Boulder Hams Fight Forest Fires with Video

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Boulder County, Colorado, experienced its worst forest fire ever in September 2010. The Four Mile Canyon fire burned over 6400 acres and destroyed 166 houses. The fire started on Monday, September 6 at 10 AM. High winds that day caused the fire to spread very rapidly throughout the canyon. Residents and firefighters were forced to flee the rapidly advancing flames. The high winds also prevented any aerial attacks on the fire during the first day. The fire came extremely close to engulfing and wiping out the old historic, gold mining town of Gold Hill.

The intensity of the fire and the rapid destruction of property rapidly escalated this fire from local firefighting efforts to the Sheriff and Colorado Governor calling for assistance from the federal government. Starting on the second day, major federal resources were thrown into the battle against the raging fire. This included several federal aerial, slurry bombers, helicopters and 500 firefighters.

The Boulder County ARES® (BCARES) group was toned out on the afternoon of the first day to provide communications links between the emergency evacuation shelters and the Emergency Operations Center (EOC) located at the Boulder County 911 communications center. These communications were set up promptly using both 2 meter voice and packet radio.

Next BCARES was asked to provide live video feeds of the fire. Teams were dispatched with high definition cameras with long telephoto lenses, 70 cm TV transmitters and Yagi antennas to mountaintops outside of the immediate fire zone. The locations chosen provided excellent views of the fire, plus line of sight RF propagation paths to the EOC. From these locations, video images were soon beamed back to the Boulder EOC. These images were then presented to the large assembled staff in the EOC central command room on very large, high definition, video monitors. As many as three different BCARES camera views were presented simultaneously to the EOC.

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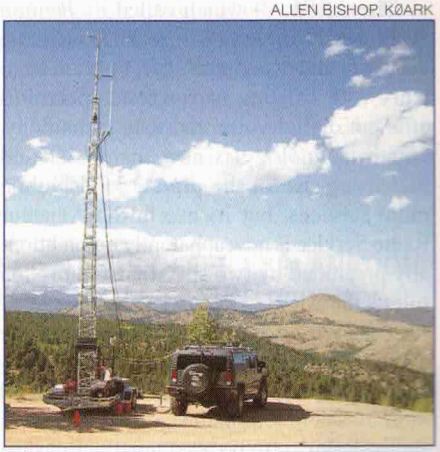
View of the fire in the mountains from the Boulder EOC at the City of Boulder airport.

ALLEN BISHOP, KØARK



BCARES video forest fire observation post on Magnolia Road.

BCARES video teams also functioned as fire spotters monitoring the progress of the fire. As new hot spots flared up, they would zoom their cameras in on them. They would call their observations into the EOC on their 2 meter voice channel, along with the compass bearing of the camera view. Other BCARES members at the EOC then plotted these compass bearings on computer topographic maps and were able to determine the GPS coordinates of the fire hot spots. This information was then relayed to the appropriate authorities in the EOC along with calling their attention to the live video of the hot spot being displayed on the large screen monitors. As a result, BCARES was later credited with saving several homes by their timely spotting of rogue fires and the prompt dispatch of fire crews to protect the structures.

The fire took over a week to be controlled. BCARES TV and shelter operations lasted for six days during which time 35 BCARES members put in over 686 hours of effort in support of the firefighting. Several members put in up to 18 hour days.

Only one month later, BCARES was again called into service when the Dome Rock fire broke out in Boulder Canyon extremely close to the western edge of the city of Boulder. Residents in the western part of the city were immediately evacuated. This time, within a very short time after the fire started, the EOC again requested BCARES to provide live video feeds of the fire from nearby mountaintops. Two camera teams were immediately sent up into the hills with cameras and 70 cm TV transmitters. This fire was rapidly contained with the aggressive use of a twin engine aerial bomber, a single engine slurry airplane and a water bucket carrying helicopter. The fire was limited to 100 acres and no houses were damaged, but it was an extremely close call for the city of Boulder.

BCARES has had a lot of experience over the last 20 years providing live TV coverage for the various police and fire agencies in Boulder County. TV has been the number one resource consistently requested by the local public safety authorities. In addition to forest fires, BCARES has provided live video for public safety of student riots at the University of Colorado, anti-war protest marches and rallies, Halloween, CU (Colorado University) football games, and SWAT team operations, in addition to numerous fire, police and hospital training exercises.

BCARES maintains its office along with a cache of radio equipment at the Boulder County EOC-911 center. This equipment

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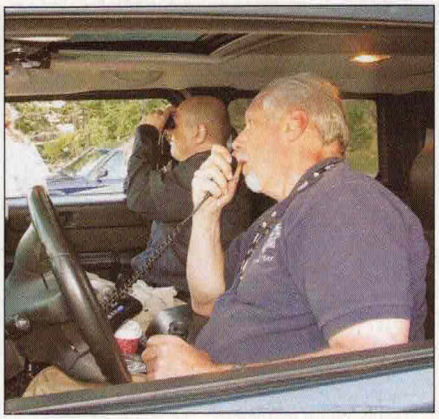
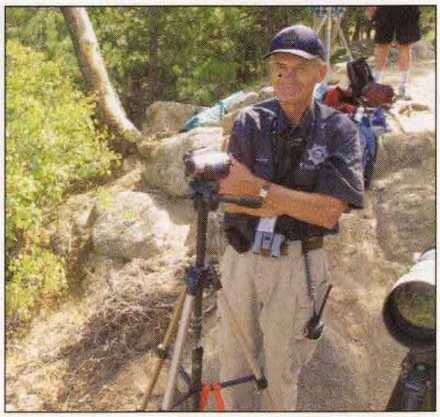


Joe Stanford, NVØN (left), and Allen Bishop, KØARK, serve as fire spotters and video team members at the Magnolia Road site.

UELI HAUSER, KB9TTI/HB9TTI



BCARES forest fire spotter and video team member Jim Andrews, KH6HTV, on summit of Flagstaff mountain.

JIM ANDREWS, KH6HTV

Actual BCARES Flagstaff mountain video camera footage of slurry bombing runs on the forest fire.

includes portable HF, packet radio and TV. BCARES also has voice and TV installations in the police mobile command posts for the Boulder Sheriff, and the cities of Boulder and Longmont police departments. BCARES also supports the police department in the nearby city and county of Broomfield. TV operations are primarily on 70 cm, but direct point to point links are also established on the 23 cm band with FM-TV. BCARES has a 70 cm, TV repeater, WØBCR, in Chautauqua Park, 600 feet above the city of Boulder that provides good coverage of the heavily populated, eastern plains portion of Boulder County. For operations in the remote, western part of the county with mountains up to 14,000 feet, BCARES also has a portable 70 cm, 10 W, TV repeater.

IS CERT THE FUTURE OF ARES?

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Here is a statistic I like to toss around, because it explains the future of the Amateur Radio Emergency Service,® at least in my part of the world. It starts with a question: "What is the largest, best-organized, and best-trained Amateur Radio emergency group in San Joaquin County? Is it ARES? RACES? A ham club?" No, it is the Community Emergency Response Team (CERT) in the City of Tracy, the California community of 80,000 where I live.

Tracy CERT, operated by the fire department, requires its volunteer team leaders to be licensed amateurs, capable of providing longer-distance communication when their teams are in the field. Individual CERT members who are not hams use short-distance Family Radio Service (FRS) radios to communicate with their leaders. Of the 45 responder-qualified members of Tracy CERT, more than two dozen have become licensed amateurs, most through a series of one day "HamCram" licensing events.

We follow the HamCram with training to get the new hams familiar with their radios, our frequency plan and net operation. (We have standardized on Yaesu FT-270, FT-60 and the discontinued VX-170 handheld transceivers.) No other group in our county has as many members that are as broadly trained. Almost all of the CERT hams are also ARES members. Since CERT is their primary affiliation, that's how I count them.

Every CERT member is required to participate in at least 24 hours of CERT training, attend meetings and training sessions at least occasionally. All members have basic Incident Command System (ICS) training and have been fingerprinted and passed background checks. Each member is also a State of California registered Disaster Service Worker.

Tracy is not the only city in our county with hams in its CERT program. In neighboring Manteca, the police department CERT group has several hams. We are in the process of training perhaps a dozen more. The fire department has its own group with a half-dozen ham members with some overlapping with CERT membership.

How is this the Future?

People get into CERT because they are interested in preparedness for their families and neighborhoods. Many have a strong "do-gooder" instinct looking for an outlet. CERT activities require communication. Whether day-to-day training, community events or an actual emergency, CERT members need to talk with one another, CERT leadership and their sponsoring agencies.

While some CERT groups have access to public safety radio systems, these don't offer the flexibility and "When All Else Fails" capability that Amateur Radio does. Members also don't get public safety radios to take home. I "sell" Amateur Radio to CERT members as a valuable tool for helping their community and CERT team that also happens to be a fun and interesting hobby if they choose to head in that direction.

The Role of the HamCram

Once sold, the CERT member needs a quick and easy way to get licensed and radio-trained enough to perform their CERT missions using ham gear. Enter the HamCram, a one day cram session — reading the question pools and answers repeatedly — that ends with the Technician exam.

I always — and only half-jokingly — warn attendees that they are likely to know less about radio when they leave the HamCram than when they arrived. Still, we have a 90 percent success rate, which makes it easy to build a cadre of hams within a CERT organization.

We follow up with training in how to use a radio and lots of ham propaganda to try to make these new HamCram hams more interested in the hobby. Probably 15 percent take the bait, and the other 85 percent have at least received a good introduction to the capabilities of Amateur Radio. Some of our CERT members are upgrading and starting to get onto HF.