



2018/2019

GRAND

CHALLENGE

INITIATIVE

Quick Look



9 MISSIONS
12 ROCKETS




NASA GSFC/WFF • Andoya Space Center • University of Oslo • JAXA • ISAS • Dartmouth College • University of Iowa • University of Alaska Fairbanks • Clemson University • University of Colorado

THE GRAND CHALLENGE INITIATIVE - CUSP

2018

December





TRICE-2

-  MISSION: Twin Rockets to Investigate Cusp Electrodynamics-2
-  LAUNCH VEHICLES: Black Brant XII • 2 Rockets
-  LAUNCH SITE: Andøya, Norway
- PRINCIPAL INVESTIGATOR: Craig Kletzing, University of Iowa, USA



December

VISIONS-2



-  MISSION: VISualizing Ion Outflow via Neutral atom Sensing-2
-  LAUNCH VEHICLES: Black Brant X • 2 Rockets
-  LAUNCH SITE: Ny-Ålesund, Svalbard
-  PRINCIPAL INVESTIGATOR: Doug Rowland, NASA Goddard Space Flight Center, USA



2019

January



SS-520-3

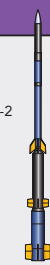
-  MISSION: Ion Outflow in the Cusp
-  LAUNCH VEHICLE: SS-520-3
- LAUNCH SITE: Ny-Ålesund, Svalbard
- PRINCIPAL INVESTIGATOR: Yoshifumi Saito, Japan Aerospace Exploration Agency



January

CAPER-2

-  MISSION: Cusp Alfvén and Plasma Electrodynamics Rocket-2
-  LAUNCH VEHICLE: Black Brant XII
- LAUNCH SITE: Andøya, Norway
- PRINCIPAL INVESTIGATOR: James LaBelle, Dartmouth College, USA



November/December

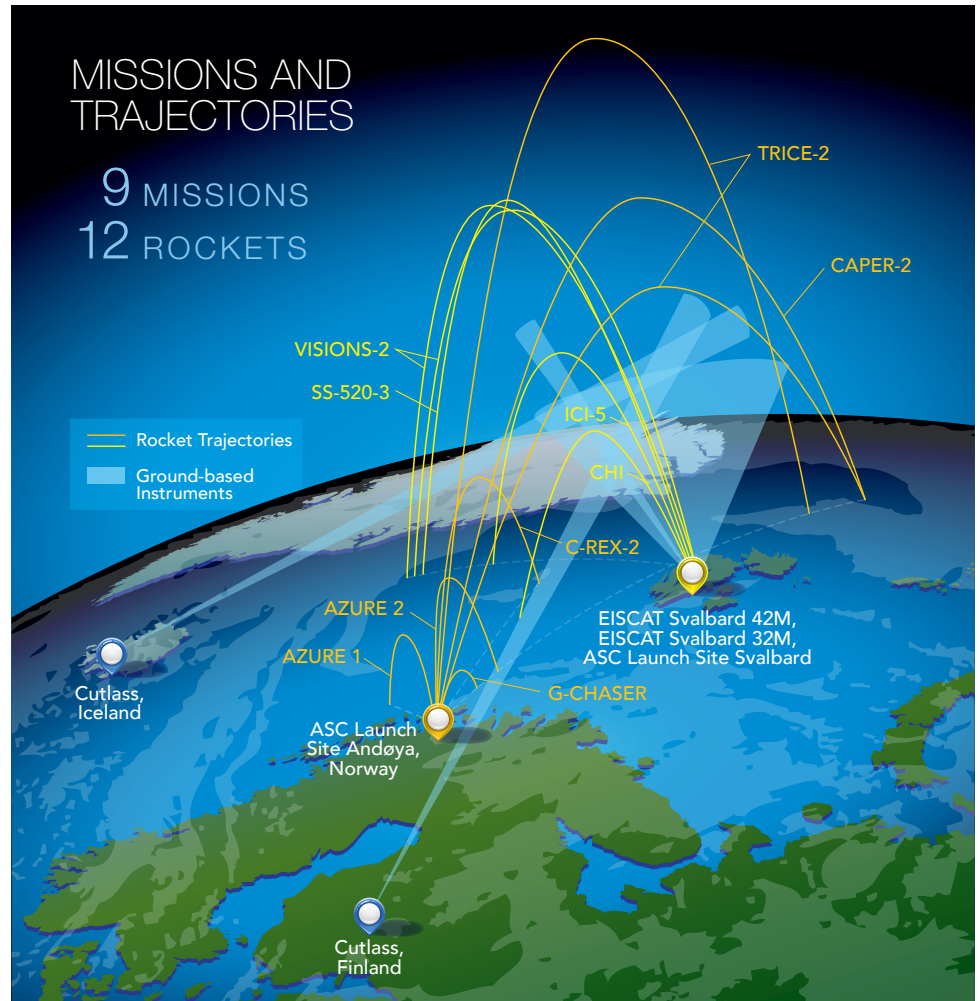
CHI

-  MISSION: Cusp Heating Investigation
-  LAUNCH VEHICLE: Black Brant IX
- LAUNCH SITE: Ny-Ålesund, Svalbard
- PRINCIPAL INVESTIGATOR: Miguel Larsen, Clemson University, USA



MISSIONS AND TRAJECTORIES

9 MISSIONS
12 ROCKETS



SOUNDING ROCKET FAST FACTS



Known as sounding rockets for the nautical term "to sound," meaning to measure, these rockets reach a region between 30 and 800 miles above Earth's surface.

The lower end of this region is otherwise inaccessible, as it's above the maximum altitude for scientific balloons and below the minimum for satellites.

The flight is a simple parabolic trajectory and flight time is less than 20 minutes—providing just 5 to 10 solid minutes of scientific observations from space.

January


G-CHASER

-  MISSION: University Student Experiments
-  LAUNCH VEHICLE: Terrier-Improved Malemute
- LAUNCH SITE: Andøya, Norway
- PRINCIPAL INVESTIGATOR: Chris Koehler, Colorado Space Grant Consortium



April


AZURE

-  MISSION: Auroral Zone Upwelling Rocket Experiment
- LAUNCH VEHICLES: Black Brant XI • 2 Rockets
- LAUNCH SITE: Andøya, Norway
- PRINCIPAL INVESTIGATOR: Miguel Larsen, Clemson University, USA



November/December

C-REX 2

-  MISSION: Cusp-Region Experiment
- LAUNCH VEHICLE: Black Brant XII
- LAUNCH SITE: Andøya, Norway
- PRINCIPAL INVESTIGATOR: Mark Conde, University of Alaska Fairbanks, USA



December

ICI-5

-  MISSION: 3D *in situ* Observations of Ionospheric Irregularities in the Cusp
- LAUNCH VEHICLE: VS-30 - Improved Orion
- LAUNCH SITE: Ny-Ålesund, Svalbard
- PRINCIPAL INVESTIGATOR: Jøran Moen, University of Oslo, Norway

