

National Aeronautics and
Space Administration



EXPLORE

Small Spacecraft Coordination Group

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Small Spacecraft Coordination Group

- Formed and chartered by NASA to advise the SMD, STMD, and HEOMD Associate Administrators on strategy to guide cross-agency initiatives, policies, and programmatic scope
- Guided by recommendations from the National Academies Achieving Science with CubeSats report and in support of NASA's Strategic Plan

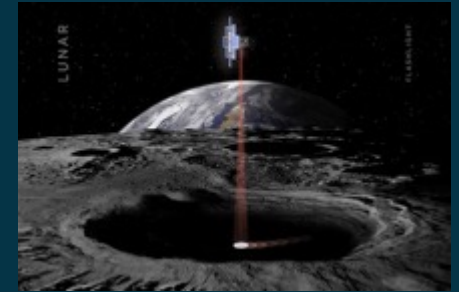
National Academies and NASA Reports Impact SmallSat/CubeSat Strategy



HEOMD Human and Exploration Mission Directorate
SMD Science Mission Directorate
STMD Science Technology Mission Directorate



Science
New Observation Methods



Exploration
Strategic Knowledge Gaps



Technology
Spacecraft Subsystems

SSCG Roles & Responsibilities



Key Roles & Responsibilities

- Coordination
- Producing Data Products
- Reviewing Agency & Government Documents
- Serve as Representative for Agency/SMD regarding SmallSats



Small Spacecraft Focus Areas of Strategic Emphasis

Fundamental to Enabling NASA's Overall Vision for Small Mission Activities

Focus areas guided by
National Academies'
recommendations



1 - Strategy and
Implementation



2 - S&MA, Reliability, and
Technical Excellence



3 - Launch Accommodation
and Rideshare



4 - Services and
Infrastructure



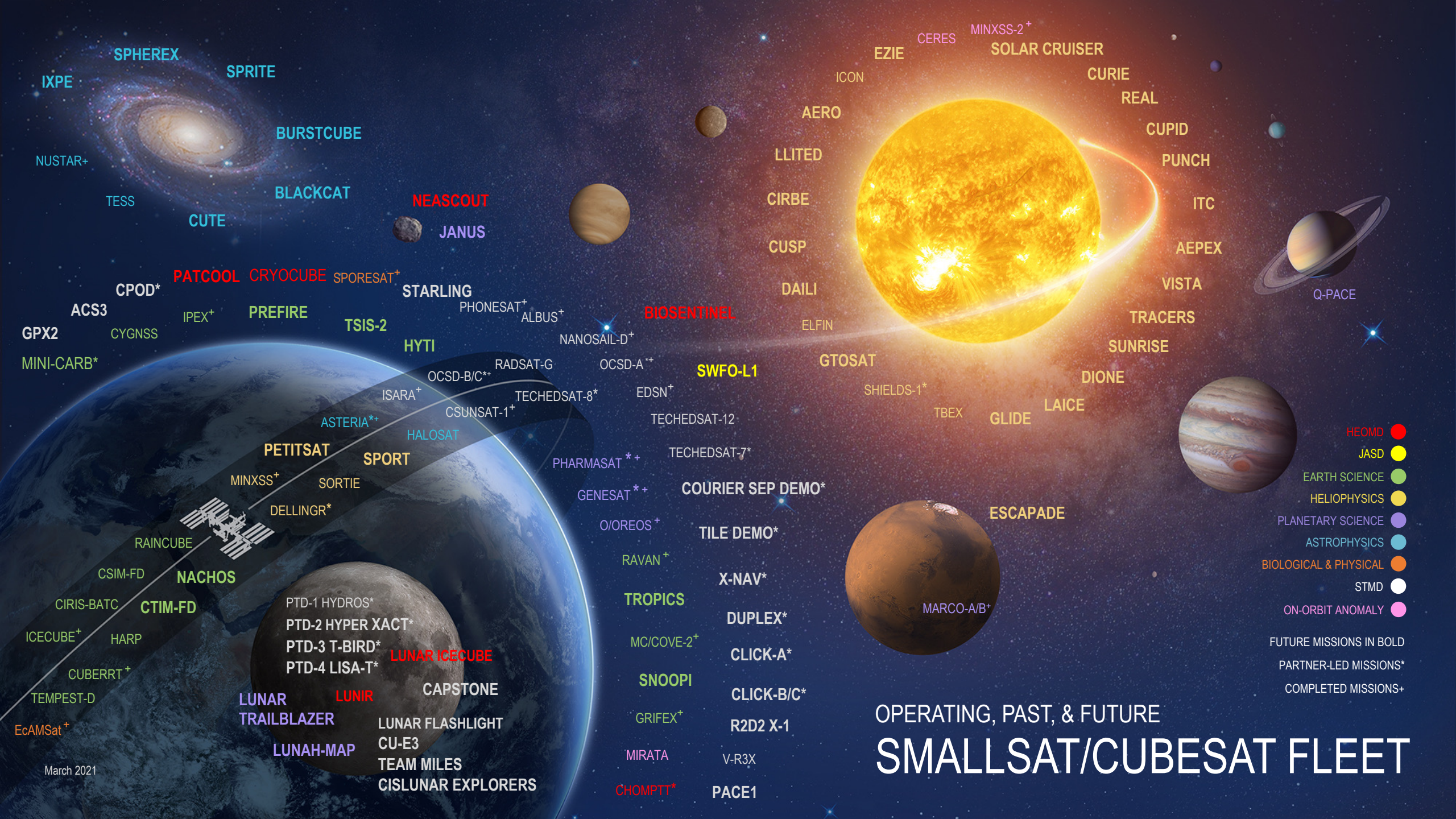
5 - Cybersecurity and
Enterprise Protection



6 - Commercial Partnerships
and New Space



7 - International
Relationships and Outreach

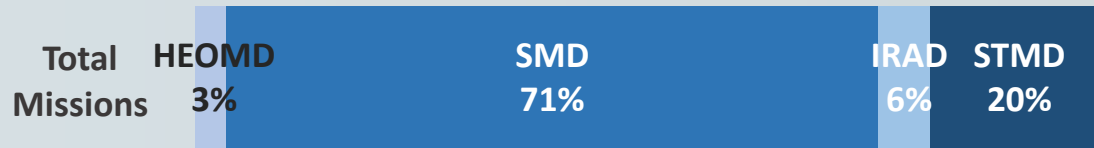


NASA's SmallSat Missions at a Glance

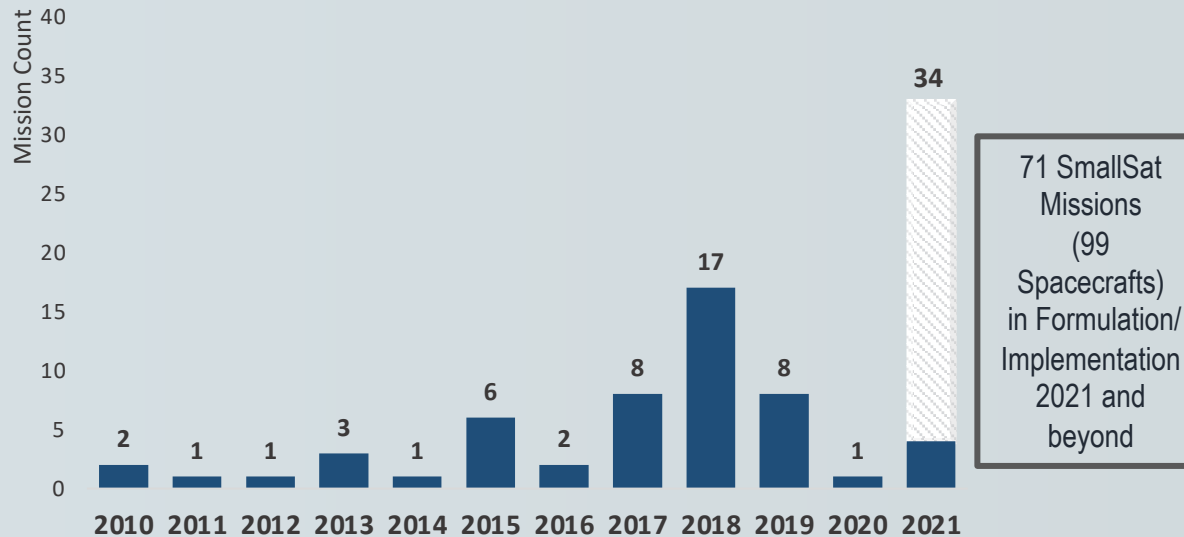
Inclusive of Missions and Studies

Data as of March 2021

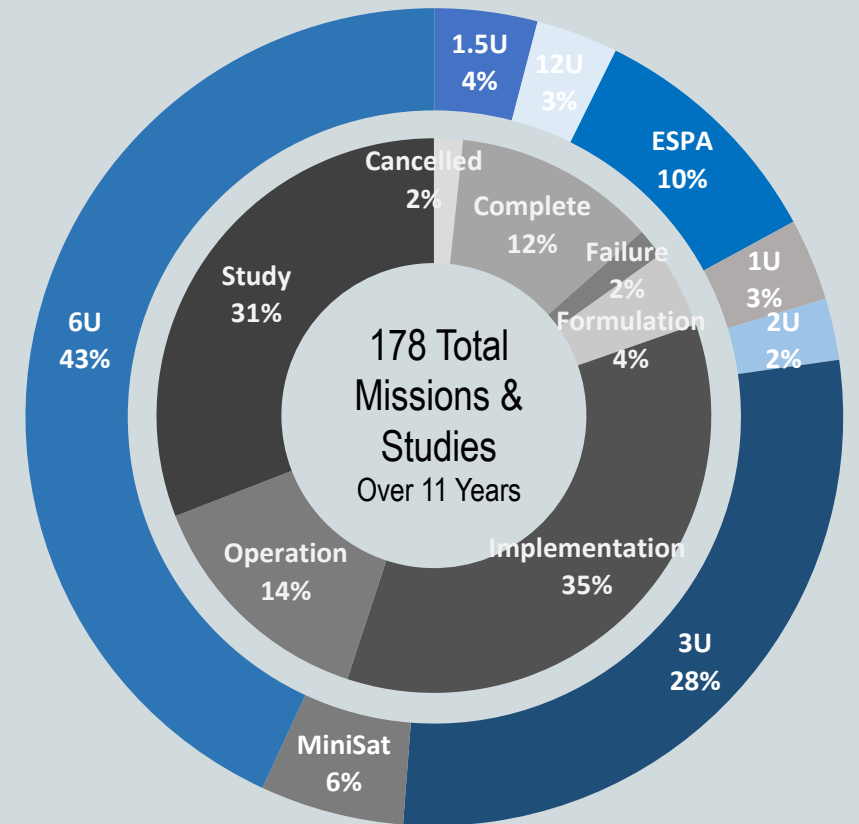
SmallSat/CubeSat Missions by Mission Directorate



Mission Launch Timelines



Mission Phase and Satellite Size



Current State of SmallSats

Since the National Academies of Science report was released in 2016:

- SMD established a Rideshare policy (SPD-32) and an associated Rideshare office led by Aly Mendoza-Hill
- Science SmallSats/CubeSats have become more capable, 6U form factor or larger, including more constellation awards & studies.
- Science results for SmallSats show great promise
- 7 ESPA-class missions have been selected
- Current solicitations including SmallSats
 - Astro Pioneers, ESSP EVM-3, Astro MIDEX MO
- Current SMD Rideshare Missions
 - IMAP with 4 ESPA-class missions (GLIDE, Solar Cruiser, LTB, & NOAA's SWFO-L1)
 - Psyche w/ Janus twin spacecrafts
 - Landsat-9 with USSF rideshare collaboration
 - JPSS-2 with STMD LOFTID

RainCube/TEMPEST-D Observing Typhoon Trami

Spacecraft constellation separated by 5 minutes revealing 3D storm structure

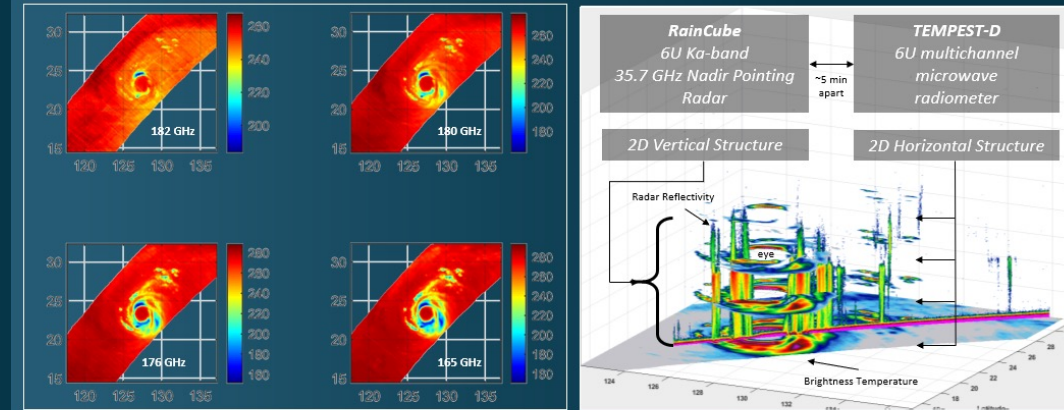


Illustration of complementary nature of these sensors flown in constellation for observing precipitation

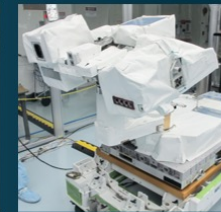
CSIM-FD

Compact Solar Irradiance Monitor Flight Demonstration

Measuring solar spectral irradiance (SSI), and how solar variability impacts the Earth's climate, contributing to long-term continuity measurements from SORCE SIM and TSIS SIM



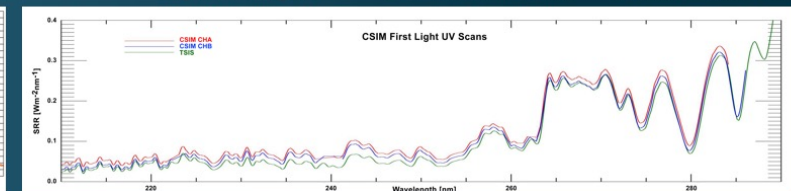
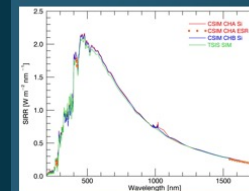
CSIM is 11 kg based on a Blue Canyon Technologies bus



TSIS-1 is 363 kg built by LASP mounted to the ISS



SORCE is 290 kg based on an Orbital LEOSat-2 bus



Latest and First Light uncorrected CSIM data (channels A and B) compared to TSIS data in a portion of the UV spectrum

UV comparison of the first CSIM scan showing excellent agreement to the TSIS spectrum

NASA



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