

In the beginning ...

The Deep-Space Exploration Society (DSES) was incorporated in 1991 and was the outgrowth of an effort to return the Table Mountain dual 60 ft antenna facility in Boulder County, Colorado to use after many years of inactivity.

DSES operated the two radio dish antennas on Table Mountain under a cooperative research agreement with the National Telecommunications and Information Administration, authorized under the Federal Technology Transfer Act of 1986. The antennas were used for radio astronomy in “drift scan” mode, by just pointing in a particular direction and scanning the sky as the Earth rotated.

As the systems were upgraded and made operational, other projects became possible. An early spinoff of those efforts was the Edge of Space Sciences (EOSS) nonprofit group, which launched high altitude research balloons. At the time, DSES tracked and recovered data for about 50% of the EOSS launches. At various times DSES supported the Mars Global Relay mission, the Air Force Academy Falcon Gold Satellite mission, and others.



In 2009 DSES moved to the 60-foot dish antenna site located in Haswell, CO.

Like Table Mountain, the Haswell site was originally built by the US Government National Bureau of Standards (now NIST, of the Department of Commerce) during the late 1950s. Those sites were established to develop microwave tropospheric scatter over-the-horizon radio communications for the DEW line, the Air Force radar systems in Alaska and northern Canada that monitored our northern airspace for Russian bombers. The Haswell site was used for tropospheric scatter work from 1958 through the late 1960s, until military satellite and terrestrial fiber optic communications became established. The site was then used to help develop communication systems to Earth orbiting satellites. The site was decommissioned in 1974.

The late Paul Plishner acquired the Haswell site for his Radio Research Instrument Company in 1984. He donated the site to DSES in 2009.

Since then, DSES members have been working hard to restore and modernize the Haswell antenna and its infrastructure. In 2010 a control trailer was added to the site. In 2011, new antenna pointing motors were activated and the dish moved for the first time since 1974.

Until 2018 we powered the site with solar and a propane generator. In 2018, thanks to the generous donation by a patron member, DSES re-established full commercial electrical. We developed computer-controlled antenna pointing systems giving us full hemispherical tracking of astronomical objects.



The DSES began observing radio emissions of (HI) neutral hydrogen astronomical sources at 1.4GHz with the 60-foot antenna. 1.4 GHz is also used to observe simultaneously with the 40-foot radio telescope at the Greenbank Observatory in West Virginia for SETI work. We also developed 408 MHz feed antennas for pulsar detection and 1296 MHz feed antennas for tropospheric scatter and (EME) Moon Bounce communication. With smaller antennas we observe Jupiter and its moon Io (Radio Jove), the solar wind (SID), solar radiometry, and meteor scatter. And we operate an amateur radio station on the site, with call sign KØPRT, for Plishner Radio Telescope.

We exist to foster radio communications through Amateur Radio and the scientific exploration and understanding of space through education and the promotion of research, development & the application of standards. This includes:

- Disseminating space-related information to the public
- Supporting present and future amateur scientific research and space missions
- Encouraging the development of knowledge and skills related to Science, Technology, Engineering & Mathematics (STEM) in related fields, including radio astronomy, astrophysics, engineering, communications, physics, and space based technology.
- Disseminating scientific and technical information derived from the Society's work.
- Supporting activities of students and educators to actively take part in the exploration of space.

We promote the scientific approach to learning through the operation of our Haswell radio astronomy facility and through our educational programs.

Future plans include development of educational and scientific facilities at the Haswell site. We are completing a new and much larger operations and training center building on site which will open in 2024.

We invite you to join us in our scientific journey into space. We will be happy to arrange a time to have discussions about astronomy, math, space engineering and Amateur Radio at your school or other location.

*Begin your journey today.
Become a member!*

We are the



Please visit us at [DSES.Science](https://www.dses.science) to learn more, to join, or to make a tax deductible donation.

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DSES is an IRS 501 (c) 3 not for profit organization in the State of Colorado. Its primary purposes are research and education.



Operating The Paul Plishner Radio
Astronomy and Space Science
Center and Special
Amateur Radio Station K0PRT

*A not for profit organization dedicated
to creating excitement for hands-on
space exploration and education.*