

### *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 antenna facility in Boulder County, Colorado to use after many years of inactivity.

DSES operated 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 their launches. We supported at various times the Mars Global Relay mission, the Air Force Academy Falcon Gold Satellite mission and others.



### *Haswell, Colorado...*

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 to 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 communications became established. The site was then used to help develop communication systems to Earth orbiting satellites. The site was decommissioned in 1974.

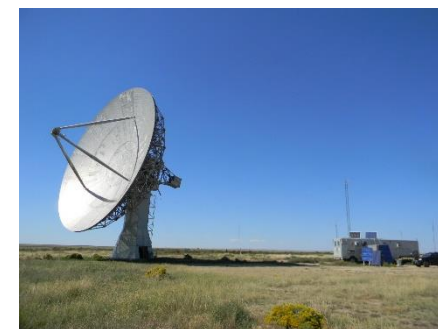
The late Paul Plishner acquired the Haswell site for his Radio Research Instrument Company in 1984. He donated the site to DSES in 2009.

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 October 2011, the replaced antenna pointing motors were activated and the dish moved for the first time since 1974. Later that month a feed point was installed on the dish and

signals were received. The site was powered by a propane generator.

### *Now ...*

In 2018, thanks to the generous donation by patron member Skip Crilly, DSES re-established full commercial electrical power to the Haswell site and installed a fiber-optical feed. We are developing computer-controlled antenna pointing systems and data-feed to the Internet.



DSES has now begun radio observing at 1.4 GHz of HI neutral hydrogen astronomical sources with the 60-foot antenna. We also observe simultaneously with the 40-foot radio telescope at the Greenbank Observatory in West Virginia for SETI (Search for Extraterrestrial Intelligence). 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 site, K0PRT.

We are the  
*Deep Space Exploration Society*

We exist to foster 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
- Providing communications
- Encouraging the development of knowledge and skills related to Science, Technology, Engineering & Mathematics (STEM) in related fields, including astronomy, astrophysics, engineering, communications, physics, public policy, 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 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, or space engineering at your school or other location.

*Begin your journey today.  
Become a member!*

Please visit us at [dses.science](http://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.

Front cover photograph by  
Emily Nelson  
Haswell, Colorado

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Paul Plishner Radio Astronomy  
and  
Space Sciences Center

With Amateur Radio Station

KOPRT

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