HAMATEUR CHATTER

The Milwaukee Radio Amateurs Club

August 2013 Volume 21, Issue 8

One of the World's Oldest Continuously Active Radio Amateur Clubs—since 1917

Presidents' Letter

As I sat down to write this article, I found out that Jerry Thompson W9SFH has passed away. Jerry was a mentor and Elmer to me in my early days of being a ham. I was in High School when I met Jerry and others from MRAC. Every week we would talk on the local 10x10nets about all sorts of things. Since Jerry had worked at WTMJ for 36 years, he would tell me stories about the profession. The knowledge that he passed on to me in his stories has helped me to this day. He was also someone who was willing to help you find an answer to your radio problems. He was always a pleasant person to be around. Jerry will be missed.

We had our picnic on Saturday August 10. We again had a great time with some great food. We even had some entertainment when a group of us tried to put up a G5RV antenna between some trees. Not sure if anyone has video of it. We had 41 people in attendance this year. I also want to thank Dan N9ASA, Barry W9BLS and Pat N9LKH for helping this year. I think it is time that we have a picnic committee. If you are interested in helping plan next years picnic let me know. I still plan on being involved in the planning. I am just really looking for help.

I am sad to report that Jerry Thompson W9SFH passed away Monday night, August 13th. He will be missed!

Just a reminder there isn't a meeting this month. Our next meeting will be September 26th at 7pm.

FCC Sets Higher Vanity Call Sign Fee Than First Proposed

A new FCC regulatory fee of $16.10 to apply for an Amateur Radio vanity call sign will become effective sometime in mid-September, when the new fee schedule appears in the *Federal Register*. (ARRL will report the exact date as soon as it becomes available.)

Earlier this year, the FCC had proposed upping the vanity call sign fee from its current $15 to $15.20. The vanity call sign fee has fluctuated over the 17 years of the current program -- from high of $50 when the program debuted in 1996 to a low of $11.70 in 2007.

In a *Report and Order* in MD Docket 13 -140, released August 12, the FCC ordered a broad schedule of new fees for all services and waived the usual 30 -day waiting period following *Federal Register* publication,

because there would not be time for new fees to become effective before the start of the new federal fiscal year on October 1, 2013. The FCC says it expects $230,230 in revenue to cover the costs of administering the vanity call sign program. It anticipates 14,300 vanity call sign applications.

Applicants must pay the regulatory fee not only when applying for a new vanity call sign, but also when renewing a vanity call sign (those holding "heritage" vanity call signs issued prior to 1993 are exempt).

The ARRL VEC will process license renewals for vanity call sign holders for a modest fee. The service is available to ARRL members and nonmembers, although League members pay less.

MRAC Officers:

Terms Expiring in 2014

- President – Dave, KA9WXN
- V-President– Dan, N9ASA
- Secretary – Mike, KC9CMT
- Treasurer – Joe, N9UX
- Director – Vacant

Terms Expiring in 2015

- Director – Al, KC9IJJ
- Director – Hal , KB9OZN

The Club Phone Number is: (414) 332-MRAC or

(414) 332- 6 7 2 2

Visit our website at:

www.w9rh.org

Mail correspondence to:

M. R. A. C.

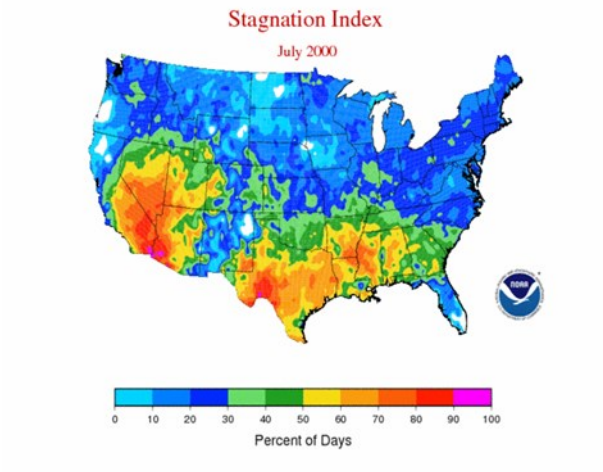
PO Box 26233
Milwaukee, WI
53226-0233

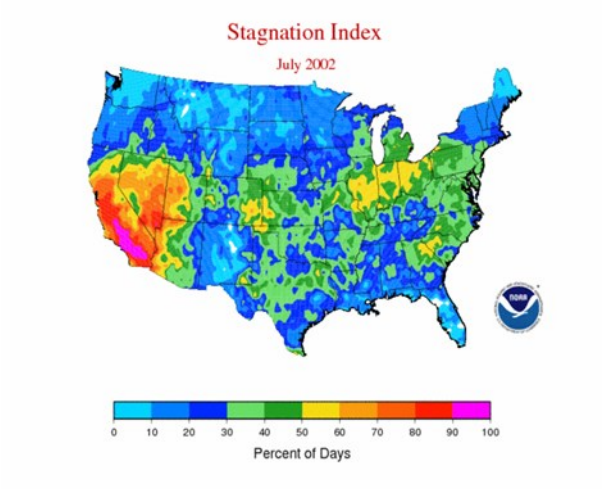
Air Stagnation

Atmospheric pollution manifests itself in many ways, ranging from reduced visibility to dangerous respiratory problems and discomfort. Atmospheric pollution can be gaseous (e.g. ozone, sulfur dioxide, nitrogen oxides) and/or particulate (e.g. soot, dust). The degree of pollution is dependent on a number of factors: source, transport from source, and temporal build up through stagnation. The stagnation index is intended as an indication of the latter only.
In this context, stagnation is considered to consist of light winds so that horizontal dispersion is at a minimum, a stable lower atmosphere that effectively prevents vertical escape, and no precipitation to wash any pollution away. These conditions are most frequently met when there is a persistent or slow moving high pressure system.

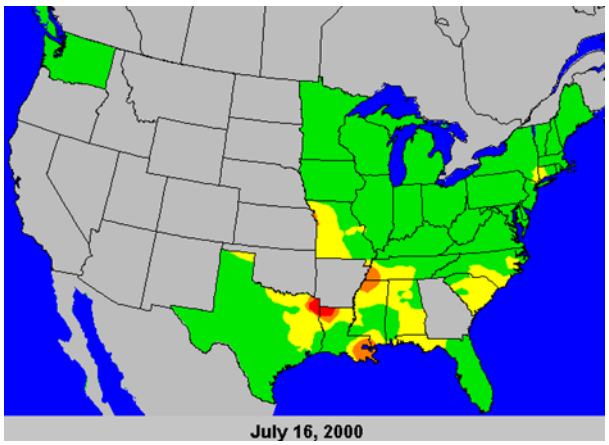
One of the most prevalent air pollutants present in the lower levels of the atmosphere during the late spring and summer seasons is ground level ozone. This ozone is produced when pollutants from cars and factories are "cooked" by a hot summer sun. Consequently, concentrations of ground level ozone are typically highest during periods of high temperature and become a health problem particularly when air is stagnant.

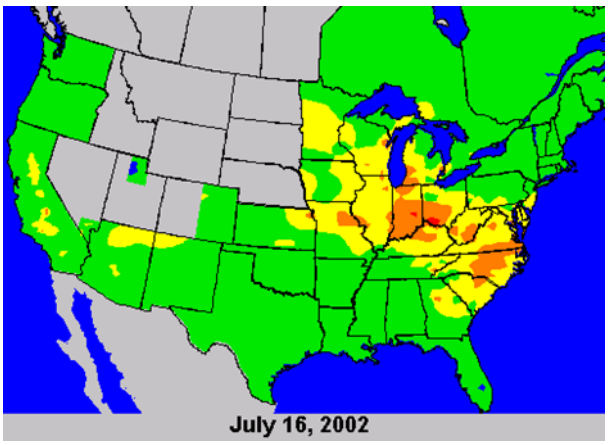
During the summer of 2002, conditions from Missouri east to New Jersey and down through South Carolina were conducive to air stagnation. Compared to the summer of 2000, the percentage of days with air stagnation conditions nearly doubled. The maps below show conditions in July 2000 and July 2002.





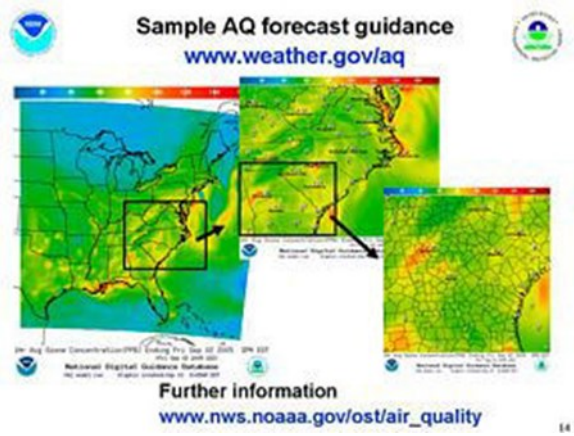
Shown below are maps of ground ozone concentrations provided by the Environmental Protection Agency for one day in July. The yellow areas indicate a moderate 8-hour average peak concentration whereas the orange and red areas indicate locations where the concentration of ozone was deemed unhealthy.





The Air Stagnation Index maps provided here are based on the work of Wang and Angell (1999), but with some slight modifications. To make assessment of stagnation totally objective, they defined a stagnation day as one with sea level geostrophic wind less than 8m/sec, 500mb wind less than 13m/sec, and no precipitation. If there is a temperature inversion below 850mb the 8m/sec is relaxed by 10% (to 8.8m/sec). We calculated a stagnation day using the same method but performed the calculations over a finer grid (0.25 x 0.25 degree instead of 2.5 x 2.5 degree). The Wang and Angell stagnation index is the number of 4-day stagnation periods. The stagnation index depicted on this page is the percentage of days in the month that meet the requirements for stagnation conditions.

The National Oceanic and Atmospheric Administration (NOAA), in partnership with the Environmental Protection Agency (EPA), issues daily air quality forecast guidance as part of a national Air Quality Forecasting Capability. Air quality has improved significantly since the passage of the Clean Air Act in 1970. However, there are still many areas of the country where the public is exposed to unhealthy levels of air pollutants and sensitive ecosystems are damaged by air pollution. Poor air quality is responsible in the U.S. for an estimated 50,000 premature deaths each year; costs from air pollution-related illness are estimated at $150 billion per year. The goal of the air quality program is to provide the U.S. with ozone, particulate matter and other pollutant forecasts with enough accuracy and advance notice to allow people to limit harmful effects of poor air quality, saving lives and reducing the number of air quality-related asthma attacks, eye, nose, and throat irritation, heart attacks and other respiratory and cardiovascular problems.



NOAA's Role

NOAA's National Weather Service (NWS) currently provides forecast guidance for ozone and smoke based on numerical atmospheric predictions updated twice daily. These predictions are produced by linked models for weather prediction, developed by NOAA's NWS, and for air quality, developed by NOAA's Office of Oceanic and Atmospheric Research (OAR), run operationally on supercomputers at NOAA's National Centers for Environmental Prediction (NCEP). Predictions are at 12 kilometer grid resolution, and provide information for people in cities, suburbs and rural areas alike, at hourly intervals through midnight the next day.

The air quality forecast guidance is provided in digital and graphical formats on NWS data servers. Graphical forecast guidance for ground-level Ozone (O3) are displayed as 1-hour and 8-hour average concentrations for the eastern U.S. (the Mississippi Valley eastward). Experimental ozone forecast guidance for the contiguous 48 states is also provided. The Smoke Forecast Guidance shows predicted smoke transport from large fires that are revealed in NOAA/NESDIS satellite imagery, and based again on linked NWS and OAR models run on NCEP supercomputers. The smoke forecast guidance is displayed graphically for all 50 states. Two graphics are generated, showing hourly predictions of 1-hour average concentrations of fine particulate matter, diameter 2.5 microns or less (PM 2.5), in smoke in (1) the surface layer, and in (2) the atmospheric column, as column-averaged smoke. In time, the Air Quality Forecast Guidance will expand Nationwide and will include quantitative predictions of total PM 2.5, which comes from many sources, especially air pollution and dust, in addition to smoke.

EPA's Role

The EPA works with state and local air quality agencies, as well as the private sector, to gather air quality data and interpret its health impacts with a national network for air quality monitoring and a national inventory of emissions data. This data is provided to NOAA for its forecasting capability described above. State and local air quality agencies use this guidance to issue air quality forecasts and Air Quality Index predictions for some 300 participating communities across the U.S. Typically, these take the form of an alert level issued for the next day, based on expected worst-case air quality. The EPA compiles and nationally distributes this state and local information. The private sector uses and disseminates this information to the public as well.

Why Forecast Ozone and Particulate Matter?

Ground-level ozone (O3) is a product of nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence of heat and sunlight.

Severe Weather Preparedness

Motor vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents are among the major sources of NOx and VOCs responsible for harmful buildup of ground-level ozone. Even at low concentrations, ozone can trigger a variety of health problems such as lung irritation and inflammation, asthma attacks, wheezing, coughing, and increased susceptibility to respiratory illnesses. Particulate matter (PM), or airborne particles, include dust, dirt, soot, and smoke. Some particles are directly emitted into the air by, for example, cars, trucks, buses factories, construction sites, and wood burning. Other particles are formed in the air when gases from burning fuels react with sunlight and water vapor. Such gases, from incomplete combustion in motor vehicles, at power plants and in other industrial processes, contribute indirectly to particulate pollution. PM can cause chronic bronchitis, asthma attacks, decreased lung function, coughing, painful breathing, cardiac problems and heart attacks, as well as a variety of serious environmental impacts such as acidification of lakes and streams and nutrient depletion in soils and water bodies.

The Experimenters Bench

A DIY SuperCooler

The aim of this project was to create a simple device capable of keeping components as cool as possible using common parts and materials. The device shown here is capable of maintaining a temperature of approximately -50° C.
The image on the left shows the exposed surface of a Peltier heat pump which normally sits under a well insulated container with a metal base.

A selection of Peltier heat pumps are stacked on a large heatsink (with fan) and surrounded by insulating material, except for the cold face. Using the thermoelectric effect of the Peltier elements, heat can be rapidly drawn away from this surface, but only as long as the heatsink is able to dissipate into she surrounding air. A large heatsink and fan can be found in computer shops as they are necessary for keeping your computers processor cool.

Simply sticking a component to the surface of the heat pump will provide quite effective cooling, but only if there is a large amount of contacting surface area. For more rounded or uneven shaped components, such as laser diodes, it is possible to use a very cold liquid to surround the device. This liquid must be able to withstand very low temperatures without freezing, and be highly volatile (evaporates easily). Something like liquid Nitrogen or Helium would be great, but that's not something you can just pick up from your local hardware store. This projects uses 'Freezer Spray' which can usually be found in shops selling plumbing accessories. This spray evaporates rapidly on contact with room temperature objects drawing the heat way from it. By slowly spraying the Freezer Spray into a small container such as its lid, it is possible to collect it as a liquid. The liquid can be put in a small metal container which sits on the surface of the cold heat pump. This metal container is also surrounded in insulating material such as polystyrene.

When the heat pumps and fan are active it should be possible to prevent the liquid from evaporating, allowing components to be submerged for cooling.

Most Peltier heat pumps / thermoelectric modules require some odd non standard DC voltage (8.4 for example). While such a device would work fine on a lower voltage you would not be getting the full cooling potential of the Peltier element. A good way to power these devices is by using pulse width modulation so that you can adjust precisely the average power flowing through the device.

What Is PWM

Pulse-width modulation (PWM) of a signal or power source involves the modulation of its duty cycle, to either convey information over a communications channel or control the amount of power sent to a load. The simplest way to generate a PWM signal is the intersective method, which requires only a sawtooth or a triangle waveform (easily generated using a simple oscillator) and a comparator. When the value of the reference signal (the green sine wave in figure 2) is more than the modulation waveform (blue), the PWM signal (magenta) is in the high state, otherwise it is in the low state. But in my pwm I will not use comparator.

Three types of pulse-width modulation (PWM) are possible:
1. The pulse center may be fixed in the center of the time window and both edges of the pulse moved to compress or expand the width.
2. The lead edge can be held at the lead edge of the window and the tail edge modulated.
3. The tail edge can be fixed and the lead edge modulated.
Three types of PWM signals (blue): leading edge modulation (top), trailing edge modulation (middle) and centered pulses (both edges are modulated, bottom). The green lines are the sawtooth signals used to generate the PWM waveforms using the intersective method.

The Experimenters Bench

Power delivery:

PWM can be used to reduce the total amount of power delivered to a load without losses normally incurred when a power source is limited by resistive means. This is because the average power delivered is proportional to the modulation duty cycle. With a sufficiently high modulation rate, passive electronic filters can be used to smooth the pulse train and recover an average analog waveform.

High frequency PWM power control systems are easily realizable with semiconductor switches. The discrete on/off states of the modulation are used to control the state of the switch (es) which correspondingly control the voltage across or current through the load. The major advantage of this system is the switches are either off and not conducting any current, or on and have (ideally) no voltage drop across them. The product of the current and the voltage at any given time defines the power dissipated by the switch, thus (ideally) no power is dissipated by the switch. Realistically, semiconductor switches such as MOSFETs or BJTs are non-ideal switches, but high efficiency controllers can still be built.

PWM is also often used to control the supply of electrical power to another device such as in speed control of electric motors, volume control of Class D audio amplifiers or brightness control of light sources and many other power electronics applications. For example, light dimmers for home use employ a specific type of PWM control. Home use light dimmers typically include electronic circuitry which suppresses current flow during defined portions of each cycle of the AC line voltage. Adjusting the brightness of light emitted by a light source is then merely a matter of setting at what voltage (or phase) in the AC cycle the dimmer begins to provide electrical current to the light source (e.g. by using an electronic switch such as a triac). In this case the PWM duty cycle is defined by the frequency of the AC line voltage (50 Hz or 60 Hz depending on the country). These rather simple types of dimmers can be effectively used with inert (or relatively slow reacting) light sources such as incandescent lamps, for example, for which the additional modulation in supplied electrical energy which is caused by the dimmer causes only negligible additional fluctuations in the emitted light. Some other types of light sources such as light-emitting diodes (LEDs), however, turn on and off extremely rapidly and would perceivably flicker if supplied with low frequency drive voltages. Perceivable flicker effects from such rapid response light sources can be reduced by increasing the PWM frequency. If the light fluctuations are sufficiently rapid, the human visual system can no longer resolve them and the eye perceives the time average intensity without flicker (see flicker fusion threshold).

Voltage regulation:

PWM is also used in efficient voltage regulators. By switching voltage to the load with the appropriate duty cycle, the output will approximate a voltage at the desired level. The switching noise is usually filtered with an inductor and a capacitor.

One method measures the output voltage. When it is lower than the desired voltage, it turns on the switch. When the output voltage is above the desired voltage, it turns off the switch.

Variable-speed fan controllers for computers usually use PWM, as it is far more efficient when compared to a potentiometer.

Audio effects and amplification:

PWM is sometimes used in sound synthesis, in particular subtractive synthesis, as it gives a sound effect similar to chorus or slightly detuned oscillators played together. (In fact, PWM is equivalent to the difference of two sawtooth waves. [1]) The ratio between the high and low level is typically modulated with a low frequency oscillator, or LFO.

A new class of audio amplifiers based on the PWM principle is becoming popular. Called "Class-D amplifiers", these amplifiers produce a PWM equivalent of the analog input signal which is fed to the loudspeaker via a suitable filter network to block the carrier and recover the original audio. These amplifiers are characterized by very good efficiency figures (e 90%) and compact size/light weight for large power outputs.

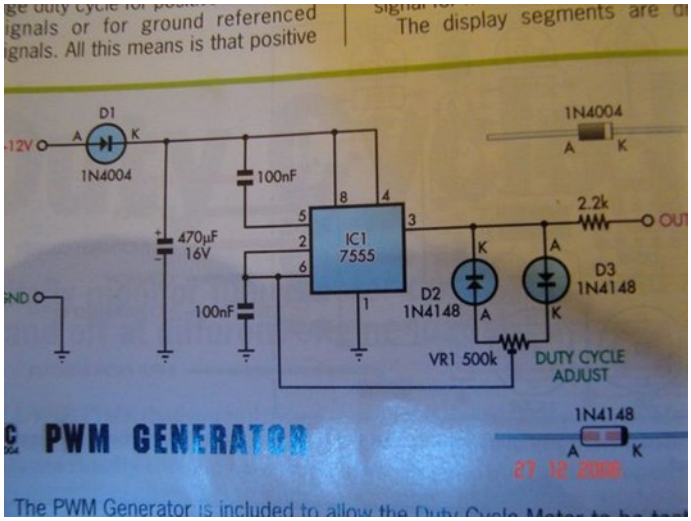
Historically, a crude form of PWM has been used to play back PCM digital sound on the PC speaker, which is only capable of outputting two sound levels. By carefully timing the duration of the pulses, and by relying on the speaker's physical filtering properties (limited frequency response, self-inductance, etc.) it was possible to obtain an approximate playback of mono PCM samples, although at a very low quality, and with greatly varying results between implementations.

In more recent times, the Direct Stream Digital sound encoding method was introduced, which uses a generalized form of pulse-width modulation called pulse density modulation, at a high enough sampling rate (typically in the order of MHz) to cover the whole acoustic frequencies range with sufficient fidelity. This method is used in the SACD format, and reproduction of the encoded audio signal is essentially similar to the method used in class-D amplifiers.

Speaker: Using pwm it is possible to modulate arc (plasma) and if it is in the hearing range, It can be used as a speaker. Such speaker are used in Hi-Fi sound system as tweeter because it's a simple one chip circuit you won't need lots of part

1.NE555,LM555 or 7555(cmos)
2.two diodes 1n4148 is recommended but you can also use 1n40xx series diodes
3.100k pot (volume control pots are good for this circuit)
4.100nf green cap
5.220pf ceramic cap
6.breadbord
7.power transistor

Early Radio: Military Communications



Just follow the diagram and put all parts on the bread-board. Recheck every thing twice before you power it up. If you want to drive efficiently and control the brightness of a light source or a motor you can only put a power transistor on it out put but if you only want drive a light source or a motor efficiently then put a higher rating cap 2200uf is recommended. If put this cap and drive a motor on 40% duty cycle then your motor will be 60% efficient at almost same speed and same torque. Go build it now

Early Radio: Military Communications

A Shau Meatgrinder

19 September 2005

Gary Linderer

If you're a six-man reconnaissance team deep in enemy territory, everything has to go right. When it doesn't, brave men die. This is a story about things going terribly wrong for a recon team of the 101st Airborne Division's famed Lima Company Rangers.

The mission began on 23rd April 1971, when a six-man Ranger recon team from L Company, 75th Infantry (Ranger) was inserted by helicopter on to a ridge top on the eastern side of the A Shau Valley in western I Corp, Republic of Vietnam. The A Shau was a bad place even on a good day. This was a bad day, and team leader Sergeant Marvin Duren and the rest of his patrol knew it. Their mission was to act as a radio relay team for a full Ranger platoon from their company which had just gone in to the valley to lay anti-tank mines along Route 547A, a dirt highway that ran across the valley's floor.

It was unusual for the Rangers to operate in a platoon configuration, but the mission called for unusual measures. Enemy tanks were a rarity even I Corp. But intel. had put them there on several occasions. Other recon teams and 2/17th Cav. aerial scout had reported NVA tanks and tracked vehicles operating along Rt. 547 over the previous two weeks.

The implications were frightening. With the U.S. involvement winding down, no one wanted to face enemy armour at this stage of the war.

The recon team's insertion attempt at their primary LZ had been aborted due to enemy ground fire, so Duren made the decision to go in on the patrol's secondary LZ – a saddle in the ridge flanked by steep slopes. He was glad his team was on the high ground acting a relay team. Those poor bastards down below could be in a world of hurt real quick if Mr. Charles got his act together – and in the A Shau, Mr. Charles always had his act together.

But radio relay wasn't just another walk in the sun, no way, Jose! Just 11 months earlier, Lima Company had lost an entire six-man radio relay team up near the abandoned Marine compound at Khe Sanh. Transmitting too long in the same location had gotten the team triangulated by the sophisticated Soviet radio directional locators employed by the NVA. A brief flurry of enemy had grenades destroyed the entire team before they could fire a shot. No, radio relay could definitely be hazardous to your health.

Once on the ground, Duren took point to lead his team off the lZ to 'Lay Dog' in some heavy cover long enough to find out if their arrival had attracted the attention of the neighborhood Welcome Wagon. It had. Fifteen meters off the LZ, Duren was cut down by a long burst from an enemy AK-47. Hit twice in the right hop, in the chest and in the stomach, the courageous team leader was out of the fight before it started.

As NVA grenades exploded around him, and other automatic weapons joined in, Duren was hit again in the spleen, appendix, left arm and back. Firing from camouflaged bunkers, the waiting NVA had the six-man team pinned down in the saddle.

At first, the rest of the team was unable to reach the badly wounded team leader, but minutes later, Sergeant James Champion laid down heavy suppressive fire with his M-203 grenade launcher, enabling Sergeants Fred Karnes, the team's RTO, and Steve McAlpine, an ex-Special Forces medic, to crawl out to where Duren lay. McAlpine quickly started a saline IV in the team leader's neck to prevent him from going in to shock.

While preparations were being made back at the company rear to rescue the team, a Huey slick, piloted by Capt. Louis Spiedel from Bravo Troop 2/17th Cav., was inbound with Ranger SSgt. William Vodden on board to take the place of the wounded Ranger team leader. As the aircraft passed over the battle torn LZ, Vodden leaped out and ran to join the rest of the Ranger team. Heavy enemy ground fire hammered the Huey, causing it to crash on to the LZ.

Making sure the assistant team leader had everything under control, Vodden looked up to see the door gunner from the downed Cav. slick staggering across the LZ toward the Rangers' position. When the crewman fell again, Vodden left his protected position and ran out to retrieve the wounded door gunner. On the way back, Vodden was hit in the leg, shattering his femur.

As the ranger NCO lay there treating his own wound, he spotted a medevac helicopter form Eagle Dustoff approaching.

Piloted by WO Fred Behrens and Captain Roger Madison, the Huey attempted to land amidst a heavy volume of enemy small arms fire to rescue the badly wounded Duren. McAlpine the assistant team leader, and Sergeant John Sly rose from cover and began to drag the Ranger TL toward the waiting medevac.

The Dustoff crew chief leaped from the ship and ran to help, enabling the two Rangers to get the now unconscious Duren aboard. Amid a hail of gunfire, the helicopter pulled away, heading back east toward the field hospital at Phu Bai.

While Duren was being extracted, the crew chief from Spiedel's downed Huey ran across the LZ and dropped to the ground at Vodden's feet. He told him the two pilots from his chopper were trapped upside down with their legs pinned in the wreckage. When he realized Vodden was hit and couldn't help him, the crew chief tried to make it to the Rangers' perimeter. Heavy enemy small arms fire turned him back, so he returned to Vodden's position and told him he was going back to the downed bird. The crew chief then disappeared over the crest of the hill.

Meanwhile, the Dustoff Chopper, piloted by Behrens, had arrived back on the scene to pick up Vodden. Flaring in fast over the LZ, the ship once again set down on the LZ amidst the smoke of battle, Sp4 Isaako Malo, the Ranger team's junior scout, Karnes, McAlpine, Sly, Champion and the Cav. door gunner climbed aboard. As the helicopter lifted, it took several hard hits – two striking WO Behrens in the foot and upper body, another killing the crew chief. The engine failed, and the helicopter auto-rotated back down on to the LZ.

The surviving crew and the passengers spilled out opposite sides of the down Huey, some heading for Vodden's position. Behrens dropped behind the closet cover he could find, while the rest sprinted for a bomb crater 50 feet away. A short while later, the survivors at Vodden's location were joined by the crew chief from the downed Cav. helicopter.

During the entire operation, Cobra gunships from the 2/17th Cav. had been making pass after pass over the NVA position, preventing the enemy form overrunning the men trapped on the LZ. But as darkness began to fall, the surviving Americans realized there would be no rescue that day. Son the gunships were forced to return to Camp Eagle, and the heavy fire from the enemy positions around them ceased.

The Cav. crew chief said he would try to reach his ship's crash site for another attempt at freeing the two trapped pilots. He took off, followed close behind by the surviving Dustoff crewman. They returned a short time later, saying it would take special tools to get either of the pilots out of the wreckage. They were concerned that the trapped and injured pilots would fall victim to the NVA after dark.

Surprisingly, the enemy stayed put during the night. Karnes, Madison and sly spent a sleepless night together, not knowing if anyone else was alive or not. In the morning, the three men crawled around the ridge top trying to locate a radio. It was during this attempt that an NVA sniper killed Sly.

When Karnes showed up a short later with a radio, Madison learned that an NVA battalion had been spotted by an aerial scout. The battalion was moving up to reinforce the NVA unit which had the Americans pinned down. Madison spent the rest of the day directing air strikes and Cobra gunship runs on the enemy positions, often bringing it right up to their own perimeter.

Later in the day, the two men were informed that a couple of aero-rifle troops from the 2/17th Cav. had inserted just north of them, while two rifle companies from the 2/502nd Infantry Battalion had also combat assaulted in to the valley below them. Unfortunately, enemy forces had stopped them cold.

Toward the end of the second day, Karnes and Madison made the decision to escape and evade. As they moved to the west side of the ridge, they ran in to McAlpine, who had just left a badly wounded Isaako Malo hidden in the hole on the crest of the ridge. Unable to carry the hip-shot Ranger, the three men decided to leave him where he was hidden and try to make it to the Cav. troops fighting a short distance away. They moved down the mountain, turned north on a secondary ridge, then swung back east until they reached the Cav's perimeter. They were shocked to see dozens of dead and wounded troopers inside the small perimeter. The NVA had mauled them during their insertion, killing 10 of the 'Blues' in the first 10 minutes.

A short time later, Capt. Madision was medevacked out with a batch of the Cav's wounded. McAlpine and Karnes spent the second night on the ground with the survivors of the Cavalry troops.

WO Behrens hid during the entire second day of the battle among the fortified NVA positions. Wounded a third time by a sniper, he hugged the Thompson submachine gun salvaged for the wrecked medevac and waited for the inevitable. He had already used up half his magazines killing the sniper who had shot him. He decided to save the rest for when the enemy tried to overrun his position.

Friendly aircraft repeatedly strafed and rocketed the area immediately around him. He screamed at the top of his lungs to alert any other possible survivors that he was still alive and breathed a sigh of relief when the Cobras adjusted their runs away form his location. He watched silently during the lull in the action as a number of khaki clad NVA came out of their bunkers to drag off their dead and wounded. The night, his second on the ground, was especially terrifying to the young medevac pilot. He held his breath and prepared to die as enemy soldiers moved around in the surrounding darkness.

Vodden, Champion and the surviving helicopter crewman tried to stay out of sight as each movement seemed to draw enemy fire.

The Cav. crew chief continued checking on the two pilots still trapped in the wreckage of the downed Huey slick, giving them moisture form some pulpy roots he had found. The pilots were in very bad shape and getting worse by the hour. Miraculously, the enemy had not yet discovered them.

The three Americans, believing they were the only ones left alive on the ridge, decided Champion and the crew chief would try to E & E (escape and evade). The crew chief was armed only with a revolver. Champion, the stock of his M-16 shattered by an NVA bullet, had lost his web gear and rucksack. Vodden divided his remaining magazines and frags with Champion and gave the young Ranger his map and compass. At dusk on the second day the two men moved out. A short time later the crew chief returned to Vodden's position saying he had decided to stay and look after the injured pilots. Champion had gone on alone. An hour later, the two men heard firing in the valley below them. Vodden decided they had just heard Sergeant James Champion's "last stand."

During the night, enemy soldiers moved all around them. On two occasions, Vodden fired at the silhouette of a man standing over the edge of the crater that hid the two Screaming Eagles. Each time, for good measure, Vodden also tossed a grenade in to the brush above them.

Tha Cav. crew chief again took advantage of the distraction caused by the Cobras and slipped off the ridge to check once more on his pilots. When he returned an hour later, he reported Vodden that the peter-pilot had died during the night.

Off in the distance, the two men saw a long sting of helicopters approaching. They knew help was finally on the way. For the first time in three days, they began to believe they might somehow survive this horrible nightmare.

In the afternoon, Vodden and the crew chief heard small arms fire and someone yelling in English. Then, miraculously, two L Company Rangers appeared, ghost like, out of the brush and moved toward them. Ranger sergeants Dave Rothwell and Don Sellner had reached the two survivors. The Cav. crew chief and Vodden quickly medevacked off the ridge.

Karnes and McAlpine remained inside the Cav. perimeter until the morning of the third day. The two men volunteered to join up with a five-man reaction force composed of Ranger Captain David Ohle, Sergeant Dave Quigley, Sergeant Herb Owens and two other Rangers and lead them back up to the ridgeline.

General Tarpley, the division commander, had ordered an arclight on the ridge, scheduled for later that afternoon. Captain Ohle and his Rnagers had volunteered to go ahead of the B-52s and try to recover anyone who might have survived the three days on the ridge.

Nearing the LZ, the seven Rangers came under intense small arms fire from a large number of NVA hidden in reinforced bunkers. Everyone but Quigley was immediately pinned down, unable to move closer. Taking advantage of this window of opportunity, Quigley rushed through the bunkers alone until he reached the LZ. He stumbled upon Sly's body near the downed medevac. Crossing the LZ, he found many dead 2/17th Cav. and 502nd troopers who had tried in vain to reach the trapped Rangers and helicopter crewmen. Bodies were everywhere.

Then Quigley discovered WO Fred Behrens, more dead than alive, looking like a piece of Swiss cheese from all the holes in him. The NVA gunners had used him as a target for zeroing in their weapons. Unbelievably, Behrens was still conscious and asked Quigley for something to eat. Quigley dropped him a can of apricots and a canteen of water and moved on.

Captain Ohle had finally fought his way past the NVA bunkers and caught up with Quigley. The two Rangers located the Cav. chopper in the trees 300 meters down the hillside below the saddle, smashed flat like a pancake. Speidel was still alive, but would later lose both legs at the hips as the price for living.

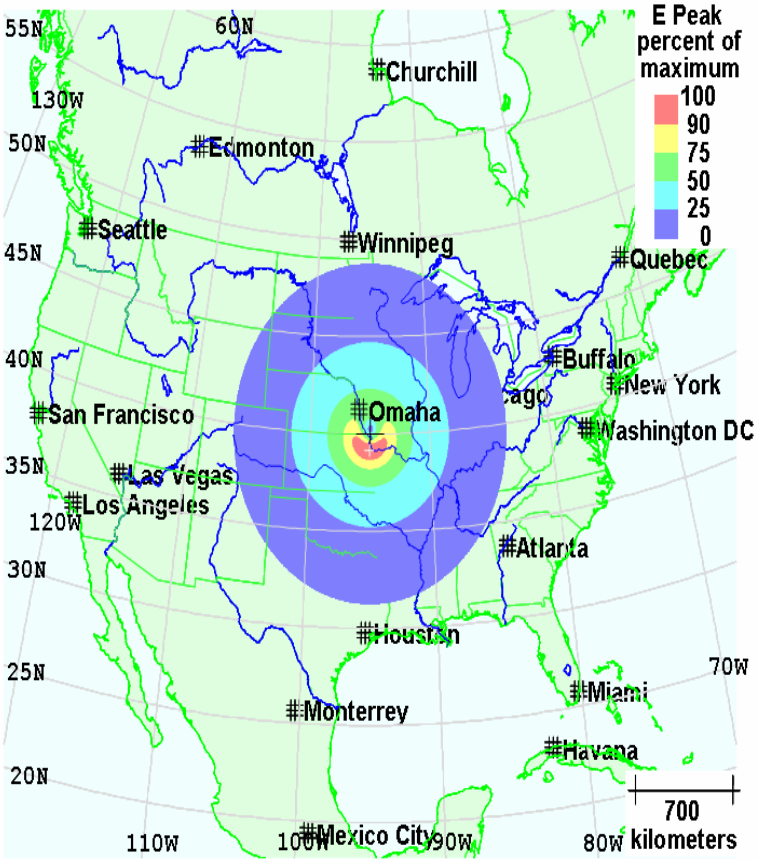
Owens and Quigley searched the ridge for Champion and Malo. They found Malo's weapon but no sign of either man. Finally they had to give up and move back to extract the dead and wounded. There was no time to run a more extensive sweep, and the number of enemy soldiers in the area made the possibility of bringing in a larger reaction force foolhardy.

Two year later, Issako Malo was released from captivity by the North Vietnamese, along with other American POWs. To this day, he will not relate the events of the ill-fated operation nor the circumstances of his capture.

James Champion is still carried on the Ranger roles as Missing In Action. But most of those who survived that day believe James Champion never reached the valley alive.

Gary Linderer was executive editor of Behind the Lines. He saw action in Vietnam from 1968-1969 while serving as a LRRP / Ranger with the 101st Airborne Division.

High Altitude Electromagnetic Pulse



Name of Net, Frequency, Local Time	Net Manager
Badger Weather Net (BWN) 3984 kHz, 0500	W9IXG
Badger Emergency Net (BEN) 3985 kHz, 1200	NX9K
Wisconsin Side Band Net (WSBN) 3985 or 3982.5 kHz, 1700	KB9KEG
Wisconsin Novice Net (WNN) 3555 kHz, 1800	KB9ROB
Wisconsin Slow Speed Net (WSSN) 3555 kHz, Sn, T, Th, F, 1830	N1KSN
Wisconsin Intrastate Net - Early (WIN-E) 3555 kHz, 1900	WB9ICH
Wisconsin Intrastate Net - Late (WIN-L) 3555 kHz, 2200	W9RTP
ARES/RACES Net 3967.0 kHz, 0800 Sunday	WB9WKO
* Net Control Operator needed. Contact Net Manager for information.	

Next Regular Meeting

The next meeting will be on Thursday, September 26th at 7:00PM. We meet in the Fellowship Hall of Redemption Lutheran Church, 4057 N Mayfair Road. Use the south entrance. Access the MRAC Yahoo group for important details about the February Meeting.

Meeting Schedule:

October 24th, 7 pm

Please do not call the church for information!

Club Nets

Please check in to our nets on Friday evenings.

Our ten meter SSB net is at **8:00 p.m.** at **28.490 MHz USB** Our two meter FM net follows at **9:00 p.m**. on our repeater at **145.390 MHz** with a minus offset and a **PL of 127.3 Hz.**

Visit our website at: **www.w9rh.org**

Or phone (414) 332-MRAC or 332 - 6722

Chatter Deadline

The **DEADLINE** for items to be published in the **Chatter** is the **15th of each month**. If you have anything (announcements, stories, articles, photos, projects) for the 'Chatter, please get it to me before then.

You may contact me or Submit articles and materials by e-mail at: **Kc9cmt@earthlink.net**

or by Post to:

Michael B. Harris

807 Nicholson RD

South Milwaukee, WI 53172-1447

VE Testing:

Sept. 28th- AES - 9:30 AM - 11 AM.

ALL testing takes place at: Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223

Area Swapfests

August 10th 2013 6th Annual Racine Megacycle Freefest 2013 Location: Sturtevant, WI
Type: ARRL Hamfest Sponsor: Racine Megacycle Club
Website: http://www.w9udu.org

August 24th 2013 Circus City Swapfest
Location: Baraboo, WI
Type: ARRL Hamfest Sponsor: Yellow Thunder ARC
Website: http://yellowthunder.org

Sept. 28th, 2013 Ozaukee Radio Club Fall Swapfest Location: Cedarburg, WI Type: ARRL Hamfest
Sponsor: Ozaukee Radio Club
Website: http://www.ozaukeeradioclub.org

MRAC Working Committees

100th Anniversary:

- Dave—KA9WXN
- Dan—N9ASA

Net Committee:

- Open

Field Day

Dave—KA9WXN, Al—KC9IJJ

FM Simplex Contest

- Joe – N9UX
- Jeff – K9VS

Ticket drum and drawing

- Tom – N9UFJ
- Jackie – No Call

Newsletter Editor

- Michael-KC9CMT

Webmaster

- Mark Tellier—AB9CD

Refreshments

- Hal—KB9OZN

Membership Information

The Hamateur Chatter is the newsletter of MRAC (Milwaukee Radio Amateurs' Club), a not for profit organization for the advancement of amateur radio and the maintenance of fraternalism and a high standard of conduct. MRAC Membership dues are $17.00 per year and run on a calendar year starting January 1st. MRAC general membership meetings are normally held at 7:00PM the last Thursday of the month except for November when Thanksgiving falls on the last Thursday when the meeting moves forward 1 week to the 3rd Thursday and December, when the Christmas dinner takes the place of a regular meeting. Club Contact Information

Our website address **http://www.w9rh.org**

Telephone **(414) 332-MRAC (6722)**

Address correspondence to:

MRAC, PO Box 26233, Milwaukee, WI 53226-0233

Email may be sent to: **w9rh@arrl.net .** Our YAHOO newsgroup:

http://groups.yahoo.com/group/MRAC-W9RH/

CLUB NETS:

- The Six Meter SSB net is Thursday at 8:00PM on 50.160 MHz USB
- Our Ten Meter SSB net is Friday at 8:00PM on 28.490 MHz ± 5 KHz USB.
- Our Two Meter FM net follows the Ten meter net at 9:00PM on our repeater at 145.390MHz - offset (PL 127.3)

The MRAC HamChatter is a monthly publication of the Milwaukee Radio Amateurs' Club. Serving Amateur Radio in Southeastern Wisconsin & all of Milwaukee County
Club Call sign – W9RH
MRAC Website: http://www.W9RH.org
Editor: Michael B. Harris, Kc9cmt, kc9cmt@Earthlink.net

Milwaukee Area Nets

Mon.8:00 PM 3.994 Tech Net

Mon.8:00 PM 146.865- ARRL Newsline

Mon.8:00 PM 146.445 Emergency Net

Mon.8:00 PM 146.865- Walworth County ARES net

Mon.8:45 PM 147.165- ARRL Audio News

Mon. 8:00 PM 442.100+ Railroad net, also on EchoLink

Mon. 8:00 PM 442.975+ WARC W9CQ net also on EchoLink 576754

Mon. 9:15 PM 444.125+ Waukesha ARES Net on the 1st, 3rd, and 5th Monday of each month.

Mon. 9:00 PM 147.165– Milwaukee County ARES Net

Tue.9:00 AM 50.160 6 . Mtr 2nd Shifter's Net

Tues. 8:00 PM 145.390– General Class

Tue. 9:00 PM 145.130 MAARS Hand Shakers Net

Tue. 8:00 PM 7.035 A.F.A.R. (CW)

Wed. 8:00 PM 145.130 MAARS Amateur Radio Newsline

Wed. 8:00 PM 147.045+ West Allis ARC net

Wed. 8:00 PM 147.270+ Racine County ARES net

Wed. 9:00 PM MAARS SwapNet, AllStar link to FM-38

Thur. 8:00 PM 145.130– General Class

Thur. 8:00 PM 50.160, 6 Mtr SSB Net

Thur. 9:00 PM 146.910 Computer Net

Fri. 8:00 PM 28.490 MRAC W9RH 10 Mtr Net SSB

Fri. 9:00 PM 145.390 W9RH 2 Mtr. FM Net

Sat. 9:00 PM 146.910 Saturday Night Fun Net

Sun 8:30 AM 3.985 QCWA (Chapter 55) SSB net

Sun 9:00 AM 145.565 X-Country Simplex Group

Sun 8:00 PM 146.91 Information Net

Sun 8:00 PM 28.365 10/10 International Net (SSB)

Sun 9:00 PM 146.910 Swap Net

First Thursday of the month 8:00 PM 442.200+ Round Table Tech Net

2meter repeaters are offset by 600KHz - - 70 centimeter repeaters are offset by 5 MHz