

NASA'S GODDARD SPACE FLIGHT CENTER VIRTUAL PRESENTATIONS

03
AUGUST

3:30 - 4:15pm MT

NASA'S CORE FLIGHT SYSTEM AND MULTI-MISSION NOS³ **ALAN CUDMORE IN GODDARD'S LIVE SMALLSAT SOFTWARE SERIES**

NASA Goddard Space Flight Center's core Flight System, better known as cFS, is an open source flight software framework that is being used on an increasing number of missions across NASA, other space agencies, and the aerospace industry. The range of current and future cFS missions includes Artemis Gateway and the Orion crew capsule, spacesuits, Lunar orbiters and rovers, Earth orbiters, a Titan quadcopter, CubeSats, terrestrial drones and autonomous vehicles. Any embedded flight or ground system can use cFS and take advantage of the years of heritage and NASA experience built into cFS' flight-quality code base and an active open source community. This presentation will give a brief overview of the cFS project and open source community, followed by a more detailed look at the SmallSat oriented cFS distribution known as Multi-Mission NOS³. The Multi-Mission NOS³ cFS distribution is being used on five upcoming CubeSats at NASA Goddard Space Flight Center.

CLICK HERE TO JOIN

04
AUGUST

1:00 - 1:45pm MT

2:00 - 2:45pm MT

CUBESAT MISSION DEFINITION AND DESIGN LIVE DISCUSSION **LUIS SANTOS (MODERATOR), JOHN HUDECK, SEAN SEMPER, BEN CERVANTES,** **WILL MAST & JUAN RAYMOND IN GODDARD'S LIVE SMALLSAT SERIES**

CubeSat developers at GSFC gather to answer questions and talk about their experience in the mission definition and design stages of a CubeSat development. Join the discussion by asking questions to our panel members.

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OPENSATKIT — MAKING SPACE FOR cFS APPS **DAVE MCCOMAS IN GODDARD'S LIVE SMALLSAT SOFTWARE SERIES**

OpenSatKit(OSK) provides a desktop environment for learning the core Flight System (cFS) Framework and apps, developing new apps and integrating apps into a functional system. OSK combines the following three open source projects: Ball Aerospace's COSMOS, NASA's cFS and 42 simulator. This presentation provides an overview of OSK's features and will demonstrate some of its functionality such as creating and running a 'hello world' app. For more information please go to <https://github.com/OpenSatKit/OpenSatKit/wiki>.

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3:00 - 3:45pm MT

NASA OPERATIONAL SIMULATOR FOR SMALL SATELLITES — **OVERVIEW AND NEW FUNCTIONALITY IN RELEASE 1.05.00** **MATT GRUBB IN GODDARD'S LIVE SMALLSAT SOFTWARE SERIES**

The NASA Operational Simulator for Small Satellites, commonly referred to as NOS³, is an open-source, software only testbed for small satellites licensed under the NASA Open Source Agreement. It is a collection of Linux executables and libraries delivered in a ready-to-run virtual machine that can be customized for SmallSat missions. NOS³ provides a development environment to write new FSW (using GSFC's cFS), generate hardware models, provide dynamics to those hardware models (using GSFC's 42), and a ground system to communicate with the virtual spacecraft. In Release 1.05.00, NOS³ has added new functionality that will further assist missions in developing and testing their FSW, as well as adding the latest cFS 6.7 release.

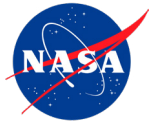
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4:00 - 4:45pm MT

NASA INTERNSHIPS AND STUDENT FLIGHT OPPORTUNITIES **JOYCE WINTERTON AND RAQUEL MARSHALL IN GODDARD'S LIVE SMALLSAT SERIES**

NASA internships and student flight opportunities leverage NASA's unique missions and programs to enhance and increase the capability, diversity, and size of the nation's future science, technology, engineering, and mathematics (STEM) workforce. Student experiences are available from high school to graduate level and provide students with the opportunity to participate in either research or other experiential learning, under the guidance of a mentor at NASA.

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NASA'S GODDARD SPACE FLIGHT CENTER VIRTUAL PRESENTATIONS (CONT'D)

05
AUGUST

10:00 - 10:45am MT

NON-PROCUREMENT BUSINESS OPPORTUNITIES WITH NASA **JOE KROENER & ERIC MCGILL IN GODDARD'S LIVE SMALLSAT SERIES**

Join us to discuss non-procurement business opportunities from NASA from Goddard's senior technology manager and the Agency partnerships office program director. Understand how NASA handles reimbursable and non-reimbursable partnerships, the goals of the Agency, and exciting collaboration opportunities for industry and academia. Also learn how Centers and the Agency are committed to streamlining processes in order to make doing business with NASA a smooth process.

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11:00 - 11:45am MT

MODULAR ARCHITECTURE FOR A RESILIENT EXTENSIBLE SMALLSAT **ROBIN RIPLEY IN GODDARD'S LIVE SMALLSAT SERIES**

Goddard Space Flight Center developed a modular architecture for beyond-LEO SmallSat missions. This architecture allows the development of a system for harsh space environments while addressing affordability for small satellites. The modular and extensible nature of the architecture allows flexibility for components used (from commercial to highly customized hardware) and spacecraft size (from CubeSats to ESPA-class). This presentation will provide an overview of the architecture and some of the MARES-compatible components in development.

CLICK HERE TO JOIN

1:00 - 1:45pm MT

CUBESAT INTEGRATION, TESTING AND OPERATIONS LIVE DISCUSSION **LUIS SANTOS (MODERATOR), TOM JOHNSON, JOHN LUCAS, BRIAN ABRESCH, CHUCK CLAGETT AND JUAN RAYMOND IN GODDARD'S LIVE SMALLSAT SERIES**

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2:00 - 2:45pm MT

GODDARD SMALLSAT OFFICE HOURS

Do you have questions about Goddard's SmallSat projects, missions, technology or capabilities? Now is the time to ask! Join this WebEx at any time during our Goddard SmallSat Office Hours to talk directly to members from the Goddard SmallSat team!

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3:00 - 3:45pm MT

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