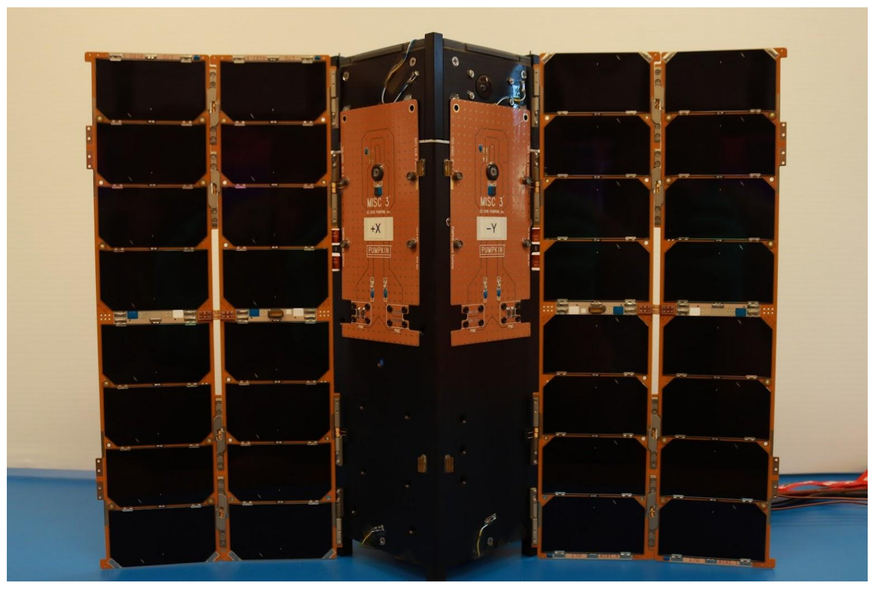
DORA

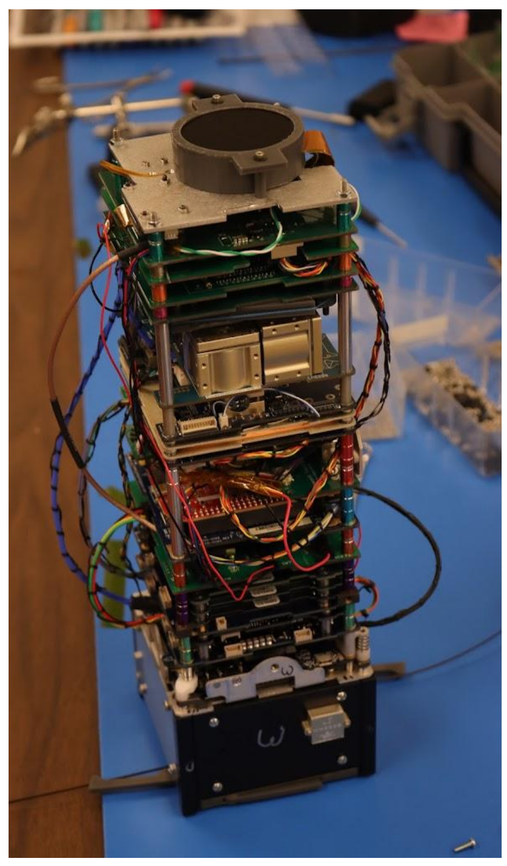


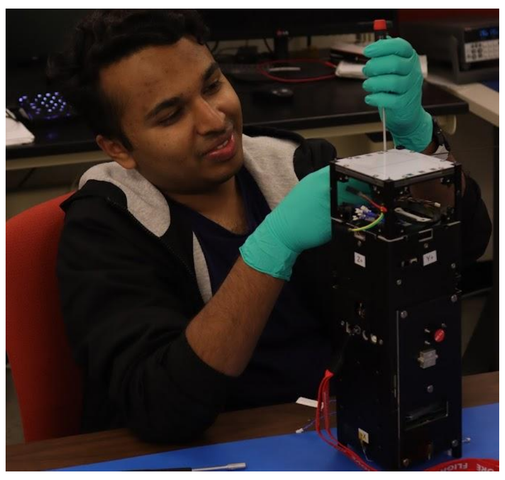
Mission Overview

DORA is a 3U CubeSat to observe and map the use of the radio spectrum in the 2 to 4 meter band. Utilizing a VHF spectrometer the instrument will provide a first test of the compact switches and other technology needed to perform EDGES-type measurements in space.

Quick Facts

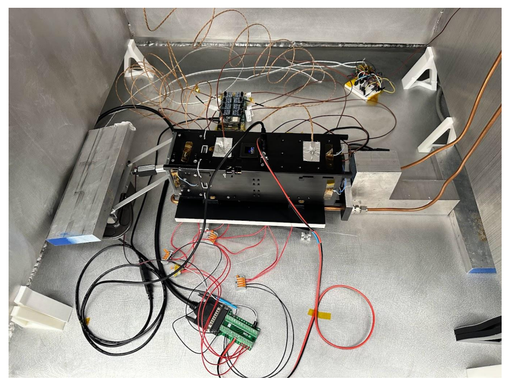
Dimensions: 10x10x340mm
Weight: 3.236 kg
Payload: VHF Spectrometer and SiPM receiver
Launch Date: August 2024
Orbit: ISS (51.6º, 400km altitude)





Interplanetary Lab Involvement

- Systems design and budgets (power, mass, and radio link)
- Integrated subsystems from CubeSpace, Clyde Space, Vega Space Systems and Pumpkin into LoCo designed EDGES-type payload
- Developed flight software, in collaboration with SPARCS, for linux based operating system on beaglebone
- Designed penthouse structure, anodized, and integrated it into Pumpkin structure
- Performed or coordinated epoxy and conformal coatings of boards, cables, and connectors
- Battery testing and validation by performing cycles of charging and discharging
- Environmental testing and verification, including: thermal cycling, workmanship vibration, and thermal vacuum
- Collaborated with integrator, Nanoracks, to complete NASA documentation for safety and flight readiness



2020

DORA selected for 2020 SmallSat Technology Program (STP) and kick off meeting in March

2021

CAD and thermal model is developed. JPL payload begins testing

2022

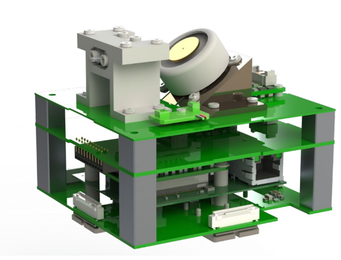
The team applied for the 13th Cubesat Launch Initiative (CSLI) selection in August 2021 and is selected in March 2022. Cabling begins and 3D printed prototypes are created. Purchased EDU hardware begins to arrive and flatsat testing begins

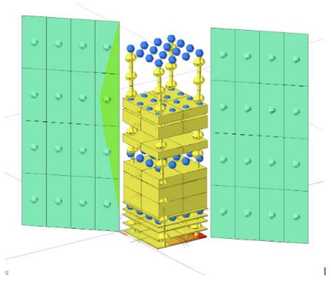
2023

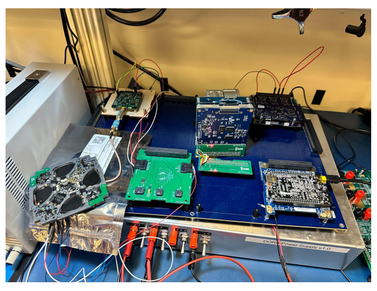
JPL payload rescoped by ASU and to be built by LoCo. Hardware and software development, payload iterations, and flatsat testing with flight hardware begins. Boards are conformal coated and full stack up and deployment testing is attempted

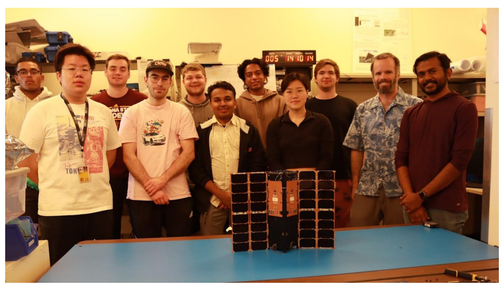
2024

Full environmental testing is conducted at IPL and is successful. Final stack up and solar panel integration in March 2024. DORA is successfully integrated into NRCSD on May 8th, 2024 and is due for flight on NG-21 in August 2024.









VEGA SPACE SYSTEMS

ASU Ira A. Fulton Schools of Engineering
Arizona State University

ASU School of Earth and Space Exploration
Arizona State University

Interplanetary Initiative Lab

LoCo

For more information and updates