I am Alondra Álvarez Castro, 5th year undergraduate physics student from the University of Puerto Rico, Río Piedras campus. I am applying to do summer research at the MIT Haystack Observatory REU because I think it is a enriching opportunity to explore and learn about atmospheric sciences and will help me to develop my path as a researcher and professional.

When I was around middle school, I developed an interest in the field of atmospheric science. Around then I had experienced first hand the outcomes from hurricane María in 2017. The lack of proper management in addressing such situation by the government made me ask myself how could I contribute to protect vulnerable communities from the impact of future events.

I started at the University in 2020 in the middle of the pandemic. At first I wanted to go to the Mayagüez campus because they offer a curriculum in atmospheric sciences, but I decided to start my undergraduate studies closer to home in Río Piedras. The first research project I worked on is astronomy related, performing manual inspection of sources and cross-checking with another observer. Afterwards I joined the "Círculo de Astrofísica", a research group in my campus that endorses physics and astrophysics and organizes public educational activities in those fields.

For the past two summers I participated in internship experiences related to astronomy; firstly, in the University of Utah and secondly, in a collaboration with the STScI and my University's astronomy group (more details on CV). I enjoyed both of these experiences and learned useful research skills, like computational modeling. Having said that, my interests still remain primarily in atmospheric sciences since it's a field that's closer to home and it has become such an important discipline because of the impact of climate change.

Last semester, I participated in the remote program MILO Academy from Arizona State University, which touched on how we as individuals can take actions to address the problems of climate change in Puerto Rico using GIS data. In a group alongside other participants, we proposed how to have a resilient community powered by a solar panel grid in the most vulnerable towns of the island in response to atmospheric disasters, taking real-life examples from Puerto Rico.

After I complete my bachelor's degree, I plan to pursue the curriculum at the University of Mayagüez to become a classified meteorologist. Following that, I aim to apply for graduate studies in atmospheric sciences, especially related to climate change research. Another area of interest is aerobiology because I enjoyed taking a class about it in which I researched how non-viable aerosols behave depending on meteorological factors using bibliographical material.

This program is particularly of my interest because it would be my first hands-on experience on a field of atmospheric sciences. The project I am most aligned to is the one about estimating the thickness of ice on polar oceans. This project led by Dhiman Mondal involves a phenomena that relates to the regulation of climate, which I eager to learn more about, especially how can the data be interpreted. Since it will involve coding, it can also enhance my skills and expose me techniques and approaches that I can apply to atmospheric and geophysical science research. If selected, I am looking forward to gaining practical experience and contributing to research.