

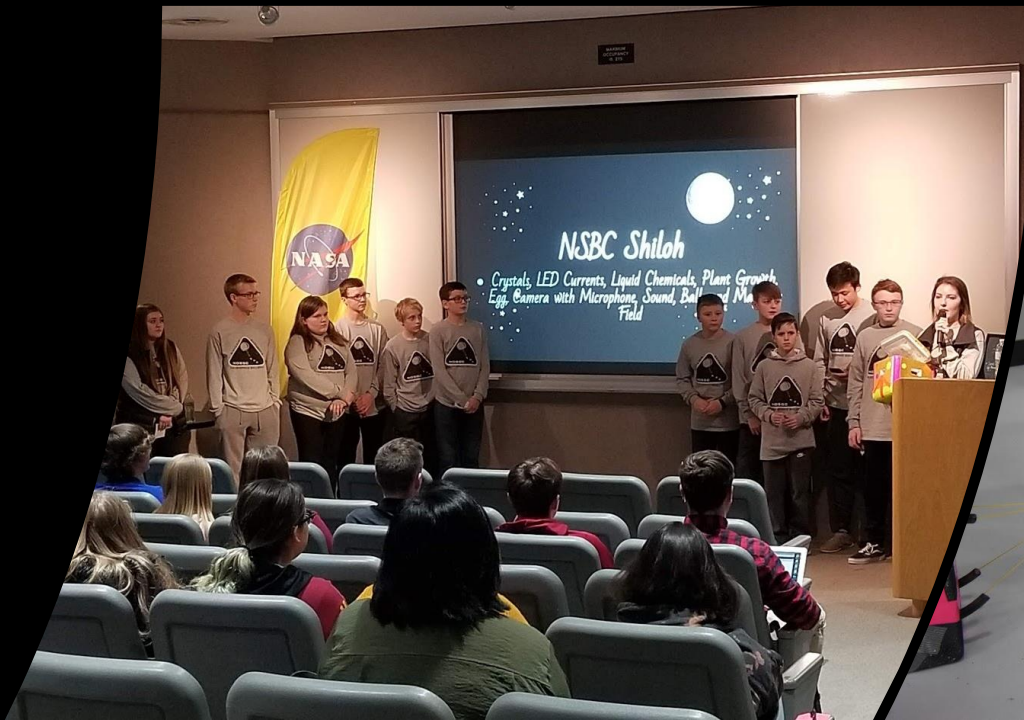
The background of the slide is a photograph of a night sky. A vibrant green aurora borealis is visible in the center, glowing against the dark night. The sky is filled with numerous stars. In the foreground, the dark silhouettes of evergreen trees are visible against the aurora and the sky. The overall scene is serene and natural.

# From Small to Large: A Spectrum of Projects Funded by the NDSGC

Steven Russell

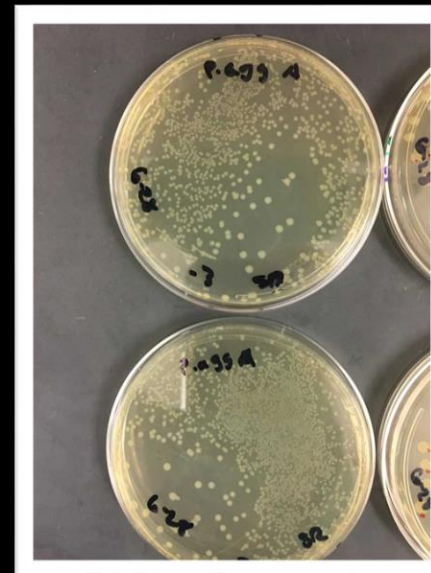
# Up, Up and Away! To the Skies with High-Altitude Ballooning

- 1<sup>st</sup> Opportunity Funded by the NDSGC through a GRA.
- Tasked with coordinating the Near-Space Balloon Challenge (NSBC).
- 2019 NSBC:
  - 9<sup>th</sup> Annual.
  - 9 participating schools.
  - Payloads of all different types of topics.
  - Overall: Mission Success.
- Some Technical Changes:
  - Triple-Tracking System
- Challenges
  - First large project.
  - Filling Balloons indoors.
- Presented this NDSGC STEM Outreach Framework for NSBC at AHAC 2020.



# And I'm Free....Free Falling An Internship at NASA's Kennedy Space Center

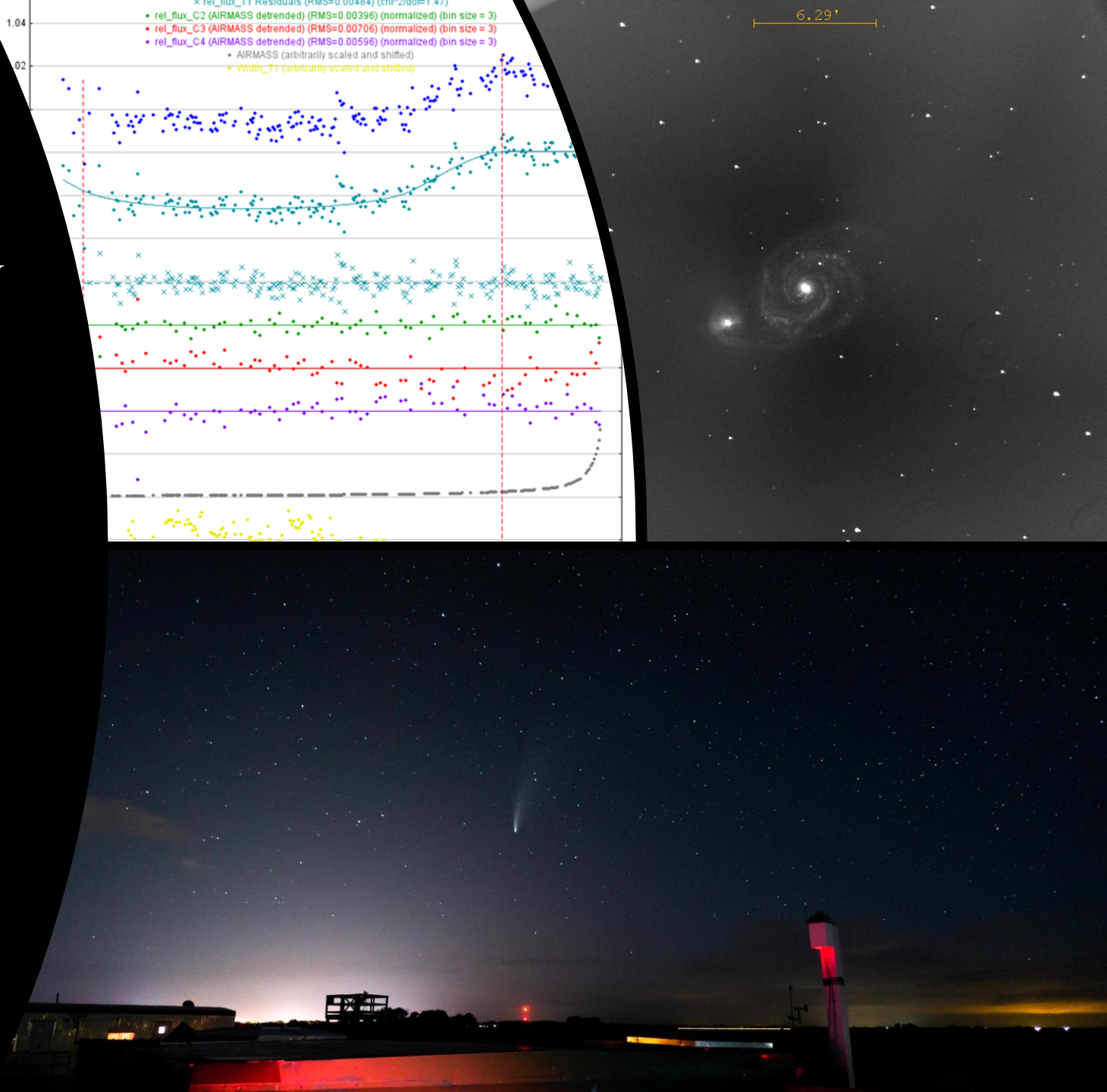
- A full summer of science funded by NDSGC via their Internship Program.
- Studied microorganisms in simulated microgravity.
- The Study:
  - *Pantoea agglomerans*.
  - Relevant for astronauts and food production.
  - Found an increased growth rate.
  - Sample size is low.
- Helped with other projects.
- Networked with Brilliance.
- Made some friends.
- Had some extracurricular fun!
- Generated a NASA Technical Report - Report Number: KSC-E-DAA-TN72298.





# When I Heard the Learn'd Astronomer Operation of the UND Observatory

- Another GRA funded by the NDSGC and current job.
- Assisted in operations conducted at the UND Observatory located in Emerado, ND.
- Main Tasks Included:
  - Starting up and maintaining two 16-inch Meade Schmidt-Cassegrain Telescope.
  - Assist students in the SPST 425 and 526.
  - Open the observatory for students or other requesting telescope time.
  - Conduct Research.
- TESS Follow-Up Project.
- Working on a publication.
- Have some amazing views!







# Life Finds a Way Space Crop Production on Asteroids

- Materials for a Thesis Research project funded by the NDSGC via the Mini-Grant and current project.
- Studying vegetable growth in an asteroid regolith simulant.
- The Study:
  - CI meteorites and Asteroids.
  - Mixture of Peat Moss and Simulant
  - Lettuce, Radishes, and Peppers.
  - Planetary Simulants.
  - Soil Analysis.
- Currently in progress.
- Working on the Thesis paper and publication.
- Planning to Defend on April 29<sup>th</sup>.





# Takeaways

- Challenges:
  - Imposter syndrome.
  - Learning new skills and fields of study.
  - Planning events can be challenging.
  - Sitting down and writing.
- Advice for future NDSGC applicants:
  - Ask a lot of questions.
  - Trust your abilities and skills.
  - Have a plan of action or outline.
  - Contact NDSGC for any and all available funding.
  - NASA Internships: Apply early.
  - Work hard and have a good attitude. 😊



# Acknowledgements

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    - Anna Maria Ruby and Dr. Ye Zhang, NASA KSC
- Mary Hummerick, Dr. Christina Khodadad, Jeff Richards, AECOM
  - The NIFS Interns
  - UND Space Studies
  - UND Biology
  - Family and Friends





Questions?