

RCA AMATEUR RADIO CLUB

AUGUST, 2010 MONTHLY NEWSLETTER INDIANAPOLIS, IN

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE
TUESDAY, AUGUST 10th, 6:30 PM AT [G.T. SOUTH'S](#),
5711 E. 71st STREET, INDIANAPOLIS, IN

RCA ARC NEWS

SUMMARY OF THE JULY MEETING – Field Day and the just-completed Indy Hamfest were discussed. Our joint operation with the Indianapolis Radio Club (IRC) went well although not many from our Club participated this year. The Sheriff's building at the Marion County Fair Grounds made a good site. Band conditions and the weather were good! 1778 QSOs were made. There is a short video on the IRC web site. K9RU gave a brief summary of his FD activities in New Mexico. The plusses and minuses of various contest logging programs was discussed. We still have a quantity of small parts left over from the Indy Hamfest. Ideas for next year's Hamfest were discussed. K9RU announced the W9IMS special event station would begin operating for the Brickyard next weekend.

BROAD RIPPLE HAMFEST -- The Broad Ripple 'Tail Gate' Hamfest will be held August 7th, 2010, from 7AM to 1PM. Located on the north side of Indianapolis at 7373 Westfield Blvd., it is about 1.4 miles north of 62nd St. (Broad Ripple) and 1.8 miles south of 86th St. (Nora) on Westfield Blvd. – can't miss it! There are no fees for visiting or selling of equipment. Bring your own tables & chairs.

There is plenty of parking available on the lot. K9OOA (Joe) and K9OOB (Betty) will supply coffee & donuts at 7 AM and the Indianapolis radio Club will supply hot dogs, buns, condiments, and soft drinks. Participants are requested to bring one pitch-in dish.

WE4MB RECEIVES THE HIRAM MAXIM AWARD - Emily Bishop, WE4MB of Cleveland, Tennessee, is the recipient of the ARRL's Hiram Percy Maxim Award. Emily has been one of the regular operators at W9IMS during the Indy 500.

HAMFESTS, OPERATING EVENTS & TESTING

- Aug 7** **Broad Ripple Hamfest**, 7373 Westfield Blvd., Indy. Free!
- Aug 7 – 8** **ARRL UHF Contest**, 220 MHZ and above,
- Aug 9** **W9IMS Amateur Radio License Testing**, starting at 6:30PM at 3321 N Gale, walk-ins allowed, contact: Jim Rinehart, k9ru@arrl.net or (317) 218-7304
- Aug 15** **ARRL Rookie Roundup** <http://www.arrl.org/rookie-roundup>
- Aug 20 - 29** **W9IMS MotoGP Special Event**
- Aug 28** **4th Annual Indianapolis Radio Club Hilltop Event**, 8 AM to 2PM EDT, www.indyradioclub.org/irchilltop2010.htm

See the ARRL Contest Branch page, the ARRL Contest Update and the WA7BNM Contest Calendar and the ARRL Special Event Station Web page for more info.

FCC MODIFIES AMATEUR RULES TO ALLOW PARTICIPATION IN DISASTER AND EMERGENCY DRILLS ON BEHALF OF AN EMPLOYER WITHOUT A WAIVER

In a Report and Order (R&O) released Wednesday, July 14, the FCC amended Part 97.113 to allow amateurs to participate without an FCC waiver in government-sponsored disaster preparedness drills on behalf of their employers participating in the exercise. The FCC also has amended the rules to allow employees to participate in non-government drills and exercises up to one hour per week and up to two 72-hour periods during the year.

“Experience has shown that amateur operations can and have played an essential role in protecting the safety of life and property during emergency situations and disaster situations,” the FCC noted in the R&O. “Moreover, the current Amateur Radio Service rules, which permit participation in such drills and tests by volunteers (ie, non-employees of participating entities), reflect the critical role Amateur Radio serves in such situations. However, as evidenced by recent waiver requests, state and local government public safety agencies, hospitals and other entities concerned with the health and safety of citizens appear to be limited in their ability to conduct disaster and emergency preparedness drills, because of the employee status of Amateur Radio licensees involved in the training exercises. We therefore amend our rules to permit amateur radio operators to participate in government-sponsored emergency and disaster preparedness drills and tests, regardless of whether the operators are employees of the entities participating in the drill or test. We find that extending authority to operate amateur stations during such drills will enhance emergency preparedness and response and thus serve the public interest.”

In order to allow participation in non-governmental disaster drills -- such as those sponsored by ARES® or private hospitals -- the FCC will now allow amateurs employed by an agency participating in such a drill to participate up to one hour per week. In addition, they may also participate in up to two exercises in any calendar year, each for a time period not to exceed 72 hours. “This time limitation, which is consistent with the timeframes contained in the waiver requests filed with the Commission, should serve to further ensure the use of Amateur Radio for bona fide emergency testing,” the R&O stated. “We emphasize that the purpose for any drills we authorize herein must be related to emergency and disaster preparedness. By limiting the purpose in this manner, we further ensure that such drills will be appropriately limited.”

In amending the Amateur Radio rules, the FCC reiterated that it does not intend to disturb the core principle of the Amateur Radio Service “as a voluntary, non-commercial communication service carried out by duly authorized persons interested in radio technique with a personal aim and without pecuniary interest. Rather, we believe that the public interest will be served by establishing a narrow exception to the prohibition on transmitting amateur communications in which the station control operator has a pecuniary interest or employment relationship, and that such an exception is consistent with the intent of the Amateur Radio Service rules.”

The effective date of the R&O is to be determined and will be at some time after its publication in the Federal Register. A more detailed story will be forthcoming from the ARRL. –ARRL Letter

ACTIVE SUN COULD CAUSE HAVOC ON EARTH

It was quite a busy weekend for our Sun. During the late hours of Friday, July 30, a magnificent coronal mass ejection (CME) billowed away from the eastern limb of the Sun;

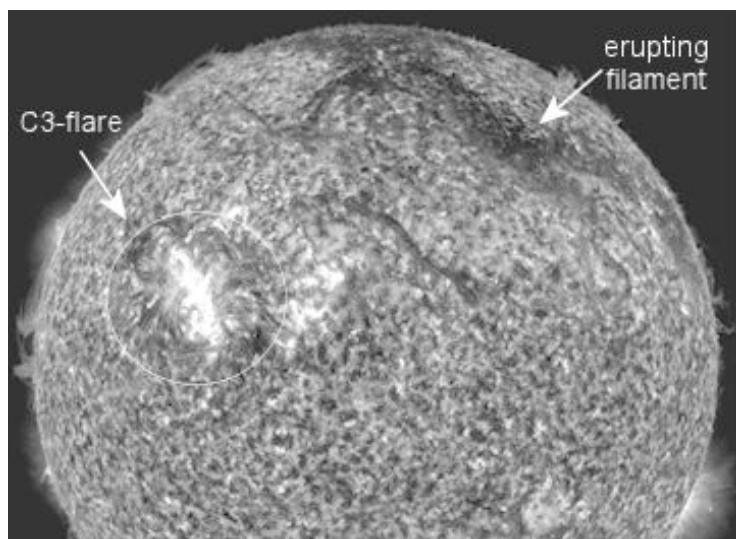
the source of the blast was apparently sunspot 1092. On Sunday, August 1 at approximately 0855 UTC, Earth-orbiting satellites detected a C3-class solar flare, and again, the blast came from sunspot 1092. At about the same time as the solar flare, an enormous magnetic filament erupted, stretching across the Sun's northern hemisphere, a complex global eruption involving almost the entire Earth-facing side of the Sun.

According to NASA, if a CME like this hit Earth, polar sky watchers would likely see bright auroras. In this case, however, the cloud is not aimed in our direction. At most, it would deliver a glancing blow to Earth's magnetic field around August 2, producing only minor geomagnetic activity. Future CMEs could be more geo-effective as the sunspot turns to face Earth in the days ahead. Auroras are glowing, dancing curtains of light that appear in the upper atmosphere of a planet and are caused by the interaction between the planet's magnetic field and charged particles from Earth's magnetosphere.

High speed coronal mass ejections produce major disturbances in the solar wind. Often loop-like in appearance, CMEs rise as massive clouds of material from the solar atmosphere. Dangerous, high energy, charged particles are often produced in these disturbances and, when they are directed toward Earth, often produce large magnetic storms in the magnetosphere.

A solar flare is an explosion on the Sun that happens when energy stored in twisted magnetic fields (usually above sunspots) is suddenly released. Flares produce a burst of radiation across the electromagnetic spectrum, from radio waves to x-rays and gamma-rays. Scientists classify solar flares according to their x-ray brightness in the wavelength range 1-8 Angstroms. There are 3 categories: X-class flares are big; they are major events that can trigger planet-wide radio blackouts and long-lasting radiation storms. M-class flares are medium-sized; they can cause brief radio blackouts that affect Earth's polar regions and minor radiation storms sometimes follow an M-class flare. Each category for x-ray flares has nine subdivisions (C1-C9, M1-M9 and X1-X9). Compared to X- and M-class events, C-class flares are small with few noticeable consequences here on Earth.

COMPLEX ERUPTION ON THE SUN On August 1st around 0855 UT, Earth orbiting satellites detected a C3-class solar flare. The origin of the blast was sunspot 1092. At about the same time, an enormous magnetic filament stretching across the sun's northern hemisphere erupted. NASA's Solar Dynamics Observatory recorded the action:



[Click to launch a movie \(EUV 304 A\)](#)

The timing of these events suggest they are connected, and a review of SDO movies strengthens that conclusion. Despite the ~400,000 km distance between them, the sunspot and filament seem to erupt together; they are probably connected by long-range magnetic fields. In this movie (171 Å), a shadowy shock wave (a "solar tsunami") can be seen emerging from the flare site and rippling across the northern hemisphere into the filament's eruption zone. That may have helped propel the filament into space.

In short, we have just witnessed a complex global eruption involving almost the entire Earth-facing side of the sun. High-latitude sky watchers should be alert for auroras when it arrives on or about August 3rd. <http://www.spaceweather.com/>

SUNSPOT SUNRISE -- Sunspot 1092, a key player in the Aug. 1st Earth-directed eruptions, is big enough to see without the aid of a solar telescope. Oleg Toumilovitch "spotted" it on July 31st rising over Blairgowrie, South Africa:



Photo details: Canon EOS-350D, ISO-800, 1/1600s exposure

"During the first few minutes of sunrise only a fraction of the sunlight makes it's way to the observer - mostly from the red part of visible spectrum," notes Toumilovitch. "During this time large sunspots can be seen without a special solar filter." Be careful, though! Even when dimmed by clouds and haze, direct sunlight can hurt your eyes. "If you try to take a picture like this," advises Toumilovitch, "look only at the screen of your digital camera, not the optical viewfinder."

High-latitude sky watchers should be alert for auroras when it arrives on or about August 3rd. -- <http://www.spaceweather.com/> and ARRL Letter

FIRST HALF OF 2010 SEES UPSWING IN NEW AMATEUR RADIO LICENSES

With more than 18,000 new Amateur Radio licenses issued in the first half of this year -- 18,270 to be exact -- 2010 is shaping up to be a banner year for Amateur Radio. So far, the

number of new licenses issued by the FCC in 2010 is outpacing the January-June 2009 totals by almost 8.5 percent; at this time last year, the FCC had issued 16,844 new licenses.

In 2009, a total of 30,144 new licenses were granted, an increase of almost 7.5 percent from 2008. In 2005, 16,368 new hams joined Amateur Radio's ranks -- just five years later, that number had increased by almost 14,000, a whopping 84 percent! The ARRL VEC is one of 14 VECs who administer Amateur Radio license exams.

Comparing 2010 to 2009, the only month that had higher license totals in 2009 was January: 1960 licenses were issued in January 2009, compared with 1726 in January 2010. Beginning in February, 2010 showed higher new license numbers: 2263 in February 2010 versus 2749 in February 2009; 3463 in March 2009 compared with 3734 in March 2010; 3430 in April 2009 compared with 3508 in April 2010; 2717 in May 2009 compared with 3136 in May 2010, and 3011 in June 2009 versus 3417 in June 2010.

As of June 30, 2010, there are 694,346 licensed Amateur Radio operators in the US, an almost 1 percent rise over all of 2009. In 2009, there were 682,500 licensed Amateur Radio operators in the US, an almost 3 percent rise over 2008. In 2008, there were 663,500 licensed amateurs; there were 655,800 in 2007. Broken down by license class at the end of June 2010, there were 16,299 Novices, 342,064 Technicians, 154,284 Generals, 60,059 Advanced and 121,640 Amateur Extra licensees.

"The ARRL VEC has been busy meeting the needs of the Amateur Radio community by helping people to become radio amateurs or upgrade their existing licenses," said ARRL VEC Manager Maria Somma, AB1FM. "So far in 2010, ARRL VEs have administered 20,929 exam elements at 3600 ARRL VEC-sponsored exam sessions. The number of amateurs who want to be Volunteer Examiners and who want to teach Amateur Radio classes is also going up -- we've seen a spike in the number of applications from General and Extra class radio amateurs who want to give back to their community by serving as ARRL examiners and instructors." --ARRL Letter

WHAT'S ALL THIS CARROT JUICE STUFF, ANYHOW?

Radar was one of the significant advantages the Allies had in World War II. The British and the Yanks made the best developed equipment and made the best use of it. So when the Luftwaffe sent in hundreds of bombers and fighters over England in 1940, they were surprised to find Spitfires and Hurricanes waiting for them. How could the Allies be so clairvoyant as to know where and when the bombers would be coming?

The Germans were often quite reasonable in guessing how the Allies would block them, but they sometimes refused to comprehend that the Allies had their plans largely figured out. Still, the Germans got suspicious that the oddly built structures of the radar sites were a major part of their problem.

THE RADAR PROBLEM -- The Germans decided to smash one of these "Chain Home" radar sites, at Ventnor, on the Isle of Wight, just off the south coast of England. The Germans attacked with many bombers and a heavy fighter escort. The RAF could not defend Ventnor, and at the end of the day, it was wrecked.

After the last Germans had fled, the British "boffins" (radio experts) realized they couldn't get the Ventnor radar up and working for the next day. This was a painful loss as the Ventnor radar was one of the farthest south, with long range, and best able to provide early warnings. The workers started doggedly to repair the wrecked wires and mechanical damage.

A few of the boffins decided to play a desperate joke. They set up one of the radio frequency tubes that had not been busted and set it to oscillating at about the right frequency. Even though it was not working as radar, it was making noise at about the right frequency. They fed it to a piece of antenna.

When the first German reconnaissance planes came over early the next morning, they detected this noise and thought the dratted Brits had gotten the radar back on the air. Nobody could figure out how they did it, but it seemed to be running.

Air Reichsmarshal Goering decided that the huge loss of men and equipment was not justifiable, since they couldn't knock out the radar. The Germans then began to attack other targets and goals. Eventually this turned into the bombing of the London Docks, which gradually went downhill.

So when the Germans tried to knock out the radar, they really did knock it out. But a small group of British RF engineers got a noise-maker working, and the Germans couldn't tell they were being spoofed. This may have been a significant turning point in the whole war, when the Germans were fooled by a cheap trick. And they backed away from a strategy that really was working, but those British tricksters wouldn't admit it.

MORE SPOOFING -- Near the end of 1940, when the weather was getting rotten and there were very few hours of daylight, the Luftwaffe had to concede that it could no longer run daylight raids, as it was losing too many bombers. So, the night bombing began. The Luftwaffe figured out several ways to guide its bombers to drop their bombs in about the right place with radio beams and such.

The Brits worked on several ways to fool the German bombers and force them to drop their bombs in a spoofed location. It must have scared the hell out of the cows in the fields. But the night bombers kept on coming.

Radar technology kept improving. The Allies made several advances in miniaturization to get a simplified (yet improved) radar set small enough to work in a twin-engine "night fighter." It was not easy, but they got them working.

The ground-based radar would guide the night fighters to within a mile behind a bomber. With a little luck, the on-board radar would then acquire the image and get them close enough to the bomber to see the red-hot exhausts, and then they could shoot the bomber down—even at night, even in clouds.

The Luftwaffe eventually figured out something was going on to cause heavier losses than expected. The Brits decided to play it very cagey. They studied the effects of carotene and carrot juice on night vision. It turned out, a little carotene was good for your night vision, but a lot was bad for night vision.

The RAF sent out some "pilots" in uniform on various wandering trips on the London subways. These guys were not qualified for flying, for various reasons, but they could play the role of fighter pilots. The Brits loaded them up on carrot juice until their skin ran YELLOW and ORANGE. Then these "pilots" would talk furtively with their friends about their new schemes for attacking night bombers. (Of course, radar was never mentioned.) They did this where Nazi spies or sympathizers on the Underground would likely notice something.

By snooping, the spies thought that the British were able to use carrot juice to see the bombers at night. Shortly, the Germans were out in the markets, buying up all the carrots in France and Germany! Eventually, the Germans did figure out about radar-equipped night fighters, but the carrot-juice ploy made sure they were fooled as long as possible.

Comments invited! --Bob Pease, Electronic Design, czar44@me.com

SHORTS

FCC: VANITY CALL SIGN FEES TO DECREASE AUGUST 17 -- On July 19, the FCC announced via the Federal Register that the cost of a 10 year Amateur Radio vanity call sign will decrease 10 cents, from \$13.40 to \$13.30. The new fees take effect 30 days after publication, making August 17, 2010, the first day the new fee is in effect. In FY2010, the FCC anticipates granting 14,800 vanity call signs, bringing in \$196,840 from the vanity call sign program. Earlier this year, the FCC released a Notice of Proposed Rule Making and Order (NPRM), seeking to lower the fee for Amateur Radio vanity call signs. The notice in the July 19, 2010 edition of the Federal Register -- entitled "Assessment and Collection of Regulatory Fees for Fiscal Year 2010; Final Rule" -- includes all FCC regulatory fees; these fees are expected to recover a total of \$336,712,213 during FY2010, encompassing all the Services the FCC regulates. The FCC is authorized by the Communications Act of 1934, As Amended, to collect vanity call sign fees to recover the costs associated with that program. The vanity call sign regulatory fee is payable not only when applying for a new vanity call sign, but also upon renewing a vanity call sign for a new 10 year term. --ARRL Letter

HERE IS SOMETHING YOU PROBABLY DIDN'T KNOW ABOUT WWV -- Double Ticks... Time corrections. The UTC time scale operates on atomic frequency, but by means of step adjustments is made to approximate the astronomical UTI scale. It may disagree from UTI by as much as 0.9 second before step adjustments of exactly 1 second are made. These adjustments, or leap seconds are required about once per year and will usually be made on December 31 or June 30. For those who need astronomical time more accurately than 0.9 second, a correction to UTC is encoded by the use of double ticks after the start of each minute. The first through the eighth seconds ticks will indicate a plus correction, and from the ninth through the 16th a minus correction. The correction is determined by counting the number of double ticks. For example, if the first, second, and third ticks are doubled, the correction is plus 0.3 second. If the ninth, 10th, 11th, and 12th ticks are doubled, the correction is minus 0.4 second. Read more: <http://cfr.vlex.com/vid/200-107-wwv-wwvh-wwvb-broadcasts-19634009> - ixzz0tiPNudkg --Time Nuts

SCOUTS TO LAUNCH 2 BALLOONS ON AUGUST 7th - as part of the Scouts Space Jam Technology Merit Badge Workshop, more info at <http://spacejamboree.com>, details below, we appreciate signal reports, or participation.

Balloon 1 (DePauw University BASE Flight 48) schedule to launch approx. 8:00 CT from Rantoul, IL APRS Tracking 144.390MHz using callsign N9QGS-11 every one minute with no path DominoEX-22 followed by 300 baud ASCII RTTY (200 Hz shift) every minute with Morse code ID every 5 minutes. Flight can be tracked at <http://www.spacenear.us/tracker> Amateur Television from balloon on 434 MHz NTSC Flight scheduled for 1000/ft ascent till burst at ~95,000ft

Balloon 2 (DePauw University BASE Flight 49) schedule to launch approx. 8:30 CT from Rantoul, IL APRS, tracking on 144.39 MHz using callsign W9YJ-11. Cross band repeater with input frequency: 144.360 MHz and an output frequency: 446.025 MHz down, no PL, please check in with net control (contact with ISS and scouts possibly may be rebroadcasted during flight through balloon.) A float valve will be used to keep repeater up at 60,000+ feet for approx. 90 minutes; Estimated time for cross band maximum range should be approx. from 1430 UTC till 1600 UTC and above 45 Kft from 1415 UTC till 1630 UTC. DominoEX-22 and RTTY 300 baud (200 spacing) ASCII every minute on TBA frequency and callsign (watch twitter for this information)

How to follow the action on the internet:

You can track the balloons using APRS technology at <http://tinyurl.com/2ed2u85>

Watch decoded DominoEX/RTTY flight data at <http://spaceneer.us/tracker>
Flight details and status on Twitter at http://twitter.com/base_depauw

ISS RANDOM CONTACTS BACK - After a seemingly long period when the astronaut and cosmonaut hams on board the International Space Station seemed only to be making pre-planned contacts with schools, random contacts are back. For several days last week, Colonel Doug Wheelock, KF5BOC, took to the air from the orbital outpost to talk to hams around the globe. –ARRL Letter

ESA COLUMBUS AIS SYSTEM ANTENNA BUILT BY HAM - SpaceDaily.com reports that the European Space Agency's Columbus module maritime Automatic Identification System or AIS aboard the International Space Station was switched on. The A-I-S antenna, mounted externally on the Columbus module, was fabricated by AMSAT and ARISS member Lou McFadin, W5DID and the United States ARISS team. The group has also constructed a nearly identical amateur band antenna for ARISS operations that will be used when the Ericsson amateur radio gear is activated in early 2011.

And how well does the new antenna work? The European Space Agency reports receiving more than 90,000 Class A AIS messages during a 14 hour test between 1900 GMT on June 2nd and 0900 GMT on June 3rd. This generated a global view of maritime traffic as the ISS orbit crosses all major shipping lanes. (ANS)

A POSSIBLE BONUS SHUTTLE MISSION- The July 2 UniverseToday.com newsletter reports that NASA announced new target dates for the final two or maybe three shuttle missions. STS-133 is now aiming for November 1 at approximately 4:33 p.m. EDT for the final flight of shuttle Discovery,. STS-134 will happen on February 26, 2011 at around 4:19 p.m. EST for shuttle Endeavour's last launch.

However there's now word for the potential of a bonus mission titled STS-135. If approved by Congress, it would launch sometime in August 2011. The latest word on that was that NASA officials hope the decision on whether or not to fly STS-135 would be made sometime this month. (ANS, Universe Today)

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