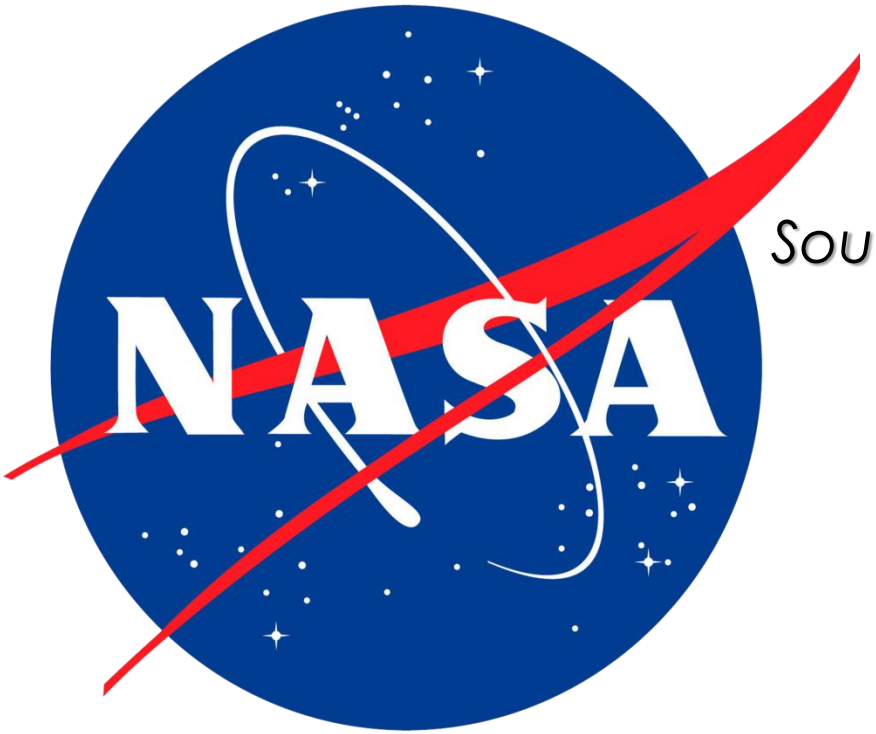
Space Grant's Impact on Student Education: NASA, Industry, and Academic Experiences



Carly Sandin and Jorel Torres
South Dakota Space Grant Consortium
February 26, 2015

SOUTH DAKOTA
Space Grant Consortium

Overview

- Introduction: Carly
- Moonrockers Team
- SEDS Organization
- Internship Experiences

- Introduction: Jorel
- Research at NASA GSFC
- Wallops Flight Facility (WFF) Data Acquisition Network

Introduction: Carly Sandin

About me:

- Born in Greeley, Colorado
- B.S. Mechanical Engineering from South Dakota School of Mines and Technology
- Pursuing M.S. Mechanical Engineering at the University of Illinois at Urbana-Champaign

Important student experiences:

1. Team
2. Organization
3. Internship

Moonrockers Team

- First space-related experience
  - Great example for engineering
  - Space grant
- NASA's Annual Robotics Mining Competition
  - 4 years, 2010-2014
  - competition evolved

Moonrockers Team at Kennedy Space Center Visitor Complex, May 2014.

SEDS Organization

- Students for the Exploration and Development of Space
  - Reformed in 2011
  - Served as an officer
  - Students with similar interests (no direct degree)
  - Aware of opportunities
  - Emphasis on volunteering
  - SpaceVision Conference
  - Space grant is imperative to this organization

Internships

- NASA Johnson Space Center (2012)
  - Space grant funded
  - First internship experience
  - Avionics Systems, Human Interfaces Branch
- Boeing (2013)
  - Huntsville, Alabama
  - Mechanical Engineering Branch
  - SLS (Space Launch System) Support

Pathways Internship

- NASA Goddard Space Flight Center
  - Pathways Internship
  - Spring/Summer 2015
  - Materials Engineering Branch

Conclusion:

The space grant was a vital resource for my education and ultimately my career.

Introduction: Jorel Torres

- Graduate student at South Dakota School of Mines & Technology in Rapid City, SD
  - Part of the Atmospheric and Environmental Sciences (AES) Program
- South Dakota Space Grant provided opportunities to intern at NASA GSFC in Greenbelt, MD
  - summer 2014
  - current 2015 spring semester

Photo Above: AES Students launching Radiosondes at the SDSM&T Campus.
Photo by: Thomas Durkin

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Research at NASA GSFC

- Work with research scientist Dr. Ali Tokay who is a part of the Global Precipitation Measurement (GPM) Mission
- Research on Snowfall Observations taken at NASA Wallops Flight Facility (WFF)
- Motivations for research:
  - To provide better parameterization of the microphysics of falling snow for NASA Global Precipitation Measurement (GPM) algorithm developers
  - Improve the existing ground-based and space-borne precipitation products
- Objective:
  - Investigate the microphysical characteristics of falling snow and its spatial variability within the GPM core satellite footprint

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Wallops Flight Facility (WFF)

Photo Above: Instrumentation at the ASOS site within the NASA – WFF Disdrometer Network
Photo By: NASA - WFF Precipitation Ground Validation Team

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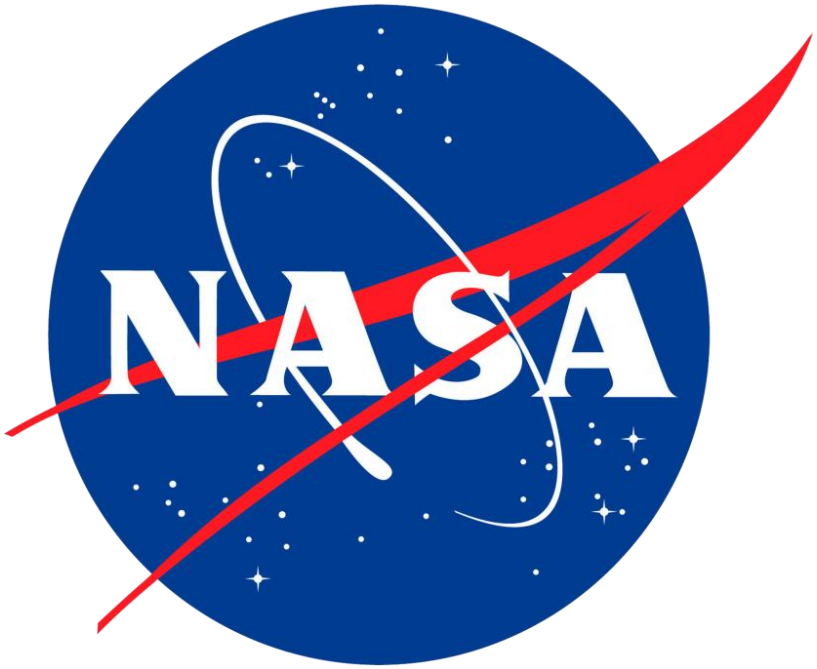
Wallops Flight Facility (WFF) Disdrometer/Gauge Data Acquisition Network

- Microscale Network
- Optical Disdrometers, snow gauges are placed at each of the six sites
- Parameters investigated:
  - snowfall variability
  - snow fall velocity
  - snow density and others

Questions?



Thank you

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