IAF SPACE EXPLORATION SYMPOSIUM (A3)
Small Bodies Missions and Technologies (Part 1) (4A)

Author: Ms. Donya Douglas-Bradshaw
NASA Goddard Space Flight Center Greenbelt MD 20771, United States,
donya.douglas-bradshaw@nasa.gov

LUCY STRONG: GETTING TO A SUCCESSFUL LAUNCH IN SPITE OF A ONCE-IN-A-LIFETIME PANDEMIC

Abstract

Led by Dr. Hal Levison of Southwest Research Institute, Lucy, a NASA Discovery Class mission successfully launched on October 16, 2021. The mission name honors the influence that the primitive Australopithecus human fossil named "Lucy" has had in advancing understanding of the history of our species and embodies the goal that this mission will similarly advance the understanding of the formation and evolution of our Solar System. All of the accessible stable populations of the solar system have been visited by spacecraft, except for the Trojan Asteroids, which lead and follow Jupiter in its orbit by approximately 60. Lucy will investigate 7 primitive asteroids near the Jupiter L4 and L5 Lagrange points where planetesimals from the outer planetary system have been preserved since early in Solar System history. This comprehensive study is enabled by a fortuitous orbital alignment that is unlikely to recur in the near future. When the COVID-19 pandemic hit in spring of 2020, Lucy was five months shy of starting the spacecraft level integration and test program. COVID-19 presented significant challenges for industries across the globe, and the space industry was not immune to its effects. Challenges such as supply chain disruptions, workforce safety and remote work threatened the team's ability to meet the planetary launch window. The safety of Lucy's workforce was paramount in the, and the pandemic made it difficult to maintain physical distancing, sanitization, and other safety protocols in manufacturing and testing facilities. The pandemic caused significant disruptions in global supply chains, affecting the availability of critical components and materials required to build a spacecraft. Restrictions on international travel and trade also made it difficult to transport these components to their intended destinations. Lastly, the pandemic forced many industries to adopt remote work models, and the space industry was no exception. However, building a spacecraft requires collaboration between teams with highly specialized skills, making remote work challenging. Despite these challenges, Lucy launched on time and under budget. This paper discusses key factors that enabled the project to be successful.