



# RADIO AMATEUR NEWS & VIEWS

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NEXT MEETING: APRIL 8

## MICROCONTROLLERS FOR RADIO AMATEURS



Rich Lang, W1ELL will talk about Microcontrollers. Microcontrollers are entire computer systems on a single chip. They are everywhere – in microwave ovens, cell phones, automobiles, and yes, in our ham radio equipment! Rich will introduce us to these powerful tools which range from the lowly 8 pin PICAXE through the 16 bit dsPIC chips he is using in his homemade transceiver project to the Raspberry Pi that rivals a desktop PC and can run many free amateur radio applications.

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## The Nefarious Use of Radio Communications

Kathi K1WAL

While we generally consider the public service aspects of radio communications there are those who have more dastardly purposes in mind.

Bob KB1WXM told me about an article in the April 2014 edition of *Popular Science* that tells about one of the most elaborate communications network that covered most of Mexico and along the border with the United States that was said to be “unparalleled in the annals of criminal enterprise.” The title is [Radio Tecnico: How The Zetas Cartel Took Over Mexico With Walkie-Talkies.](#)

The article tells of the DEA led investigation called Project Reckoning with the objective to thwart the Mexico’s Gulf Cartel. In 2008 they were able to capture over \$90 million in cash, 61 tons of narcotics, and enough weapons for a small army! Hundreds of people were rounded up across the U. S. and Mexico including a 37-year-old resident of McAllen, Texas named José Luis Del Toro Estrada. At first he seemed a rather insignificant player but as time went on his true role was revealed. He was the cartel’s communications expert!

Del Toro Estrada lived in a nice white brick ranch house with flowers in the yard and an American flag flying from the front porch. He owned a rather nondescript small business that presumably installed car alarms and sold two-way radios called V & V Communications that was located in a quiet neighborhood on the edge of town. It is unclear how he became involved with the cartel or what his educational background is.

What started as a small cluster of radios and antennas to monitor police and other drug gangs grew exponentially under Del Toro Estrada. It is thought that his first step in any new location would be to map the local radio spectrum for local chatter to see who used what frequency and how often.

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## Secretary's Minutes

Kathi K1WAL

Jim KE1AZ opened the meeting. Mitch gave a brief report of where things were with the Senate Transportation Committee regarding H.62, the bill which is calling for a ban all hand held electronic devices in vehicles. We had a quick discussion about W1AW/1. All those who wanted to operate and had hadn't signed up were encouraged to do so right away to get on the schedule. At the time of this writing W1AW/1 is well under way with occasional updates and comments being posted on the RANV reflector. Many thanks to Jim KB1LOT for bringing by the snacks before heading out of town! It was greatly appreciated! Dave KC1APK graciously volunteered to bring snacks for our April meeting.

This meeting was our Movie Night so we settled in to enjoy a video of the 2011 T32C DXpedition to Kirimati, also known as Christmas Island, which operated from late September through late October. This was the first DXpedition to make over 200,000 contacts (213,169 to be exact) despite some incredible setbacks. Six tons of gear shipped in February never arrived by late September! There was a mad scramble to get replacement radios through generous donations and additional personal gear brought by the team members. For four weeks they operated 10 stations 24/7 on 10 bands, including 6-meter EME. DXers worldwide were able to make contact with one of the most remote DXCC entities on the planet!

After watching DXing on a tropical island with people wearing shorts and enjoying warm sunshine we came back to the reality of a Vermont winter to enjoy some snacks before heading out into the cold to go home.

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### Nefarious Radio (Continued from page 1)

In urban areas he would put a cartel antenna on an existing commercial radio tower. He would hijack radio repeaters and reprogram the equipment to use the cartel's preselected frequencies. A repeater was even installed on the roof of a Mexican police station although it is unknown if this was an indication of police corruption by allowing it to be there or an act of defiance showing the cartel's bravado.

In remote areas towers were built atop high vantage points. Del Toro Estrada installed repeaters and antenna on top the towers, sometimes painted a dark green for camouflage in the jungle. To provide power he wired the equipment to car batteries or solar panels.

As new networks became active Del Toro Estrada would put them together in a larger interoperable system. With commercial software he could remotely manage thousands of walkie-talkies at one time. He also used digital inversion software to scramble radio transmissions.

Since Del Toro Estrada's arrest, reports have surfaced of communications specialists and engineers disappearing across Mexico. At least 27 engineers and specialists from companies like IBM, ICA, Fluor Daniel, and Mexico's oil company Pemex have disappeared. It would seem the radio network still needs expertise to keep it going whether the experts are willing or not.

The full article can be found at [www.popsci.com/article/technology/radio-tecnico-how-zetas-cartel-took-over-mexico-walkie-talkies](http://www.popsci.com/article/technology/radio-tecnico-how-zetas-cartel-took-over-mexico-walkie-talkies). There is also a YouTube account at <http://m.youtube.com/watch?v=wwL4ykwNNkY>

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Reflector:  
[groups.yahoo.com/group/RANV](http://groups.yahoo.com/group/RANV)

Meetings: 2<sup>nd</sup> Tuesday • 7:00 PM  
113 Patchen Road  
South Burlington  
The O'Brien Civic Center

Repeater: 145.150, PL 100; WB1QR

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New Hams, Mentoring:  
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## NH-ARES Academy

Kathi K1WAL



Three VT ARES (and RANV) members attended the NH-ARES Academy on Saturday March 29 in Concord, NH. The New Hampshire Amateur Radio Emergency Services has conducted an academy for the past four years.

Making the trip was Robin N1WWW, Kathi K1WAL, and Tim KB1THX. Robin is the Vermont ARES Section Emergency Manager (SEC).

The academy had several courses scheduled in two morning blocks and two afternoon blocks. Course titles included single block course such as Message Form Basics, Go Kits, HF Basics for Emcomm, National Traffic System (NTS) /National Traffic System Digital (NTSD), Working with Served Agencies, and double block course such as Getting Started with RMS Express, Psychological First Aid, Comm Trailers and mega kits, and a SkyWarn refresher.

The keynote speaker was Dave Colter WA1ZCN who spoke about the Emergency Communications Advisory Committee (ECAC), an ad hoc committee which ran from Jan 2012 through Dec 2013 where he served as Vice Chairman. The committee was tasked by the Programs and Services Committee to recommend improvements to ARES and NTS with research, evaluation, and recommendations in 4 key areas:

1. ARES and NTS objectives and organizational structures
2. Training, certification and credentialing
3. Relationships with served agencies
4. Integration of NTS and ARES

The committee's membership was composed mostly ARES leadership from around the county and some representation from NTS Areas staff and NTSD digital coordinators and developers. It was decided to focus on the big picture and get into details only when further understanding was needed. At the outset they wanted to more about both programs and issued a series of online surveys directed to various audiences. It was quickly discovered that designing, implementing, and interpreting surveys can be a tricky undertaking. However, a great deal was learned in the process including a lack of understanding between the two organizations and differing of opinions.

The most challenging of these tasks was the integration of NTS and ARES. While the two have a common purpose they have grown apart over the years. The committee identified two possible scenarios – merge NTS and ARES into a single program or create a shared supporting and/or governing body. It soon became apparent that a merger was face major obstacles. ARES and the NTS have very different structures and different needs. The committee proposed as “superstructure” in the form of an elected joint nation committee with the working name “Joint Emergency Communications Committee” (JECC).

The JECC, keeping to the “Big Picture” approach, would develop, implement and promote cooperative training and operation efforts involving both ARES and NTS. It would have no direct command authority over anyone in NTS or ARES. The committee foresees the JECC as a means to help solve the problems identified with voluntary standards, training programs, certification, and credentialing. The JECC would also make recommendations to NTS and Section leadership and coordinate joint NTS-ARES exercises.

The final vote for approval of the ECAC Final Report was 13 in favor and 1 opposed.

The complete report submitted to the ARRL Board of Directors in January 2014 can be found at the ARRL website at [http://www.arrl.org/files/file/About%20ARRL/Committee%20Reports/2014/January/Doc\\_31.pdf](http://www.arrl.org/files/file/About%20ARRL/Committee%20Reports/2014/January/Doc_31.pdf).

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## Upcoming Events

Warm weather is almost upon us and many activities are on the calendar!

In May we start off with NEARFest in Deerfield, NH and at the end of the month we have the Essex Memorial Day Parade and the Vermont City Marathon.

June begins with the Museum Ships Weekend on the Steamship Ticonderoga at Shelburne Museum and ends with Field Day.

July is the World Radio Team Championship in Massachusetts in which a few RANV members will be helping to set up. After that is the ARRL Centennial Convention in Connecticut. If you happen to be in Western Maine or Northern New Hampshire and enjoy auto sports radio operators are needed the 18th-19th for the New England Forest Rally.

August is our annual RANV picnic and the St. Albans Hamfest.

In between there will be contests and other events in which we may be called upon to assist with communications.



## NEWS & VIEWS

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### Notices & Misc

- Museum Ships Weekend June 2-3
- Steering Wheel: 3<sup>rd</sup> Tues 6:30; Ninety-Nine Restaurant, Taft Corners, Williston
- VE Exams every 2<sup>nd</sup> Friday; Red Cross Building 29 Mansfield Ave, Burlington
- Dues due? Pay online at [www.ranv.org/ranvpay.html](http://www.ranv.org/ranvpay.html)

### NEXT MEETING

TUESDAY • April 8 • 7:00 PM  
O'Brien Civic Center • Patchen Rd  
South Burlington

### Microcontrollers for Amateur Radio

By Rich W1ELL