



Alessandra Pacini

Space Weather Scientist



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What does a Space Weather Scientist do?

We study the physical processes that happen on the Sun and at the interplanetary medium, focusing on investigating their effects on Earth's space environment, called GeoSpace.

How is your job a space job?

The data I use in my work come from NOAA's satellites that observe the Sun, space weather, and the Earth from their orbits. I work specifically with the magnetometer instruments, which measure the magnetic fields in the interplanetary medium and around the Earth.

What kind of impact does your job have?

Both data products and scientific results from our work are important to support NOAA's mission of monitoring and forecasting space weather events, helping the U.S. to become a "Space Weather-Ready Nation," meaning a nation prepared for potential impacts of space weather events on our power grids, satellites operations (crucial for our society's communication and navigation), and astronaut safety.

What was one of the biggest challenges you've faced and overcame in becoming a Space Weather Scientist?

As a Latina woman and first-generation scientist, one of the biggest challenges I've faced in my career was the lack of representation. During my whole academic journey, from college until the end of my second Ph.D. thesis, I was part of a minority group of women in my classes and laboratories. It is now my responsibility to keep removing the obstacles that are still in the way of the next generation, making the space science field more inclusive and diverse.



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What were your interests when you were growing up?

Growing up, I liked to seek answers to my questions on my parents' bookshelves and think of new questions while listening to Brazilian music. I loved to go to Blockbuster with my sister and our friend to rent movies for the weekend. I feel lucky and privileged to say that I grew up surrounded by science and art.

What are some of the classes you should take to become a Space Weather Scientist?

My path to becoming a space weather scientist started with a physics undergraduate degree, so anyone pursuing this path would benefit from advanced math and science classes. If you, like me, are not a native English speaker, I strongly recommend you attend an English class as soon as possible. Another important step to becoming a space weather scientist is learning how to code. The amount of satellite data we analyze nowadays is so big that we can't do it without the help of a computer.