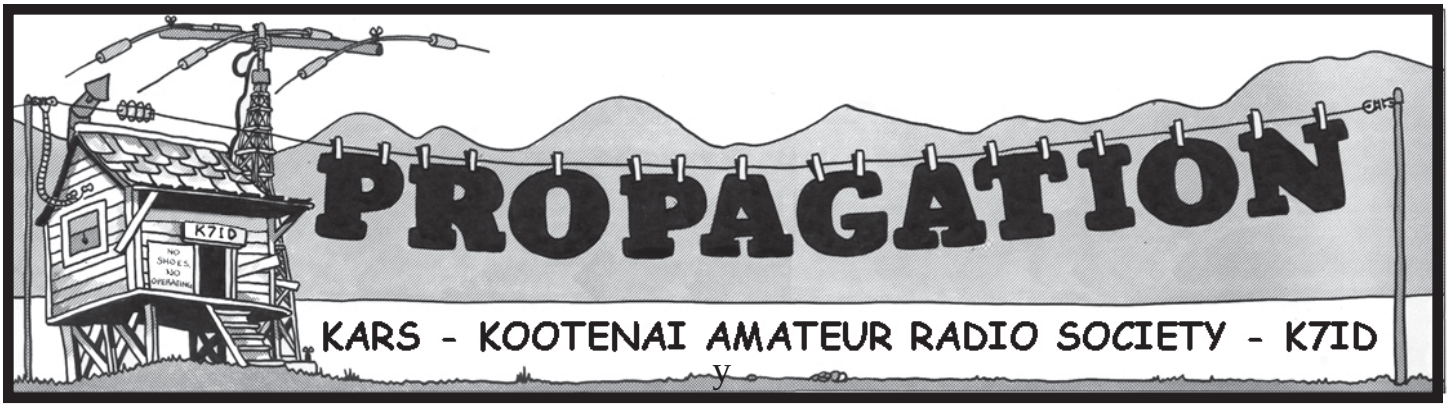

January 2020 (www.k7id.org) P.O. Box 1765 Hayden, ID 83835-1765

REGULAR CLUB MEETINGS:

Monday, Jan 13, 7:00 p.m.
Search & Rescue Building
10865 N Ramsey Rd.
Hayden, Idaho
Topic: CTX-HF3
Presenter: Eric Anderson
Refreshments: Everyone

VE Testing
Monday, January 13, 5:30 p.m.
Search & Rescue Building

Monday, Feb 10, 7:00 p.m.
Search & Rescue Building
10865 N Ramsey Rd.
Hayden, Idaho
Topic:
Presenters:
Refreshments:

VE Testing
Monday, Feb 10, 5:30 p.m.
Search & Rescue Building
10865 N Ramsey Rd.
Hayden, Idaho

Upcoming Events
Winter Field Day
Jan. 26 (0001-2400 UTC)

Mike & Key Hamfest
March 7, 2020
Puyallup Fairgrounds
Puyallup, Washington

QRM from the KARS President
Glancing backward, gazing forward!

KARS had a GREAT 2019! We enjoyed many projects together, put on some VERY fun meetings, hosted an amazing Hamfest, video tours of shacks, met the community at Center Target Outreach Day, our Field Day was a rousing success (and was featured in the CDA Press) as well as enjoying 4 days at the County Fair meeting hundreds people with everything from a friendly smile to full-on discussions of the types of radios we enjoy and sharing our marvelous hobby. People, people, people! We re-kindled the radio interest of many inactive hams that had that nostalgic stare at our fair booth telling us they "used" to get on the air...while they thought they came to see farm animals and earring displays! It HAS been a great year for KARS!

It is with this same level of excitement and anticipation that we enter 2020! Amateur Radio is an endlessly-expanding field of technology. It does not sit still. As a radio club, we are on the forefront of discovering new skills, equipment and tools which propel us forward! Are you advancing your skills? If not...what a perfect opportunity to make another resolution to "move up" in your hobby! Learn CW, go digital, upgrade your license, build something! But...I have a suggestion for you to consider... DON'T DO IT ALONE!!!

Every endeavor I have encountered ALWAYS seems to be more effective, efficient and enjoyable when I involve another person in my effort! Invite another ham to help you in your hobby and TWO of you will grow and succeed! Remember...it's not JUST about radios...it's about PEOPLE ... with radios!

Our excellent KARS board learned a lot working together this past year. There IS a learning curve in anything and ours was quite a curve, but with a fruitful year behind us we have a better idea of what went right and what to change. You have heard me say to the membership many times, "We are NOT the club ... YOU are the club!" Our hands are on the steering wheel but this driver's seat is 6 people wide and we WANT your input and involvement to keep it interesting and fun! We NEED you! KARS will be instituting some committees to help direct our activities for 2020. I challenge you to get involved this year. Make a difference in YOUR club! See you January 13th at our first meeting of 2020! Be there!!!

I am VERY interested in your thoughts about this and other topics! Please write me! 73, friends!

Frank Krug, KD7FK
president@K7ID.org

December 9, 2019 Meeting Minutes

The December 9, 2019 meeting was held at the Rathdrum Senior Center located at 8037 W Montana, Rathdrum, ID in conjunction with the KARS annual Christmas party. The meeting was called to order at 7:00 pm by Club President Frank Krug (KD7FK). First time visitors were introduced. The Pledge of Allegiance was led by Frank Krug (KD7FK).

The outgoing 2019 KARS Executive Board members were introduced by Frank Krug (KD7FK).

The incoming 2020 KARS Executive Board members were introduced by Frank Krug (KD7FK). The 2020 KARS Executive Board members are:
President: Frank Krug, KD7FK
Vice President: Jerry Hart, W7KR
Executive Director: Tom Macy, W7UAT
Past President: Larry Telles, K6SPP
Treasurer: Rod Anderson, K7ZBE
Secretary: Sheila Waller, KG7SAA

Frank Krug (KD7FK) reviewed goals from the past year:
—Nametags
—Video ham shack tours
—Antenna on the Search & Rescue building
—Table at the back of the KARS meeting room for items to buy/sell
—Upgrade the KARS tri-fold brochure
—QSO from KARS meeting
—Video report from all three repeaters
—Show & tell
—Capture new hams that are passing the tests so we can help them grow
—Workshops with hands on experience
—Increase community visibility
—Increase attendance
—Unknown ham

Frank Krug (KD7FK) reiterated his message in this month's KARS newsletter column: The KARS Club is not just about radios, it's about people who have radios. Currently there are 119 KARS Club members. Of these, the breakdown in the license levels are:
28 Technician
42 General
5 Advanced
41 Extra

Frank Krug (KD7FK) mentioned looking into starting a 10m CW net for practice.

Recognition was made to all those present who have served on the KARS Executive Board.

Frank Krug (KD7FK) presented Dave Boss (KF7YWR) and Curt Hurley (KI7TFC) with the MacGuyver award for all the help they have provided to the KARS Club and others, often at their own expense.

Arleta Holmes (KG7WGM) presented an ARRL Mentor Program Elmer Award to Sheila Waller (KG7SAA) for her assistance in helping Arleta with setting up her radio.

Gabbee Perry (KE7ADN) presented certificates for the 2019 Northwest Traffic Net operators. Those present who were recognized were:
Sheila Waller, KG7SAA
Curt Hurley, KI7TFC
Valaire Poler, KG7OWX
Ed Stuckey, AI7H
John Samuelson, KI7OVC

A moment of silence was observed for silent keys Rick Van Landingham, Bob Schaff, and Phil Garner.

A trivia game was led by Frank Krug (KD7FK) with prizes given for correct answers.

Recognition was made to Gary Roth (KE7IAT) for his contributions as the KARS newsletter editor.

Jim Peterson (AD0AZ) extended thanks to the KARS Executive Board member's spouses for all their help and support.

A motion to adjourn was made by Bearpaw Galindo (KE7ADT) and seconded by Mike Slothower (KG7KSJ). The motion passed by member vote and the meeting was adjourned at 7:57 pm.

WRC-19 Okays Agreement on 6-Meter Band in ITU Region 1

Delegates to World Radiocommunication Conference 2019 (WRC-19) (https://www.itu.int/en/ITU-R/conferences/wrc/2019/Pages/default.aspx) have approved a 6-meter allocation for International Telecommunication (ITU) Region 1 (Europe, Africa, the Middle East). The decision followed more than 2 weeks of strenuous negotiations to reconcile widely disparate views of Region 1 administrations.

"The result is a dramatic improvement in the international Radio Regulations for amateurs in Region 1," the International Amateur Radio Union (IARU) said in announcing the agreement.

When the *Final Acts* of the conference take effect, 44 countries in Region 1 will have a primary allocation of at

least 500 kHz, including 26 countries with a primary allocation of the entire band 50-54 MHz. The entire region will have an amateur secondary allocation of 50-52 MHz, except in Russia, whose administration opted for only 50.080-50.280 MHz on a secondary basis.

Provisions will be in place to protect other existing services using the band in Region 1 and in neighboring countries in Region 3. The existing primary allocation of 50-54 MHz in Regions 2 and 3 is unaffected.

The WRC-19 decision on its agenda item 1.1 is the culmination of years of effort by the IARU and its member-societies.

"The successful outcome on Agenda Item 1.1 could only have come about through a team effort by the IARU member-societies and regional organizations, and especially by the volunteers who have devoted countless hours to preparing documents and attending meetings over the past 3 years," said IARU Vice President Ole Garpestad, LA2RR, who is attending the WRC as a member of the Norwegian delegation. "Our thanks go to everyone who has contributed to this effort, including the radio amateurs who support the IARU through membership in the IARU member-society in their country."

Garpestad coordinated overall IARU preparations for WRC-19, while Dave Court, EI3IO, led the IARU effort on Agenda Item 1.1. Region 1 Secretary Hans Blondeel Timmerman, PB2T, was coordinator for the item on behalf of CEPT, on whose proposal the ultimate compromise was largely based.

Delegates this week faced a daunting workload as they tried to reach consensus on several remaining issues, including the agenda for the next WRC. The final session of the conference plenary to approve texts for inclusion in the *Final Acts* of the conference was set to wrap up today (Thursday, November 21).

As of the end of last week, no choices had been made as to which of more than three dozen proposed topics will end up on the agenda for World Radiocommunication Conference 2023. Each proposed agenda item would require studies to be conducted between 2020 and 2023. (ARRL News)

Roanoke Division Director Interviews Oldest US Radio Amateur

Roanoke Division Director Bud Hippisley, W2RU, interviewed (https://www.youtube.com/watch?v=0nUO7u9PGRc&feature=youtu.be) 108-year-old Cliff Kayhart, W4KKP, of White Rock, South Carolina - the oldest known radio amateur in the US - about his experiences in the US Army Signal Corps during World War II.

An articulate and animated Kayhart recounted his deployment to the Pacific Theater - specifically Iwo Jima - where he'd been tasked with setting up a radio station for the airmen and soldiers there to keep better informed about what was happening back home.

At the close of their conversation, Hippisley, who presented Kayhart with his ARRL Centurion Award plaque in November, called Kayhart "part of America's greatest generation." The Centurion Award recognizes hams100 years old or older. The interview runs about 15 minutes. (ARRL News)

Roanoke Division Director Interviews Oldest US Radio Amateur

Roanoke Division Director Bud Hippisley, W2RU, interviewed (https://www.youtube.com/watch?v=0nUO7u9PGRc&feature=youtu.be) 108-year-old Cliff Kayhart, W4KKP, of White Rock, South Carolina - the oldest known radio amateur in the US - about his experiences in the US Army Signal Corps during World War II.

An articulate and animated Kayhart recounted his deployment to the Pacific Theater - specifically Iwo Jima - where he'd been tasked with setting up a radio station for the airmen and soldiers there to keep better informed about what was happening back home.

At the close of their conversation, Hippisley, who presented Kayhart with his ARRL Centurion Award plaque in November, called Kayhart "part of America's greatest generation." The Centurion Award recognizes hams100 years old or older. The interview runs about 15 minutes. (ARRL News)

ARRL to Oppose Proposal to Eliminate 3.3 – 3.5 GHz Amateur Allocation

At its December 12 open meeting, the FCC will consider adopting a *Notice of Proposed Rulemaking*

(*NPRM*) that proposes to remove the amateur radio 9-centimeter allocation at 3.3 – 3.5 GHz. ARRL plans to comment in opposition to the proposed action. According to an FCC "Fact Sheet," (https://docs.fcc.gov/public/attachments/DOC-360941A1.pdf) the proceeding WT Docket 19-348, "Facilitating Shared Use in the 3.1 – 3.55 GHz Band," is a follow-on from the MOBILE NOW Act, approved by the 115th Congress, which requires the FCC and the US Department of Commerce to make available new spectrum for mobile and fixed wireless broadband use. It also requires the FCC to work with the National Telecommunications and Information Administration (NTIA) [http://www.ntia.doc.gov/] to evaluate whether commercial wireless services and federal incumbents could share spectrum between 3.1 and 3.55 GHz. NTIA manages spectrum allocated to federal government users.

"This *Notice of Proposed Rulemaking* would propose to remove the existing non-federal allocations in the 3.3 – 3.55 GHz band as a step towards potential future shared use between federal incumbents and commercial users," the FCC Fact Sheet explains. "By taking the initial step needed to clear the band of allocations for non-federal incumbents, the Commission furthers its continued efforts to make more mid-band spectrum potentially available to support next generation wireless networks — consistent with the mandate of the MOBILE NOW [Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless] Act."

The *NPRM* proposes to clear the 3.3 – 3.55 GHz band of existing non-federal users by removing *non-federal secondary radiolocation and amateur allocations* [emphasis added] in the 3.3 – 3.55 GHz band and to relocate incumbent non-federal users out of the band. The FCC would seek comment on relocation options and "transition mechanisms" for incumbent non-federal users, either to the 3.1 – 3.3 GHz band or to other frequencies, and on how to ensure that non-federal secondary operations in the 3.1 – 3.3 GHz band will continue to protect federal radar systems.

Regarding the Amateur and Amateur-Satellite Service allocations, the FCC *NPRM* asks whether existing amateur spectrum in other bands might support operations currently conducted in the 3.3 – 3.5 GHz band. The 3.40 – 3.41 GHz segment is designated for amateur satellite communication. "We seek comment on the extent to which the band is used for this purpose, whether existing satellites can operate on other amateur satellite bands, and on an appropriate timeframe for terminating these operations in this band," the FCC *NPRM* says.

Also at its December 12 meeting, the FCC will consider another *NPRM* in WT Docket 19-138 that would "take a fresh and comprehensive look" at the rules for the 5.9 GHz band and propose, among other things, to make the lower 45 MHz of the band available for unlicensed operations and to permit "Cellular Vehicle-to-Everything" (C-V2X) operations in the upper 20 MHz of the band. The FCC is *not* proposing to delete or otherwise amend the amateur allocation, and it would continue as a secondary allocation, but the primary allocation for 5.850 – 5.925 GHz would change.

The amateur radio 5-centimeter allocation is 5650.0 – 5925.0 MHz, and the *NPRM*, if approved, would address the top 75 MHz of that amateur secondary band. While no changes are proposed to the amateur allocation, anticipated more intensive use by primary users could restrict secondary amateur use.

The band 5.850 – 5.925 GHz has been reserved for use by dedicated short-range communications (DSRC), a service in the intelligent transportation system (ITS) designed to enable vehicle-related communications, the FCC said in a Fact Sheet (https://docs.fcc.gov/public/attachments/DOC-360940A1.pdf) in WT Docket 19-138. "The Commission initiates this *Notice of Proposed Rulemaking* to take a fresh and comprehensive look at the 5.9 GHz band rules and propose appropriate changes to ensure the spectrum supports its highest and best use." ARRL also will file comments opposing any changes affecting the 5-centimeter amateur allocation.

Both draft FCC proposals are subject to change prior to a vote at the December 12 FCC meeting, and there will be opportunity to file comments and reply comments on the final proposals after they are released. (ARRL News)

More than 1 Million Contacts Logged during ARRL Field Day 2019

ARRL Contest Program Manager Paul Bourque, N1SFE, reports that nearly 1.1 million contacts were made during the 2019 ARRL Field Day - the most popular operating event in North America. Bourque reported the 2019 ARRL Field Day results, (https://field-day.arrl.org/fdresults.php) which are available starting on page 64 of the digital edition (ARRL members only, ed.) of the December 2019 issue of *QST*. Bourque says in his article that more than 36,000 radio amateurs took part in ARRL Field Day 2019 across all 83 ARRL/Radio Amateurs of Canada sections, up slightly from the 35,250 reported last year. The total number of contacts was down by about 7% from 2018's 1.18 million contacts.

"This year, 3,113 entries were received from local clubs and emergency operations centers (EOCs), as well as individual portable, mobile, and home stations," Bourque wrote in *QST*. Most entries were in Class A - club or non-club groups of three or more.

Of the nearly 1.1 million contacts, approximately 46% were made on phone, and 456,000 (42%) of contacts were made on CW. The remaining 138,000+ (12%) of the contacts were made on digital modes, such as FT8 and RTTY.

"This is a substantial increase compared to 2018, when total QSOs on the digital modes numbered just over 56,000," Bourque reported. "With the last 2018 release of *WSJT-X* (which now supports Field Day exchanges), many participants made use of FT8's ability to communicate when band conditions weren't being cooperative."

Top 10 scores ranged between W3AO's Class 14A entry from Maryland-DC, with 32,356 points, to W1NVT's 14,876-point Class 2A entry from Vermont.

Bourque said that 95% of the 3,113 entries received came through the Field Day web applet.

"Not only is ARRL Field Day an opportunity to sharpen operating skills in temporary and portable locations, it's also an occasion to showcase amateur radio to the local community, with clubs often setting up in publicly accessible locations and interacting with non-hams," Bourque wrote.

Soapbox comments for Field Day 2019 are available on the ARRL website. ARRL Field Day 2020 will take place June 27-28. (ARRL News)

FCC Amending Amateur Radio RF Exposure Safety Rules

The FCC is amending its Part 97 Amateur Service rules relating to RF exposure safety. In a lengthy document in ET Docket 19-226 released on December 4 that addresses a broad range of RF safety issues, the FCC said current amateur radio RF exposure safety limits will remain unchanged, but that the amateur-specific exemption from having to conduct an RF exposure evaluation will be replaced by the FCC's general exemption criteria. Radio amateurs have always had to comply with RF exposure limits, but certain stations have been exempt from having to conduct evaluations based only upon power and frequency. The Commission indicated that by and large, if an RF source was "categorically excluded" from routine evaluation under the old rules, it will most likely still be exempt under the new rules, which are expected to take effect in the next couple of months.

"For applicants and licensees in the Amateur Radio Service, we substitute our general exemption criteria for the specific exemption from routine evaluation based on power alone in Section 97.13(c)(1) and specify the use of occupational/controlled limits for amateurs where appropriate," the FCC said.

"The sky is not falling here," ARRL Lab Manager Ed Hare, W1RFI, commented. "The major aspects of the rules will not impose major new burdens on the Amateur Radio Service. As in all regulatory matters, though, the devil may be in the details, so the ARRL technical staff, legal staff, and the experts on the ARRL RF Safety Committee are carefully evaluating this FCC document."

Under the revised Section 97.13(c)(1), "In lieu of evaluation with the general population/uncontrolled exposure limits, amateur licensees may evaluate their operation with respect to members of his or her immediate

household using the occupational/controlled exposure limits in Section 1.1310, provided appropriate training and information has been accessed by the amateur licensee and members of his/her household," the amended rule says.

"RF exposure of other nearby persons who are not members of the amateur licensee's household must be evaluated with respect to the general population/ uncontrolled exposure limits. Appropriate methodologies and guidance for evaluating Amateur Radio Service operation is described in the Office of Engineering and Technology (OET) Bulletin 65, Supplement B," the revised rule concludes.

The FCC said it was not persuaded by ARRL's argument in its comments that the routine evaluation exemption for amateur radio stations operating below a certain power threshold should be maintained. "Amateur radio licensees operate a variety of installations of different size, power, and frequency, which can be located in close proximity to people, giving rise to various RF exposure concerns," the FCC noted.

In a meeting with FCC OET Chief Julius Knapp and senior staff in early November, ARRL asked the FCC to make available on the internet a calculator to facilitate making the correct calculations the rules require. ARRL said that would be preferable to unofficial third-party calculators, the results from which might not be accorded the same degree of deference in local disputes. Several software programs were suggested as models.

The FCC did not single out amateur radio in drafting its latest RF exposure rules. The rules affect multiple services, and exemptions for many other services were also deleted as part of a broader policy driven by a proliferation of RF devices, some resulting in situations where gain antennas are sited much closer to people than was expected in 1996 when the rules were last revised. (ARRL News)

FCC Formally Adopts Proposals to Remove Amateur 3-GHz Band, Invites Comments

At its December 12 meeting, the FCC formally adopted a *Notice of Proposed Rulemaking* (*NPRM*) in WT Docket 19-348 and invited comments on its plan to remove "existing non-federal secondary radiolocation and amateur allocations" in the 3.3 - 3.55 GHz band and relocate incumbent non-federal operations. The FCC said it's seeking comment on appropriate "transition mechanisms" to make that happen. ARRL has indicated that it will file comments in opposition to the proposal. The amateur 9-centimeter allocation is 3.3 - 3.5 GHz. The *NPRM* comes in response to the MOBILE NOW [Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless] Act, approved by the 115th Congress to make available new spectrum for mobile and fixed wireless broadband use.

"By proposing to delete the existing non-federal secondary allocations from the 3.3 - 3.55 GHz band, we are taking an important initial step towards satisfying Congress's directives and making as much as 250 megahertz of spectrum potentially available for advanced wireless services, including 5G," the FCC said in the Introduction to its *NPRM*.

Currently, the entire 3.1 - 3.55 GHz band is allocated for both federal and non-federal radiolocation services, with non-federal users operating on a secondary basis to federal radiolocation services, which have a primary allocation, the *NPRM* explains.

The FCC said it is seeking comment on relocating non-federal licensees to another band. With respect to amateur operations, the FCC invited comments on whether sufficient amateur spectrum exists in other bands that can support the operations currently conducted at 3.3 - 3.5 GHz. The 3.40 - 3.41 GHz segment is earmarked for amateur satellite communication. "We seek comment on the extent to which the band is used for this purpose, whether existing satellites can operate on other amateur satellite bands, and on an appropriate timeframe for terminating these operations in this band," the FCC said. If non-federal licensees are relocated to 3.1 - 3.3 GHz band, the FCC proposes that they continue to operate on a secondary basis to federal operations, consistent with current band allocations.

Some comments began to arrive before the FCC formally adopted the *NPRM*, as it points out in a footnote. Kevin Milner, KD0MA, the secretary/treasurer of the Ski Country Amateur Radio Club in Colorado, has argued that the club's equipment cannot be re-channeled below 3.4 GHz, and the club is seeking relocation costs. Devin Ulibarri, W7ND, told the FCC that amateur networks in the current band cannot move easily into other amateur allocations because there is no readily available commercial equipment to support the bandwidth, the FCC recounted.

In the event the proposed amendments are adopted, the FCC "seeks comment on relocation options and on transition and protection mechanisms for incumbent non-federal operations."

Also at its December 12 meeting, the FCC considered another *NPRM* in WT Docket 19-138 that would "take a fresh and comprehensive look" at the rules for the 5.9 GHz band and propose, among other things, to make the lower 45 MHz of the band available for unlicensed operations and to permit "cellular vehicle-to-everything" (C-V2X) operations in the upper 20 MHz of the band. The FCC is *not* proposing to delete or otherwise amend the amateur allocation, which would continue as a secondary allocation.

The Amateur Radio Emergency Data Network (AREDN) has offered its voice in challenging the FCC proposals on the two bands, saying their adoption would "eliminate our use of the most-effective resource hams have to build its networks."

"The AREDN Project is able to leverage low-cost commercial devices solely because they are designed to operate on adjacent allocations," AREDN said on its website. "Moving to other allocations would be difficult if not impossible without a complete redesign, manufacture, purchase, and installation of new custom amateur hardware and software…, raising the price out of reach for the typical ham."

Interested parties may file short comments on WT Docket 19-348 via the FCC's Electronic Comment Filing Service (Express). Visit the FCC "How to Comment on FCC Proceedings" page for information on filing extended comments. (ARRL News)

Two Solar Cycle 25 Sunspots Appear

New Solar Cycle 25 is on the way, but just when the transition from Cycle 24 to Cycle 25 will take place is not entirely clear. On December 24, two new sunspots - one in each hemisphere - emerged on the face of the sun that exhibit the reversed magnetic polarity marking them as belonging to Solar Cycle 25. According to Hale's Law (https://www2.hao.ucar.edu/Education/Sun/hales-sunspot-polarity-law), sunspot polarities flip-flop from one solar cycle to the next, the National Center for Atmospheric Research explains.

"The sun is currently in solar minimum - the nadir of the 11-year sunspot cycle," Tony Phillips said in his article, "Reversed Polarity Sunspots Appear on the Sun" (https://spaceweatherarchive.com/2019/12/25/reversed-polarity-sunspots-appear-on-the-sun/) on the Spaceweather.com website. "It's a deep minimum, century-class according to sunspot counts." The remarkable sunspot scarcity has prompted discussion of a possible "extended minimum" akin to the Maunder Minimum in the 17th century, when no sunspots appeared for decades, Phillips said. "Such an event could have implications for terrestrial climate."

"Today's new-cycle sunspots (along with isolated new-cycle spots earlier this year) suggest that the solar cycle is, in fact, unfolding normally," Phillips wrote, adding that a new Maunder Minimum does *not* appear to be in the offing.

Earlier this month, the NOAA/NASA-co-chaired international Solar Cycle Prediction Panel released its latest forecast (https://www.swpc.noaa.gov/news/solar-cycle-25-forecast-update) for Solar Cycle 25. The panel's consensus calls for a peak in July 2025 (±8 months), with a smoothed sunspot number of 115 and the solar minimum between Cycles 24 and 25 occurring in April 2020 (±6 months). If this solar minimum prediction is correct, it would make Solar Cycle 24 the seventh longest on record at 11.4 years.

Climate scientist David Archibald speculates that the Solar Cycle 24/25 minimum could occur as late as March 2021, and that Cycle 25 maximum might not happen until 2027.

"We are well into the Solar Cycle 24/25 minimum but [Cycle] 24 may not have ended yet," Archibald said in a December 22 update (https://wattsupwiththat.com/2019/12/22/solar-update-december-2019/) on the Watts Up With That? website. "A solar cycle isn't over until the heliospheric current sheet has flattened. And that could be as late as March 2021. Solar cycle amplitude does matter with respect to climate and the amplitude of Solar Cycle 25, from projecting trends from the last three cycles, looks like being about 80 in 2027."

The Solar Cycle Prediction Panel agreed that Cycle 25 will be of average intensity and similar to Cycle 24.

In an article (https://www.swpc.noaa.gov/sites/default/files/images/u4/06%20Scott%20McIntosh.pdf) posted on NOAA's Space Weather Prediction Center site, Scott McIntosh, the Director of the High Altitude Observatory at National Center for Atmospheric Research (NCAR https://ncar.ucar.edu/), stresses that Solar Cycle 25 will happen, "but a sunspot cycle could be small."

Predictability comes with some physical understanding of the underlying process, McIntosh asserts. "The sunspot cycle is erratic," he said in his presentation, "provocative of a chaotic, turbulent solar interior where sunspot progressions with time and latitude are the only tracers…" (ARRL News)

OPS-SAT - First-of-its-Kind Space Laboratory - Launched on December 18

The European Space Agency (ESA) reports that the OPS-SAT "flying laboratory" satellite lifted off from Europe's Spaceport in Kourou, French Guiana, aboard a *Soyuz-Fregat* rocket on December 18. According to ESA, the small, low-cost, test satellite was specifically designed for operational experimentation in space and includes the most powerful flight computer on board any current ESA spacecraft.

"Consumer electronics have gone through a revolution over the last 30 years, with computers becoming ever faster, smaller, and better," ESA said. "But when it comes to million- or even billion-euro satellites, their on board hardware and software have not seen this revolution due to the risk of testing new technology in flight. As spacecraft managers dare to fly only tried-and-tested hard and software in the harsh conditions of space, innovation on the operational side of satellites is a very slow-moving process."

ESA said this is where OPS-SAT steps in, lowering the barriers to spacecraft operation and providing an opportunity to safely test new mission control techniques.

More information is on the OPS-SAT website. (ARRL News)

On January 2, 2020, the K7ID group will be meeting at Elmer's Restaurant on Appleway Blvd in Coeur d'Alene.

Returning on January 9, 2020.

Deadline for submitting articles, stories, reports, etc., is the 25th of each month for the following month's newsletter.

Kootenai Amateur Radio Society (KARS)
MEMBERSHIP APPLICATION

One year membership Rates:
{ } New Member: $15.00 { } Renewal: $15.00 { } Family Membership: $23.00

Two year membership Rates:
{ } New Member: $28.00 { } Renewal: $28.00 { } Family Membership: $42.00

Lifetime membership:
{ } Member: $150.00

{ } Information Update Only

Are You An ARRL Member? Yes / No (Please Circle One)

Callsign: _____ Class: _____ Expiration: _____

First Name: _____M.I. _____ Last Name: _____

Nickname: _____

Address1: _____

Address2: _____

City:_____ State: _____ ZIP: _____- _____

PHONE NUMBER: (____) _____
OK to publish phone number? Yes / No (Please Circle One)

EMAIL ADDRESS: _____
OK to publish Email address? Yes / No (Please Circle One)
Do you want to receive the emailed Newsletter? Yes / No (Please Circle One)

Note: If this is a family membership, (all members with the same address), please complete the following section for your family.

Name: _____ Call:_____ Class: _____

Name: _____ Call:_____ Class: _____

Name: _____ Call:_____ Class: _____

Name: _____ Call:_____ Class: _____

RETURN THIS FORM WITH YOUR DUES, (CASH OR CHECK), TO THE KARS TREASURER, OR, MAIL TO: ***KARS MEMBERSHIP, P.O. BOX 1765, Hayden, ID. 83835-1765.***

(Office use only.)

Cash:		**Check #:**		**Money Order:**	
Membership Card:		**Roster:**		**Newsletter:**	

KOOTENAI AMATEUR RADIO SOCIETY
P.O. Box 1765
Hayden, ID 83835-1765

DIRECTIONS TO KARS MEETING:

Take U.S. Highway 95 to Miles Avenue (Miles is about 1 mile North of Hayden Avenue). Instead of proceeding west from the corner of Miles and Ramsey, go north about ¼ mile, to the first building on the left (West) side of the road.

2020 CLUB OFFICERS

President: Frank Krug, KD7FK
president@k7id.org

Vice-President: Jerry Hart, W7KR
vicepresident@k7id.org

Exec. Director: Tom Macy, W7UAT
execdir@k7id.org

Secretary: Sheila Waller, KG7SAA
secretary@k7id.org

Treasurer: Rod Anderson, K7ZBE
treasurer@k7id.org

Newsletter Editor: Gary Roth, KE7IAT
509 993-8468 ke7iat@comcast.net

Repeater Trustee: Larry Telles K6SPP
trustee@k7id.org
Repeater Tech: Dale DuRee, KE7VMN

Webmaster: Lenny Gemar, N7MOT
208 691-4735 webmaster@k7id.org

Past President: Larry Telles, K6SPP
pastpresident@k7id.org

Notice

Propagation is published monthly by the Kootenai Amateur Radio Society (KARS). The club is located in Coeur d'Alene, Idaho and serves the North Idaho and the Spokane, Washington areas.

All opinions expressed in this newsletter are those of the individual contributers and not the radio club as a whole.

KARS operates voice repeaters on 146.780 (Little Blacktail), 146.980 (Idaho Mica Peak) and 443.975 (Canfield Mountain), and a packet repeater on 145.510 Mhz.

Anyone interested in Amateur Radio is welcome to join. Dues are $15.00 (individual) and $23.00 for a family membership. Contact the Treasurer if you wish to join.

If you know of anyone interested in joining KARS, you can notify the newsletter editor as to that parties' email address. A copy of this newsletter will be sent with no obligation to join.

Material can be submitted for publication in Propagation. The deadline for articles, etc., is the 25th of each month for the following month's issue.