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Quantum fluctuations in space, science, exploration and other cosmic fields... served up regularly by MSNBC.com science editor Alan Boyle since 2002.



Alan Boyle covers the physical sciences, anthropology, technological innovation and space science and exploration for MSNBC.com. He is a winner of the [AAAS Science Journalism Award](#), the [NASW Science-in-Society Award](#) and other honors; a contributor to "[A Field Guide for Science Writers](#)"; and a member of the board of the [Council for the Advancement of Science Writing](#).

Check out Boyle's [biography](#) or send a message to Cosmic Log via cosmiclog@msnbc.com.

AMERICA'S SPACE EFFORTS CONVERGE **America's space efforts converge**

Posted: Wednesday, October 21, 2009 8:15 PM by Alan Boyle



NASA

An artist's conception shows SpaceX's Dragon cargo craft approaching the International Space Station for a delivery.

Private-sector spaceflight is going public ... or is public-sector spaceflight going private? Space industry executives and space agency officials made clear at a conference today that "Old Space" and "New Space" are converging. In fact, NASA is already gearing up to fly scientific experiments on suborbital spacecraft while they're being tested.

"The way we do space business will change," Pat Hynes, director of the New Mexico Space Grant Consortium, declared as she opened this week's [International Symposium for Personal and Commercial Spaceflight](#) in Las Cruces, N.M.

The biggest changes have to do with the blending of public and private initiatives: For example, during today's talks two former space station commanders

spoke up for the commercial ventures where they now work - with both ventures working to follow through on [resupply contracts](#) for the International Space Station.

Current-day space officials, meanwhile, talked up their plans to capitalize on the innovation generated by private industry. Gary Payton, a former astronaut who is now under secretary of the Air Force for space programs, heralded the rise of "plug-and-play spacecraft" that could [help the U.S. military recover](#) from any future blows to its increasingly important space infrastructure.

Conference attendees were also [abuzz](#) over [comments made on Tuesday](#) by NASA Administrator Charles Bolden, who touted the wide array of private companies working on next-generation spaceships.

"Today, we at NASA are devising ways to work with these companies and others who will come," Bolden told the National Association of Investment Companies. "I urge you, and all other investors, to take notice. Space may someday soon become the new thing in investing."

In speeches and private conversation, more than one NASA official referred to the air-mail model for promoting private-sector flight: Just as the federal government encouraged the rise of commercial aviation in the 1920s by granting air-mail delivery contracts to private carriers, NASA could promote commercial spaceflight by granting contracts for private-sector services.

Orbital deliveries

One aspect has to do with deliveries to the space station. SpaceX and Orbital Sciences Corp. have both received millions from NASA to develop cargo delivery systems, and stand to gain billions more if the systems work. Both companies are due to conduct full-scale demonstrations by 2011, and both are employing former space station commanders to help them navigate the ins and outs of the NASA market.

SpaceX's ex-space skipper is Ken Bowersox, who serves as vice president for astronaut safety and mission assurance. Today Bowersox compared SpaceX's yet-to-be-launched Falcon 9 rocket to Russia's low-cost Soyuz rocket, which relies on a similar propellant mix (liquid oxygen and kerosene) and similarly small operations teams.

Orbital's space veteran is Frank Culbertson, whose title is senior vice president and deputy general manager of the company's Advanced Programs Group. Culbertson emphasized Orbital's long experience with launch systems as an advantage for its still-under-development Taurus 2 booster. "SpaceX is probably where Orbital was 25 years ago," Culbertson observed.

Both companies are looking into adapting their cargo ships (SpaceX's Dragon and Orbital's Cygnus) to accommodate crew as well, with potential backing from NASA's [\\$50 million CCDev program](#). NASA is due to announce how that stimulus money will be used next month.

At the same time, NASA is getting set to test its own [Ares I-X rocket prototype](#) next week. Eventually, the Ares I may be used to send crew to the space station in Orion capsules, but there's a continuing controversy over whether the Ares program should be pushed forward, put on hold or dramatically revised.

An independent panel's final report on the options for NASA's human exploration program, [scheduled for release on Thursday](#), may shed more light on the Ares I debate. However, the report isn't likely to end the debate.

One member of the panel, retired Air Force Gen. Lester Lyles, said on Tuesday that the Ares I [should go ahead](#) "as it's currently structured." But another member, XCOR Aerospace CEO Jeff Greason, told today's audience in New Mexico that Ares I didn't make financial or programmatic sense.

"The truth is, Ares I right now is a paper booster," Greason said. He said it was his "personal opinion" that going with upgraded versions of existing rockets such as the Atlas 5 or the Delta 4 would give NASA the most value for the money. Those rockets are already building up a track record for commercial and military launches, he noted - and he argued that further enhancements could make them sufficiently safe for astronauts.

Suborbital deliveries

There was no debate over the idea that future suborbital spaceships will offer [low-cost research opportunities](#) for NASA and the scientists who conduct NASA-funded experiments. Such research missions, flown on craft such as Virgin Galactic's SpaceShipTwo rocket plane, are expected to cost hundreds of thousands of dollars - which is far less than the current multimillion-dollar price tag for a suborbital rocket launch.

Wayne Hale, a former shuttle manager who is now the agency's deputy associate administrator of strategic partnerships, echoed Bolden's enthusiasm about the commercial options - particularly for suborbital research. "We are here to encourage this industry. We are here to enable this industry," Hale said.

However, he stressed that NASA had to ensure that the suborbital flights met the appropriate safety standards. Those standards may turn out to be more stringent for federally supported fliers than for private-sector space tourists, at least at first.

Charles Miller, senior adviser for commercial space at NASA's Innovative Partnership Program, said the space agency is currently considering what kinds of safety standards would be appropriate for commercial spaceflights carrying NASA personnel or NASA-funded researchers. In the meantime, the space agency is planning to pay to fly automated experiments that do not require human tending, perhaps as early as 2010, during the test flight phase that will take place before tourist flights begin.

Timetable for tourism

And when will those tourist flights begin? Generally speaking, [the two-year rule of spaceflight prediction](#) still applies - which means 2011 is the best guess. Scaled Composites and Virgin Galactic are scheduled to unveil SpaceShipTwo in early December, and drop tests could begin soon afterward. Julia Tizard, Virgin Galactic's operations manager, said the timetable for beginning commercial flights is a "million-dollar question" that currently has no firm answer.

"Test flights will pace the program," Tizard said.

Those test flights will begin at the Mojave Air and Space Port in California, which is Scaled Composites' home turf. Eventually, however, Virgin Galactic plans to move SpaceShipTwo operations to Spaceport America in New Mexico.

Steve Landeene, executive director of the New Mexico Spaceport Authority, said the facility's 10,000-foot-long airstrip could be ready for business as early as next August. That runway could be used for military flights conducted under the aegis of nearby Holloman Air Force Base - or for SpaceShipTwo flights,

assuming that all the right regulatory steps are taken.

Tizard told me that if all the factors were favorable, the late phases of SpaceShipTwo's testing would be conducted in New Mexico. "It would be stupid for us not to come here," she said.

Update for 12:40 a.m. ET Oct. 22: [The Orlando Sentinel reports](#) that Sen. Richard Shelby, R-Ala., launched a pre-emptive strike against the independent panel's report, calling it "worthless" because it didn't fully consider safety and reliability issues. The last time Shelby erupted like this, a plan to allocate \$150 million for alternative spaceship development was [trimmed back](#) to \$50 million. Shelby's latest blast signals that any move to modify the Ares program dramatically will face stiff congressional resistance.

Update for 9:45 a.m. ET Oct. 22: NASA's Charles Miller got back to me with intriguing comments about putting experiments on suborbital spaceships during test flights, and I've added that into the posting. In fact, I've highlighted that in the lead paragraph. We'll hear more about the future of suborbital space research at the ISPCS conference today.

Stay tuned for more from the International Symposium for Personal and Commercial Spaceflight. For real-time updates, [search for #ISPCS](#) on Twitter. Join the Cosmic Log team by signing up as my [Facebook friend](#) or following [bOyle on Twitter](#). And reserve your copy of my book, ["The Case for Pluto,"](#) which is coming out this month.

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💬 Comments

I wish Virgin Galactic would not move its operations from California to New Mexico.

Since the 1990's many aerospace and military manufacturing companies have folded or moved out of California. The Los Angeles area lost many technical jobs.

[Kyle Shurge](#) (Sent Wednesday, October 21, 2009 9:18 PM)

Orbital Sciences is not 25 years ahead as they say. SpaceX was the first private company to launch a liquid fuel rocket into orbit and SpaceX will be the first company to have a fully functioning cargo delivery rocket on the pad at the cape at the end of 2009. Orbital's rocket is nowhere to be seen.

mr. mark (Sent Wednesday, October 21, 2009 9:57 PM)

LETS TEST ROBOTS IN SPACE

BILL GREEN (Sent Wednesday, October 21, 2009 10:20 PM)

A major change is also just over the horizon... The development of the VASIMR Engine. Just as economical as an ION engine, but with much more power. Imagine getting to Mars in a month and a half using these engines! Build your ship in space. Add half a dozen of these engines with nuclear reactors to power them, and the whole inner solar system to Jupiter is open wide to human exploration. Let's GO!!!

Andrew Dahl, Newport, OR (Sent Wednesday, October 21, 2009 10:33 PM)

If we don't have "cheap" and reliable cargo delivery and manned access to LEO, we aren't going ANYWHERE else. But, once we have that, we CAN do some serious traveling...

Mark A. Klonfas, New Paltz, N.Y. (Sent Thursday, October 22, 2009 1:04 AM)

Would you trust your spaceship to Enron?

Nuken Geek (Sent Thursday, October 22, 2009 1:54 AM)

"The truth is, Ares I right now is a paper booster, Greason said. "

My Greason, apparently you are not aware that people who live in glass houses should not throw stones!

[Nelson Bridwell](#) (Sent Thursday, October 22, 2009 3:05 AM)

I agree with Andrew. And the great thing about the VASIMR engine is that the 3KW version will get to the moon in 39 seconds! WOW!!!

Andy Pockleton (Sent Thursday, October 22, 2009 5:44 AM)

I believe embracing the private sector is an excellent option for NASA at this time. These new companies will use competition and free enterprise to put NASA once again at the forefront of public consciousness when the shuttle is no longer flying. Look at what Scaled and SpaceX have done already. It is important for Americans to believe in space again, like during Apollo. We should all be behind this. This new space age will be important to our country's collective self image and its future.

Jim, Dallas TX (Sent Thursday, October 22, 2009 5:50 AM)

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now, ALL commercial and public space programs and vehicles are just pages and pages of PowerPoint/PhotoShop/Flash/.pdf documents and slides with absolutely NOTHING real coming soon

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the "commercial space" is an illusion, with only the very small Falcon-1 able to fly and the "hope" to see also the 10 tons payload Falcon-9 and nothing bigger on the horizon, not even on paper

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[gaetano marano - ghostNASA.com](mailto:gaetano.marano@ghostnasa.com) (Sent Thursday, October 22, 2009 7:17 AM)

Interesting article Alan. My question is "Are they there yet?". Waiting until 2011 is quite a long wait for these private companies to get their act together for testing their cargo delivery rockets. Seems like a bunch of duplicate effort being wasted on commercial spacecraft.

Richard Shelby is the worthless one and he must be ignored! Only reason that he supports Ares is that the bushwhacker came up with the idea.

Eric, Salinas, CA (Sent Thursday, October 22, 2009 9:33 AM)

Great article, Alan. I'm glad to read that the Falcon rocket from SpaceX uses kerosene and liquid oxygen. It's hard to beat low-tech, as the Russians' track record attests. Orbital Science has been air-launching Pegasus rockets from it's L-1011 airliner for decades, but vertical launch is a whole new chapter. I think both companies are on the same footing, and have a lot to prove in terms of reliability.

[Bill Rogers, Oakland](mailto:Bill.Rogers@oakland.com) (Sent Thursday, October 22, 2009 12:05 PM)

"All of you, just quit your dithering."

Pa Cheney, Cootsville OH (Sent Thursday, October 22, 2009 12:51 PM)

I would hope that there could be an understanding by many different government space agencies and private companies for a unified plan for all uses of space. We could have some companies working with the Russians for getting things into space while the Europeans are working with another firm for advances in environmental space systems. NASA and JAXA could be working with other companies on the plans for exploration and colonization of planets in our solar system.

S.B. Stein E.B. NJ (Sent Thursday, October 22, 2009 2:21 PM)

Hasn't anyone noticed that XCOR Aerospace CEO Jeff Greason has lots of incentive to keep NASA capabilities as limited as possible? Talk about a conflict of interest!

Jeff Rusik, Monkton, VT (Sent Thursday, October 22, 2009 3:02 PM)

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my very first impression about the Augustine Commission report in this article

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HSF Committee Report: "treatment" much worse than "disease"

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<http://www.ghostnasa.com/posts/056hsfreport.html>

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[gaetano marano - ghostNASA.com](mailto:gaetano.marano@ghostnasa.com) (Sent Thursday, October 22, 2009 9:42 PM)

I don't understand all of these agencies and governments working so hard to prevent progress. Could you imagine where planes would be today if the wright brothers had to apply for countless licenses, permits and launch windows at every step of development. Costing untold thousands before they even had the right attempt that first flight. We would still be on the ground, our eyes glued to the birds, to the sky with nothing more than imagination. Who are these people to say whether or not a person has the right to risk their life for a dream. It's why we have come as far as we have. Taking chances. Not fighting litigation and applying for permits to get the right to take that chance. Things are all wrong. These bloated agencies shouldn't have the right to control and prevent personal freedom. If you want to build and launch something then do it. Just don't do it over someone else's house, lol!!

Josh, Depoe Bay, Oregon (Sent Thursday, October 22, 2009 11:11 PM)

"I agree with Andrew. And the great thing about the VASIMR engine is that the 3KW version will get to the moon in 39 seconds! WOW!!!"

I'm pretty sure you don't mean thirty-nine seconds to get from low Earth orbit to the Moon, because that would imply that it reaches five percent of the speed of light in under half a minute of acceleration (about fifty thousand G's of acceleration, which would require about five hundred gigawatts per ton of spacecraft mass, not three kilowatts). Thirty-nine HOURS sounds more like it.

Phil, Newark, California (Sent Thursday, October 22, 2009 11:30 PM)

Eric,

SpaceX is almost there. The first launch of their Falcon9/Dragon cargo ship is tentatively scheduled to lift off by end of this year. They are scheduled to fly three more demonstration flights next year. If those demo flights go well then SpaceX will be open for business.

As for duplicate effort, it's all about competition. Somebody's going to do it first. Then maybe somebody else will do it better. Whoever does it best will lead the market until someone else can take their place. And so on.

As for Senator Shelby, the less said the better.

Ron, New York, NY (Sent Friday, October 23, 2009 7:36 AM)

BTW, here's the latest update from SpaceX:

<http://www.spacex.com/updates.php>

Ron, New York, NY (Sent Friday, October 23, 2009 7:43 AM)

The Vasimr engine is not a surface-to-orbit engine as its thrust is too weak and it requires the vacuum of space to operate in.

So it's of no use to near-term commercial space efforts (which are all ground to sub-orbit).

Douglas, Florida (Sent Friday, October 23, 2009 4:16 PM)

"Waiting until 2011 is quite a long wait for these private companies to get their act together for testing their cargo delivery rockets. Seems like a bunch of duplicate effort being wasted on commercial spacecraft."

What you call 'duplicate effort,' others call 'competition.' We've already seen what happens when you totally rely on one design for manned orbital access, and how, when it has a serious problem, you have limited or no alternatives until it's solved.

We've typically had several different unmanned launchers to choose from at any given time, flying humans doesn't change that logic.

Frank Glover, Rochester, NY (Sent Saturday, October 24, 2009 12:42 AM)

Colorado UFO Aloft Again

A real Colorado UFO registered and certified AST-FAA/ DEHAS Inc / Bluer Ridge Nebula Spaceline completes the companies 14th annual celebration flight and another year of safe and profitable operations. As commander Dr. Doug Haynes enters our fourth Mars-moons (Deimos and Phobos)continuous-thrust roundtrip flight training session he release the crew for our three month holiday vacation. The company will resume operation on MLK day with a launce to Mars that features our new rotating space station dock and locking sequences. . Follow all the action at either www.bluenebula.com, www.blueridgeairlines.com or <http://www.youtube.com/watch?v=E6ZJgfTknM8&feature=related>.
God Bless you all this winter sessions.

dr. Doug Haynes (Sent Saturday, October 24, 2009 11:07 PM)

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