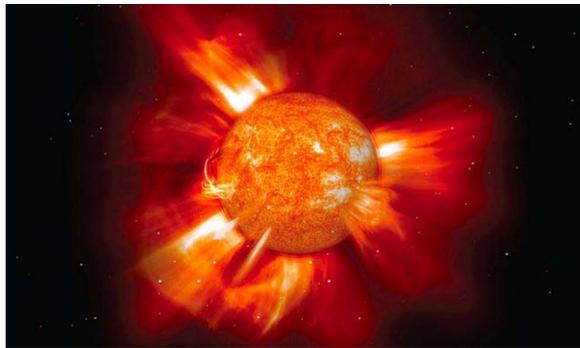


Applied Space Weather Research

New Master of Science and
Undergraduate Minor
Programs at The Catholic
University of America
Starting Fall of 2018



Our goal: To provide students with an understanding of space weather system science, including the origins of space weather on the sun, transport of particles and radiation through space, interaction of the solar wind with the magnetosphere, space plasma physics, magnetosphere-ionosphere coupling processes, and the chemistry, dynamics, and electrical properties of the ionosphere and thermosphere. These programs are built on a strong partnership between CUA and NASA Goddard Space Flight Center (GSFC).

Master of Science in Applied Space Weather Research

- Students with, or about to earn, bachelor's degrees in the sciences, mathematics, or engineering and other technical disciplines will be eligible for this Master's program.
- Both thesis and non-thesis options will be available, as well as a non-thesis 4+1 track for continuing undergraduates.
- The thesis option requires:
 - ✓ 24 credits of graduate work from the course list and
 - ✓ Up to 6 credits of independent, Master's thesis research on a topic selected in consultation with the student's program advisor.
 - ✓ This topic may be linked to work done in coordination with NASA and CUA scientists at GSFC.
- The non-thesis option requires:
 - ✓ 24 credit hours of graduate work from the course list and
 - ✓ 6 additional graduate-level credit hours that may comprise courses taken in other departments at CUA, with the student's program advisor or the director's consent.

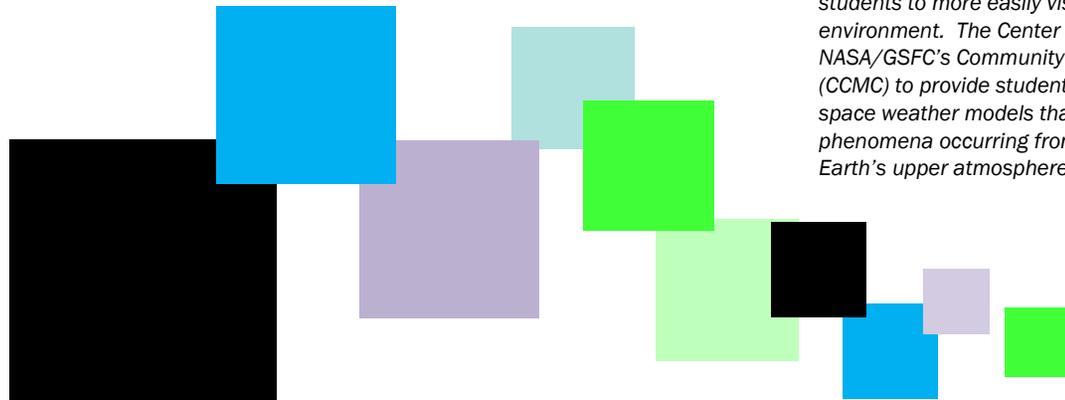
Minor in Applied Space Weather Research

- Students currently, or soon to be, enrolled in any major are eligible for this Minor program.
- Students must complete 18 credit hours for this minor, which includes:
 - ✓ 4 three-credit courses from the core courses options and
 - ✓ 2-3 electives chosen from those offered on the course list.

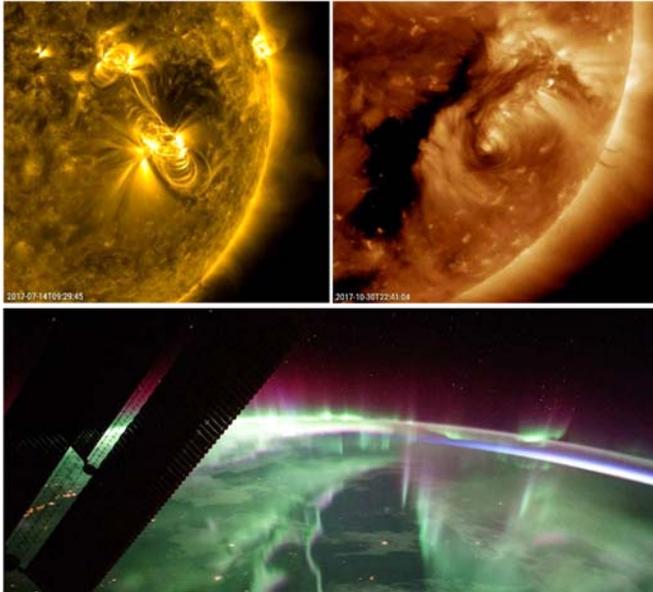
The CUA Space Weather Center (SWC)



Some of the space weather courses will offer a lab component to be taught at CUA's Space Weather Center. The SWC will include a variety of instructional resources for students to more easily visualize processes in the space environment. The Center will be closely linked to NASA/GSFC's Community Coordinated Modeling Center (CCMC) to provide students the means to interactively run space weather models that simulate the various physical phenomena occurring from the surface of the sun to Earth's upper atmosphere.



Why Space Weather?



Recognition of the importance of space weather has been increasing over the past 20 years, largely due to new knowledge about the many impacts to human technology from solar and geomagnetic storms. Students with a minor in space weather will be well positioned to either continue their education in graduate school or find employment in one of the many industries where knowledge of space weather is important. These fields include the electric power, aviation, navigation, communications, and satellite industries. Students who achieve an M.S. in space weather research will be able to contribute their expert knowledge to these fields even more so, and may have the opportunity to round out their programmatic experience with research assistantships at CUA and NASA Goddard.

Coursework will cover the following topics:

- Physics of the sun and solar wind
- Geospace Physics (magnetosphere, ionosphere, and thermosphere)
- Auroral Physics
- Space Plasma Physics
- Space Weather Forecasting
- Space Weather Impacts
- Space Weather Observations and Sensors
- Space Weather Policy



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Photos courtesy of CUA,
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