

# IMAX<sup>®</sup>

# HUBBLE 3D

Through the power of IMAX<sup>®</sup> 3D, “Hubble 3D,” narrated by Leonardo DiCaprio, takes moviegoers on an unprecedented voyage through distant galaxies to explore the grandeur and mystery of our celestial surroundings. Experience never-before-seen 3D flights through the farthest reaches of the universe, and accompany spacewalking astronauts on some of the most difficult and important endeavors in NASA’s history.

In May 2009, the crew of the Space Shuttle Atlantis launched a mission to make vital repairs and upgrades to the Hubble Space Telescope, the world’s first space-based observatory, 350 miles above the Earth. On board was an IMAX 3D camera, operated by the shuttle astronauts. It captured stunning sequences of the five intricate spacewalks required to make those repairs, as well as close-up images of the effort to grasp the orbiting telescope with the shuttle’s mechanical arm at 17,500 mph, and one unexpected problem that threatened to sabotage the entire mission.

“Hubble 3D” combines this breathtaking IMAX footage with images taken by the telescope during the nearly 20 years it has been our window into space. Through advanced computer visualization, Hubble’s detailed data becomes a series of scientifically realistic flights that unfold on screen like a guided tour of the universe, through time and space.

The seventh film from the award-winning IMAX Space Team, “Hubble 3D” offers an inspiring and unique look into the legacy of the Hubble Space Telescope and how it has changed our view of the universe and ourselves.

The documentary adventure “Hubble 3D” is an IMAX and Warner Bros. Pictures production, in cooperation with National Aeronautics and Space Administration (NASA).

Narrated by three-time Academy Award® nominee Leonardo DiCaprio, “Hubble 3D” reunites the “Space Station 3D” filmmaking team led by producer and director Toni Myers. Director of photography James Neihouse also served as the astronaut crew trainer. Graeme Ferguson, IMAX co-founder and pioneer producer of many IMAX space films, is the executive producer, and Judy Carroll, the film’s associate producer. The music is composed by Micky Erbe and Maribeth Solomon.

Exclusive IMAX engagements of “Hubble 3D” will begin March 19th.

It is rated G by the MPAA.

[www.imax.com/hubble](http://www.imax.com/hubble)

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### *The Next Best Thing to Being There*

Like their colleagues before them, the Shuttle Atlantis astronauts who flew into space in May 2009 to service the Hubble Space Telescope returned with a desire to share what they had seen, to convey that indescribable sense of wonder from a perspective few people will ever experience.

“Hubble 3D” makes that possible on a grand scale.

Producer/director Toni Myers, who previously guided IMAX audiences into orbit with the acclaimed “Space Station 3D,” says, “Astronauts we’ve worked with have described our footage as ‘the next best thing to being there.’”

With IMAX 3D technology, the invaluable cooperation of NASA and the dedication of a filmmaking team on the ground, “Hubble 3D” offers a vivid, first-person view of the STS-125 Mission: a complex rescue operation during which the astronauts risked their lives to make sure that Hubble would continue to function. The film then takes that journey even further—to places where no human has ventured and possibly never will.

“This is star travel,” Myers attests. “You’re right out there, moving in space. The Hubble Telescope has amassed a monumental amount of data from the distant reaches of the

cosmos, the birth of solar systems and ultra deep field galaxies beyond our own. That data has been turned into three-dimensional flights to transport audiences to the edge of the observable universe in a way most people have never even imagined.”

“‘Hubble 3D’ gives you a real perspective on how our small and fragile planet exists in a volatile and constantly evolving universe,” says Leonardo DiCaprio, who narrates the film. “It reveals the beauty and complexity of space and its vast possibilities.”

“Leonardo shared the same sense of awe we all felt about what we were seeing,” says Myers. “It was an exceptional experience for everyone involved.”

Her connection to the telescope dates back to its beginnings. “We had filmed Hubble before, prior to its launch, and covered some of the first repair mission in 1993, but it had only sent back a few images at that point so we’ve never had the opportunity until now to display its full potential. When you visit the Hubble website and see those incredible pictures you start to think about how they would look on the big screen and how people would react, and that’s how the project came into being. This is what IMAX was made for, to take people where they could never actually go, and it’s what I find so satisfying about making these films.”

Amid the aerial action and dazzling space-scapes, “Hubble 3D” also touches upon the life story of the Hubble Space Telescope, from its inception to this latest dramatic chapter, the fifth and final Shuttle visit intended to ensure its viability for years to come.

Many people remember how Hubble’s auspicious 1990 launch was almost immediately marred by the revelation of a flaw in its primary mirror—a deviation no bigger than 1/50<sup>th</sup> the thickness of a piece of paper—compromising its focus and requiring a 1993 repair mission to install a complex system of additional mirrors to circumvent the problem. Through the ensuing 16 years there have been four service missions, each of which enabled the telescope to cast its giant eye ever-farther and return more comprehensive data about our own galaxy, as well as the formation and composition of solar systems and galaxies well beyond the Milky Way and the existence of objects that burned brightly and expired more than 10 billion light years ago. Considered by many to be the greatest scientific instrument since Galileo’s first telescope, Hubble has provided essential information about how the cosmos was formed and is constantly churning.

Quite literally, notes Myers, “It has changed the way we see the universe.

“One of the most interesting things about it,” she continues, “is that in helping us unravel the secrets of the universe, Hubble has raised more questions than its designers ever anticipated. Where did we come from? How did we get here? Is there anybody else out there? In all those billions of galaxies is there another world like ours?”

“It’s this spirit of exploration and discovery that is Hubble’s true legacy.”

### *Mission STS-125: the World’s Most Dangerous High-Wire Act*

STS-125, the mission documented in “Hubble 3D,” nearly didn’t happen. Originally scheduled for 2006, it was cancelled due to safety concerns following the tragic crash of the Space Shuttle Columbia in February 2003. Despite support from the public and the scientific community, as well as within NASA, it simply didn’t seem worth the risk—that is, until a contingency plan was proposed. NASA would prepare a second standby shuttle as a rescue vehicle, to connect with Atlantis in space and collect its crew should there be a problem. With this precaution in place, in May 2009 the Space Shuttle Atlantis flew up to meet Hubble.

Its seven-member crew was led by Commander Scott D. Altman, marking his fourth venture into space. Alongside him was pilot Gregory C. Johnson, on his inaugural flight.

Mission Specialist K. Megan McArthur, also on her inaugural flight, operated the shuttle’s mechanical arm to grapple and secure the telescope inside the shuttle’s payload bay where it could be reached by the repair teams.

Two pairs of astronauts took turns on five separate EVAs (extra-vehicular activities), suspended in space outside the shuttle to work on the telescope. Mission Specialist John M. Grunsfeld, a veteran of five space flights, was paired with Mission Specialist Andrew J. Feustel, marking his first; and first-time spacewalker Mission Specialist Michael T. Good partnered with Mission Specialist Michael J. Massimino, who had flown twice before.

Throughout training and up to the moments before lift-off, Commander Altman reviewed the possibilities. He recalls, “I’d go through the mission in my mind. ‘What could go wrong? Are we ready to handle it?’ Hubble has a tendency to throw you a curve. We had to imagine all the things that could happen, pre-flight, and come up with solutions.”

“It’s risky, but worth it,” adds Johnson. “There were a tremendous number of people all around the world wanting Hubble back ‘alive’ and it was our job to do that. It was a big

mission. Every second was planned for success.” The accomplishments of STS-125 would determine Hubble’s immediate future: as either an increasingly valuable scientific tool or a mute and useless piece of orbiting detritus.

The mission objectives included upgrades to the telescope’s Wide Field Camera and its Cosmic Origins Spectrograph, plus repairs to the Advanced Survey Camera and Imaging Spectrograph, making Hubble’s vision deeper, clearer and more sensitive to color and light. They also made general repairs, replacing batteries and insulation, installing six new gyroscopes and fixing an instrument that controls the flow of data, recently damaged due to an electrical problem.

Grunsfeld describes some of what audiences will see of the EVA work. “Generally one person rides on the end of the robotic arm which allows him to hold heavy objects, and the other person is the free floater, a little bit more mobile to do some of the other tasks, quickly, while the telescope rotates inside the shuttle’s payload bay.”

Every stage of the spacewalking protocol was choreographed and practiced down to the last motion. In a situation where bumping into something could fatally damage an astronaut’s protective suit and fumbling a tool could mean watching it drift away into eternity, any wrong move could result in a devastating loss. The crew rehearsed extensively in the two years prior to launch, mostly underwater in the world’s largest indoor pool at NASA’s Neutral Buoyancy Lab (NBL) at the Johnson Space Center in Houston, Texas.

Even so, Altman’s prediction about Hubble throwing them a curve came true.

First, Grunsfeld and Feustel encountered a stuck bolt while trying to install the Wide Field camera on day five. It took some time and tense moments, but they finally managed to free it. The crew breathed a collective sigh of relief, but there was worse to come.

On day seven, Massimino and Good were charged with replacing an obsolete piece of equipment with a highly advanced instrument designed to analyze, among other things, the atmosphere of distant planets. The hard part should have been the intricate work inside, but what proved problematic was a stripped bolt on the handle of the plate protecting it.

Massimino recounts, “We practiced so much for that task, over and over, obsessing over every detail. The easiest bolts to remove were the four on top. And in training, zip, zip, zip, they came right out. But there we were and this one was not coming out. It was a

nightmare; the world was going by, the unthinkable happened and I couldn't go to the hardware store.”

Though making light of it afterwards, Massimino's concern about the glitch and its potential repercussions is undeniable. “It's funny what goes through your mind,” he admits. “I was thinking, ‘This is terrible. They're going to write textbooks about this and, instead of Hubble's discoveries, it's going to say: if it wasn't for Mike Massimino we'd know if there was life on other planets.’”

After hours of anxious work, much discussion among the crew and input from Mission Control, the best solution was the simplest, albeit the most counter-intuitive: *break it off*.

Says Feustel, “Breaking the handle off wasn't part of the plan; it's just not normal. In fact, I gave Massimino specific instructions *not* to break anything,” he jokes.

The handle situation finally solved, the astronauts then wrapped up their repairs and celebrated the triumphant re-launch of the Hubble Space Telescope into orbit.

“There were many exhilarating moments caught on film, and certainly one of the best was when they released Hubble back into space,” Myers cites. “This is an amazing crew. They succeeded on such a difficult mission, attempting things that had never been done in space before, beyond even what the planners thought they could achieve. To see them nail it, day after day, and to share a little in that sense of achievement, was very special.”

Expressing the sentiments of her colleagues, McArthur says, “It's a tremendous feeling. It means so much to all of us, to be able to make a small contribution to the body of information we have about our universe.”

### *Astronauts as Filmmakers*

The space shuttle could not accommodate a traditional film crew, so, in addition to their day jobs, the STS-125 astronauts did some moonlighting as camera operators.

To prepare, Myers and “Hubble 3D” director of photography James Neihouse put the astronauts through an eight-month course of basic cinematography, with the help of Dave Williams, of NASA contractor United Space Alliance.

Neihouse began working on IMAX space-themed films with 1982's “Hail Columbia!” and estimates he has trained nearly 130 astronauts for 20 different shuttle flights over the past

20 years. “Part of my job was showing them how to use an IMAX camera in space—how to shoot, how to frame, how to take exposures, the whole nine yards,” he says.

There is no room for error with the IMAX 3D cargo bay camera, specially designed for space flight, because it holds only eight minutes of film. That might not seem like much, but in IMAX terms, he explains, “Eight minutes runs 5,000 feet, nearly a mile, and weighs 54 pounds. That’s the largest roll of film in the world and we’re really limited to the size and weight of what we can send into space.”

IMAX and NASA worked together on preparing and certifying the IMAX 3D camera for the journey. Packed into the cargo bay with a crane, its 700-pound bulk became part of the ship’s ballast. “The camera fits into its own pressurized container because it requires its own vacuum to pull the film onto the plate for an exposure,” says Myers. From there, it was controlled remotely from inside the shuttle’s flight deck by Gregory Johnson, elected as its primary operator. He decided when to shoot and with which of three lenses: a 30 millimeter very wide fish-eye, a 40mm or the close-up 60mm.

As the astronauts practiced for their EVAs, Myers and Neihouse monitored their training at the Johnson Space Center and also placed a replica of the camera into the pool, to help determine what activities it would see that would make good shots for the film. Since the Hubble repairs would be done in the area facing Atlantis’ payload bay, IMAX would have a front-row seat for the action—but only if it was positioned correctly. Says Neihouse, “Eighteen months ahead of the flight we had to pick our spot for the camera, decide where it was going to be panned and how much it would be tilted.”

Complementing the main IMAX 3D camera, numerous high-definition digital cameras were positioned at spots inside and outside the shuttle to document the entire mission. Some were mounted on the spacewalking astronauts’ helmets, with images transmitted by radio frequency to the shuttle, recorded on board and forwarded to the ground. Handheld video cameras were used to conduct interviews and catch the personal interaction inside the flight deck. Any footage impossible to shoot with the IMAX camera was later converted into the format utilizing proprietary IMAX DMR (digital re-mastering) technology and then converted into 3D through IMAX’s live action 2D-to-3D technology.

Says astronaut Good, “There were cameras just hanging out by the windows and you could grab one and either take a picture of what was going on inside or look out the window and take a shot of the Earth going by, which was spectacular.”

To offer moviegoers the power of a launch up close, a remote-control IMAX 3D camera was also secured on the launch pad in a blast box drilled into the cement and covered with sand bags, 57 meters from the base of the solid rocket boosters. Says Myers, “That’s an in-your-face launch!” Director of photography Neihouse also staked out another key spot “high on the service structure, looking down at the shuttle’s nose,” she adds, and at the VIP sites and towers further away, for the long view.

Capturing the audio of those thrilling seconds were what she laughingly calls “sacrificial microphones. They get fried, but you can extract the sound that leads up to the point of ignition just before they fry. Other microphones get that popcorn sound you hear when the shuttle is going up through maximum dynamic pressure. The sound possibilities are wonderful. It’s really fun to mix a good launch.”

Working with the astronauts, Myers developed “a kind of shopping list of scenes we would like to get, to budget those crucial eight minutes with extreme care. We tried to find key moments of the spacewalks. We spent a lot of time at the pool where they did their rehearsal runs underwater and isolated approximately 40 opportunities for shots. Then we whittled those down to 15 or 16. It’s very difficult to judge when to press that button even if it only runs maybe 20 or 25 seconds at a time. You could press it and the spacewalker could decide, ‘Well, I’m not quite ready to do that thing,’ and you would have expended 10 seconds just finding out. So there was a lot of pressure on our astronaut photographer.”

Myers did not have a script, per se, but followed the daily schedule and reviewed the shot list with Pilot Johnson while at Mission Control during the 13-day mission. As certain shots were accomplished, some fell off the list and were replaced by other opportunities. She critiqued the footage immediately and returned comments by e-mail for the next round, sometimes a course-correction or direction on what to shoot next and a new priority list. Either she or Neihouse remained at Mission Control throughout the flight or were on call 24 hours a day.

Their biggest challenge was the rapidly changing light. At orbiting speed, Atlantis circled the Earth every 90 minutes, entering either a sunrise or sunset every 45 minutes. With

an EVA in progress and heading toward a crucial cinematic opportunity, Johnson would be poised to shoot, while, on the ground, Myers would be holding her breath; both of them counting the minutes before one of those sunsets or sunrises altered their light.

The mission always took priority. The astronauts never staged or delayed anything to accommodate filming, which, Johnson concedes, was their second-biggest challenge. “We had no control over the subjects. They weren’t acting; they were doing their work. We had to take what the filmmakers felt was their concept for what the scene should be, and what they wanted us to shoot, and just try to capture that as it happened.”

Myers has nothing but praise for Johnson and his fellow crew members, acknowledging that it was truly a group effort, for “all the people on the flight deck and outside coordinating to make a shot happen. We were very fortunate, and are grateful to all of them.”

For the astronauts, their creative efforts helped to accomplish what they all wanted—to share what they had seen from the vantage point of space with the rest of us. “So many people dedicate their lives to making missions like this a success but only a few of us get to go up there and see Hubble with the night sky behind it and look back at Earth. It’s an amazing sight,” says Altman.

Massimino adds, “No words can describe the beauty of what you’re seeing. If you were in heaven and could look down on our Earth, this is what the view would be. It’s like looking at paradise. It’s perfection.”

### *T Minus 10...9...8...7...*

Having revealed some of the planning, effort and risk that goes into servicing the Hubble Space Telescope, “Hubble 3D” also offers a look at what makes it all worthwhile, in stunning 3D fly-throughs based on information the telescope has given us. Reaching toward the furthest points of the known universe, it allows audiences to embark on the virtual joyride of a lifetime. First stop: star clusters of the Orion Nebula.

“Hubble 3D” passes by bright star Sirius, nearest to the Earth at 50 trillion miles, and then beyond Orion’s Belt to enter a field of gaseous clouds and dust that shroud a nursery of dynamically emerging stars. Each star is a potential developing solar system, now struggling

to survive the million-mile-per-hour blasts of wind fueled by their combined energy. Meanwhile, in another part of the nebula, a more advanced system is forming planets, in much the same way that our own solar system must have once begun.

Myers notes, “It’s fortunate that stellar winds have blown a hole in those clouds, providing Hubble an excellent opportunity to record the goings-on inside. That’s how we were able to gather data on the birth of solar systems and the evolution of planets around them.”

Changing directions takes the journey through our own galaxy, the Milky Way, en route to neighboring Andromeda, two and a half million light years out, and beyond that the bustling hub of the Virgo Cluster, home to two thousand galaxies. Within Virgo, a galaxy ten times the size of the Milky Way harbors a massive black hole casting off a magnitude of high-energy radiation.

The imaging team at the Space Telescope Science Institute in Baltimore, Maryland, led by astrophysicist Dr. Frank Summers, was instrumental in producing these three-dimensional space flight simulations, along with providing scientific guidance and input into the 3D process. By combining Hubble’s raw data of the same object taken with different telescopic instruments, they were able to layer the images and give them depth and texture in a way that enables a realistic fly-through effect. They integrated information about composition, ionization, temperatures, color, volatility and other specifics compiled through the years by teams of scientists, to provide a detailed and fluid model of wide portions of the cosmos. Summers and the production team also used the state-of-the-art computing facilities at the Advanced Visualization Laboratory at the University of Illinois at Urbana-Champaign, led by Dr. Donna Cox. This lab, a frequent contributor to film and television projects, is part of the National Center for Supercomputing Applications (NCSA) and helped to put Hubble’s images into motion for the film.

The teamwork required to prepare these images for the screen is part of the larger community of people Toni Myers calls “the Hubble family,” which includes herself and the IMAX filmmaking team. “Since well before its first launch, there were thousands of people involved in getting Hubble into the sky and keeping it there,” she says. “There are scientists, engineers, teachers and students who interpret its data and use its resources to do their jobs,

and then share that with others. So many people around the world have either worked on Hubble in some way or rely upon it every day.”

The STS-125 Mission is particularly significant in that it marks NASA’s last scheduled tune-up for the great telescope. After more than 20 years of service, Hubble will be retiring sometime in the next several years—in fact, one of the items Atlantis installed in May 2009 was a connector by which a robotic module will eventually guide it through de-orbit. In 2014, NASA is scheduled to launch Hubble’s successor, the James Webb Telescope, designed to examine the earliest portions of the universe by focusing on objects so old their light has shifted into the infrared range. The Webb Telescope will add to the vast stores of knowledge that Hubble has already gathered.

“The more we learn, the farther we reach with our minds and technology. With that comes a greater appreciation for the uniqueness of our own home. There is still so much for us to discover,” says DiCaprio.

“The story of the Hubble Telescope is the story of human curiosity,” Myers reflects. “There is no way to cover everything it has achieved in a single film, but my hope is that ‘Hubble 3D’ will both entertain and inspire. I’d love for audiences to leave the IMAX theatre wanting to know more.”

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## ABOUT THE NARRATOR

**LEONARDO DiCAPRIO** is an award-winning actor and a three-time Academy Award<sup>®</sup> nominee. He most recently garnered a 2009 Best Actor Golden Globe nomination for his work as Frank Wheeler in “Revolutionary Road.”

DiCaprio earned his most recent Oscar<sup>®</sup> nod in 2007 for his performance in Edward Zwick’s drama “Blood Diamond,” also receiving Golden Globe, Critics’ Choice and Screen Actors Guild (SAG) Award<sup>®</sup> nominations for his work in the film. That same year, he garnered Golden Globe, BAFTA Award, Critics’ Choice Award and SAG Award<sup>®</sup> nominations for his role in the Oscar<sup>®</sup>-winning Best Picture “The Departed,” which marked

his third collaboration with director Martin Scorsese. He also shared in a SAG Award® nomination for Outstanding Cast Performance with his castmates from “The Departed.”

He previously earned an Academy Award® nomination for his performance in Scorsese’s acclaimed 2004 biopic “The Aviator.” DiCaprio’s portrayal of Howard Hughes in that film also brought him a Golden Globe Award for Best Actor in a Drama, as well as Critics’ Choice Award and BAFTA Award nominations. In addition, he was honored with two SAG Award® nominations, one for Best Actor and another for Outstanding Cast Performance as part of the “The Aviator” cast. DiCaprio also starred alongside Russell Crowe in Ridley Scott’s “Body of Lies” and in 2009, reunited with Kate Winslet to star in Sam Mendes’ “Revolutionary Road.”

In February of this year, the highly anticipated thriller “Shutter Island” marked DiCaprio’s fourth collaboration with Academy Award®-winning Director Martin Scorsese. He recently completed filming Chris Nolan’s “Inception,” which will be released later this year.

In addition, DiCaprio created his own production company, Appian Way. Under the Appian Way banner, he wrote, produced and narrated the acclaimed environmentally themed documentary “The 11th Hour.” DiCaprio also produced “Gardener of Eden” and “Public Enemies,” and executive produced “The Aviator” and “The Assassination of Richard Nixon.”

Born in Hollywood, California, DiCaprio started acting at the age of 14. His breakthrough feature film role came when director Michael Caton-Jones cast him as Tobias Wolff in the 1993 screen adaptation of Wolff’s autobiographical drama “This Boy’s Life,” in which DiCaprio starred with Robert De Niro and Ellen Barkin. That same year, he co-starred with Johnny Depp in Lasse Hallström’s “What’s Eating Gilbert Grape,” earning his first Oscar® and Golden Globe nominations for his performance as a mentally handicapped young man. In addition, he won the National Board of Review Award for Best Supporting Actor and the Los Angeles Film Critics Association’s New Generation Award for his work in the film.

In 1995, DiCaprio had starring roles in three very different films, beginning with Sam Raimi’s Western “The Quick and the Dead,” with Sharon Stone, Gene Hackman and Russell Crowe. He also garnered praise for his performance as drug addict Jim Carroll in the harrowing drama “The Basketball Diaries,” and for his portrayal of disturbed pansexual poet

Arthur Rimbaud in Agnieszka Holland's "Total Eclipse." The following year, DiCaprio starred in Baz Luhrmann's contemporary screen adaptation of "William Shakespeare's Romeo + Juliet," for which he won the Best Actor Award at the Berlin International Film Festival. In addition, he joined an all-star ensemble cast in "Marvin's Room," sharing in a SAG Award® nomination for Outstanding Cast Performance with his fellow cast members, including Meryl Streep, Diane Keaton and Robert De Niro,.

In 1997, DiCaprio starred in the blockbuster "Titanic," for which he earned a Golden Globe Award nomination. The film shattered every box office record on its way to winning 11 Oscars®, including Best Picture. His subsequent film work includes dual roles in "The Man in the Iron Mask"; "The Beach"; Woody Allen's "Celebrity"; Steven Spielberg's "Catch Me If You Can," for which he earned another Golden Globe nomination; and "Gangs of New York," which was his first film for director Martin Scorsese.

Apart from his acting career, DiCaprio is well known for his dedication to helping the environment on a global level. By launching the Leonardo DiCaprio Foundation in 1998 and later LeonardoDiCaprio.org, he has collaborated with other organizations to foster awareness of the environment. The Foundation places particular emphasis on the issues of global warming, alternative and renewable energy sources and the preservation of the planet's biodiversity. He serves on the boards of the NRDC and Global Green USA. In 2007 he wrote, produced and narrated the acclaimed environmentally themed documentary "The 11th Hour."

In early 2008 the DiCaprio Foundation joined the California Community Foundation, and is now known as The Leonardo DiCaprio Fund at CCF. The fund will continue to support environmental causes through grantmaking and active participation.

## **ABOUT THE FILMMAKERS**

**TONI MYERS** (Director / Producer) most recently served as a producer, editor and co-writer for director Howard Hall's 2009 underwater IMAX® 3D adventure "Under the Sea 3D," narrated by Jim Carrey. Prior to this, she teamed with Hall in the same capacity on the highly successful "Deep Sea 3D," which won Best Large Format Film awards at the

prestigious WildScreen and Jackson Hole Natural History film festivals, and has grossed over \$85 million.

After attending the Ontario College of Art, Myers began her career as an assistant editor in Toronto, working on commercials, episodes of the CBC series “Telescope” and the groundbreaking feature “Nobody Waved Goodbye.” This led to work on the successful and controversial CBC public affairs program “This Hour Has Seven Days,” and the dramatic series “Forest Rangers” and “Seaway.”

In 1965, after moving to New York, Myers met Graeme Ferguson, later to become co-inventor and co-founder of IMAX. Their early work together on Ferguson’s dramatic multi-image film “Polar Life” was a huge success at Montreal’s EXPO ’67 and proved the beginning of a partnership which continues today and includes more than 15 films.

Following the Expo, Myers moved to England to work on such projects as Allan King’s “Who Is” series about artists; BBC’s “Horizon”; music projects for the Beatles’ company, Apple; and individual features and videos for John Lennon and Yoko Ono. She also collaborated on a documentary feature commissioned by the band Santana.

While in England, Myers was invited to return to Canada to edit Graeme Ferguson’s pioneering all-IMAX film, “North of Superior” to show at Ontario Place. It became an instant classic and still runs as a signature film. Myers went on to edit films for the CBC’s experimental dramatic series “For the Record,” for directors Gilles Carle, Claude Jutra, and Francis Mankiewicz, and won the CBC’s Wilderness Award for her work on Jutra’s “Ada.” She also edited Gail Singer’s award-winning documentary for the National Film Board’s Studio D, “Stories from the North and South.”

Myers’ long association with large format films includes multiple IMAX productions, including “Ocean,” “Snow Job,” “Hail Columbia!” and “Heart Land.”

She was associate producer and supervising editor on “Rolling Stones: At the Max.” A key member of the IMAX Space team, founded by Ferguson, Myers also wrote and edited the multiple award-winning space films “The Dream is Alive,” “Destiny in Space” and “Blue Planet,” which she also narrated. These were followed by “L-5: First City in Space” and “Mission to Mir,” which she also co-produced. Myers directed, produced and wrote the 2002 IMAX space film “Space Station 3D,” which has grossed over \$100 million since its release, winning the Large Format Film Industry’s Best Film Award.

During their extensive history-making IMAX space films, Ferguson and Myers have trained over 120 astronauts and cosmonauts. In 2009, the astronauts of the STS-125 crew presented Myers with the Silver Snoopy Award in recognition of her excellence and achievements in bringing the space experience to IMAX audiences around the world.

**JAMES NEIHOUSE** (Director of Photography / Astronaut Crew Trainer), born and raised in Paris, Arkansas, is a graduate of the Brooks Institute of Photography.

His career focus began moving toward large format motion picture production within months of graduation when he got the opportunity to work with IMAX<sup>®</sup> founder and co-inventor Graeme Ferguson on the IMAX Dome<sup>®</sup> production “Ocean,” filming underwater off the coast of Southern California. Since then, Neihouse has continued to work with Ferguson on numerous IMAX projects, including all of the IMAX space films.

In 1980, less than four years after earning his degree, Neihouse was the first to fly into the newly created crater of Mount St. Helens as director of photography on “The Eruption of Mt. St. Helens,” the first IMAX film nominated for an Academy Award.<sup>®</sup>

Neihouse has worked on more than 35 large format films, including “Hail Columbia,” “The Dream Is Alive,” “Blue Planet,” “Destiny In Space,” “Mission To Mir,” “Space Station 3D,” “Pulse, A Stomp Odyssey,” “Rolling Stones: At The Max,” “NASCAR 3D, The IMAX Experience,” “Jane Goodall’s Wild Chimpanzees,” “India, Kingdom of the Tiger,” “Roving Mars,” “Michael Jordan to The Max,” “Bears,” “Race The Wind,” “The Great Barrier Reef,” “On The Wing,” “Alamo, The Price of Freedom,” “Skyward,” “Arkansas: Center of Attraction,” “Darwin on the Galapagos” and “Mexico.” He has also worked on many commercials, features and documentaries in other formats. Neihouse’s work has taken him from the Artic Circle to the jungles of India, from South Pacific coral reefs to Sub-Saharan Africa and from the decks of The America’s Cup yachts to the cockpit of the Space Shuttle. In his work with NASA, he has trained more than 20 shuttle crews on the intricacies of IMAX filmmaking.

Neihouse served as director of photography on “Ocean Oasis” for Summerhays Films. Released in 2000, this natural history film about the Baja Peninsula and the Sea of Cortés won the Best Feature Film award at the 2001 Jackson Hole Wildlife Film Festival and a Panda Award, also known as the “Green Oscars,” in 2002, from the WildScreen Film Festival in

Bristol, England. Other recognition for his work includes the Silver Snoopy Award, given in April 2001 by the Expedition 1 crew of the International Space Station, for excellence in his field. He also received a NASA Group Excellency Award for his work during the preliminary construction missions of the International Space Station. Additionally, Neihouse received the Giant Screen Cinema Association Award for Best Cinematography as co-director, director of photography and astronaut training manager for the 2002 IMAX® 3D film “Space Station 3D,” which was also voted Best Film by the association and named Best of Festival at the 2002 Large Format Cinema Association Festival.

**GRAEME FERGUSON** (Executive Producer), co-founder and past president of IMAX Corporation, has been an active filmmaker since the early 1950s. In 1967, his multi-screen film “Polar Life” was one of the hits of EXPO 67 in Montreal. Building on that success, Ferguson and his partners invented the IMAX system, which, as of December 2009, has expanded to 430 IMAX theaters operating in more than 48 countries.

Ferguson has also been one of the corporation’s principal filmmakers. He pioneered the IMAX space films, which include “Hail Columbia!,” “The Dream is Alive,” “Blue Planet” and “Destiny in Space.” He was co-producer on “L5: First City in Space” and “Mission to MIR,” and consulting producer on “Space Station 3D.” These space films have been seen by nearly 100 million IMAX moviegoers, and led to Ferguson’s receiving the Silver Snoopy Award from the astronauts.

Ferguson’s other IMAX films include “North of Superior,” “Man Belongs to the Earth,” “Snow Job,” “Ocean” and “Journey to the Planets.” He was a producer or executive producer on the IMAX 3D films “Into the Deep,” “Deep Sea” and “Under the Sea.” “North of Superior” won a Genie Award; “The Dream is Alive” and “Blue Planet” won La Geode and Maximum Image awards; and “Into the Deep” won a Maximum Image Award.

Ferguson was invested into the Order of Canada, and has received an Honorary Doctorate from the University of Bradford and a Doctorate of Sacred Letters from Victoria University at the University of Toronto. His other honors include The Royal Canadian Academy of Arts Medal, The Canadian Government Environmental Achievement Award (for “Blue Planet”) and a Special Achievement Award from the Academy of Canadian Cinema

and Television. Ferguson has also received the IMAX Founders' Award and been named an honorary lifetime member of the Canadian Society of Cinematographers.

**JUDY CARROLL** (Associate Producer) joins filmmakers Toni Myers and Graeme Ferguson on their fifth collaboration, "Hubble 3D." Prior to this, Carroll collaborated with Ferguson and Myers on several other successful IMAX<sup>®</sup> space films, including "L5: First City in Space," "Mission to Mir," "Destiny in Space" and "Blue Planet." Carroll also served as associate producer on the extremely successful 2002 IMAX<sup>®</sup>3D film, "Space Station 3D," which was voted Best Film by the Giant Screen Cinema Association and named Best of Festival at the 2002 Large Format Cinema Association Festival.

In addition to her work in IMAX space films, Carroll also has a rich history in IMAX underwater films. In 1994, she worked with director and acclaimed wildlife documentarian Howard Hall and producer Graeme Ferguson on the very first IMAX 3D underwater film, "Into the Deep," and served as associate producer on the award-winning 2006 "Deep Sea 3D," narrated by Johnny Depp and Kate Winslet. Most recently, in 2009, Carroll served as line producer alongside Myers, Ferguson and Howard and Michele Hall on the IMAX 3D underwater adventure "Under the Sea 3D," narrated by Jim Carrey.

In addition to traditional documentaries, Carroll has also worked with IMAX producers Hugh Murray and Lorne Orleans on many of the IMAX DMR<sup>®</sup> films, including the first two Hollywood films to incorporate images converted from 2D to IMAX 3D: "Superman Returns" and "Harry Potter and The Order of the Phoenix."

**MICKY ERBE** and **MARIBETH SOLOMON** (Composers), an award-winning team based in Toronto, have collaborated with a base of Toronto musicians for many years on international projects, and possess a great love for the world of music. They have worked on diverse projects including films, IMAX<sup>®</sup> features, telefilms, series, commissions and various CD/songwriting projects.

Erbe and Solomon are uniquely acquainted with the IMAX medium and its wonderful opportunities for a musical palette having scored many IMAX films prior to "Hubble 3D," including "North of Superior," "Nomads of the Deep," "Ocean," "Hail, Columbia," "The Dream is Alive," "Blue Planet," "Into the Deep," "Destiny in Space," "L5: First City in

Space,” “Mission to Mir” and “Space Station 3D.” Most recently, Erbe and Solomon scored the 2009 IMAX® 3D underwater adventure “Under the Sea 3D.”

Erbe and Solomon were nominated for an Emmy Award for their music in “Earth: Final Conflict,” a Gene Roddenberry science fiction adventure series for which they received five Gemini Awards. They have also received numerous awards for their work on a wide range of documentaries, features, mini-series and television movies, including “Women of Windsor,” “Friends at Last,” “The Shari Karney Story,” “John Woo’s Blackjack,” “To Save the Children” and “Milk and Honey.” Additionally, Erbe and Solomon have written songs and scores for animated projects such as “Babar” and “Care Bears.”

Their work on television series scores include “Adderly,” “Nothing Too Good for a Cowboy,” “Streetlegal,” “Side Effects” and “Legendary Sin Cities.” Their documentary feature scores include “Behind the Veil” and “The Struggle for Democracy” Series.

They have written for artists such as Anne Murray, Natalie Cole and The Nylons, and Robby Coltrane sings their song in the new family feature “Gooby.” Their work with the Toronto Symphony Orchestra, with their unique pop/symphonic project Sonic Bloom, has created orchestral arrangements for pop artists as varied as Esthero, Bare Naked Ladies, Ron Sexsmith and Jacksoul. Erbe has also created and produced seven albums for the Spitfire Band, and the pair has also written for diverse groups such as Canadian Brass and Bowfire.

Erbe and Solomon are also creating an opera using Canadian music and world influences.

## **ABOUT THE ASTRONAUTS**

**COMMANDER SCOTT D. ALTMAN** is a native of Illinois. A retired captain in the United States Navy, he has a BS in Aeronautical and Astronautical Engineering from the University of Illinois and an MS in Aeronautical Engineering from the Naval Postgraduate School. The former test pilot has logged over 5,000 flight hours in more than 40 types of aircraft.

In 1995, Altman was selected as an astronaut candidate by NASA. His spaceflight experience includes serving as pilot on STS-90 in 1998 and STS-106 in 2000; and as Mission

Commander on STS-109 in 2002, the fourth Hubble Telescope servicing mission, and STS-125. To date, Altman has logged more than 51 days in space.

**PILOT GREGORY C. JOHNSON**, of Washington, is a retired captain in the United States Navy and holds a BS in Aerospace Engineering from the University of Washington. A former test pilot, Johnson has logged more than 9,500 flying hours in 50 aircraft and performed over 500 carrier landings.

In April 1990, Johnson was accepted as an aerospace engineer and research pilot for the NASA Johnson Space Center Aircraft Operations Division, Ellington Field, Texas. In 1998, he was selected as an astronaut candidate. After serving in various technical assignments within the astronaut office, he was selected for his first spaceflight as pilot on STS-125, and has logged almost 13 days in space.

**MISSION SPECIALIST DR. JOHN M. GRUNSFELD**, of Chicago, is a veteran of five space flights and has logged over 58 days in space, including 57 hours and 90 minutes in eight spacewalks. Grunsfeld has worked on several technical assignments within NASA since being selected as an astronaut candidate in 1992. During the George W. Bush Administration, he served as Chief Scientist detailed to NASA Headquarters, where he helped develop the President's Vision for Space Exploration.

Grunsfeld earned a BS in Physics from the Massachusetts Institute of Technology, and both an MS and a Doctorate in Physics from the University of Chicago.

**MISSION SPECIALIST DR. MICHAEL J. MASSIMINO** was selected as an astronaut candidate by NASA in May 1996. Massimino is a veteran of two spaceflights, STS-109 in 2002 and STS-125. He has logged a total 571 hours and 47 minutes in space, including more than 30 hours in four spacewalks.

Massimino received a BS in Industrial Engineering from Columbia University, an MS in Mechanical Engineering, an MS in Technology and Policy, a Degree of Mechanical Engineer and a Doctorate in Mechanical Engineering from Massachusetts Institute of Technology.

**MISSION SPECIALIST DR. K. MEGAN McARTHUR**, a Californian, received a BS in Aerospace Engineering from the University of California, Los Angeles, in 1993, and a Doctorate in Oceanography from the University of California, San Diego, in 2002. At Scripps Institution of Oceanography, McArthur served as Chief Scientist during at-sea data collection operations, and has planned and led diving operations during sea-floor instrument deployments and sediment-sample collections.

In July 2000, McArthur was selected as a Mission Specialist by NASA, and assigned to various technical assignments within the astronaut office before being assigned to her first spaceflight, STS-125. With the completion of that mission, she has logged almost 13 days in space.

**MISSION SPECIALIST DR. ANDREW J. FEUSTEL** is a native of Michigan. He earned an AS from Oakland Community College; a BS in Solid and Earth Sciences and an MS in Geophysics from Purdue University; and a Doctorate in Geological Sciences, specializing in seismology, from Queen's University in Kingston, Ontario.

In July 2000, Feustel was selected as a Mission Specialist by NASA. He was assigned various technical duties within the astronaut office before his first spaceflight, STS-125. During that mission, Feustel logged almost 13 days in space, including nearly 21 hours devoted to three spacewalks.

**MISSION SPECIALIST MICHAEL T. GOOD** is an Ohio native. A colonel in the United States Air Force, he received his BS and MS in Aerospace Engineering from the University of Notre Dame. He has logged over 2,650 hours in more than 30 different aircraft.

Good entered the Astronaut Candidate program in 2000, and took part in his first spaceflight, serving as Mission Specialist 1, on STS-125. Upon completion of this mission, he logged almost 13 days in space, including 16 hours in two spacewalks.