



Doc # 19

Amateur Radio on the International Space Station

Committee Report to the ARRL Board of Directors

January 2023

Submitted by:

**The 2022 ARRL ARISS Committee,
VD Tharp, Chairman**

ARRL ARISS Committee Members for 2022

Vice Director Tharp

Vice Director Schilling

Vice Director Nelson

Vice Director Temples

Vice Director Walls

Ms. Rosalie White, ARRL representative to ARISS

Mr. Steve Goodgame, ARRL HQ staff liaison

Summary of ARISS Program

Amateur Radio on the International Space Station (ARISS) is a well-known international working group that promotes STEM education and Amateur Radio. In 1996 the ARRL CEO tasked ARRL Headquarters staff to meet NASA's challenge to set up just 1 worldwide ISS ham radio team. The staff set about establishing ARISS-International, contacting IARU societies while AMSAT-NA contacted other AMSAT societies. The ARRL has been an ARISS sponsor since 1996. ARISS was built on the shoulders of human spaceflight radio activities since 1983 when national amateur radio groups began working with space agencies to fly Amateur Radio to support educational and ham radio activities on the Space Shuttle (SAREX), Mir (Mirex) and the ISS (ARISS).

The ARRL-led portions of these projects always included leadership roles, advice to ARISS on items related to FCC and IARU regs, public relations support to the ham community, and some education activities related to school radio contacts.

Each year ARISS helps astronauts earn ham licenses and make multiple Amateur Radio school contacts and sometimes, contacts with hams. ARISS activity puts Amateur Radio in the lives of students, educators, media, communities, political leaders, and hams.

Hams are proud to know astronauts are licensed hams. Hams enjoy making thousands of Amateur Radio contacts each year via the ARISS cross band repeater and using ARISS packet. Hams capture ARISS SSTV images downlinked by ISS crews—SSTV has been really popular.

2022 was Year 2 of ARISS-USA Becoming a 501(c)(3)

ARISS-USA, a 501(c)(3) as of 2021: In 2020, ARISS leaders in the US began the process to set up ARISS-USA as a 501(c)(3) group. This was completed in March 2021. ARISS's 501(c)(3) status is a benefit to the group and to ARRL.

Authorizing Board Motion to Establish the ARRL ARISS Committee, Minute 27, January 2019

In January 2019 the ARRL Board of Directors established the ARRL ARISS Committee and tasked it with improving ARRL's support to the ARISS program. The ARRL Board motion:

Be it therefore resolved: A permanent ARISS committee is created by the Board to develop an interactive relationship with ARISS. Said committee should consist of three members of the Board, with assistance of the ARRL Lifelong Learning Manager and the ARRL Communications Manager as consultants, all to be appointed by the ARRL President. The committee will recommend the framework under which the ARRL will support ARISS to include recommendation of the ARRL representative to ARISS, standardized mission support, operational needs, ongoing mentoring and assistance to local Amateur Radio clubs in support of ARISS contacts, and a standardized set of Public Relations messages to ensure consistency of the ARRL message to ARISS, local Amateur Radio groups and the public at large.

ARRL ARISS Committee Activities for 2nd Half 2022:

Following the January BOD meeting, after appointments by President Rodrick, the committee welcomed VD Walls, and Mr. Goodgame to the team. Mr. Goodgame's coming on board opens up many opportunities for updating and expanding videos on ARISS. Although current videos are relevant, some of the videos' images are outdated.

The committee met via ZOOM on September 7th, 2022. Updates from Ms. White were presented as well as discussion on thoughts for updating video files and the documentation on ARISS contacts presented to Section Managers. It was felt very similar documentation needs to be presented also to current and incoming (new) Directors and Vice-Directors. The committee met via ZOOM on December 13th with a special guest, VD Bill Morine.

In between the two meetings the committee worked via email on ARISS documentation for SMs, with VD Tharp circulating the current version. Discussion continued on what additional wording would be needed in order to be very useful to Directors and Vice Directors.

Work also done by the committee via email was discussing ways to provide ideas to ham clubs that might be considering supporting an ARISS school. Ideas were suggested for getting an outline or web story from the Nashua Area Radio Society on how it supports ARISS schools with hands-on ham activities and lessons. Such an outline or web story could be posted on ARRL's web pages that cover ARISS. Another club had been approached by ARRL Hq in late fall to write about how they support ARISS schools. Ms. White had heard that the club had begun some of this writing.

ARRL ARISS Committee Communications

The Committee is appreciative of Ms. White's continuing to notify the Committee and Directors, Vice Directors, and Section Managers in the respective divisions and sections when an ARISS radio contact near them has been scheduled by NASA.

The Committee would like to note that many times these contacts receive final approval from NASA within weeks of a contact, and on occasion, the amount of time for notification is even shorter. ARISS makes every attempt to put the word out as soon as contact dates are finalized.

At times, Mr. Inderbitzen asks Hq staff to do ARRL Social Media posts about these upcoming school contacts. Ms. White provides ARISS news releases with details on what STEM- and ham-related activities the schools plan to do, and which schools had established student ham clubs.

In addition to emailing Directors, Vice Directors, and Section Managers about upcoming school contacts, in the past six months Ms. White forwarded 24 news releases, one on each school contact, to the committee and to Mr. Inderbitzen.

Ms. White also sent releases on special things. Three examples are:

- i.) details on a new window opened by ARISS to accept ARISS Education Proposals (also sent to Mr. Ewald to forward to SMs),
- ii.) announcing simultaneous operations of ARISS Voice Repeater and ARISS Digital APRS communications (VD Tharp asked Mr. Inderbitzen to post this story in ARRL news), and
- iii.) a list of schools selected.

Ms. White shares with Mr. Goodgame's office the names and contact information of ARISS teachers interested in Teachers Institute. His office reciprocates by sharing names of educators with an interest in ARISS contacts.

ARRL News Editor John Ross, KD8IDJ and Ms. White have begun working together. They have traded emails in order to do fact-checking, and they have a good working relationship.

Mr. Tharp gets small reports (nine in the past six months) from Ms. White so that he can have a good idea of typical ARISS activities.

Ms. White shared with Directors and Vice Directors when ARISS was going to have an exhibit booth at big ham conventions.

Also, special news items went to the committee and Mr. Inderbitzen—examples are:

- a.) names and call signs of the next SpaceX crew,
- b.) Russian support of ISS at least through 2024 and USA through at least 2030,
- c.) a change in how ARISS gets information on COVID, and
- d.) recent HamTV equipment pre-launch tests done at Johnson Space Center.

Ms. White emailed the Committee an update on ARISS beginning to work much more seriously with Axiom Space Company and helped license two Ax-2 astronauts (one US, one non-US) who will support ARISS contacts in Spring 2023. Axiom could be a big part of ARISS's upcoming years if a future US president decided to sunset the ISS early.

ARRL and ARISS Goals

The number one goal of ARISS is to be all about education and inspiring youth about STEM, especially space and radio communications. The hands-on education programs that ARISS is developing for youth aren't discussed in this report. The reason is because education was not part of the realm of topics named by the Board at its January 2019 meeting when establishing the committee and its framework, for it to assist with related to education. Meantime, ARISS and Mr. Goodgame have begun collaborating even more in second-half 2022 than previously.

ARISS was very proud to have had an ARISS educator speak at a US Department of Education teacher conference called “You Belong in STEM.”

Photo: US Department of Education Deputy Secretary Cindy Marten and ARISS’s Melissa Pore, KM4CZN who spoke on ARISS and STEM.



Besides requiring educators to implement STEM lessons, ARISS also requests that schools’ Media Coordinators set up a media plan and do their best to carry it out. (Media Coordinator is the title the majority of schools currently use, rather than Public Information Officer.)

Important: Media Coordinators at schools target their news stories to parents (tax payers) and to the school district administrators (teachers’ bosses), and greatly focus on aerospace STEM, and a little less on ham radio. Media coordinators know the astronaut-aerospace aspect will catch the eye of reporters.

- For the second half of 2022, ARISS heard about 88 media hits tied to ARISS. This compares to ARISS typically learning of about 25 media hits in 6 months’ time. As always, some of the media hits were thanks to the ARRL news staff; some were thanks to ARRL Public Information Officers who wrote items for ham radio outlets and other outlets.

See Appendix B. for the list of 88 media hits.

The news releases that ARISS prepares and distributes prior to an ARISS contact have a balanced mix of information on radio and space.

Some ARRL Directors, Vice Directors, SMs, and Field Organization appointees help support ARISS schools with the radios and also STEM lessons, in particular if they live close to the schools, or travel to schools to attend ARISS contacts.

Photo: The Canterbury School: radio assistance from Fort Myers ARC with ARRL Southern Florida Section Manager and Assistant Section Manager...after the contact, when the faculty thanked groups and individuals, when the ham were announced, the audience gave rousing applause.



Photo: ARRL North Carolina Section Manager handed out ARRL pins and items to Harris Middle school students in Spruce Pine, NC.



ARISS Contacts in the US in the second half of 2022

US ARISS radio contacts in second-half 2022 in addition to in other countries were:

- * **Buehler Challenger Center, Paramus NJ (lead organization)**
leading 6 other Challenger Learning Centers around the USA & CLC National Hq
- * **Kopernik Observatory & Science Center, Vestal NY**
tying in 15 summer camps through July and August
- * **Monroe Carell Children's Hospital, Nashville TN**
tying in via close-circuit TV to 343 patient rooms, lobbies, waiting areas
- * **Big-E New England States Exposition**
featuring New England Sci-Tech students (Natick MA) and additionally, an exhibit booth
- * **St. Stephen's Episcopal Elementary School, Houston TX**
- * **Harris Middle School, Spruce Pine NC**
tying in neighboring Bowman Middle School
- * **Davis Aerospace Technical High School, Detroit MI**
tying in Tuskegee Airmen & Coleman Young International Airport communities
- * **The Canterbury School, Fort Myers FL**

ARRL ARISS Committee Travel Budget for ARISS at Conventions, Conferences

ARISS worked hard to set up exhibit booths and get forum talks approved for major ham conventions and big educator conferences. The ARRL ARISS Committee helped with this by ensuring a budget was sufficient for travel to the major ham conventions, and for providing ARISS roll-up banners and needed handouts. Travel expenses for small events and education conferences were covered by ARISS volunteers or other ARISS funders. Totals events were:

- 11 Education conferences
- 13 Ham conventions or hamfests
- 2 Aerospace conferences.

Vice Director Tharp provided handouts for ARISS and the ARISS-STAR program along with ARRL materials at Sea-Pac, the NW Div convention in July, the PNW DX Convention in Spokane in August, the Spokane Hamfest in September, and the PNW VHF Conference in October.

See Appendix A. for tables on Education Conferences, Ham Conventions or hamfests, and Aerospace conferences.

Photo below: ARISS booth at Huntsville Hamfest (ARRL also presented a forum)



Thank You, ARRL!

ARRL thanked ARRL for running ads about ARISS every month in *QST* from July through December. VD Tharp shared with the Board a donor's comment Ms. White received in November: "I'm looking forward to learning more about ARISS education and ARRL investments in this. I heard about it first through an ARISS story and then saw a *QST* advert. It moved me to sit down and make a donation."

ARRL regularly thanks ARRL for its annual support to ARISS and for the generous funding it has provided for 2022 and earlier years. ARRL's sponsorship is critical to ARISS and is greatly appreciated.

Respectfully submitted,

Mark J. Tharp, KB7HDX
ARRL ARISS Committee Chair

Rosalie White, K1STO
ARRL ARISS Representative

Appendix A.: Outreach Events

Education Conferences
California Assn of Science Educators--Palm Springs CA
ISS National Lab User Advisory Group—Washington DC
NASA STEM Better Together 2022—Hampton VA
Space Age on Space Coast—KSC FL
US Naval Academy Teacher STEM—Annapolis MD
West Michigan Aviation Academy Event—Grand Rapids MI
NASA Connects STEM Swap—Washington DC
Grow Beyond Earth Ambassadors—Greenbelt MD
AIAA Aviation Week’s Awards Exhibit Table—Washington DC
Virginia State Air & Space Forces quarterly meeting—Arlington VA
US Department of Education-You Belong in STEM—Washington DC

Photo: Fred Kemmerer gave an ARISS education presentation at NASA STEM teacher event.



Events for Hams, the General Public, the Space Industry
ARRL Southeastern Division Conv, Huntsville AL booth & teacher forum
Ham Radio, Friedrichshafen Germany booth & 4 teacher forums
ISS R&D, Washington DC
ARRL Washington State Convention

Gates County Public Library STEM Day—Gatesville NC
AMSAT-UK Colloquium—Milton Keynes UK
CARAFest STEM Event—Columbia MD
ARRL Pacific NW DX Convention, Spokane WA
ARRL Pacific Division Convention—Ramona CA
ARRL Pacific NW VHF Convention—Salem OR
Melbourne Hamfest—Melbourne FL
AMSAT-NA Annual Symposium—Bloomington MN
Libre Space Foundation - SatNOGS
All Things Amateur Radio Exhibit—Lancaster OH
Stone Mountain Hamfest—Lawrenceville GA forum & youth lounge
FOC-First Class Operators Annual Dinner—Orlando FL

Photo: Two ARISS volunteers mentor youth with electrical circuits and Morse at a hamfest.



Photo ARISS leader exhibits at ham radio STEM fest.



Appendix B: List of 88 Media Hits from Second Half 2022

This report does not include all of the stories and posts that the ARISS team volunteers work on for the ARISS web page, ARISS Facebook, ARISS Twitter, ARISS Instagram.

Final Note: ARISS has learned the hard way not to prepare news releases until 3 days ahead, sometimes 4 days. That's because once NASA schedulers set the day/time, if there's a last-minute change because of newly needed spacewalks or delays in cargo and crew launches, the day/time/crew member will change. When we have had to update a news release due to a very last-minute schedule change, having to distribute a revised news release has caused confusion, and sometimes the revised release was never seen. We've had several people get angry when we've had to distribute a revised release.

List of 88 media hits grouped by ARISS contact or event

Media hits about ARISS contact at a group of Challenger Learning Centers (plus ARRL Hq wrote a story for The ARRL Letter.)

1.) News Center Maine-Kids in Bangor reach for the stars-astronaut Hines uses amateur radio
<https://www.newscentermaine.com/article/news/local/kids-in-bangor-making-a-connection-to-space-maine/97-422d53cf-3d8c-449d-b4b9-6f2d5121df59>

2.) WABI - The Challenger Center and Amateur Radio on the ISS hosted live conversation
<https://www.wabi.tv/2022/07/28/challenger-maine-campers-speak-with-nasa-astronaut-aboard-iss/>

Media hits from NASA on ARISS with Amateur Radio items– a NASA web story and booklet and then translated into Spanish for their Spanish web pages

3.) NASA released its 2022 book *International Space Station Benefits for Humanity*. One part (downloadable from NASA) lauds ARISS as one of the teams that “Bring Humanity Along for the Ride.” Access this item -- "A Direct Link to Space" --

at: https://www.nasa.gov/mission_pages/station/research/benefits/direct-link-to-space

Pageviews: 103,647

Average time on page: 0:03:40 mins

4.) Web story translated into Spanish for NASA Spanish web pages

Pageviews: 1,081

Average time on page: 4 min 18 sec

NASA’s cool 1-minute video: tied to the story on things that "Bring Humanity Along for the Ride" including "talking to astronauts via Amateur Radio."

5.) https://www.nasa.gov/mission_pages/station/research/benefits/bringing-humanity-along-for-the-ride-0

Click the URL, then see the video below the 1st paragraph and a few lines down. Begin viewing at 39 seconds.

Pageviews totaled: 442

Average time on page: 0:02:53 mins

Tweet on ARISS by astronaut Kjell Lindgren KO5MOS on ragchewing with 8-year-old Isabella
6.) and a reply from her dad M0LMK, who had helped a UK school host a 2016 ARISS contact where he had brought his daughter to watch students do an ARISS contact



Kjell Lindgren  @astro_kjell · 4h

I've had a lot of fun using the #ARISS amateur radio station #NA1SS on the @Space_Station to talk with ham radio operators all over the world. I've even (unofficially) worked stations on all continents! But this may be my favorite contact so far. Thanks Isabella and @m0lmk!



Matt @m0lmk · 6h

April 23, 2016. A 2 year old sat on my knee and watched the students of Wellesley House school chat with @astro_timpeake, an event I helped organise. Today she got her chance. Thank you so much @astro_kjell, you have changed her world. #iss #NASA #ARISS

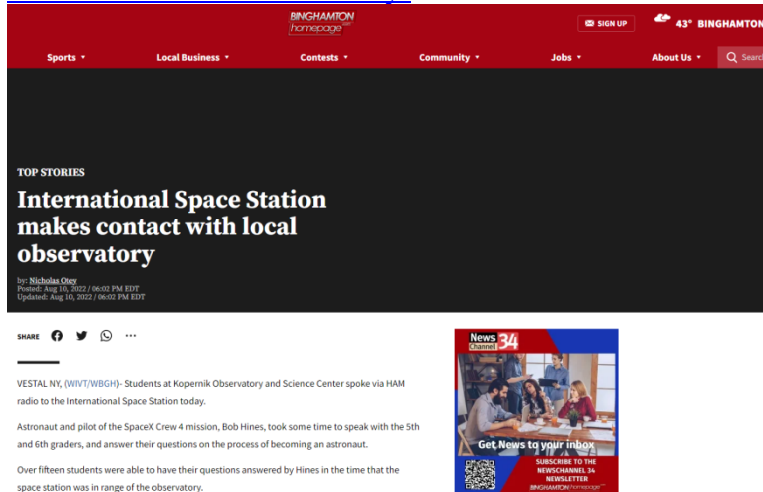
Stories on Kopernik Observatory ARISS contact, also carried by The ARRL Letter

7.) WICZ TV

<https://www.wicz.com/story/47070053/students-at-kopernik-speak-to-astronaut-aboard-iss>

8.) WBGH Binghamton News

<https://www.binghamtonhomepage.com/news/top-stories/international-space-station-makes-contact-with-local-observatory/>



Vanderbilt University Medical Center ARISS contact

9.) Vanderbilt University Medical Center- young patients connect with ISS, radio contact and crew members with ham radio licenses...

<https://news.vumc.org/2022/08/31/young-patients-connect-with-international-space-station/>

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VUMC Reporter

Young patients connect with International Space Station

Aug 31, 2022, 2:59 PM



Patients Jayden Bailey, 13, Aaliyah Broome, 13, and Daisy Deal, 12, asked questions of NASA astronaut Kiehl Lindgren, MD, during the call. (photo by Donn Jones)

by Christina Echegaray

"Monroe Carell Jr. Children's Hospital at Vanderbilt to International Space Station, do you copy? Over"

Share This Story

Media Inquiries

Jessica Pasley (615) 3...

Explore Story Topi

Reporter Aaliyah Broome
Amateur Radio on the Inter
Children's Hospital | Dallas
Department of Pediatrics
featured-Reporter
International Space Station
Jayden Bailey | Kiehl Lindg
Mamie Shepherd | NASA
Reporter Sept 2 2022 | Se

Media hits for Big E ARISS contact

10.) Live chat with astronauts at The Big E |New England Sci-Tech will have a Space Chat, Amateur Radio

<https://www.wvlp.com/news/massachusetts/live-chat-with-astronauts-during-the-big-e-fair/>

11.) Morning Ag Clips Space Chat, out of this world opportunity brought to students and Big E fairgoers by Ham Radio

<https://www.morningagclips.com/the-big-e-to-host-a-live-space-chat-with-international-space-station/>

12.) Western Mass Fox News

<https://www.westernmassnews.com/2022/09/26/big-e-host-chat-with-international-space-station-local-students/>

13.) Business West online

<https://businesswest.com/blog/the-big-e-to-host-a-live-space-chat-with-international-space-station/>

14.) The Sun Chronicle

https://www.thesunchronicle.com/rail/restaurant_bites/things-to-do-in-the-attleboro-area-and-beyond/article_cf5af0da-3f99-5622-a0a3-4c0cbe9b6e5c.html

15.) & 16.) The Big E staff's own publicity

<https://www.thebige.com/p/thingstodo/the-big-e-space-chat-experience>

<https://www.facebook.com/TheBigE/photos/a.120098668522/10160441380328523/>

Media hits for Benjamin Davis Aerospace Technical High School ARISS contact

17.) *Detroit News*: <https://www.detroitnews.com/story/news/local/detroit-city/2022/10/18/detroit-davis-aerospace-technical-high-school-students-called-an-astronaut/69561066007/?gnt-cfr=1>

18.) WDIV NBC ClickOnDetroit: <https://www.clickondetroit.com/news/local/2022/10/18/detroit-high-school-students-speak-with-an-astronaut-that-is-currently-orbiting-earth/>

19.) *Axios*: <https://www.axios.com/local/detroit/2022/10/19/aerospace-students-astronaut-space-station-detroit>

20.) ChalkbeatDetroit <https://detroit.chalkbeat.org/2022/10/19/23411804/detroit-public-schools-astronaut-davis-aerospace-iss-space-nasa-amateur-radio>

21.) Bollyinside <https://www.bollyinside.com/news/high-school-students-in-detroit-communicate-with-the-international-space-station-live>

22.) *Michigan Chronicle* <https://michiganchronicle.com/2022/09/06/dpscd-high-school-earns-opportunity-to-contact-international-space-station-this-fall/>

Media hits on The Canterbury School ARISS contact

23.) “Can you see angels from *space*?” Students in *Fort Myers* talk with astronaut at ISS. NBC <https://nbc-2.com/news/story2share/2022/10/24/can-you-see-angels-from-space-students-in-fort-myers-talk-with-astronaut-at-iss/>



24.) "Can you eat cupcakes in space?" Canterbury ...WGCU
<https://news.wgcu.org/can-you-eat-cupcakes-in-space-...>

The image is a screenshot of a news article from WGCU. At the top, the WGCU logo is displayed with the text 'PBS and NPR for Southwest Florida'. Below the logo is a navigation bar with a play button icon, the text 'WGCU TA', and a 'NEXT' button. Underneath the navigation bar is a menu with links for 'BACK TO HOME', 'SCHEDULE', 'PROGRAMS', 'WEATHER', 'NOTICIAS', 'DEMOCRACY WATCH', and 'HURRICANE IAN'. The main headline of the article reads: '"Can you eat cupcakes in space?" Canterbury students contact International Space Station'. Below the headline, it says 'WGCU | By Tara Calligan' and 'Published October 25, 2022 at 4:07 PM EDT'. There are social media sharing icons for Facebook, Twitter, LinkedIn, and Email. A 'LISTEN • 2:13' button is visible. At the bottom of the screenshot is a photograph of a young woman with long brown hair wearing large black headphones, sitting at a desk with a computer monitor and other equipment in what appears to be a radio or recording studio.

25.) SWFL kids in Fort Myers will talk to astronauts on board space station - WINK News
<https://www.winknews.com>

26.) & 27.) Canterbury - ARRL stories in The ARRL Letter and online ARRL News
<http://www.arrl.org/arrlletter?issue=2022-10-27#toc02>
<http://www.arrl.org/news/student-radio-contact-with-the-international-space-station-inspires-hurricane-hit-commun>

28.) Fort Myers Amateur Radio Club posted NBC's TV clip. click URL, scroll to item 2, titled "From NBC."
<https://fmarc.net/canterbury-ariss-contact/>

29.) NASA media hit on Fort Myers Canterbury School & ARISS
NASA asked [Rosalie] for a few photos, and I delivered. 😊 NASA posted 5 photos and text,
https://twitter.com/ISS_Research/status/1589700335467384833

Media hits for Harris Middle School ARISS contact

30.) story in Roanoke Division newsletter by VIPs, circulated Dec. 29, 2022

31.) Our Local Community Online
<https://www.ourlocalcommunityonline.com/2022/10/11/harris-middle-schools-contact-with-international-space-station/>

32.) WLOS ABC-TV news

<https://wlos.com/news/local/amateur-radio-on-the-international-space-station-harris-middle-school-dan-hopson-sen-ralph-hise-mitchell-county-commissioners-spruce-pine-town-council-members>

33.) Mitchell News-Journal

<https://www.mitchellnews.com/local-news/out-world>

Media hits for St. Stephen's Episcopal School ARISS contact

34.) *Community Impact* -- St. Stephen's Episcopal School makes contact through Amateur Radio, connects students to astronauts

<https://communityimpact.com/sponsored/sponsored/2022/10/30/st-stephens-episcopal-school-students-make-contact-with-space-in-unique-stem-based-programming/>

35.) ABC-13 news coverage <https://abc13.com/12290544/> (44:59 to 45:16)

36.) <https://vimeo.com/760605103/e94e62faf4> Channel 13 story of contact on 10.03.2022

37.) Buzz Magazine profile of student who asked question to Bob Hines, author J. Schwartz
https://issuu.com/thebuzzmagazines/docs/buzz_tro_nov22

38.) Seesaw- story and video, online platform 671 viewers

ARISS contact for students from 63 schools in 12 Caribbean countries, hosted by St. Joseph's Convent School in St. Lucia

39.) CaribPR Wire

Students From The Caribbean And Central America Will Connect With An Astronaut-radio contact arranged by Amateur Radio on the International Space Station

<https://caribpr.com/students-from-the-caribbean-and-central-america-will-connect-with-an-astronaut-on-the-international-space-station/>

Five Bridges Junior High School ARISS contact

40.) Online Community TV nslive.tv/five-bridges-ariss/ (nslive.tv had stories on 2 web sites)



Media hits for Maitland Air Cadets in Goderich, ARISS contact

41.) Newsbeezer

<https://newsbeezer.com/canada/goderich-air-cadets-speak-to-astronauts-aboard-the-international-space-station/>

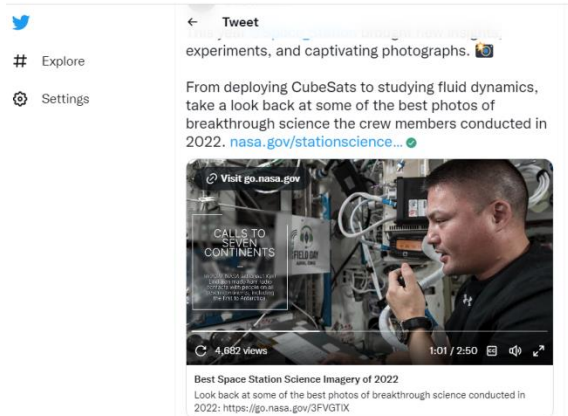
42.) *Goderich Signal Star*

<https://www.goderichsignalstar.com/news/goderich-air-cadets-speak-with-astronaut-aboard-the-international-space-station>

Media hit -- “Best Space Station Science Imagery of 2022”

43.) NASA Twitter posted a 2022 highlights video--included Kjell Lindgren at the ARISS radio on the ISS and the ARRL Field Day flag--text hyped his accomplishment of Worked All Continents during his stay on the ISS. Also posted in Spanish.

https://twitter.com/ISS_Research/status/1608151284682731520?s=20. Within four days’ time, results: 80.9k views of video, 367.5k views of the Tweet



Media Hit – Best Scientific Experiments Performed on the ISS in 2022

44.) ISS National Lab web story -- 2nd photo was Kjell Lindgren operating the ARISS ham station on the ISS

https://www.issnationallab.org/iss360/2022-issnationallab-science-highlights/?utm_source=edm&utm_medium=email&utm_campaign=pe&utm_content=2022



Here's a look at some of the scientific experiments performed this year.

HAM Radio



MEDIA CREDIT: Image courtesy of NASA

Students can chat with the astronauts onboard the ISS via HAM radio through a program called Amateur Radio on the International Space Station (ARISS). During the Crew-4 mission, NASA astronaut Kjell Lindgren spoke to many students, including Argentinian students at school No. 38, located at Esperanza Base, Antarctica. This marked one of the most remote locations for the ARISS program.

As an ISS National Lab education partner program, ARISS arranges 60 to 80 HAM radio contacts

Media hit on Cambridge School Students – ARISS contact

45.) CambridgeToday.ca

<https://www.cambridgetoday.ca/local-news/cambridge-students-ready-to-connect-with-orbiting-astronaut-5685818>

Media hit on Astronaut Lindgren describing Amateur Radio in a school talk

46.) WTHR-TV

<https://www.wthr.com/video/news/local/indiana-students-chat-with-astronaut-on-international-space-station/531-93a4ed56-bbd6-4eef-9343-cd5ac4220148>

An unbelievable total of 42 Media Hits -- about 8-year-old Isabella whose Dad helped her talk to Astronaut Kjell Lindgren

The Background: Isabella's dad helped his ham club six years earlier with an ARISS school contact, he brought her (a 2-year-old) to watch. He and she often listened to ARISS contacts. One night he heard Kjell Lindgren and suggested she call him. In perfect ham protocol, she did, using her dad's call sign. Kjell answered; they had a short QSO. Hams said his voice got a warmer tone, as if he was smiling.

47.) The online news service *Thanet News* in Broadstairs, UK heard about the QSO, talked to Isabella, and broke the story including her quote: "It was amazing to contact the ISS and it made my night and day. After we spoke on the radio, NASA contacted us for a photo. They sent it to Astronaut Kjell. To my surprise, Kjell [from the ISS] posted on Facebook a photo of my picture on his iPad floating in the ISS!" <https://theisleofthanetnews.com/2022/08/10/broadstairs-eight-year-old-to-feature-on-nasa-website-after-radio-chat-with-iss-astronaut/>



ARISS Facebook posted the photo, too: 6,128 Reaches and 821 Engagements!

The story of Isabella and Kjell exploded, spreading around the world! (See list below.)

48., 49., 50.) BBC story, BBC Instagram Reel, BBC video

<https://www.bbc.com/news/uk-england-kent-62563215.amp>

<https://www.instagram.com/reel/ChU0oenDiD6/>

https://www.m0lmk.co.uk/wp-content/uploads/2022/08/Isabella_ISS_BBC_News.mov

BBC NEWS

Home UK World Business Politics Tech Science Health Family & Education

International Space Station: Girl, 8, chats to astronaut on amateur radio

16 August 2022



Isabella, pictured with her father Matthew, said her chat with an astronaut was 'amazing'

An eight-year-old girl from Kent used her father's amateur radio equipment to chat to an astronaut aboard the International Space Station (ISS).

51.) NASA requested her permission to do an Instagram Reel about her ham radio contact with Kjell: Views: 1.2 million!!! Likes: 52,796 Comments: 528

52.) CNN story on Isabella

<https://www.cnn.com/2022/08/17/uk/girl-iss-amateur-radio-science-intl-gbr/index.html>

53.) KOCO - 8-year-old girl chats with ISS astronaut using ham radio

<https://www.koco.com/article/girl-chats-with-iss-astronaut-using-ham-radio/40919892>

54.) *People* magazine

People


NEWS ENTERTAINMENT ROYALS LIFESTYLE PEOPLETV SHOPPING PODCASTS

HUMAN INTEREST

Dad's Ham Radio Hobby Leads to Daughter Calling Astronaut in Space — Hear Their Adorable Chat!

In an audio clip of the awesome exchange, 8-year-old Isabella Payne chats with Kjell Lindgren, commander of NASA Space Crew-4

By **Aligail Adams** Published on August 24, 2022 10:33 AM



DAD'S HAM RADIO HOBBY LEADS TO

55.) KVOA 8-year-old chats with ISS astronaut using ham radio

https://www.kvoa.com/townnews/astronautics/8-year-old-girl-chats-with-iss-astronaut-using-ham-radio/article_7ec7586a-6235-5277-963b-9dfd0e77ec06.html

56.) The Goa Spotlight 8-year-old girl talks to astronaut using ham radio - KVOA

[8-year-old girl talks to astronaut using dad's ham radio - The Goa Spotlight](#)

57.) News Around You-Community 99 8-year-old chats with astronaut via ham radio
<https://community99.com/8-year-old-girl-chats-with-iss-astronaut-via-ham-radio/>

58) NPR – National Public Radio



8-year-old girl in Kent, England, has an out of this world story to tell her friends

August 23, 2022 7:25 AM ET
Heard on Morning Edition



Isabella Payne used her father's ham radio to talk to astronaut Kjell Lindgren aboard the International Space Station. Her dad had been listening for weeks to Lindgren use his amateur radio equipment.

Transcript

STEVE INSKEEP, HOST:

Many kids seize an opportunity to send a text message or call somebody. An 8-year-old girl in Kent, England, went farther, right off the planet. She talked with an astronaut traveling 250 miles above her on the International Space Station.

RACHEL MARTIN, HOST:

She did this using her dad's ham radio. Amateurs buy equipment and talk on the radio

59.) through 77.) The KOCO story was picked up by:

Yahoo News around the US

KAKE in KS

KIRO in WA

KSWO in OK

WAGM in ME

KCBD in TX

KTVE in MS

KARD in AR

Fox 16 in LA

WLBT in MS

WFVC in CA

CenIaNow in LA

Spark Chronicles in CA

The Dawg in LA

Epoch Times – broad range of the world

Upworthy – broad range of the world

She the People – broad range of the world

Gearrice – tech news outlet

Nerdbot – tech news outlet

78.) through 88.) Thanet News story picked up in UK by:

Republic World in UK

Daily Mail in UK

Metro in UK

Virgin Radio in UK

IFL Science in UK

The Saxon in UK

Yorkshire Evening Post in UK

Lincolnshire World in UK

Daily Express in UK

Metro 50 in UK
Southgate AR News in UK

Appendix C: Things of Interest



US ARISS Contacts—only missing S.D.—from Dec 21, 2000 to December 31, 2022