

National Aeronautics and Space Administration



Sounding Rockets Program Office Quarterly Newsletter

ROCKET REPORT

 2023



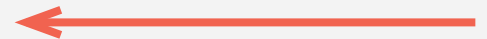


INSIDE

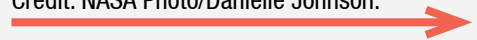
- 3 Picture of the Quarter
- 4 Program Overview
- 5 Missions Launched
- 7 Picture Place
- 8 Integration and Testing
- 9 From the Archives
- 10 Schedule & Miscellanea

Cover photo:
41.127 UE Lehmacher – VortEx instru-
mented payload taking off from Andoya
Space, Norway. Credit: NASA photo/Danielle
Johnson.

CIBER-2 integration activities at Wallops,
Photos by Berit Bland/NSROC.



Aurora over Andoya Space, Andenes, Nor-
way during VorTex launch operations.
Credit: NASA Photo/Danielle Johnson.





Program News

Two MesOrion vehicles, single stage Improved–Orions with mesospheric payload structures, were launched successfully in February 2023.

Two, of four, Vorticity Experiment (VortEx) payloads were launched from Andoya Space, Norway for Dr. Lemacher from Clemson University. The two remaining payloads will be launched during the next suitable launch window.

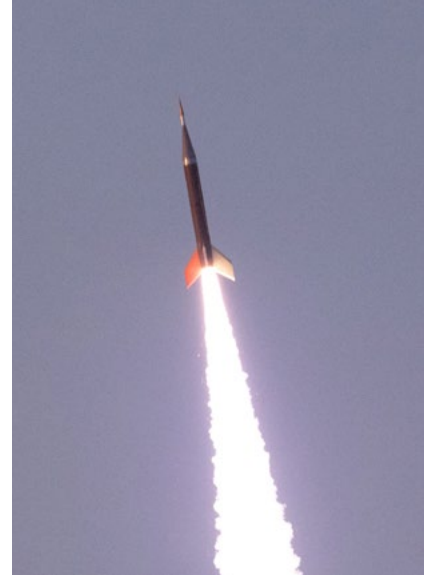
The SubTEC–9 flight is schedule for April 2023 and will test technologies developed in–house as well as one GSFC partnered piggy–back experiment.

The next student mission, RockOn, is scheduled to be launched on June 22, 2023. The workshop will be held at Wallops and starts the weekend before the launch. For students interested in sounding rocket flight opportunities, please see: <https://www.nasa.gov/sounding-rockets/rocksat-programs>.

Office Chief, Giovanni Rosanova, served as a panel member at the Sounding Rocket Symposium held at Erange, Kiruna, Sweden. Giovanni also gave two presentations about the NASA Sounding Rockets Program.

Gordon Marsh is taking the next step in his career and moving to the Safety Organization and will serve as the Head of Flight Safety. Congratulations to Gordon.

We are welcoming Josh Bundick/Program Specialist and Brittany Empson/Operations Manager to the Sounding Rockets Program Office (SRPO). Additionally, Lindsey Seo/ETD/Code 548 is detailed to provide mechanical engineering support to SRPO.



12.089 WT MesOrion launching from Wallops Island, VA Credit: NASA Photo/ Danielle Johnson.



Josh Bundick/Program Specialist



Brittany Empson/Operations Manager



Lindsey Seo/Mechanical Engineering support

.....
12.089 & 12.090 WT Edwards/NASA GSFC Wallops Flight Facility- MesOrion - launched February 16, 2023

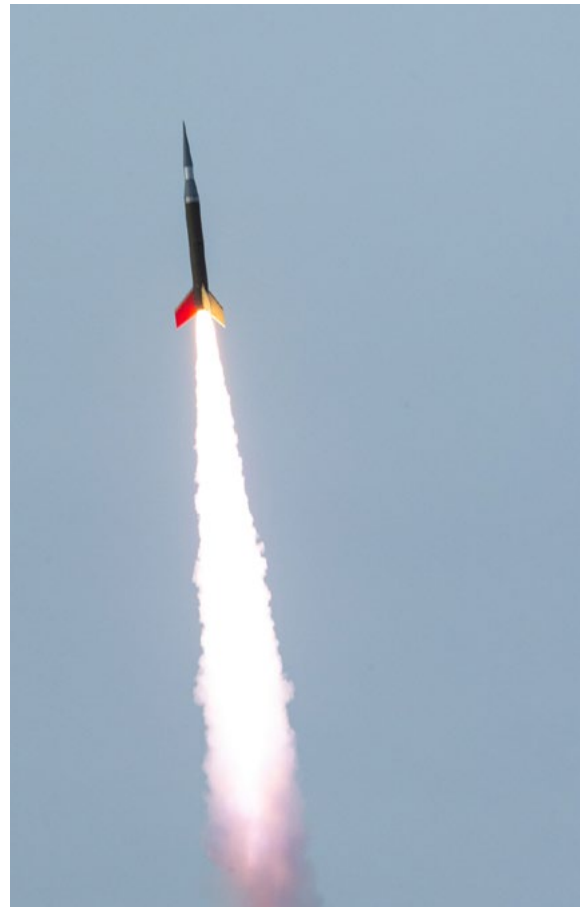
Missions Flown

Two MesOrion vehicles, single stage Improved Orion vehicles with 4-inch (12.089) and 9-inch (12.090) diameter payloads were launch on February 16, 2023.

The launches were a feasibility study for using Improved Orions for mesospheric research, with simplified operational requirements and rapid launch sequences. The mesosphere is a region of Earth's atmosphere between approximately 50–85 km.

Both vehicles performed well with 12.089 reaching an altitude of ~129 km, and 12.090 reaching ~125 km.

Further development will include adding instrumentation, miniaturization of payload systems and developing a nosecone separation systems. Additionally, development of rapid rail staging will continue. A two stage "small motor" vehicle is also being evaluated.



12.090 WT MesOrion launching from Wallops Island, VA
Credit: NASA Photo/Danielle Johnson.



MesOrion 9-inch payload in spin/balance facility at Wallops.
Photo by Berit Bland/NSROC



MesOrion 4-inch payload.
Photo by Berit Bland/NSROC

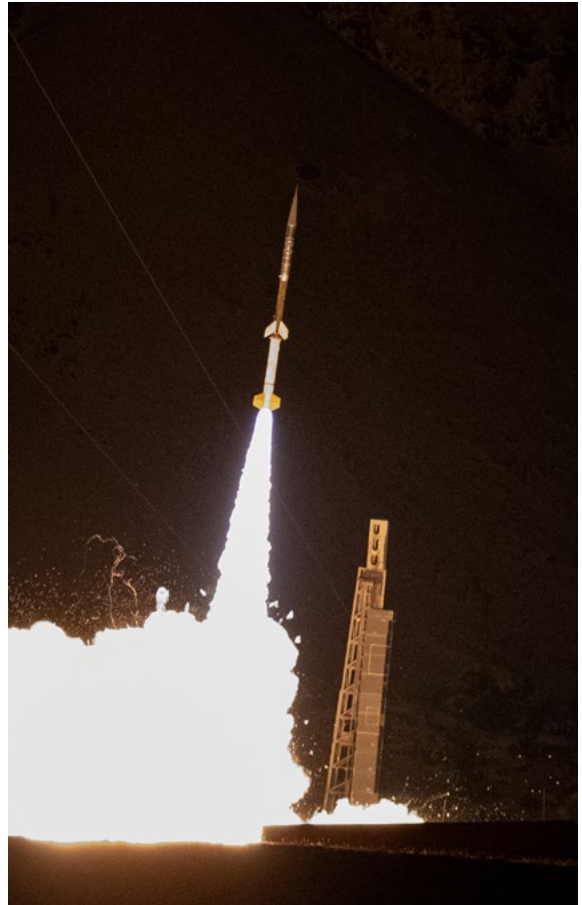
.....
41.127 & 36.361 UE Lehmacher/Clemson University -
Vorticity Experiment (VortEx) - launched March 23, 2023

Missions Flown

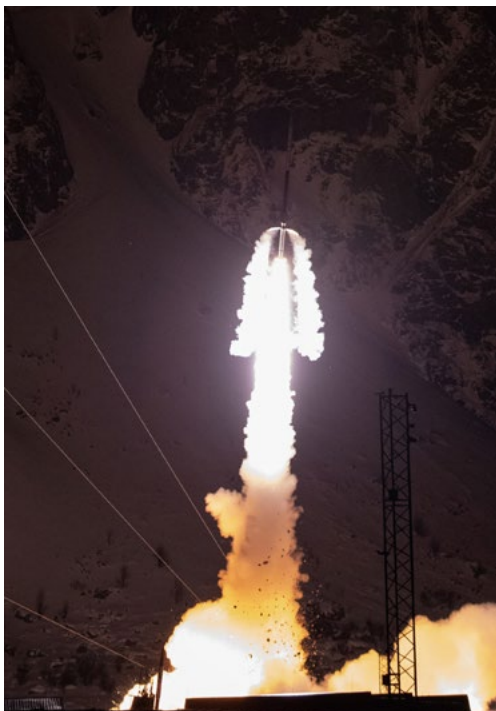
The science objective of the Vorticity Experiment (VortEx) is to better understand nonlinear gravitywave interactions in the upper mesosphere and lower thermosphere, the formation of vortices, and the importance of mesoscale stratified turbulence.

Four vehicles/payloads were part of the VortEx mission, intended to be launched in two salvos with one each Terrier–Improved Orion and Black Brant IX. Only the first salvo was launched during this launch opportunity due to weather delays.

41.127 UE Terrier–Improved Orion was launched first on March 23rd, and 2–minutes later 36.361 UE Black Brant IX took off. The Principal Investigator, Dr. Lehmacher/Clemson University indicated that minimum success was achieved.



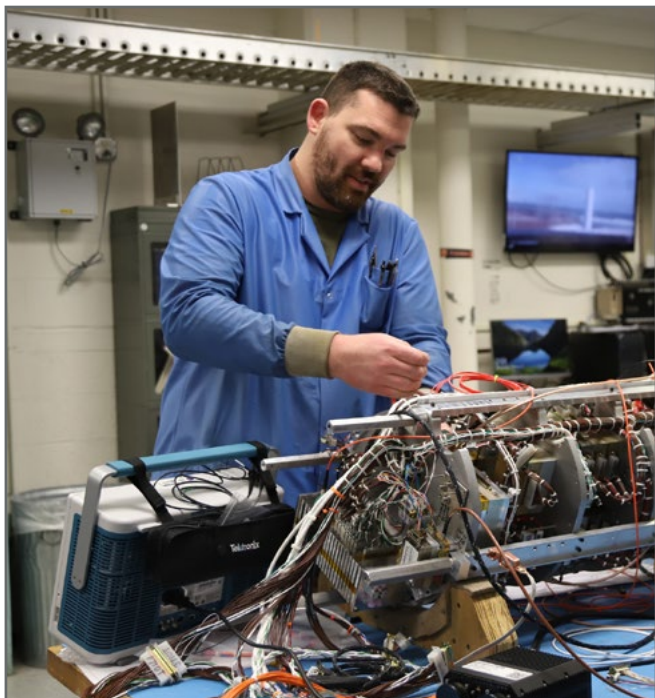
41.127 VortEx launching from Andoy Space, Norway.
Credit: NASA Photo/Danielle Johnson.



36.361 VortEx launching from Andoy Space,
Norway. Credit: NASA Photo/Danielle Johnson.

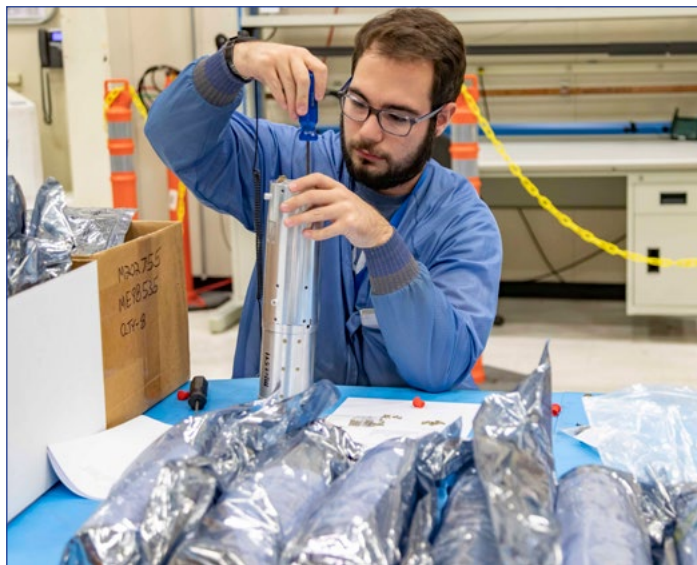
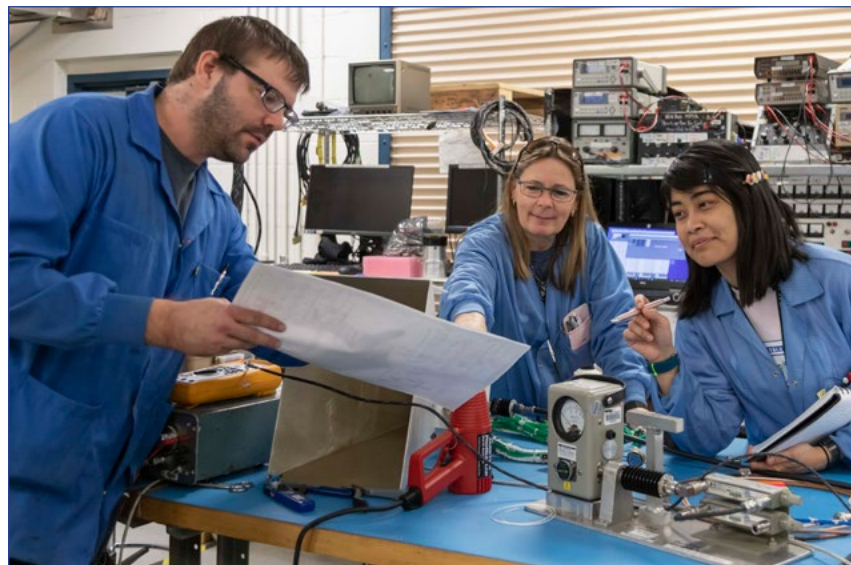


VortEx deployables before integration at Wallops. Credit:
Photo by Berit Bland/NSROC.



View from SubTEC-9 camera port during integration.

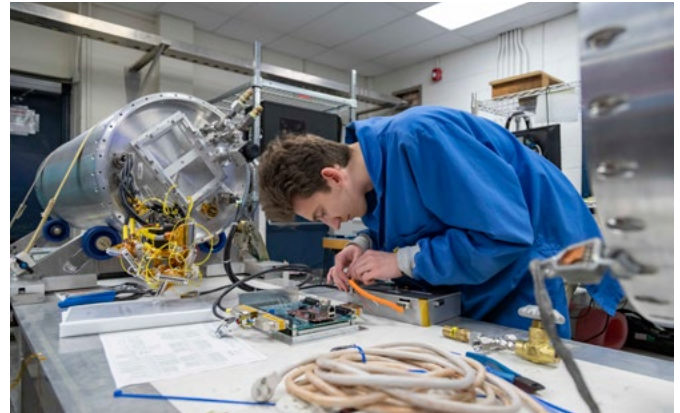
PICTURE PLACE



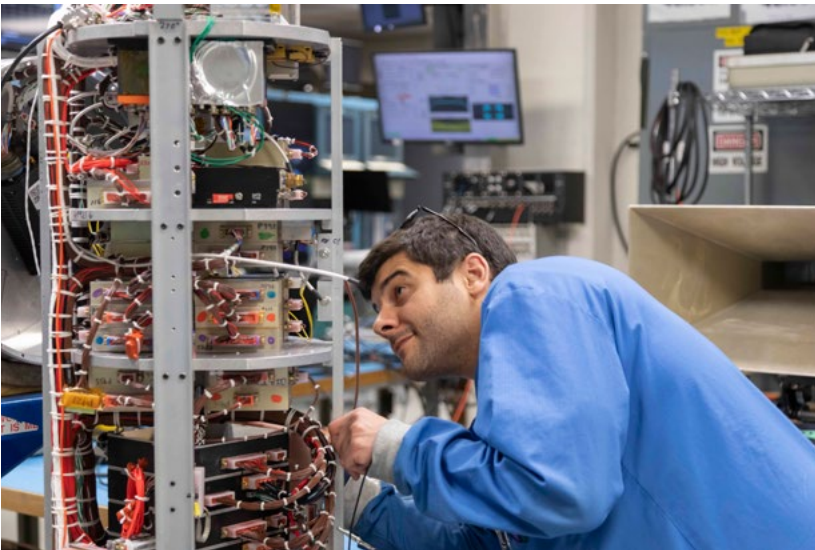
Integration and Testing

36.383 UG Zemcov/RIT - Cosmic Infrared Background Experiment (CIBER) 2

Integration and testing continued for CIBER-2. CIBER-2 is specifically designed to help disentangle the reionization signal from emission sources at lower wavelength. One of the primary CIBER results has been unexpectedly bright large-angle fluctuations at wavelengths of 1.1 and 1.6 microns, which may be identified with stars flung outside of galaxies or other new populations that result from large-scale structure formation. The CIBER-2 data set will give us our most complete view of the near-IR background to date. The CIBER-2 launch is schedule for April 16, 2023 from White Sands Missile Range, NM.



CIBER-2 pre-integration at Wallops.
Photo by Berit Bland/NSROC



SubTEC-9 Integration at Wallops.
Photo by Berit Bland/NSROC

46.032 WT Hesh/NASA GSFC Wallops Flight Facility- SubTEC-9

SubTEC-9 is the ninth technology development flight and includes both in-house experiments and one GSFC partnered piggy-back experiment. The primary objective of this mission is to test a new high data rate (~40 Mbps) C-band telemetry system. Additional experiments include a new start tracker as well as Ethernet cameras, a new battery system, and several other technologies

SubTEC-9 is currently scheduled for launch from Wallops Island, VA on April 24, 2023.



Cape Parry Recollection

Cape Parry, NWT, Canda

In the last newsletter we covered launches for Project Centaur from Cape Parry in 1981. We have since heard from Clive Beckmann who served on the DEW-Line¹⁾ between 1965 – 1990.

Clive recalls the following:

“There was scuttlebutt amongst the Dewliners at Pow–Main (Point Barrow) that NASA was planning to launch rockets near our site in coordination with launches at Pin–Main (Cape Parry). As the story went, the launches were hoped to create artificial aurora. The launch site was located near our hangar, about a mile from our site. I’m guessing that this proximity allowed a power line to be strung to afford the launch site an electrical source.

There was no coordination with our Dewline site with one exception:

The NASA launch control center was to call our surveillance center just prior to a launch to ensure there was no known air traffic in the area that could be endangered by a launch.

One evening, our surveillance center made a P.A. announcement that a launch was due to occur in the next few minutes, so I went to a window to observe the event. It was December, so it was pitch dark outside. Our location was above 70 degrees North latitude.

After several minutes, the rocket was launched. The blast created an eerie sound that was very loud. There was no ‘rumble’, just a sustained sound that was like a low note produced by a trombone. It produced a very pretty blue–green exhaust but was only visible for a few seconds before disappearing from view, probably due to low cloud cover.

So these memories have been lying dormant in my mind for forty years. I’m glad that they are finally able to be of possible use to someone!”

We truly appreciate Clive sharing his memories with us.

There’s a bit of uncertainty regarding which sounding rocket mission this was. The most likely candidates are Nike–Tomahawk launches, 18.083, 084, and 085, from Cape Parry in March 1969 for PI Wescott/GSFC. But Clive was temporarily not on the line in March in 1969. The program also launched 72 rockets from Point Barrow, 66 Nike–Cajuns and six Nike–Apaches between 1965 and 1972, but these were mostly grenades and pitot tube experiments for mesospheric soundings.

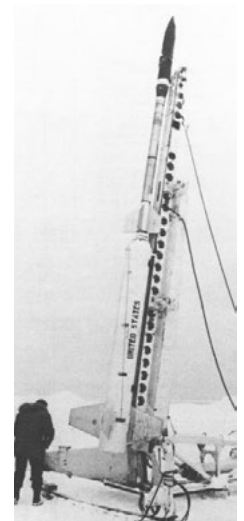
If you have any information or recollections of these launches or any other sounding rocket launches, and would like to share your story please contact: Berit.H.Bland@nasa.gov



Nike-Tomahawk



Nike-Cajun



Nike-Apache

Ref.

¹⁾ [DEW–Line Adventures](#)

SCHEDULE FOR NEXT
QUARTER

MISSION	DISCIPLINE	EXPERIMENTER	ORGANIZATION	PROJECT	RANGE	DATE
36.383 UG	UV/OPTICAL ASTROPHYSICS	ZEMCOV	RIT	CIBER	WS	04/16/23
46.032 WT	TEST & SUPPORT	HESH	NASA WFF	SUBTEC 9	WI	04/24/23
36.389 US	SOLAR & HELIOSPHERIC	WOODS	UNIV OF COLORADO	EVE	WS	05/03/23
41.132 UO	STUDENT OUTREACH	KOEHLER	COLORADO SPACE GRANT	ROCKON	WI	06/22/23

WI – Wallops Island, VA
WS – White Sands Missile Range, NM

MISCELLANEA



NSROC & SRPO support Junior Achievement at the Salisbury Convention Center.

NSROC staff supporting were: Mark Barrett, David Bowker, Ryan Kraus, Philip Cathell, Ellie Murray and Billy Carson.
SRPO staff supporting: Josh Yacobucci



Sounding Rockets display at Junior Achievement.
Photo by Philip Cathell/NSROC