Center Independent Research & Development: GSFC IRAD

Advancement of the Space Exploration Synthetic Aperture Radar (SESAR)

Completed Technology Project (2017 - 2018)

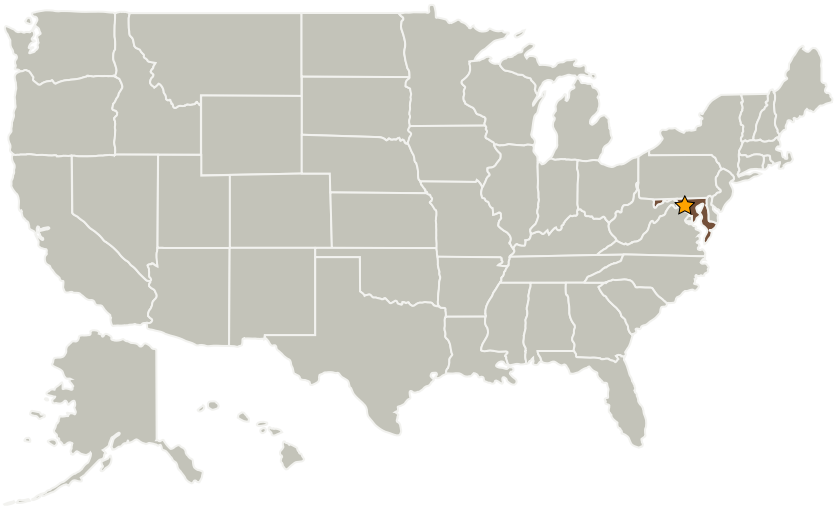
Project Introduction

The Space Exploration Synthetic Aperture Radar (SESAR) is an advanced radar instrument concept that will enable a new class of measurements that address key Decadal Survey science goals for planetary exploration. The objective of this work is to reduce the mass and improve and its deployability for application in planetary missions.

Anticipated Benefits

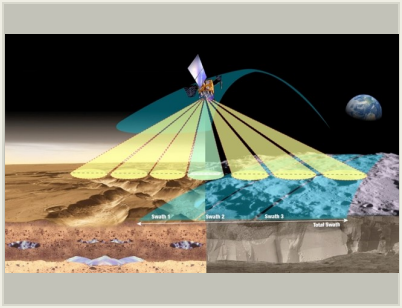
Several NRC Planetary Science Decadal Survey goals (Visions and Voyages, 2011; NRC Press) will require or benefit from high resolution surface and subsurface microwave imaging. SESAR addresses many of these goals.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations
Maryland



SESAR is an imaging polarimetric radar at 70 cm wavelength (P-band) that can penetrate through meters (up to 10-15 m) of material with resolution <6 m to address Several NRC Planetary Science Decadal Survey goals.

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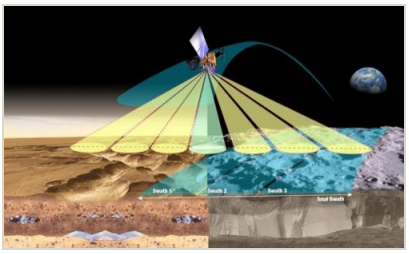
Images



The Space Exploration Synthetic Aperture Radar
SESAR is an imaging polarimetric radar at 70 cm wavelength (P-band) that can penetrate through meters (up to 10-15 m) of material with resolution <6 m to address Several NRC Planetary Science Decadal Survey goals.
(https://techport.nasa.gov/image/28303)

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Managers:

Terry Doiron
Brook Lakew
Michael J Amato

Principal Investigator:

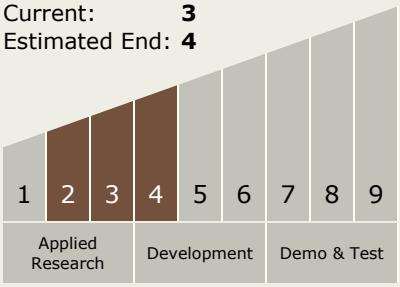
Rafael Rincon

Co-Investigators:

Cornelius Du Toit
Victor J Marrero Fontanez

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  └ TX08.1 Remote Sensing Instruments/Sensors
    └ TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

Target Destinations

The Moon, Mars, Others Inside the Solar System