



AMSAT® is dedicated to keeping amateur radio in space. Its membership includes a worldwide group of radio hams who monitor amateur radio satellite signals and use satellites for QSOs. They also design and build the satellites and control them once in orbit.

Since 1961, more than 100 amateur radio satellites have successfully reached orbit and begun operation. Our Vision is to deploy satellite systems with the goal of providing wide area and continuous coverage. AMSAT will continue active participation in human space missions and support a stream of Low Earth Orbiting satellites developed in cooperation with the educational community and other amateur satellite groups.

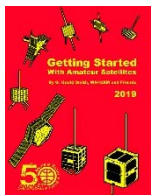
We are always interested in having committed people join AMSAT and help design, build and maintain our amateur satellites.

We'd Like to Have You as a Member

Both you and AMSAT will benefit when you join. In addition to receiving the AMSAT Journal bi-monthly publication, your member dues and donations provide AMSAT's primary support.

Find AMSAT on-line at:

<http://www.amsat.org>



This book will show you how it's done:

AMSAT offers the **Getting Started with Amateur Satellites** book...

Available online at:

<https://www.amsat.org/shop/>

How Do I Get Started in Amateur Satellites?

You can get a variety of information from AMSAT to get you started in amateur radio satellites.

- *The AMSAT Journal* reaches our members six times a year bringing articles on satellite operation, news of amateur satellites, and technical data about current satellites.
- The AMSAT Web site www.amsat.org provides up-to-date detailed amateur satellite information useful to the beginner or old-timer, and it's at your fingertips 24/7.
- AMSAT also offers an email forum (AMSAT-BB) that anyone can use to ask questions or trade ideas and information with other satellite operators.

You may already own the amateur radio equipment to get started

Some amateur satellites can be operated with as little as a dual-band HT and hand-held antenna. Imagine working Canada from Florida or California from Vermont. You can do it daily with this simple equipment. Satellite communications are line-of-sight and don't rely on ionospheric conditions. Both stations need only to be able to "see" the same satellite at the same time to communicate through it. Tracking software is available from AMSAT that shows you when the satellites will be over your QTH.



Work all States and chase DX, using just a portable station ... or build a home satellite station.

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Join Amateur Radio in Space... Join AMSAT...

1-year membership is \$44.00 for U.S., \$50.00 for Canada, and \$55.00 for overseas and includes 6 bi-monthly issues of *The AMSAT Journal*

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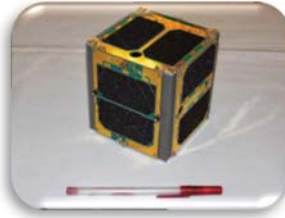
Donations

AMSAT relies on your donations to Keep Amateur Radio in Space. Please consider a donation to the AMSAT General Fund, the GOLF Program, or ARISS!



Join online at: www.amsat.org, email: martha@amsat.org, Phone: (888) 322-6728 in the U.S. or (301) 822-4376

AMSAT Fox-1 CubeSats



AMSAT pioneered the concept of small satellites in low orbits. AMSAT's Fox Project consists of a series of CubeSats that have FM transponders with a 70cm uplink and a 2m downlink, and one linear transponder with a 2m uplink and a 70cm downlink.

A dual-band 145/435 MHz, radio capable of full-duplex operation with an external antenna is enough to get started on the satellites.

You may also consider using one radio to receive and a second radio to transmit for full-duplex operation.



AMSAT operates a fleet of four amateur radio CubeSats on-orbit or ready for launch

- **AO-85 (Fox-1A)** was launched on a NASA ELaNa flight on 8 October 2015 and is currently operational. This satellite has a UHF uplink and a VHF downlink.
- **AO-91 (RadFxSat / Fox-1B)** was launched on 18 November 2017 with an FM transponder and the Vanderbilt University radiation experiments and is operational.
- **AO-92 (Fox-1D)** launched in January 2018 aboard a PSLV flight from India and is operational. Fox-1D orbits an FM transponder with UHF and L-band uplinks and a VHF downlink plus a camera experiment.
- **RadFxSat-2 / Fox-1E** will launch no earlier than Fall 2019 aboard a Virgin Galactic LauncherOne flight. It will carry a 30 kHz wide mode V/U linear transponder. It will also have a 1200 bps BPSK telemetry beacon.



AMSAT partners with NASA, the ARRL, and the Amateur Radio on the International Space Station (ARISS) team to provide amateur radio equipment for the ISS. There are multiple amateur radio experiments aboard the ISS involving voice, digital, and visual amateur radio modes encompassing both SSTV and the digital ATV experiment in the Columbus module.

Be a part of Amateur Radio's exciting future in space!

2019 and beyond promises to bring more satellites, sky high technology and educational outreach ...

- **AMSAT GOLF** – Greater Orbit, Larger Footprint ... 3U cubesats with deployable solar cells, attitude determination and control, earth imaging, university experiments, and SDR transponder.
- **University CubeSat communications package** to include a VHF/UHF linear transponder, command receiver, and UHF telemetry beacon.
- **Lunar Gateway.** AMSAT and ARISS are working on the design of a ham radio system for NASA's Lunar Gateway. The Gateway will be a small spaceship in orbit around the Moon that will provide access to more of the lunar surface than ever before with living quarters for astronauts, a lab for science and research, ports for visiting spacecraft, and more.
- **Supporting ARISS** to deploy the new Kenwood radios and Multi-voltage Power Supply on the ISS.
- **AMSAT's CubeSat Simulator** and **Ambassador** programs are leading the way in educational outreach and STEM integration for students at all levels.

Keeping Amateur Radio in Space
for the Next 50 Years!

Mail this form to....

AMSAT

1605 Concord Street

Suite 34

Kensington, MD 20910



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