

DHEDF Rural STEM Initiative – Overview of NASA CAMEE
DHEDF Rural STEM Initiative Collaborating Organization
As of 8 May 2023

To: DHEDF National Rural STEM Initiative Participating Schools

From: Wayne I. Fagan, DHEDF Chair

Date: 8 May 2023

Subject: Summary of info received from NASA CAMEE -Center for Advanced Measurements in Extreme Environments and posted to DHEDF Rural STEM Initiative Private Pages for Participating Schools

Resources designed for use in Grades: K-12

Team:

Introduction:

The information contained in this memo was graciously provided to us on behalf of NASA CAMEE by:

Izzy De Leon (he/him) M.S.

Research Program Coordinator | NASA CAMEE

The University of Texas at San Antonio

BSB 2.03.02 | (210) 458-4924 | <https://www.utsa.edu/NASA-CAMEE/>

The **NASA MIRO Center for Advanced Measurements in Extreme Environments (CAMEE)** at The University of Texas at San Antonio (www.utsa.edu/NASA-CAMEE) was established in 2019 to support NASA's Science, Aeronautics, and Space Technology Mission Directorates, with the vision of building a sustainable source of diverse, highly trained researchers to enter the Nation's workforce in NASA fields of earth system sciences, remote sensing and imaging technologies, computational fluid dynamics and data analytics, and experimental fluid mechanics. Educational Goals: (1) form highly-skilled diverse professionals in STEM disciplines that support NASA's mission; (2) develop an integrated education and research program in measurements, modelling, and data fusion supporting NASA's future workforce needs; (3) increase the interest of underrepresented minority undergraduate students in graduate STEM education; (4) implement a K-12 teacher's training and outreach program with the purpose of engaging the underrepresented minority students in pursuing STEM careers; and (5) increase the research capacity of UTSA related to NASA research priorities. Research Goals: (i) characterize changes in polar sea ice and ice sheets, especially areas undergoing rapid change; (ii) improve our understanding of extreme atmospheric and oceanic processes with data-driven models using improved measurement techniques; (iii) develop new data assimilation and modeling methods and algorithms to combine multisensor measurements for resolving turbulent fluxes across a variety of surfaces (atmosphere-ocean; ice-ocean; atmosphere-ice)

DHEDF Rural STEM Initiative – Overview of NASA CAMEE
DHEDF Rural STEM Initiative Collaborating Organization
As of 8 May 2023

and flow scale regimes; and (iv) execute a synergistic experimental and computational effort to develop improved turbulence models with applicability over a range of flow scale regimes.

On 20 April 2023, Izzy De Leon was our guest speaker on the monthly call of the DHEDF Participating School Leadership. Izzy's role with NASA CAMEE as well as the link to the recording of that call are as follows:

Izzy De Leon (he/him) M.S.

Research Program Coordinator | NASA CAMEE

The University of Texas at San Antonio

BSB 2.03.02 | (210) 458-4924 | <https://www.utsa.edu/NASA-CAMEE/>

Zoom link to recording of Meeting

<https://us02web.zoom.us/rec/share/plkwjWqp4nF31Ld2JCvaRjWpWe4HSUspBhKea8S7axueZoXWtQU5SLvVzuoOnQj.xHaVUgbcOUHjR3UK>

Passcode: emdQI%43

As a first step to learning more about NASA CAMEE and putting in context the materials referenced herein, I would encourage you to first view Izzy's presentation. Following Izzy's presentation, he made available to me the following documents to share with you. I have set out below the name of each document, where it is posted on the Private pages of the DHEDF Rural STEM Initiative, and introductory comment(s), if any, by either me and/or Izzy, respectively.

1) CAMEE's use of NASA's Resources

Message from Izzy De Leon

At CAMEE, we make use of the NASA Office of STEM Engagement's free educator resources. [WIF: see NASA STEM Engagement- <https://www.nasa.gov/stem/foreducators/k-12/index.html>] At NASA.gov, you can find various STEM lesson plans, activities, and demonstrations at all levels. Below are three lessons and activities that we make use of frequently when we visit schools or participate in STEM Nights.

DHEDF Rural STEM Initiative – Overview of NASA CAMEE
DHEDF Rural STEM Initiative Collaborating Organization
As of 8 May 2023

Creating Images from numbers:

<https://www.nasa.gov/stem-ed-resources/creating-images-from-numbers.html>

Landing Humans on the Moon:

<https://www.nasa.gov/stem-ed-resources/landing-humans-on-the-moon.html>

International Space Station Robotic Arm:

chrome-

extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nasa.gov/pdf/675573main_Technology%20Activity-SOS.pdf

*If that doesn't get you there you can find it as an "extension" here:

<https://www.jpl.nasa.gov/edu/teach/activity/robotic-arm-challenge/>

2) CAMEE Focus Areas

CAMEE's five research focus areas are:

- **Exploration of Planetary Surfaces**
- **Exascale Turbulence Simulations**
- **High Speed Compressible Aerodynamics and Reacting Flows**
- **Extreme Oceanic Conditions**
- **Snow and Ice in Earth & Planetary System**

For more information of each of these focus areas and others visit

<https://www.utsa.edu/NASA-CAMEE/> and the **Resources tab** in the banner on the home page

3) For additional sources of information about NASA CAMEE

- a) Search for CAMEE in the DHEDF General Search engine at <https://dhedf.org/search?f=2&q=camee>
- b) Search for CAMEE in the Private Pages of the DHEDF Rural STEM Initiative Discussion Group at <https://dhedf.org/forum/all/latest?category=23>
- c) Visit NASA MIRO CAMEE website at [CAMEE \(utsa.edu\)](https://www.utsa.edu/NASA-CAMEE/)
- d) Visit UTSA CAMEE You Tube channel at [UTSA CAMEE - YouTube](https://www.youtube.com/channel/UC...)
- e) Visit UTSA CAMEE twitter page at [\(20\) UTSA CAMEE \(@utsacamee\) / Twitter](https://twitter.com/utsacamee)

**DHEDF Rural STEM Initiative – Overview of NASA CAMEE
DHEDF Rural STEM Initiative Collaborating Organization
As of 8 May 2023**

We are grateful to Izzy De Leon and the NASA CAMEE team for their commitment to STEM Education in general, the great resources they make available to the public, and their collaboration with the DHEDF Rural STEM Initiative. As DHEDF becomes aware of additional resources from NASA CAMEE this document will be supplemented from time to time.

Caveat: From time to time, as in this case, DHEDF will share opportunities with you or make recommendations to you. It is totally up to you whether you wish to take advantage of those opportunities, DHEDF makes them in good faith, but they may not fit with your programing. DHEDF also wants to make it very clear that DHEDF has no financial interest in nor does it receive any financial benefit from any of the products or services we suggest to you for your evaluation.

If you have any questions concerning any of the foregoing or any other questions about DHEDF in general or the Rural STEM Initiative **please contact me, Wayne I. Fagan, at (210)570-7888 or wifagan@wifagan.com**

Thank you again for your participation in the DHEDF National Rural STEM Initiative, we are honored to have you, your schools, and your students as part of this Initiative.

Wayne I. Fagan | Chair
Dee Howard International Education Foundation

