

Research Assessment #2

Date: September 16, 2016

Subject: Astrobiology: *Space Shuttle Disasters*

Sources:

1.) Workman, Karen. "The Challenger Space Shuttle Disaster, 30 Years Later." *The New York Times*. The New York Times, 28 Jan. 2016. Web. 16 Sept. 2016

2.) @HowellSpace. "Challenger: Shuttle Disaster That Changed NASA." *Space.com*. N.p., 16 Oct. 2012. Web. 16 Sept. 2016

Analysis:

The field of astronomy comes with countless discoveries but it also comes with adversities. This is something astronomers need to accept and work with because it is the only way they can move forward and change the world in a positive way. This industry has had times when there seemed to be no hope. Those times were when the space shuttle, Challenger, exploded and when another space shuttle, Columbia, disintegrated during reentry. The accidents of these two shuttles were beyond bearable. However, the United States' Space Program did not give up and continued to push the exploration of our universe. Without this optimism and courage, no astronomer can achieve success.

The Challenger Space Shuttle had established itself to be a successful spacecraft prior to 1986. It was the first to have night time launching and landing. It also was the first to have

an operational Space Lab. The Challenger shuttle had proved to be very successful. It was until January 28, 1986, at 11:39 when it exploded just a few seconds after it launched. The whole country watched in horror as seven brave individuals died. Aboard on that shuttle was Lt. Col. Ellison S. Onizuka, Cmdr. Michael J. Smith, Francis R. Scobee, Gregory B. Jarvis, Ronald E. McNair, Judith A. Resnik, and Christa McAuliffe, a high school teacher. These individuals were leaving our planet to push space exploration to a new level but instead they left us forever. Despite this horrific event, NASA pushed through and sent many more individuals up into space to make new discoveries. All was well until tragedy struck again with the Space Shuttle, Columbia in 2003. The shuttle had broken apart as it reentered the atmosphere, resulting in the death of Kalpana Chawla, David M. Brown, William C. McCool, Michael P. Anderson, Ilan Ramon, Laurel B. Clark and Rick D. Husband. The painful emotions expressed during the Challenger explosion seemed to repeat itself. It was hard to believe such ambitious individuals died. Despite that, NASA and the rest of the country moved forward and made history along the way.

If I were a NASA Astronomer working during the time of these explosions, there would definitely be one question lingering in my mind, "Why did this happen?" After the Challenger explosion, astronomers went to work to figure out what had happened to cause this major malfunction. The O ring seals for the Challenger boosters had been corroded and the abnormal cold temperatures only made the problem worse. NASA had gotten the recommendation to wait until the outside temperatures reached a minimum 54 ° F but NASA didn't see that as a major problem and went with the launch. Unfortunately, as the seal failed, it ignited hot gas which caused an explosion on the external fuel tank. This quickly spread and ended up in a major explosion. What is the most heartbreaking is that it could've been prevented. As a result of this incident, NASA is building a launch abort system on the new SLS spacecraft that will carry astronauts to Mars. In the case of an emergency, astronauts will be able to get into this

module and safely separate from the rocket. This new addition will hopefully prevent any situation similar to the Challenger incident. Unfortunately, an accident similar to Challenger occurred when the Columbia Space Shuttle launched and a piece of foam fell off and hit the left wing. The Columbia Crew was sent up to test various scientific experiments that would help NASA understand in detail about space exploration. Unfortunately, as the spacecraft reentered, the heat from the friction created a fire which spread throughout the shuttle as if there was a hole in the left wing. This led to the immediate disintegration of the shuttle.

Before I came to know about these incidents, I always perceived astronomy as a field in which there are no dangers but after Challenger and Columbia, I realize that there are unthinkable risks involved. However, these risks made the path for humans to become the best pioneers of space. It is almost impossible to imagine what thoughts ran in the minds of those astronauts seconds before they died. However, I can understand because I share the same passion for astronomy as they did. If I were one of the astronauts on Challenger or Columbia, I wouldn't have felt any pain as this field brings me none. Instead, I would've been honored and proud of the opportunity The United States' Space Program had given me. I would've been glad that I opened doors for the next individuals who could discover unthinkable things. The way NASA handled these situations just prove how adversities are never the end; it is only the beginning. These astronauts may have not finished what they intended to do but they sure did pave the way for future explorations of our new frontier. If there is one thing I learned on how to be a successful astronomer, it is that you should never lose hope when adversity hits because there is always a future for space exploration.