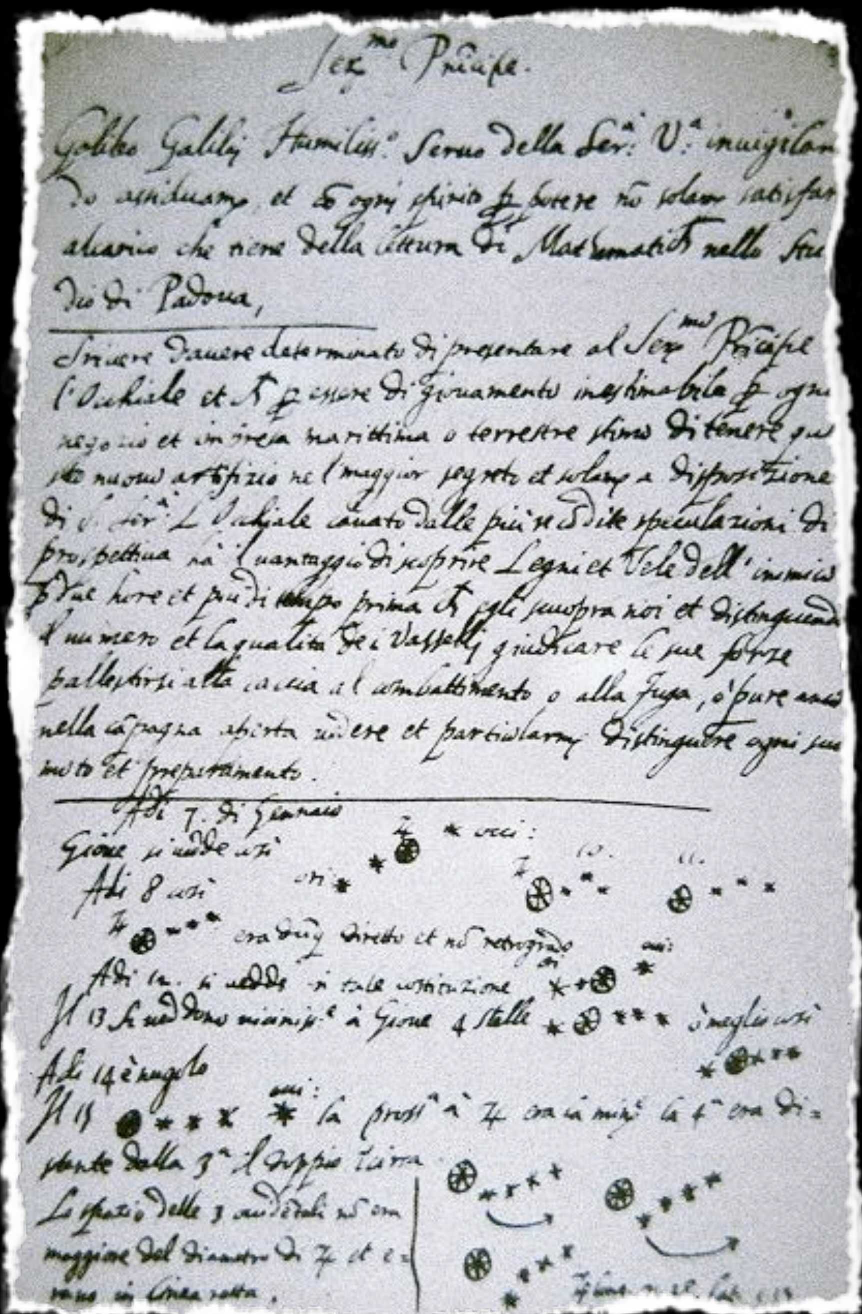
COMPLETE

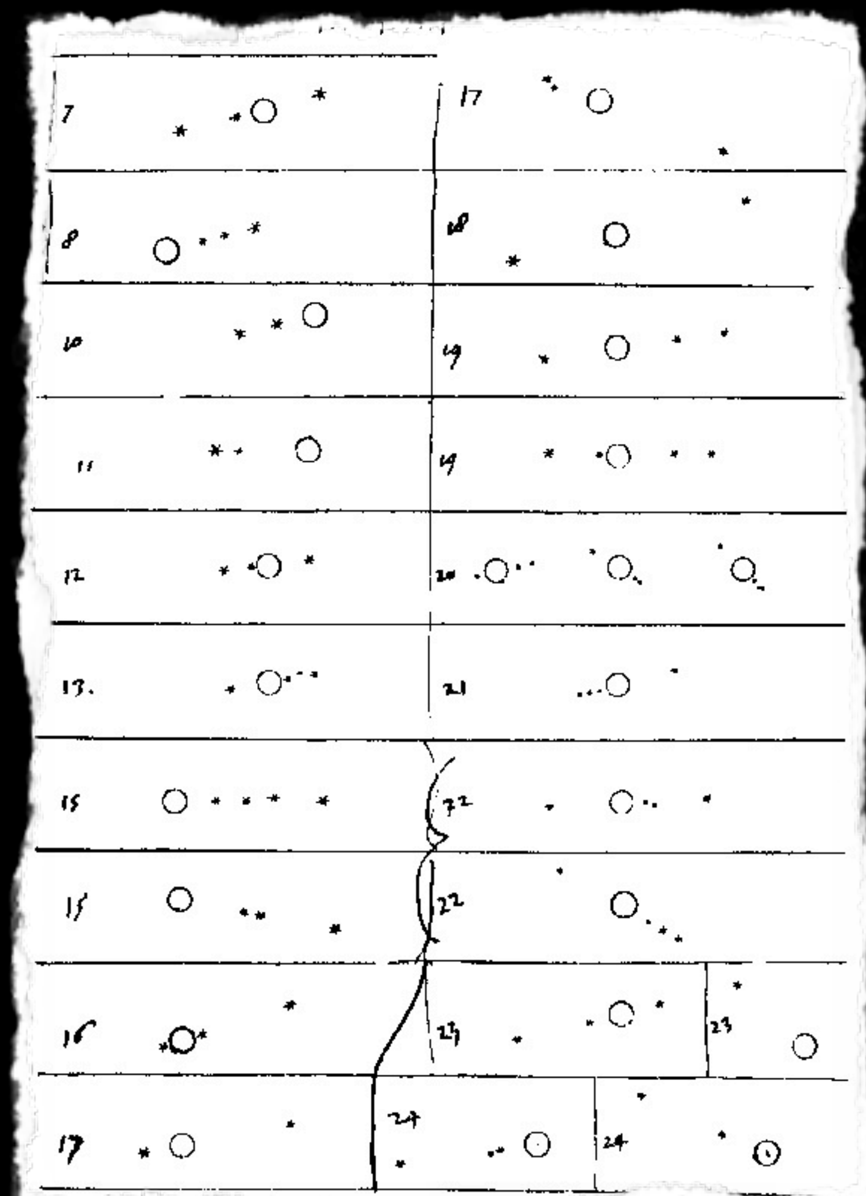
POWERED BY THE Dataverse Network™ PROJECT

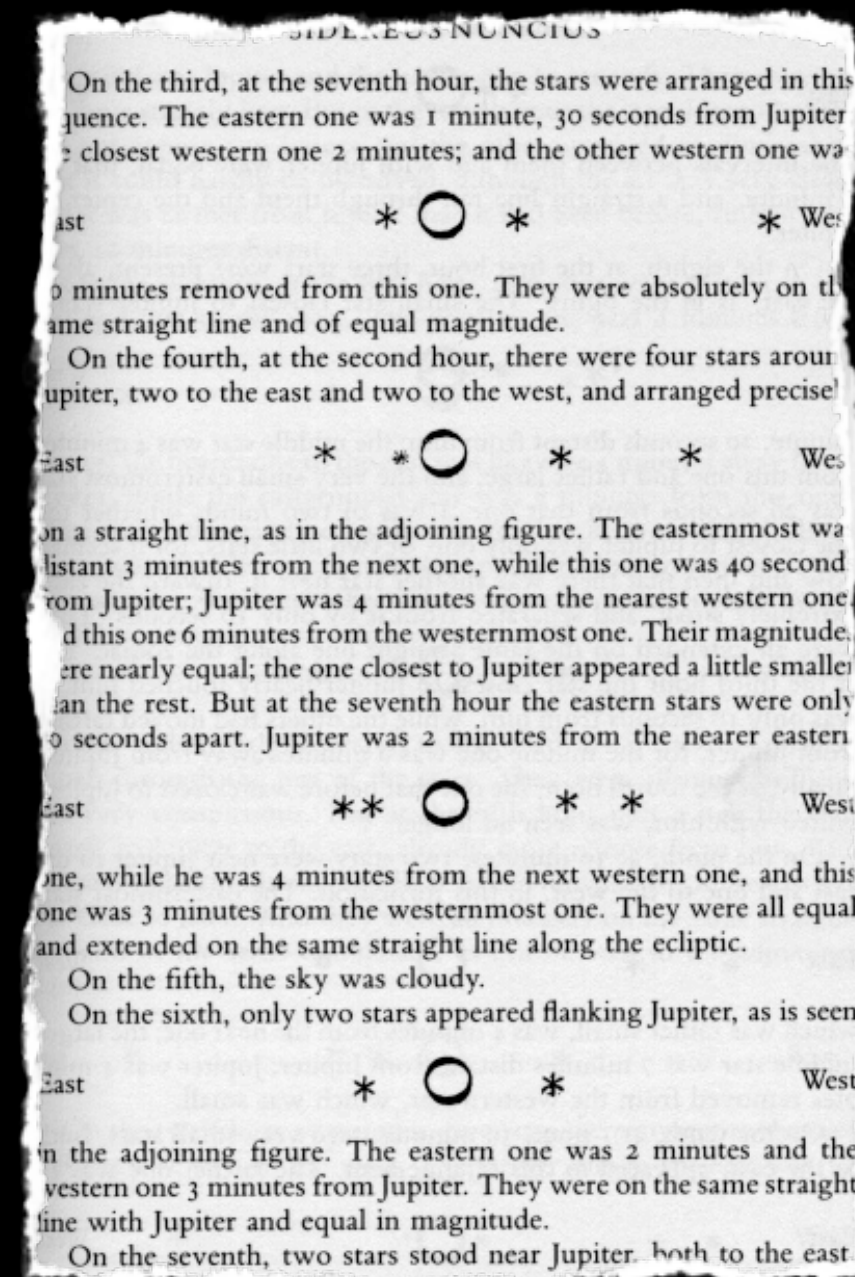
+Coming Attraction...WWT in edX

Galileo Galilei

(1564-1642)







SIDEREUS NUNCIUS

On the third, at the seventh hour, the stars were arranged in this
quence. The eastern one was 1 minute, 30 seconds from Jupiter
closest western one 2 minutes; and the other western one wa

East * ◯ * * Wes

o minutes removed from this one. They were absolutely on th
ame straight line and of equal magnitude.

On the fourth, at the second hour, there were four stars arour
upiter, two to the east and two to the west, and arranged precise

East * * ◯ * * Wes

on a straight line, as in the adjoining figure. The easternmost wa
listant 3 minutes from the next one, while this one was 40 second
rom Jupiter; Jupiter was 4 minutes from the nearest western one
d this one 6 minutes from the westernmost one. Their magnitude
ere nearly equal; the one closest to Jupiter appeared a little smalle
an the rest. But at the seventh hour the eastern stars were only
o seconds apart. Jupiter was 2 minutes from the nearer easter

East ** ◯ * * West

one, while he was 4 minutes from the next western one, and this
one was 3 minutes from the westernmost one. They were all equal
and extended on the same straight line along the ecliptic.

On the fifth, the sky was cloudy.

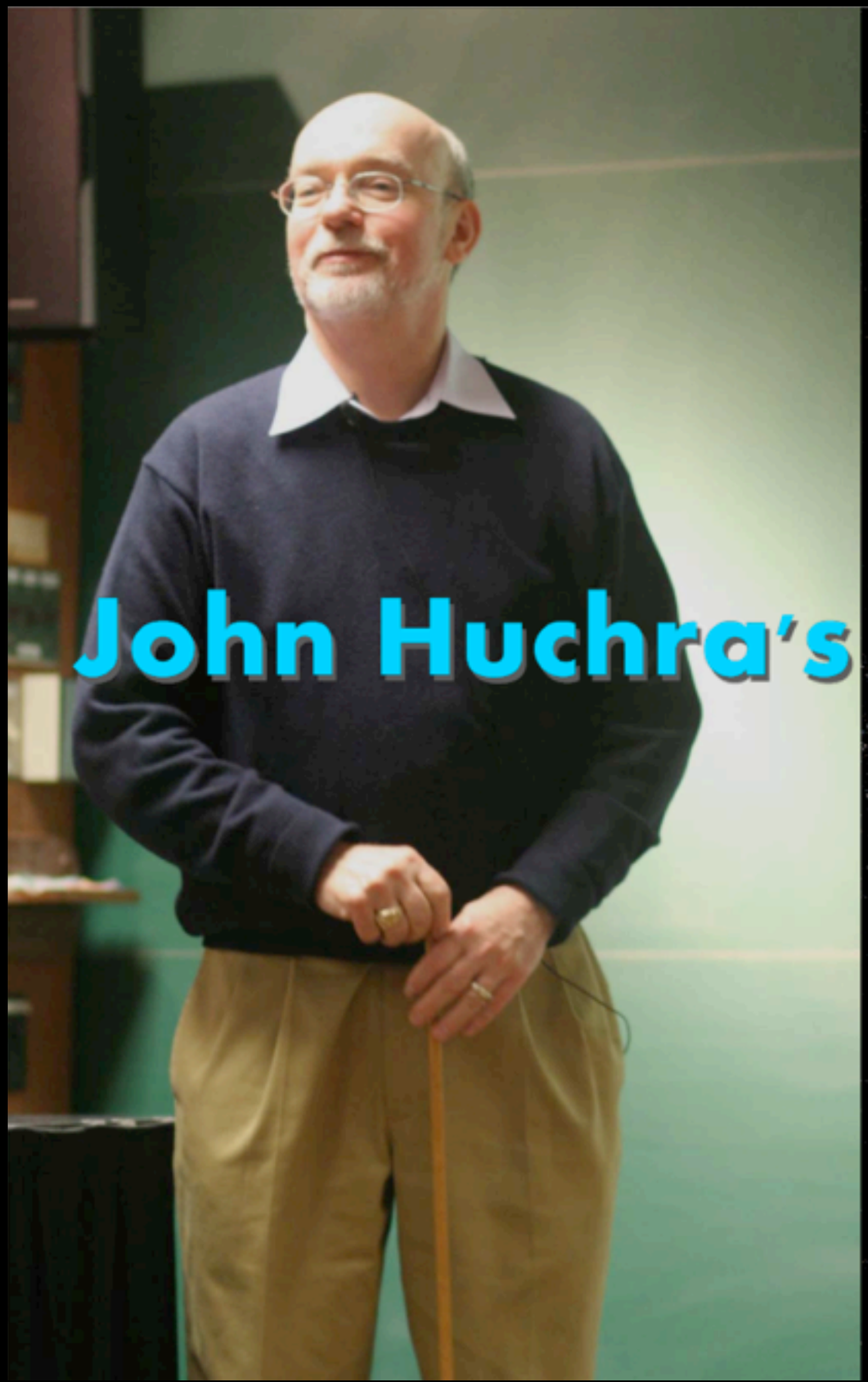
On the sixth, only two stars appeared flanking Jupiter, as is seen

East * ◯ * West

in the adjoining figure. The eastern one was 2 minutes and the
western one 3 minutes from Jupiter. They were on the same straight
line with Jupiter and equal in magnitude.

On the seventh, two stars stood near Jupiter, both to the east

Notes for & re-productions of Siderius Nuncius

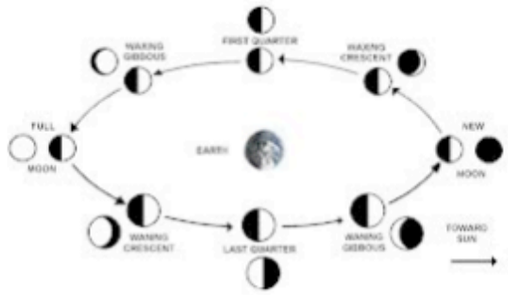


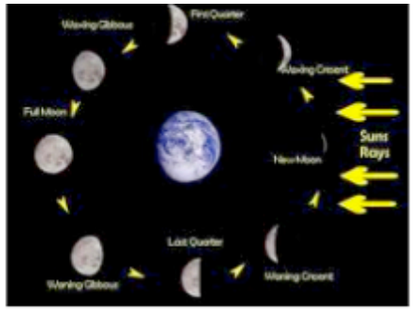
[Demo]

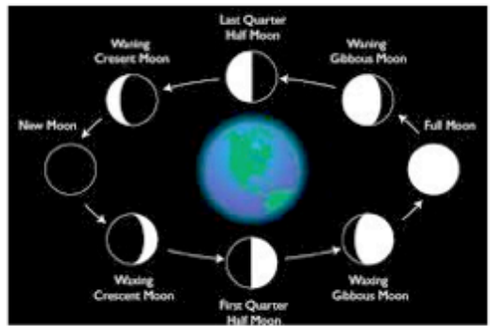
This WorldWide Telescope Tour was created to thank
John Huchra (1948-2010) for the knowledge and cheer he gave us all.

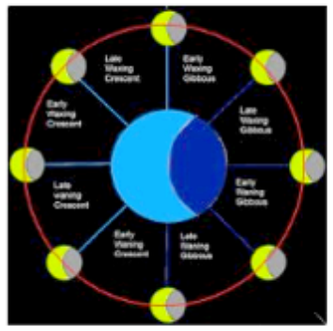
also available on YouTube (search "John Huchra's Universe")

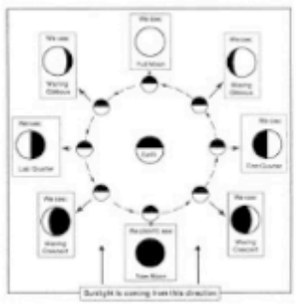
WWT VizLab: (Why) Moon Phases?

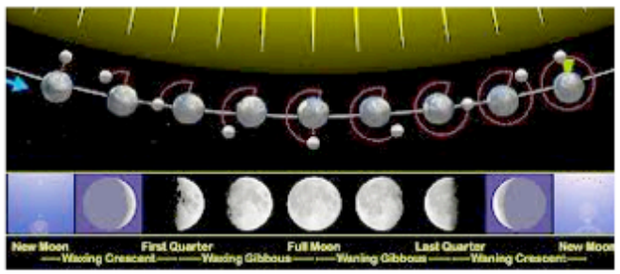


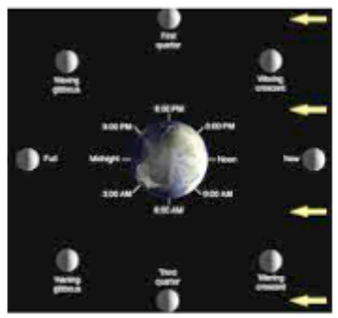


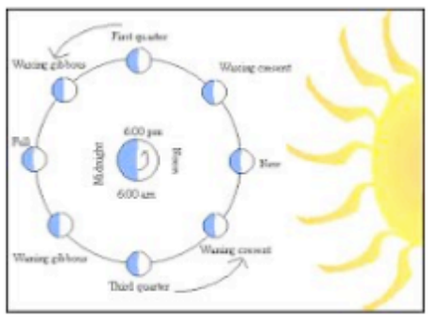


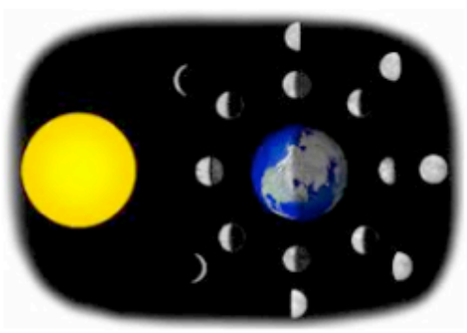


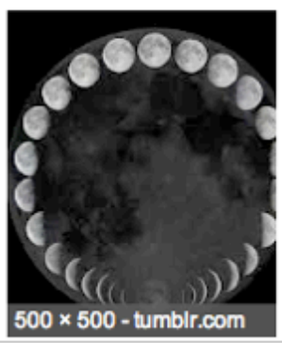


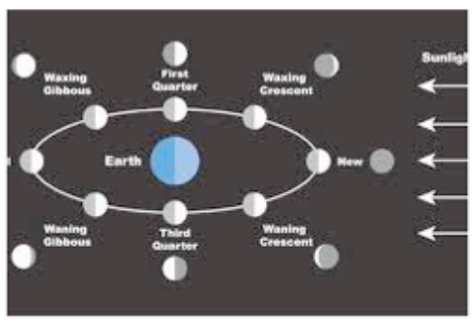












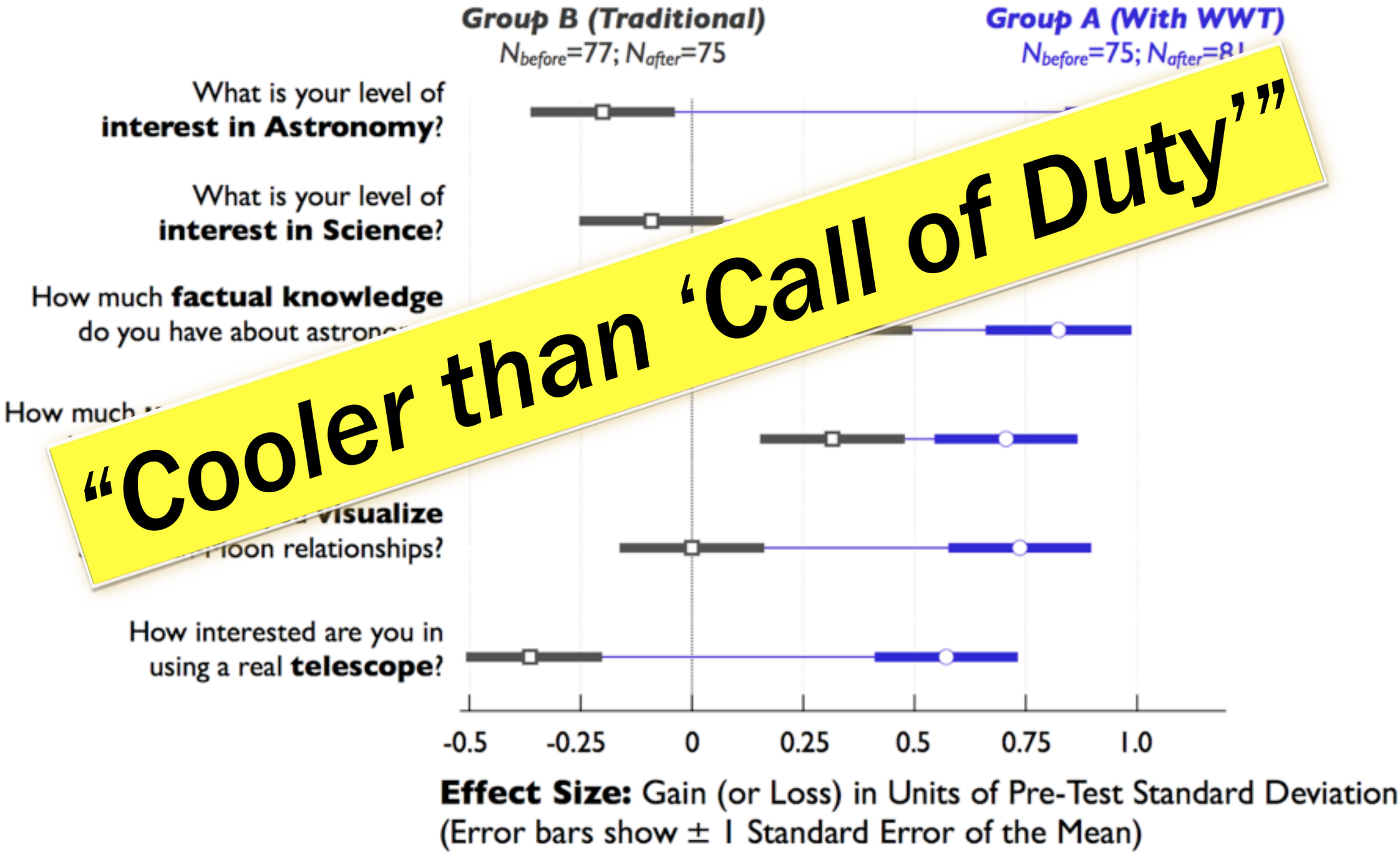
WorldWide Telescope & its Ambassadors

Curtis Wong & Jonathan Fay
Microsoft Research

Alyssa **Goodman** & Patricia **Udomprasert**
Harvard-Smithsonian Center for Astrophysics

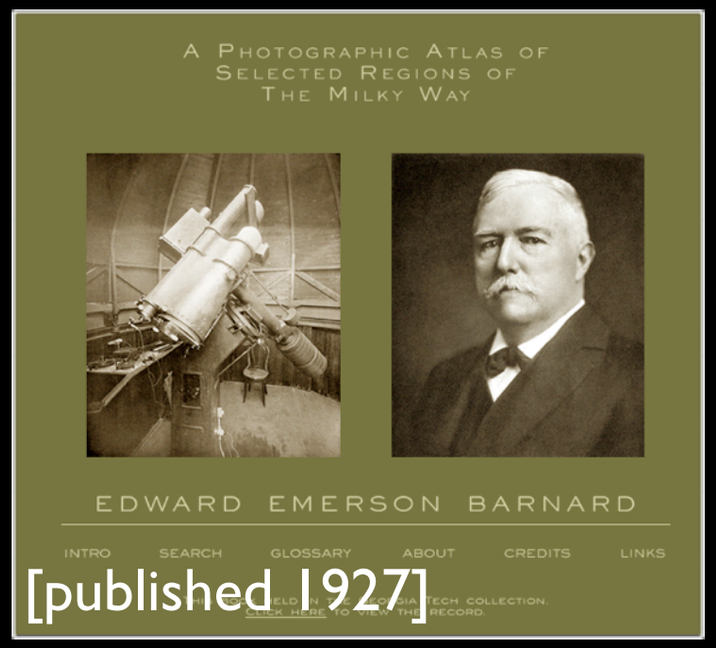
Gains in Student Interest and Understanding

("Traditional Way" vs "WWT Way")

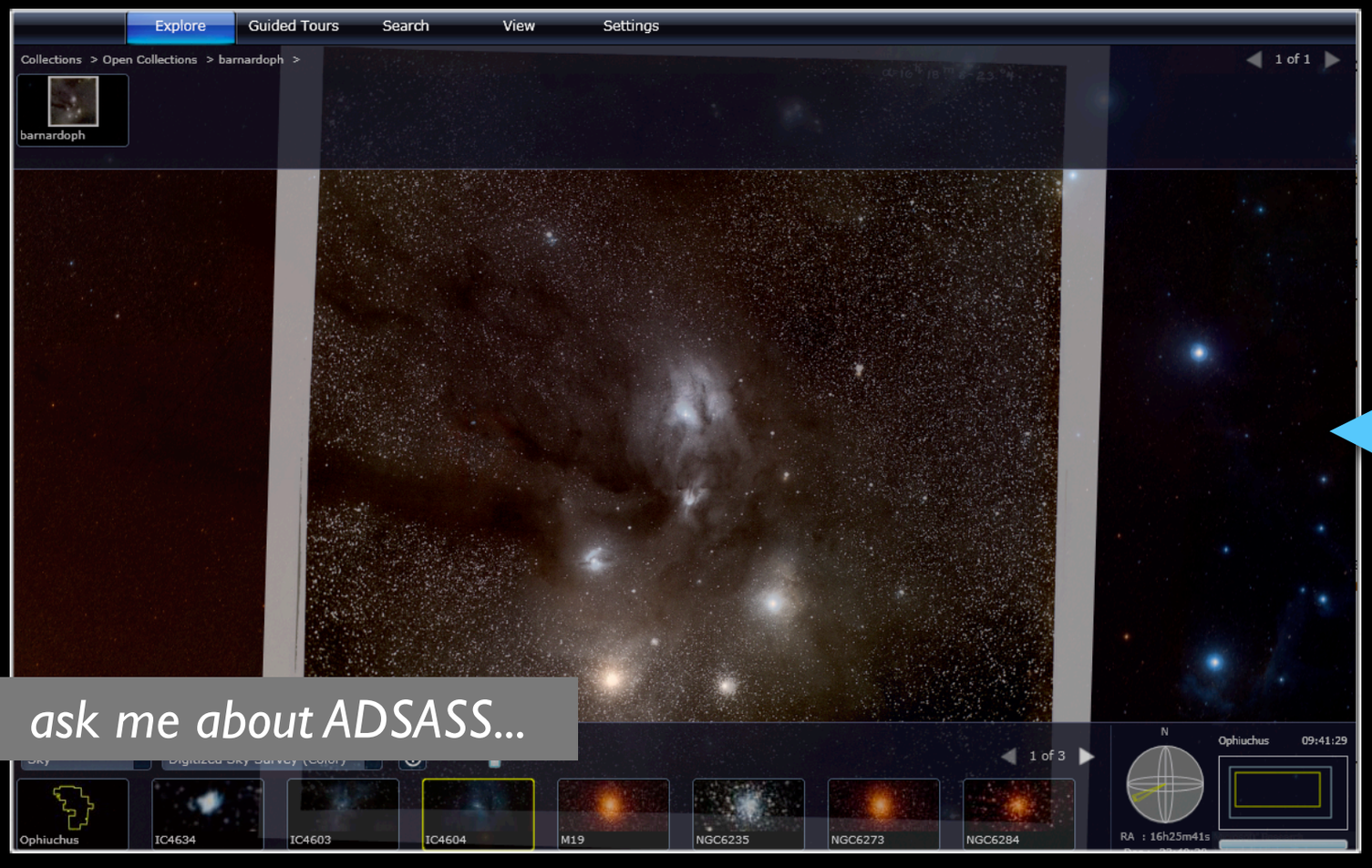


“Seamless Astronomy”...

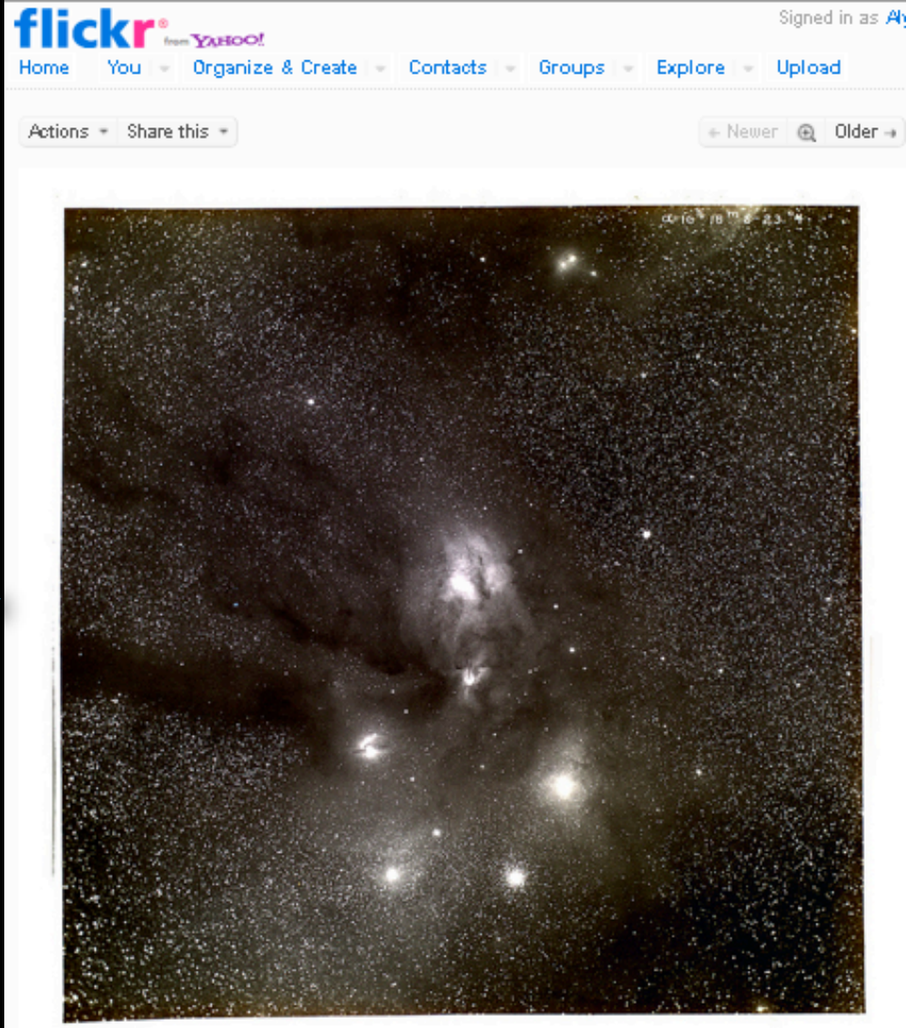
astrometry.net + flickr + WWT

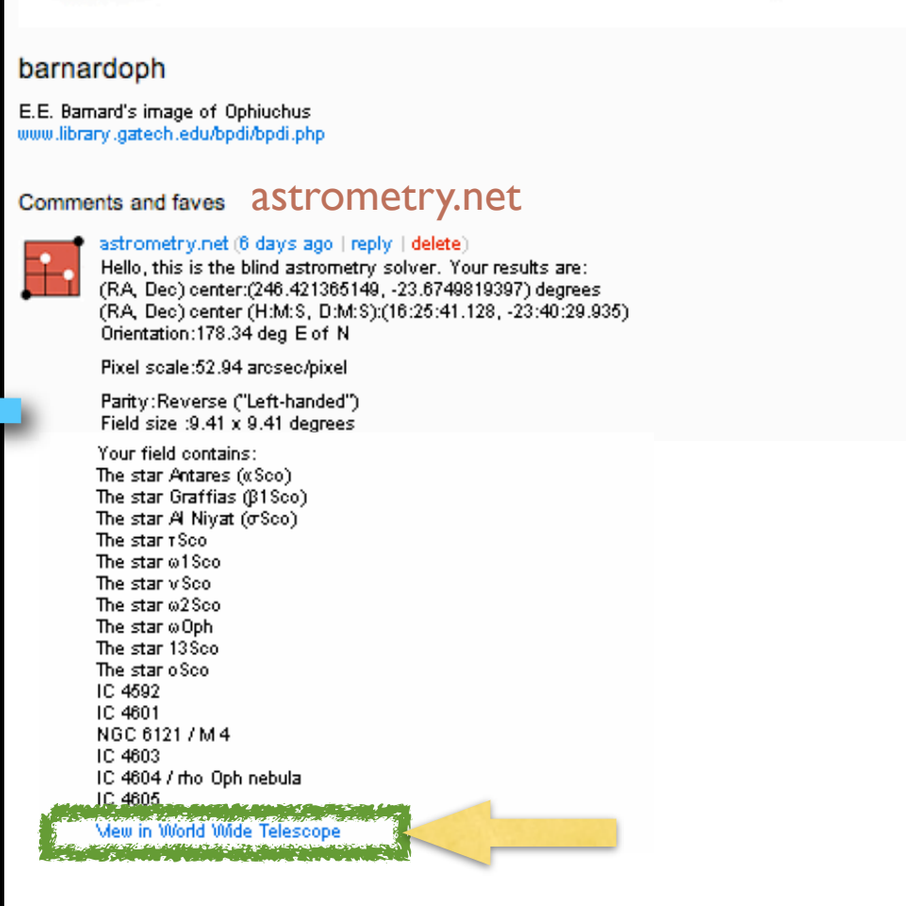


[published 1927]



ask me about ADSASS...





barnardoph

E.E. Barnard's image of Ophiuchus
www.library.gatech.edu/bpdi/bpdi.php

Comments and faves astrometry.net

astrometry.net (6 days ago | reply | delete)
Hello, this is the blind astrometry solver. Your results are:
(RA, Dec) center:(246.421365149, -23.6749819397) degrees
(RA, Dec) center (H:M:S, D:M:S):(16:25:41.128, -23:40:29.935)
Orientation:178.34 deg E of N

Pixel scale:52.94 arcsec/pixel

Parity:Reverse ("Left-handed")
Field size :9.41 x 9.41 degrees

Your field contains:
The star Antares (αSco)
The star Graffias (β1Sco)
The star Al Niyat (σSco)
The star τSco
The star ω1Sco
The star νSco
The star ω2Sco
The star ωOph
The star 13Sco
The star οSco
IC 4592
IC 4601
NGC 6121 / M 4
IC 4603
IC 4604 / rho Oph nebula
IC 4605

View in World Wide Telescope

EN · The Milky Way Project is part of the ZOONIVERSE ...just like SOLAR STORMWATCH

THE MILKY WAY PROJECT

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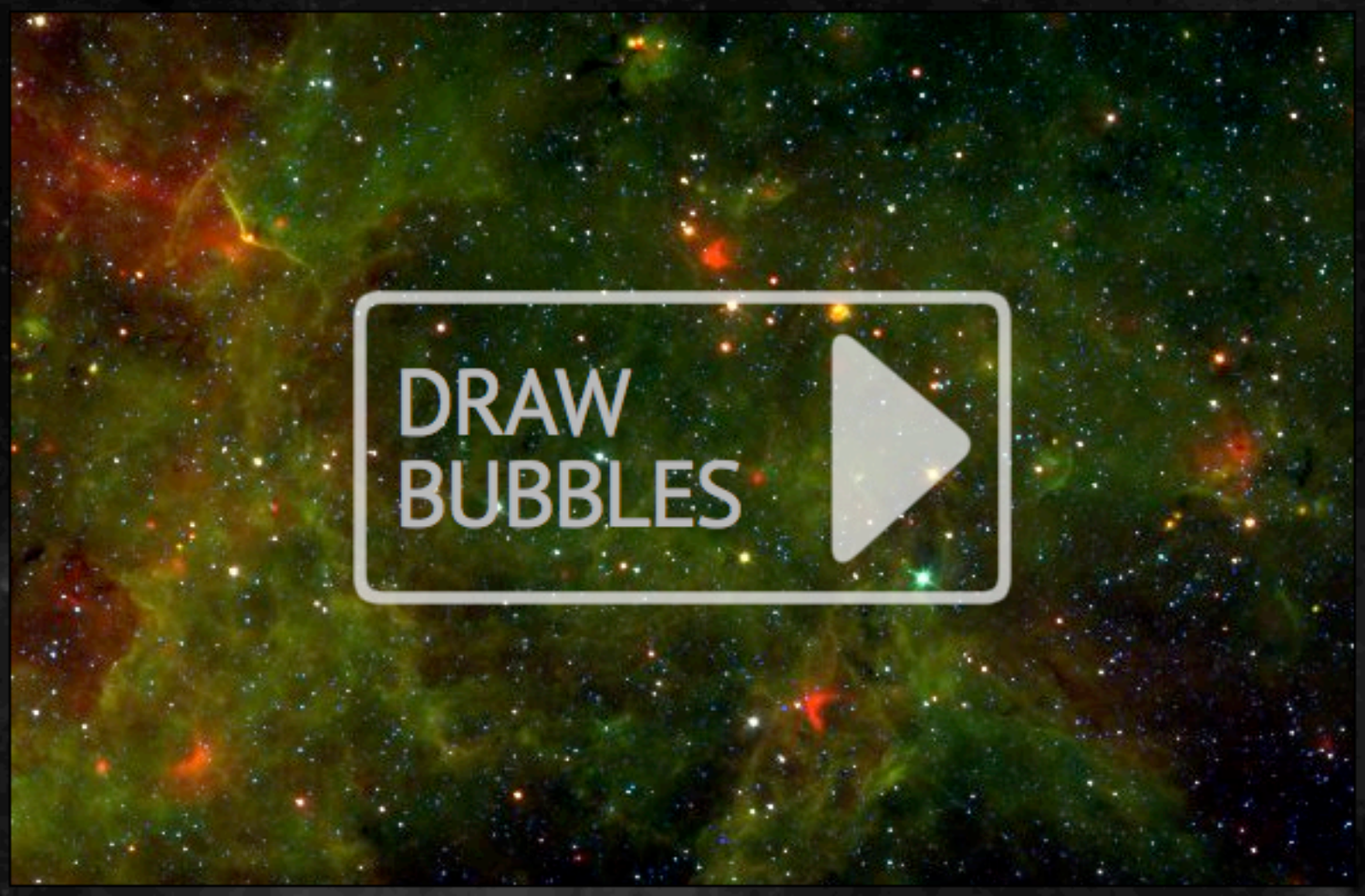
HOME TAKE PART ABOUT TUTORIAL LOG IN GALACTOMETER™



WELCOME

The Milky Way Project aims to sort and measure our galaxy, the Milky Way. Initially we're asking you to help us find and draw bubbles in beautiful infrared data from the Spitzer Space Telescope.

Understanding the cold, dusty material that we see in these images, helps scientists to learn how stars form and how our galaxy changes and evolves with time.

Click here to see the full tutorial or browse the site to find out more about the science behind the Milky Way Project.

YOU CAN NOW SEE HOW CLOSE WE ARE TO 1,000,000 DRAWINGS AT HTTP://WWW.MILKYWAYPROJECT.ORG/G... 12 DAYS AGO

194,943 IMAGES SERVED · 252,562 BUBBLES DRAWN · 24,234 POSSIBLE STAR CLUSTERS · 8,978 CANDIATE GALAXIES · 597,054 OTHER OBJECTS

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What is Universe3D.org?

The intention of Universe3D.org is to host links to web content that enable the enhancement of our three-dimensional view of the Universe.

Recently added Dataset

SLOAN Digital Sky Survey The Sloan Digital Sky Survey or SDSS is a major multi-filter imaging and spectroscopic redshift survey using a dedicated 2.5-m wide-angle optical telescope at Apache Point Observatory in New Mexico, United States. The main galaxy sample has a median redshift of z = 0.1; there are redshifts for luminous red galaxies as far as z = 0.7, and for quasars as far as z = 5; and the imaging survey has been involved in the detection of quasars beyond a redshift z = 6.

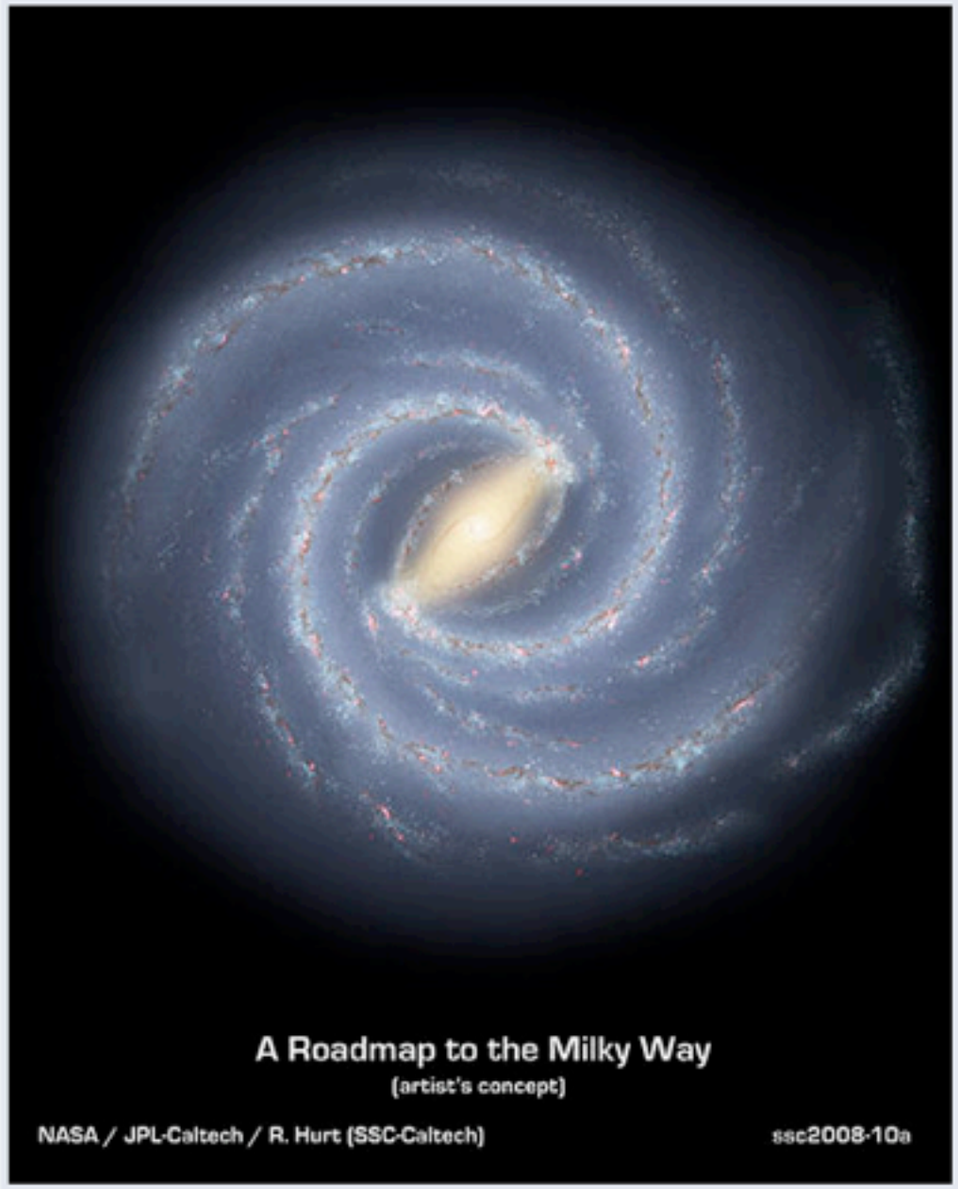
Astronomy News

- *June 26, 2012:* Astronomers use supercomputer to explore role of dark matter in galaxy formation
- *June 25, 2012:* Moon to pass by Mars tonight
- *June 24, 2012:* Astronomers find planets so close they 'see' each other in night sky
- *June 14, 2012:* Huge Asteroid to fly by Earth
- *June 13, 2012:* Astronomers may have discovered the oldest galaxy in the Universe
- *June 5, 2012:* Last Transit of Venus for the 21st century

Announcements

- *July 05, 2012:* Website moved to the URL universe3d.org!
- *June 11, 2012:* Website moved to MediaWiki!
- *December 5, 2011:* Site established!
  To make good on Alyssa Goodman's promise at the "Milky Way 2011" meeing held in Rome this past September, the site "universe3d.org" has been established. By 2012, it will be populated with links to existing data

The Milky Way



ADS All Sky Survey

[prototype: using CDS tools]

Object Data

ADDITIONAL DATABASE

Literature

PRIMARY DATABASE

IMAGE EXTRACTION

Optical images

Non Optical images

1 ARTICLE-OBJECT MATCHING

2 ASTROMETRIC MEASUREMENT

3 TEXT MINING

astrometry.net

Astrotagged literature

Astro-referenced images

HISTORICAL DATA LAYER

ALL-SKY LITERATURE HEATMAP

NASA ARCHIVES

DATA VIEWERS


WENGER
OFFICIAL
WORLD SCOUT KNIFE

Harvard Allston Education Portal
FACULTY SPEAKER SERIES

education portal
edportal.harvard.edu

"The WorldWide Telescope"

A Presentation by Alyssa Goodman, Professor of Astronomy at
Harvard University and a Research Associate of the Smithsonian Institution

Thursday, January 31, 2013 at 6 p.m.

Harvard Allston Education Portal, 175 North Harvard Street, Allston, MA

The free **WorldWide Telescope (WWT)** computer program from Microsoft Research is a stunningly beautiful tool offering immersive views of the sky and multimedia links to interactive descriptions and explanations of millions of celestial objects. WWT is used both in astrophysical research, and to educate the public about Astronomy and Science.

Harvard Astronomer Alyssa Goodman has collaborated with the creators of WorldWide Telescope at Microsoft Research since its creation in 2008. In her presentation, Goodman will take her audience on interactive tours of the Universe using the WorldWide Telescope, covering topics ranging from Galileo's understanding of our Solar System to our modern understanding of the structure of the distant Universe.

Light refreshments will be served.

Free parking is available at 219 Western Avenue, adjacent to the Harvard Allston Education Portal.

Please RSVP by Wednesday, January 30, 2013 by phone at 617-496-5022 or email allston_edportal@harvard.edu.

Professor Goodman's research and teaching interests span astronomy, data visualization, and online systems for research and education. Goodman received her undergraduate degree in physics from MIT in 1984, a Ph.D. in physics from Harvard in 1989, and became full professor at Harvard in 1999. Her personal research presently focuses primarily on new ways to visualize and analyze the tremendous data volumes created by large and/or diverse astronomical surveys. She is working closely with colleagues at Microsoft Research, helping to expand the use of the WorldWide Telescope program, in both research and in education. At Harvard, Goodman teaches courses on astrophysics and on the display of data, including one called *The Art of Numbers*.

For more information, go to www.edportal.harvard.edu