

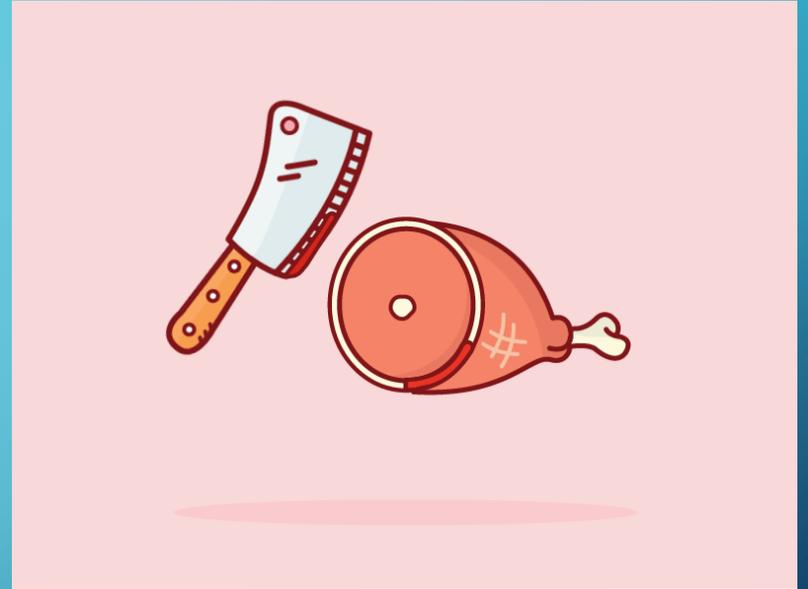
# HAM MORSELS

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APPETITE

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**AMERICAN RADIO RELAY LEAGUE**

**THE NATIONAL ASSOCIATION FOR AMATEUR RADIO**





# ARRL

- THE **AMERICAN RADIO RELAY LEAGUE (ARRL)** IS THE LARGEST MEMBERSHIP ASSOCIATION OF AMATEUR RADIO ENTHUSIASTS IN THE USA
- PRIMARY REPRESENTATIVE ORGANIZATION OF AMATEUR RADIO OPERATORS TO THE US GOVERNMENT AKA LOBBYIST
- PROVIDES TECHNICAL ADVICE AND ASSISTANCE TO AMATEUR RADIO ENTHUSIASTS
- SUPPORTS A NUMBER OF EDUCATIONAL PROGRAMS
- SPONSORS EMERGENCY COMMUNICATIONS SERVICE
- MAGAZINE AND BOOK PUBLISHER

# PUBLICATIONS

- The ARRL provides dozens of publications and journals both published and digital. [QST](#) and [On The Air](#) are the organization's monthly membership journals
- The organization also publishes two bimonthly magazines of special interest: [QEX](#) for radio electronics experimenters, and the [National Contest Journal](#) for contesting enthusiasts.
- The ARRL publishes various technical books and online courses.
- Members of the organization also have access to a special Members Only section of the ARRL [web site](#) that includes technical documents, expanded product reviews of amateur radio equipment, expanded contesting information, and a searchable database of all league publications.
- The *Radio Amateur's Handbook*, has been published annually since 1926. They also publishes a series of manuals designed to assist interested persons in obtaining an amateur radio license or upgrading to a higher class of license

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# QST



DIGITAL EDITION



The National Association for  
**ARRL Amateur Radio**

April 2025 [www.arrl.org](http://www.arrl.org)

DEVOTED ENTIRELY TO AMATEUR RADIO

## Dishing Up EME and Radio Astronomy



### QST Reviews

**KM4CFT** CFT1 Five-Band CW Field Transceiver

**Choyong** LC90 Multi-Band Smart Radio

**REZ Antenna Systems** Recon 40 Portable Vertical Antenna

## Saving a 30-Foot Parabolic Dish

A Colorado nonprofit organization adds another dish to their amateur radio and radio astronomy explorations.

### Elaine Hambly, KØARR

The Deep Space Exploration Society (DSES), located in Haswell, Colorado, is a unique nonprofit organization that combines amateur radio and radio astronomy. DSES is a purely voluntary organization entirely dependent on donations and club dues. The average age of membership is 70. DSES's activities include radio science observations of pulsars, Jupiter, and its moon Io, and HF operating. The organization is involved in outreach projects, such as judging at the Pikes Peak Regional Science and Engineering Fair and hosting an annual open house.

In 2009, a few members heard about a 60-foot parabolic dish antenna for sale in Haswell, Colorado, and bought it. That was the beginning of the amateur radio and astronomy alliance at DSES. Volunteers have completely restored the 60-foot radio dish, and it is now fully operational. It was once part of a Cold War-era tropospheric-scatter communication research project. Now it performs various functions as a powerful tool for amateur radio scientific discovery and public outreach, such as observing hydrogen line emissions at 1.42 GHz, mapping the Milky Way, detecting pulsars, monitoring space weather and solar activities, bouncing radio signals off the moon to communicate globally via Earth-moon-Earth (EME) operations, and operating as a remotely controlled station and supporting emergency communications.

In early 2024, members heard about a smaller, 30-foot parabolic dish used by Robert Clark, KØYW (SK), in Ignacio, Colorado, that needed saving before being torn down and sold for scrap. This additional dish antenna would help DSES continue to keep up interest in radio astronomy and ham radio.

Myron Babcock, KL7YY, spearheaded the project by putting out a successful plea for donations to raise



The 30-foot dish in the sideways position. This position presented the first challenge to the crew and the crane operator.

money for the venture and organized the dismantling, transportation, crane rental, and accommodations and meals for the crew. Thanks to the generosity of our donors, we collected sufficient funds to save the dish.

Over the course of several meetings, the crew devised a plan to retrieve the dish on June 23, 2024. This was one of the most challenging off-site projects DSES had worked on in years.

### Deconstruction

Eight people hauling equipment, tools, provisions, and trailers arrived to begin work. They saw what they thought might be an impossible feat because the 30-foot dish was parked sideways, pointing at the horizon instead of being in the traditional birdbath position. Adding to the difficulty level, the weather each day was an oppressive 90°F or more with no clouds in the

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Myron Babcock, KL7YY, and Ray Uberecken, AA0L, in the boom lift working on the front of the dish.

sky until early evening. The team spent the first day planning how to disassemble the dish and tower.

It was necessary to document the disassembly by labeling and photographing the struts, tower, counterweights, and pedestal to make reassembly easier. Myron marked the struts with numbers using paint markers, and I shot hundreds of photographs. We used plastic tubs to save every salvageable nut and bolt. We rented a boom lift that RC Teal, AI0RC, and Roger Oakey, W3MIX, took turns operating while Ray Uberecken, AA0L, and Myron stood on it to remove the higher parts, such as the feed and the counterweights. We used a crane to bring those parts to the ground safely.

One of the scariest moments was when the crane hoisted the dish into the air after it was disconnected from the pedestal and made its way safely to the ground. The venture could have been over if it had come loose and fallen. Once the dish was on the ground, the crew began dismantling the jungle gym of struts.

After 3.5 days, once disassembly was finished and the area was policed for hardware, the crew loaded three trailers with every piece of the 30-foot dish for the 5.5-hour drive back to the Colorado Springs area.

#### Storage

Then on July 6, 2024, several members hitched up their trailers of dish parts again and traveled to the DSES site in Haswell, Colorado, where everything was unloaded and stored for safekeeping.

We had to determine the right spot to store the antenna so that the parts would be safe without interfering with the flow of traffic around the new building that is

going up. Then unloading began. RC, Ray, and Vlad Fomitchev, KX4TH, stacked the pieces that comprise the bottom section of the dish's pillar on the ground until the only piece left was the heavy upper pillar section with the dish's huge az/el rotor. Ray, Chas Barrett, WD0C, RC, and Vlad hooked one end of a chain between the pillar on the flatbeds of two trucks. With careful jockeying, the tower easily slid off onto the waiting timbers that held it off the ground.

Next came the petals and struts that Rick Hambly, K0GD, brought on his trailer. Ray and RC dragged some used Rohn 25 tower sections next to the small dish antenna to keep the main dish components off the ground. Rick, Ray, RC, Vlad, and Bill Miller, KC0FHN, removed the petals and large struts from the trailer and stacked them on their sides using a ladder to keep them upright.

Finally, we unloaded the remaining struts, cables, weights, and feeds from Ray's trailer, tucked them in with the petals, and lashed them together. Lashing them together also served as loss prevention for all the parts and pieces. Once we were done, we left the site knowing the dish was safely stored for future assembly.



The dish lifted in the air by a crane and rotated to the birdbath position while being lowered to the ground.



The larger 60-foot dish in the birdbath position. The pieces of the 30-foot dish are stored behind the trailer on the right.

### The Dish's Future

We are very excited about this project because it will allow DSES to continue to motivate interest in ham radio, radio astronomy, and science for everyone. DSES will use the 30-foot dish primarily for EME communications, which will free up the 60-foot dish for more science experiments. It will also be a backup for science experiments when the 60-foot dish is undergoing maintenance. Once the 30-foot dish is operational, we want to consider remotely operating this antenna so other radio astronomy or EME enthusiasts can enjoy this asset from different locations around the world.

Our original plan was to reassemble the dish in the fall of 2024 once the summer heat lessened and before the winter weather arrived. However, many other projects planned for the next 12 months, including putting finishing touches on our new building, delayed the immediate reconstruction of this dish. The Board of Directors decided to delay the immediate reconstruction of this dish until we complete the other planned and funded projects. There is also an issue with the final location of where to set up the dish on our property. Decisions on whether and how much cement will be needed for the foundation still need to be made. Once the board decides where to place this dish and the engineering analysis and design for constructing a proper foundation are done, DSES will seek donations for the appropriate funds to start the assembly.



Visit [www.youtube.com/watch?v=dzi3YFLwk4o](https://www.youtube.com/watch?v=dzi3YFLwk4o) to watch a slideshow of additional photos from the antenna's recovery.

All photos provided by the author.

Elaine Hamby, K0ARR, earned her first call sign, KA3RXV, as a Novice in 1976 in Ithaca, New York. After moving to Maryland in 1987, she upgraded to the Technician license, with a new call sign, N3HWW, and then to the General license. In 2021, Elaine moved to Colorado and changed her call sign to K0ARR. She is a member of ARRL and the Tri-Lakes Monument Radio Association, W0TLM. In 2023, Elaine became involved with the Deep Space Exploration Society. She can be reached at [elaine@cnsys.com](mailto:elaine@cnsys.com).

For updates to this article, see the [QST Feedback](#) page at [www.arrl.org/feedback](http://www.arrl.org/feedback).





Chas Barrett, W0OC, watching the dish being lowered to the ground.

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