

MARCO's "AETHER" Pronounced "Ether"
Healthcare & Radio in One Medium
The Medical Amateur Radio Council

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We are a non-profit Corporation, founded in 1966, privately supported for the public good and dedicated to the advancement of Medicine through Amateur Radio.

Our content, and other activities, are not medical diagnosis or to be used for medical care. They are strictly informational as a public service. Topics discussed are the authors or editor's opinions, not the organization.

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A Grand Rounds Refocus—Public Service and Science

The *Grand Rounds on the Air* 20m net has historically has been one centered on presentations about medical subjects by members, for members, with the purpose of providing class II credit for medical provider's continuing medical education. In contrast, today's world of online education allows for self-selection of CME subjects matched to the needs of every health professional, regardless of career and specialty. With MARCO becoming a ARRL affiliated club who holds this net on the public airwaves a refocus has been underway, a continuation of the presentation of health related topics with a multi-level approach, one that includes all amateur radio operators as a target audience, augmented by Webstream recordings, real time chatting about content using the instant message feature of netlogger, distribution of research notes to members with the scientific foundations on the subject, and affiliated follow-up articles in the *Aether* with additional internet linked material that allows members and the public to learn about the science.

In addition, HF nets are not an ideal venue for in depth discussions about medical subjects. The vagaries of propagation prohibit nation-wide participation as reception is not consistent. Remote software defined radio received audio offers some relief but the issue still remains, how do receive the HF signals of co-presenters in different locations, members with limited power or modest antennas, those making comments, and listeners with questions? These challenges realistically prevent offering CME for credit to a wide audience. However the net still can serve a valuable service, the place for presentations on health related subjects that have appeal to MARCO members and the amateur radio community. The interaction of members and other listeners becomes symbiotic, science for professional growth, and public service for every hams personal growth...

- 🔊 Dietary Habits Religious and Cultural Influences - MARCO Grand Rounds January 7 2024.mp3 🔊
- 🔊 EVOO and Health - Extra Virgin Olive Oil - MARCO Grand Rounds March 17 2024.mp3 🔊
- 🔊 Eye Damage and Solar Eclipses - MARCO Grand Rounds March 24 2024.mp3 🔊
- 🔊 Hearing Loss and Amateur Radio - Connections - MARCO Grand Rounds March 10 2024.mp3 🔊
- 🔊 Honey -Therapeutic Benefits - MARCO Grand Rounds Feb 25 2024.mp3 🔊
- 🔊 Life Cycle and the Solar Cycle - MARCO Grand Rounds Feb 18 2024.mp3 🔊
- 🔊 Mars - Medical Science Travel to and Habitation - MARCO Grand Rounds Jan 28 2024.mp3 🔊
- 🔊 Moon - Medical Science Travel to and Habitation - MARCO Grand Rounds Jan 14 2024.mp3 🔊
- 🔊 Physiology and Medical Considerations of Chocolate - MARCO Grand Rounds Feb 11 2024.mp3 🔊
- 🔊 Physiology of Music and Music Therapy - MARCO Grand Rounds Feb 4 2024.mp3 🔊

Recordings of the *Grand Rounds on the Air* 20m net identified by subjects presented Jan-March 2024 are now [available, and identified by subject, by clicking here](#).

Articles on many of these subjects are contained in the following pages of this edition of the *Aether*.

Thank you for Chip, N5RTF, for an archive of *Grand Rounds on the Air* recordings located at marcoaudio.net. He also streams them live.

Amateur Radio has available technology that circumvents the problems associated with issues of propagation during long distance HF nets.

Upcoming *Grand Rounds on the Air* topics are listed on page eight. The April 28 program will cover the approach members can use to actively participate in a net that is truly roundtable in nature, one that allows for well-heard, with the ability for country/world-wide participation.

MARCO has members well versed in these technologies, with some options for digital net participation starting at just over \$100. For those of you without the ability to copy the presenter on HF we will produce a YouTube video recording similar to the one described on page 13.

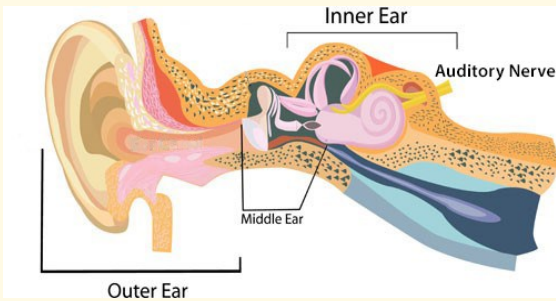


Grand Rounds on the Air March 10, 2024 Program

[Hearing Loss and Amateur Radio](#)

Presenter Jay Garlitz AA4FL

[Click to listen](#)



Can Being a Ham Contribute to Hearing Loss?

[Click for the research notes for the complete text and links for this presentation](#)

What effect does headphone use have on amateur radio operators? What if I am a DXer and use headphones to work rare and weak stations for hours, with impact from sudden high-volume episodes on the listening frequency, such as stations tuning-up on frequency or through intentional malicious interference?

If you previously served in the military or had employment in a field that exposed me to loud noise (such as dentistry), am I at greater risk during my amateur radio activities?

[From How Does Loud Noise Cause Hearing Loss? \(click\)](#)

The anatomical details are outlined in the [linked research notes](#). Being exposed to noise and having temporary or permanent damage is a function of time and intensity (loudness) of the exposure. Knowing that noises are more likely to damage your hearing if they are **85 dBA** and last a **few hours**, **100 dBA** and last at least **14 minutes**, and **110 dBA** and last at least **2 minutes**, this provides us a guideline on risk. **Since headphones generate between 94 -110 dBA the risk is clear.**

Complicating our exposure is the reality that hearing loss is due to cumulative damage and that quite a bit of anatomical reserve must be destroyed before the hearing loss is perceptible to the listener, and may start to occur in our youth. Coupled with life, workforce, and entertainment noise exposure, this damage can extend toward a partial loss of hearing function, which can become profound. At its worst one can feel isolated, leading to a reduction of the ability to interact in fulfilling manner, with a resulting impact on our mental health. [Please listen to the Web stream of our Grand Rounds on the Air session for full details...](#)

Questions to consider?

- Can noise cancelling technology be incorporated into ear buds with specificity?
- With computer technology and filtering can we create a safer future?
- Can this technology be built into amateur radio headphones?

Hams are great at finding enhancements to their hobby in both technical and creative ways. These often translate into commercial application. Hearing aids are helpful to many but lack usability of being fully selective or of easy use by the end user. Knowing the risks to your hearing, can you think of a way to convert audible noise to a digital stream through a device that that can be controlled by software and /or phone application to bring a frequency enhanced version that limits nefarious audio source volume to a headphone listener? This could also have commercial potential as a medical device!



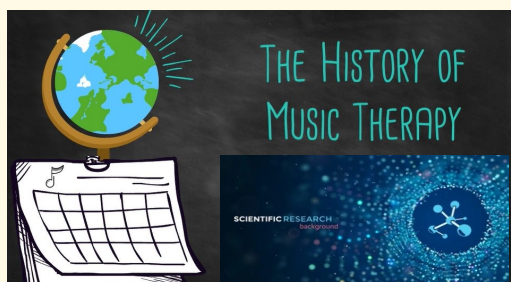
Grand Rounds on the Air—Please consider volunteering to present a subject or case of your own, one that can be highlighted in the *Aether* and through a link to a Web stream recording . Contact aether@marco-ltd.org with details of the case you would like to present, then once approved submit your material content and linked sources (format used here). If you do not have HF capability or a quality signal to net control, we will still find a way to make the transmission and discussion occur in an effective way...

Grand Rounds on the Air February 4, 2024 Program

[Physiology of Music and Music Therapy](#)

Presenter Jay Garlitz AA4FL

[Click to listen](#)



[Click for a video of the History of Music Therapy](#)

Our Grand Rounds on the Air session on hearing loss detailed on page two displayed how it can have an effect on health. What about using sounds that are heard for therapeutic benefit? In what ways can music make an impact on improving health?

[Click for the presenters Research Notes on this subject](#)

Music therapy can be based on a patient participating in the creation of music (active) or through listening to music (passive). The goal is for this process to have an impact on the body, affecting physiological processes in a positive manner. Listening to music can also be preventive, replacing loud sounds that might be harmful or irritating, such as exposure to noise during MRI scans, or the sounds and perceived concept of what is occurring during dental treatment.

Music exposure therapy leading to positive effects has been documented in studies. These describe relevance in use as adjunctive therapy for those with a variety of conditions that can cause chronic pain, with patient reported reduction of pain and the some comorbidities associated for patients afflicted with cancer, fibromyalgia, multiple sclerosis, or osteoarthritis. [Anxiety reduction is often a goal](#) toward treatment success, in tandem with other treatment efforts.

Physiology, reduction in anxiety. As proposed in [Biological Principles for Music and Mental Health](#), the effects of music are neurophysiological. It details four core elements of human musicality: tonality, rhythm, reward, and sociality. One can surmise that different patients are more responsive to difference approaches in Music Therapy based on the way they process and respond to music due to changes in brain chemistry from this exposure. Physiologic processes impacted by these changes occurs secondarily such as [blood pressure reduction](#) and its associated benefits..



Approaches to the therapy can be read about in [detail within the research notes](#) such as Analytical Music Therapy, Benenzon Music Therapy, CMBT or Cognitive Behavioral Music Therapy, Community Music Therapy, Nordoff-Robbins Music Therapy, GIM or Guided Imagery and Music, and Vocal Psychotherapy.

Having simple solutions for complex problems can be problematic. Aside from music therapy, it makes common sense that avoidance of loud noises through the blocking of sounds, or through alternative sounds, could be effective for reducing anxiety during certain health related treatments. Playing music through headphones during therapy or background music comes with a caveat, as what may be pleasurable and comforting to one person may not be to another. If not chosen carefully through self-selection and the effect may be negative if the music is not self-selected. For individual with headphones using streaming services with genres of music, or their generated playlist, does not equate to a collection of music preferred by a patient. For open or multi-room treatment settings such as music played through speakers, the selections can have an effect on the patients and the providers that departs from the intention to offer a calming environment. Advancements in Artificial Intelligence (AI) may make an impact by responding with changes in music selection based on visually observed and physiological reactions to auditory stimuli.

[Outside of healthcare, in the context of retail shopping, background music](#) can have a similar disconnect where music selection by the outlet cannot offer a uniform positive experience on all patrons.

Thank you to Members who Contributors of Research, or Presenters for the *Grand Rounds on the Air*



Alanna Conder K4AAC
 Bob Conder K4RLC
 Dave Justis KN0S
 David Rodman KN2M
 Jay Garlitz AA4FL
 Jerry Ziperstein N4TSC
 Chip N5RTF
 Andy WJ8B
 Keith N3IM
 Howard, N9OML



Its time again for eyeball QSOs. This is MARCO meeting time, getting together to celebrate radio and personal friendships in person, while enjoying our hobby as a group. Your attendance is requested, and highly desired!



The Greene County Fairgrounds, the site of Hamvention. Where else would you host hams? If you not attended a meeting at this location, it is ready for prime time hosting a big improvement over years past.

MARCO Annual Business Meeting by Zoom and the 2024 Xenia-Dayton Hamvention

We have a special opportunity for members. A wonderful weekend of activities is being planned for May 16-19. This includes a must-see event, a Thursday May 16th all-day visit to the [National Museum of the United States Air Force](#) at Wright-Patterson Air Force Base.

Join us on Zoom at **9pm eastern Wednesday Night May 15th for our annual business meeting**. Our goal is to make it convenient for all MARCO members to attend. The meeting ID: 835 6545 5581 and the passcode is 544437. The online link is <https://us02web.zoom.us/j/83565455581?pwd=RmRzVCtzVFI3TmtMZFPoSHI0cms3Zz09>

Make sure to let us know if you will be town so we can effectively plan weekend activities. Exact details will be provided but in addition to the museum visit on Thursday, we will have a dinner get-together that evening, Friday and Saturday full day at Hamvention (Booth 4008), a dinner get-together on Friday evening, and a Banquet for all Saturday evening for all members in town..

Hotel Information: Wingate by Wyndham, 3055 Presidential Dr, Fairborn, OH 45324

You must make your reservation by April 15th, room availability is limited
1-937-912-9350—Rate \$129 plus tax— Ask for the “Medical Amateur Radio Council 2024 room block”

For last minute contact call Jay AA4FL @ 352_246_6003



The different hangars for the airplane collections/exhibits, Wright Brothers through the Space Program. The alien collection is underground and on a need-to-know and see basis (Area 52?).



Attendance is great for your health. Bring you walking shoes as the [collection](#) is so large you will get in many miles of walking if you desire to see it all.

<https://www.nationalmuseum.af.mil/Visit/>

<https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/>

Grand Rounds on the Air

January 07, 2024 Program

[Dietary Habits, Religious and Cultural Influences](#)

[Click to listen](#)



Many ham radio operators love to Dx, speaking to others from distant locations all over this planet. While many QSOs are just quick exchanges of basic information needed to QSO's, there are those that foster friendships based on their love of radio, and shared aspects of daily life. Knowing more about other cultures can be of great aid in these discussions.

Cultures vary by geographic locality for many reasons, some historical, environmental, disease, theology. Local dietary preferences and habits are a product of all these, and more considerations such as economics.

What are the origins of local dietary customs? Knowing the answers to this question can be very complex due to many factors. Are they based on avoidance of disease due to local considerations? What does the archaeological record show in terms of findings over time as compared to establishment of religion based dietary laws? Is there a sociological component, one where identities of groups of people needed to be distinct from others?



[Click for Presenters Research Notes](#)

The United States is the melting pot where people from different cultures contribute to a country wide mix of cuisines that elicit joy to the palate if one decides to reach out and experience what would be an overseas or extensive land-based traveling adventure to one domestically based in a major US city or in the countryside. Our discussion is pertinent in this realm as well, not a study in sociology, but a primer to understand our neighbors and develop not only respect their food choice, but also a chance to explore and develop a love for tastes of their cuisine.

Recommendations for good health, Guidance on foods from a health provider standpoint

As a health practitioner in providing dietary guidance fostering good health, it is helpful to be aware for guidance purposes of the food customs of those of different religious faiths. Major religions and (denominations within) such as [Christianity \(Catholicism\)](#), [Judaism](#), [Islam](#), [Hindu](#), [Sikh](#), [Seventh Day Adventists](#), [Buddhists](#), and less common religions such as [Rastafarian](#) have diets that may vary in food content, and preparation. Religious interpretation and implementation of dietary laws may vary by denomination or even within communities and families.

[Individual choices](#) of dietary customs are important as well, as many choose diets for [ethical reasons](#) that are not just based on the historical concerns, but also of the present and the future of the planet in their perception and implementation of a value system. [Vegetarians](#) consume a meat-free diet, once based on vegetables. You might see or hear this explained as not eating anything that has eyes and can look back at you. [Pescatarians](#) add fish and seafood to their vegetarian diet. In a strict avoidance of animal content, vegans consume foods free of any animal origin. This is strict vegetarianism, no milk, eggs, dairy products and extends to commercial non-food products such as leather.

Terms such as [kosher](#), [pareve](#), and [halal](#) are commonly seen in the food industry. Kosher has meaning in the vernacular of the English language implying something being genuine and legitimate. To be pareve, and important consideration in a kosher diet, is to have a food that has been prepared with no meat, milk, or derivatives. Halal refers to meat prepared or processed by Muslim law.

Could there have been health reasons for theological choices of diet as detailed in religious texts? If you consider the rules and customs as a health practitioner, you might wonder! Theological foundations for dietary rules were made for many reasons that were debated through the years and are to this day. **Experiences and observations that ancients may have had for making choices based on disease expression without the knowledge of the medical reasons we are aware of by modern medicine. These may have been codified into religion for this reason, or it may have been to preserve the identity of groups of people, no proof exists.** We may never know the full story about the decisions of the ancients but the discussion is fascinating and complicated.

[Obvious considerations](#) would have been given for not having pigs that include [trichinosis](#) but also since [swine require a lot of water to provide protein, and other considerations, in contrast to chicken](#). Shellfish as concentrators of E. Coli, and toxins even if the reasons were unknown, and [allergies to shellfish](#), were a connection that could be made.

Read about these considerations, the [theology of the Hebrews and old testament](#), the concept of [Clean and Unclean Food](#), [Dietary Laws in Islam](#). To explore more links about dietary laws within the world's religions use your favorite search engine, or employ the many links uncovered by the presenter in his [research notes](#).

Guidance on foods for religious faiths						
<p>Children and their families may benefit from foods that are well-tolerated and prepared in a palatable way according to their religious faith. The table below is a general guide to food choices for various religious groups. Eating in countries in many regions, although it may be different from the country of origin, can be a challenge. Please do not take this as an endorsement for any product.</p>						
Religion	Hinduism	Judaism	Islam	Christianity	Buddhism	Seventh Day Adventist
Main dietary concern	Meat are restricted. Some may be eaten.	Meat are restricted.	Meat are restricted. Pork, shellfish, and alcohol are prohibited.	Meat are restricted. Pork, shellfish, and alcohol are prohibited.	Meat are restricted. Pork, shellfish, and alcohol are prohibited.	Meat are restricted. Pork, shellfish, and alcohol are prohibited.
Foods to restrict	Meat, poultry and fish. Milk and dairy. Eggs.	Meat, poultry and fish. Milk and dairy. Eggs.	Eggs. Pork, shellfish, and alcohol.	Meat, poultry and fish. Milk and dairy. Eggs.	Meat, poultry and fish. Milk and dairy. Eggs.	Meat, poultry and fish. Milk and dairy. Eggs.
Foods to avoid	Meat and dairy products.	Pork and shellfish. Shellfish or seafood without the shell.	Pork and shellfish. Shellfish or seafood without the shell.	Meat and dairy products.	Meat and dairy products.	Meat and dairy products.
Miscellaneous	Food may vary depending on the region. Some may eat meat and dairy. Some may eat meat and dairy. Some may eat meat and dairy.	Meat products also include animal products of the same species. Some may eat meat and dairy. Some may eat meat and dairy.	Meat products also include animal products of the same species. Some may eat meat and dairy. Some may eat meat and dairy.	Meat products also include animal products of the same species. Some may eat meat and dairy. Some may eat meat and dairy.	Meat products also include animal products of the same species. Some may eat meat and dairy. Some may eat meat and dairy.	Meat products also include animal products of the same species. Some may eat meat and dairy. Some may eat meat and dairy.

[Click for link to chart](#)

Grand Rounds on the Air March 17, 2024 Program**[EVOO and Health—Extra Virgin Olive Oil](#)**

Presenters Bob Conder K4RLC
Alanna Conder K4AAC

[Click to listen](#)



[Click for Presenters
Written Presentation
and Research Notes](#)

Regional diets are often considered by modern medicine for their advantages, and the content that contributes to better health within a region. While local factors often dictate the details, those of us on other parts of the world can improve of health by incorporating these into a diet of best practices..

MARCO members Bob (K4RLC) and Alanna (K4AAC) Conder explored the lands that embrace [The Mediterranean Diet](#) . They took a land tour of Greece with the University of North Carolina at Chapel Hill that was not just focused on tourist venues, but a from a perspective of exploring ancient monuments, fortresses, and archaeological sites located in Athens on the Attica peninsula, and on the adjacent Peloponnesian peninsula. Everything in Greek civilization is historical, dating back to 4000 BC. However, the period of 400 to 300 BC was a particularly momentous time, when Alexander the Great battled the Persians for dominance of the [Peloponnesian peninsula](#).

As this peninsula is midway between Asia Minor and Europe, it has been a much coveted piece of land for millennia. The great warriors of Asia and Europe were particularly hardy people. In ancient Sparta, military service was required for almost all men and boys between the ages of 16 and 60. As infants, it was decided whether a boy would be selected for military training or life as a slave and work in the fields. The male infants were dipped in cold water. If they cried, they became slaves!

The Mediterranean Diet is touted not only for its tastiness, but more [importantly for its health benefits](#), especially cardiovascular health. On our trip to Greece, we were treated to some of the finest meals we've ever had in any country, local or abroad. As professional health providers and researchers, we have been even more impressed by the good data supporting the health benefits of this diet.

Focusing in on an essential component of the Mediterranean Diet, our topic today is to explore the scientific health efficacy of the Greek Olive and Wild Greek Olive Oil: specifically, Extra Virgin Olive Oil (EVOO) from Greece.

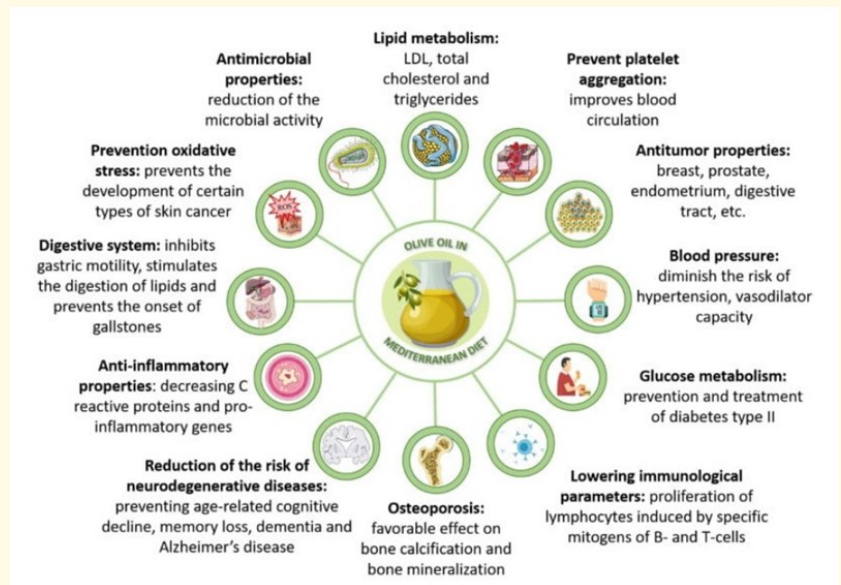
Why is this topic relevant? If EVOO derived from the wild Greek olive has nutraceutical health benefits, this could potentially benefit any person, regardless of race or region.

What is EVOO? Extra Virgin Olive Oil (EVOO) is made by harvesting and crushing olives, then extracting the oil from the olive while maintaining a temperature of less than 27 C (80.6 F). Homer referred to EVOO as "liquid gold," while Hippocrates cited its benefits for human longevity and wellness.

Why is the Greek Olive Unique? There are many reasons for this, as detailed in full in [Bob and Alanna's written presentation \(click to read\)](#). This includes local growing conditions, that way the oil is processed, stored, distributed, cultural factors, the manner it is foundational to the overall local diet, and much more...

Links to explore from Bob and Alanna:

- [Is Extra Virgin Olive Oil the Critical Ingredient Driving the Health Benefits of a Mediterranean Diet? A Narrative Review](#),
- [Phenols More Important than MUFA Content for EVOO Health Benefits, Research Suggests](#),
- [ConsumerLab's video about Myth's of Olive Oil \(non EVOO\) \(click through ads\)](#)



Use the many links in this article, the [presenter's document](#) and the [editors' research notes](#) to evaluate the claimed benefits of EVOO

Grand Rounds on the Air—February 25, 2023 Program

[The Therapeutic Benefits of Honey](#)

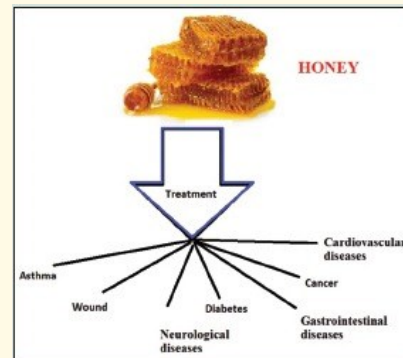
Presenters Dave Justis KN0S
Jay Garlitz AA4FL
Jerry Ziperstein N4TSC



[Click to listen](#)

Messaging to health professionals and the public about dietary topics often gets muddled with misconceptions. The health and therapeutic benefits of honey are one example. The marketing of claims of efficacy abound from national entities and local producers. What does the science report about the subject?

Products such as honey likely have local variations in bioactive content. [Since bees collect nectar](#), and the resultant honey from a colony is impacted by the local flora, is there differences in therapeutic potential from every [small-scale microclimate](#)? Considering the voluminous permutations is it really possible to make absolute research based health related claims about a particular honey? Listen to our Webstream discussion, and read using the links in the following submitted material. [Comment on your interpretation on our Google Group](#).



From [Honey and Health: A Review of Recent Clinical Research](#), [Pharmacognosy Res.](#) 2017 Apr-Jun; 9(2): 121–127.doi: [10.4103/0974-8490.204647](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5424551/pdf/PR-9-121.pdf>

This study, which is a comprehensive review of the current literature, highlights the therapeutic benefits of honey in the management of diseases. **Highlights directly from this paper...**

Honey is a natural product formed from nectar of flowers by honeybees (*Apis mellifera*; Family: Apidae). Honey has been used by humans since ancient times, nearly 5500 years ago. Most ancient population, including the Greeks, Chinese, Egyptians, Romans, Mayans, and Babylonians, consumed honey both for nutritional aims and for its medicinal properties. Honey is the only insect-derived natural product, and it has nutritional, cosmetic, therapeutic, and industrial values. Honey is reviewed as a balanced diet and equally popular for male and female in all ages. Honey no needs to refrigerate, it never spoils, and it can also be stored unopened at room temperature in a dry place.

CONCLUSION. Sufficient evidence exists recommending the use of honey in the management of disease conditions. Evidence confirming the use of honey in all areas of clinical practice is needed. Studies revealed that the medicinal effect of honey may be due to of its antibacterial, anti-inflammatory, apoptotic, and antioxidant properties. This review should provide practitioner with remarkable evidence supporting the use of honey in the medical field. Although some studies exist having tested the efficacy of honey in relation to medical purposes, more studies are needed to cover all medicinal aspects of honey.

[Research Notes by Jay AA4FL](#)

[Honey in Wound Care](#), Article submitted by Dave Justis KN0S that documents uses of a regional honey used to address wound healing during the years of the VietNam war.

Is Honey Better For you than Sugar? Submitted by Andy WJ8B, sourced from <https://www.medicalnewstoday.com/articles/317728#Similarities-and-differences>, this comments on the sugar content of honey contrasted to alternative sweeteners and their resulting glycemic indices.

Honey Adulteration, submitted by Chip N5RTF, sourced from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7692231/pdf/foods-09-01538.pdf>. Chip explores the mass marketing of honey and what constitutes a product. How pure is it and what additives may adulterate it?

Also see <https://www.fda.gov/food/cfsan-constituent-updates/fda-releases-data-economic-adulteration-honey>

Honey: It's Medicinal Property and Antibacterial activity, submitted by Keith N31M <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3609166/pdf/apjtb-01-02-154.pdf>

Consumers being duped by misleading claims about honey submitted by Jay AA4FL, source <https://www.theguardian.com/society/2019/may/02/consumers-being-duped-by-misleading-claims-about-honey>

Reports from Barry WB1FFI and David KN2M on honey and treatment of eye disease -

Refer to **Therapeutic Potential of Honey and Propolis on Ocular Disease** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9696375/pdf/pharmaceuticals-15-01419.pdf>

The Grand Rounds on the Air Warren Brown Archive

MARCO was very fortunate to have the service, and friendship, of the preeminent net control and presenter Dr. Warren Brown. He conveyed the medical science and practicality of implementation of various health related subjects. It is our honor to make his work available in perpetuity through our publicly accessible archives. In addition, MARCO honors his dedication to flight and amateur radio by funding a \$500 ARRL Scholarship in his name. (see page 16 for more information).



List of [Net Topics from 2017-2022](#), compiled by Barry Rabin WB1FFI

The audio recordings of the nets on these topics, and more, (2019-2024) are available, listed by date, at [Marcoaudio.net](#). Recorded and compiled by Chip Keister N5RTF

Upcoming Topics on the *Grand Rounds on the Air* net for April to June 2024

Check Google Group posts for updates to the schedule

April 7—Artificial Sweeteners, The science, manufacturing, adulteration, use, and potential risks. Presenter Jay Garlitz AA4FL.

April 14—Neurosis Revealed. This presentation will be provided by guest speaker Dr. Hyman Rabinovitch with member Tom Lifland W2RFU as control operator. Transmission will be from the QTH of member Jerry Ziperstein N4TSC, in Boca Raton FL.

April 21—TBA (volunteer requested).

April 28—A presentation to also be recorded to post as a YouTube video as a guide for MARCO members and to the greater amateur radio community. Presenter Jay Garlitz AA4FL

Contents will include:

- using a USB Dongle for exploring the digital modes before buying a digital radio;
- an explanation of digital modes and relationship to local repeaters;
- using hotspots, the freely available Blue DV software
- a discussion of Net Logger for Windows and as a cell phone app
- the power of the Quadnet's transcoding that makes it possible to talk to others using different digital modes.

May 5—History of Mother's Day and Women in Amateur Radio. Presenter Jay Garlitz AA4FL

May 12—No nets in honor of Mother's Day. Focus on the mothers in your life whether they be your spouse, children or grandchildren. Celebrate them and discuss our May 5th program

May 19—(HamVention weekend). CW net only

May 26—Microplastics, Potential risk to health. Presenter Jay Garlitz AA4FL.

June 9—Medical topic to TBA, (volunteer requested)

June 16—CW net only. Use the mode required for our fathers and then celebrate father's Day with your family

June 23—No nets, Field Day

June 30—History of Amateur Radio in the USA, the road to self-regulation (our almost Independence Day). Presenter Jay Garlitz AA4FL

Grand Rounds on the Air February 11, 2023 Program
Physiology and Medical Considerations of Chocolate

Presenter Jay Garlitz AA4FL

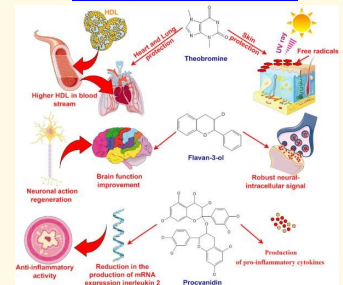


Cacao Pods

The history of chocolate is fascinating toward the impact it has on modern culture. The current mass consumption of chocolate related products does not only require consideration of the [philosophy and sociology of consumer culture](#), but also extends to the [adulterated nature of the product itself](#), often as an effort to increase profits, and also increase the consumption through consumer behavior.

Videos—How It's Made: Cocoa Beans from The Science Channel
<https://www.youtube.com/watch?v=EwRI6yaYdPc>
 Cocoa Fruit Harvesting - Cocoa bean Processing - Cocoa Processing To Make Chocolate in Factory From field to modern factory
<https://www.youtube.com/watch?v=yYWZsGSwals>

Refer to Presenters Notes for his full research and links



A source [Nutrients](#), 2021 Sep; 13(9): 2909. Published online 2021 Aug 24. doi: [10.3390/nu13092909](#), [The Health Effects of Chocolate and Cocoa: A Systematic Review](#), offers an extensive research on the subject.

Another source [Int J Environ Res Public Health](#), 2019 Dec; 16(24): 4960, Published online 2019 Dec 6. doi: [10.3390/ijerph16244960](#), [Chocolate, "Food of the Gods": History, Science, and Human Health](#) offers further background.

Is chocolate a better alternative than other candies for children and what are their consumption patterns?

The answers to these questions are complex. It has been shown that younger children (pre-teen) prefer non-chocolate candy at a higher rate. Adults have a greater preference for chocolate based products. Coupled with the issue of texture and substantivity (ability to adhere to the tooth), lower cost of non-chocolate candy, and risk to newly erupted teeth, candy targeted or more available to young children can place their dentition at great risk.

The following excerpt is available to the public and online within [Nutrition Source at the Harvard Public School of Health on dark chocolate](#):

"No introductions are needed for this highly treasured food that dates back to 2000 BC. At that time, the Maya from Central America, the first connoisseurs of chocolate, drank it as a bitter fermented beverage mixed with spices or wine. Today, the long rows of chocolate squares sitting neatly on your store shelves are the end result of many steps that begin as a cacao pod, larger than the size of your hand ... Dark chocolate contains 50-90% cocoa solids, cocoa butter, and sugar, whereas milk chocolate contains anywhere from 10-50% cocoa solids, cocoa butter, milk in some form, and sugar. Though dark chocolate should not contain milk, there may be traces of milk from cross-contamination during processing, as the same machinery is often used to produce milk and dark chocolate. Lower quality chocolates may also add butter fat, vegetable oils, or artificial colors or flavors. White chocolate does not contain any cocoa solids and is made simply of cocoa butter, sugar, and milk.

It is a Source of [Iron](#), [Copper](#), [Magnesium](#), [Zinc](#), and [Phosphorus](#). Cocoa is rich in plant chemicals called flavanols that may [help to protect the heart](#). Dark chocolate contains up to 2-3 times more flavanol-rich cocoa solids than milk chocolate. Flavanols have been shown to support the production of nitric oxide (NO) in the endothelium (the inner cell lining of blood vessels) that helps to relax the blood vessels and improve blood flow, thereby lowering blood pressure. [1,2] Flavanols in chocolate can increase insulin sensitivity in short term studies; in the long run this could [reduce risk of diabetes](#). [3,4]

Observational studies support the benefits of cocoa flavanols. The link between blood pressure and high cocoa intake was described in a study of the Kuna Indians, an isolated tribe who live on the Caribbean Coast of Panama. [5] Hypertension was extremely uncommon in this group, even among older ages, and even with a dietary salt intake that is greater than most Western populations. When the Kuna migrated to urban environments and changed their diets, their rates of high blood pressure increased. Notably, their traditional intake of cocoa as a beverage was very high, at more than five cups daily of either home-grown or Colombian cocoa powder rich in flavanols. The urinary levels of flavanols in the island-dwelling Kuna were significantly higher and their rates of death from heart disease, cancer, and diabetes significantly lower than their counterparts living in urban centers.

Other observational studies suggest a link between high cocoa or chocolate intake of 6 grams daily (1-2 small squares) and a reduced risk of [heart disease](#) and mortality, possibly in part by reducing blood pressure and inflammation. [6,7] Dark chocolate is high in calories (150-170 calories per ounce) and can contribute to weight gain if eaten in excess. However, chocolate, like nuts can induce satiety, so the longer term implications for weight control are not clear. It also contains a moderate amount of [saturated fat](#), which can negatively affect blood lipid levels, though its heart-protective effects from flavanols appear to outweigh the risk. Choosing dark chocolate and eating modest quantities may offer the greatest health benefits."

GREETINGS FROM YOUR PRESIDENT

April 2024

Greetings! As I type my last President's Corner, I look forward to making the trip to **Dayton Hamvention** and spending time with members as I complete my term in office, before assuming the best job in any group, immediate past president. As an organization we have our challenges, as do many other others in a rapidly changing world where meeting online seems to be a preference. To help counter this, we will have a new video presentation running at our Hamvention booth that showcases MARCO,



our activities, and value to those in health-related careers and the amateur radio community in general. I look forward to visiting with our members in attendance and potential members as we debut this video prior to releasing it

online to the general public. Heavy foot traffic is expected to be present at the booth as we are in a great location, in the building that houses the prize booth. **How about joining us at the meeting?** See the details in this edition of the Aether.

I am troubled, but in awe of the enormity over the loss of Warren Brown KG4UGA. We were lulled into a comfort zone through his contributions as a longtime member, Sunday morning moderator and net control who provided almost every lecture/discussion for 20 years. Since his passing the number of check-ins has greatly decreased, a validation of his effectiveness and popularity. How do we walk in his shoes and provide excellent Grand Rounds Programs? Numerous members will be needed to step up to meet his level of excellence and make our flagship net the place for MARCO members to gather weekly. We can't do it alone so PLEASE consider becoming a net controller or a subject matter presenter.

My service as President resulted from a situation that was NOT good at best and downright terrible at worst, one where I was recruited to serve to fill a void, due a lack of volunteers. As the first nonmedical member to become the President of MARCO, this was a departure from tradition. My hope then and now is that members WILL step up, stand up, speak up and be part of the solution for the continuation of MARCO long after we all become silent keys.

Change is always difficult for any group and MARCO is no different. We need solutions to the challenges of the day to make sure we are not turning the lights at MARCO off in the future. My view is that we should not forget that unless you are part of the solution then YOU ARE part of the problem. With a new President will come new leadership and ideas. I wish Barry, WB1FF1, the best of success as he starts his tenure as President and hope that the members of MARCO will reach out to help him guide the organization for the next two years.

Before I end my tenure as your President, I would like to THANK Jay, AA4FL, for all his hard work trying to keep all the balls in the air, as net controller, moderator/presenter, editor of the Aether and Secretary. (continued in right column)

I want to recognize Chip, N5RTF for being the net controller of the CW net, the digital net as well as recording and archiving the sideband net, Dave, KN2M, and Dave, KN0S, for recent excellent presentations on eye conditions as well as burn care and Diane, NM2K, for assuming responsibilities as the Treasurer, and Dave KN2M for taking on QSL and LOTW responsibilities. I can't forget Arnold, WB6OJB, who has kept an eye on our Medishare funds for us, Keith, N3IM, for maintaining our MARCO display board and accessories despite a house fire, and Dave, KT8E, who performed webmaster duties. I'm sure there are members that I've overlooked including those who have served before me. THANK YOU for your contributions to MARCO.

I will work with Barry, Jay, and the other team members to ensure MARCO's future is bright and hope you will as well but want to leave you with this thought. This is and has been a professional organization designed around the medical profession, and although we've had to change with the times, MARCO is and will be WHATEVER you choose it to be. I wish MARCO many more years of service to the ham radio medical community and the interests of ALL!

73, *Bernie* KD5QHV

Honor president Bernie's completion of his term as MARCO president by contributing toward our volunteer driven efforts. Let us know of your interest in joining our board, to serve as presenters, researchers, and/or control station for sessions of our nets.
(contact_secretary@marco-ltd.org)

A goal of Bernie is to make it convenient for all MARCO members to attend to the annual business meeting being held at Hamvention, even if they cannot travel to the live meeting, by making it available online. Join those of us in Dayton by Zoom at **9pm eastern Wednesday Night May 15th** for this very important event.

The meeting ID: 835 6545 5581, passcode is 544437.

Online link is <https://us02web.zoom.us/j/83565455581?pwd=RmRzVClzVFI3TmtMZlFpoSHl0cms3Zz09>

We are also aware that participating in the *Grand Rounds* can be problematic for many members due to reasons discussed in our video (link to content) on page 13. There are options that allow all hams who have internet or cell phone service options to be radioactive, enjoy the hobby, and participate in MARCO.

The April 28 *Grand Rounds on the Air* program will cover the methods members can use to actively participate in a net using these Internet and cell phone tools that is truly roundtable in nature, that is well-heard, with the ability for country/world-wide participation.

Many members lack the equipment to participate with this 20m HF based informational session covering this topic. MARCO will generate a YouTube video of the program and make it available to all members.

[Eye Damage and the Solar Eclipse](#) Grand Rounds on the Air Program

Presented by Dave Rodman KN2M on March 24, 2024

in preparation for the April 8th Solar Eclipse

[\(click to listen\)](#)



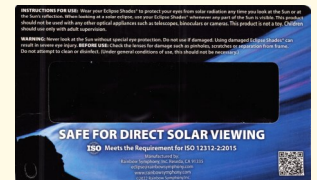
When solar eclipses occur it is very important to have an understanding of the potential for retinal damage. The obliteration of the sun varies [geographically](#) in extent. There are [four types](#): [total](#), [annular](#), [partial](#), and [hybrid](#). A [video](#) can be viewed detailing eclipses and eye protection (click through YouTube ads). Read about the [science behind solar eclipses](#).

[Retinal damage](#) can occur if the viewer attempts to view the events, except for small percentage of locations and time where totality occurs. The damage is [solar retinopathy](#) and can be temporary or permanent. According to the [American Academy of Ophthalmology](#) the physiologic damage is of a photomechanical nature, causing a photochemical retinal injury as a product of free radical formation.

[According to the AAO](#), “two mechanisms of free radical formation have been proposed. First, absorption of light energy by a molecule causes an electron to enter an “excitation state”, with free radical formation being a means by which such an electron can return to the “ground state” energy level. In returning to the “ground state” energy level, an excited state electron splits a bond within another molecule, forming a free radical.^[1] Second, light energy absorption can cause excitation of and direct transfer of energy from an intraretinal chromophore – flavoproteins, heme proteins, melanosomes, lipofuscin, and photoreceptors themselves – to oxygen, creating a reactive oxygen species.^[1] Furthermore, the photochemical injury to the retinal tissues may be thermally enhanced^[6].”



Eye protection can be provided by [eclipse glasses](#), hand held viewers such as the ones displayed here. Indirect viewing is also possible by viewing local media streams of eclipse on TV or Internet, or using a [pinhole camera](#) to project the eclipse onto another surface.

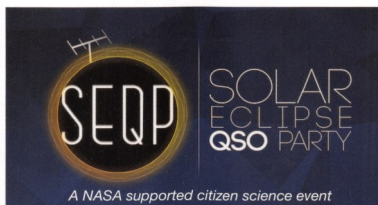


[Photography of the sun and solar eclipses](#) has [special considerations](#) as well. The sun’s harmful rays can [damage your camera’s CMOS sensor](#), camera’s lens and your [cell phone camera](#). The sun can [damage your device’s electronics](#).

How dark does it get during a solar eclipse? According to [Richard Tresch Fienberg](#) in an [article in Sky & Telescope](#), totality may not be quite as dark as nighttime, but the difference between 99% obscuration and 100% is still night and day.

Other terms and factors, links to explore:

- [Umbra from a solar eclipse](#)
- [Sun’s Corona during total eclipse](#)
- [The total eclipse as proof of Einstein’s Theory of Relativity](#)
- [Animals reactions to a Solar Eclipse](#)



Join thousands of other operators for a fun, friendly HF competition with a unique goal: Increasing our understanding of how the ionosphere works.

Oct 14, 2023 and Apr 8, 2024

Operate CW, SSB, FT4/8, even WSPR and FST4W!



Information at hamsci.org/eclipse

Take an active part in eclipse related atmospheric science!

As an amateur radio operator you can take part in two efforts to record the effects of the April 8th eclipse. One opportunity involves transmitting and receiving and the other receiving

—The [Solar Eclipse QSO Party](#), operate before, during and after the eclipses over North America using various modes (CW, voice, and digital), two-way transmissions ([see FAQs](#)). These QSOs will contribute to scientific studies focusing on the ionosphere’s reaction to the eclipse. The studies should lead to a better understanding of the interactions between the Sun, the ionosphere, and radio wave propagation. That research should benefit hams, professional broadcasters, satellite operators and many other users of radio spectrum.

—[W8EDU CHU Canada Data Collection](#). The Case Amateur Radio Club W8EDU is will lead [citizen science research](#) during the upcoming solar eclipse alongside the Solar QSO Party through a network of stations all across North America.



Click on the titles for the Webstreams of these *Grand Rounds on the Air* programs

Manned space exploration has been limited to low earth orbit (LEO) missions since the Apollo program missions to the moon in the 1969 and the early 70's. The physiology of mankind and the need for health and welfare on manned missions creates many challenges, including [medical risks](#), financial considerations, and the limits of current technology. Unmanned missions have been very effective for scientific research.

Space missions [active now, and currently planned](#) reflect an ambitious agenda, one moving toward renewing manned exploration beyond low earth orbit. This includes travel to the Moon and Mars. What are reasons? Is habitation on those objects possible? What potential benefits could there be?

Discussion on these topics by MARCO members create a viewpoint through the lens of our backgrounds as persons with training in medicine or the health sciences. While we will not be making these trips, our children and grandchildren may. A dialogue on the medical considerations of such endeavors was held during two *Grand Round on the Air* sessions in January 2024, the first with a focus on the Moon, and the second on Mars. There are many reasons for returning to the moon first. There is a need to develop technology that can be effective on our celestial satellite and then be expanded in application to the red planet. Being a relatively close by [240,000 mile three day trip](#) brings solace in terms of the human factor. [Distance becomes problematic for many reasons as we extend out toward Mars.](#)



Some of the medical challenges are [Spaceflight Associated Neuro-ocular Syndrome \(SANS\)](#), [radiation risks](#), [health of our microbiome](#), [mental health](#), [low gravity effects on the musculoskeletal system](#), and [risks from moon dust](#).



Since getting to, and/or habituating on Mars is such a challenge what other considerations are there for the human component? [Why do we need Mars colonization?](#) [Are there financial incentives?](#) Are there [Political and ethical concerns](#)? How do we [design deep space habitats](#)?

Astronaut Physician Serena Auñón-Chancellor [discussed her experience in microgravity](#) and doing biological experiments in space. [This dialogue](#) reflects the effects of microgravity on the human body.

Being on the moon where gravity is 16.6%, and Mars where it is 38% of Earth's gravity, creates medical consideration in regard to the health and function of astronauts or colonists. Traveling to the moon in weightlessness is a relative short trip but the medical impact of a trip to Mars would be far more demanding. Science Fiction and movies have displayed functional [artificial gravity](#) but even if it is possible one would be moving between objects exerting different levels on gravity. Conventional wisdom would dictate that to condition a human body for physiological impact in preparation while in transit, gravity levels should be titrated to reach the appropriate level at destination.

Many Europeans traveled to the new world with the intention of not returning home. [Would this also be true for Mars?](#) If humans did the same on Mars would [evolutionary biology](#) transform these individuals' and their offspring [physiology and genetic makeup](#)?

[Movies](#) and [TV shows](#) such as [The Martian](#), and [Mars](#), brought science fiction to the forefront of consideration. Perhaps you can review these venues of mass media and discuss reality versus medical science with your children and grandchildren as you explore the possibilities of the future with them from your perspective as someone trained in the health sciences or research.



MARCO suggestions for armchair space exploration:

[Biggest Challenges During Long Distance Space Flight](#)

[Red Risks for a Journey to the Red Planet: The highest priority human health risks for a mission to Mars](#)

[Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders on Space Missions](#)

[How We React to Changes in Gravity During Long Space Flight](#)

[Human Health during Space Travel: State-of-the-Art Review](#)

[An Overview of Space Medicine](#)

[Presenters research notes and pertinent links for these presentations](#)



[Click to listen](#)

The Life Cycle and the Solar Cycle

[Click to watch](#)

Presented on Feb. 18, 2024 by Jay Garlitz, AA4FL

A *Grand Rounds on the Air* program that was also transformed into a YouTube video

The *Grand Rounds on the Air* as a Resource all Members, the Amateur Community, and as a Public Service

The net on Feb. 18, 2024 introduced a **new concept and way to extend the presentation to a wider audience in a multi-media manner**. This can create internet hosted material that can allow members and the public to access the material, as a MARCO member benefit, and available to the overall public as a community outreach/service.

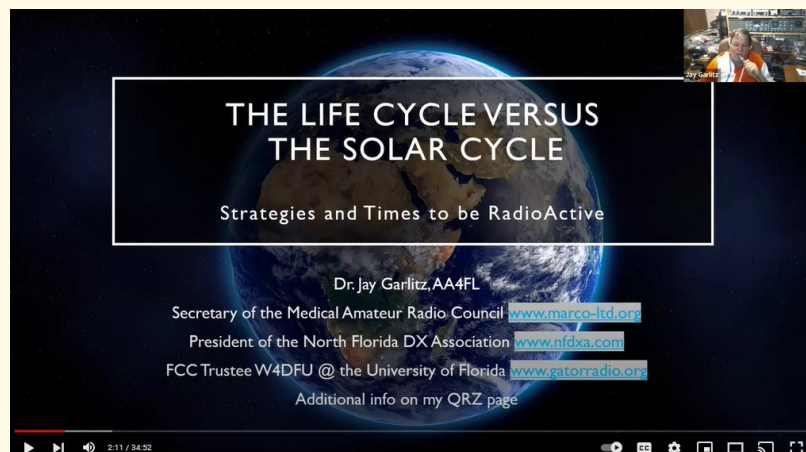
The topic for the trial of this approach is [The Life Cycle and the Solar Cycle](#), one of practicality for our many members with current QTHs that are less capable of hearing and/or participating in our 20m net,

Propagation and home QTH station equipment does not always allow prospective listeners to participate. While we stream our *Grand Rounds on the Air* presentation live at www.marcoaudio.net, and have recordings available for streaming on demand, WebSDR receivers and derived webstreams at www.marcoaudio.net are not always effective. QRM, QRN and the location of different contributors can pose inhibitions to a quality stream. **By the presenter of the net recording the audio presentation using Zoom at their location in tandem a PowerPoint, a resulting video recording can be produced for distribution to members. The product can also be published on YouTube for listening by the greater public.**

Why cover this subject?

The solar cycle can provide us with great [conditions or a lack of solar flux](#) leading to disappointing results. Regardless of the solar cycle, the ability of two stations to have a path of propagation does not equate to both stations being able to complete the contact

Our life cycle, regardless of health related stage, does present times where other priorities in life prevent is from operating effectively on HF. Some of these inhibitions are life stages such as times of education, time intensive child rearing, lacking a residence that allows for antennas, financial consideration when challenges exist, the demands of employment, etc.



[Click to watch](#)

In addition, many newly licensed MARCO and amateur community members are not aware of strategies for making Dx contacts on 6m or 10m using their technician license. Similarly, there are those who are not aware that there are modes that allow contacts, even for those with higher class licenses and additional band opportunities, or those who used to have stations with more capabilities, to make contacts with simple equipment and antennas. Low power and stealthy antennas to counter HOA/deed restrictions coupled with effective use of certain modes can circumvent the frustration of being an amateur radio operator at a time in the life cycle where one has limitations, especially at the current time where the solar cycle is favorable.

Feel free to share this link with those who might benefit from the video presentation

https://www.youtube.com/watch?v=tQOL5P_Vfqw&t=1118s


The Warren Brown MARCO Aether Archives

Our History Book

Dedicated to Warren, KD4GUA, our Editor from 2000-2023



Twenty Five years ago in MARCO—April 1999



MARCO NEWSLETTER

Official Publication of the Medical Amateur Radio Council, Ltd.

Ira Wexler, M.D., W3HEF, President
Robert D. Currier, M.D., WB5D, President-Elect
Robin J. Staebler, M.D., K3FP, Secretary
Alfred E. Greenwald, M.D., WA2CBA, Treasurer
Edward R. Briner, D.M.D., WA3TVG, Editor

86th Edition
2000-2014

A non-profit Corporation, founded in 1965, privately supported for the public good and dedicated to the advancement of Medicine through Amateur Radio.


Web Site: <http://www.marco-hd.org>
Internet address: warrenbrown@aol.com

Vol. XXIX (39th year), Edition # 86 Since Year 2000), April 2014 P.O. Box 127, Indian Rocks Beach, FL., 33785-0127

IT'S ANNUAL MEETING TIME AGAIN

It won't be long before we once again gather in Dayton for the world's biggest hamfest, and also, this year, the annual meeting of the Medical Amateur Radio Council. Little can be said about the hamfestif you've been to one you know what a great hamfest it is.....if you've never been there, you've really been missing a great ham extravaganza.

Every other year, MARCO's annual meeting is held in conjunction with the Hamfest. This year MARCO will be meeting at a new hotel, the Holiday Inn North. It is only a short distance from the former site of our biannual meetings. The annual meeting will begin Friday morning, May 15th, at 9:00 am. The name of the meeting room will be displayed in the lobby for us. A continental breakfast will be available beginning at 8:15 am. The meetings will conclude at approximately noon, so that we can journey to the Hara Arena, site of the hamfest. If any business is not



Dr Gregory D Lapin

Just How Dangerous is RF Energy?

by Gregory D. Lapin, PhD, P.E., N9GL

"A look at the research on FCC bioeffects that led to the new FCC RF exposure regulations."

(Dr Lapin will be the main speaker at the annual meeting grand banquet on Saturday May 16, 1998. We give to you his CV. The subject of his presentation at the banquet is the title of this article,

[Click for the full edition](#)

- Propagation was a challenge for our nets 25 year ago, as it is today. Regardless, MARCO more nets present on HF, including on 40m. Activity on the nets was discussed with the number of check-ins often being in single digits. The author considered this less than desirable for discussions about medical subjects.
- An member email directory was included in this edition. It is of historical interest for numerous reasons, which include noting the many email providers from the years of dial-up modems that no longer exist, and that this was published in the open at a time when culling lists by spammers (in our modern online editions) were not the issue it is today.
- The speaker for the annual banquet at Hamvention 1998 was announced. His program on *Just How Dangerous is RF Energy?* must have been very impressive as his extensive CV listed in the edition of the newsletter Aether took up a good portion of the edition's content.
- Medications new to medical professionals for prescription were covered on both the *Grand Rounds* and this edition. When you review the article you will find some that are in popular use today...

Ten years ago in MARCO—April 2014



MARCO's "AETHER" Presented "Ether"
Medicine & Radio in One Medium
Official Publication of the Medical Amateur Radio Council

86th Edition
2000-2014

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MARIJUANA

CANNABIS, ALSO KNOWN AS "MARIJUANA," IT CONTAINS THC THE PSYCHOACTIVE CONSTITUENT THAT PRODUCES EUPHORIA, RELAXATION & INCREASED APPETITE.

History. Evidence of the inhalation of cannabis smoke can be found in the 3rd millennium BC as indicated by charred cannabis seeds found in a ritual brazier at an ancient burial site in present day Romania.

Cannabis was criminalized in various countries beginning in the early 20th century. In the US the first restrictions for sale came in 1906 in the District of Columbia. It was outlawed in South Africa in 1911, in Jamaica in 1913 and in the UK and New Zealand in the 1920s. Canada criminalized it in 1923. In the US in 1937 the Marihuana Tax Act was passed and prohibited the production of hemp in addition to cannabis.

There are about 750,000 marijuana arrests every year—nearly half of all drug arrests. The costs to society of trying to police marijuana use, and to individuals who get jailed for it, are both wildly out of proportion. These arrests can affect one's lives forever.

Over time, legalization may prove to be a mistake—or it may not. Either way, is it an experiment worth conducting?

In December 2012, the state of Washington became the first state to officially legalize cannabis in a state law with the state of Colorado following. The California Supreme Court decided in May 2013, that local governments can ban medical marijuana dispensaries despite a state law in California that permits the use of cannabis for medical purposes. At least 180 cities across the state have enacted bans in recent years. Now Alaska, Oregon and California will consider fully legalizing pot this year. In December 2013, Uruguay became the first country to legalize growing, sale and use of cannabis. According to a Gallup poll, 58% of Americans favor legalizing marijuana.

Unwanted side effects include a decrease in short-term memory, dry mouth, impaired motor skills, reddening of the eyes and feelings of paranoia or anxiety. In 2004, the UN estimated that global consumption of cannabis indicated that about 4% of the adult world population used can-



THE "MONEY TREE"

LATE BREAKING NEWS

The Ham population was increased by the addition of 29,000 new Hams last year, the highest number since 2009. The majority of these were Tech class. However, the number of license upgrades has been down the last few years. ARRL membership exceeded 162,200 members, about 2,000 more than last year.

[Click for the full edition](#)

- The feature article is a three page comprehensive evaluation of marijuana and its derivatives. Legalization was discussed, referring to it as the "money tree".
- Page one includes an article about an Internet scam. At that time losing one's possessions in Ukraine and needing money was the context. Doubt that issue in this location now would be effective.
- Discussion of a possible mini-ice age is on page five. I wonder if this would still be considered today?
- Page eight provides evidence of how popular the *Grand Rounds on the Air* became under the leadership of Warren Brown KD4GUA. In 1998 there were only an average of 14.5 check-ins per week. That number had increased to 40 by 2014. Since Warren's passing last year the average has been 19.
- Page eleven has an article well worth reading about a ship that was caught in a hurricane. Unfortunately the story is part 1, to be continued in the next edition. Warren knew how to keep his readership's attention! We will get that edition into our online archives in the near future...

December 07, 2024 Q1 Board Meeting



[Click for a Zoom recording of the meeting](#)

Greetings, Bring to Order: March 11, 2024, 8:30pm EDST

Roster and Welcome

In attendance: Bernie KD5QHV, Barry WB1FFI, Diane NM2K, Don K1DCA, Dave KT8E, Jeff K6JW, Jay AA4FL, Chip N5RTF, Alanna K4AAC, Dave KN2M, Paul N6DMV, Jerry N4TSC, Mary AE4BX, Howard N9OML, Etsu JA0BXP

Presidents Report

Bernie KD5QHV discussed Hamvention and the Grand Rounds, stressing the need for presenters from the membership.

President-Elects Report

Barry WB1FFI echoed Bernie on the need for participation, and thanked those from the board for being present tonight. He is looking forward to our Dayton area meeting. In May.

Secretary Report

Jay AA4FL discussed the status of bank signature cards being processed, with Barry WB1FFI, Jay AA4FL, and Diane being the signatories. The status of obtaining a quote for BOD liability insurance was discussed.

Membership data, was discussed with 187 active, 18 complimentary, (64)-currently due, (28)-Jan. 2025, (18)-Jan. 2026, (25)-Jan. 2027, (10)-Jan. 2028, (12)-Jan. 2029, (6)-Jan. 2030, (5)-Jan. 2031, (1)-Jan. 2034 (numbers were generated a few weeks before the meeting, many more payments have been received since).

Jay reminded the group members over 90 years of age and MARCO ARRL student members do not pay dues. He recently did billing and is sending a letter to all members explaining our current projects including converting to Wild Apricot management web based software. Letters are being customized for each year of renewal, customized as such.

Jay asked Don K1DCA to make comments about if there is much of a presence of a risk to create a need for risk to directors and officers. Don felt the risk was very low since we are a non-profit that does not have any employees, and we include disclaimers. Listen to the recording for his full explanation (he is an attorney and a physician).

Upcoming Grand Rounds programs were discussed, including one Jerry N4TSC is arranging.. Appreciation was expressed to Dave KN2M, Bob K4RLC and Alanna K4AAC for recent presentations.

Treasurer's Report (Diane NM2K and reviewed the balance in Administrative Account, and the Activities/Medishare Account, with details provided. (See page 16 page in this edition for the balances within our dedicated project funds). She described the processing, depositing of dues and donations.

Net and Web Coordinator Report (Chip N5RTF). Late arrival, Jay described the archives of recorded nets.

Old Business

Dave KT8E (Webmaster)—Report and Presentation on Wild Apricot Website and Organization Management Conversion (for full detail view the Zoom recording). Dave displayed a mock up of a new website that has a members only section. We decided to proceed from the trial period and pay for the full version, for up to 250 members. The goal for full implementation is three months.

HamVention Report—Hotel, activities and booth. Keith will have a traditional board display. Jay has some older Aether editions to give out. For the TV display he will produce a video about MARCO that will play continuously. Will have member meet and greet sessions at the booth, which is 4008, the same building as the prize booth. Our business meeting will be an online Zoom session on Wednesday evening.

New Business

Etsu JA0BXP invited us to create a meeting in Japan. He reported that autumn is the best season for visiting his area.

Chip N5RTF and Jay AA4FL discussed web based storage for our archives and how to make them accessible to members on our new Website. Dave KT8E offered input suggesting Backblaze for backup of our important files. Jay discussed morphing the net and a Zoom session recording and uploading the result to YouTube.

Mailout to all members—March 2024, what will be enclosed...

Jeff Wolf K6JW is retiring from the BOD (delegate-at-large). We will ask for nominations for this position one month at in advance of our annual business meeting.

Once we get further along with the development of our Website a goal is to create an article about MARCO for QST. A committee will be formed for that purpose. Jay AA4FL, Barry WB1FFI and Alanna K4AAC volunteered.

Need for a second net, one evening, a social one, during the week. Is Digital the best way forward? Thursday evening 9pm Eastern will be explored if we can reserve a place on the QuadNet array. Chip volunteered to be net control. There is a possibility that can 40m HF be incorporated, and perhaps a meet and greet time can be established.

Medishare—There is a need for future projects. Barry WB1FFI asked for a method be identified for members to donate of medical equipment. An active committee is needed. Bernie KD5QHV consider we consider World Kitchen as a recipient of funds.

Legacy for Warren Brown—Ways to honor him and continue his work in MARCO (Aether and Grand Rounds Archives). A \$500 a year ARRL scholarship was approved and funded for 4 years. The scholarship will embrace his three loves, amateur radio, journalism, and flight.. Dedicated pages on our Website with videos, photos, links to his 24 years of editions of the Aether, and Webstreams of his years of *Grand Round on the Air* sessions. Chip suggested having an on-the-air event such as QSO party for his 100th birthday in (July 17) will be highly desirable.

Grand Rounds Topics March—June 2024 There was a request for volunteers to be net control/ and/or presenters. Planned topics to be placed in the Aether for Distribution the end of March. There will be a printed request for research and material for the selected topics. Dave KT8E offered input on making these archives both searchable and available to web searches (Search engine Optimization).

Adjourned at 10:40pm Eastern

As documented and submitted by Jay Garlitz, AA4FL,

MARCO Nets, 2024 updates

Weekly MARCO Medical Grand Rounds on the Air HF Net

The Medical Amateur Radio Council (MARCO) conducts its weekly *Grand Rounds on the Air* net on 14.342 MHz. (1500 UTC summer, 1600 UTC winter). Health Care professionals check-in to the net and engage through moderated (net directed) roundtable discussions on topics of interest, and have occasional continuing medical education (CME cat 2) presentations. Those present include physicians and dentists from many specialties, pharmacists, nurses, researchers (PhDs), EMTs, and members who serve in other health related careers. **All members of the amateur community and public are welcome to listen and submit questions** to the discussion panel using the AIM messaging feature in the freely available netlogger program (netlogger.org), aided by using the [livesteam of the net](#). This facilitates country and worldwide engagement of participants and listeners while negating the limitations of HF propagation.

MARCO Grand Rounds on the Air



Live audio stream and archives
WWW.MARCOAUDIO.NET

Founded in 1966, MARCO's mission is to promote goodwill and fellowship among amateur radio operators who are professionals in the healing arts or have an interest in medicine, dentistry, allied fields or in medical education and industry. On-the-air operation is an integral component of MARCO activities and is conducted for the purpose of discussion through exchanging medical and technical information of a non-commercial nature while conducting such dialogue as a public service of interest to the entire amateur radio community.

Livestreams and Net Recordings

Our Radio-Internet Coordinator Chip Keister, M.D., N5RTF, New Orleans, LA...[livestreams our net online](#). Check into our nets and earn CME. For times when propagation is poor when you would benefit from audio from another receiver, if you are away from your radio, in a skip zone, or unplugged due to thunderstorms, join the MARCO CW net and Grand Rounds by live [internet streaming audio](#). These are recorded to [listen in later to the online archive](#).

To Listen:

1. Use a browser to go to the following web page which has a player app and **links to the audio stream and archive:** www.marcoaudio.net.
2. The second way is to manually enter <http://marcoaudio.ddns.net:8011/stream> into a standard music player on computer, phone, or portable device **while the net is in progress**.

Feel free to share these links with anyone, MARCO member or not. No login or password is required. There is room for 100 listeners at a time. Comments are appreciated.

Chip N5RTF

MARCO International DV NET

The **MARCO International DV (Digital Voice) net** meets on Sundays at 1400UTC. It is the first of three Sunday morning nets and serves as the first place of roundtable discussion for the *Grand Rounds* topic of the day, while affording amateur radio operators without HF radio equipment, antennas, or those with technician licenses, and members in Asia (time of day), to participate while developing the topic for the HF net later in the day.

We have chosen to use the [QuadNet Array](#), an IRC or Internet Chat Facility that acts like a **universal translator between different digital modes** that allows hams who identify by callsign to connect with other users of digital radios world-wide through interconnected reflectors and talk-groups. See their website for more details, including how to connect, within the <https://www.openquad.net/> webpage.

This net applies the same format of, and augments MARCO's HF-based voice nets, providing a mechanism for members and guests worldwide to join discussions without the limitations of HF propagation, antennas, or equipment. Since operators can participate on radio while mobile through digital hotspots or repeaters, or at a fixed location by USB dongles on a computer, the net is a versatile opportunity for involvement for both newly and seasoned amateur radio operators.

Contact [Jay AA4FL](#) for additional details needed for implementing equipment needed for participating and protecting your neural connections, great involvement for your soul and health!

MARCO CW NET

The Bob Morgan Memorial Net

Our CW net is held every Sunday one half hour before the *Grand Rounds on the Air* net, at 09:30 central time, currently 1530 UTC, on 14.140 MHz. Net control is Chip N5RTF. The net is named after the late MARCO member Dr. Bob Morgan, VE3OQM.

At times in the in the past the net was on the same frequency as the *Grand Rounds on the Air* in an effort to hold the frequency for the voice net to be in the clear at the top of the hour. The net today means so much more to MARCO...

You are invited to participate. With radio license issuance in the US dropping the morse code requirement there are many members who have not had experience with CW. Our net is a great way to gain CW proficiency.

There are many advantages to learning morse code, a yes-brainer. There is increasing evidence that not only GM plasticity but also changes in white matter are important in the context of learning processes, see <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5526915/>.

Use CW through the MARCO net to keep those neural connections intact and resist the aging process! Links to other sources follow. Add to the discussion by posting to the MARCO google group: marco-ltd@googlegroups.com

[ARRL resources for Morse Code](#)

[Morse Code Instruction Learning, YouTube Options](#)

[Code Buddy Volunteers](#)

Membership Committee News

Our Webmaster Dave KT8E has been hard at work preparing MARCO for a enhancement to the online organization management system, [Wild Apricot](#). His volunteerism and vision will reap benefits for members, including a soon-to-be instituted Website where we will have a members only section as well as information for general public.

This online MARCO venue will provide you with many membership tools not currently available. You will receive an e-mail with instructions over the next three months of how to register for the new system. Once registered, members will be available to input additional information about themselves, and choose many of the fields that are available to members for a member-only-membership directory. Blogs will be available, as well as many additional communication options. In the future indexed archives of the Warren Brown editions of the *Aether* (2000-2024), and *Grand Rounds on the Air* (as recorded by Chip N5RTF) will be posted there.

A mailing was made to all members in March that was informational in purpose, and served as verification of your mailing address. If you did not receive the mailing please let us know ASAP (aa4fl@marco-ltd.org).

In Service to MARCO and 73,

Jay AA4FL, and **Alanna** K4AAC

Until our new Wild Apricot site is available use [our current online join and renew form](#)

Join MARCO - Medical Amateur Radio
 Medical Professionals Meeting on the Air to Share

The MARCO organization is open to all licensed amateur radio operators who are health care professionals or affiliated with the medical industry. MARCO conducts weekly Grand Rounds on the air and streams audio online. Participants are eligible for one hour of Category 2 CME credit. Please submit the form below and the club secretary will contact you.

Name (required)

Call Sign (required)

Email Address (required)

Telephone (required)

Street Address

City

State

ZIP

Year of Birth

Profession, Career or Interest (required)

Class of License

ARRL Member

[Medical Amateur Radio Council Membership Dues](#)

Invoice me for

MARCO OFFICERS, 2023-2024

Contact info— mail and e-mail addresses are on QRZ.com.
 E-mail is preferred, phone contact info is provided for the President and Secretary only.

President: Bernie Krasowski, KD5QHV
 P: 915.449.0234

President-Elect: Barry Rabin, M.D., WB1FFI

Secretary: Jay Garlitz, D.M.D., AA4FL
 C: 352.246.6003

Treasurer: Diane Rodman, R.N., NM2K

Assistant Treasurer: Charles Lind, M.D., N8CL

Web Master: Dave Lieberman, KT8E

Radio-Internet Coordinator: T. "Chip" Keister, M.D., N5RTF

MediShare Director: Arnold Kalan, M.D., WB6OJB

Newsletter: Jay Garlitz, D.M.D., AA4FL

REGIONAL DIRECTORS:

(1st call district) Don Arthur M.D., J.D., K1DCA

(2nd call district) David Rodman M.D., KN2M

(3rd call district) Keith Adams, M.D., N3IM

(4th call district) Mary Favaro, M.D., AE4BX

(5th call district) Linda Krasowski, R.N., KE5BQK

(6th call district) Paul Lukas N6DMV

(7th call district) Lee Barrett, M.S.E.E., K7NM

(8th call district) Mark Young, M.D., N2OJD

(9th call district) Stu Oserman, M.D., WA9ZPL

(0 call district) Carlyle Rowland R.N., N0ARN

(Dx director) Etsuo Takada, M.D., JA0BXP

DIRECTORS-AT-LARGE:

Bruce Small, M.D., KM2L, Immediate Past-President

Arnold Kalan, M.D., WB6OJB,

Chip Keister, M.D., N5RTF

Jerry Ziperstein, M.D., N4TSC

Open

AD-HOC COMMITTEES:

Membership—Jay Garlitz AA4FL, Alanna Conder K4AAC, Michaline Przekop KC9ARP

Grand Rounds Net—Chip Keister N5RTF, Jack Spitznagel KD4IZ, Jerry Ziperstein N4TSC, Linda Krasowski KE5BQK, Bob Conder K4RLC

Historian: Michaline Przekop, KC9ARP

WRITE TO US!

We welcome your comments.
Email aether@marco-ltd.org

Disclaimer: Letters and articles may be edited for brevity & clarity. **All content, including linked unedited member article submissions, and linked online material, are not the opinion of MARCO. The Aether's content is not Medical Advice.** Graphics and links selected are the choice of the editor and not of MARCO-ltd.

MARCO NET SCHEDULE

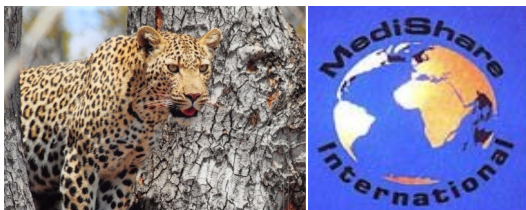
<u>DAY</u>	<u>TIME</u>	<u>FREQ.</u>	<u>NET CONTROLS</u>
Any Day	On the Hour	14.342	Hailing Frequency
Sunday	9 AM Eastern	DV QuadNet	Jay AA4FL
Sunday	10:30 AM. Eastern	14.140	CW Net, Chip, N5RTF
Sunday	11 AM Eastern	14.342	Varies

MARCO'S CW NET, the "Bob Morgan Memorial Net"
(precedes the Grand Rounds on Air net, meeting on Sundays, 14:30 UTC, 14.140 MHz)

Page 18

MARCO Grand Rounds is held Sunday at 11 a.m. Eastern Time; 10 a.m. Central; 9 a.m. Mountain, and 8 a.m. Pacific Coast time on 14.342. You qualify for one hour Category II CME credit with your check-in.

MediShare International News



Arnold Kalan, WB6OJB, Director



The charitable arm of MARCO is on the prowl looking for new projects developing new projects and appreciative of your donations. Recognize other members for their accomplishments and life events with a donation that will be recognized in the *Aether*. Donations are fully tax deductible and you will receive a note of thanks with wonderful MARCO

seals that look very nice on QSL cards. MARCO is a 501 (3)(c) organization, and MediShare International is a project of MARCO.

We are appreciative of donations to MEDISHARE but also encourage members and their families to submit ideas for new projects. Member donations are more meaningful if we help humanity through health and welfare projects with a connection to amateur radio and communication. [Click to donate online](#) or mail written checks made out to MARCO, noting MediShare in the check's "for" area.



Send your donation to MARCO c/o Secretary Jay Garlitz, PO Box 1333, Hawthorne, FL 32640

Thank you , Stay Well & God Bless,

73, Arnold

Arnold (Doc) Kalan, M.D., WB6OJB, MARCO #673

MARCO Charitable Projects.

Our project Medishare is the centerpiece of our charitable effort. Support for additional efforts have been funded by our members. These tax deductible donations are segmented into a separate checking account, for this purpose only.

To make donations use the link on the left or send a check made out to MARCO specifying which designated fund you would like to contribute to (in the comment field, and mail to the QRZ mailing address for AA4FL)

Our designated funds for donation are the MediShare fund, Scholarship fund, Ukraine Fund, Richard Lochner memorial fund, and the Warren Brown KD4GUA scholarship fund.

New volunteers for MARCO's project MediShare are needed. If you have an interest in serving and bringing the ability to network with other organizations please contact us and let us know of your interest. Write secretary@marco-ltd.org

The Warren Brown Fund has reached \$2000 with recent donations from Jay Garlitz, Linda and Bernie Krasowski, Al Breland, Dave Lieberman, and Arnold Kalan. Please contribute this fund using the mailing address or donate link at the left. Please specify that the donation to MARCO MediShare is for the Warren Brown fund.



'Mean Old Rhino' , from the Sabi Sands game Reserve in S. Africa, is one of the many photos Arnold uses as thank you note covers in acknowledging donations

MARCO Membership News

January - March 2024

New Members

KE0OC—Thomas Evans, Ft. Lupton, CO

Renewals

AA4FL—Jay Garlitz, Hawthorne, FL (5 years)
 AA5KV—John Stewart, Shreveport, LA
 AE4TM—Edwin Jones, Knoxville, TN
 AL3D—William Stenberg, Astoria, OR
 K1DCA—Donald Arthur, Brewster, MA



The Secretary's Keyboard Korner

secretary@marco-ltd.org



Thank you to all members who have renewed their membership after receiving an online invoice, or a direct mailing. If you are not sure of when your membership term ends, that information will be included when you register over the next three months for our new Wild Apricot software driven management system. See page 17 for more details. Kudos to Dave KT8E for the gargantuan volunteer effort toward making this happen.

Please consider extending your membership for five years. You can submit online using the linked form on page 17. Further explanation for doing so is on page 20.

Many of us are hard at work providing volunteer hours that have previously been graciously provided by Warren Brown KD4GUA. We cannot fill his shoes but we can walk in them, striving for the *par excellence* that he exuded. We do have a Warren Brown scholarship fund in our activities account. This has resulted in the funding of a \$500 ARRL scholarship in Warren's name for the next four years (see the BOD minutes of page 15). Your donations will allow further funding in the future. Mail your MARCO donations to my QRZ mailing address with this fund being noted in the comment field.

I look forward to seeing many of you at Hamvention. Our booth number is 4008, adjacent to an entryway into the building that houses the prize booth. We will debut a new video production there about MARCO made by instituting the same techniques that allowed our *Grand Rounds* YouTube video showcased on page 13 to be produced. This new production is currently under development and will also be posted to YouTube once completed.

In Service to MARCO, 73

Jay AA4FL

MARCO Secretary

Renewals (continued)

K1WDR—Wayne Rosenfield, Parrish, FL (5 years)
 K4FTP—Forest Pavel, Kansas City, MO
 K4QY—Andrew Magnet, Ponte Vedra Beach, FL (5 years)
 K4WFP—Wayne Poole, Ocklawaha, FL (5 years)
 K5EWS, James Lindley, Fredericksburg, TX
 K6JW—Jeff Wolf, Palos Verdes Peninsula, CA
 K7NM—Lee Barrett, West Point, UT
 K0IR—Ralph Fedor, Waite Park, MN
 K8AFP—Gerald Hensley, Richburg, SC
 K8KRB—Ken Bertka, Coopersburg, PA
 K9AJ—Michael McGirr, Crete, IL
 KC2PRZ—Bryan Quackenbush, Beacon, NY (5 years)
 KC3SOK—James York, Millersville, MD
 KD4IZ—Jack Spitznagel Jr., Parkton, MD
 KD5QHV—Bernie Krasowski, El Paso, Tx (2 years)
 KD6ECP—Robert Smith, Clermont, FL
 KE5BQK—Linda Krasowski, El Paso, TX (2 years)
 KE3XB—Jon Benitez, Guilford, VT (5 years)
 KE0WW—Mike Stapp, Minneapolis, MN
 KG4CSQ—Ralph Brigham, Huntsville, AL (2 years)
 KN4ZHP—Michael Thorn, Chapel Hill, NC
 KO6MD—Malin Dollinger, Rancho Palos Verdes, CA
 KP4MD—Carol Milazzo, Citrus Heights, CA (2 years)
 KN2M—David Rodman, Buffalo, NY
 KT9KS—Marianne Geiger, Newport, OR
 N2DNK—Ed Bangsil, Silver Creek, NY
 N3FJ—Rob Olszewski, Newtown Sq, PA
 N3IRY—Roy Kring, Bedford, MA
 N3MBC—Harlan Abbott, Reedville, PA
 N4TSC—Jerry Ziperstein, Boca Raton, FL
 N5EQ—Jeff Rossio, Frederick, MD
 N6DMV—Paul Lukas, Torrance, CA
 N6HC—Arnie Shatz, Santa Ana, CA
 NM2K—Diane Rodman, Buffalo, NY
 NU4DO—Norman Urich, Largo, FL
 ON4PG—Pieter Gerkens, Sint-Lievens-Houtem, Belgium
 VA7DST—Dalvinder Singh Toor, Vancouver, BC, Canada
 VE3RXJ—Richard Jones, Kitchener, ON, Canada (5 years)
 W2NNU—Jim Wilmerding, Brookhaven, MS
 W2REF—Robert Ford, Teaneck, NJ
 W2RFU—Tomas Lifland, Boca Raton, FL
 W3UEC—Stephen Dubin, Springfield, PA
 W4UM—Michael Raskin, Stuart, FL
 W6NJY—Art Kahn, Beverly Hills, CA
 W8EYE—Darrell Laughlin, New Hill, NC
 W8FIN—Todd Finnerty, Worthington, OH
 W8PJQ—Christopher Davis, Perrysburg, OH (5 years)
 W9WRM—William McNew, Danville, IL (2 years)
 WA9GET—Keith Brandt, Alvin, TX
 WB5BHB—John McCann, Sr, Vancleave, MS
 WB0DDX—Mark Wendt, Chanute, KS
 WW9F—Jeffrey Kraft, Glencoe, IL

Payment Options Until Wild Apricot Management Arrives in Q2 or Q3 (noted on pg. 19)

Membership dues, for new joins and renewals, are currently processed by email. At the time of annual billing invoices are invoiced to each member.


MARCO encourages members to consider a five year membership of \$100. This reduces your yearly cost of membership and simplifies our annual billing by our all volunteer staff. Existing members can choose to extend your membership at any time. Please use the online form at <https://marco-ltd.org/join-marco-amateur-radio/> and select the five year term from the pull down list. Completing the entire form just as you were a new member assists us with keeping your information current in our membership database.

Once submitting the online form **if you have a problem with the form appearing not to submit** (spinning icon), email the issue to Jay AA4FL at secretary@marco-ltd.org to confirm it went through.

For new members, and current members desiring to extend their membership term, the membership committee will receive your online application and process an invoice to be sent by email.

Online payment processing is available once invoiced by email. One opens the invoice and buttons at the top left are present to credit card payments (Stripe), and for PayPal.

Thank you for your Membership!



The Medical Amateur Radio Council Ltd.

Online editions of the *Aether* can be printed by the reader for use at home but linked information available through clicks within the online document will not be available. Note in using the online edition you have control of the size of the text and images, being able to zoom in for more comfortable and informative reading.

This is the 145th edition of The Aether (2000-2024).

MEDICAL AMATEUR RADIO COUNCIL, LTD.
[New Membership Application](#) & [Renewals](#)

Apply or renew online using the [online join form](#), which if you are already a member will be processed as a renewal. Once you fill out and submit the online form it will be reviewed by the membership committee. Upon approval you will be invoiced by email with a link to pay online by credit card or PayPal.

<https://marco-ltd.org/join-marco-amateur-radio/>

If you need to pay by check use this application form. Send the written form to the mailing address below.

Check your preference:

- One year membership \$25 (USD)
- Two year membership \$45 (USD)
(the default billing for renewal)
- 5 year membership \$100 (USD)

Name: _____

Address: _____

Health Related Career (if appropriate)

Call Sign: _____ Type License: _____

Phone: _____

email: _____

Birthday _____ (year, full DOB optional) Member ARRL: Y / N

Written applications for membership should be sent to

Membership Committee
 c/o Secretary Jay Garlitz, AA4FL
 PO Box 1333
 Hawthorne, FL 32640, USA