CU-Boulder’s Department of Aerospace Engineering Sciences is nationally known for teaching and research that address both challenges and opportunities facing the aerospace profession. The program, which emphasizes fundamentals within a practical, professional context, is ranked 10th among public undergraduate and 8th among public graduate programs by *U.S. News & World Report*. Students work extensively on challenging, hands-on experiments and design projects alongside expert faculty in the department’s world-class research centers. CU aerospace alumni are working at top companies and research labs, including the Jet Propulsion Laboratory, Johnson Space Center, The Boeing Company, and Lockheed Martin.

**Aerospace Engineering Sciences**

“**We are also proud to announce that the National Research Council (NRC) ranked our PhD program in aerospace engineering among the top two to four in the country in terms of program quality.**”

—Jeffrey Forbes, Department Chair

**The Space Systems Science and Engineering Initiative (AS3E)**

This new program will foster and integrate campus-wide expertise in space systems technology and science applications of space systems through:

- Multidisciplinary degrees in engineering and science
- Hands-on experience for students on flight systems and instruments
- Technology research to enable new science missions
Satellite-Based Remote Sensing Enriches Understanding of Earth

Faculty and students at CU’s Colorado Center for Astrodynamics Research (CCAR) — one of four world-class research centers based in the department — are using space technology to improve our understanding of the Earth. By using satellites to measure sea-surface height and temperature, one research team is helping track hurricanes forming in the Gulf of Mexico.

CCAR produces daily maps of changing ocean currents around the world and posts them to its web site, where they also have been used by scientists and fisheries to track and locate fish and sperm whales, and by at least one oil company to find a suitable towing route through the Gulf of Mexico for a submersible drilling rig. More than 100,000 images from the CCAR Web site, which is maintained primarily by undergraduates, were downloaded during a single year by federal agencies, private customers, and the public.

Going to Great Lengths — UAVs Fly Beyond the Limits of Man

Unmanned aerial vehicles (UAVs) being developed by CU faculty and students are playing a significant role in the collection of scientific data in remote and hazardous environments where flying a manned vehicle would be difficult, if not impossible. The interdisciplinary Research and Engineering Center for Unmanned Vehicles (RECUV) is a university, government, and industry partnership that is designing, developing, and implementing new technologies that will enhance the communications, mobility, and overall performance of unmanned vehicle systems. From NSF and DOD funded research to senior design projects, AES faculty and students are pushing the envelope with UAVs designed to chase tornadoes, explore the arctic, fight wildfires, and even track toxic plumes.

Former astronauts Joe Tanner and Jim Voss joined the CU-Boulder faculty in aerospace engineering following their retirement from NASA. They bring 43 years of combined experience at NASA, including nine spaceflights, 11 spacewalks, and more than eight months of total time in space.

Professor Brian Argrow examines an unmanned aerial vehicle (UAV) with a student. CU faculty and students are developing UAVs for uses including climate research, wildfire mitigation, and tornado chasing.