



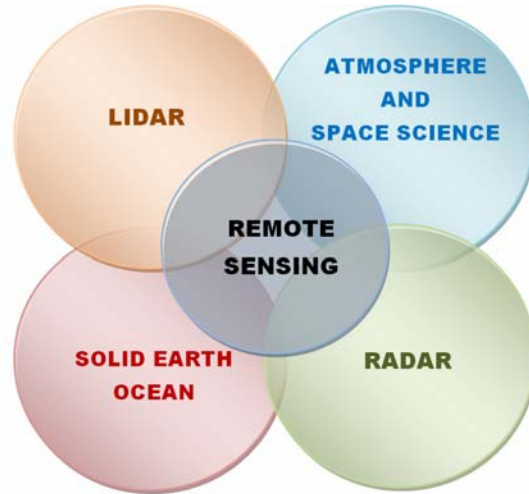
Greenland radar and lidar facility, Photo by Craig Heinselmann

Remote Sensing: Exploring Space, Atmosphere and Earth

Remote Sensing, Earth and Space Sciences (RSESS) focus area develops various active and passive remote sensing technologies, and studies geoscience covering the space, atmosphere, solid Earth and oceans.

The Remote Sensing Program

RSESS focus area serves to bridge engineering and science disciplines by providing students with a unique experience and a skill set that prepares them for future opportunities in this expanding field. It also recognizes the evolving need in industry and research for system engineers able to understand both engineering concerns and scientific motivations.



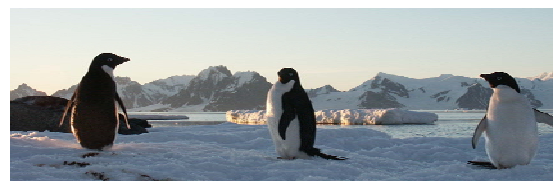
Fe-Boltzmann mobile lidar system deployed in Antarctica. Photo by Xinzhao Chu.

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RSESS has a broad and vibrant research program. Active and passive remote sensing techniques such as lidar, radar and radiometry are designed, developed and deployed on various types of research platforms (such as spacecraft, aircraft, and ground-based systems) distributed around the world. The scientific research programs range the spectrum of oceans, solid Earth, Earth's atmosphere, interplanetary space and planetary atmospheres, often employing remote sensing techniques and complementary modeling activities. Students have available many research opportunities in this area.



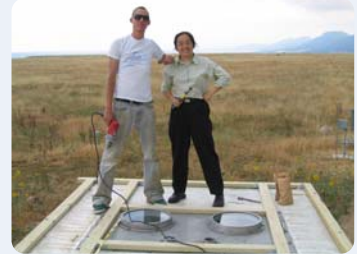
RSESS program could bring you to meet our friends in Antarctic. Photo by Xinzhao Chu.

Selected Projects in the Remote Sensing, Earth and Space Science [RSESS] Program



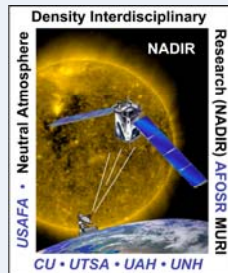
COBRA Meteor Radar System: Design and constructed at CU. Operates continuously, measuring upper atmosphere winds.
[Contact: Scott Palo]

Major Research Instrumentation: Development of a Mobile Fe – Resonance/Rayleigh /Mie Doppler Lidar: This advanced lidar will travel the world to explore the global atmosphere and space.
[Contact: Xinzhao Chu]



ACR Inc. Manta Unmanned Aircraft Outfitted with laser ranging and imaging system for mapping surface conditions over sea ice, glaciers and ice sheets.
[Contact: Jim Maslanik]

“ I have one friend working with UAVs, lasers and the cryosphere, another tracking meteorites at the South Pole and Puerto Rico, and I'm working with lidar to understand the dynamics of the polar winter atmosphere- it doesn't get much cooler than this! ” - Katelynn Greer RSESS PhD Student



Neutral Atmosphere Density Interdisciplinary Research (NADIR): Low earth orbiting satellite drag environment studied using sensitive spacecraft accelerometer measurements and sophisticated numerical models.
[Contact: Jeff Forbes]

“ Remote sensing expands the possibility for scientific study of the biosphere ”
- Jonathan Fentzke RSESS PhD Student



Radar Studies of the Polar Ionosphere: Incoherent scatter radar systems in Alaska and Greenland are used to study the polar ionosphere.
[Contact: Jeff Thayer]



Greenland Lidar Project- Arctic Lidar Technology : Rayleigh/Mie/Raman lidar for studying the polar middle atmosphere.
[Contact: Jeff Thayer]

“ RSESS has given me the opportunity to work with state of the art technology, from building prototypes to actual observational campaigns and analyzing the results. ”

- Johannes Wiig RSESS PhD Student

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