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MARS: AMATEUR RADIO EMERGENCY PREPAREDNESS

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The Military Auxiliary Radio System:
A Partner in the Nation's Emergency Preparedness

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Communication is the lifeblood of any organization. Without the ability to communicate, no organization can accomplish its mission. Americans often take this simple function for granted. In an age where anyone with a cell phone can contact anyone else halfway around the world instantaneously, we seldom think of how we would communicate if traditional means were not available.

The U.S. Department of Defense (DoD) understands this reality. So, for many years it has authorized and sponsored a group of volunteer amateur radio operators to provide a backup communications capability for the U.S. military and other agencies in the event of a natural or man-made disaster. This program is known as the Military Auxiliary Radio System (MARS).

What Is MARS?

MARS is a group of volunteer amateur radio operators, licensed by the Federal Communications Commission (FCC), who provide a backup communications capability to the government in the event that normal communications means are degraded, disrupted, or destroyed – either through natural disasters or deliberate, hostile acts. Some MARS operators are current or retired military or civilian engineers, technicians, or communications specialists. Some are university professors and scientists, and some come from the defense industry.

MARS is a DoD authorized and sponsored auxiliary organization, and is separately managed and operated by the Army, Navy-Marine Corps, and Air Force. Despite the existence of three separate MARS Services, they all train, exercise, and work jointly in support of a common mission.

Originally started in 1925 as the Army Amateur Radio System, operations were suspended during WWII and restarted in 1946 with additional participation of the Air Force. In 1962, the Navy and Marine Corps joined the program, which became the Military Affiliate Radio System.

Today, the program consists of roughly 5,000 radio operators who volunteer their time, services, and communications expertise – using their personal radio equipment and without any compensation – to assist the Department of Defense and other federal, state, and local agencies with auxiliary communications in the event of a disaster or emergency… at no cost to the government.

Two MARS operators make contact with other amateur radio operators from the Pentagon MARS Station during a Special Event commemorating the anniversary of the 9/11 attacks. Pictured here is the author (left) and David Maples, the Virginia State MARS Director for Air Force MARS. (Courtesy: Pentagon Amateur Radio Club K4AF)

MARS operators receive specialized training and are additionally licensed by their respective military service to transmit using military protocols and procedures on frequencies set aside for their use by DoD.

MARS is authorized and governed by DoD Instruction (DoDI) 4650.02, which establishes the purpose and mission of MARS, namely, to provide contingency radio communications support to U.S. Government operations. This includes support to the Department of Defense and its components, U.S. armed forces, and other government agencies, as well as civil agencies at all levels, when requested. The DoDI also assigns responsibilities to various DoD entities for overseeing and integrating MARS into their operations. Policy oversight of MARS currently resides with the Deputy Chief Information Officer for Command, Control, Communications, and Computers and Information Infrastructure Capabilities (DCIO C4I-IC) within the Office of the DoD CIO.

An Evolving Mission

In the past, before the days of cell phones, e-mail, Skype, and the Internet, MARS operators relayed morale message traffic over shortwave radio between service personnel stationed abroad and

their families and friends at home. During Korea, Vietnam, and up through the first Gulf War in 1991, MARS operators passed thousands of messages from the troops overseas to their loved ones stateside. Decades later, MARS still provides a means of allowing DoD personnel and contractors deployed in remote locations to send morale messages home – at no cost to the individual or the government.

Much, however, has changed, as methods, procedures, and technologies have advanced, and so has the mission of MARS. With the advent of cell phones, e-mail, and the Internet, sending morale messages over radio via the MARS system has become a minor aspect of the MARS mission. Today, the main focus of MARS is emergency preparedness and disaster response. MARS support now includes providing auxiliary communications capabilities to DoD under the Defense Support of Civil Authorities (DSCA) framework. In addition, the secretaries of the military departments, DoD Components, and combatant commands are authorized to make use of the backup communications capabilities that MARS provides and to integrate MARS into their activities. This has included Joint Service communications exercises, Continuity of Operations (COOP) and Continuity of Government (COG) planning, and other activities.

Most MARS communications take place in the high-frequency (HF) radio spectrum – what used to be called "shortwave radio" – using voice or digital communications modes. The Department of Homeland Security (DHS) "Communications Sector-Specific Plan," an annex to the National Infrastructure Protection Plan, classifies HF radio as part of the "wireless" communications infrastructure, noting that it "can be used for communication over great distances and between points separated by geographic barriers."(1) Using its organized networks of stations, MARS actually provides communications coverage at the state, regional, national, and international areas of operations.

Using HF radio frequencies, MARS operators even have the ability to send e-mail over radio through a distributed series of worldwide nodes to relay messages when Internet connectivity is unavailable. A number of civil agencies active in disaster response activities have the capability to pass message traffic and situational awareness reports to various recipients using this system, known as WinLink. In cooperation with DHS, and working with the Federal Emergency Management Agency (FEMA), MARS participates in the SHAred RESources (SHARES) HF Radio Program. SHARES is an interagency emergency message handling system that operates under the auspices of the DHS National Cybersecurity and Communications Integration Center. SHARES is intended to ensure national security and emergency preparedness communications in the event of natural or man-made disasters.

Like a fireman who hopes his services will never be needed, MARS members practice their communications skills on the air every day, training for an event they hope will never occur. But the reality of the world we live in is often not accommodating to our wishes.

Is MARS Necessary?

It is not uncommon to find skeptics who question the value of MARS and whether this backup radio service is really necessary. After all, the U.S. military is arguably the most formidable and technologically advanced military force in the world today. Our military superiority is considered by most experts to be unrivaled and our technological prowess virtually assures our dominance on the battlefield. The power of military communications technologies helps enable that superiority.

So why would the world's most powerful nation that employs sophisticated high-technology communications systems, including MILSATCOM assets and highly networked data and information capabilities, rely on a group of volunteer MARS operators using basic radio technology to facilitate the ability of its military to communicate?
The answer lies in a simple reality. With technological sophistication comes vulnerability – this is not only true for the communications sector, but other national critical infrastructures as well.

Our nation's increasing reliance on computerization, miniaturization, and sophisticated electronics provides tremendous benefits and enables the many conveniences of day-to-day living we enjoy in our society. But it also means that we are increasingly vulnerable to technological failures or countermeasures intended to degrade or defeat the very technologies on which we have become so dependent.

For example, the risks to our nation's critical infrastructures posed by an electro-magnetic pulse (EMP) – caused by a high-altitude nuclear detonation or a major solar event – can prove catastrophic. Everything from power to transportation to food and water distribution to emergency services to the banking and financial industry, as well as the communications infrastructure may be degraded or destroyed as a result of a natural or man-made EMP event.

For the communications sector, this means that many of the advanced capabilities the military relies on, from satellite terminals to other terrestrial communications links – espe-

cially those using commercial, off-the-shelf technologies and electronics that are not hardened against EMP effects – may fail catastrophically… and all at once. Our critical national infrastructures are a system of systems, comprised of sub-systems, components, and nodes of varying degrees of vulnerability. As the saying goes, a chain is only as strong as its weakest link. And there are weak links in our national infrastructures, including our communications infrastructure. Even under normal peacetime conditions, satellites fail or may not be available when needed. Other communications modes – from cell phones to the Internet – may also suffer outages or technological failures. In such times, the ability to rely on fundamental radio technology may be the difference between mission success and mission failure.

This is not to say that all radios are immune to EMP effects – they are not. But the newer, more technologically sophisticated radio equipment procured by the government is often more susceptible to EMP than many earlier models of radio equipment used by some MARS operators. Also, some MARS operators have taken special precautions to shield and protect their equipment to the extent possible from EMP effects.

Sometimes, during natural disasters, we hear or read stories of the local ham radio operator who provided an essential radio communications link when other communications means were unavailable. Sometimes, the only way to get information from Point A to Point B is via radio.

A Dangerous World

After the terrorist attacks of September 11, 2001, it was almost impossible for anyone in the Washington, DC area to make a phone call via landline or cell phone, as the regular phone line circuits were overwhelmed with the volume of callers. For several hours, the only people you could communicate with were those standing next to you.

After Hurricane Sandy pounded the East Coast in October 2012, large areas of New York and New Jersey were without power and communications for extended periods of time.

In these types of conditions, radio is an effective means of relaying messages and conveying situational awareness to public authorities and first responders. The combination of HF and VHF radio can provide local, regional, and long-distance communications – which may be essential in a crisis or emergency that affects a wide geographical area.

Then, of course, there is also the possibility that communications can be deliberately disrupted as a result of hostile action. We know that asymmetrical warfare against the United States may include kinetic, directed energy, and cyber attacks against our communications infrastructure, including military and civilian communications satellites and the ground-based systems used to deliver essential information.

In April 2013, for example, fiber-optic telecommunications cables were cut in what is considered to have been a deliberate assault on a power substation near San Jose,

MARS exhibited its communications capabilities at the National Guard Bureau's annual Domestic Operations (DOMOPs) Conference and Exhibition. Pictured here is Mike Carl, the National Emergency Coordinator for Air Force MARS (AFN2EC), and two Master Sergeants from an Air National Guard unit. (Photo taken by the author during DOMOPs Convention)

California.

As *The Wall Street Journal* reported, the cables were cut "in a way that made them hard to repair," raising concerns over the prospect of deliberate terrorist action that could drop the power grid or communications infrastructure for an extended period of time.(2)

The crisis in Ukraine provides a contemporary example. At the start of the crisis, The New York Times reported: "Mobile, landline and Internet access has been cut off in parts of the Crimea region, according to a statement from Ukrtelecom, the Ukrainian National Telecommunications operator. The company said…that 'unknown people seized several communications hubs in Crimea' and damaged fiber-optic cable belonging to the company. As a result, the company said it had 'lost the technical capacity to provide connection between the peninsula and the rest of Ukraine and probably across the peninsula, too.' Ukrtelecom added that 'communications services are vital to sustain essential support systems in the peninsula including first aid, fire and rescue services.'"(3)

While this particular outage reportedly lasted for only several hours, it demonstrates once again the susceptibility of normal communications infrastructures to deliberate sabotage or intentional disruption.

More recently, a coordinated terror attack in June 2014 on the electrical grid in Yemen blacked out power over an area of more than 200,000 square miles – the first reported case of an entire country being plunged into darkness by the deliberate actions of a hostile group.(4) Indeed, a Wall Street Journal article in March of this year cited a report by the U.S. Federal Energy Regulatory Commission (FERC) that concluded an attack on just nine of the nation's critical electrical power substations could leave the entire United States in the dark for an extended period of time, from several

Author's amateur radio station at home QTH (Courtesy of the Author).

An Air Force Master Sergeant rests in the MARS communications tent while deployed to Haiti after the 2010 earthquake that destroyed the country's fragile communications infrastructure. Volunteer MARS operators joined with amateur radio operators to assist medical teams on the ground in and around Port au Prince. (Photo Courtesy: Jack Satterfield W4GRJ/AFA4DG)

weeks to several months.(5)

Unfortunately, there are multiple ways the normal means of communication on which we heavily rely can be degraded. These can range from physical attacks on infrastructure to cyber attacks that could cripple the network. The Federal Communications Commission has reported that, "The number of incidents of documented attacks on computer-based systems and communications systems increases on a daily basis."(6) And many of these threats emanate from overseas. Iran, for example, has asserted that its capture of an unmanned U.S. Sentinel drone in 2011 was enabled by Iranian electronic warfare specialists who managed to sever the U.S. military's communications links to it.(7)

So the answer to the question "Why MARS?" is that as a backup, auxiliary means of communication – especially in today's heavily computerized, digitized, and technology-dependent society – it makes sense. MARS has a modest role to play as part of the U.S. Government's backup communications infrastructure, but it can be a valuable role when called upon in times of emergency.

MARS in Action

So how has MARS exercised its role? Each MARS branch has been actively supporting the military and providing support to those who would be called upon in the event of a domestic incident.

The Army-run component of MARS is headquartered at the Army's Network Enterprise Technology Command, or NETCOM, at Fort Huachuca, Arizona. Army MARS maintains a network of overseas stations where U.S. forces are deployed and has had HF radio operators in places such as Iraq and Afghanistan, capable of communicating stateside. Earlier this year, Army MARS members trained soldiers from the Illinois National Guard in a variety of HF radio techniques, including propagation and antenna analysis. The soldiers then participated in an exercise where they made radio contact with various MARS operators throughout the Midwest.

Also this year, several Army MARS teams deployed to support a Texas State Guard Regimental training exercise at two locations in Texas, where they established contact with the Guard headquarters in Austin. In support of the exercise, the MARS operators successfully relayed a series of military messages using various digital communication modes.

MARS participation in these types of exercises is increasingly common and demonstrates a strengthening of the relationship between the National Guard and MARS. Indeed, in recent years MARS was invited to participate in the National Guard's annual Joint Domestic Operations Conference and Exhibition held in the Washington, DC area, where volunteer MARS operators had the ability to describe MARS to National Guard participants from across the nation.

All three MARS branches are increasingly turning to the use of digital modes to get the message through reliably when propagation conditions are unfavorable for voice communications. MARS operators are also working to develop proficiency using military standard digital modes to improve interoperability with users of the system. Army MARS has been in the forefront of this effort.

Navy-Marine Corps MARS, which is headquartered in Williamsburg, Virginia, has been working with hundreds of civil agencies and emergency response organizations to ensure MARS can interoperate with them in the event of emergencies. This includes use of the WinLink "e-mail over radio" system and other digital modes of communications. At the federal level, Navy-Marine Corps MARS operators helped set up the SHARES HF "radio-only" traffic system using WinLink. Between 1,000 and 2,000 messages are relayed each month using this system, which has demonstrated the practical ability to send e-mail traffic in the absence of Internet connectivity.

And Air Force MARS, with its headquarters at the 38th Cyberspace Squadron at Scott AFB, Illinois, provides daily support to active military aircrews flying operational missions worldwide. Among its other activities, Air Force MARS operators run a Phone Patch Net on a 24/7 basis, providing cost-free phone patch capabilities to pilots and flight crews seeking to contact military and civilian ground stations. These patches link aircraft with ground stations through a regular telephone connection and can be for official business or simply morale phone calls to family members.

Earlier this year, a military aircraft flying outside the continental United States contacted the Phone Patch Net on its primary HF frequency requesting several telephone patches as a result of warning lights coming on and aircraft systems shutting down. The pilot made a call for assistance and Air Force MARS operators responded by patching the pilot through to his base command post, operations center, and other locations, where he received instructions on what to do and where to land.

Subsequently, a military cargo plane over the North Atlantic lost cabin pressure and had to make an emergency landing. The communications for this were provided by the Air Force MARS Phone Patch Net.

Trained MARS radio communicators have also assisted civilian aircraft in distress. As one example, a civilian airliner carrying hundreds of passengers over South America encountered severe weather that affected the plane's instrumentation and jeopardized its ability to continue safely en route to its destination. The pilot – a former Air Force officer – used an on-board HF radio to contact the Phone Patch Net for assistance. The MARS operators were able to connect the pilot to the Operations Center of a destination airfield for instructions, allowing the airliner to land safely.

Each year, Air Force MARS Phone Patch Net operators conduct more than 2,000 phone patches for military aircraft most of which are related to ongoing mission operations. Importantly, the military's use of the MARS network frees up more sophisticated and costly military communications assets for other purposes – and in today's austere budget environment this is a net plus.

Serving Those Who Serve Us: At Home…

MARS operators support the nation's communications needs in other ways as well. During designated "National Security Special Events" (which may range from the Super Bowl to the President's annual State of the Union address), MARS stations establish continuous on-the-air liaison with the FEMA National Emergency Coordination Net, SHARES network, and military and other communications centers to disseminate information and pass emergency traffic if and as needed.

The MARS communications station at the Pentagon provides contingency communications to the Joint Staff and the National Military Command Center (NMCC) and participates in a variety of DoD communications exercises. These exercises have helped validate the utility of MARS and have sparked a growing interest in and appreciation for the auxiliary communications capabilities the MARS network provides.

At the Pentagon amateur radio station from left to right: Gary Sessums AF MARS call signs: AFN3ML (National Military Liaison), AFA3GS (generic AF MARS call sign). amateur call sign KC5QCN. Air Force MARS Chief David Stapchuk AF MARS call sign AGA5C, Author AF MARS call signs AFN3PL (National Planning Coordinator), AFN3NE (Northeast Division MARS Director), AFA3TR (generic AF MARS call sign), amateur call sign N4WWL. (Photo courtesy the Author)

During "Superstorm Sandy" in 2012, MARS facilitated communications for National Guard units conducting disaster relief and search and rescue operations, as well as responding to medical emergencies, in a wide area of the northeast United States. Specifically, MARS operators provided emergency communications linking the command posts of several responding organizations to their deployed response units on Long Island and in Brooklyn; facilitated the coordination of cargo manifests for transport of emergency equipment into the affected areas; supported HF and VHF communications during ground search and rescue operations; trained emergency responders on the use of the Air Force MARS Phone Patch Net when their landline telephone, cell phone, texting, Internet e-mail, and DSN telephone services were severed; assisted with on-the-air HF radio communications training and testing for multiple responding agencies; and handled safety-of-flight radio traffic regarding hazards caused by the storm.

MARS enjoys an active partnership with the military – Active, Reserve, and Guard – as well as other Federal and State agencies and Emergency Operations Centers.

…And Abroad

MARS has also played a modest role in responding to overseas disasters. For example, in response to the 2010 earthquake, volunteer MARS operators deployed to Haiti to provide communications support to the U.S. military, and to medical and humanitarian organizations. Their deployment

was not the result of an official MARS activation – rather they traveled under the auspices of the non-governmental organizations they supported. But these Army, Navy-Marine Corps, and Air Force MARS operators received approval from their respective Chiefs to utilize the full resources of MARS for their operations, which saved lives.

In support of a well-organized and dedicated cadre of amateur radio operators who took the initiative in responding to this tragic event, MARS operators worked with established MARS networks, amateur radio operators along the East and Gulf coasts, and doctors from the University of Miami Medical Center's Project Medishare to help coordinate communications among military units and between military units and non-governmental organizations (NGOs). They also coordinated military helicopter MEDEVAC and sealift of injured residents to the USNS Comfort, which was stationed off the Haitian coast. This was the first significant use of joint MARS assets in response to a major overseas disaster in which almost 300,000 people were killed and a country's infrastructure collapsed.(8)

More recently, MARS was tasked by DoD to assist as required in the military's humanitarian response efforts after Typhoon Haiyan struck the Philippines last year.

Room for Improvement

Despite the significant accomplishments of the MARS program, there is clearly room for improvement. While all three MARS services emphasize the importance of interoperability, the Army, Air Force, and Navy-Marine Corps MARS branches use different standards and communication protocols. This can make operating on a sister MARS service's nets somewhat confusing to those unfamiliar with these different practices. Unfortunately, the lack of common operating procedures can be an impediment to broader interoperability within MARS.

Moreover, there is a lack of uniformity between the branches in membership and participation requirements, with each service setting its own rules. This may have the unintended consequence of creating a perception in the minds of potential applicants of inequality among the three MARS branches. This unfortunate perception may also have an effect on recruitment.

At a time when the average age of a volunteer MARS member is increasing, the need to recruit younger members is greater than ever. Each of the respective MARS services would welcome new recruits who wish to be part of an organization dedicated to helping the nation in times of crisis. While the decision to join Army, Air Force, or Navy-Marine Corps MARS is a matter of personal preference, potential applicants should not have to factor in competing membership requirements when making their decision.

Congressional Interest and Support

Despite the communications value it provides, MARS

Air Force MARS operator Paul Swietek (AFA9PS) provides informational materials and handouts to interested parties at an amateur radio event near Tucson, Arizona. Such events provide excellent opportunities to describe MARS capabilities and to recruit new members. (Courtesy Paul Swietek AFA9PS)

is still an unknown quantity to many in government, including inside the Pentagon itself. There are those who still see HF radio as an antiquated technology of little utility to the Department of Defense. Unfortunately, this perspective has impeded the broader use of MARS in support of military operations and activities.

Some in Congress, however, have sought to raise the visibility and acceptance of the MARS program as a useful and reliable backup communications capability. While still in Congress, former Maryland Representative Roscoe Bartlett introduced legislation to encourage the Secretary of the Department of Homeland Security to incorporate MARS into that Department's emergency communications planning activities. However, the "Military Affiliate Radio System Emergency Communication Act of 2007" was never enacted into law.

More recently, the House Armed Services Committee (HASC), in a report accompanying the National Defense Authorization Act for Fiscal Year 2013, called on DoD to make better use of the backup communications capabilities provided by MARS volunteers. The committee called on the Service Secretaries and Combatant Commanders "to integrate MARS more fully into their operational planning and activities."(9)

The HASC also called on DoD to improve oversight and coordination of MARS activities, citing "a lack of standardization in policies, processes, and procedures among the three MARS branches within the Army, Air Force, and Navy-Marine Corps since MARS is independently managed within each service." To improve efficiency and interoperability among the three MARS branches, the HASC called on DoD "to appoint an individual manager with authority and responsibility for coordination of MARS policies and activities across each of the three MARS branches and within the

Department to ensure holistic policy oversight of the MARS program."(10)

This past May, the HASC again expressed its continued support for MARS and the work of the volunteer radio communicators that comprise the system. The committee noted that MARS is not only "an important backup to conventional communications," but that MARS "can play a vital role in helping to ensure continuity of government and continuity of operations in the event of a natural or man-made disaster."(11)

The committee again called on DoD to expand its use of MARS and to revise the DoD Instruction governing policy oversight of MARS to ensure it "effectively integrates MARS into the Department of Defense's emergency communications plan."(12) While reiterating its direction to the Service Secretaries and Combatant Commanders to integrate MARS more fully into their operational planning activities, the HASC directed the Secretary of Defense to brief them by the end of August 2014 on the status of revisions to DoDI 4650.02.

The Way Forward

When DoDI 4650.02 was promulgated in December 2009, policy oversight of the MARS program was assigned to the Assistant Secretary of Defense for Networks and Information Integration (ASD-NII). Shortly thereafter, Acting ASD (NII) Cheryl Roby convened a meeting at the Pentagon with representatives from all three MARS branches to outline her support for the program and to chart a way ahead. Nevertheless, the DoD "efficiency initiatives" announced in April 2010 by then-Secretary of Defense Robert Gates resulted in the disestablishment of the Office of the ASD(NII). Many of the responsibilities of this office were transferred to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (AT&L) or to the Office of the DoD Chief Information Officer (CIO). Policy oversight of MARS shifted to the DoD CIO's office, where it currently resides.

Efforts are underway within the Department to revise and update DoDI 4650.02 in light of the changed organizational structure within the Office of the Secretary of Defense (OSD). What will happen to MARS as a result of these changes and whether they will be responsive to the congressional language remains to be seen; but DoD is moving forward to better align MARS capabilities to requirements. Importantly, any changes to MARS policy oversight and responsibilities within DoD should be relatively budget-neutral, as there is no line item in the defense budget for MARS and the system is comprised almost exclusively of unpaid volunteers. The relatively cost-free service MARS provides should be a selling point that fosters greater use of the system by DoD, the armed forces, and other government entities.

Army MARS home page: http://www.netcom.army.mil/MARS/default.aspx

Conclusion

The importance of MARS and the backup communications capabilities it provides should not be oversold. Every organization has its strengths and weaknesses, and volunteer organizations are sometimes viewed by "professionals" as having significant disadvantages and limited utility. MARS is no exception. However, the value MARS can provide during actual emergencies should not be underestimated or discounted, either.

The laws of physics are immutable, and like its more technologically sophisticated communications cousins, HF radio – which suffers from limitations caused by solar storms and other geomagnetic disturbances that can play havoc with long-distance propagation – is not immune to disruption and degradation. As an Army MARS manual on EMP published last December explained, "HF radio is more susceptible to disrupting effects of nuclear explosions in the atmosphere than is any other frequency band. This is primarily due to catastrophic changes in the ionosphere. Such changes occur rapidly after the explosion and last for several minutes to several days."(13)

Nevertheless, there are steps that can be taken to protect radio equipment from the debilitating effects of EMP. Moreover, the ionosphere typically recovers from a solar flare or coronal mass ejection and similar conditions created by an EMP faster than it takes to replace critical military and civilian communications satellites and infrastructure.

MARS is a diverse organization, and not all MARS members are actively engaged in the kinds of activities that would be needed in the event of an actual emergency. Some are trained in the FEMA Incident Command System and available for deployment on site in the event of a domestic incident, along with other amateur radio operators and emergency response groups such as the Amateur Radio Emergency Service (ARES) and the Radio Amateur Civil Emergency Service (RACES). Others can provide critical "last mile" connectivity using local VHF radios operating on military

frequencies. Although they come from multiple backgrounds and all walks of life, and bring different communications capabilities to the table, they are united in their spirit of volunteerism and desire for public service. Above all, MARS is an organization of men and women who enjoy the technical challenge of communicating over the airwaves.

The United States is fortunate to have an extraordinarily capable military that maintains the most sophisticated command, control, and communications system in the world. However, with increased sophistication comes increased vulnerability. And vulnerabilities in the national communications infrastructure may be the Achilles Heel that poses one of the greatest risks to the security and well being of the nation in the event disaster strikes.

One of the responses to the identified vulnerabilities in communications systems is the work of the Military Auxiliary Radio System – a system that has provided this volunteer service to our country for nearly 90 years.

With luck, the full capabilities of MARS will never be needed. But it is reassuring to know that there are thousands of trained volunteer radio operators at the ready to assist if called upon.

Text Footnotes:

1 http://www.dhs.gov/xlibrary/assets/nipp-ssp-communications-2010.pdf, p. 96.

2 http://online.wsj.com/news/articles/SB10001424052702304851104579359141941621778, 18 February 2014.

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8 For more detail on the role of MARS operators during the Haiti earthquake response effort, see the author's article, "MARS Operators in Haiti: Providing an Essential Communications Link," in the May 2010 issue of Monitoring Times.

9 Report of the Committee on Armed Services, U.S. House of Representatives, on the National Defense Authorization Act for Fiscal Year 2013 (House Report 112-179), p. 222.

10 Ibid., p. 22.

11 Report of the Committee on Armed Services, U.S. House of Representatives, on the Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (House Report 113-446), p. 209.

12 Ibid., p. 209.

13 Department of the Army, Military Auxiliary Radio System, AM 5-602, Electromagnetic Pulse (EMP), December 2013, p. 4-1, accessible at https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxhcm15bWFyc3BvcnRhbHxneDoxMDc1ZGY1MjljZmU4NGRj.

About the Author

David J. Trachtenberg is President and CEO of Shortwaver Consulting, LLC. He also serves as the National Planning Coordinator and Northeast Division Director for the U.S. Air Force Military Auxiliary Radio System (MARS). This article is adapted from a speech before the Central Pennsylvania Chapter of InfraGard, a public-private partnership of business, academic, and law enforcement professionals working with the FBI to help ensure the resilience of the nation's critical infrastructures.

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