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# CIOSS – Cooperative Institute for Oceanographic Satellite Studies

College of Oceanic and Atmospheric Sciences  
Oregon State University

&

NOAA/NESDIS/Office of Research and Applications

- **Research**
  - **Product Evaluation and Improvement**
  - **Education/Outreach**
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# CIOSS Objectives

- **RESEARCH:** Conduct oceanographic and air-sea research using remotely sensed data, models and in situ data, focusing on the broad “coastal” margins.
  - **PRODUCT EVALUATION AND IMPROVEMENT:** Evaluate and improve satellite-derived and model products, develop new multi-sensor products, models and data-assimilation techniques; advise NESDIS about these products and techniques;
  - **OUTREACH:** Educate and train students (middle school – graduate students), researchers, policy makers and the public in the use of remotely sensed data and models for studies of the “coastal” ocean.
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# OUTREACH

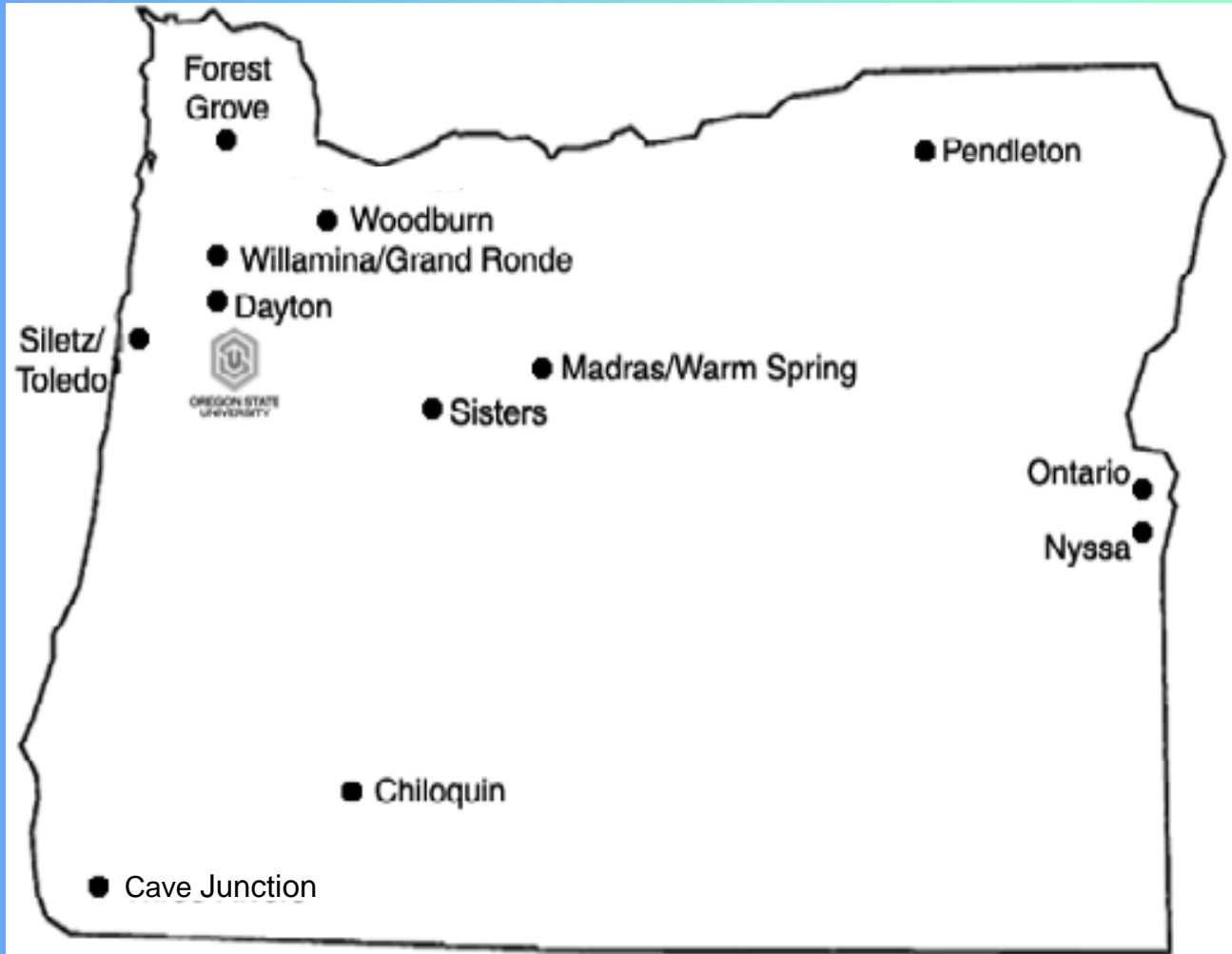
- **Public Schools:** Through programs such as “SMILE,” which develops curriculum materials for grades 7-12 and “teaches the teachers” how to use the materials in interactive programs.
- **Community Outreach and Education:** Public displays of oceanographic research at regional “science museums” such as the Hatfield Marine Science Center, the Oregon Museum of Science and Industry, and other community centers.
- **Research and Training:** Traditional courses, summer workshops/short courses, internships, etc.
- **Career development and mentoring:** Both research and mentoring are accomplished by using “core” funding to bring post-docs and junior faculty to work with more experienced and senior faculty.

# The SMILE Program

**S**cience  
**M**ath &  
**I**nvestigative  
**L**earning  
**E**xperiences



## SMILE Communities



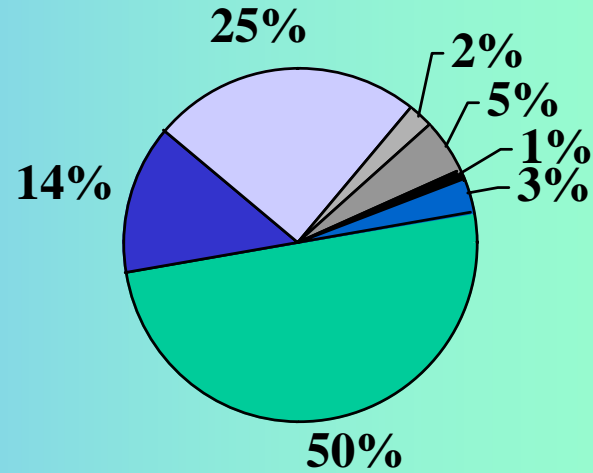
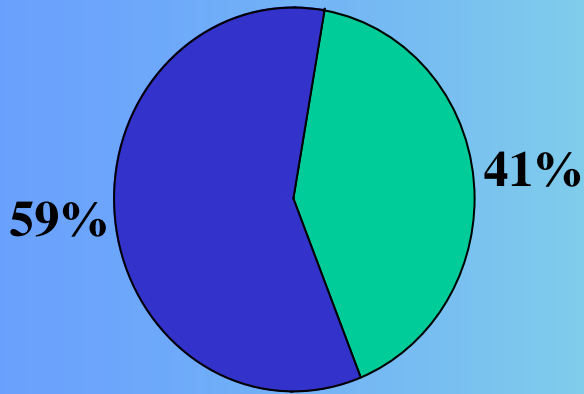
## The Purpose of The SMILE Program

To increase the numbers of historically underrepresented and other educationally disadvantaged students who:

- Graduate from high school
- Pursue higher education to prepare for careers in
  - Mathematics
  - Science
  - Engineering
  - Health professions
  - Teaching



## SMILE Enrollment by Gender and Ethnicity



# The SMILE Program

## SMILE Programs.....

*Elementary Outdoor  
Science Adventure*



*Middle School Challenge*



*High School Challenge*





# The SMILE Program

## SMILE Programs.....

*Professional Development*



*Family Math and Science Nights*



*STARS  
Bridge-To-College  
Program*

# The SMILE Program

## SMILE Partners Include...



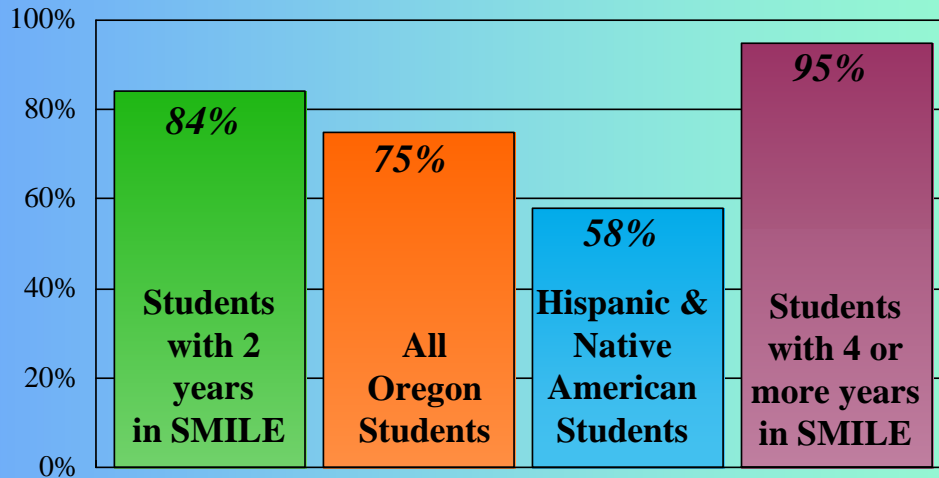
- OSU College of Engineering
- OSU College of Science
- OSU College of Agriculture
- OSU College of Forestry
- OSU College of Oceanic and Atmospheric Sciences
- OSU Environmental Health Sciences Center

- Eastern Oregon University
- Western Oregon University
- Oregon Health Sciences Center
- H.J. Andrews Research Forest
- Oregon Space Grant
- Howard Hughes Medical Institute

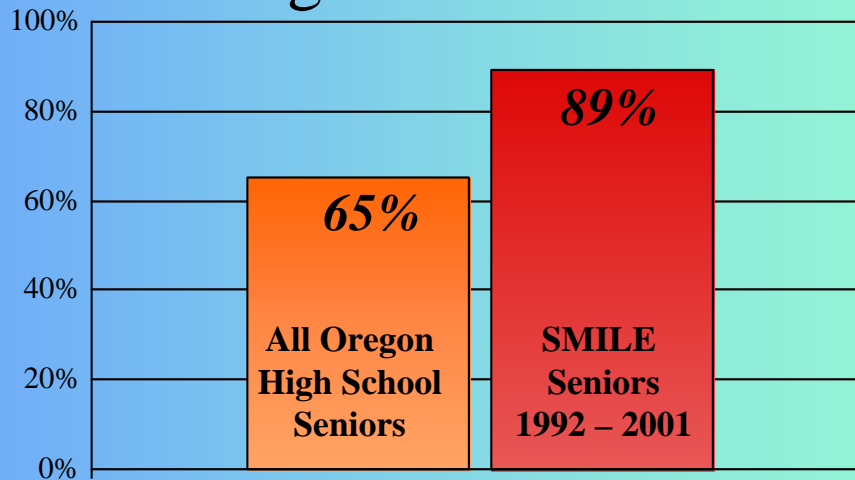


# The SMILE Program

## High School Graduation Rates



## College Enrollment Rates



Oregon student data from the Oregon Office of Educational Policy & Planning  
SMILE Student data supplied by college registrars



## SMILE Program Highlights



- 16 years of operation
- Service to over 4,000 SMILE students in the first 15 years
- 2003-2004 expected enrollment of 820 students
- Through SMILE teachers, over 11,000 students are impacted every year
- Partnerships with 12 school districts
- Supports 76 teachers in 41 schools
- Since 1993, SMILE has awarded over \$222,000 in college scholarships



## **CIOSS and SMILE: A partnership for oceanography education**

### **The SMILE Program**

- Oceanographic/Remote Sensing curriculum development
- Teacher professional development workshops
- Ocean/Satellite-themed high school challenge events

### **CIOSS**

- Contribute expertise to curriculum development
- Present research at teacher workshops.
- Participate as experts at high school challenge events
- Provide lab tours & career information to students

### **SMILE Teachers & Students**

- Implement curriculum in SMILE clubs.
- Teachers participate in professional workshops
- Students participate in annual challenge events



## A Proposed Time-Line for CIOSS/SMILE Outreach Activities

	'03-'04	'04-'05	'05-06
Develop oceanography-themed high school challenges	✓	✓	
Develop curriculum in support of challenge topics	✓	✓	
Prepare teacher workshop sessions	✓	✓	
Host teacher workshops		✓	✓
Implement oceanography activities in club meetings		✓	✓
Host students for challenge event		✓	✓
Evaluate project and seek feedback		✓	✓



## *The CIOSS/SMILE collaboration will result in:*

- The development of hands-on curriculum to introduce SMILE students to oceanography and marine remote sensing
- An increase in the content knowledge of SMILE teachers about oceanographic research and remote sensing
- The development and implementation of SMILE High School Challenges built around a reality-based oceanographic problem
- An increased awareness by SMILE students of marine topics and career opportunities involving satellite remote sensing of the ocean



# The SMILE Program

*The CIOSS/SMILE collaboration*



OREGON STATE UNIVERSITY  
THE SMILE PROGRAM