

Public Service

Advocacy

Education

Technology

Membership

“It Seems to Us”

Fifty Years in Space

“*In April the world celebrated the 50th anniversary of Yuri Gagarin’s orbit of the Earth — the first human space flight.*”

In December the Amateur Radio community will mark its own 50th anniversary in space. It was on December 12, 1961 — coincidentally the 60th anniversary of Marconi’s first spanning of the Atlantic by wireless — that Oscar 1 achieved orbit and began beeping its now-famous “HI” Morse code telemetry to thousands of eager amateurs poised at their “tracking stations” all over the world.

This was not our first brush with space. Amateurs had bounced signals off the Moon as early as 1953. When the first Sputnik was launched in 1957, amateurs were among the first to hear its signals on 20 and 40 MHz. Radio astronomy owes a great deal to the early work of amateurs.

Even so, there was nothing inevitable about there being such a thing as an Amateur Radio satellite. Oscar’s launch was the culmination of more than two years of tireless effort by nearly 100 amateurs and friends organized under the banner of the Project Oscar Association. Based in the San Francisco Bay area, the Project Oscar team had to overcome countless obstacles to bring their shared vision to life. Not only was their creation the first amateur satellite, it was the first non-Government satellite *of any kind*.

Credit for planting the seed that became the amateur satellite program goes to Don Stoner, W6TNS. Reporting on a solar-powered repeater in his column in the April 1959 issue of *CQ* magazine, Don mused: “Can anyone come up with a spare rocket for orbiting purposes?” This tiny spark ignited the imagination of Fred Hicks, W6EJU, who knew something about rockets. He and Chuck Towns, K6LFH, who eventually became Chairman of Project Oscar, decided that not only was it worth a try, they were in the best position to work with Don to make it happen — so they did.

From our 21st century vantage point, building the satellite looks like the easy part. While solid-state transmitters were still relatively new and designing one for operation in space was a novel undertaking, Oscar’s designers did not have to work too far outside their comfort zone. In contrast, there was no precedent for acquiring the necessary military and government approvals. Another *CQ* columnist, George Jacobs, W3ASK, volunteered to serve as Project Oscar’s Washington, DC contact. The ARRL provided its endorsement and assistance. Somehow, all the necessary hurdles were cleared and a “piggyback” launch on an Air Force rocket was arranged.

The dramatic account by Bill Orr, W6SAI, in February 1962 *QST* conveys the excitement of the launch day and all that led up to it. Lacking an Internet, amateurs put together their own HF communications network to gather real-time reception reports from as far away as Antarctica. It was from a report by KC4USB in Marie Byrd Land

that the anxious team in California first learned that Oscar had been heard, and from KL7EBM in Kodiak, Alaska that the world’s first amateur satellite was well on its way to completing its first orbit. Oscar 1 logged 22 days in orbit and was followed by a somewhat improved package that became Oscar 2 upon its launch on June 2, 1962.

While the first two Oscar satellites contained simple beacon transmitters, from the beginning the Project Oscar team had a much more ambitious goal in mind: an orbiting linear transponder. The first attempt was Oscar 3, which utilized both uplink and downlink frequencies in the 2 meter band — an arrangement that proved to be problematic. Oscar 4 was meant to carry a crossband transponder into semisynchronous orbit, but a third-stage rocket failure kept it in a low orbit and shortened its useful life.

The first fully successful amateur satellite transponder was aboard Oscar 6 and used a 2 meter uplink and 10 meter downlink. It was launched in October 1972 and operated for nearly five years, giving thousands of amateurs in more than 100 countries the opportunity to experience two-way communication via satellite. By that time the Project Oscar pioneers had passed the torch to AMSAT and amateur satellites had become an international undertaking.

While the amateur satellite program has had its share of disappointments, today the amateur-satellite service (as it is formally known) is poised to begin its sixth decade with a healthy list of satellites in orbit and planned for launch. At universities in a number of countries, a new generation of space scientists is gaining valuable hands-on experience through amateur satellites. While we have not achieved the dream of amateur satellites in geostationary orbit, communicating through low-power transponders in constant relative motion continues to be an inviting challenge that helps us hone our operating skills and station capabilities.

Sadly, many of the leading lights behind Project Oscar are now Silent Keys. We salute their memory. To those who are still with us, we are grateful for your legacy. Amateur Radio’s best days are still ahead — but thanks to you, December 12, 1961 will always be remembered as one of its finest hours.



David Sumner, K1ZZ
ARRL Chief Executive Officer