



**National Aeronautics and
Space Administration**

**Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California**

Creating a NASA-Wide Museum Alliance

**Anita M. Sohus, Informal Education Lead
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California Institute of Technology**

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Space Administration

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California Institute of Technology
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Creating a NASA-Wide Museum Alliance

Abstract

Anita M. Sohus, Jet Propulsion Laboratory, California Institute of Technology

NASA's Museum Alliance is a nationwide network of informal educators at museums, science centers, and planetariums that present NASA information to their local audiences. Begun in 2002 as the Mars Museum Visualization Alliance with advisors from a dozen museums, the network has grown to over 300 people from 200 organizations, including a dozen or so international partners. The network has become a community of practice among these informal educators who work with students, educators, and the general public on a daily basis, presenting information and fielding questions about space exploration. Communications are primarily through an active listserve, regular telecons, and a password-protected website. Professional development is delivered via telecons and downloadable presentations. Current content offerings include Mars exploration, Cassini, Stardust, Genesis, Deep Impact, Earth observations, STEREO, and missions to explore beyond our solar system.



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Why work with museums?

“There are more than 8,000 museums in the United States of America, of all sizes and all types . . . We are a nation of museum-goers. America's museums enjoy over 865 million visits a year—more than the total attendance of amateur and professional sports events, performing arts, and movies.”

Our museums are bonded to their communities in ways that no other nation's cultural institutions are . . . The community and the museum exist in a mutually sustainable relationship.”

--American Association of Museums, <http://www.aam-us.org/guide2001/givingtomuseums.html>

- Current trend: present **Current Science, Research and Technology**
- Unique facilities**, well-trained **staff** of educators and docents **who are already NASA fans**
- Many are hungry for NASA Content but find it hard to get



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“Museum” is shorthand for a broad spectrum of organizations:

“American museums are infinitely diverse. The American Association of Museums (AAM) *Code of Ethics for Museums* notes that their common denominator is making a ‘unique contribution to the public by collecting, preserving, and interpreting the things of this world.’ ”

The code also acknowledges the variety of sizes and types of museums:

“Their numbers include both governmental and private museums of anthropology, art history and natural history, aquariums, arboreta, art centers, botanical gardens, children's museums, historic sites, nature centers, planetariums, science and technology centers, and zoos.”

Source: <http://www.aam-us.org/museumresources/ethics/coe.cfm> (downloaded 4/18/2006)



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To participate in the Museum Alliance, an organization must:

- Be a legally organized public or private nonprofit institution or part of a nonprofit organization or government entity
- Be essentially educational in nature
- Use and interpret objects, images and/or a site for the public presentation of regularly scheduled programs and exhibits
- Carry out the above functions primarily at a physical facility/site
- Have at least one paid or unpaid professional staff with museum knowledge and experience

In addition, Museum Alliance partners must:

- Respect any embargoes on pre-released information that may be shared with the Alliance partners.
- Report metrics to the Museum Alliance with regard to the use, usefulness, and impact of materials and information provided through the Museum Alliance.



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Nearly 200 registered U.S. organizations - 5 Oct 2006

AK University of Alaska-Fairbanks (Museum of the North)
AL North Alabama Science Center, Inc., Huntsville
AL Samford University, Birmingham
AL US Space & Rocket Center, Huntsville
AZ Arizona Science Center, Phoenix
AZ Arizona State U. Mars Space Flight Facility, Tempe
AZ Kitt Peak Nat'l Observatory, Tucson
AZ Lunar and Planetary Lab Visitor Center, U. Az, Tucson
AZ Space Imagery Center, U Arizona, Tucson
CA California Academy of Sciences, San Francisco
CA California Science Center, Los Angeles
CA Chabot Space and Science Center, Oakland
CA College of San Mateo Planetarium, San Mateo
CA De Anza College Planetarium, Cupertino
CA Discovery Museum, Sacramento
CA Discovery Science Center, Santa Ana
CA Glendale Community College Planetarium
CA Goldstone Deep Space Communications Complex
CA Griffith Observatory, Los Angeles
CA Independence Planetarium, San Jose
CA Jet Propulsion Laboratory, Pasadena
CA LA Valley College Planetarium, Valley Glen
CA Lawrence Hall of Science, Berkeley
CA NASA Ames Visitor Center, Moffett Field
CA Ocean Institute, Dana Point
CA Palomar Observatory, Palomar Mountain
CA Randall Museum, San Francisco
CA Reuben H. Fleet Science Center, San Diego
CA San Diego Aerospace Museum, San Diego
CA Santa Barbara Museum of Natural History
CA Schreder Planetarium, Redding
CA The Exploratorium, San Francisco
CA The Tech Museum of Innovation, San Jose
CA West Valley College, Saratoga
CO Denver Museum of Nature & Science
CO Fiske Planetarium, Boulder
CO National Center for Atmospheric Research, Boulder
CO Space Science Institute (MarsQuest), Boulder
CT New England Air Museum, Windsor Locks
CT The Discovery Museum, Bridgeport
DC Association of Science -Technology Centers
DC Federal Aviation Administration AVSED
DC National Air and Space Museum
FL Calusa Nature Center & Planetarium, Ft Myers
FL Crosby Observatory, Orlando Science Center
FL Miami Museum of Science & Planetarium
FL NASA/Kennedy Space Center
FL Aldrin Planetarium, S FL Science Museum, W Palm Beach
GA Fernbank Science Center, Atlanta
GA Museum of Arts and Sciences, Macon
Guam U. Guam Planetarium, Mangilao
HI Bishop Museum, Honolulu
HI Onizuka Space Center, Kailua-Kona
HI U. Hawaii Institute for Astronomy, Hilo
IA Grout Museum District/Bluedom Science Imaginarium
IA Science Center of Iowa, Des Moines
IL Adler Planetarium, Chicago
IL Coman Space and Earth Center, River Grove
IL DePaul University, Chicago (broker)
IL Lakeview Museum, Peoria
IL Museum of Science and Industry, Chicago
IL Staerkel Planetarium, Parkland College, Champaign
IN Ball State University Planetarium, Muncie

IN Carmel High School Planetarium, Carmel
IN Children's Museum,SpaceQuest Planetarium, Indianapolis
IN Evansville Museum, Evansville
IN Merrillville Community Planetarium
IN Science Central, Fort Wayne
IN Shafer Planetarium, Indianapolis
KS Exploration Place, Wichita
KS Justice Planetarium, Kansas Cosmosphere, Hutchinson
KS Lake Afton Public Observatory, Wichita
KY East Kentucky Science Center, Prestonsburg
KY Hummel Planetarium, Richmond
KY Louisville Science Center, Louisville
KY Rauch Planetarium, Louisville
LA Irene W Pennington Planetarium, Baton Rouge
LA Sci-Port Discovery Center, Shreveport
MA Basset Planetarium, Amherst
MA Museum of Science, Boston
MA New England Aquarium, Boston
MD Discovery Station, Hagerstown
MD Johns Hopkins U, FUSE Mission
MD Maryland Science Center, Baltimore
MD Montgomery College Planetarium, Takoma Park
MD NASA/Goddard Space Flight Center Visitor Center
MD NOAA Climate Program Office Education, Silver Spring
MD Space Telescope Science Institute, Baltimore
MD William Brish Planetarium,Hagerstown
ME Maynard F. Jordan Planetarium, Orono
MI Como Planetarium, St. Paul
MI Cranbrook Institute of Science, Bloomfield Hills
MI Delta College Planetarium & Learning Ctr, Bay City
MI Exhibit Museum Planetarium, Ann Arbor
MI Grand Blanc Community Schools
MI Longway Planetarium, Flint
MI New Detroit Science Center
MI Northern Michigan University, Marquette
MN Minnesota Planetarium Society, Minneapolis
MN Science Museum of Minnesota, St. Paul
MO Discovery Center of Springfield
MO St. Louis Science Center, St. Louis
MS Rainwater Observatory and Planetarium, French Camp
MS Russell C. Davis Planetarium, Jackson
MS NASA/Stennis Space Center Visitor Center
MT Museum of the Rockies, Bozeman
NC Eastern Carolina Regional Sci Ctr, Greenville
NC Fayetteville State University Planetarium
NC Margaret C. Woodson Planetarium, Salisbury
NC Morehead Planetarium and Science Center, Chapel Hill
NC North Carolina Museum of Nat'l Sciences, Raleigh
NC Robeson Planetarium/Science Ctr, Lumberton
NE Ralph Mueller Planetarium, U. Nebraska Lincoln
NE Strategic Air and Space Museum, Ashland
NH Christa McAuliffe Planetarium, Concord
NJ Dreyfuss Planetarium, Newark
NJ Edelman Planetarium, Rowan U, Glassboro
NJ Glenfield Planetarium, Montclair
NJ Liberty Science Center, Jersey City
NJ Raritan Valley Community College, Somerville
NM Carlsbad Caverns National Park
NM NM Museum of Nat'l History & Sci, Albuquerque
NV Comm. College of Southern NV, North Las Vegas
NY American Museum of Natural History, NYC
NY Brookhaven Nat'l Lab/ Science Museum, Upton
NY Cradle of Aviation Museum, Garden City

NY Dudley Observatory, Schenectady NY Longwood CSD, Middle Island
NY Hamburg Natural History Society, Hamburg (Penn-Dixie site)
NY Herkimer BOCES Planetarium, Herkimer
NY Kopemik Observatory Space Education Center, Vestal
NY Longwood,Regional Planetarium, Middle Island
NY New York Hall of Science, Corona
NY Paleontological Research Institution and Museum of the Earth, Ithaca
NY Sciencenter, Ithaca
NY Strasenburgh Planetarium, RMSC, Rochester
NY Suits-Bueche Planetarium, Schenectady
NY The Children's Museum of Utica, NY, Utica
NY Williamsville Space Lab Planetarium
OH COSI, Columbus
OH NASA Glenn Visitor Center, Cleveland
OH Ritter Planetarium, U. Toledo
OH Schuele Planetarium (Lake Erie Nature & Science Center)
OH Shaker Heights High School
OH Ward Beecher Planetarium, Youngstown
OK Kirkpatrick Planetarium Science Museum, Okla City
OR Oregon Museum of Science and Industry, Portland
OR Science Factory Children's Mus & Planetarium, Eugene
PA Carnegie Science Center, Pittsburgh
PA East Stroudsburg University, East Stroudsburg
PA Edinboro U. of Pennsylvania Planetarium, Edinboro
PA Fels Planetarium, Franklin Institute, Philadelphia
PA H.W. Ray Special Experience Room, Warminster
PA North Museum, Lancaster
PA Reading Planetarium
PA Upper Dublin School District Planetarium, Dresher
RI University of Rhode Island Planetarium, Providence
SC College of Charleston
SC Culture and Heritage Museums, Rock Hill
SC South Carolina State Museum, Columbia
TN Heritage Planetarium, Maryville
TN Sharpe Planetarium, Memphis
TN Sudekum Planetarium, Nashville
TX Burke Baker Planetarium Houston Mus Nat'l Science
TX Cook Center Planetarium, Navarro College, Corsicana
TX Garland ISD Planetarium, Garland
TX Hudnall Planetarium, Tyler Junior College
TX Lunar and Planetary Institute, Houston (broker)
TX Rice Space Institute, Houston
TX Richland College Planetarium/TX Astronomical Society, Dallas
TX Science Spectrum Museum, Lubbock
TX Space Center Houston, Houston
TX TAMU Planetarium, Laredo
TX Texas A&M U Planetarium, Commerce
TX University of Houston Downtown, Houston
TX University of Texas at Arlington - Planetarium
UT Clark Planetarium, Salt Lake City
VA Children's Museum of Virginia, Portsmouth
VA George Mason University Planetarium, Fairfax
VA Jefferson Planetarium, TJ High School, Alexandria
VA NASA/Langley Research Center, Hampton
VA Nauticus, The National Maritime Center, Norfolk
VA Radford University Planetarium
VA Science Museum of Virginia, Richmond
VA Virginia Air & Space Center, Hampton
VA Virginia Living Museum, Newport News
WA Museum of Flight, Seattle
WA Pacific Science Center, Seattle
WI Madison Metropolitan School District Planetarium
WI Milwaukee Public Museum, Milwaukee
WV WLSC SMART-Center, Wheeling
WY Casper Planetarium, Casper



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Due to the international nature of missions such as Cassini and ISS, international partners are accepted but served on a best-efforts basis (e.g., tech support to U.S. participants takes priority). All materials must be ITAR-clear.

ARG Museo Egidio Feruglio
AUS Canberra Deep Space Communications Complex
AUS Launceston Planetarium, Launceston, Tasmania
AUS Scienceworks, Melbourne
CAN Calgary Science Center, Calgary, Alberta
CAN H R MacMillan Space Centre, Vancouver
CAN Johnson GeoCentre, St. John's Newfoundland/Labrador
CAN The Manitoba Museum, Winnipeg
ESP Madrid Deep Space Communications Complex
IRE Inishowen Maritime Museum and Planetarium, Greencastle, Co. Donegal
MU Rajiv Gandhi Science Centre, Port-Louis, Mauritius
NZ Museum of New Zealand, Te Papa Tongarewa, Wellington
UK Auriga Star Dome at Magna Science Centre, Nottinghamshire
UK Science Museum London
UK Spaceguard Centre, Visitor Centre, Powys

ITAR: International Traffic in Arms Regulations. Spacecraft are considered "defense articles/services."



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Over 325 people at more than 200 organizations are currently registered partners in the Museum Alliance





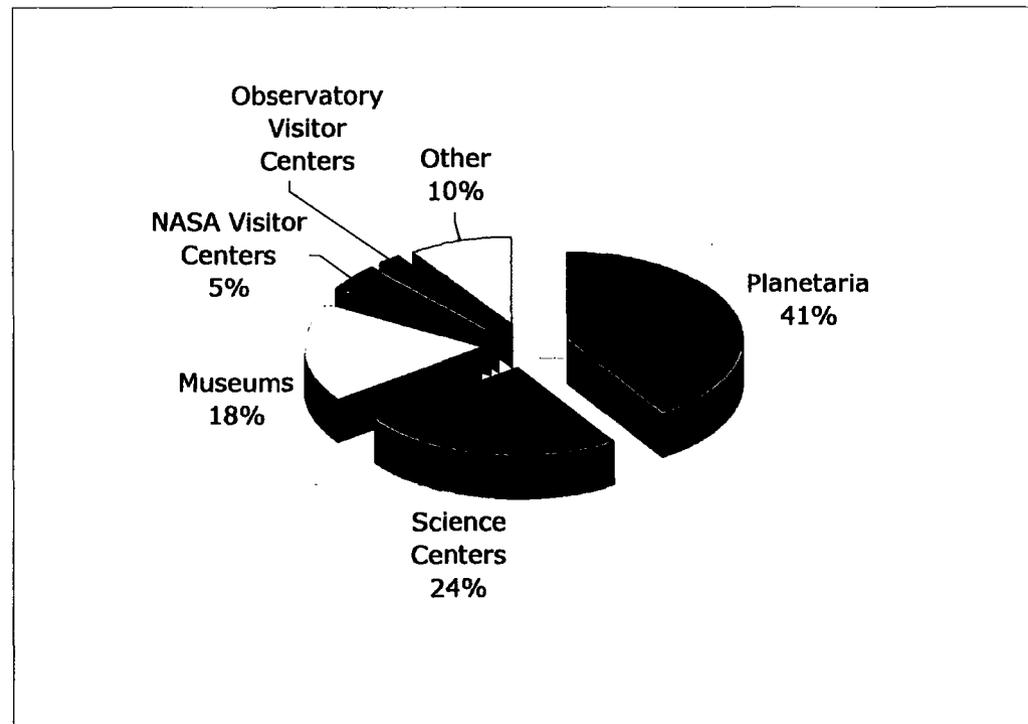
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We know who our customers are and have regular interactions with them

Planetariums	77
Science Centers	46
Museums	34
NASA Visitor Centers	10
Observatory Visitor Centers	5
Other	18
Total	190



Other includes: Brokers/Forums, University Partners, Mission Partners, National Park, Natural History Site, Aquarium, a Jason school, FAA Education, ASTC

(Stats as of 28 Feb 2006)



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What do the museums get?



- ✓ **Customer focus (*museum staff* are the customers)**
- ✓ **Access to current science and technology events**
- ✓ **Advance notice of mission events and NASA TV coverage so museums can plan public events**
- ✓ **Advertise related events on NASA mission websites**
- ✓ **Resource DVDs of full-res animations, visualizations**
- ✓ **Slide presentations to download and use**
- ✓ **Q&A telecons with newsmakers/experts**
- ✓ **Listserve/telecons/website**
- ✓ **Regular, useful two-way contact with NASA**

“ . . . you guys have done an amazing thing with this MUSE network. It has provided just the right inside track to let the museums do what they do best.”

**—Rob Semper, Executive Associate Director,
The Exploratorium, San Francisco (2/5/2004)**



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Telecons with downloadable presentations connect museum staff with NASA Newsmakers and Expertise

Example:

Date	Telecon Topic	Presenter(s)
Oct 25	Highlights of Radio and Plasma Wave Science Results from Early in Cassini's Orbital Tour	Dr. Bill Kurth, U. Iowa (regular monthly telecon, joint with Saturn Observation Campaign)
Oct 27	Is Earth's Ozone Shield Recovering?	Dr. Paul Newman, GSFC
Nov 15	NASA's Center for Distance Learning (CDL)	Ivelisse Gilman, Sharon Bowers, Becky Jaramillo, and Shannon Ricles (all LaRC)
Nov 29	The Surface of Titan as seen by the Cassini Radar Mapper	Dr. Rosaly Lopes, JPL (regular monthly telecon, joint with Saturn Observation Campaign)
Dec 15	Stardust Sample Return Plans	Aimee Meyer, JPL
Jan 17	Stardust Sample Return Recap	Dr. Don Yeomans, JPL
Jan 24	Mars Reconnaissance Orbiter "Realtime" Visualization Project	Kevin Hussey, JPL
Jan 26	Water for Life on Earth	Dr. Peter H. Hildebrand, GSFC
Jan 31	The First Results of the Cassini Dust Detector at Saturn	Dr. S. Kempf, MPI für Kernphysik, Heidelberg, Germany (regular monthly telecon, joint with Saturn Observation Campaign)



- Professional Development
- Breaking News
- Planning
- Timely
- Personal
- Flexible
- Inexpensive
- Archived



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Example: Offerings span a cross section of NASA content

Upcoming Events



Feb 15, 2006, 3-4:30 pm PST (6-7:30 pm EST). Sun-Earth Day 2006, "Eclipse: In a Different Light." Call-In: 888-809-8968, Passcode: Eclipse, Leader: Kay Ferrari. >>



Feb 16, 2006, 12:00 Noon Pacific. NASA Vision for Space Exploration Experience Dome. NASA's Exploration Systems Mission Directorate has developed a Space Exploration Experience Dome, a hexagonal 5-screen theatre that is now available for loan to museums. Telecon is at 12 noon Pacific. Toll-free call-in number is 888-323-4924; PASSCODE: Museum.

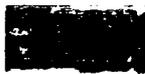
Presenters: Elsie Weigel, Public Outreach Officer, NASA HQ; Sherri Smith, Outreach Coordinator, Marshall Space Flight Center; Jerry Hartman, Exploration Systems Mission Directorate Education Lead, NASA HQ; Julia Hains-Allen, Director of K-12 Engineering Outreach, Department of Engineering Education, Purdue University. >>



Feb 21, 2006, 12:00 Noon Pacific. Creating the Museum Alliance Calendar. Join us to discuss creation of a NASA-wide calendar of events of interest to the Museum community. Telecon is at 12 noon Pacific. Toll-free call-in number is 888-323-4924; PASSCODE: Museum.

Presenters: Rachel Connolly, Astrophysics Education Manager, Rose Center for Earth and Space, New York, NY and Anita Sohus, Informal Education Lead, JPL.

Background: The museum community has often requested a NASA-wide calendar of events that museums can consult in planning their own events. Participate in the development of this calendar by helping define its functional requirements and give us feedback on several existing calendars. Please explore the [sample calendars](#) (PDF, 10.3 KB) and come prepared to discuss their best features.



Feb 23, 2006, 12:00 Noon Pacific. Earth's Carbon Cycle: Where's the Missing Carbon? Dr. Jim Collatz, Scientist with NASA/GSFC's Biospheric Sciences Branch, will share current findings from space, which are helping scientists identify the "missing sink" of anthropogenic carbon dioxide. Telecon is at 12 noon Pacific. Toll-free call-in number is 888-323-4924; PASSCODE: Earth. >>



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Newest content area: Beyond our Solar System (the Universe)

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<p>Museum Alliance</p> <p>Logoff Partner Info Calendar Resource Library Showcase Advertise Events Report Impact</p>		
<ul style="list-style-type: none"> Home Comets Earth / Sun Mars Saturn Universe Announcements Speaker Support Shareables Multimedia Models/Exhibits Professional Development Conversations Education/Programs 	<p>Welcome</p> <p>Welcome to the "Universe" section of NASA's Museum Alliance web site. NASA is involved with a wide range of explorations ranging from the early universe to stars, galaxies, and black holes, to the search for extra-solar planets and life beyond Earth. The resources in this section of the site include some of the best astrophysics and astrobiology resources from the satellites and telescopes exploring the universe beyond the solar system. These missions are exploring the universe in all wavelengths of the electromagnetic spectrum and together, provide the deepest picture of the structure and evolution of the universe, and our own cosmic origins.</p> <p>Announcements</p> <div data-bbox="683 1351 853 1524" data-label="Image"></div> <p>May 18, 2006. "New Observations of Galaxy M82". The presentation and related resources from the telecon from Dr. Michael Regan are now available for download. >></p>	<p>MISSION WEBSITES</p> <p>Current Missions</p> <p>Chandra FUSE GALEX GP-B Hubble INTEGRAL Keck Interferometer RXTE Spitzer Suzaku Swift WMAP XMM-Newton</p> <p>Future Missions</p> <p>Con-X GLAST JWST Kepler LBTI LISA NuSTAR SIM SOFIA TPF WISE</p>
<p>PROGRAM WEBSITES</p> <p>Astrophysics at NASA</p> <p>Beyond Einstein</p> <p>NASA Astrobiology Institute</p>		



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Website template allows easy expansion to other NASA content; content management system will allow publishing from outside JPL

		NATIONAL AERONAUTICS AND SPACE ADMINISTRATION		+ View the NASA Portal	
Museum Alliance					
Logoff Partner Info Calendar Resource Library Showcase Advertise Events Report Impact					
Home	Admin: Add Conversation				
Comets	<u>Show Help for This Form</u>				
Earth / Sun	Add Conversation				
Mars	Conversation Title	<input type="text"/>			
Saturn	Target(s)	<input type="checkbox"/> Comets <input type="checkbox"/> Earth/Sun <input type="checkbox"/> Mars <input type="checkbox"/> Saturn <input type="checkbox"/> Universe			
Universe	Start Date	<input type="text"/>			
	End Date	<input type="text"/>			
	Embargo Until	<input type="text"/>			
	Description	<input type="text"/>			

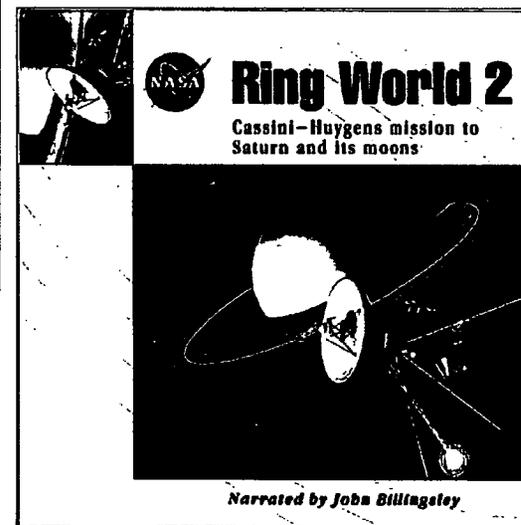
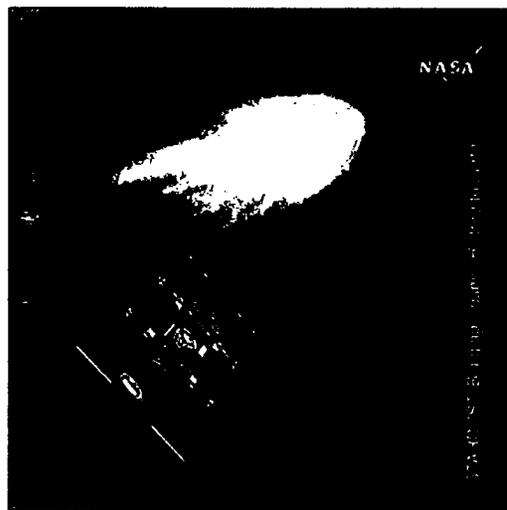
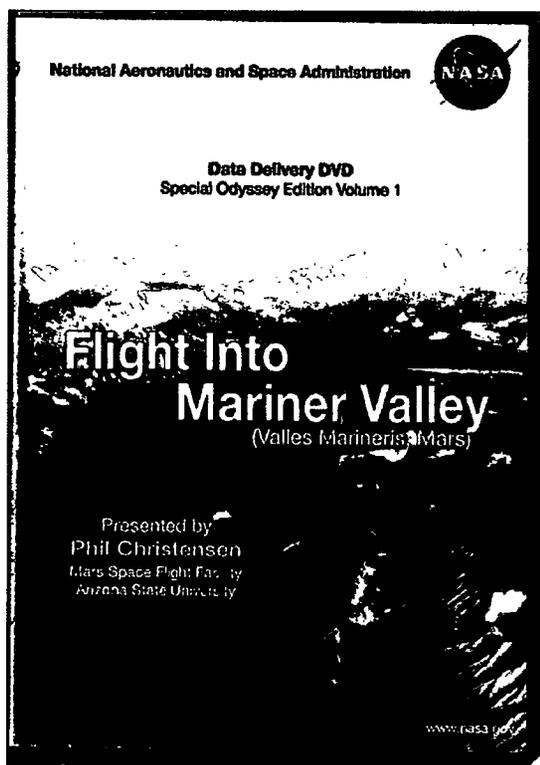


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Multimedia: video, mpeg, QuickTime, ipod formats





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Opportunity to Advertise Museum Events on NASA websites helps capture metrics



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+ NASA
Homepage
+ NASA en
Español
+ Marte en
Español

SEARCH MARS



NASA's Mars Exploration Program

OVERVIEW
SCIENCE
PEOPLE
FEATURES
EVENTS
MULTIMEDIA

Mars for Kids ↗

Mars for Students ↗

Mars for Educators ↗

Mars for Press ↗

+ Mars Home

Events

+ SUMMARY

+ ALL PROGRAM EVENTS

Mars Events in Your Area

List of States

[Arizona](#)

[California](#)

[Colorado](#)

[Michigan](#)



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Advertising Museum Events Serves Many

The screenshot shows the NASA Mars Exploration Program website. At the top left is the NASA logo and the text "NATIONAL AERONAUTICS AND SPACE ADMINISTRATION". To the right are links: "+ NASA Homepage", "+ NASA en Español", and "+ Marte en Español". A search bar labeled "SEARCH MARS" is also present. Below this is a banner image with the text "NASA's Mars Exploration Program". A navigation menu includes "OVERVIEW", "MISSIONS", "PEOPLE", "FEATURES", "EVENTS", "MULTIMEDIA", and "ALL ABOUT MARS". On the left side, there are links for "Mars for Kids", "Mars for Students", "Mars for Educators", "Mars for Press", "+ Mars Home", and "Events". The main content area is titled "Mars Events In Your Area" and "Events > Colorado". It lists three events:

- Mars Revealed (Planetarium Show) 03/24/2006**
Fiske Planetarium (CU-Boulder), Boulder, CO
<http://fiske.colorado.edu>
- CO Skies: Mars Reconnaissance Orbiter Update (Lecture / Talk) 03/23/2006**
Fiske Planetarium (CU-Boulder), Boulder, CO
<http://fiske.colorado.edu>
- MRO Arrives at Mars! (Mars Reconnaissance Orbiter) 03/10/2006**
Denver Museum of Nature & Science, Denver, CO
<http://dmns.org/main/en/General/Education/AdultPro...ctures.htm>

“Thank you for compiling your list of events [published on the Deep Impact website]. We have been receiving phone calls from all over Florida as a result of our listing, and the Deep Impact planetarium show today was well-attended. One family drove 2 hours just to attend!” —Carole Holmberg, Calusa Nature Center and Planetarium, Fort Myers, FL



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Museums need NASA-wide calendar of mission events. Under a grant from NASA's Explorer Institutes, we are developing both the product (the calendar) and a process for populating it.

Product: web-based calendar that alerts museums to events from 6 months to two years in advance and links to relevant resources

•Planning horizon for museum facilities, budgets, publicity

Process: Points of contact at each NASA Center/HQ Directorate must be aware of events and add them to calendar

Rachel Connolly, American Museum of Natural History, NYC, is lead for this task.



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Showcase your mission/research to museums:

- **Sign up for Museum Alliance to see how it works**

<http://informal.jpl.nasa.gov/museum/alliance/>

- **Sign up here for more information**



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Backups



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Lessons Learned:

- ✓ Museums, science centers, planetaria are the “front lines” in their local communities: they get the calls from media, public, teachers, students whenever anything is happening in the sky, be it UFOs, comets, meteor showers, eclipses, aurorae, or NASA missions
 - ✓ NASA can help them be the local experts--a win/win situation
- ✓ MSPs “don’t know what NASA is doing and when they are doing it. If we did, we could plan events to highlight those activities.” (ASTC, Calgary 1998)
 - ✓ NASA needs to give MSPs advance notice--6 months (due to advertising deadlines, internal scheduling and planning, budgeting)
- ✓ MSPs don’t do new exhibits very often, but they present educational and public programs daily. Electronic media make updates easier than ever.
 - ✓ NASA can provide the latest info in usable formats--training on downloadable presentations, video files on DVDs



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Lessons Learned (contd)

- ✓ Most MSPs are not on cutting edge of technology: simple delivery is best
 - ✓ All have phones and computers--but maybe can't use both at same time (single phone line for computer and phone; dial-up modem, low bandwidth)
 - ✓ Many cannot accept formatted text or e-mail attachments
 - ✓ Don't all have access to NASA TV either directly or via providers
 - ✓ Don't all have video-conferencing systems
 - ✓ Many can't download really BIG files or at all due to organizational firewalls
 - ✓ Surprise! They all can use DVDs. Many can even edit them! No one has asked for slides in a very long time.
- ✓ Many MSPs are only 1-3 people deep (they are their own tech support)
- ✓ The staff are
 - ✓ passionate about astronomy and space;
 - ✓ dedicated teachers;
 - ✓ wonderful storytellers;
 - ✓ tinkerers and technicians;
 - ✓ and (planetarians especially) have an amazing supply of bad puns!



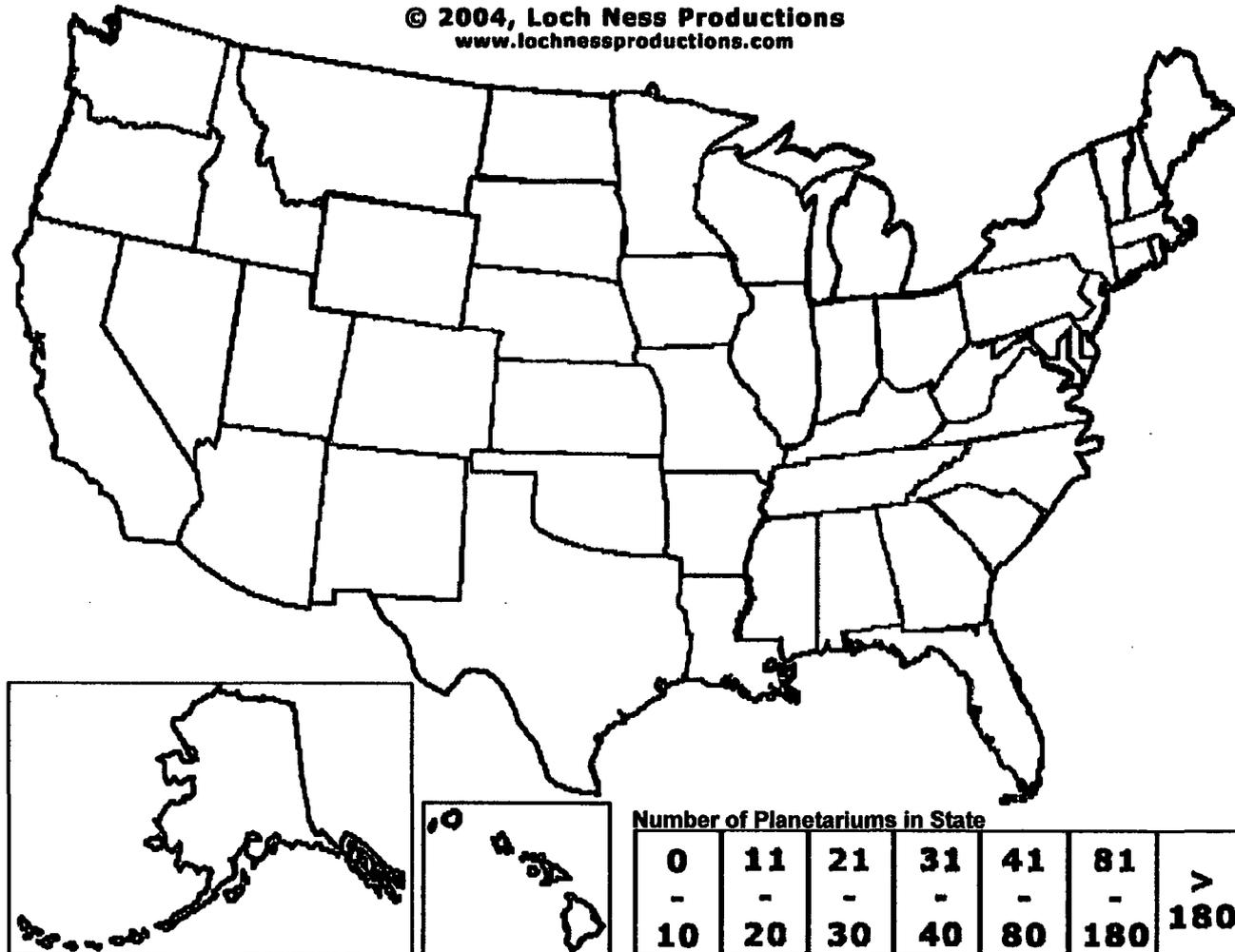
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Distribution of U.S. Planetariums: Over 30 million visitors annually

© 2004, Loch Ness Productions
www.lochnessproductions.com



Number of Planetariums in State

0	11	21	31	41	81	>
-	-	-	-	-	-	180
10	20	30	40	80	180	

End of File

