



Time Capsule to Mars™ (TC2M) Fact Sheet

- *Time Capsule to Mars™ (TC2M)* is the world's first student-led interplanetary mission that will design, launch, and land a time capsule on the surface of Mars.
- TC2M intends to become the first private mission to Mars, the first interplanetary CubeSat mission, the first interplanetary test of ion-electrospray propulsion, and potentially the largest crowdfunded project in history.
- *Time Capsule to Mars™* was conceived at the 2013 Humans to Mars Summit as a means to celebrate the human race's thirst for space exploration at a time when we are beginning to look toward other planets for colonization.
- The mission seeks to close the gap that currently exists between student interest and the opportunities available to advance space exploration; this mission seeks to make space exploration about each individual by enabling them to take part in the mission as a virtual astronaut.
- The mission hopes to inspire young people around the world by enabling them to upload their picture to the spacecraft, and travel with it via virtual Mission Control portals as it launches, leaves Earth orbit, transits space, and ultimately lands on Mars. This makes them virtual members of the crew, learning about space and applying their knowledge along the way.
- Carrying messages from people from all corners of Earth in the form of text, images, audio and video clips, our state-of-the-art capsule will remain as a crucible of today's human race to be rediscovered by future colonists of the Red Planet.
- By becoming a project of Explore Mars, Inc., the pre-eminent Mars-focused non-profit, TC2M has been able to tap into an extraordinary network of aerospace visionaries and leaders.
- The payload, a digital time capsule, was decided upon as a way to involve the greatest number of people, and after we realized that landing a time capsule on Mars was within the realm of possibility for student teams. We wanted a mission that was both bold yet achievable. This mission strikes the perfect balance.
- The purpose of the mission is threefold:
 - Technological: Enhance the portfolio of student-developed technologies for the aerospace sector and provide a means for these technologies to get into space.
 - Educational: Create an educational vehicle to inspire today's youth and reignite a passion for science in general and aerospace in particular.

- Humanitarian: Give people from all corners of the Earth an opportunity to send a timeless message to our future Mars colonists.
- Students teams from partner schools (currently consisting of Duke, MIT, Stanford, and UCONN but expanding to schools worldwide) are supported by an advisory board ranging from space enthusiasts to former astronauts, sponsors such as Lockheed, ATK, Aerojet Rocketdyne, Deep Space Industries, and others, and a global volunteer network.
- Student technical teams are focused on designing and launching a spacecraft carrying the time capsule payload as well as scientific instrumentation for advanced space-based experiments to progress later human-based flights by other entities. The spacecraft itself will be in the CubeSat class, measuring 0.3m x 0.4m x 0.1m, and will be propelled by revolutionary ion electrospray propulsion – a technology with the potential to reduce transport-to-Mars time to as little as four months.
- Scientific experiments will seek to measure interplanetary radiation levels to help guide later human flight design. Up to now, only one data point exists for radiation levels between Earth and Mars, and TC2M will seek to measure the effectiveness of different radiation shields along the mission path.
- Students from all over the world will be supporting the technical, scientific and business operations of the mission. To help make the mission successful, the Students for the Exploration and Development of Space (SEDS) organization will be engaging its membership of more than 10,000 students at universities across six continents.
- The 4-minute video found on our homepage helps explain why TC2M was started and how to get involved.
- More information about this mission and its progress, as well as an inspirational video from our supporters, can be found at www.timecapsuletomars.com
- Don't get left behind. Upload here (www.timecapsuletomars.com/#upload) today!



NEWS RELEASE

Press Contacts:

Andrea Oliveira
Phillips & Company
(512) 922-7505
aeoliveira@phillipscompany.com

Anath Hartmann
Phillips & Company
(301) 728-6011
ahartmann@phillipscompany.com

Time Capsule to Mars™ Launches Largest Crowdfunding Campaign in History to Realize First Private Mission to Mars Before 2019

Leaders from Academia, Aerospace Rally Behind \$25 Million Student-Led CubeSat Mission Which Will Carry Millions of Digital Images, Video and Data to the Red Planet

WASHINGTON, D.C. – June 24, 2014 – At a press conference Monday, [Time Capsule to Mars™](#) (TC2M), a project of [Explore Mars](#), officially launched the largest crowdfunding campaign in history to realize the world's first privately-funded and student-led interplanetary mission to Mars. The team will design, launch, fly and land a CubeSat-based spacecraft on the surface of Mars, carrying digital content from tens of millions of people across the globe for future colonists of the Red Planet to discover.

The \$25 million mission will be funded by people across the globe that upload their personal digital media in the form of images, text, audio and video clips at the cost of 99 cents each (up to 10 megabytes). For those in the developing world, digital media will be free of charge and underwritten by corporate sponsors.

The mission has also garnered support from leading organizations and individuals in government, academia and the private sector including ATK, Aerojet Rocketdyne, Deep Space Industries, Draper Laboratory, Duke University, Lockheed Martin, MIT, NASA, Remarkable Technologies, Stanford University, UConn and Uwingu. Charlie Precourt, vice president and general manager of ATK Space

Launch Division and former NASA chief astronaut; and Kent Rominger, vice president, business development of ATK and former NASA chief astronaut are special advisors to this project.

“We will make history by connecting humanity’s shared experience with the first pioneers to walk on Mars,” said Emily Briere, Time Capsule to Mars™ founder, mission director and Duke University senior student. “This mission is bigger than any one University, one company, or one country. We have come together to unite and inspire humanity under one mission, as one race, in the spirit of global cooperation and peace as we collectively seek to colonize the first off-world planet.”

The mission will also be the first of its kind to test critical new technologies in propulsion and networking. TC2M will incorporate the use of “quartz storage technology” to preserve and protect the data for potentially several millions of years. The mission will also trial Ion Electrospray propulsion developed at MIT, which was designed to reduce travel time to Mars. Delay Tolerant Networking (DTN) will also be deployed to begin testing for a future deep space Internet communications network.

Said Jon Tidd, Time Capsule to Mars™ director of fundraising and marketing, recent production intern at Space Exploration Technologies (SpaceX) and Fuqua School of Business and Duke University graduate student, “We hope to inspire and educate young people worldwide by enabling them to personally engage and be part of the mission. The distributed approach to funding and personal engagement will ultimately guarantee our success.”

Engaging young students is a critical part of the TC2M mission strategy. Students will be able to access their own personalized “Mission Control” portals to play a virtual role in the mission, while tracking vehicle data across deep space to its landing point on Mars.

To upload images and become part of this historic mission to Mars, visit www.timecapsuletomars.com/#upload. Visit www.timecapsuletomars.com or www.tc2m.com for mission milestones or to learn how you can get involved.

About Time Capsule To Mars™

The world’s first student-led interplanetary mission, Time Capsule to Mars™ (TC2M), has a goal to design, launch and land intact a time capsule on Mars containing data that memorializes the digital keepsakes of the human race on Earth in the current decade as we set out to colonize the first off world planet in humanity's history. Time Capsule to Mars™ (TC2M) intends to be the largest-ever crowdfunded science endeavor, aiming to raise an estimated \$25 million to accomplish the mission. TC2M is a project of the non-profit Explore Mars (www.exploremars.org). Read more about our mission [here](#), follow us [@TimeCapsuleMars](#) or #TC2M, and on [Google+](#).

About Explore Mars

[Explore Mars](#) was created to advance the goal of sending humans to Mars within the next two decades. To further that goal, Explore Mars conducts programs and technical challenges to stimulate the development and/or improvement of technologies that will make human Mars missions more efficient and feasible. In addition, to embed the idea of Mars as a habitable planet, Explore Mars challenges

educators to use Mars in the classroom as a tool to teach standard STEM curricula. Explore Mars, Inc. is a 501(c)(3) non-profit corporation organized in the Commonwealth of Massachusetts.

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Time Capsule to Mars™ (TC2M) Team Bios



Emily Briere, Mission Director

Emily currently studies at Duke's Pratt School of Engineering, where she pursues a Mechanical Engineering degree with an Aerospace Certificate and Math Minor. She is presently Mission Director of Time Capsule to Mars, a digital mission to Mars which will build, launch, transit, and land on Mars a time capsule containing tens of millions of images uploaded from every corner of the Earth. She will be at Lockheed Space Systems this summer working on the InSight Mars lander.

Last summer, she worked at NASA Academy at Ames Research where she worked on a team to optimize trajectories for a Small Satellite Asteroid Flyby Explorer (SAFEX) Mission Proposal. She also worked on a team to conceptualize and propose an advanced modular bioreactor platform for testing biological samples in microgravity, for use on the ISS. Prior to that, Emily worked on the national GlueX team as an REU Fellow at UConn, designing and building a calibrating robot for the tagger microscope.

Emily has a highly entrepreneurial background, having helped found and build three companies, which contributed to her college expenses and other extracurricular efforts.

In addition to students across the globe, such as Jon Tidd (lead of business team, Duke) and Caleb Whitlock (lead of technical team, MIT), Emily is aided in her work on Time Capsule to Mars, by her twin brother Nick, who is focused on the marketing effort, and her younger twin siblings Chris (programming the Time Capsule to Mars website and application) and Madeline (creating personalized space medicine education materials).



Jon Tidd, Director, Fundraising and Marketing

Jon Tidd is a recent graduate from Duke's Fuqua School of Business. His passion for the aerospace industry started at a young age with Space Camp and in 2013 intensified during an internship with SpaceX's production team. Jon worked on process improvement for propulsion manufacturing and analytical tools for leadership. While at Fuqua, Jon was able to connect with TC2M mission and has found a truly compelling opportunity to continue to work towards his passion of

helping humanity reach out into the cosmos. Jon is excited to return to Deloitte Consulting this fall to continue work for their Strategy and Operations group.



Chris Carberry, Executive Director, Explore Mars, Inc.

Chris Carberry is the Executive Director and co-founder of Explore Mars, Inc. a nonprofit which was created to advance the goal of sending humans to Mars within the next two decades. The organization also encourages the use of STEM curriculum in the classroom to instill a desire to pursue space exploration for future generations.

Carberry is a well-respected expert and influential director of strategic alliances in the space community and has been responsible for growing many partnerships, grants and sponsorships for leading industry organizations. His innovative ideas and vast knowledge regarding space have given him a political presence when it comes to policymaking concerning the space related matters. Currently, as Explore Mars Executive Director, he acts as the main liaison for efforts and project ventures. He has been an international spokesperson on behalf of various space related entities on numerous occasions.

Prior to joining Explore Mars, Carberry served as Executive Director to The Mars Society. He acted as a member of the Steering Committee where he organized congressional outreach efforts around the country. He also played a part in congressional lobbying events such as the 2007-2010 Space Budget Blitz, the 2007 Moon-Mars Blitz, the 2006 Space Blitz, and the Great 2006 Mars Blitz as chairman and co-coordinator.

In more recent years, he has led successful international conferences including the ISS and Mars Conference in Washington, D.C. and Strasbourg, France, and the Women and Mars Conference in Washington, D.C. Earlier this year, he represented Explore Mars as a delegate to the Mars500 Symposium in Moscow, Russia. He currently serves as Chairman of the Steering Committee for the Space Exploration Alliance, which is an umbrella group representing 13 space advocacy organizations with total membership of over 700,000 people.

Aside from his accomplishments as a space thought leader, Carberry is a noted writer and has contributed positioning work for the Republican Party's National Platform in 2000, and co-authored Congressional testimony. During his time as Executive Director at the Mars Society, he began The Mars Quarter, an online and print magazine. He is also the author of numerous articles and Op-Ed pieces concerning space policy and politics. In 2006, he published a mystery/science fiction novel called *Celestial Pursuits: in the hub of the Universe*.

Chris has helped launch programs such as the Mars Education Challenge, Mars Exploration Magazine and Mars Talk (an online video talk show). He is currently working on several writing projects, including a sequel to *Celestial Pursuits*.

Chris received a B.A. degree in political science and a M.A. in history and archival methods.

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