

*AMSAT builds and operates satellites and related resources
for the purpose of educating youth and adults in how
to use this technology in the public interest.*

This is AMSAT

The Radio Amateur Satellite Corporation



Radio Amateur Satellite Corporation (AMSAT)
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About AMSAT



The *Radio Amateur Satellite Corporation* (as AMSAT is officially known) was first formed in the District of Columbia in 1969 as an educational organization. Its goal was to foster Amateur Radio's participation in space research and communication. AMSAT was founded to continue the efforts, begun in 1961, by Project [OSCAR](#), a west coast USA-based group which built and launched the very first Amateur Radio satellite, OSCAR, on December 12, 1961, barely four years after the launch of Russia's first Sputnik.

Today, the "home-brew" flavor of these early Amateur Radio satellites lives on, as most of the hardware and software now flying on even the most advanced AMSAT satellites is still largely the product of volunteer effort and donated resources. Though we are fond of traditions our designs and technology continue to push the outside of the envelope.

For over 50 years AMSAT groups in North America and elsewhere have played a key role in significantly advancing the state of the art in space science, space education, and space technology. Undoubtedly, the work now being done by AMSAT volunteers throughout the world will continue to have far-reaching, positive effects on the very future of both Amateur Radio, as well as other governmental, scientific and commercial activities in the final frontier.

Rarely have a group of "amateur" volunteers managed to do so much...for so many...with so little.

AMSAT Leadership, 2025-2026

Board of Directors

Barry Baines, WD4ASW

Keller, TX

Gerald W. Buxton III, N0JY

Granbury, TX

Drew Glasbrenner, KO4MA

Brooksville, FL

Mark Hammond, N8MH

Coats, NC

Frank Karnauskas, N1UW

Tucson, AZ

Bruce Paige, KK5DO

Roman Forest, TX

Paul Stoetzer, N8HM

Washington, DC

First Alternate:

Doug Tabor, N6UA

Cheyenne, WY

Board members are elected annually for a two-year term by AMSAT membership.

Senior Officers

Drew Glasbrenner, KO4MA

President

Brooksville, FL

Paul Stoetzer, N8HM

Executive VP and Secretary

Washington, D.C.

Doug Tabor, N6UA

Secretary

Cheyenne, WY

Steve Belter, N9IP

Treasurer

West Lafayette, IN

Gerald W. Buxton III, N0JY,

VP, Engineering

Granbury, TX

Mark Hammond, N8MH

VP, Operations

Coats, NC

Alan Johnston, KU2Y

VP, Educational Relations

Philadelphia, PA

Frank Karnauskas, N1UW

VP, Development

Tucson, AZ

Senior Officers are elected for one-year terms at the AMSAT Annual Meeting. The AMSAT Annual Meeting and Symposium is held in the month of October in various cities around the United States

(The phrase after each person's name is their Amateur Radio callsign.)

Strategic Plan 2021-2035

Organization

Our Vision

- To deploy satellite systems with the goal of providing wide-area and continuous coverage communications.
- To continue active participation in human space missions, and
- To support a stream of LEO satellites developed in cooperation with the educational community and other Amateur Radio satellite groups.

Our Mission

- AMSAT is a non-profit volunteer organization which designs, builds, and operates experimental satellites and promotes space education.
- We work in partnership with government, industry, educational institutions, and fellow Amateur Radio societies.
- We encourage technical and scientific innovation and promote the training and development of skilled satellite and ground system designers and operators.

Our Core Values

- We lead by example.
- We respect the individual.
- We work collaboratively towards a common purpose and shared goals.
- We embrace change and innovation to help our members, our partners, and ourselves.
- We are committed to the Amateur Radio satellite community.
- We are open and honest in our communication. Above all, we act with integrity.

Strategic Satellite Objectives and Organization Goals

Highly Elliptical Orbits

Upward to HEO. Develop and deploy a series of spacecraft capable of providing wide-area and continuous coverage from high-Earth and geostationary transfer orbits.

Greater Orbit, Larger Footprint

GOLF. Develop and deploy a series of increasingly capable spacecraft through a program to learn skills and systems for which we do not yet have the necessary low-risk experience, including active attitude control, deployable/steerable solar panels, radiation tolerance for commercial off the shelf (COTS) components in higher orbits, and propulsion.

Amateur Radio on the International Space Station

AREx-A. Partner with ARISS and ARISS-USA to advance Amateur Radio's presence aboard NASA's International Space Stations, Deep Space Gateway and Artemis missions and provide opportunities to engage with astronauts in lunar and deep space operations.

Low Earth Orbit

LEO. Support a stream of LEO satellites developed in cooperation with the educational community and other Amateur Radio satellite groups.

FM Operations. Develop, deploy, and support a series of 1U spacecraft to support continued FM amateur satellite operations in low Earth orbit.

Partnerships. Develop a plug-and-play communications solution for educational and other Amateur Radio CubeSat programs, providing a VHF/UHF telemetry beacon, command receiver, and linear transponder or FM repeater communications module.

AMSAT STEM Initiatives

AMSAT Education. Support science, technology, engineering, and mathematics (STEM) initiatives and training programs for satellite and ground system designers and operators.

CubeSat Simulator. Continue development of AMSAT's CubeSat Simulator Program.

High Altitude Ballooning. Develop program to support and sponsor the use of amateur radio in high-altitude balloon (HAB) launches.

Youth Initiative. Develop an educational outreach program that encourages youth to pursue STEM interests in space science and communication technology.

Educational Relations

University Partnerships

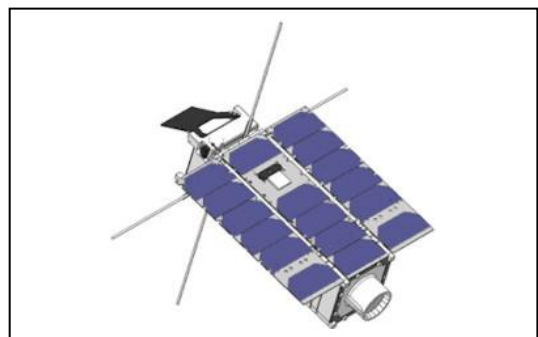
AMSAT partners with major research universities and colleges to fly experiments in space such as those with Virginia Tech, Vanderbilt University, Penn State University and the University of Washington. AMSAT partners with these research universities who provide the experiments while AMSAT provides the basic spacecraft, control and communications. At the end of the primary mission the university turns the satellite over to AMSAT for communication purposes.

AMSAT's AO-92 has a Virginia Tech camera experiment and the University of Iowa's High Energy CubeSat Radiation Instrument (HERCI) experiment that is intended to provide a mapping of radiation in a low earth orbit. The instrument consists of a digital processing unit derived from processors currently in orbit around Saturn on Cassini and on the way to Jupiter on the Juno spacecraft.

AMSAT's AO-95 flew a Vanderbilt University Low Energy Proton (LEP) radiation experiment and a Penn State University–Erie gyroscope experiment. In addition, Virginia Tech provided a VGA resolution camera experiment for pictures of the earth.

The University of Washington's **HuskySat-1** embodies aspects of future spacecraft design and how AMSAT collaborates with educational institutions. The spacecraft and experiments were designed and built by the University of Washington Husky Satellite Lab while primary communications and control hardware were provided by AMSAT.

Besides AMSAT's ability to help universities gain access to space, AMSAT's worldwide network of ground stations provides the ability to capture data that is downloaded while its satellites orbit the earth day and night.

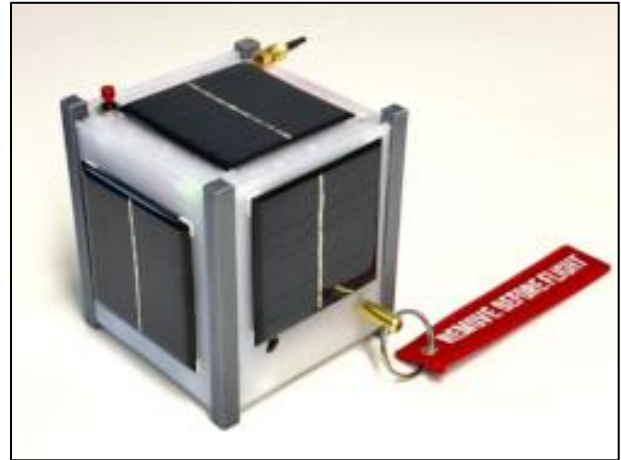


Educational Relations...continued

Besides working at the university level, AMSAT is wholly engaged in working with teachers in Science, Technology, Engineering and Mathematics (STEM) education.

Classroom Satellite Simulators

The AMSAT Educational Relations team designs and builds simulators to demonstrate certain functions and environmental effects of satellites in space. CubeSat Simulators are low-cost satellite emulators that run on solar panels and batteries, transmit radio telemetry and can be extended by additional sensors and modules. They can be used in a variety of classroom settings including grades 6-12 STEM and undergraduate engineering and science classes. The AMSAT CubeSat Simulator helps bridge the gap between High Altitude Balloons (HAB's) and actual orbiting CubeSats. The CubeSat Simulator is a low-cost, functional educational model of a CubeSat that can be built with a few hundred dollars in a few weeks. Students can learn soldering, 3D printing, Raspberry Pi computing and testing skills. In addition, receiving and decoding telemetry in the classroom can be useful training for either a HAB or CubeSat mission.



High Altitude Balloons

The AMSAT Educational Relations team is actively developing teaching programs for the design and development of High Altitude Balloons for educational use. STEM payloads range from simple to very complex. An example of a simple payload may be just a location tracker so that students can observe the balloon's altitude and flight path in real-time. Very complex payloads carry an array of science experiments using multiple sensors or sensor packages coupled with radio transmitters to return the data in real-time via custom-built ground station receivers. In addition, most payloads record data from the sensors on board to be retrieved and analyzed after the flight and when ground chase teams recover the payload.



Youth Initiative

The AMSAT Youth Initiative is designed to put learning resources for space-bound education directly in the hands of youth, their parents and youth group leaders. It is unique because its approach to youth is to put the sometimes-forbidding sounding topic of aerospace or astronautics into the perspective of our everyday lives – how we study climate change, protect natural resources, listen to music and navigate our way around city streets as well as other things we take for granted.

Two trademarked brand names focus on two age groups – KidzSat for grades 5-7 and BuzzSat for grades 8-12.

The Youth Initiative provides two primary opportunities in which youth can participate.

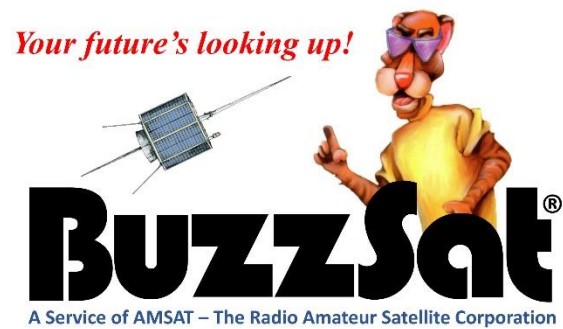
Satellites in Space Coloring Book

The free downloadable coloring book includes twelve 2-page spreads that show how satellites are used and the benefits they provide. Topics include satellites and meteorology, pollution control, astronomy and many more. The coloring book is available in English and Spanish

Online Lessons and Experiments

Presented through the website BuzzSat.com for grades 8-12, youth have direct access to a wealth of resources, lessons and experiments.

The content is designed for self-directed learning, preferably with the guidance and encouragement of a parent, teacher or youth group leader. The content approaches youth's interest in earth sciences, careers and other paths by showing how satellites in space can help us improve our lives here on earth.



Engineering

While all senior officers and members of the Board of Directors contribute to the educational and scientific definition and conceptual designs of AMSAT satellites, the Engineering team is responsible for the hardware and software design of its satellites, their construction, testing and launch.

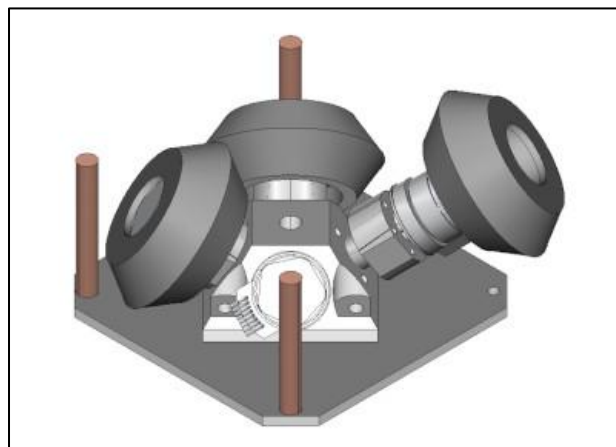
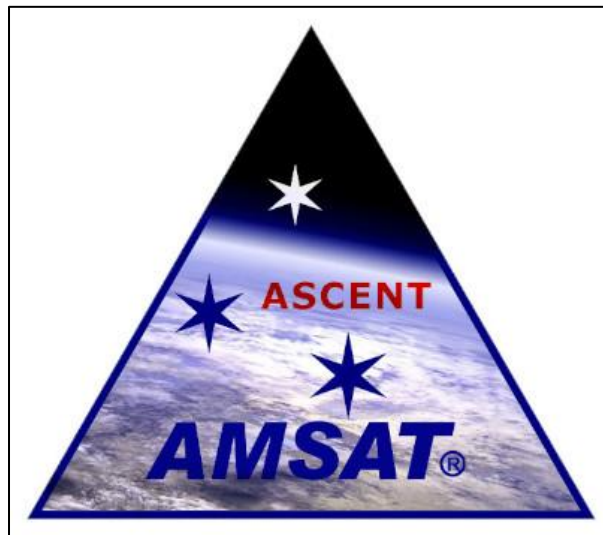
The Engineering team is composed entirely of unpaid volunteers, most of whom are electronic engineers or software programmers with extensive experience in the aerospace industry. At any given time, approximately 60 or more professionals are donating their time, energy and expertise to bring AMSAT satellites from the drawing board to reality.

In keeping with AMSAT's strategic plan, the Engineering team is responsible for continuing to provide a series of low earth orbit (LEO), easily accessible satellites to support its educational purposes. It must also press ahead to design, build and launch satellites in highly elliptical orbits to support the research needs of advanced users to further the cutting edge of satellite communications technologies.

ASCENT

The **A**dvanced **S**atellite **C**ommunications and **E**xploration of **N**ew **T**echnology program lies at the core of AMSAT's engineering efforts. It is from within the ASCENT team that cutting edge communications technologies are explored and strategic decisions are made to guide the overall direction of AMSAT's satellite design and engineering efforts.

Central to ASCENT's interests is the rapidly evolving technology for software defined radios, or SDR's. This new frontier of radio technology offers unprecedented flexibility in the bands in which radios can operate, the modes of operation that can be utilized and the almost unlimited range of educational experiences and scientific experiments that can be supported.



Engineering...continued

FOX-PLUS

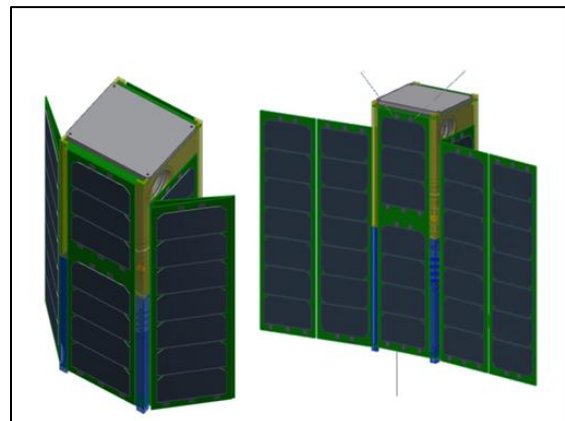
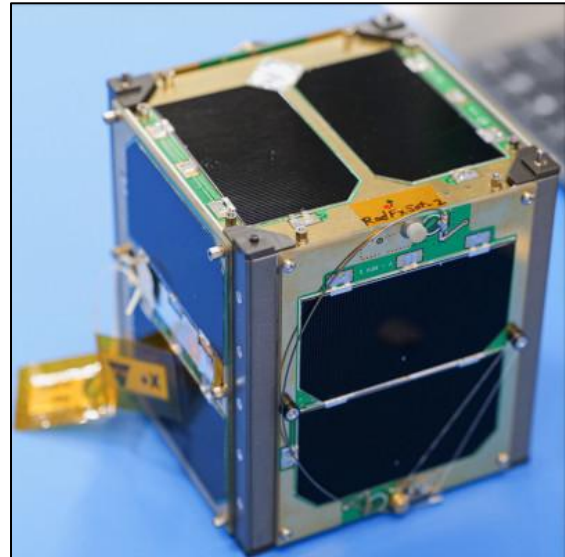
AMSAT's FOX-1 series of low earth orbit satellites beginning in 2015 became an immediate hit by providing easy access to space communications via Amateur Radio. This breakthrough design gave countless students and adult experimenters their first taste of communications via satellite. With the FOX-1 satellites reaching the end of their life expectancy, AMSAT begins the development of the FOX-Plus satellites.

The FOX-Plus satellites will continue the tradition of providing easy access to two-way communications for experimenters with inexpensive radios and simple antennas. These satellites are designed with advanced software defined radios that will provide high flexibility to support advanced educational and scientific experiments. Improved computing power will offer the possibility of more interactive, multimedia experiences.

GOLF

The **G**reater **O**rbital for **L**arger **F**ootprint program means flying satellites in extended orbits in order to provide wider geographical coverage for users on earth. Besides the usual challenges of designing radios to operate over longer distances, building satellites for these far-out orbits means constructing them to survive the increased rigors of outer space. The GOLF series of satellites are the ultimate test for AMSAT's engineering efforts for operating software defined radios across microwave frequencies, solar power generation and battery management, attitude detection and control for antenna steering, and systems hardening to increase survivability in space's harshest environment.

All AMSAT engineering designs are published as openly available documents to be shared among all interested in amateur satellite operation.



Member Services

Membership Portal

The Membership Portal is the gateway to AMSAT member features and benefits. Here, members can renew their membership, update their contact information, make additional donations and register for events.

The portal also provides members with exclusive access to the archives of the *AMSAT Journal* and Symposium Proceedings as well as other member benefits.

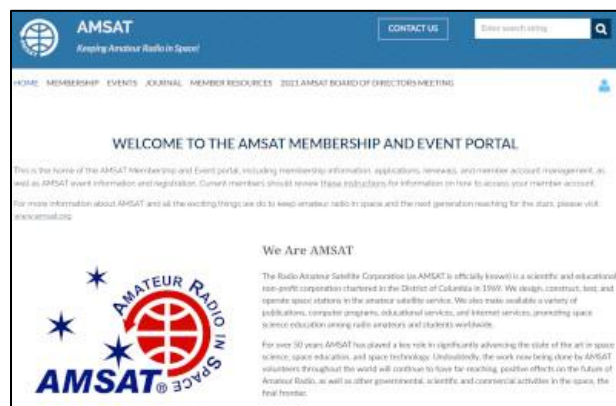
AMSAT.org Website

AMSAT maintains a comprehensive website with pages of information about the organization itself, educational offerings, beginner tutorials, satellite information, projects, events, and member services. The website has links to pages that answer almost any question concerning amateur satellite operation.

AMSAT News Service

The AMSAT News Service (ANS) bulletins are a free, weekly news and information service of AMSAT. The ANS bulletin publishes a variety of news related to Amateur Radio in space, including reports on the activities of Amateur Radio operators worldwide who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

ANS bulletins are distributed via email to a list of more than two thousand subscribers worldwide. While most subscribers are radio amateurs, the subscription list also includes academic researchers, journalists, and scientific organizations who desire a regular capsule summary of Amateur Radio satellite activities.



Member Services...continued

AMSAT Bulletin Board

The Bulletin Board is an email mailing list available free to any who subscribe. The Bulletin Board offers users the opportunity to post questions, share observations, and exchange technical aid or opinions about satellite radio operating procedures. With approximately 3,000 subscribers at present, the Bulletin Board is a lively forum for discussion about satellite technology and operation with participants from around the world.

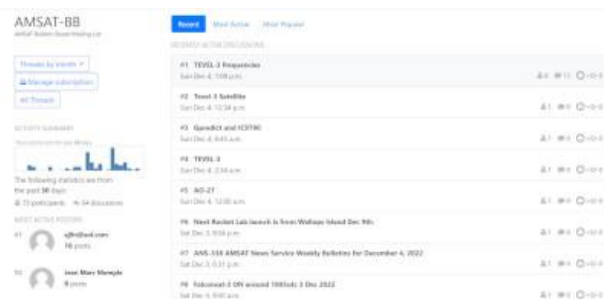
AMSAT Symposium

Since the early 1990s, AMSAT has held an annual gathering at various locations around North America. Modeled upon an academic conference, the Symposium features presentations on technical projects, software, and future satellite plans. Also included are presentations of interest to beginners, and a good measure of informal chat between sessions and at the closing banquet.

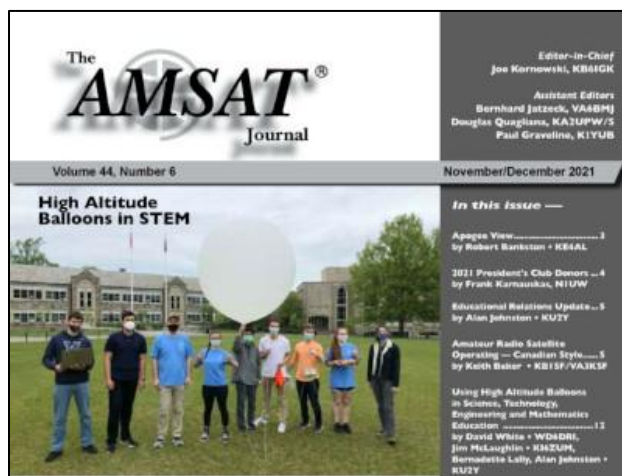
Written versions of the Symposium presentations are collected in an edited volume of *Proceedings* that are published electronically for distribution at no charge to AMSAT members and registered Symposium attendees, and sold at modest cost to those requesting them.

The AMSAT Journal

The AMSAT Journal is a bi-monthly digital magazine for Amateur Radio-in-space enthusiasts. It is available to members, along with archived issues, on the membership portal of the AMSAT website. Each issue is a source for hardware and software projects, technical tips, STEM initiatives, operational activities, and news from around the world. *The AMSAT Journal* is professionally edited with assistance from a team of volunteers with expertise in publishing and technical writing. Articles range from introductory projects for beginners to advanced scientific research reports.



Message	Subject	Date	Time
#1	TYGOL-3 Frequencies	Sat Dec 4, 10:00 a.m.	4:0 0:0 0:0
#2	TYGOL-3 Bandwidth	Sat Dec 4, 10:04 a.m.	4:1 0:0 0:0
#3	Gardner and K29960	Sat Dec 4, 10:04 a.m.	4:1 0:0 0:0
#4	TYGOL-3	Sat Dec 4, 10:04 a.m.	4:1 0:0 0:0
#5	AD-27	Sat Dec 4, 10:04 a.m.	4:1 0:0 0:0
#6	New! Radio Lab Network is from Waltham Island Dec 4th	Sat Dec 4, 10:04 a.m.	4:1 0:0 0:0
#7	AMS-338 AMSAT News Service Weekly Bulletin For December 4, 2021	Sat Dec 4, 10:04 a.m.	4:1 0:0 0:0
#8	Re: AMSAT-3 DFM around 100MHz 3 Dec 2021	Sat Dec 4, 10:04 a.m.	4:1 0:0 0:0



Member Services...continued

Publications

AMSAT supports all interested parties with publications ranging from a beginner's guidebook to collections of advanced technical articles.

Getting Started with Amateur Satellites is the definitive reference written for the new satellite operator and includes discussions for the experienced operator.

In it, the new operator is introduced to the basic concepts and terminology unique to this mode of communications. Also included is information on satellites that are expected to be launched in the coming years.

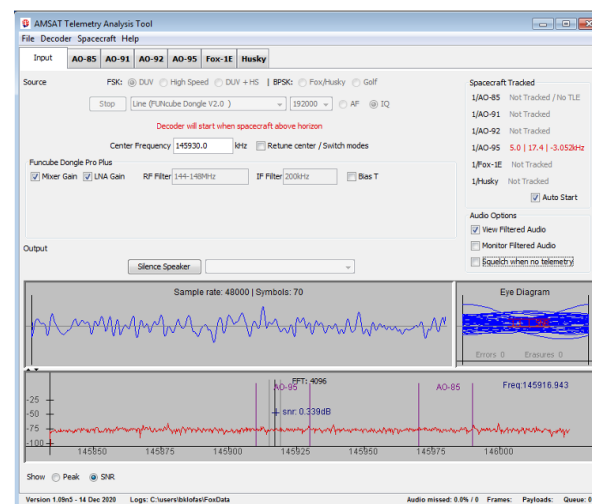
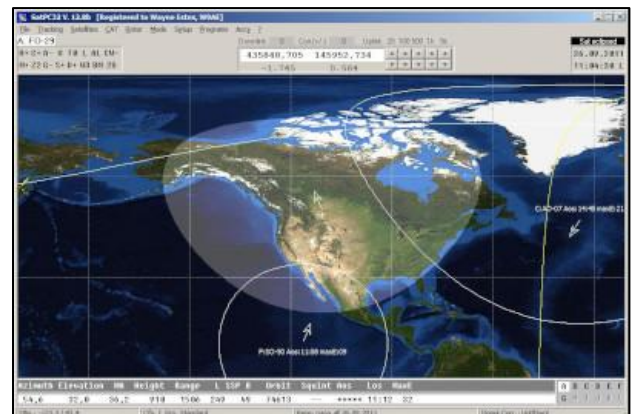
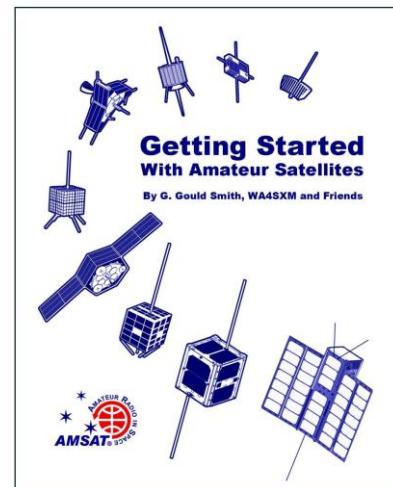
Satellite Tracking Software

AMSAT offers for sale tracking software for both Windows and Apple platforms. With these sophisticated apps, enthusiasts can plan their communications with dozens of available amateur satellites from anywhere on the globe.

In addition to the software-based applications, anyone can use the online satellite prediction tool on the AMSAT.org website to predict the orbit of any working amateur satellite.

Telemetry Collection Software

Downloading and capturing telemetry from satellites is a critical function performed by amateur satellite enthusiasts around the world. Telemetry is essential for control operators to maintain the health of satellites and is the conduit for capturing the results of the scientific payloads that many AMSAT satellites support. AMSAT published FOX-TELEM software to capture this telemetry and forward it to a data warehouse where control operators and experiment principals can access this essential information.



Member Services...continued

Training and Education

Education has always been part of AMSAT's mission. Sharing our passion for Amateur Radio and space is an excellent way to advance educational outreach for STEM (Science Technology Engineering and Math) education. AMSAT educational outreach takes many different forms including:

- **Operational Aids and Plans**

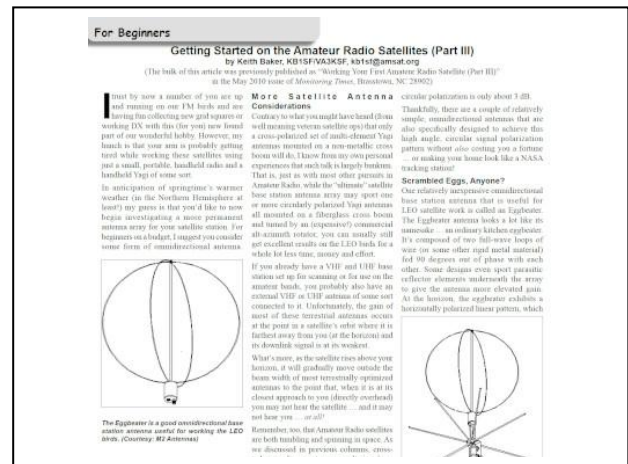
AMSAT provides beginning satellite communicators with a wide assortment of articles and brochures detailing how to assemble their first station and how to make their first satellite contact.

- **AMSAT Ambassadors**

Outreach within the educational, experimental and public communities and the public is provided by AMSAT Ambassadors. These volunteers provide instructive presentations on space communications, stage live demonstrations of satellite communications and host displays at various events and conferences.

- **International Space Station**

AMSAT volunteers provides technical and operational support for radio contacts between school students and astronauts onboard the International Space Station organized by ARISS (Amateur Radio on the International Space Station).



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