

# SEARC NEWSLETTER

## MAY 2026

Vol 1 issue 1



### What's Inside

**Welcome** to the SEARC Newsletter

**Member Spotlight** Mike Gore KA7SGB

**SEARC Index** Training Hardware Power Community

**Tech Talk** Tracking the Artemis II Spacecraft with The Doppler Effect



### Coming Events

**Radio Resources Class** May 9th  
details on page 3

**Megler Repeater Work Day** May 30

**Sea-Pac Ham Conference** June 5-7

**Field Day at Astoria Column** June 27

Jay  
Murphy  
KK7HDR



Carl  
Matson  
KI7RJD



Dale  
Mosby  
K7FW



Ellen  
Norris  
AA7EN



John  
McKinney  
KK7HAB



AN IN-PERSON / HYBRID  
ZOOM CLUB MEETING IS  
PLANNED FOR JULY  
DATE **SAT. JULY 18TH**  
PLACE **ASTORIA LIBRARY**  
START TIME **10:30AM**

On the cover: banner photo of Arch  
Cape by Dale Mosby. Second photo is  
Ralph AG7FE launching a lead line to  
hoist an antenna at field day 2025  
photo by John McKinney

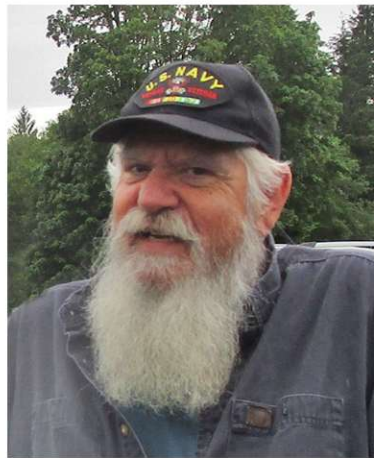
## WELCOME TO THE SEARC NEWSLETTER

*To the members and friends of  
the Sunset Empire Amateur Radio  
Club. This newsletter is to pro-  
vide you information about ham  
radio-based activities in the North  
Coast and Southern Washington  
area. Content submissions or com-  
ments are welcome. Contact us by  
email at **w7bu@w7buhams.club***

### MEMBER SPOTLIGHT

*Remembering our friend  
Mike Gore KA7SGB SK*

“He spent a lot  
of time teaching  
folks how to  
become HAMS  
as well as work-  
ing on club proj-  
ects.  
Clatsop County  
will miss him.”  
Don Hillgaertner  
WA7TEM



“Mike Gore was a dedicated member of the  
SEARC repeater maintenance team. Mike  
also started a local high school ham radio  
club and gave back to the community with  
his unwavering support and friendship.”  
Dave Neys W7PDQ

“Michael is ex Navy with a vast knowledge  
emergency response activities and was a  
phenomenal technician of all modes of radio  
transmissions. He was instrumental in solv-  
ing radio systems problems for all county  
radio systems.”  
Edward L Houer Jr. N7WRD

## SEARC INDEX

### TRAINING

Number of licensed Technician  
level hams in SEARC (36%)  
Number of General (33%)  
Number of Advanced (4%)  
Number of Extra (27%)  
Number of new Technician licens-  
ees resulting from April 11-18  
review class (5)  
Next training May 9th 2026

### HARDWARE

Percent increase in signal strength  
Nicolai repeater site after upgrade  
from Diamond x-50 antenna to Com-  
mander Omni Fiberglass antenna  
(64.4 %)  
Maximum wind resistance of new  
Commander antenna (175mph)  
<http://www.commandertech.com>

### POWER

The Arch Cape Site will soon be online  
with a new 48-volt power controller.  
This hardware upgrade builds upon a  
15 KW deep power bank of LFP bat-  
teries powered up by layered power  
generation system build for reliability  
and low operating cost. The power  
control panel custom built by club  
member Jay Murphy manages the in-  
terplay between solar energy, a  
propane-driven generator and the LFP  
batteries. The LFPs (LiFePO4) exhibit  
stable and constant power output as  
low as 25% percent of full charge. The  
LFP batteries charge 3 to 4 times  
faster than older lead-acid batteries  
making them a good choice for the un-  
predictable weather conditions  
common to the North Coast region.

### COMMUNITY

April 2026 Net-Check in  
by the numbers

Auxcomm	118	April
WHO	44	March
LDS	85	April

Our club is dedicated to promoting amateur radio education by offering training to our community. The Sunset Empire Amateur Radio Club, together with the Seaside Tsunami Amateur Radio Society, will host a **FREE** "Amateur Radio Resources Class" at Clatsop Community College in Astoria on Saturday, May 9th, from 10am to 4pm at Clatsop Community College Towler Hall room 307. Find more information, and a link to sign up for the class on the radio club's website at [www.w7bu.club](http://www.w7bu.club) or in the Community Calendar at [www.kmun.org](http://www.kmun.org).

# Get On The Air!

## Radio Resources Class

**Saturday May 9, 10 am – 4 pm**  
**Clatsop Community College**  
**Astoria, Towler Hall room 307**

**Everything you need to know about your HAM hand-held radio!**

- using your hand-held ham radio
- what a repeater is and how to access it with your radio
- what your radio's signal looks like

**Class designed for new hams. Lots of good information for experienced hams! Non-hams are also welcome!**

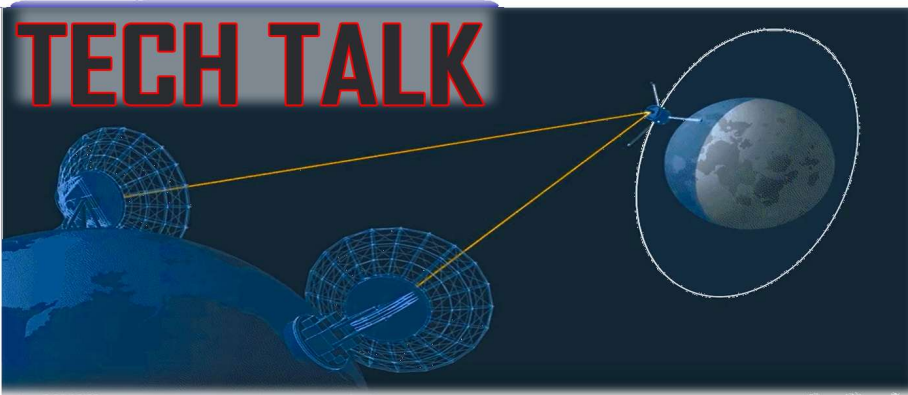
**More information and link to register at [w7bu.club](http://w7bu.club) click on "Training & Testing" and "Radio Resources Class"**



**Scavenger hunt radio net to practice checking in and reporting conditions**

**Program your hand-held radio with the local channels if needed**





***“For radio amateurs, this is a powerful message: Their tools and experiences are based on the same physical principles as the major scientific missions just on a different scale.”***

## HELPING NASA TRACK THE ARTEMIS II'S ORION SPACECRAFT WITH THE DOPPLER EFFECT

### WHAT IS THE DOPPLER EFFECT?

The Doppler effect is the change in frequency of a wave whose source is moving, relative to the observer of the wave. This fundamental law of science applies to all known types of waves, including radio waves.

### THE THREE BODY PROBLEM

The three-body-problem can be thought of as a challenging aeronautics math puzzle that attempts to predict the gravitational interactions and therefore the relative positions of three bodies moving in orbital space. Existing mathematical models can only approximate a resolution due to the inherent chaotic nature of the interactions.

As with all lunar missions, aerospace engineers on the Artemis project had to make their best mathematical prediction to resolve the particular three-body problem involving the combined gravitational effects of the Earth and the Moon on the Orion spacecraft's lunar trajectory.

### THE DOPPLER EFFECT

The change in observed frequency of the radio beacon aboard the Orion broadcasting on the S-Band (2.1 -2.3 GHz) resulted in a higher pitch (shorter wavelength) when the signal source moved toward the observer and a lower pitch (longer wavelength) when moving apart. Measurements of this effect were used successfully as a kind of speedometer for the Orion.

### SDR TECHNOLOGY AND THE MISSION

Software-Defined Radio (SDR) technology was used in this effort, an approach that many radio amateurs are familiar with. Instead of traditional signal reception and filtering hardware, a digital signal processing software does the work of receiving and refining incoming signals. The popular Flex Radio uses this SDR technology.

The Barnhart engineering group at USC and the P.A.R.C. (Panther Amateur Radio Club) of the University of Pittsburgh used SDR technology to monitor slight changes in broadcast frequency, often measured in fractions of a hertz. These were analyzed to indicate changes in the velocity of the Orion spacecraft in real time as it interacted with the gravitational fields of the Earth and the Moon.

The Orion spacecraft, which carried four American astronauts into space returned safely to Earth on April 10th at 8:07pm EDT without the need to re-ignite any of the Orion's four main rocket engines that initially lifted the crew beyond the pull of Earth's gravity ten days prior.

#### sources:

Photo credit: <https://www.jpl.nasa.gov/edu/resources/lesson-plan/exploring-the-doppler-effect-with-nasa/>

Top right quote: <https://amsat-dl.org/en/a-look-back-ten-billion-years-with-sdr-interferometry-and-amateur-radio-know-how/>

#### Body text sources

Scientificamerican.com "NASA's II 'free return' trajectory lets gravity do the work"

Wikipedia.com 'the three-body-problem'

Apexaccelerators.us

<https://viterbischool.usc.edu/>

[pittwire.pitt.edu](http://pittwire.pitt.edu)

<https://www.arri.org/news/helping-nasa-track-artemis>



From left to right, Panther Amateur club hardware expert Jake Wendt, KC3NBE, and software expert Sawyer Mervis with the equipment to track Artemis II's Orion spacecraft atop the campus's Benedum Hall. (Photo courtesy of Juan Manfred, NA0B)

We look forward to meeting you, our members and friends, at the July 18th in-person/hybrid Zoom meeting at the Astoria Library.



We Connect Communities™

