DIGISTAR 7

E&S

EVANS & SUTHERLAND
A Cosm Company

We invented the digital planetarium in 1981

E&S was founded in 1968 by University of Utah professors Dr. David Evans & Dr. Ivan Sutherland to develop simulation systems, real-time hardware, and accelerated 3D computer graphics. E&S pioneered the use of high-end visual display systems in both aviation and simulation markets.

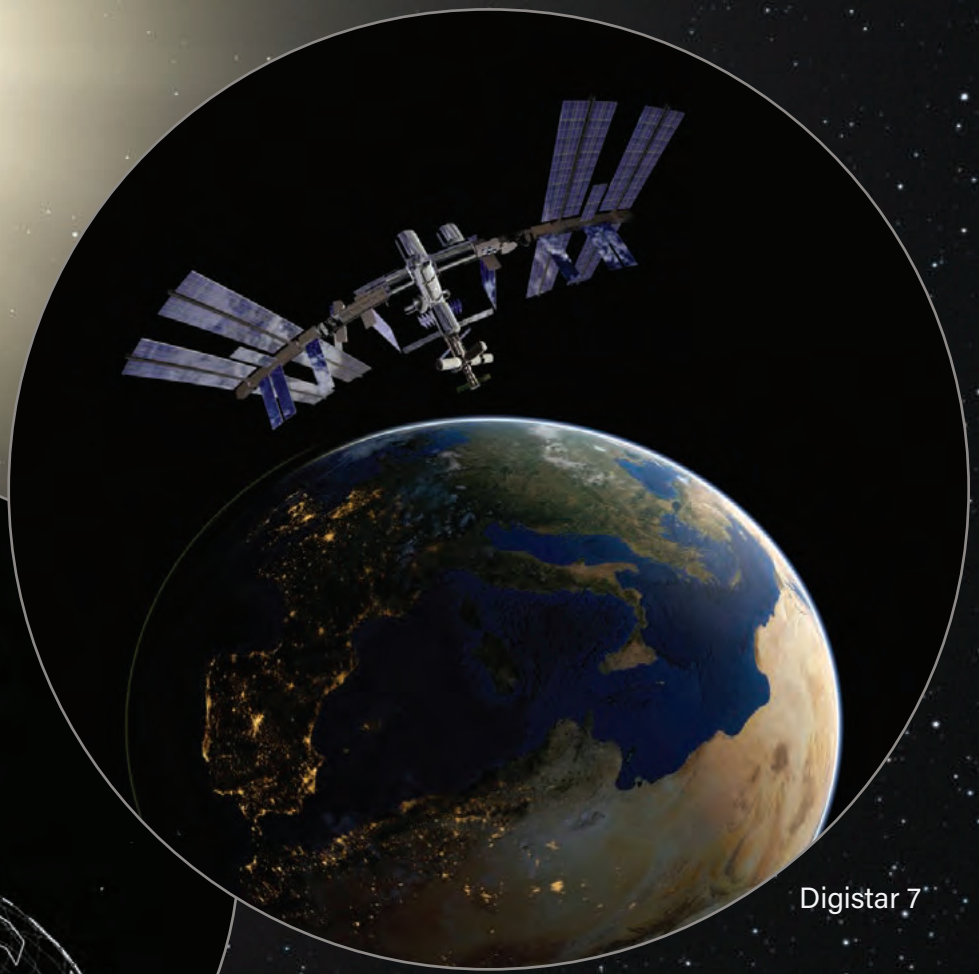
Our exceptional team is here to get your project completed on time and on budget.

Digistar has always been, and continues to be, designed and built completely in-house at E&S in Salt Lake City, Utah, USA.

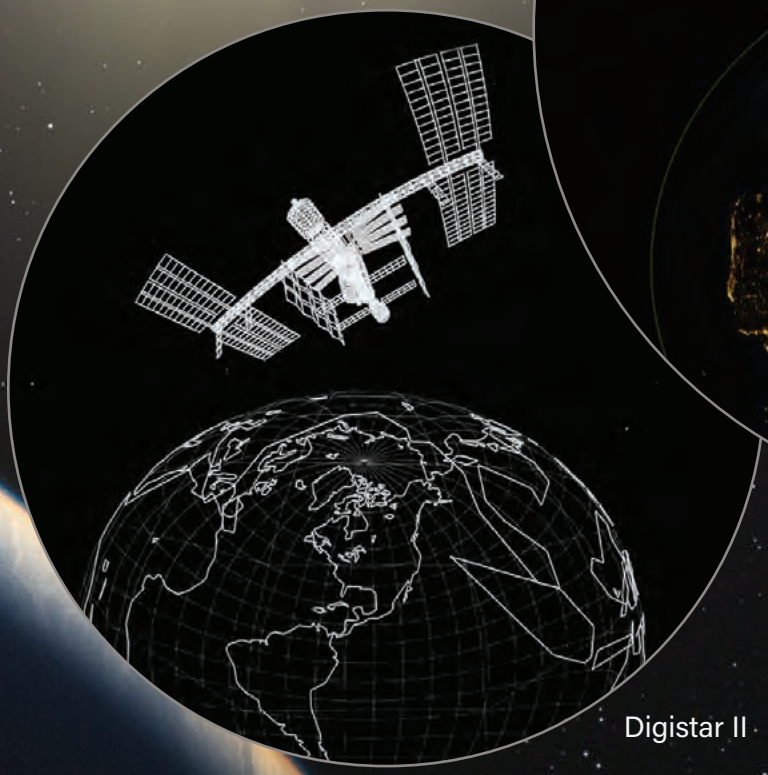
- Our engineering team designs the Digistar system in-house
- Our software development team builds and maintains Digistar software in-house. We have a strong partnership with Dell to custom configure high-end graphics computer workstations engineered to specifically meet the needs of the Digistar system and the demands of 24/7 theater operations
- We perform our own testing and quality assurance in-house prior to shipment and installation
- We maintain a 24/7 support team and a full-time training staff, to ensure that our customers get the very most from their Digistar system

Our team places great importance and pride in independently designing, building, testing, installing, and maintaining our Digistar systems.

Today many of our team members have 20+ years of planetarium and digital theater experience, including five former planetarium directors.



Digistar 7



Digistar II

Your Experience Matters

We built Digistar from the ground up to facilitate learning. Its robust digital theater platform offers presenters day-to-day reliability, innovative tools and an easy to use, customizable, interface so presenters can connect with their audience.

Collaborate with Planetariums Around the World

Digistar connects you to hundreds of planetariums around the world and facilitates collaborations and content sharing.

From Concept to Reality

We design, build, and integrate dome theaters.

Design

Our team of Engineers is ready to help you and your architects find the best solutions that will meet all the facility requirements of your building.

Domes

We are the leader in projection domes for planetariums and theaters with our market proven Spitz line of domes. We offer multiple seam options to meet technical and financial needs.

For those that would like to be free of projection systems, we offer an entire LED dome that lasts 100,000 hours: our cutting edge DomeX.

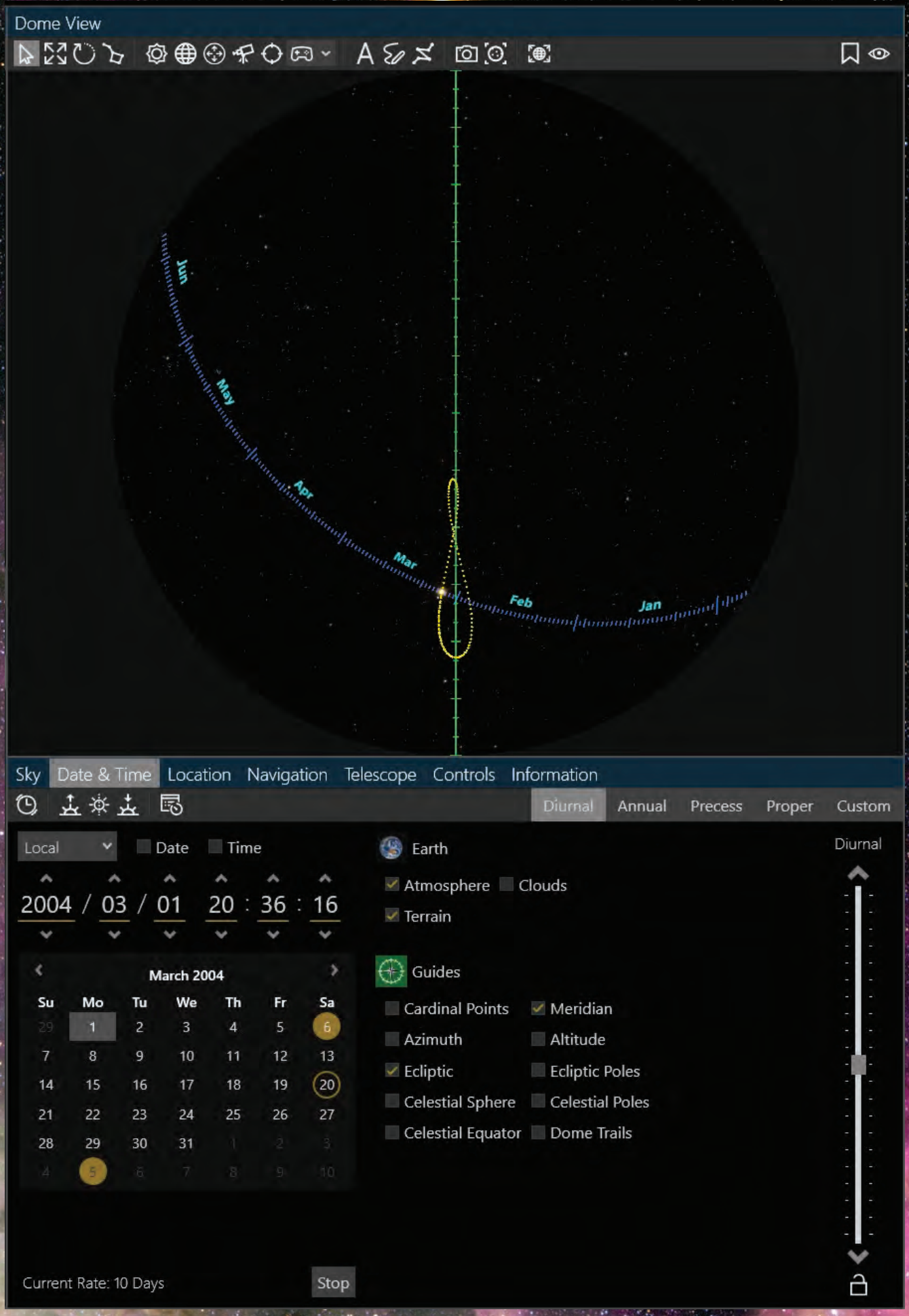
Audio & Lights

We can design custom audio and lighting solutions for your theatre in order to enrich the experience of your audience. 3D audio systems are available for those who would like to expand their planetarium into a multi-use theatre.

Digistar

Digistar in the industry leading astronomy and education platform, with the largest astronomical datasets, terrain resolution, 3d models, and access to a worldwide community of planetariums.

It is also a multipurpose tool that allows you to demonstrate other subjects like biology, engineering, mathematics, physics, art, architecture, history and more thanks to its advanced STEAM integration.


Dome View
Jun
May
Apr
Mar
Feb
Jan
Sky
Date & Time
Location
Navigation
Telescope
Controls
Information
Diurnal
Annual
Precess
Proper
Custom
Local
Date
Time
2004 / 03 / 01 20 : 36 : 16
March 2004
Su Mo Tu We Th Fr Sa
29 1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31 1 2 3
4 5 6 7 8 9 10
Earth
Atmosphere
Clouds
Terrain
Guides
Cardinal Points
Meridian
Azimuth
Altitude
Ecliptic
Ecliptic Poles
Celestial Sphere
Celestial Poles
Celestial Equator
Dome Trails
Diurnal
Current Rate: 10 Days
Stop

DIGISTAR 7

Key Features

User Interface

Digistar's user interface (UI) can be customized in a variety of ways to meet your needs. The user interface has industry-first features like an interactive dome view, true drag-and-drop capability, Show Builder, and custom Control Panel pages to expand the interface functionality.

Presentations and Playlists

Much like PowerPoint presentations, Digistar presentations allow presenters to build live shows one clip at a time and advance through them using a mouse, wireless presentation controller, iPad, mobile device, or Xbox controller. Playlists are designed to play automated sequences, one item after the other. Playlists can even loop for continuous play. Presenter's notes can be added to accompany each item in the presentation or playlist.

Workspaces

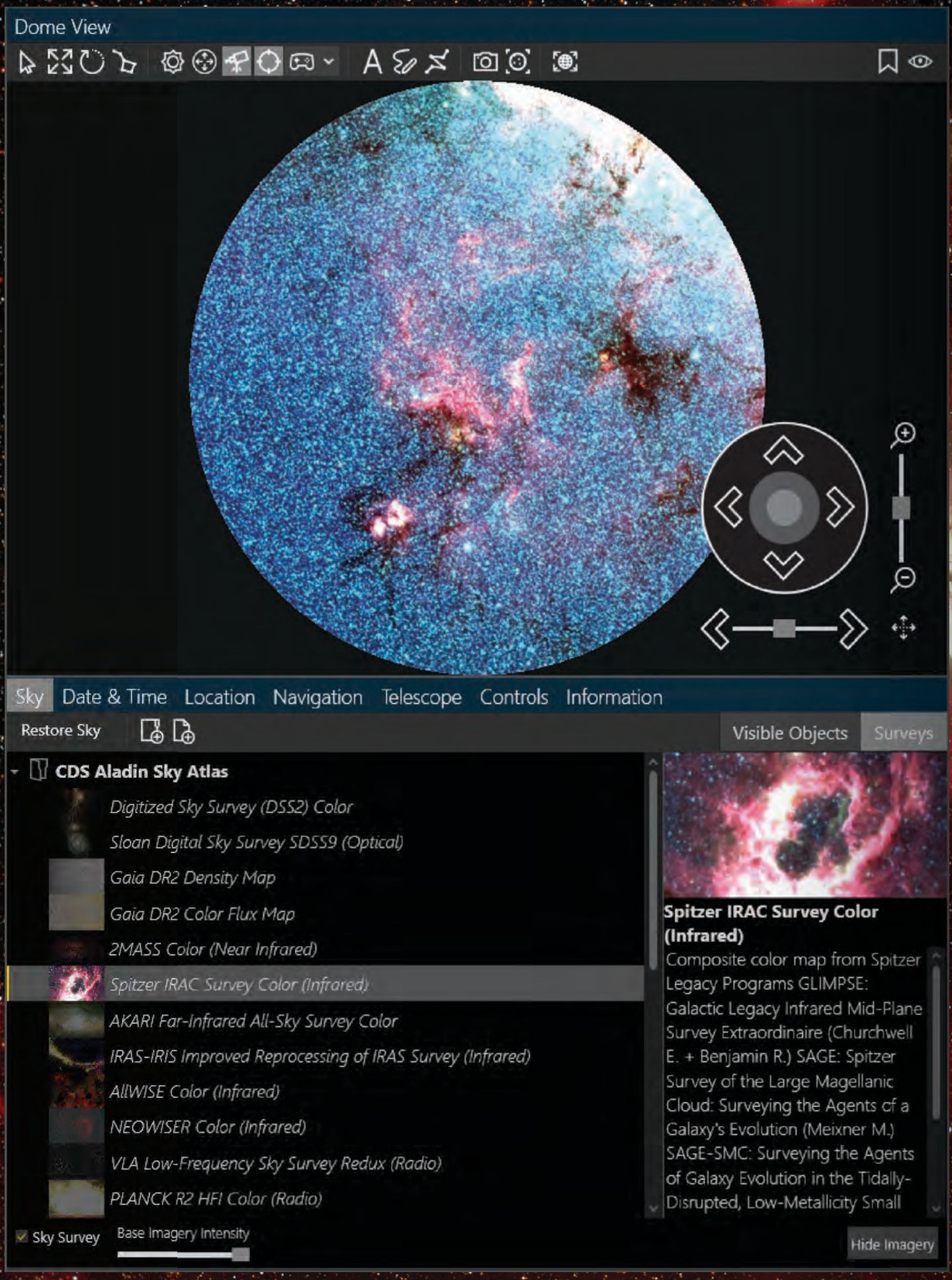
A Digistar theater has an enormous library of content available. Workspaces are a way to organize content for use in live presentation. Workspaces can be global or can be created for each user. They also hold playlists for pre-rendered content.

Navigation

Navigation through the Universe in Digistar has been completely redesigned to offer more intuitive "free flight" controls using the mouse or Xbox controller. Features include a fly-to "target mode" that allows users to set a destination and fly to it manually.

Drag-and-Drop Control

Pick any item from the Digistar library, drag it to the dome preview, and view it on the dome. Add new items to the Digistar library to customize your dome.


Dome View
Sky
Date & Time
Location
Navigation
Telescope
Controls
Information
Restore Sky
Visible Objects
Surveys
CDS Aladin Sky Atlas
Digitized Sky Survey (DSS2) Color
Sloan Digital Sky Survey SDSS9 (Optical)
Gaia DR2 Density Map
Gaia DR2 Color Flux Map
2MASS Color (Near Infrared)
Spitzer IRAC Survey Color (Infrared)
AKARI Far-Infrared All-Sky Survey Color
IRAS-IRIS Improved Reprocessing of IRAS Survey (Infrared)
AllWISE Color (Infrared)
NEOWISER Color (Infrared)
VLA Low-Frequency Sky Survey Redux (Radio)
PLANCK R2 HFI Color (Radio)
Spitzer IRAC Survey Color (Infrared)
Composite color map from Spitzer Legacy Programs GLIMPSE: Galactic Legacy Infrared Mid-Plane Survey Extraordinaire (Churchwell E. + Benjamin R.) SAGE: Spitzer Survey of the Large Magellanic Cloud: Surveying the Agents of a Galaxy's Evolution (Meixner M.) SAGE-SMC: Surveying the Agents of Galaxy Evolution in the Tidally-Disrupted, Low-Metallicity Small
Sky Survey
Base Imagery Intensity
Hide Imagery

DIGISTAR 7

Key Features

Support for common data standards and media

Digistar also supports industry standards for geographic and mapping data, common web/online data for real-time visualization, weather and climate data standards, volumetric and other scientific data sharing standards. Of course, we also support a wide variety of astronomical data sources and file formats.

Desktop Streaming

Digistar can stream the host computer's desktop onto the dome. Options to stream the full desktop or a specific portion are available.

Powerful Scripting

Digistar supports Python and JavaScript, as well as its own built-in language, to give unparalleled control of every object and aspect of the system. Users can create scripts in Digistar's Script Editor, which highlights syntax, auto-suggests function names, and points out scripting errors for easy debugging.

Unity 3D Plug-in

A plugin has been developed to use within the Unity3d game engine that will allow the game to be streamed into a dome theater. A single script attached to a scene camera will handle streaming the scene in a format that can be easily rendered across the dome.

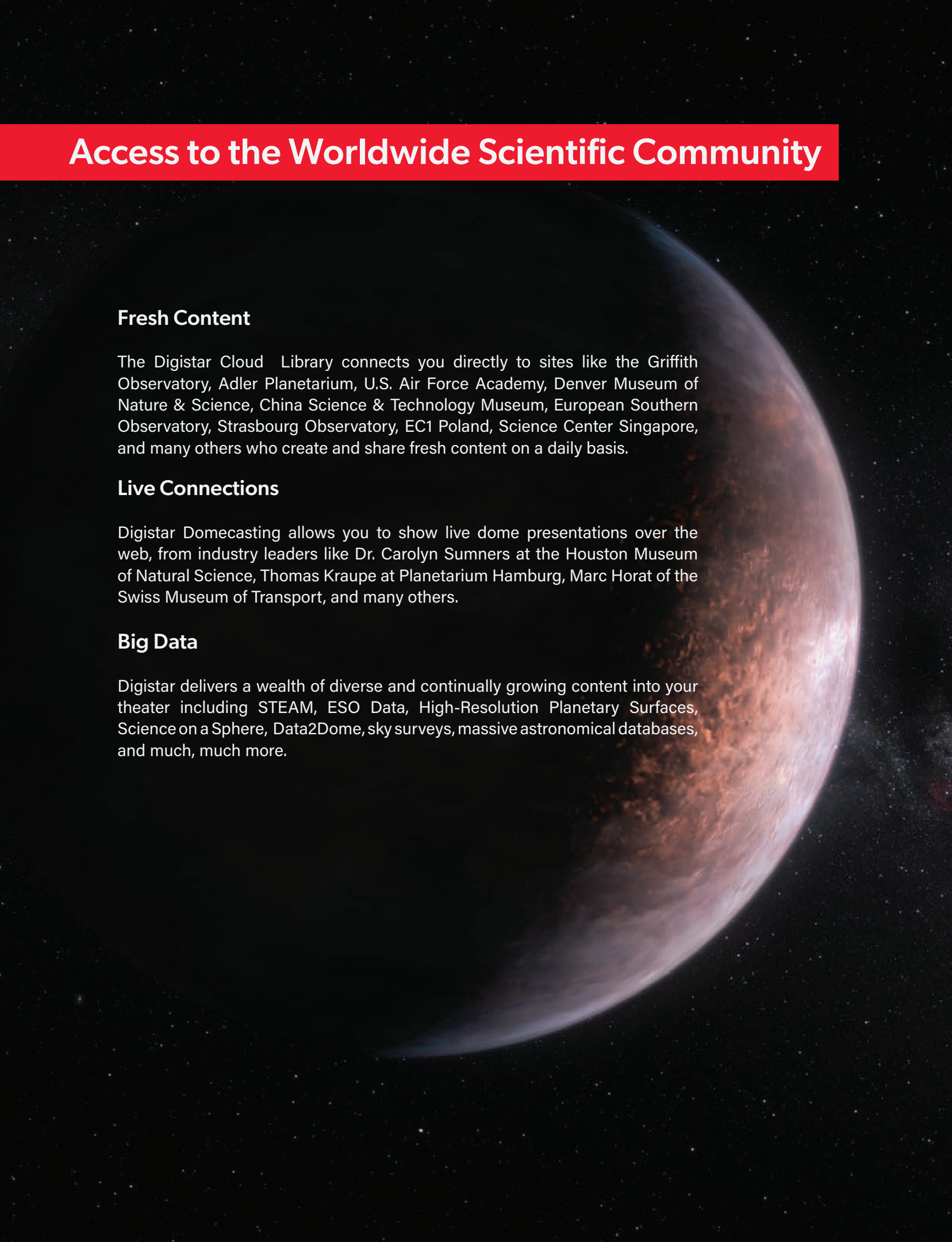
Text to Speech

Right-click on virtually any text field in the Digistar User Interface and that text will be spoken in the currently selected voice. English and several other languages are supported.

Open Caption Subtitles

This fully automatic feature allows text to overlay a fulldome show. This will typically be used for hearing impaired or second language audience members.

Access to the Worldwide Scientific Community



Fresh Content

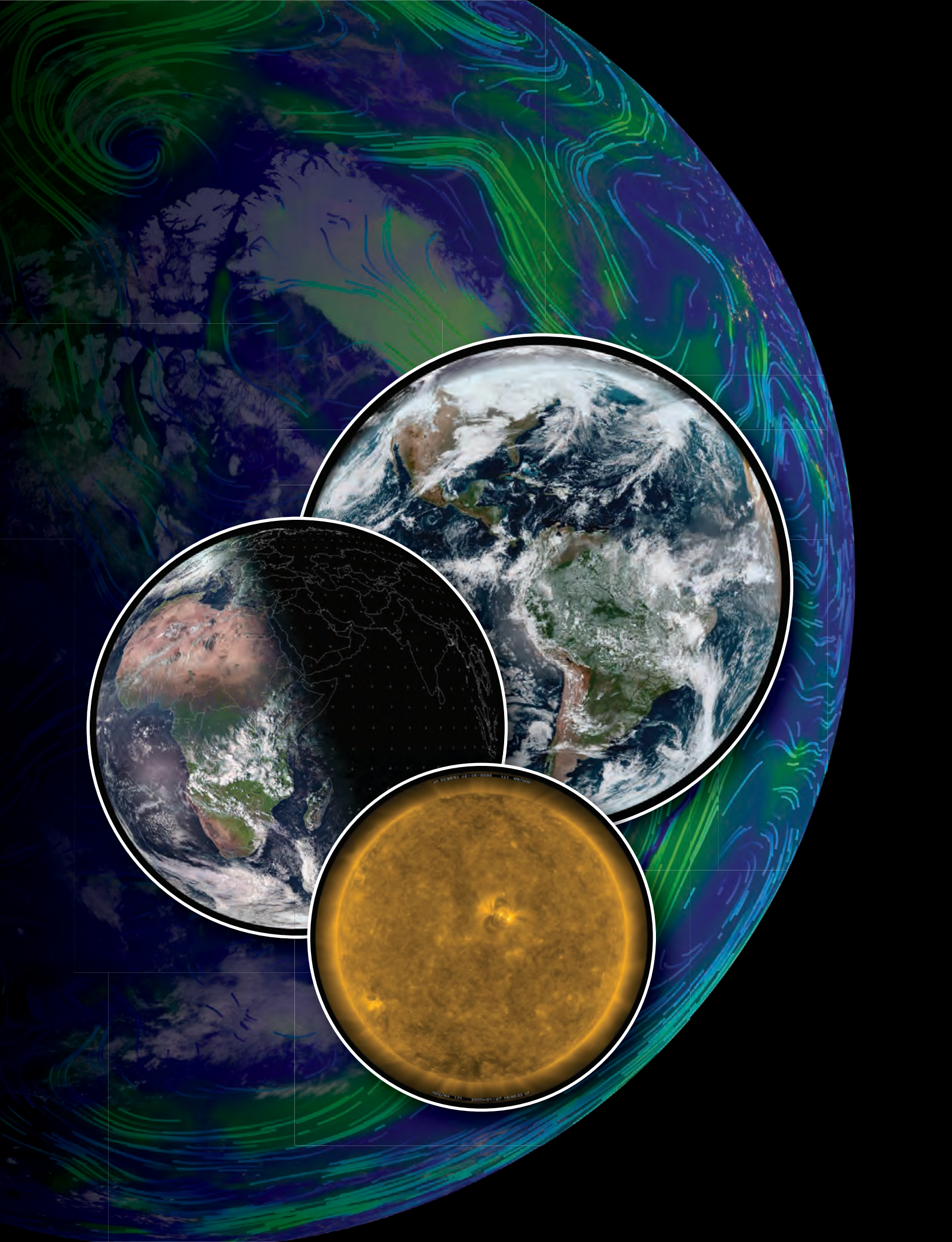
The Digistar Cloud Library connects you directly to sites like the Griffith Observatory, Adler Planetarium, U.S. Air Force Academy, Denver Museum of Nature & Science, China Science & Technology Museum, European Southern Observatory, Strasbourg Observatory, EC1 Poland, Science Center Singapore, and many others who create and share fresh content on a daily basis.

Live Connections

Digistar Domecasting allows you to show live dome presentations over the web, from industry leaders like Dr. Carolyn Sumners at the Houston Museum of Natural Science, Thomas Kraupe at Planetarium Hamburg, Marc Horat of the Swiss Museum of Transport, and many others.

Big Data

Digistar delivers a wealth of diverse and continually growing content into your theater including STEAM, ESO Data, High-Resolution Planetary Surfaces, Science on a Sphere, Data2Dome, sky surveys, massive astronomical databases, and much, much more.



The Swiss Museum of Transport

Marc Horat at the Swiss Museum of Transport uses Digistar's connectivity to teach climate change.

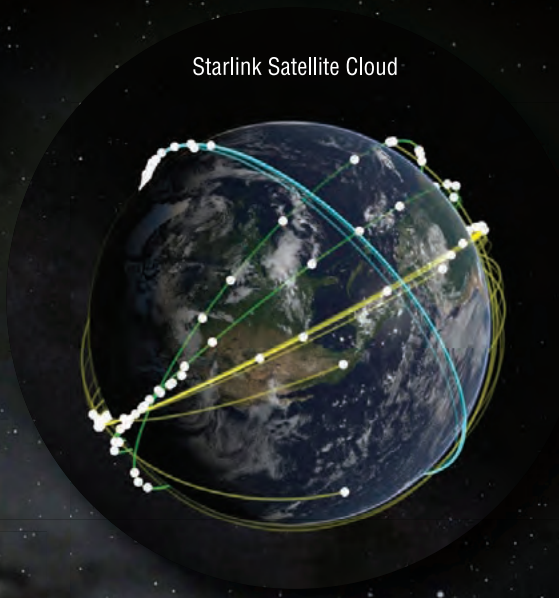
Marc Horat has created several interactive cloud modules that download and display current day imagery from NOAA satellites and display them as fulldome images. This series of modules provides coverage for the entire globe. There are even some examples that display SDO images of the Sun.

He has also created an informative Sea Ice animation for a demo at DUG 2019. The script downloads the latest data regarding sea ice in the northern hemisphere. It then display it on the globe and loops a comparison with the four previous years. There are also plots displayed of the data for comparison.

DIGISTAR 7

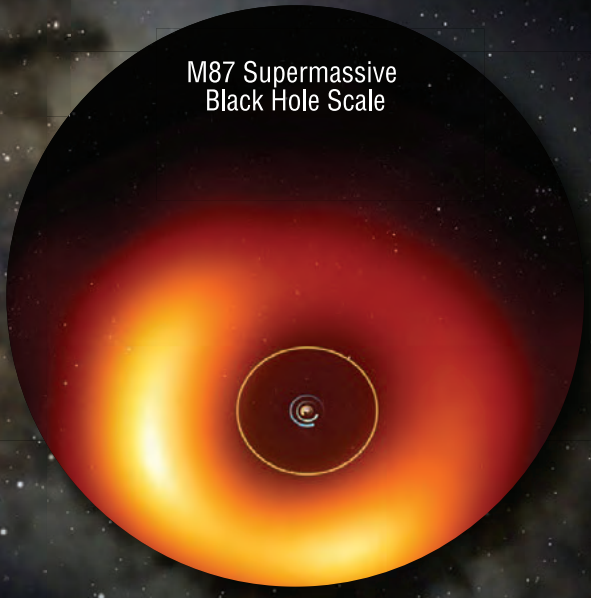
Experience Cloud Sharing

Created by Rainer Christiansen
Planetarium Flensburg



Created by Marc Horat
Planetarium Verkehrshaus der Schweiz
(Swiss Museum of Transport)

Created by Kevin Scheiman
Boonshoft Museum of Discovery



Created by Justin Bartel
Science Museum of Virginia

Connect with hundreds of planetariums around the world with the Digistar Cloud Library.

Visit www.es.com/digistar7 to sign up for insider previews.

Digistar Cloud Library

Digistar Cloud Library

Digistar comes with a built-in cloud sharing capability that connects over 500 Digistar theaters worldwide. The Digistar cloud makes sharing great content simple. Staff can browse the library of over 1,000 items and upload and share shows, models, videos, and snapshots. Digistar makes collaboration easy so presenters can find inspiration and share their projects with colleges around the world.

Data2Dome

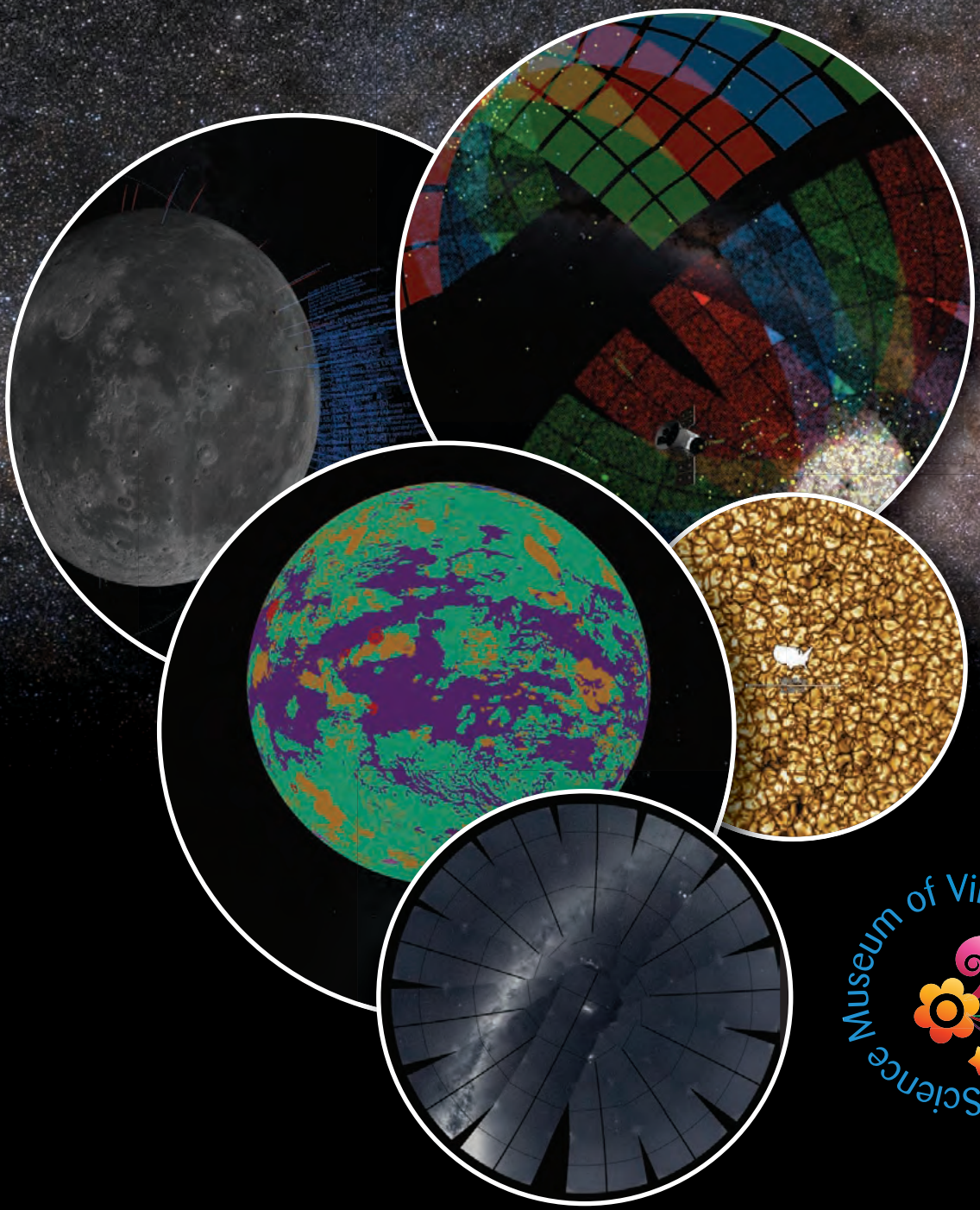
Digistar is the first system to fully integrate the Data2Dome (D2D) standard published by the International Planetarium Society. D2D allows data feeds from ESO, ESA, Spitzer, and a host of astronomical observatories on Earth and in space to stream into Digistar every day. There are over 30,000 videos, images, fulldome stills, and more available for instant dome display.

NOAA Science on a Sphere

Digistar contains more than 200 unique datasets in five categories: Astronomy, Atmosphere, Land, Models & Simulations, and Ocean. This includes more than 25 real-time Earth weather and solar datasets and a number of self-running and presenter-led demonstrations.

DIGISTAR 7

Cloud Library

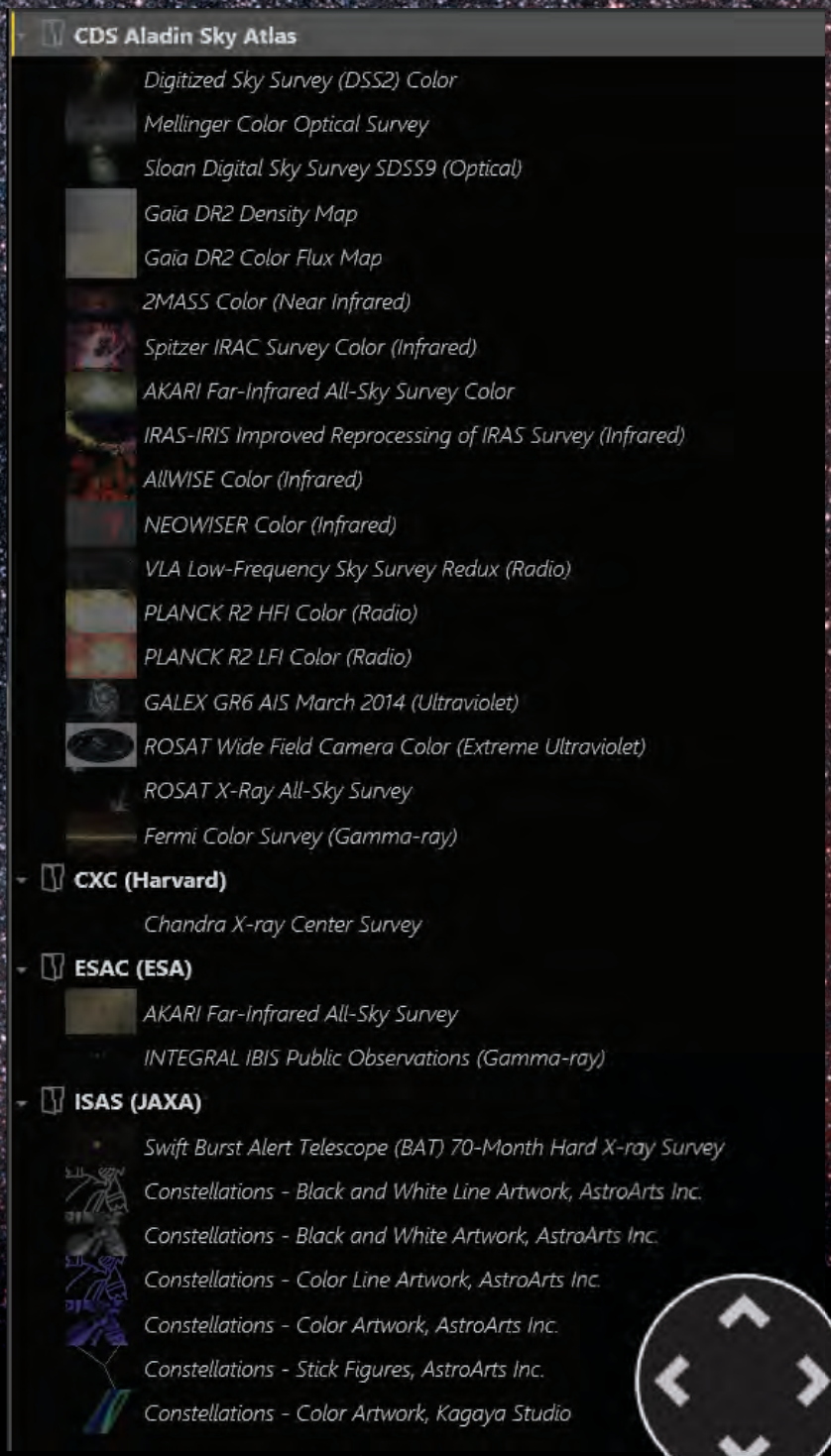


Science Museum of Virginia

"It's always nice to check the Cloud for unique resources that I don't really know how to create myself. Sometimes a new 3D model might be available, or somebody might have already found a really nice image for a deep sky object that will be mentioned in the show. With the addition of the ESO and ESA/Hubble content through Data2Dome, there is always inspiring content to use in a show."

- Justin Bartel, Immersive Experience Manager
Science Museum of Virginia & President of the
Digistar Users Group

Your Digital Telescope



Access Hundreds of Online Digital Sky Surveys

Digistar can manage and display high resolution online sky surveys, such as the Digital Sky Survey (DSS2) and hundreds of other surveys using the HiPS protocol. New interactive telescope controls for the user interface, keyboard, or Xbox controller can be used to zoom into and explore these sky images in the dome.


Explore our World and Beyond

Advanced Terrain Engine

Fly down to and explore the surface of planets with an Xbox controller. Navigation will automatically and seamlessly synchronize its motion with a spinning planet as you descend to the surface. Digistar supports flying into valleys and through mountain ranges with beautiful volumetric clouds and vibrant lighting on the Earth, Mars, or any planet, moon, exoplanet, or exomoon on which terrain is defined. Terrain datasets can also be created or imported for comets and asteroids.

Landings on the surface of planets are smooth and gentle. After a landing, navigation allows for interactive flying above the surface; exploring the terrain in a natural way.

Detailed elevation data can be used for improved realism. Elevation datasets can be combined and layered as desired. Digistar has access to 3m/px data for Earth and 25m/px data for Mars.

High resolution up-to-date imagery can be mapped and layered onto the terrain from live web-based imagery services, to give in-context views of scientific data, or simply provide beautiful views of the landscape.

Volumetric clouds can be added to all planets to enhance the realism of the sky with varying, dynamic lighting.

We support online map standards including WMS, WMTS, as well as maps services from Bing Maps, Google Maps, and others.

Digistar Domecasting

Digistar includes a powerful Domecasting capability that enables Digistar theaters to broadcast live dome presentations to other theaters in the community.

- Presentations can be operated using the console, a Bluetooth presenter's remote, or an Xbox controller for flexible presentation styles.
- Upcoming Domecasts show up in the Digistar Events tab, so that other theaters can tune-in to live presentations and experience them simultaneously.
- The presenter can control the domecast from a Digistar planetarium or from a remote Digistar laptop or workstation.
- 360 spherical capture enables the creation of full 360 degree images and videos for offline viewing. These immersive videos can be uploaded to Digistar Cloud or video hosting websites like YouTube.
- A live video stream of the presenter can be placed on the dome. They can also be turned off or relocated by the receiving facility.
- The presenter's custom content is automatically packaged and shared.
- An interactive chat window between theaters is available for Q&A sessions.
- Domecasts can also be recorded at broadcast time to be viewed later. Presenter audio and video is also recorded.
- Domecasting is very efficient with low internet bandwidth requirements.
- Create and review available domecasts in the Digistar Events tab.

A World in Every Detail

Digistar's real-time graphics engine uses advanced physics based rendering which is capable of rendering nuanced detail on planetary surfaces and highly detailed models.

Digistar incorporates an advanced algorithm for rendering volumetric data in real time. Clouds, nebulae, and the Milky Way galaxy can all be displayed in volumetric form in real time. Particle system rendering generates weather, volcano geyser, fire, and other effects in real-time.

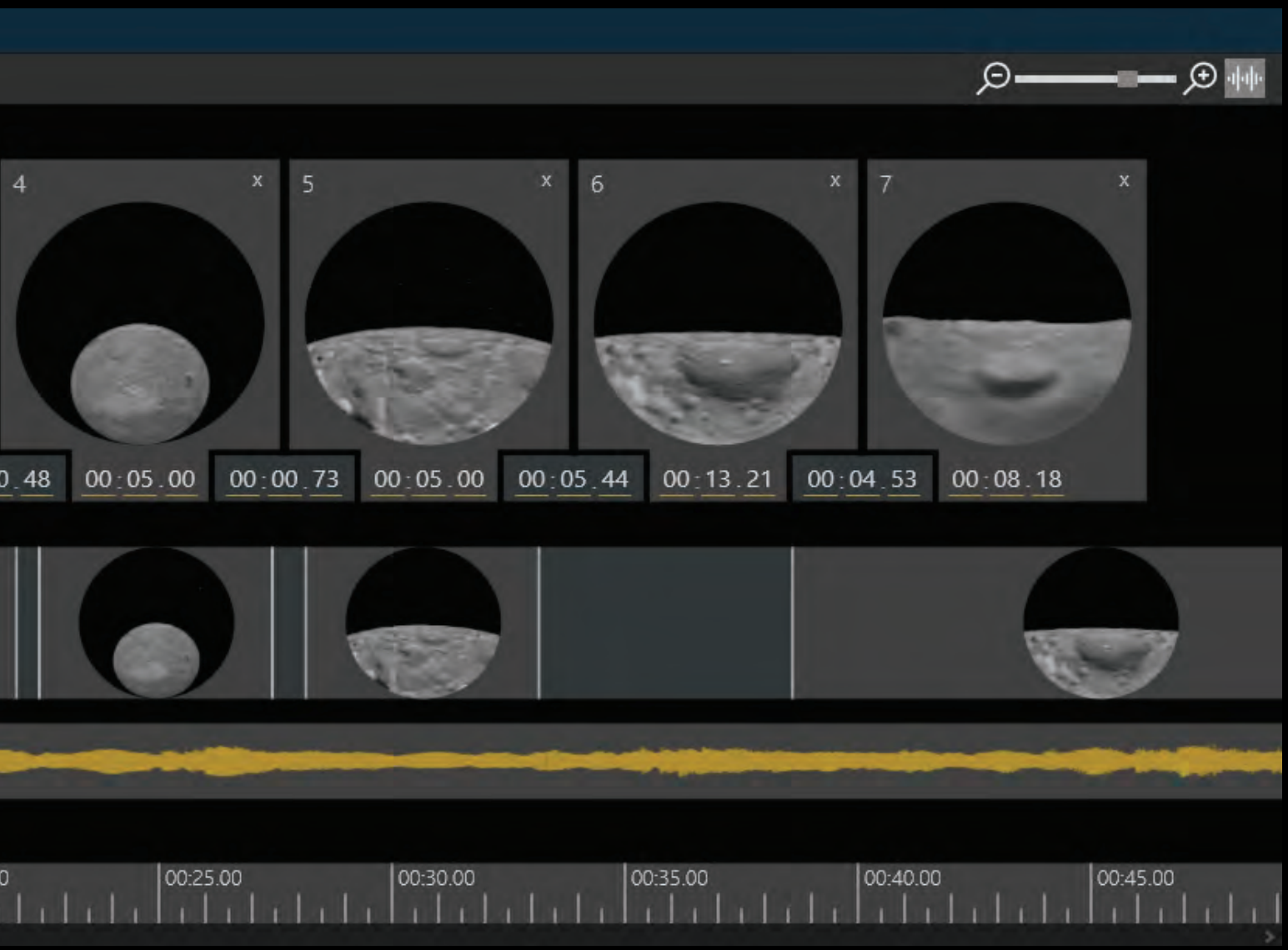
Digistar comes with over 100 real time models including modern and historic spacecraft, observatories, comets, asteroids, and more.

Show Builder - Fast and Refined

Digistar's Show Builder is designed to help you quickly setup and refine real-time shows. Its visual interface timeline allows you to simply take a snapshot of the current scene and Digistar will handle the transitions. You can further refine the timing and even sync the show to an audio track.

Shows can be locked to avoid accidental changes during presentation and the entire show can be packaged and shared on the Digistar Cloud.

With Show Builder you can easily setup scenes, sync them with audio, and share them on the cloud.

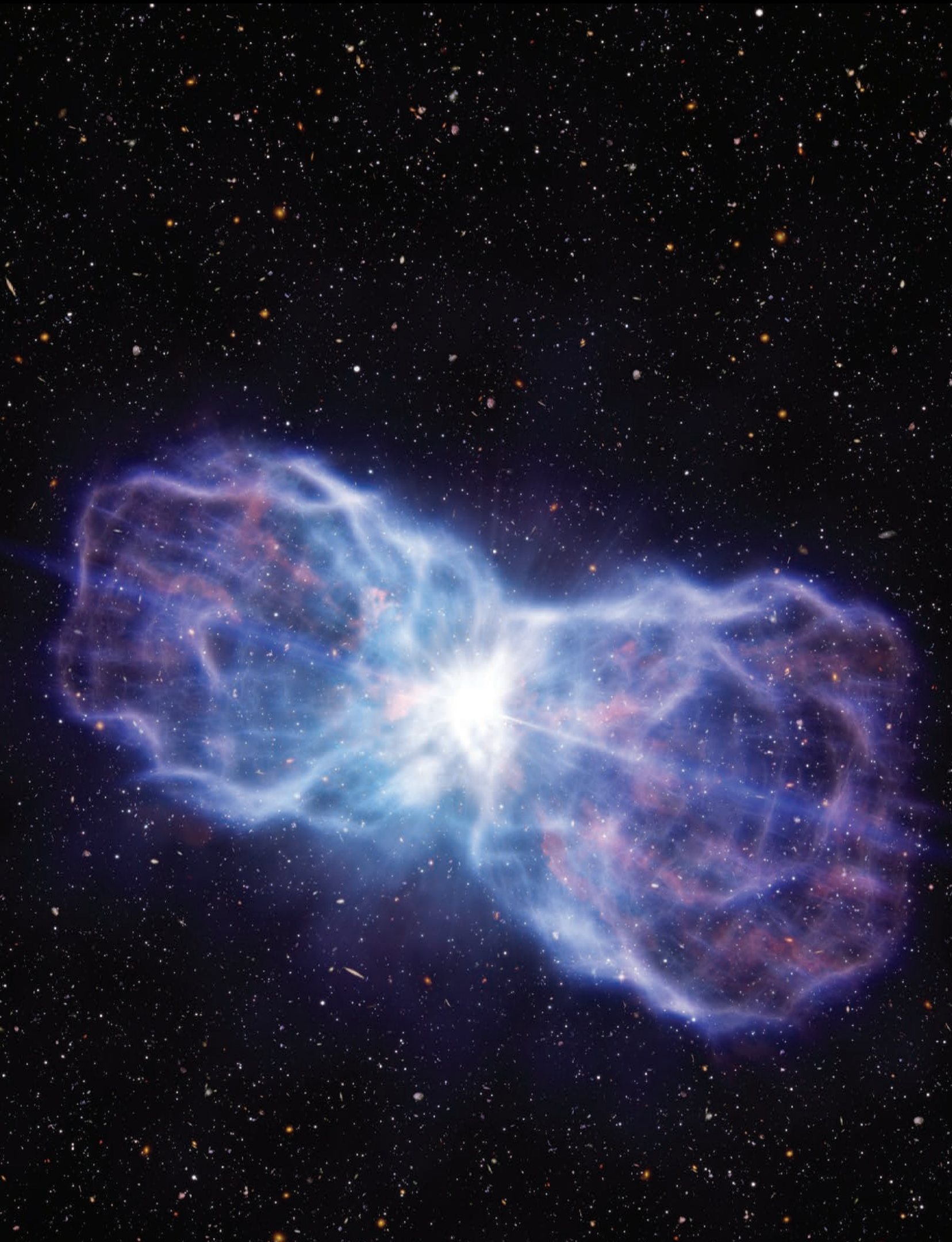


The Digistar Astronomy Atlas

The Digistar Atlas is an extensive compilation of astronomical data that is constantly expanding as new scientific data is released. The current atlas contains nearly 4 million objects; stars, nebulae, galaxies, quasars, asteroids, comets and a variety of other objects are all represented.

Richly Detailed & Constantly Expanding

- Star Field from HIPPARCOS, BSC, Gliese catalogs, and Tycho-2
- Galaxy catalogs include:
  - Reference Catalog of Bright Galaxies by de Vaucouleurs et al. 1995
  - Cosmicflows-3 database by Tully et al 2013
  - HyperLEDA database
  - Sloan Digital Sky Survey
  - Six-Degree Field Galaxy Survey
  - Two-Degree Field Galaxy Survey
  - WiggleZ Survey Drinkwatter et al. 2010
- Supernova Remnants base on Catalogue of Galactic Supernova Remnants
- Exosystems & Exoplanets based on Extrasolar Planets Encyclopedia
- Globular Clusters based on data from Bica et al 2006, A&A, 450, 105
- HIII Regions based on Russeil D. 2003, A&A, 397, 133
- OB Associations based on Melnik and Efremov 1995, Pis'ma Astron. Zh., 21, 13
- Open Clusters based on Vande Putte et al 2010, MNRAS, 407, 2109
- Planetary Nebula based on Stanghellini and Haywood 2010, ApJ, 714, 109
- Pulsars based on the ATNF Pulsar Catalogue



The Digistar Astronomy Atlas

Spice Toolkit

Where available, the positions of solar system bodies are now calculated using the Planetary and Lunar Ephemerides DE431, a numerical simulation of the Solar System created by Jet Propulsion Laboratory. We access the data kernels using the SPICE toolkit, a software package widely used for planning, visualizing, and archiving interplanetary spacecraft missions. This gives Digistar the ability to determine the positions of the planets, Pluto, and the Moon at high accuracy over a 30,000 year time span, as well as the positions of other major moons over a span of a few hundred years.

Multiple Stars, Variable Stars, and Exoplanets

Dataset contains multiple stars, variable stars and exoplanets to explore. Sophisticated algorithms allow astronomical bodies to maintain accurate positions and sizes across the enormous range of astronomical scales.

Eclipse

Digistar accurately simulates both lunar and solar eclipses for all solar system bodies. Eclipses are visible from any astronomical object, whether in first-person or viewed from a distance.
Eclipse shadows correctly intersect planetary ring systems where present. Just as in nature, it is possible to observe multiple eclipses simultaneously.

Comets

Comets are automatically and realistically visualized with both ion and dust tails that assume their correct orientations with regard to the Sun. Digistar comets offer a high degree of customization, allowing adjustments for the size, color, brightness, glow size, and texture of a comet's coma, dust tail, and ion tail. The length of a comet's tail adjusts automatically based on its distance from the Sun, making a comet's position at perihelion easily observable.

Black Hole Rendering

The gravitational lensing effect of Schwarzschild black holes can now be rendered in Digistar. A black hole can be defined by its Schwarzschild radius, and then be placed at any position in the Digistar universe. Anything rendered behind the black hole will be distorted, and characteristic effects such as Einstein rings can be seen.

Hubble Tuning Fork Volumes

Several galaxy volume models are included in Digistar that represent the Hubble "Tuning Fork" galaxy classification scheme.


WAITING
FAR AWAY


INCREDIBLE SUN


We are losing the dark of night
at the speed of light.
LOSING THE DARK


THE SUN
OUR LIVING STAR


THE SHADOW
a science - fiction
fulldome short


FROM EARTH
TO THE UNIVERSE

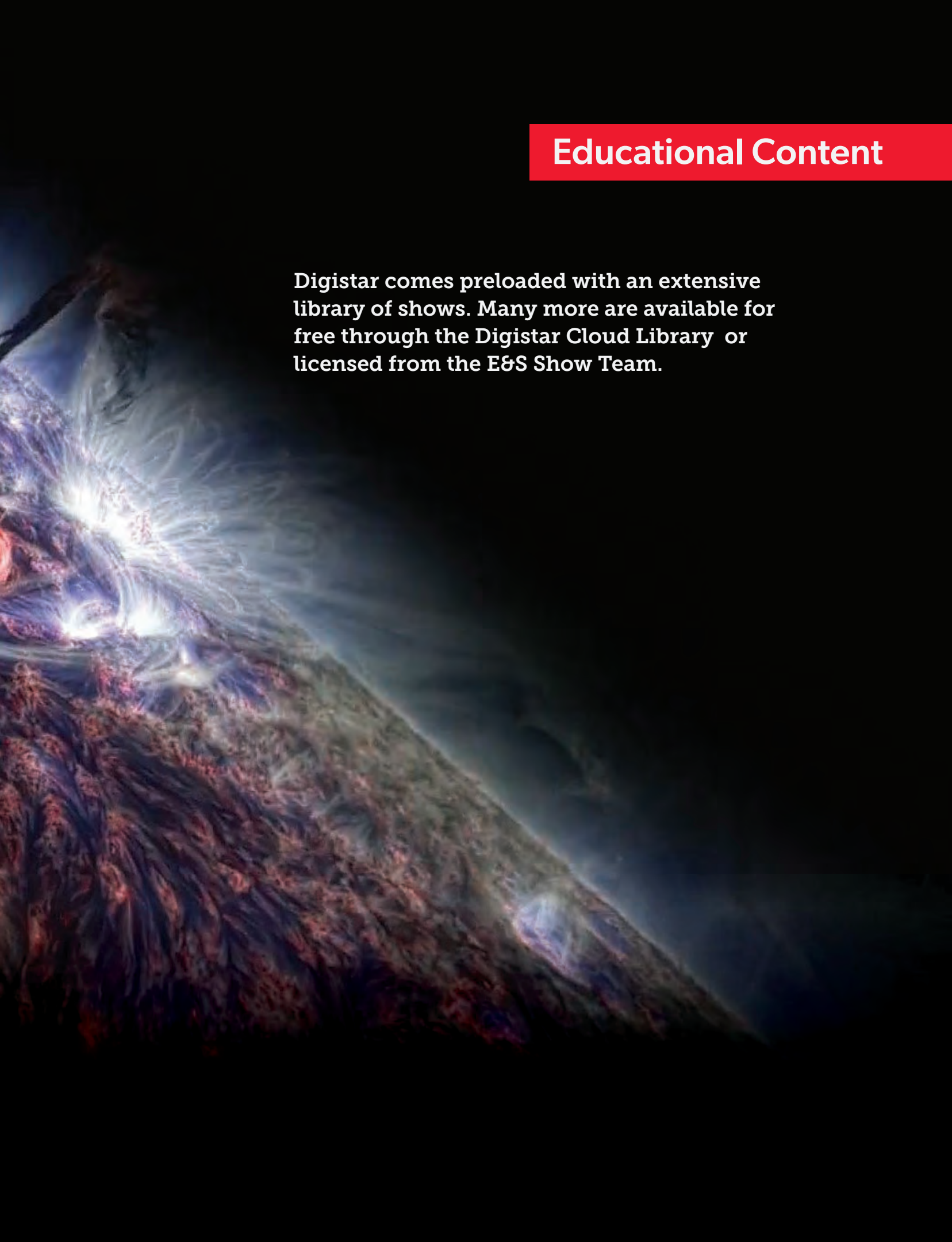

AHEAD
THE
HOT AND ENERGETIC
UNIVERSE


DISTANCE THE SUN
SUNSTRUCK

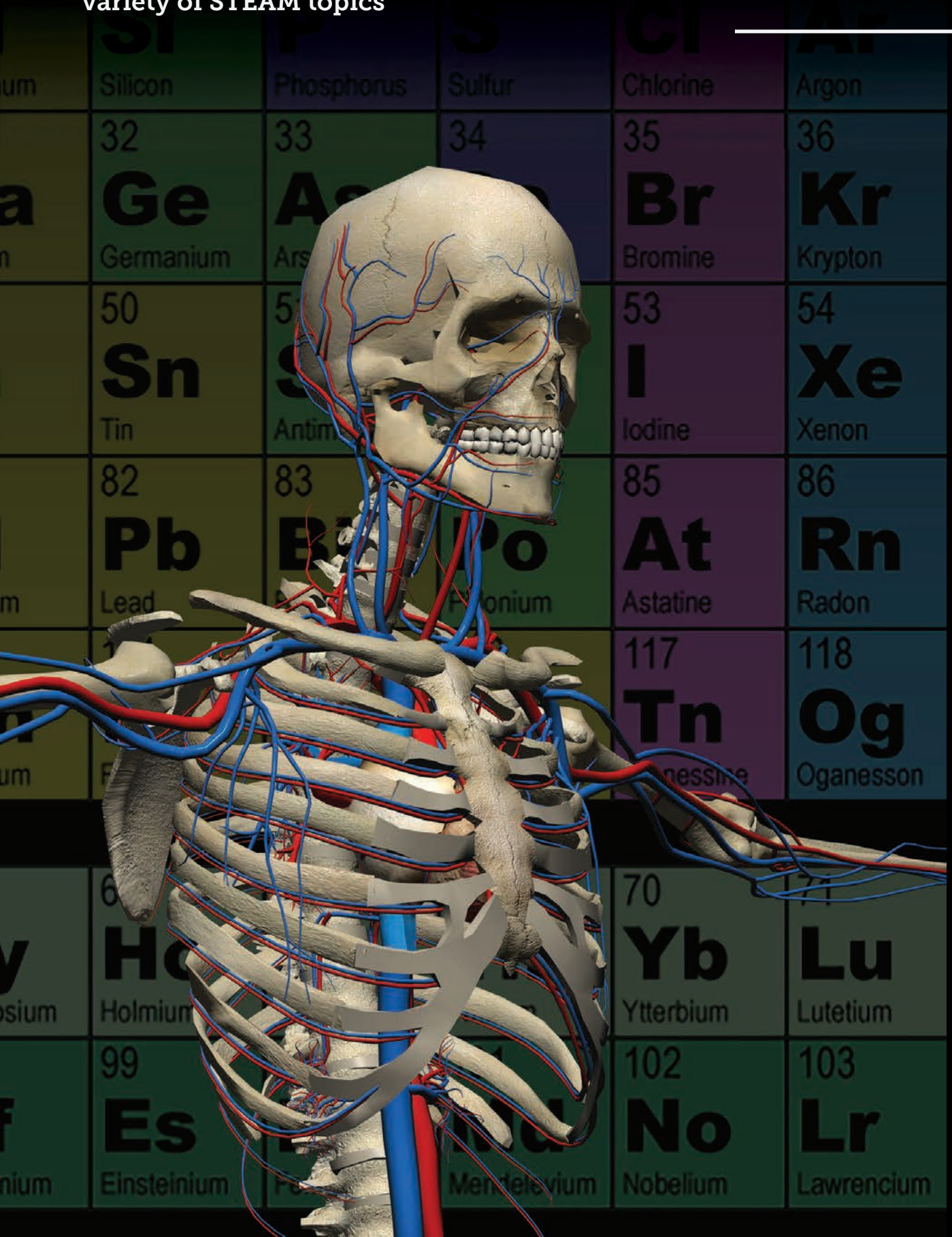

LOS MAYAS
PLANEACIÓN CÓSMICA

Educational Content

Digistar comes preloaded with an extensive library of shows. Many more are available for free through the Digistar Cloud Library or licensed from the E&S Show Team.



Digistar comes with a wide assortment of real-time scenes on a variety of STEAM topics



SCIENCE, TECHNOLOGY, ENGINEERING, ARTS, AND MATHEMATICS LIBRARY

Biology visualizations:

Blood type inheritance, corrective lenses, visual illusions, phyllotaxis, human anatomy (male and female) including detailed brain model, and jointed skeleton.

Physics visualizations:

Atwood's machine, elevator weight, interactive pendulum, lens and mirror simulations, magnetic field simulator, Michelson-Morley experiment, total internal reflection, space-time grid and prism refraction.

Chemistry visualizations:

Boyle's Law, Dalton's Law, and Stoichiometry. A large collection of 3D molecules and an interactive periodic table are also included.

Engineering visualizations:

Steam engines, projectile motion, balance beam, tipping angles, four-stroke engines, and robot movements.

Art visualizations:

Color angles, basics of color theory, rotation patterns, and spirographs.

Mathematics visualizations:

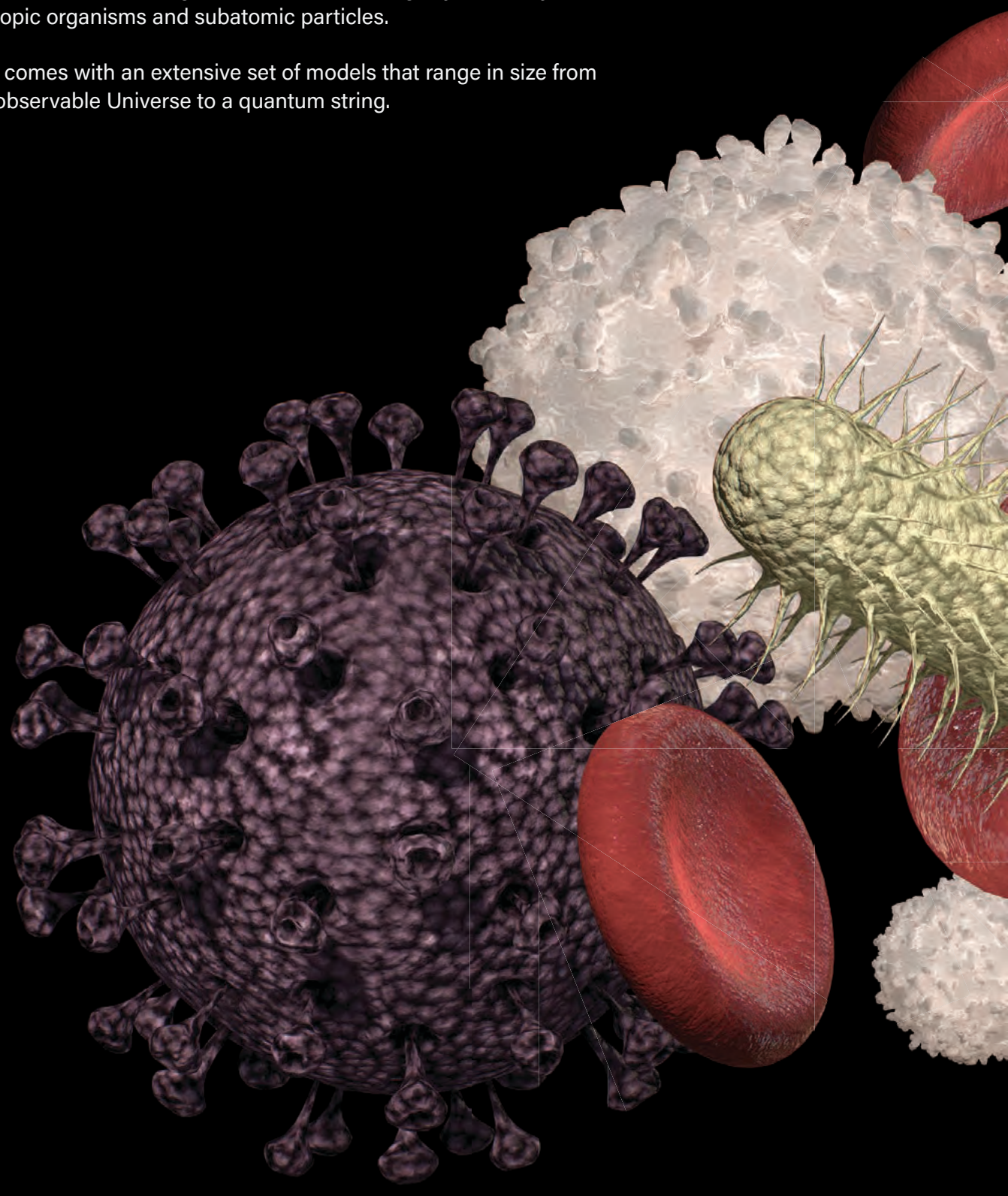
2D vector addition, audio frequency graphs, connect four game, cosine & sine theta unit circles, function graphing, fundamental law of fractions, pie charts & fractions, interactive unit circle, basic multiplication, and sine-cosine wave.

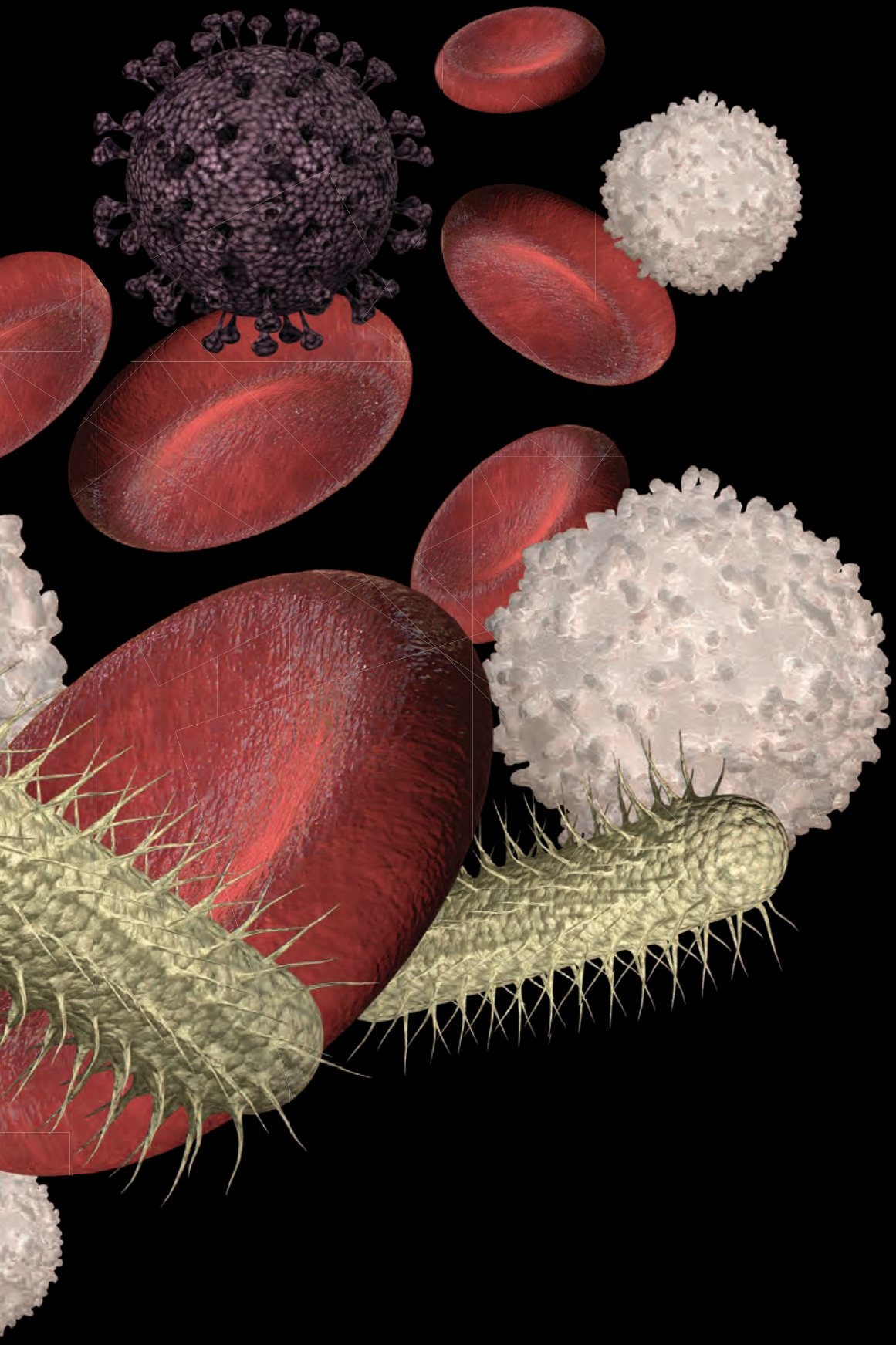
Traverse the Macro & MicroCosmos

The MicroCosmos

Explore the Universe from galaxies thousands of light-years away to microscopic organisms and subatomic particles.

Digistar comes with an extensive set of models that range in size from the full observable Universe to a quantum string.





Educational Content

Digistar includes many real-time sequences that illustrate and teach core astronomy concepts including Earth Science, our Solar System, and Milky Way content. These include, but are not limited to:

Earth Science

Visualizations demonstrate the following concepts: Earthquakes, weather (wind, temperature, precipitable water, relative humidity, atmospheric pressure, convective available potential energy, cloud water, and forecasting), ocean currents, tides, Earth's circumference, political boundaries, and latitude/longitude.

The Sky from Earth

Visualizations demonstrate the following concepts: annual and daily motion, precession, proper motion, solstices and equinoxes, seasons, analemma, cardinal points, lunar and solar eclipses, transits, meteor showers, satellites, moon phases, lunar libration, constellations, aurorae, and star hopping.

The Solar System

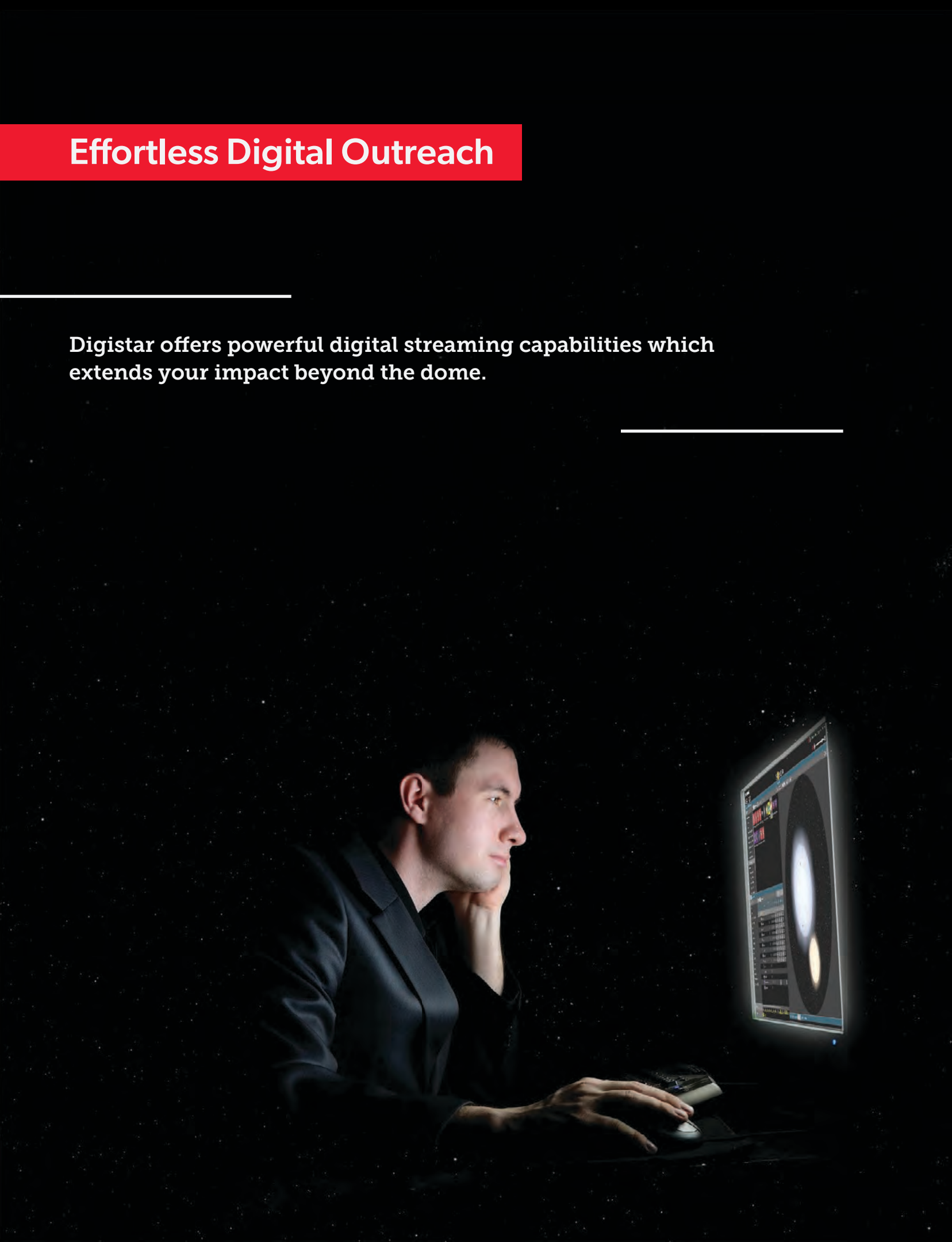
Visualizations demonstrate the following concepts: historical orreries (Ptolemaic, Tychonic, and others), body alignments (perihelion, aphelion, opposition, and conjunction), retrograde motion, solar system formation, planet size comparisons, speed of light visualizations, and solar system orrery.

The Milky Way

Visualizations demonstrate the following concepts: exoplanets, star systems, nebulae, star clusters, OB Associations, HII regions, pulsars and a variety of other objects. Digistar also includes a large selection of sky overlays in various wavelengths, including visible, gamma ray, x-ray, infrared, ultraviolet, and radio.

Effortless Digital Outreach

Digistar offers powerful digital streaming capabilities which extends your impact beyond the dome.



360 video streaming

Digistar can capture Equirectangular video which enables the creation of full 360 degree images and videos for offline viewing. These immersive videos can be uploaded to the Digistar Cloud or video websites such as Youtube.

Viewers can use inexpensive cardboard VR glasses and their cellphone to rotate the 360 video to see different parts of the dome. Streaming services also accommodate 360 video enabling desktop users to pan and rotate the perspective.

360 video can be pre-recorded or streamed live. Effectively extending your planetarium dome to your community.

VR

Digistar can be used with virtual reality headsets to preview or produce fulldome content. Support is included for OpenVR-enabled Virtual Reality Headsets (such as the HTC Vive and Oculus Rift).

Show Distribution

E&S has been distributing fulldome content for over 30 years and offers the largest catalog with over 200 shows. We have well-established relationships with fulldome and giant screen producers like National Geographic - Cosmic Pictures, NSC Creative, Softmachine, MacGillivray Freeman and Mirage3D and are committed to serving the industry's content needs. Our team is ready to help you through the entire process, from show selection, to licensing and delivery.

We Build Lasting Relationships with Producers & Theaters

Connect You With the Right Shows

Our Show Support team will help you choose the shows that fit your mission and draw audiences.

Custom Formatting & Delivery

Each show is formatted for optimal playback in Digistar and can be easily loaded within minutes.

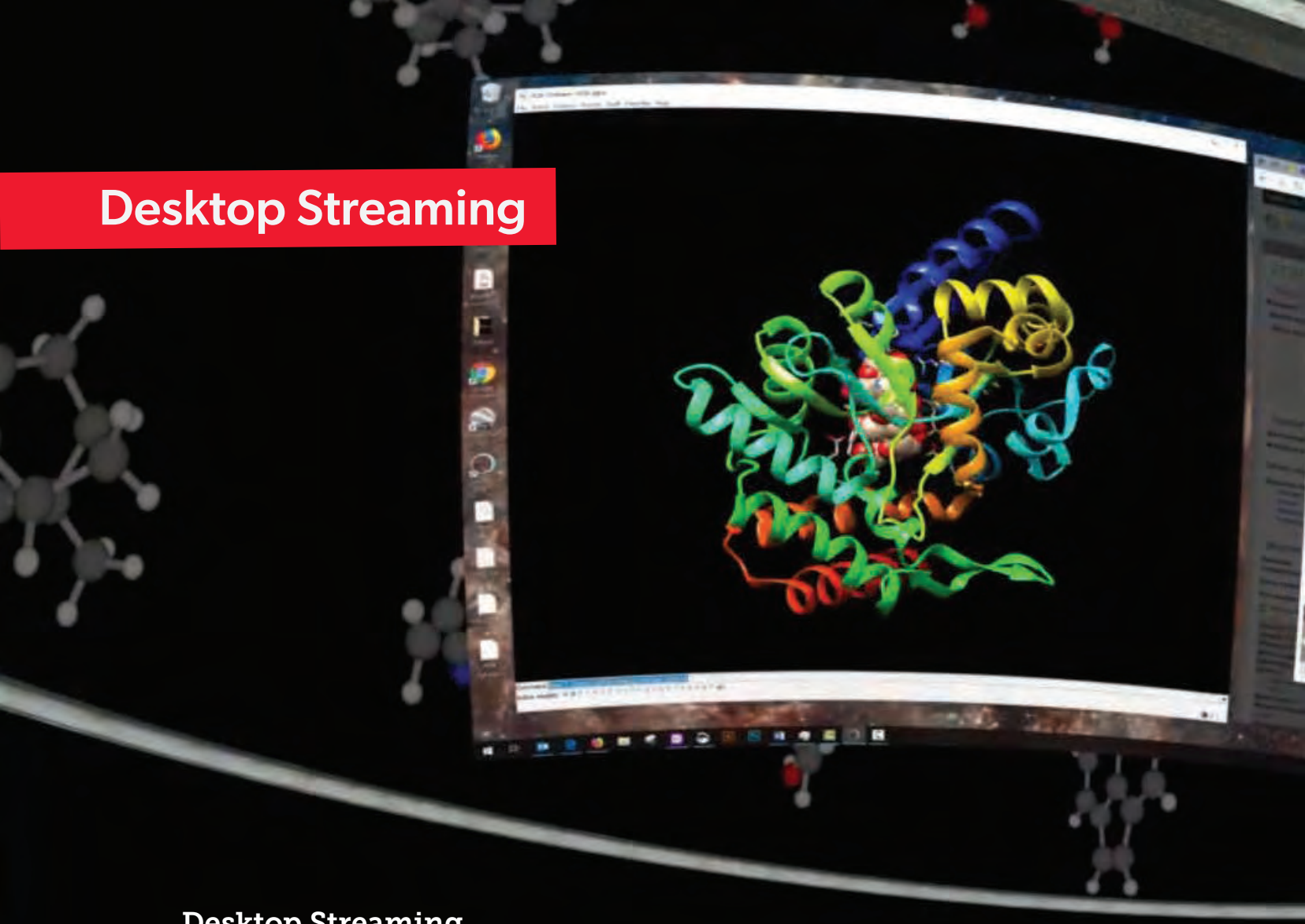
Hit the Ground Running

We can help you develop a marketing plan that engages your local community.

Educational Materials

Expand the impact of your show programming with educational activities. Perfect for school groups.

Desktop Streaming



Desktop Streaming

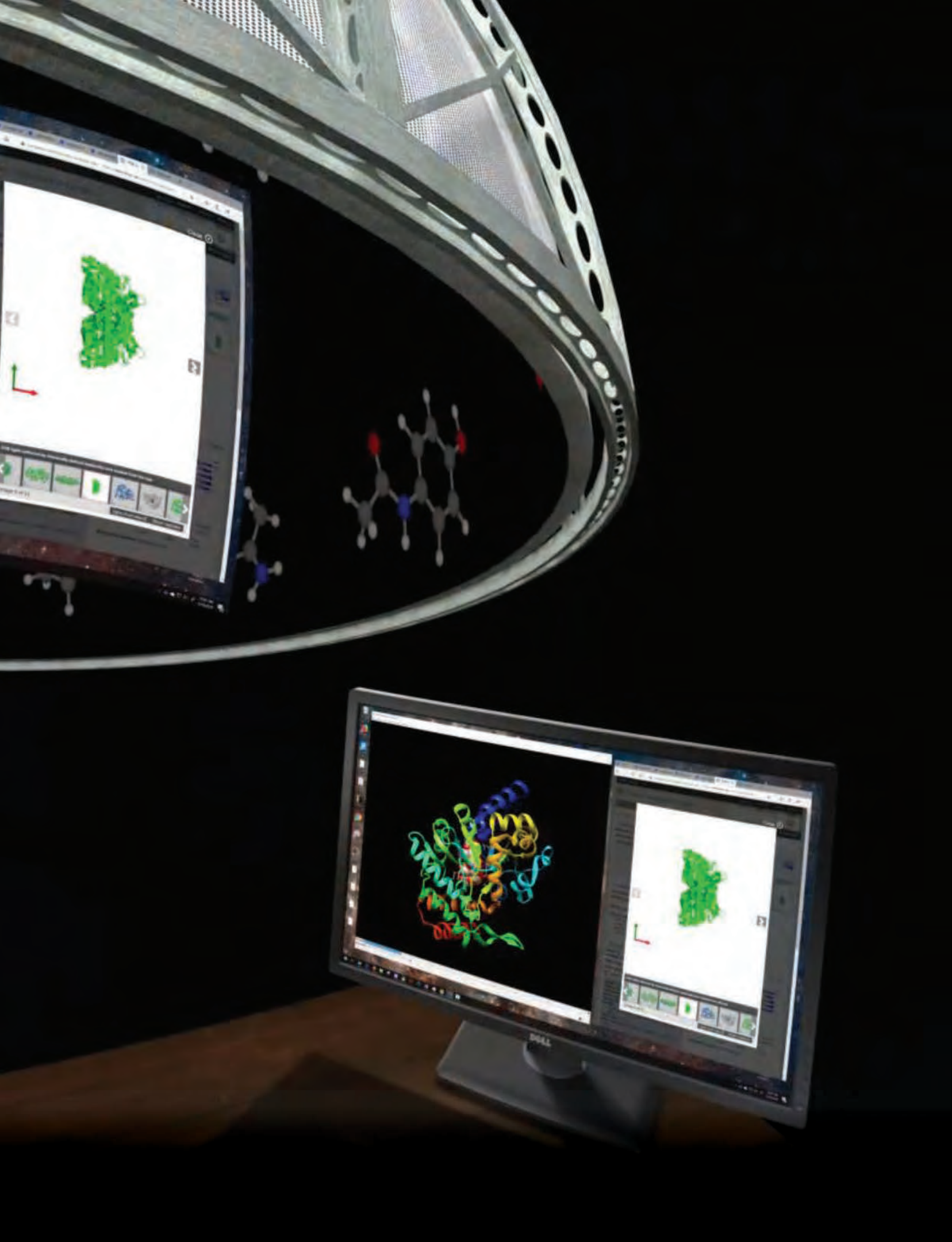
Every Digistar system includes Desktop Streaming. This built-in feature allows streaming of any content on your host computer (the computer you interact with at the operator console) to the dome in a window of any size or shape.

This allows anything from PowerPoint, YouTube or any Windows application to be live streamed onto the dome in HD. Content can be displayed on the dome in any shape, including rectangular, spherical, and fulldome; or you can define your own. In addition, almost any NDI network stream may be displayed in Digistar.

4K Video Input Options

These options include additional hardware for your Digistar system to provide input of external 4k video sources. Live content may be displayed on the dome in any shape or size.

Product/Feature	Max Resolution	Latency
Desktop / NDI Streaming	3840 × 2160	<= 1.5 sec
Video Input Streaming 4K×2K	3840 × 2160	<= 1.5 sec
Video Input Capture 4K×2K	3840 × 2160	<= 0.2 sec
Video Input Capture 4K×4K	3840 × 3840	<= 0.2 sec



Theater Design - Projectors

Projector Brands

Digistar is projector independent and this allows us to pick the best projection system for your project. We work very closely with the major manufacturers to help influence designs that will meet the needs of planetaria.

All our projectors are industrial grade—designed for use 24 hours a day, 7 days a week. They also come with extended support and robust hardware.

Home or consumer projectors are not a good choice as these will fail under the demands of day-to-day planetarium operations.

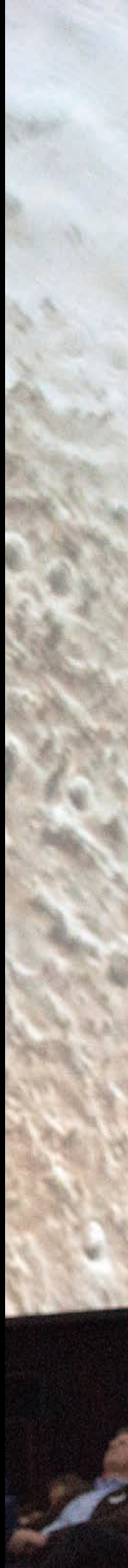
Single or Multiple

We can provide any projector combination to meet your project requirements. Some of the factors include:

- 2D or 3D
- Center or cove
- Projection around an optical-mechanical instrument
- Brightness and contrast
- Resolution
- LED and RGB laser-illuminated projector options

Image Quality

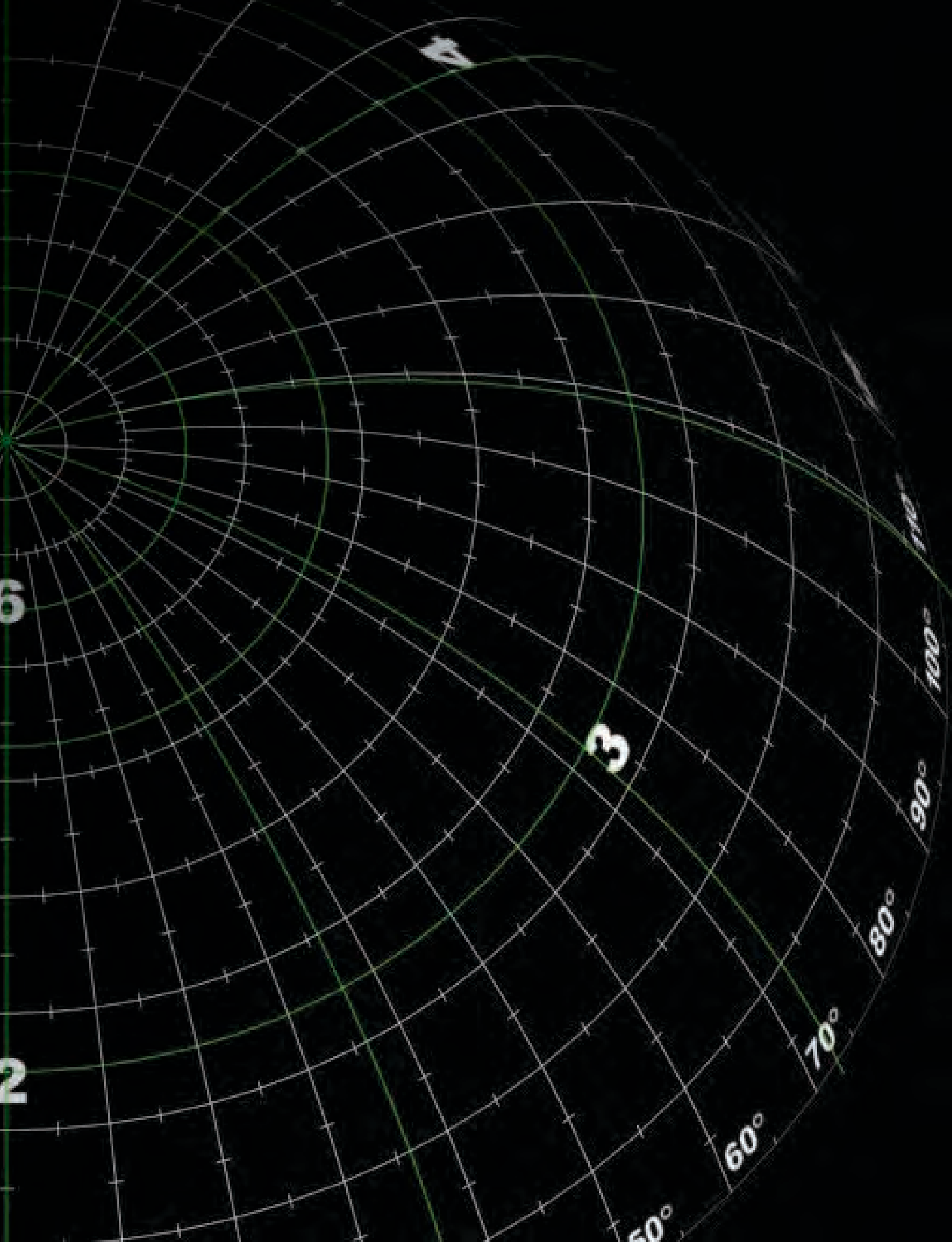
- Digistar offers solutions ranging from a single-projector display to ten or more projectors with True8K™ resolution to exceed 15/70 giant screen film resolution.
- E&S TrueSync keeps video channels playing together with absolute accuracy, eliminating channel tearing or image drift between projectors.
- Up to 120Hz video playback with appropriate hardware



Industry Leading Auto-Alignment & Auto-Blending

The Digistar auto-alignment and auto-blending systems automatically provide multi-projector alignment, color blending, and brightness matching to ensure the system looks as seamless as possible.

- System is fully integrated into the Digistar software
- One button operation
- Works with all projectors
- No third-party software is used. Required cameras are included
- Permanently installed auto alignment hardware (after system installation, no set up of cameras or sensors is required by the user to perform alignments)
- Auto alignment (projector to projector alignment) is less than ±1/2 pixel accuracy and typically takes less than ten minutes
- Uses optical and digital video masking techniques to create the optimal edge blend
- Brightness uniformity across multiple projectors
- Gamma matching between projectors with edge blending
- Auto Blending only requires a few minutes per state (bright and dark)


4
6
3
2
60°
70°
80°
90°
100°

Theater Design - Hybrid Theaters

E&S has installed 30+ hybrid systems around the world.

We have a long history of working with optical-mechanical companies such as:

- GOTO
- Konica-Minolta
- Megastar
- Zeiss

The Digistar interface opens a direct communications link with the opto-mechanical projector and synchronizes the location and time of the projector to track changes in Digistar. The Digistar system sets up and then synchronizes with the optical-mechanical's location and time ensuring that all digital imagery is perfectly synced with the opto-mechanical starfield.

When we create a hybrid planetarium, special care is taken in the selection of projectors to best match the optical instrument. We also take great care in ensuring there are no shadows caused by video projectors and the optical-mechanical system.

This can be achieved in a few different ways:

- Center mount: We will mount projectors on either side of the star ball and project over the star ball.
- Cove: multiple projectors are strategically placed to project around the star ball while still covering all parts of the dome.
- Cove with elevator: If the optical-mechanical is on an elevator, it can be lowered out of the way to allow a dual cove projector system to operate without shadows.
- We have extensive experience working with optical mechanical systems and are happy to find a solution that best meets your needs.

Theater Design - Audio & Lighting

Custom Designed Audio Solutions

Each audio system is uniquely engineered for your specific dome size, tilt, seating configuration, and room acoustics and includes products featuring the latest, reliable, high-efficiency technologies. This makes our systems an unsurpassed choice for sonic quality, reliability, low energy consumption, and flexibility of functions.

Audio Systems

- 5.1 or 7.1 surround-sound speaker system and amplifiers
- Vibration isolated speaker suspension kits specifically designed for mounting to dome.
- Programmable digital audio processor system
- A choice of control interfaces from Digistar
- A hardwired handheld mic
- iPod or Auxiliary stereo audio input
- Stereo audio from an Operator's Console mixer for mics, CD and other audio sources
- Professional Blu-ray/DVD/CD/MP3 player
- Equipment rack with shelves, etc.
- Remote controllable AC Power controller & conditioner
- System tuning with calibrated pink noise to deliver minimum 95db continuous to the audience plus additional headroom

LED Cove Lighting

The LED cove lighting system is designed specifically for immersive dome theaters. Our unique, exponentially scaled, LED control assigns more adjustability to the low light levels most commonly used in dome theaters. This means smoother fades and precise control right where you need it.

- Lighting controls are fully integrated with Digistar and can be accessed by the host computer, wireless tablet controller or the included desktop lighting controller with 19" touchscreen
- Fixtures are designed to offer ultimate heat dissipation and protection of components while maintaining perfect optical output
- LED technology minimizes power requirements and greatly reduces heat generation and maintenance

Theater Design - 3D Display

Every Digistar system has the amazing ability to process real-time graphics in our patented fulldome Spherical 3D® stereo, making the entire dome an immersive 3D environment when combined with a compatible 3D fulldome display. E&S' exclusive technology and partnerships provide show producers with powerful software to create pre-rendered 3D scenes that jump off the screen in every direction, for an unforgettable experience.

Active Stereo

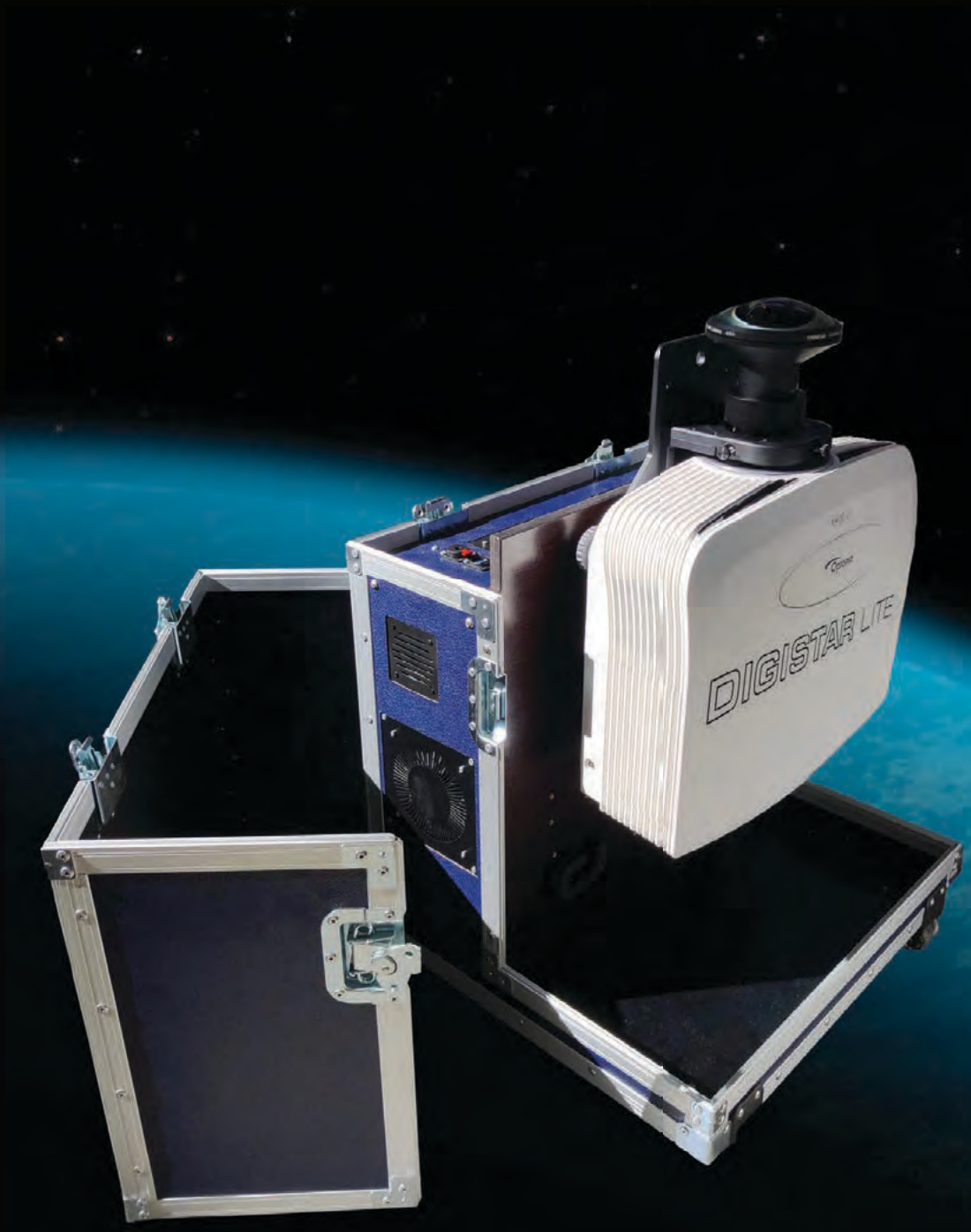
This method uses one set of projectors to display video that runs at up to 120 Hz from two separate (left and right) video streams at a rate of 60 Hz per eye. Glasses with LCD shutters that are timed to the frame rate of the video, blank one eye at a time to produce stereo imagery. Glasses contain electronics and batteries, but still can be machine washed.

INFITEC 3D

This method uses two sets of projectors to display the 3D image. One set of projectors displays the left eye image and the other displays the right eye image. Using a set of filters in the projectors, the left eye image shows the lower frequencies of the RGB colors and the right eye image shows the upper frequencies of the RGB colors. Filters in the passive (non-electronic) glasses cancel the right image in the left eye and vice versa. The combined images re-join both halves of the RGB colors, providing full color fidelity and the full brightness of a single set of projectors.

DIGISTAR LITE

Digistar Lite is the most complete portable planetarium solution. The system is easy to setup and fully controlled from your tablet or iPad with the exclusive Digistar Controller. Many optional plug-ins and custom hardware are available to expand the capabilities of the planetarium.



Ready to Use

With Digistar Lite, setup is fast and simple. The projector sets up in seconds and no special tools are needed. All computer components are easily accessible and only require a single power cord to come online. You can control the planetarium from a tablet (Windows, Android, iPad) or from a laptop.

iPad Interface with Digistar Controller

Digistar Lite can be operated from an iPad. Use your finger to explore the universe and use multiple windows to multi-task. The new Digistar Controller includes manual controls to quickly adjust common parameters in a mobile dome.

Fulldome Shows Included

Each system comes pre-loaded with over 30 fulldome shows. The E&S library has more than 150 fulldome shows, covering a wide array of topics, available for optional licensing. Custom packages are also available.

Optional Software Upgrades

Digistar Lite's functionality can be expanded with software upgrades including: Show Builder, Hi-Res Planetary Surfaces, AMNH Digital Universe, STEAM, NOAA-Science on a Sphere, Solar Dynamic Observatory, Digistar Cloud, Domecasting, and more.

Optional Hardware Upgrades

Additional hardware upgrades are available to customize the Digistar Lite to your needs, such as Ambient RGB LEDs for theater lighting and effects, 5.1 audio output, presenter microphone, and a new accessibility package for the hearing impaired and disabled.