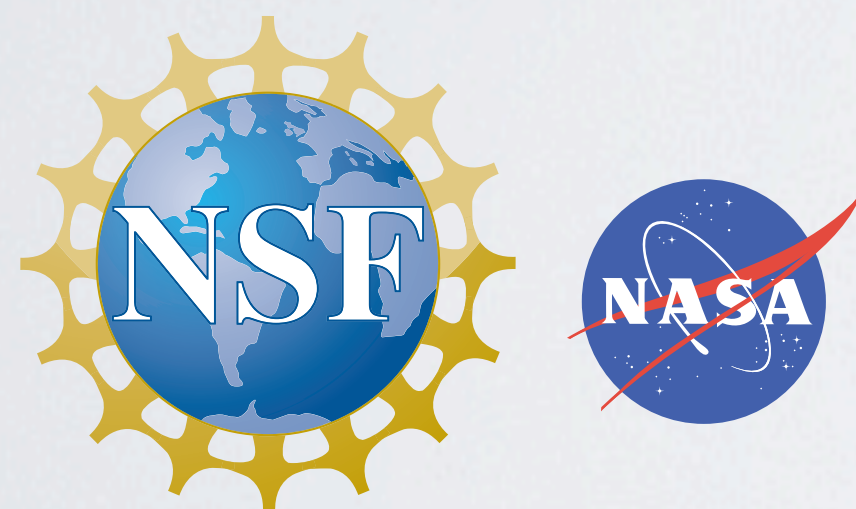


# SUPPORTING UNDERREPRESENTED UNDERGRADUATES IN SOLID EARTH SCIENCE

**UNAVCO**

RESEARCH EXPERIENCES IN SOLID EARTH SCIENCE FOR STUDENTS

**RESESS**



Aisha R. Morris, UNAVCO, Inc.

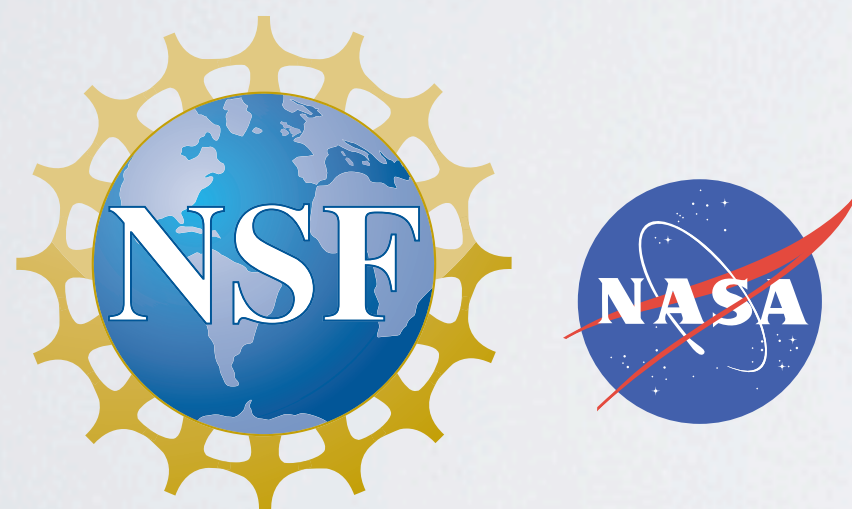


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**UNAVCO**

RESEARCH EXPERIENCES IN SOLID EARTH SCIENCE FOR STUDENTS

**RESESS**



Aisha R. Morris, UNAVCO, Inc.

**RESESS is an internship and support program  
dedicated to increasing the diversity of students  
entering the geosciences**





# UNAVCO: NSF GAGE FACILITY

- UNAVCO, a non-profit university-governed consortium, facilitates geoscience research and education using geodesy
- UNAVCO operates the NSF GAGE (Geodesy Advancing Geosciences and EarthScope) Facility
- The GAGE facility supports many facets of geoscience research including instrumentation and infrastructure, data analysis, cyberinfrastructure, and broader impacts



**UNAVCO is committed to developing a diverse, well-prepared geoscience workforce, and accomplishing this requires a continuous support structure**





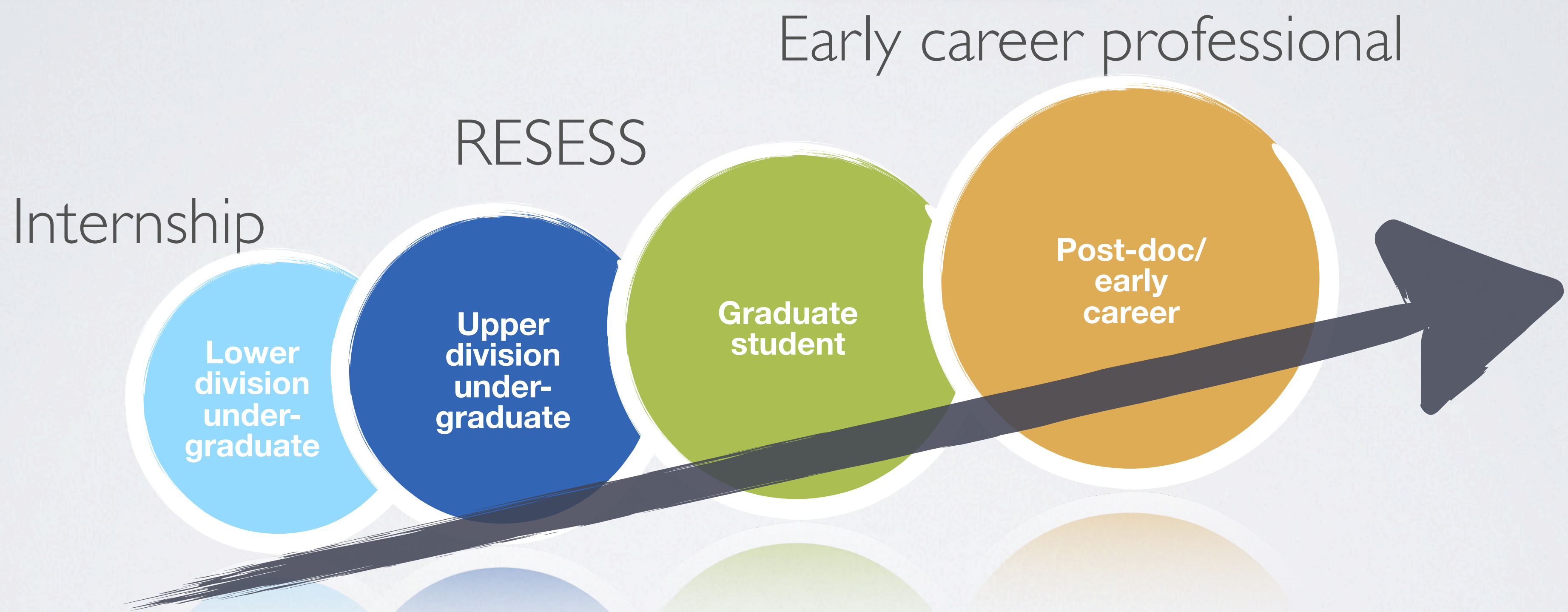
# GEOSCIENCE WORKFORCE DEVELOPMENT PROGRAM





# GEOSCIENCE WORKFORCE DEVELOPMENT PROGRAM

The geosciences will face shortages in prepared workers



Intentional preparation and talent development of populations traditionally underrepresented in the geoscience workforce will present an infusion of necessary new perspectives and people into the workforce



# RESESS INTERNSHIP PROGRAM



- 11 week, multi-year paid internship program
  - First year interns reside and work in Boulder, CO
  - Interns work with researchers from UNAVCO and other science research groups in the Boulder/Foothills area
  - Second and third year interns identify their own mentor and project (anywhere in the U.S.)
  - Housing, travel, and competitive salary
- Computers provided to first year interns
- Academic scholarships
- Graduate school application support (including GRE prep course and exam fees)
- Funding available to attend scientific conference (8 interns presented at AGU...6 posters and 2 talks!)

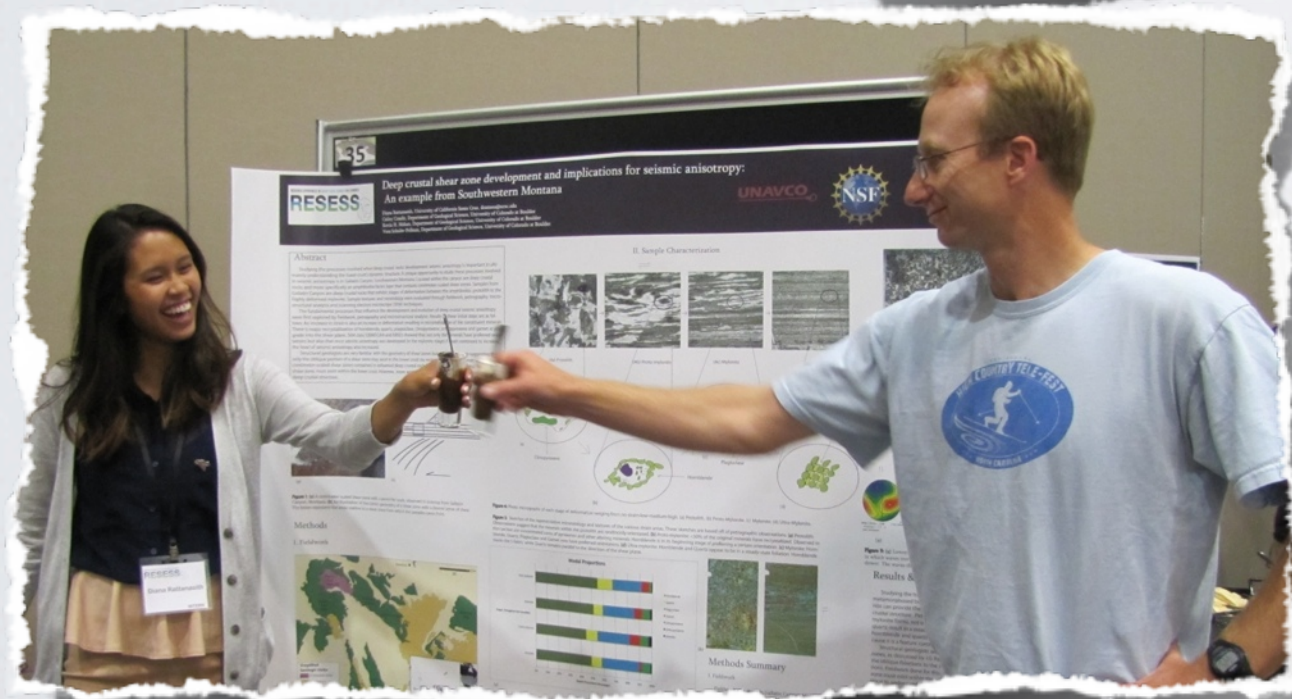
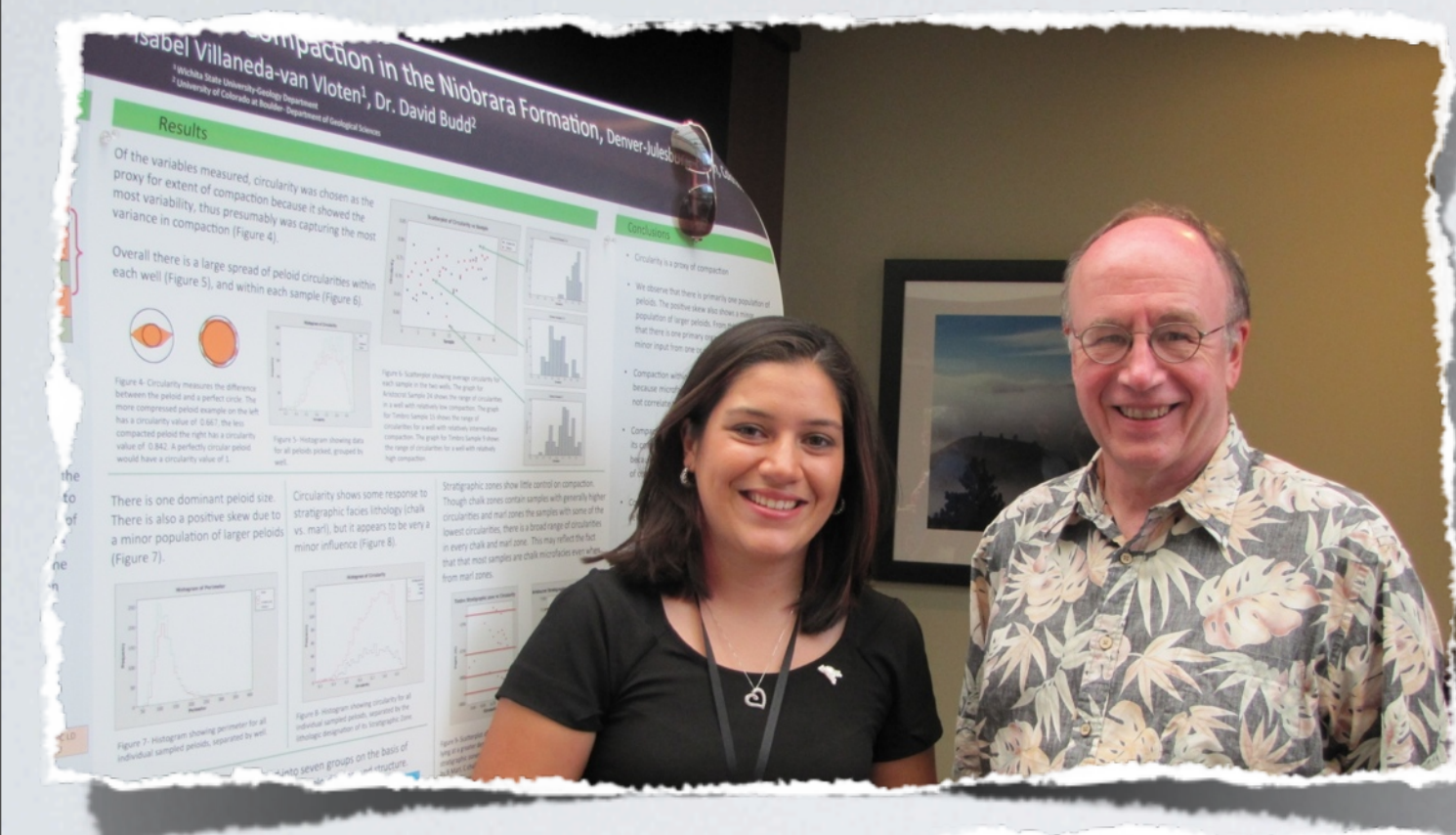
RESEARCH EXPERIENCES IN **SOLID EARTH SCIENCE** FOR STUDENTS





# SUCCESSFUL MENTORING IS IMPERATIVE

- Interns have at least three mentors:
- **Science mentor:** responsible for guiding the intern's research and career discovery
- **Communications mentor:** responsible for guiding the intern's writing and communications work (and career discovery)
- **RESESS program graduate student assistant:** responsible for assisting interns with addressing challenges and discovering opportunities

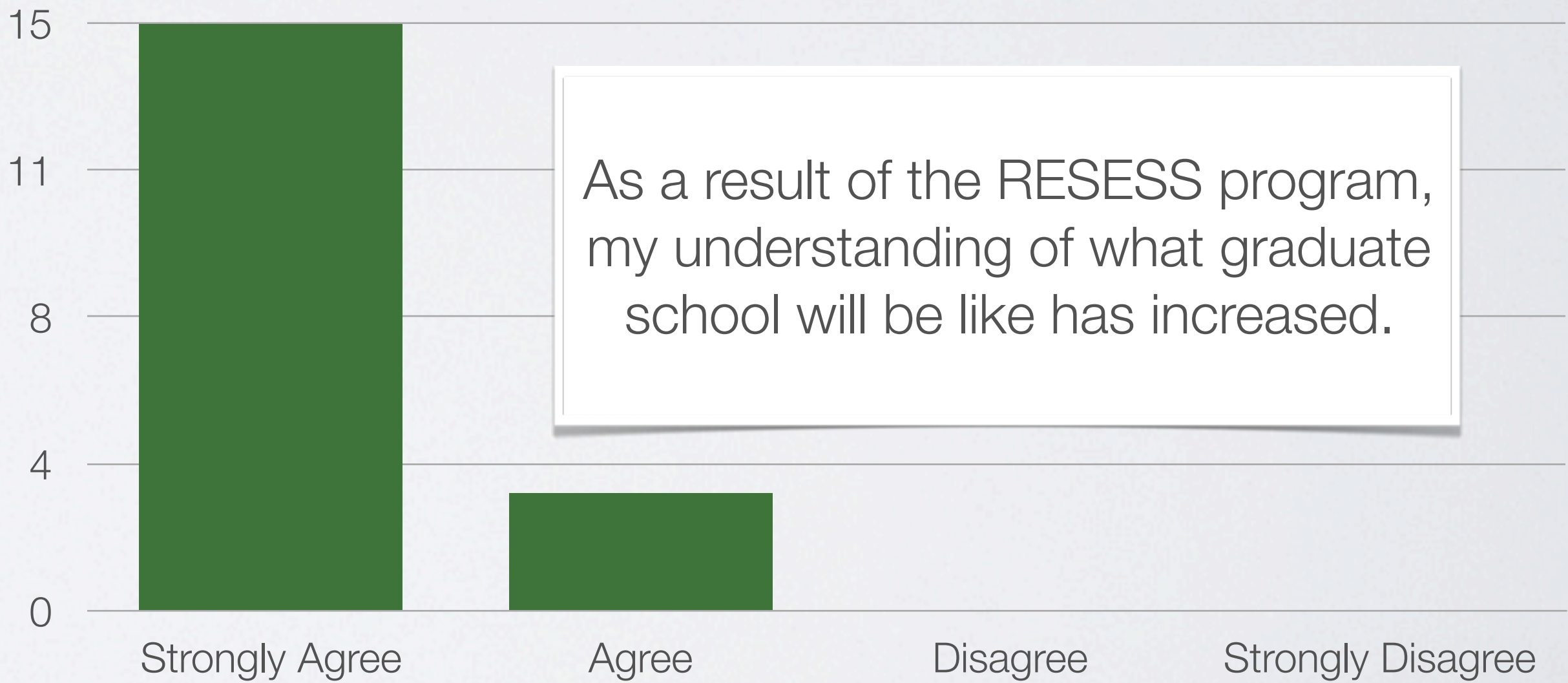
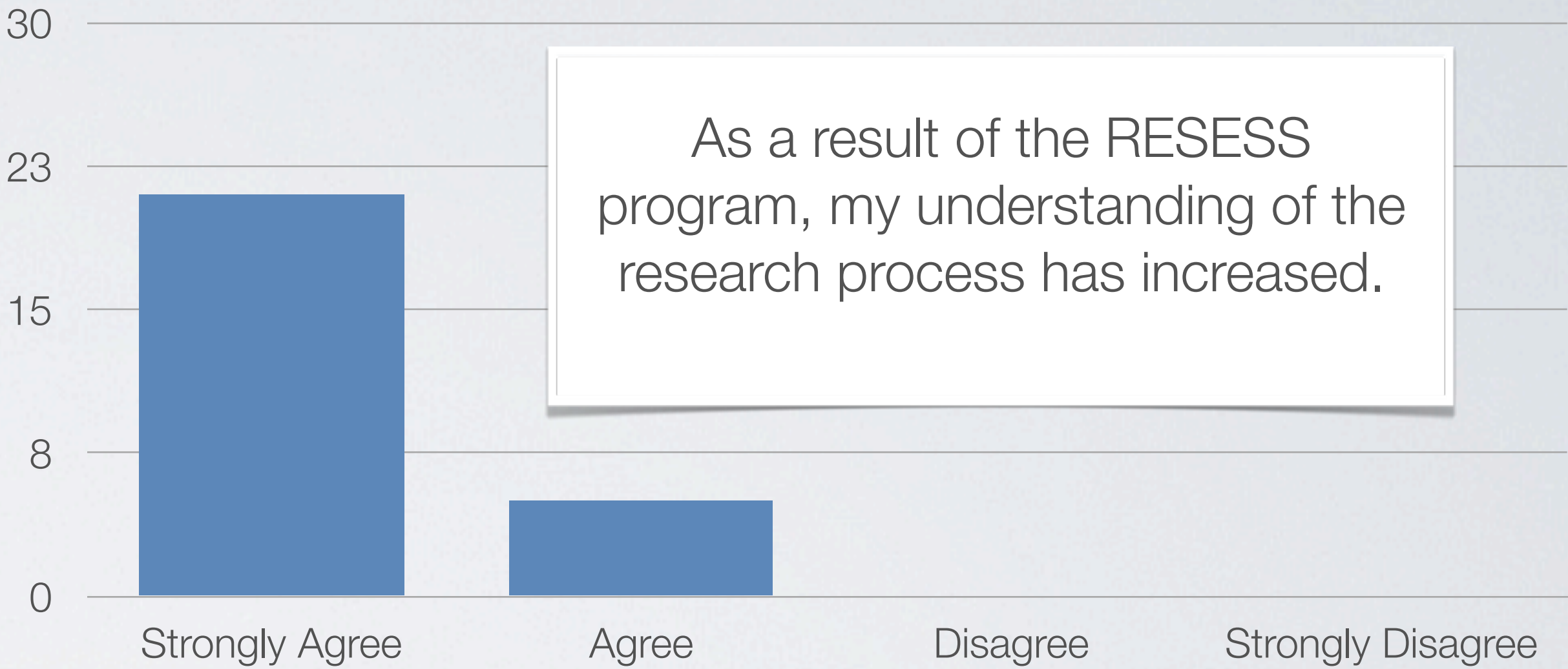






# RESESS INTERN OUTCOMES

- Pre- and post-summer surveys of interns and mentors in 2010, 2011, 2012
- As a result of their participation in the RESESS program, interns report increases in:
  - understanding of research process
  - understanding of what to expect in graduate school
  - their interest in pursuing careers in the geosciences
  - their confidence to complete several professional development tasks







# PROFESSIONAL DEVELOPMENT IN RESESS

- In 2013, the RESESS internship application was moved online to the web portal used by all applicants to open positions at UNAVCO
- Interns participate in a weekly communications workshop where they:
  - Serve as peer editors under the guidance of their communications mentors
  - Write original research papers
  - Develop their self-marketing skills by polishing their CVs, resumes, and personal statements
- UNAVCO celebrates the interns' summer research achievements during an end of summer science colloquium at UNAVCO and a poster session held at the National Center for Atmospheric Research (NCAR) Center Green campus with SOARS, NEON and pre-college programs

**Interns report increases in confidence in their abilities to accomplish several tasks related to development of professional skills**





# PROFESSIONAL DEVELOPMENT IN RESESS

100% of interns\* agree that their interest in a geoscience career has increased as a result of the RESESS Internship Program.

\* This question was only asked in 2010 and 2012. Based on other items we have reason to believe that the 2011 interns would have similarly answered this item had it been asked.

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# PROFESSIONAL DEVELOPMENT IN RESESS

How confident are you in your ability to...		Pre (n=16)		Post (n=25)	
TASK		Mean	SD	Mean	SD
Be successful in graduate school*				3.6	0.6
Write a research paper for a graduate-level course or a scientific journal*				3.1	0.7
Write a compelling statement of interest for a graduate school application		3.0	1.0	3.1	0.8
Write a CV or resume for a graduate school application		3.1	0.9	3.5	0.6
Write the abstract of a geoscience research article		3.2	0.8	3.5	0.6
Prepare an effective poster for presentation at a geoscience conference		3.2	1.1	3.6	0.7
Prepare an effective oral presentation at a geoscience conference		3.1	0.9	3.5	0.6

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# INTERN FUTURE PLANS

**Future Plans:** Likelihood of pursuing the following paths post undergraduate degree

	Pre (n=6)		Post (n=17)	
	Mean	SD	Mean	SD
Seek full-time employment	2.7	1.2	2.1	1.0
Enroll in a part-time graduate program while working	3.2	0.7	2.5	0.9
Work for a while and then enter a graduate program full-time	2.0	1.3	2.1	1.0
Enter a full time graduate program	3.3	0.8	3.7	0.6

Definitely will = 4

Probably will = 3

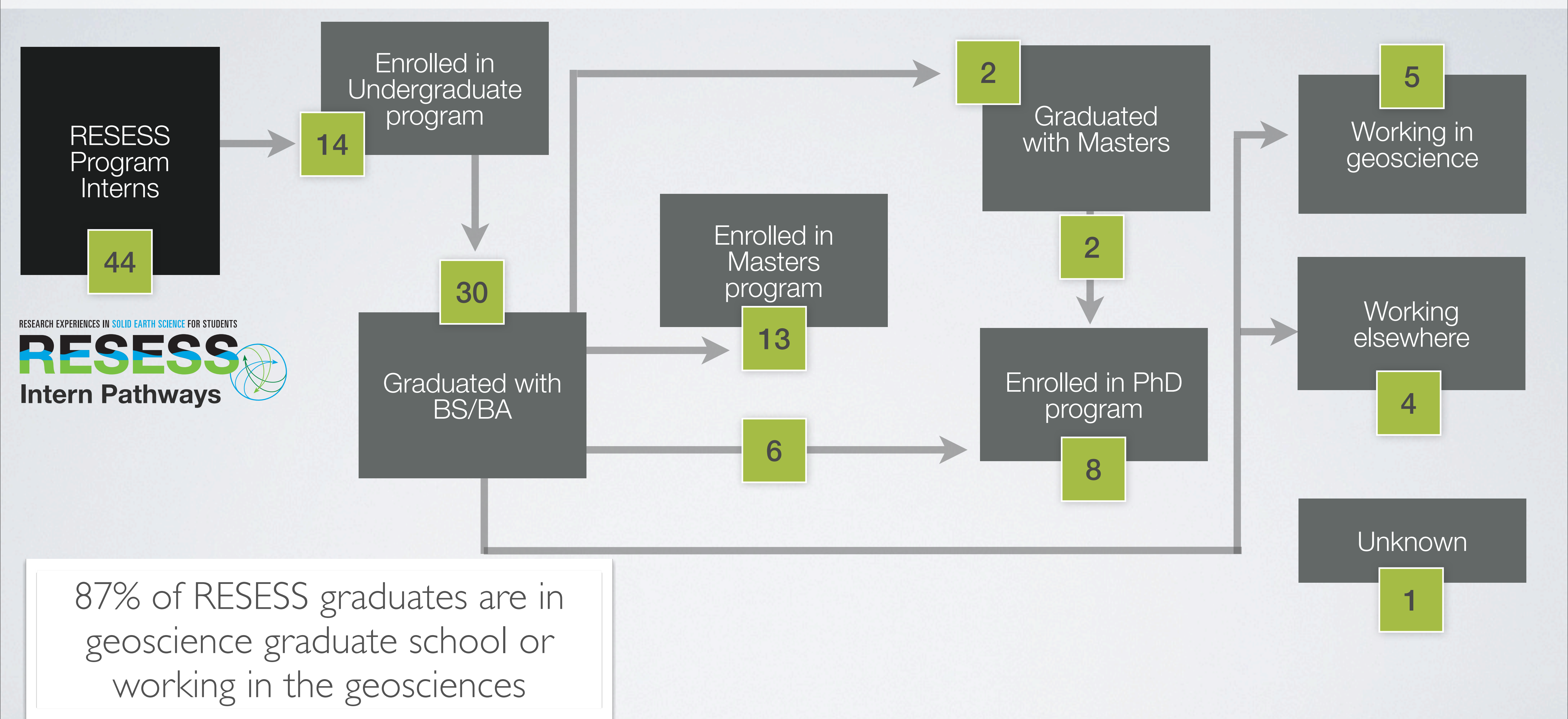
Probably will not = 2

Definitely will not = 1

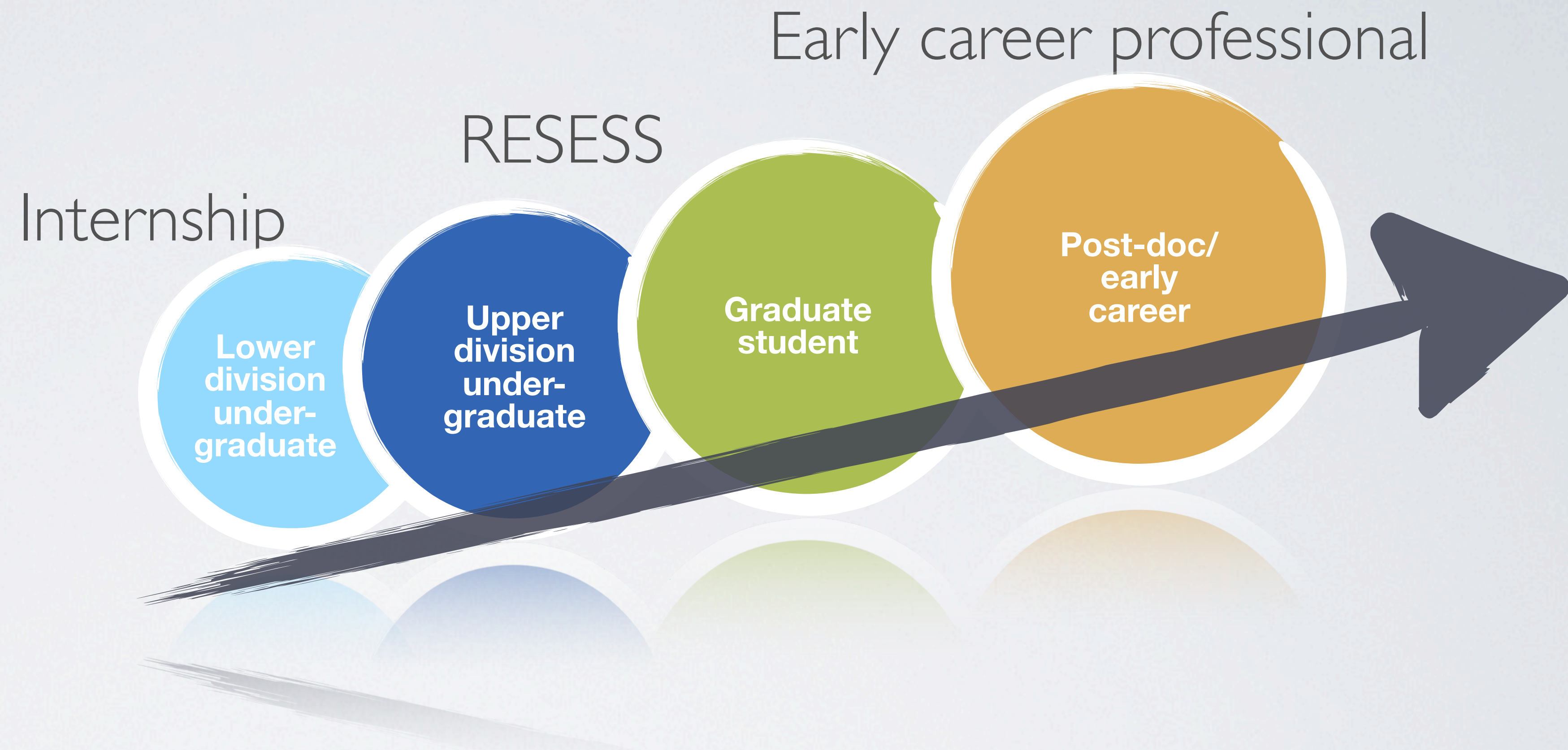
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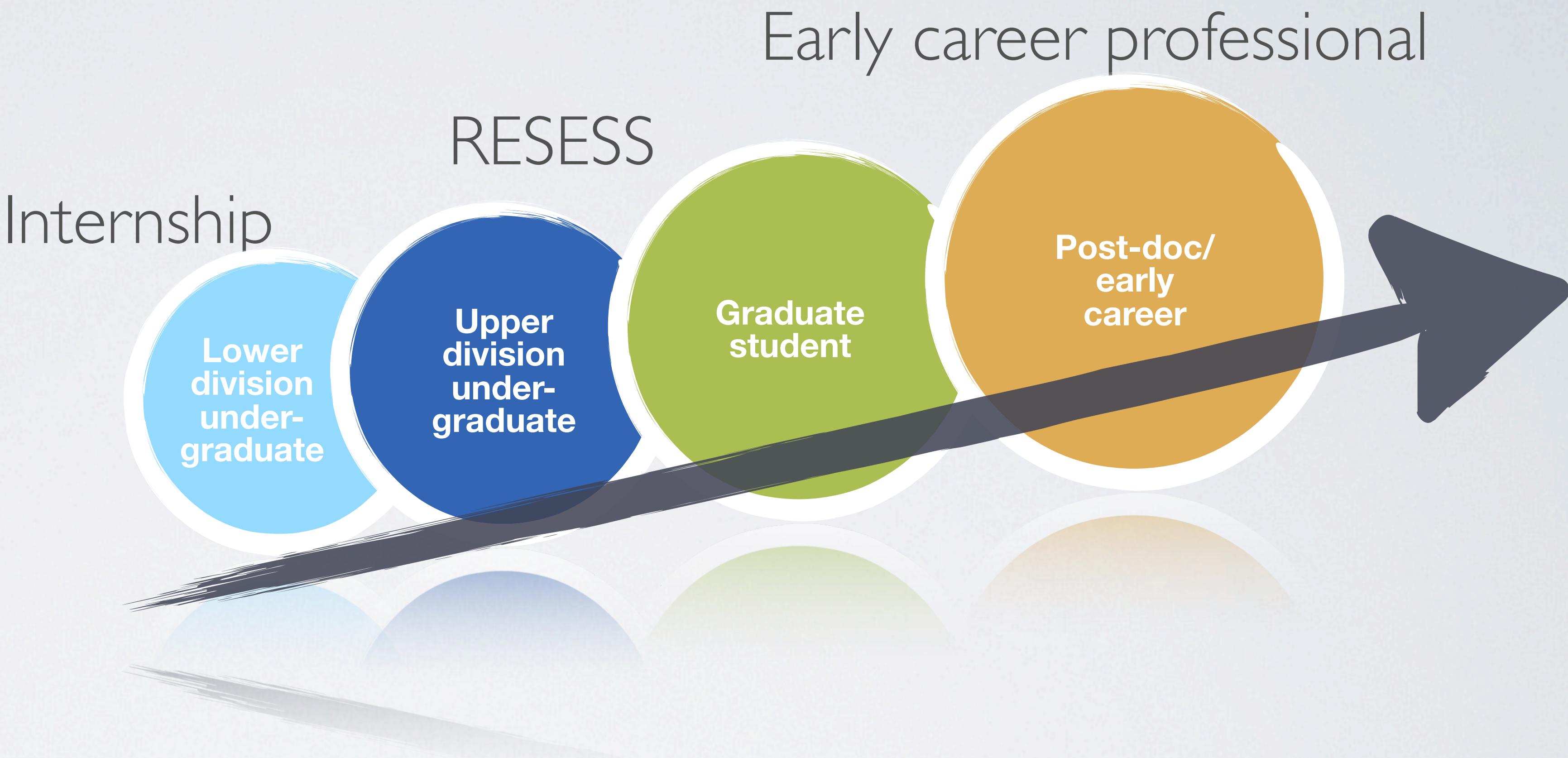
UNAVCO's Geoscience Workforce Development Program





# GEOSCIENCE WORKFORCE DEVELOPMENT PROGRAM

- UNAVCO is expanding outward from the successful RESESS program



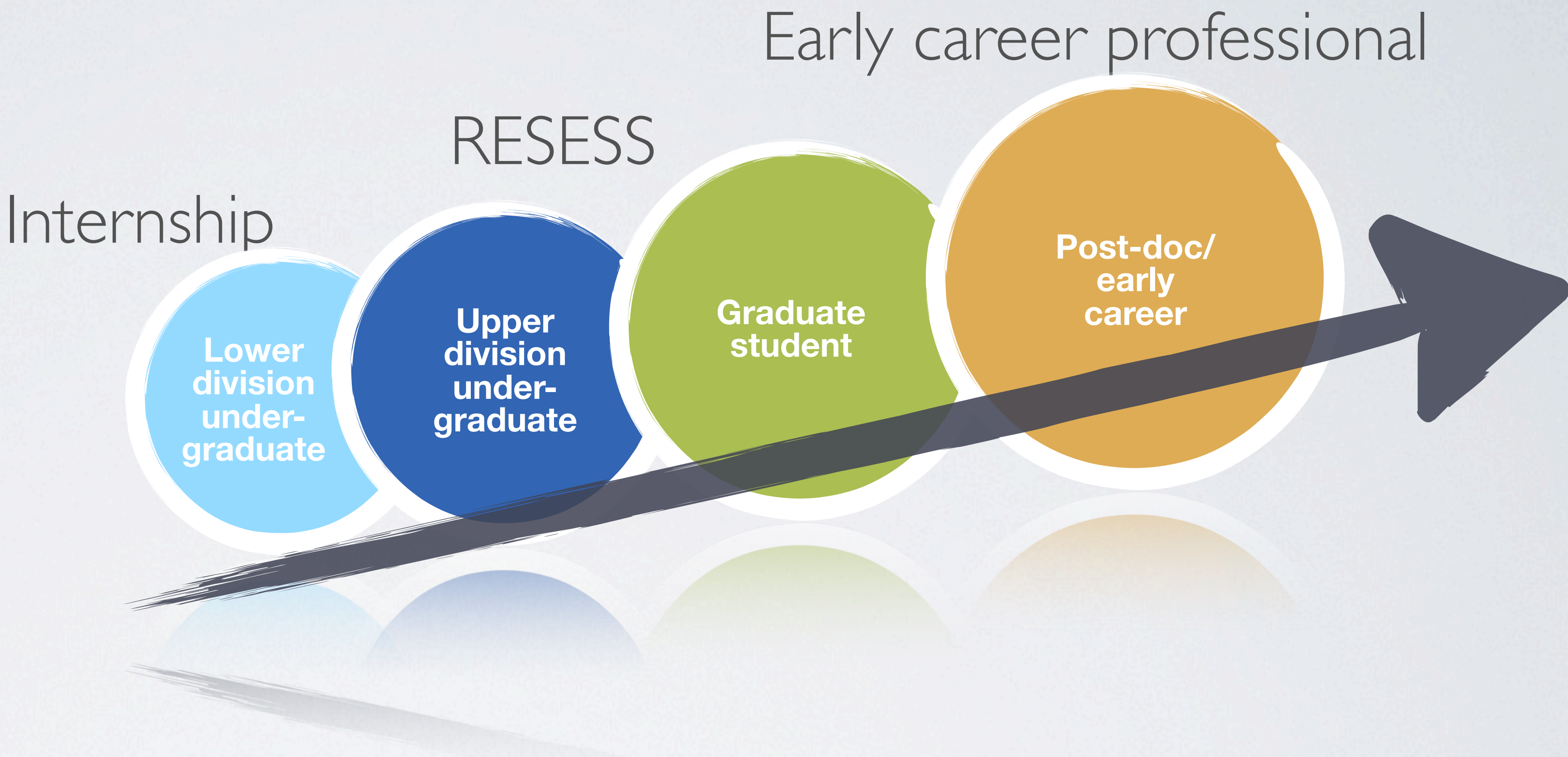
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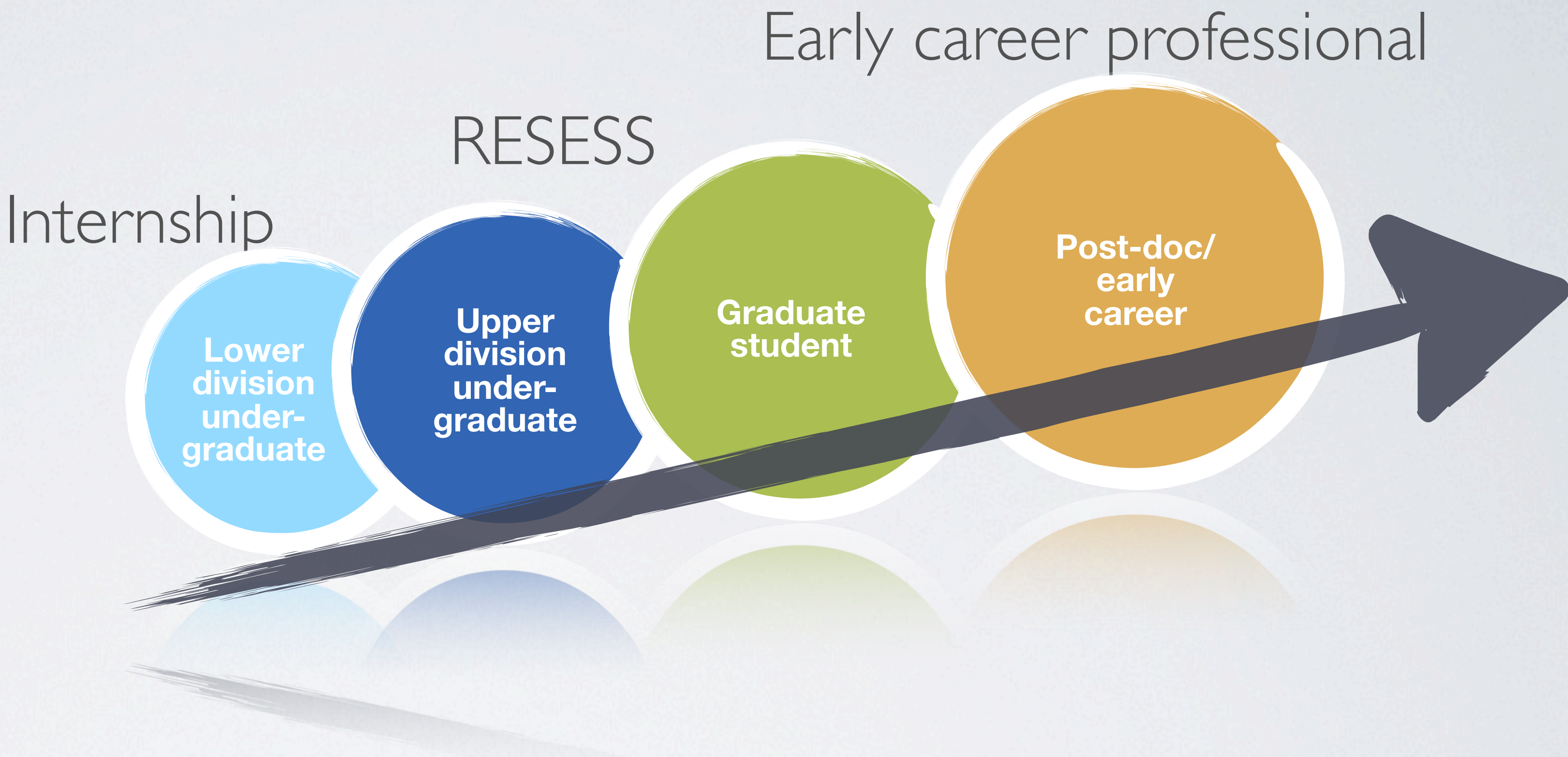
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- Continuing the RESESS program to serve upper division undergraduates



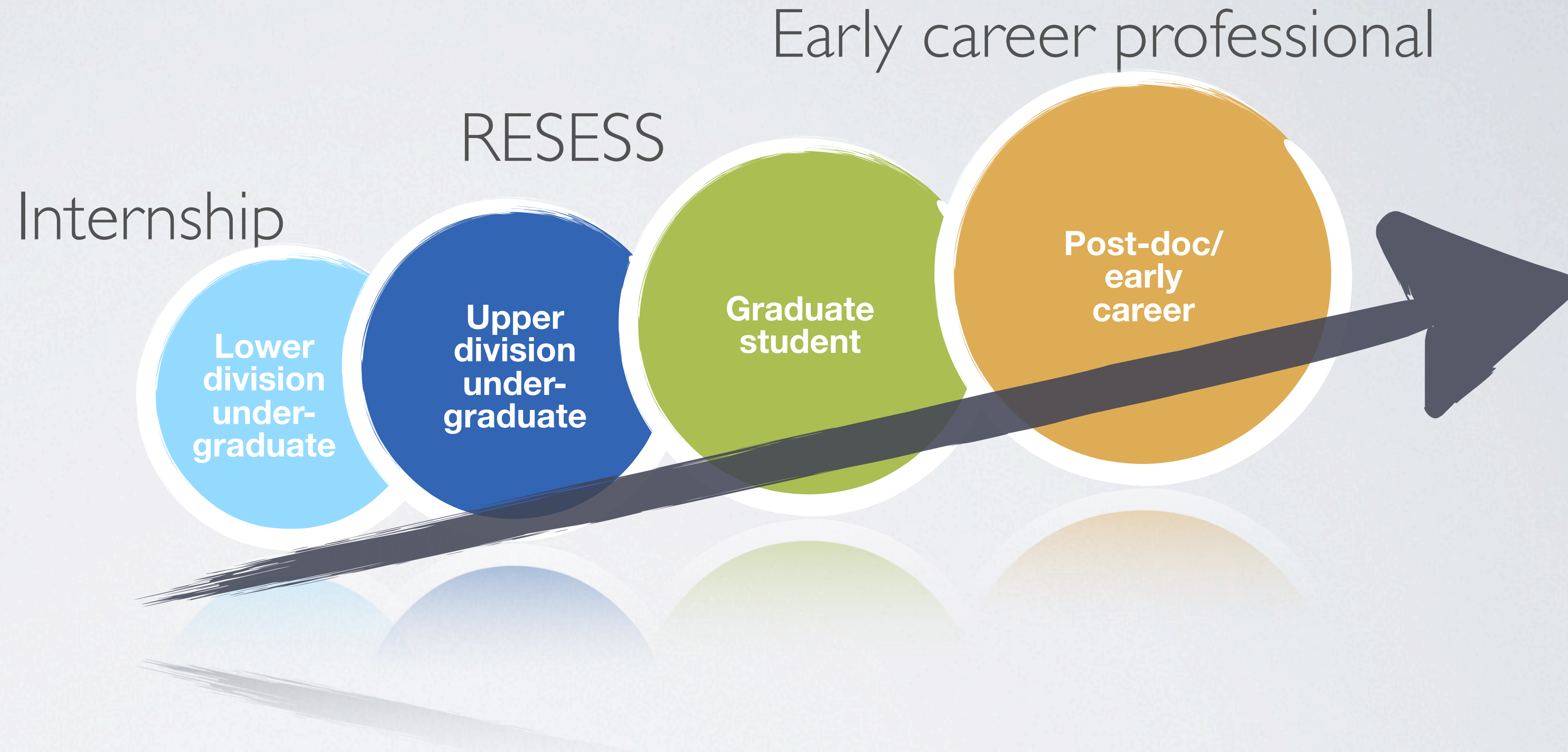
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- Developing an internship program that will serve lower division undergraduates and community college students
- Continuing the RESESS program to serve upper division undergraduates
- Broadening resources for early career professionals



UNAVCO's Geoscience Workforce  
Development Program





# GEOSCIENCE WORKFORCE DEVELOPMENT PROGRAM







# GEOSCIENCE WORKFORCE DEVELOPMENT PROGRAM

**What infrastructure will support a continuous program?**







# GEOSCIENCE WORKFORCE DEVELOPMENT PROGRAM

## **What infrastructure will support a continuous program?**

- UNAVCO internal support of Geoscience Workforce Development
  - Business Affairs Program provides administrative and contractual support; RESESS is fully integrated into UNAVCO business processes
  - Geodetic Infrastructure and Geodetic Data Services Programs provide mentors, data, and instrumentation experience to interns
  - Education and Community Engagement Program provides management and logistical support







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- UNAVCO Community support
  - Mentoring and funding support from PIs
  - Strengthening existing partnerships
    - SOARS program at the National Center for Atmospheric Research
    - National Ecological Observatory Network internship program
    - Incorporated Research Institutions for Seismology
    - U.S. Geological Survey







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- Building new partnerships
  - American Geophysical Union (AGU)
  - American Geosciences Institute (AGI)
  - Geological Society of America (GSA)
  - Private industry
  - Philanthropically-focused organizations, foundations, and non-profits focused on supporting diversification of future workforce







# CONTACT INFORMATION

- Aisha R. Morris, Geoscience Workforce Development and Diversity Lead
  - email: [morris@unavco.org](mailto:morris@unavco.org)
  - telephone: 303-381-7488
  - website: [www.resess.unavco.org](http://www.resess.unavco.org)
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