Internships

SPS Meeting 9/25/2020

What is an REU?

- Research Experience for Undergraduate Students
  - A school will be a host site for a program.
  - Various research projects and subjects
  - Each student of the group assigned a project and mentor
- Duration: 8 - 12 weeks over the summer
- Stipend Range ($ 4,000 - $ 6,000)
- Where to find them?
  - NSF funds many programs
  - A school or a group of schools replicate the “traditional” NSF experience
    - Examples: Leadership Alliance, Big 10 Alliance

What Really Is The Difference Between REU and Internship?

- When it’s all said and done, nothing really
  - REU’s are generally attract students looking to apply to graduate school
    - Experience the culture of the lab and department
    - Learn a lot about the school and it’s graduate resources
    - Generally some form of prep class
  - Industry Internships tend to focus more on preparing for the work after undergrad
    - Prepare skills needed for the job and future jobs
    - Less focus on graduate prep
    - Build a lot of skills for your project and they tend to be more long term

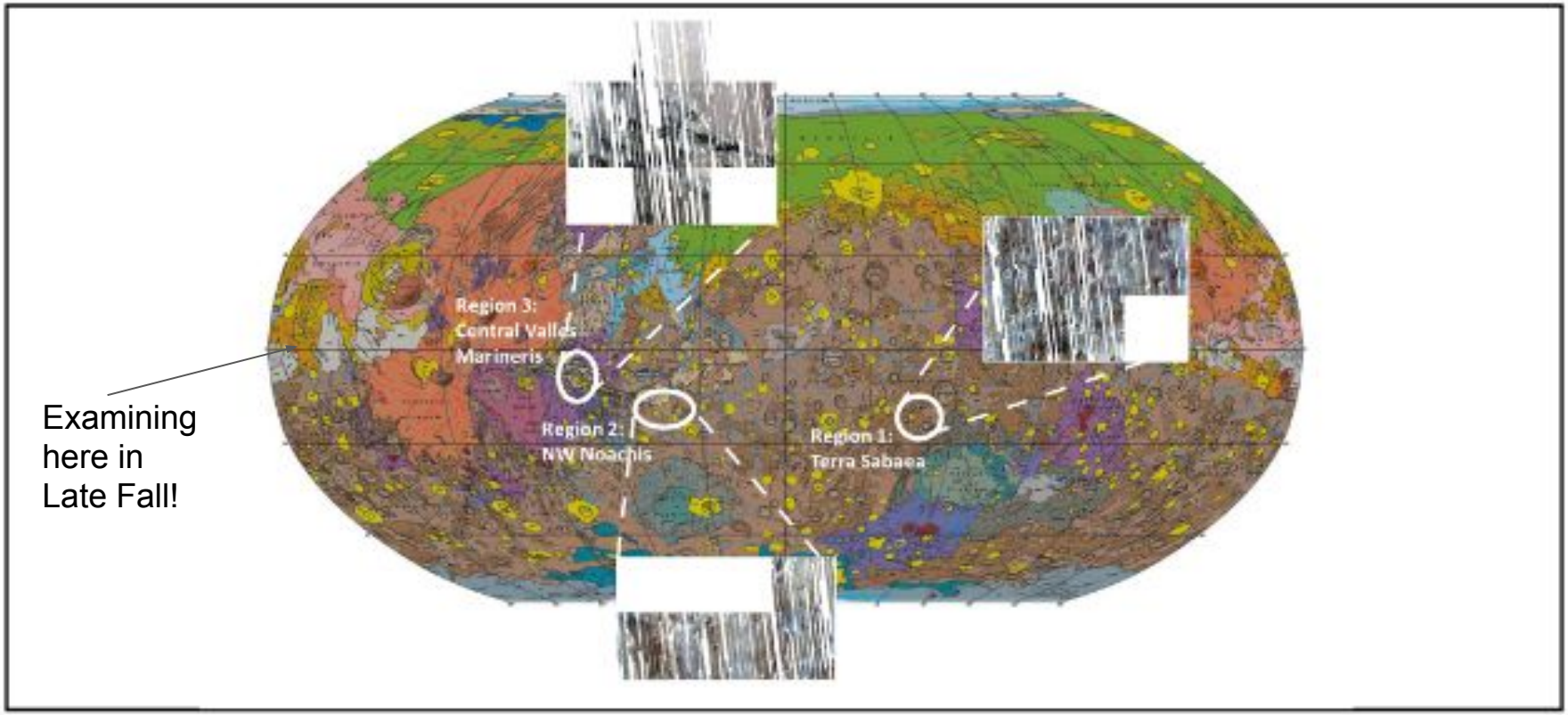
Industry Internships

- Industries include Lockheed Martin, NASA, NSA, Northrop Grumman, etc.
- Generally have stricter standards (Ex: Northrop requires 3.5 GPA and up)
- May be longer than most internships
- May help secure a job after graduation
- Gives you real life experience in the field
- Many offer professional development and training on the job!

My Internship (Jessica): CIRCUIT Program (APL)

- Program run through John Hopkin's Applied Physics Lab in Laurel, MD.
- Accepts students from JHU, UMBC, and American University.
- Consists of 15 cohorts specializing in various fields including connectomics neural networks, AI, and planetary research.
- Runs for 56 weeks

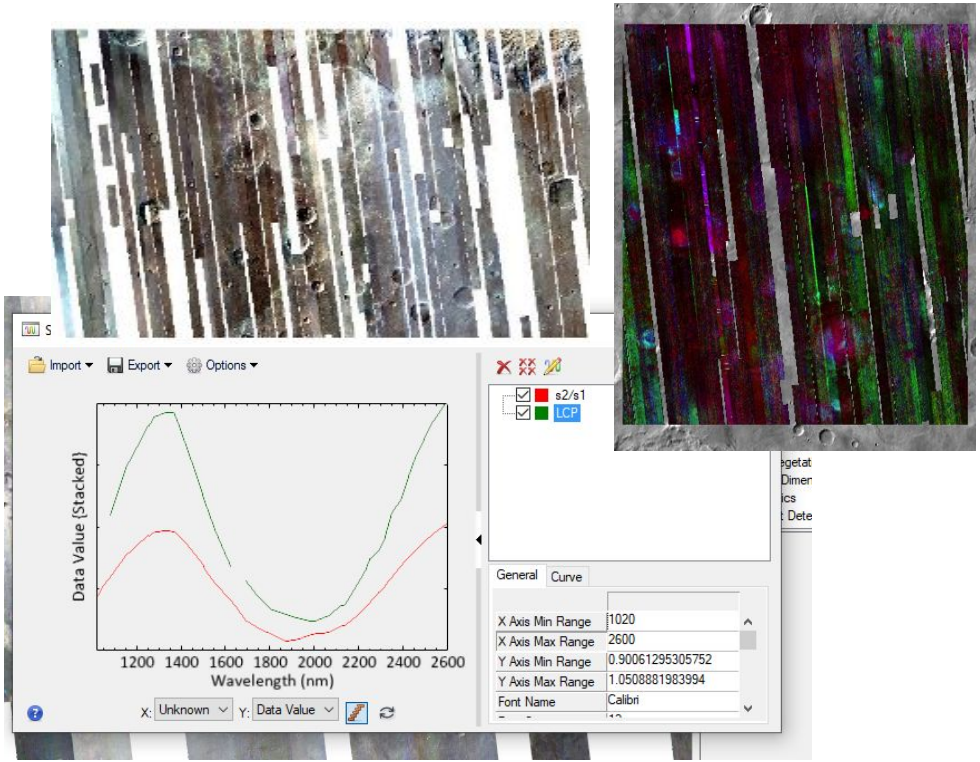
Regions We Have Examined Thus Far



Examining here in Late Fall!

BLU Mars - Was There Ever Water on Mars?

- Spectral data taken from the CRISM satellite is analyzed in order to determine the mineralogy of the region
- Presence of phyllosilicates and sulfates indicate a past aqueous history.
- In my region (NW Noachis Terra), I have found phyllosilicates, LCP, and HCP.
- Presenting my data in late October at the Geological Society of America.



Department of Energy, Summer Undergraduate Research Internships (DOE SULI)

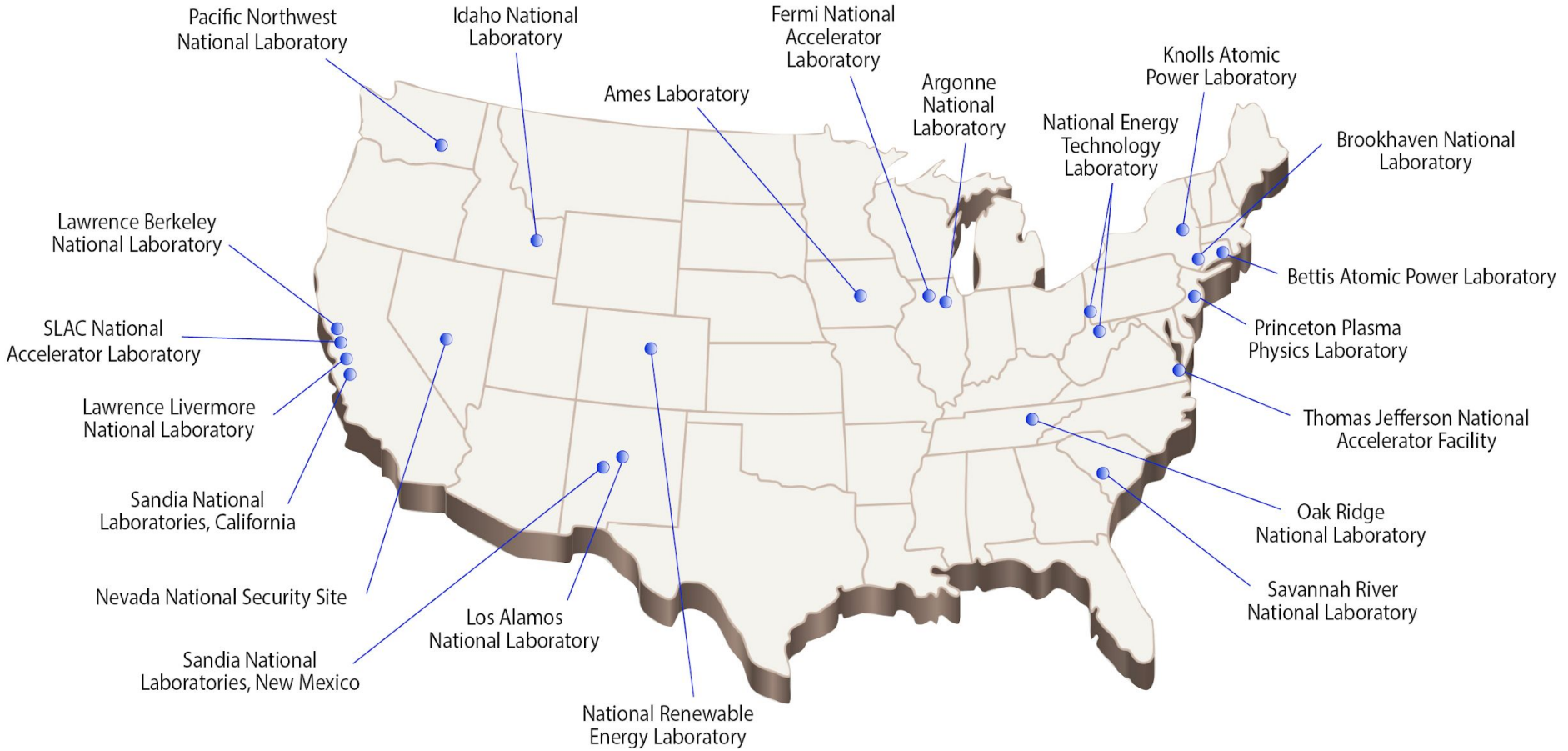
Internship appointments are:

- 10 weeks in duration for the Summer Term (May through August)
- 16 weeks in duration for the Fall (August through December)
- 16 weeks in duration for the Spring (January through May)

Benefits:

- You get to learn a lot about a field which probably is not being studied at UMBC
- Fun experience in general
- Receive a stipend of $600 per week during the internship ($6000 total)
- Usually housing is free

Dept. of Energy host laboratories



My experience

I participated in the SULI internship program at Princeton Plasma Physics Laboratory (PPPL) in Summer 2020, which was virtual. There were:

- Colloquium speakers every week (a few were famous scientists)
- Plasma physics lectures for the first two weeks

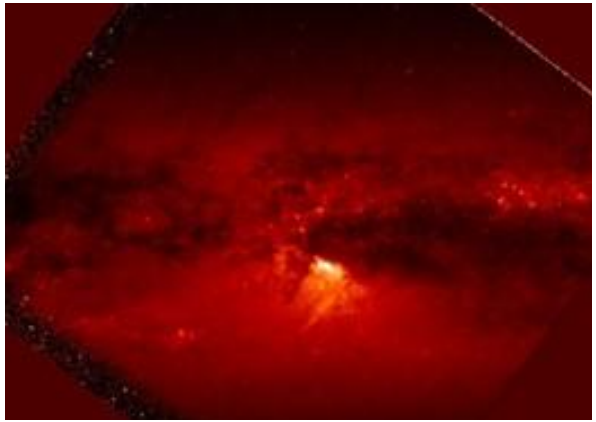
Everyone in the internship is given the opportunity to present at the APS Division of Plasma Physics meeting in November

Yale University SURF Program

I did an Hubble Space Telescope imaging study the effect of dust lanes on AGN

- Group activities
- GRE Prep
- Class on astro computing techniques and on the importance of diversity in STEM
- Colloquium speakers

Everyone presented within the astronomy/ astrophysics department and at the Leadership Alliance National Symposium that summer



Cornell University - CLASSE REU

I did research at Cornell University's Cornell Laboratory for Accelerator-based Sciences & Education (CLASSE). My research dealt with the linear accelerator of the Cornell Electron Storage Ring (CESR).

- Coded a model for CESR's linac
- Had to learn FORTRAN & programming languages for accelerator
- Volunteered for Cornell University's Physics Bus

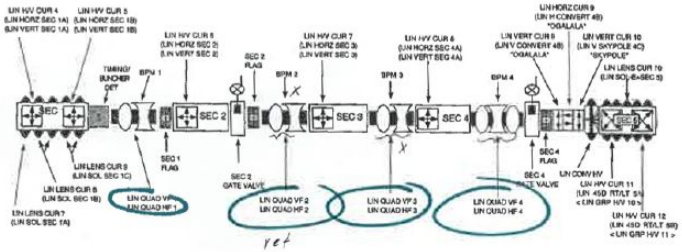


Figure 2: Linac Map Sections 1-4

NOAA CESSRST Fellowship

Funds 25 undergraduates from various schools to conduct research in atmospheric science at their institution

- Weekly research hours and meetings (10-15 hours)
- Opportunities to present work with funding
- Professional networking opportunities
- Assistance in job placement to any NOAA affiliated position

They also have an 8 week summer program!!