

# Education

ARBUS  
PERLAN  
MISSION II

ABOUTMISSIONSAIRCRAFTSCIENCEEDUCATIONSPONSORSTEAMBLOGPRESSCONTACT

EDUCATION GOALS

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THE  
MUSEUM  
OF  
Flight

SEATTLE MUSEUM OF FLIGHT

In 1964 a small group of aviation enthusiasts realized that important artifacts representing the evolution of flight were being lost or destroyed at an incredible rate. To aid in the preservation of these artifacts, the Pacific Northwest Aviation Historical Foundation was established with the twin goals of saving significant aircraft and related artifacts and educating the public in terms of their importance.

It soon became clear that a place to store and exhibit these artifacts was needed, and in 1965 the first official Museum of Flight exhibits were put on display in a 10,000 square foot space at the Seattle Center, location of the 1962 World's Fair. The concept for the Museum complex began to jell in 1975 when the Port of Seattle leased the land on which the Red Barn® now sits to the Museum for 99 years. The Red Barn®, the birthplace of The Boeing Company, was saved from demolition on its original location on the Duwamish River, and floated by river barge to its current location. It was restored in 1983 and became the first permanent location for the Museum. The Red Barn was eventually joined by the Great Gallery in 1987, the Library and Archives Building in 2002 and the J. Elroy McCaw Personal Courage Wing and Airpark in 2004.

PARTNERSHIP WITH THE PERLAN PROJECT

Steve Fossett and Einar Enevoldson soared the Perlan I research glider to a new record altitude for gliders of 50,761 feet in polar vortex induced waves over El Calafate, Argentina on August 30, 2006. The Perlan I is now on permanent display at the Seattle Museum of Flight.

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DRI  
Desert Research Institute

N  
University of Nevada, Reno

WAKE FOREST  
UNIVERSITY

WAKE FOREST UNIVERSITY

Wake Forest University is a private, independent, nonprofit, non-sectarian, coeducational research university in Winston-Salem, North Carolina, founded in 1834. The university received its name from its original location in Wake Forest, north of Raleigh, North Carolina, the state capital. The Reynolda Campus, the university's main campus, has been located north of downtown Winston-Salem since the university moved there in 1956. The Wake Forest Baptist Medical Center campus is located near the Ardmore neighborhood in central Winston-Salem. The University also occupies lab space at Biotech Plaza, at the downtown Piedmont Research Park, and at the Center for Nanotechnology and Molecular Materials.

In the 2014 U.S. News America's Best Colleges report, Wake Forest ranked 11th in terms of "Best Undergraduate Teaching" and 27th overall among national universities. Wake Forest has ranked among the top 25 universities in the nation 5 times, ranking in the top 30 for 18 consecutive years. Wake Forest has produced 15 Rhodes Scholars, including 13 since 1986, four Marshall Scholars, 15 Truman Scholars and 62 Fulbright recipients since 1993.

PARTNERSHIP WITH THE PERLAN PROJECT

Joint NSF grant application for science and technology training (STEM)

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LOUISIANA SCHOOL  
for Math, Science, and the Arts

## EDUCATION GOALS

Give teachers and students **hands-on** experiences in planning, conducting and analyzing real science experiments at the edge of space. Inspire young people to pursue educations that lead to careers of adventure in science and engineering.

## OTHER CONTENT WE CAN POST

### Reusable classroom exercises

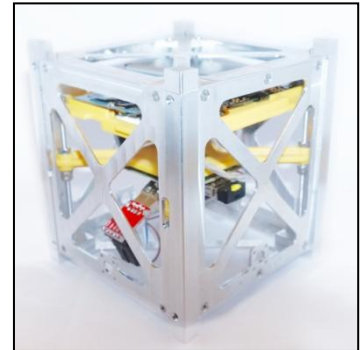
Video from the flights and mission descriptions will be combined with data sets into “**mission modules**” that can be used to create a realistic replication of a Perlan mission. The class can then use the data for exercises in analysis. The mission modules can be re-used an unlimited number of times in classrooms around the world.

### Partnership with Teachers in Space to train teachers to build CubeSats

- During the summer of 2015 there will be a workshop in the design and programming of CubeSats. These instrument packages will be carried to the edge of space by the Airbus Perlan 2 research glider.

### Classes and student researchers design experiments

- Teachers will return to the classroom and design experiments that will conform to the CubeSat standards
- Some of the designs will be selected for flight on the Perlan II. Other designs will be launched by balloon. Teachers in Space will conduct the balloon launches



### Portable cockpit flight simulator

A simulator has been designed that will provide both training for Perlan pilots and experience flying at the edge of space for students. The mockup will be easily transported by trailer to schools, museums and public events. The goal will be to give as many your people as possible a “hands on” experience flying a research plane at the edge of space. As students sit in the realistic cockpit they will perform all of the functions of actual mission pilots. Outside the windows vistas of the earth and sky will be projected. The goal is to give kids a taste of real exploration that will be addictive.

### Design of reusable instruction modules

Prior to uploading mission profiles, video materials and data into an instructional module we would need to create:

- A website where all materials would reside
- A “wire frame” structure for lessons into which data sets and mission profiles can uploaded
- Links to reference materials for teachers on weather, the Polar Vortex, climate change, the ozone hole, atmospheric physics, aerodynamics, pilot physiology and other related topics



## 2016 summer activities for teachers in Argentina

The goal would be to see an international set of secondary level teachers participate in the expedition to Argentina. This is in addition to University level researchers that will be participating in the mission.

### Upload data from CubeSats

Following missions teachers could download data from the CubeSats, document relevant mission parameters and upload the data to internet for access by classrooms and researchers.

### Package and upload video and mission profiles into instructional modules

The goal would be to make the data, video and mission profile available in a format that would allow classrooms all over the world to conduct classes discussing, plotting and analyzing the data gathered by the CubeSats or other the instruments carried to altitude on the Perlan aircraft.

### Weather balloons

Teachers will work with meteorologists to launch and monitor weather balloons in support of the Airbus Perlan 2 mission.

### Chase plane crew

Qualified teachers may qualify to fly in the chase plane to perform experiments, take observations, provide communications, operate cameras or other suitable activities.

### Number of teachers who could participate in Argentina

Initial estimates are that a group of three teachers could be on site at one time. Each set of teachers could be onsite four weeks. The range of dates for a campaign in Argentina range from June 1 - Oct. 31, but with school dates teachers would probably only be available June 15 to August 15. To cover this period we would need two sets of teachers.

