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DEVELOPMENT OF COMMERCIAL SUBORBITAL SPACE TOURISM: A REVIEW OF CURRENT
STATUS AND DISCUSSION ON FUTURE PROSPECTS AFTER SPACESHIP TWO CRASH

Abstract

The crash of one SpaceShipTwo (SS2) of Virgin Galactic at the Mojave Desert, California on 31 October 2014 during test flight startled both the space as well as the tourism communities. Developed for the purposes of suborbital space tourism (SST), satellite launch from suborbit, and scientific research on suborbit, SS2 is one of the reusable suborbital launch vehicles (RSLVs). The tragedy caused the sacrifice of one senior test pilot. But it also waked up tourists that the long overdue of SST might be just a few years away. As of today, the major RSLVs are the Lynx of XCOR, the Spaceplane of Airbus Defense and Space, the Dream Chaser of Sierra Nevada Corporation (SNC), the suborbital shuttle SOAR of Swiss Space Systems (S3), and the SS2 of Virgin Galactic. Based on the most recent information, the Lynx Mark I would start flying customers in 2015 or 2016 while the Mark II would go into operation to carry tourists, researchers and scientific payloads to suborbit in 2017 or 2018. On 1-4 May 2014, a quarter-scale prototype of Spaceplane passed the first drop test in Singapore. The first free-flight of a Dream Chaser orbital test vehicle occurred on 26 October 2013 and an initial orbital test flight is planned for 1 November 2016. In S3, a ZeroG world tour will start from Switzerland during the second half of 2015, then head to Canada and the US. During the 1st semester of 2016, the tour will continue in Asia before heading to the Middle East and Europe. As to Virgin Galactic, the test flights are expected to resume with the second SS2 in the summer of 2015 when the construction is completed. The purposes of this paper are to review the current development status and to discuss the future prospects of SST. Keywords: suborbital space tourism, spaceplane, Lynx, Dream Chaser, SOAR, SpaceShipTwo