

SPACE TOURISM

HAS THE DEPRESSED ECONOMY DASHED OUR DREAMS OF HEADING TO THE STARS?

BY DOUG MESSIER

When Scaled Composites captured the Ansari X PRIZE on October 4, 2004, it looked as if sub-orbital tourism was right around the corner. Having proven the technology viable, Scaled would partner with billionaire Richard Branson and Virgin Galactic to commercialize it. Soon, Victoria Principal and other well-heeled millionaire astronauts ("millionauts") would be zooming above the atmosphere.

Meanwhile, fueled by the success of X PRIZE, entrepreneurs would perfect their own vehicles. Within a few years, thousands of tourists would have experienced spaceflight. A new industry would emerge, competition would bring down prices, and happy investors would be lining up to fund the next phase: orbital tourism.

Five years later, those "would-be" dreams remain elusive. Neither Virgin Galactic nor anyone else has flown anywhere near suborbital space since that warm day in Mojave five years ago. The first commercial space flights are probably 18 months away – or longer. Several proposed projects have been delayed or dropped as the world has sunk into a deep recession.

So, what are the prospects for space tourism? Let's take a look at the leading competitors.

VIRGIN GALACTIC

Virgin's original plan to fly passengers aboard SpaceShipOne was sidelined by the desire of tourists to float around in weightlessness, something the vehicle's cramped three-seat cockpit would not allow them to do. So, SpaceShipOne retired after capturing the X PRIZE, and engineers set about designing a larger vehicle.

The result was SpaceShipTwo, which will carry two pilots and six passengers in a cabin with roughly the same interior space as a Gulfstream IV corporate jet. Passengers will experience about five minutes of weightlessness at the top of a 110-kilometer (68-mile) high arc.

Scaling up SpaceShipOne has been a much longer and more expensive proposition than anyone thought. Schedules have slipped significantly. A fatal explosion at the Scaled Composites facility in July 2007 killed three workers and injured three others. The company stopped work on SpaceShipOne for at least a year as it investigated the cause of the accident. It also brought back SpaceDev, the company that built SpaceShipOne's engine.

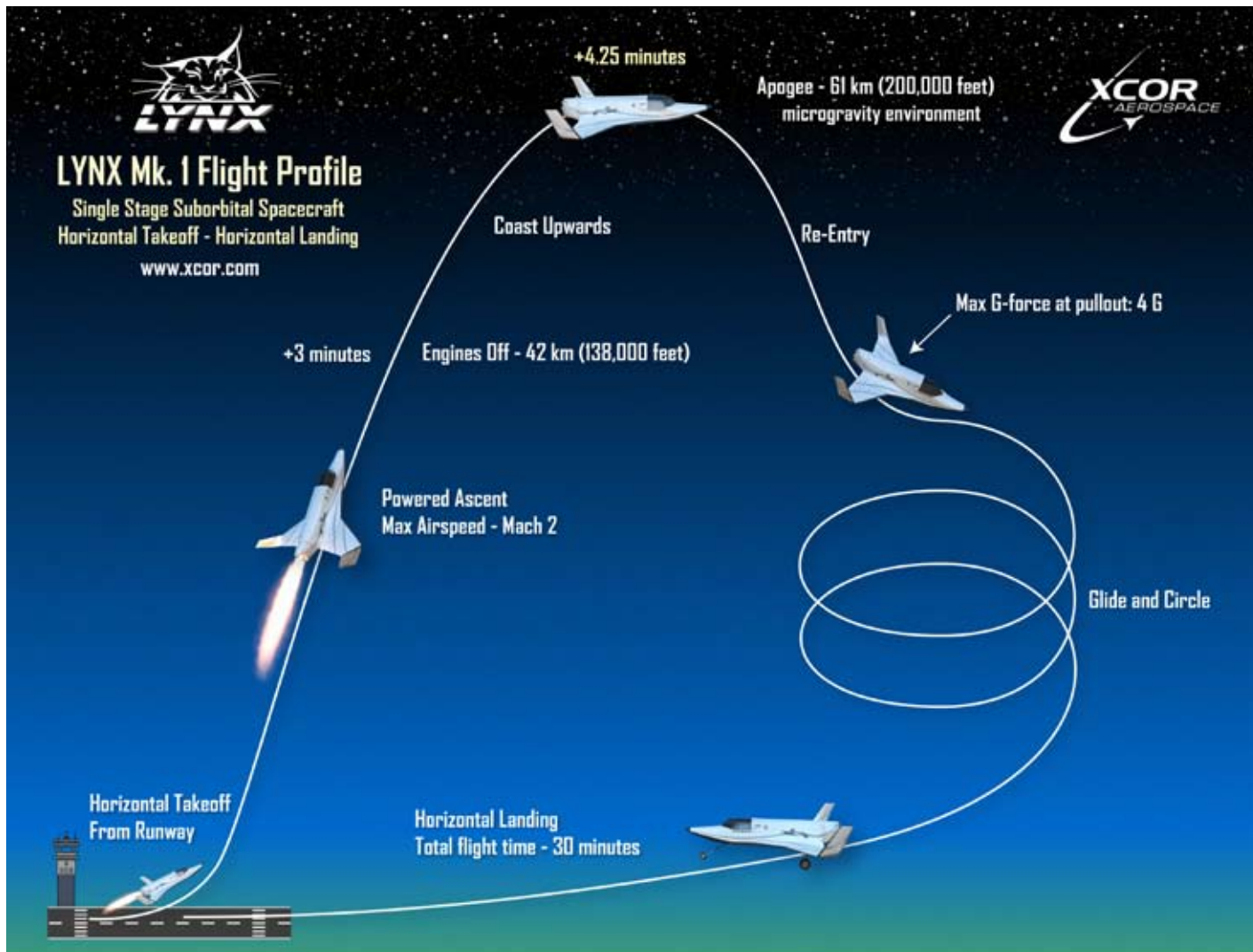
Virgin is moving slowly toward commercial operations. WhiteKnightTwo carrier aircraft took off on its first test



Talis Enterprise's BlackSky prototype is scheduled to begin flying up to six passengers at once starting in 2013.



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XCOR's Lynx aircraft flight plan for the 25-minute flight. LYNX hopes to offer affordable access to space to the public.

flight last December. However, the first commercial flights of SpaceShipOne may be delayed until late 2010 or even 2011.

Virgin officials say the company has actually gained customers during the current economic meltdown, with about 300 people having put down deposits on the \$200,000 flights. It hopes to have 700 reservations by the time it begins commercial spaceflights. Additionally, only a few customers have asked for refunds, which is a good sign in the current recession.

In July, Virgin Group announced a strategic partnership for Virgin Galactic with Abu Dhabi's Aabar Investments. Aabar Investments will invest \$280 million in the company for an equity stake.

XCOR

Virgin Galactic's Mojave-based rival is moving along on a more modest project. The company's Lynx vehicle will carry one pilot and one passenger to an altitude of 61 kilometers (38 miles). Occupants will experience about three minutes of weightlessness at the top of the arc.

The company hopes to begin test flights in the latter half of 2010. "That's a prediction, not a promise," says CEO Jeff Greason. Company officials have not given a date for the start of commercial service, although they note that flight test programs typically take 12-18 months to complete. The program's principal test pilot is Col. Rick Searfoss, a retired Air Force pilot who flew the space shuttle three times.

Speaking during the Space Access '09 conference in April, Greason reported that the company is making excellent progress on testing its engine, and aeronautical and structural design work is coming along nicely.

Last December, the company announced its first customer - Per Wimmer, a Danish-born financier based in London. As of April 2009, XCOR had booked more than 20 reservations for the \$95,000 per person flights. The company is working through RocketShip Tours to market the suborbital trips.

XCOR plans to build a larger vehicle, Lynx Mark 2, designed to fly to an altitude of 110 kilometers (68 miles).

The schedule depends upon progress with this smaller spacecraft.

ROCKETSHIP GLOBAL

According to CEO Chuck Lauer, the Oklahoma-based company began raising money just as venture capitalists and hedge funds were beginning to pull up their welcome mats. As a result, the company has delayed its XP suborbital space plane. It also lost a NASA COTS award to develop a new rocket and cargo carrier for the International Space Station due to an inability to raise outside funding.

"This last year has been difficult, as everybody knows; the financial situation overall has not gotten any better, and as things sort of spilled out from the whole COTS debacle, our primary challenge in the last year has not been technical, it's been financial," CEO Chuck Lauer said in April.

Finishing the XP will require a lot of money. "We're well north of 100 million dollars of additional capital needed to get to first flight," Lauer added. "We've got 24 million dollars invested to date."

Lauer was more upbeat about his Oklahoma-based company's technology, which is designed to carry a pilot and five passengers. The rocket- and jet-powered vehicle will be very safe, with multiple abort modes and a comfortable shirt-sleeve environment, he said.

The company has been successful in selling seats to customers who give them away. Nestle gave away two tickets as part of promotional contest for the re-launch of its Kit Kat bar. Lauer said the campaign was very effective and the company saw a significant increase in sales.

Lauer is also encouraged by NASA's efforts to purchase space on commercial suborbital vehicles to conduct micro-gravity experiments. "The non-tourist market is, we believe, a substantial part of the market for all of us," he said, adding that it could account for 15 to 20 percent of Rocketplane's business.

BLUE ORIGIN

Jeff Bezos' secretive company has been conducting test flights on its New Shepard suborbital vehicle since 2006. New Shepard will have at least three seats available for suborbital tourism and scientific missions.

"Blue Origin expects the first opportunities for experiments requiring an accompanying researcher astronaut to be available in 2012. Flight opportunities in 2011 may be available for autonomous or remotely-controlled experiments on an uncrewed flight test," according to the company's website.

TALIS ENTERPRISE

This Swiss-German company hopes to begin testing its BlackSky prototype next year. The winged space plane will fly to a maximum altitude of about 46 kilometers (28.5 miles), somewhat lower than XCOR's Lynx vehicle.



Talis Enterprise's BlackSky hopes to offer cheaper flights than its competitors.

BlackSky is a prototype for a larger, six-passenger Enterprise vehicle that will begin flying passengers in 2013 to altitudes of 125 kilometers (78 miles). The 20-meter (66-foot) long vehicle will weigh about 20 metric tons and take off under its own power from a conventional runway.

Company officials say that flights aboard BlackSky and Enterprise will be cheaper than the competitors, in the range of \$30,000 to \$50,000.

HOPE FOR THE FUTURE

Although there have been delays, the spirit of adventure ignited by SpaceShipOne continues to inspire these companies and their millionaut clients. Some day soon, non-professional astronauts will be experiencing the joys of spaceflight. In this case – as with most endeavors of this scale in engineering and imagination – it's just taking longer to get there than we thought.

OTHER PROJECTS

EADS Astrium

Europe's largest aerospace company put its winged suborbital tourism vehicle on hold earlier this year, citing market conditions. Company officials say they are still committed to the vehicle – just not right now.

Space Adventures

The Virginia-based company appears to have retreated from plans it announced in 2006 to build a suborbital tourism vehicle. Instead, it is focusing on orbital trips to the International Space Station. The company also is working on signing up customers for lunar flybys using modified Russian Soyuz vehicles.

Armadillo Aerospace

The Texas-based company announced a plan for a suborbital tourism vehicle last year in cooperation with Rocket Racing and the state of New Mexico. "That deal, as announced, did not come to fruition," Armadillo CEO John Carmack says. The company is continuing to work on an automated suborbital spacecraft that can be used for experiments.