



# Splatter

Mississippi Coast Amateur Radio Association

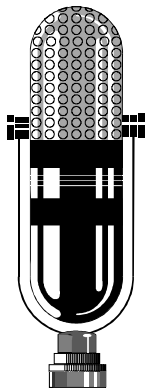
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## Spring 2004

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The Mississippi Coast Amateur Radio Association (MCARA) meets the third Monday of each month at 7:00 PM in the conference room at the American Red Cross building on DeBuys Road in Biloxi. All radio amateurs and persons interested in becoming an amateur are invited to attend and learn more about our organization.

The club also calls the MCARA 2 meter net each Tuesday night at 7:00 PM on the Biloxi repeater at 146.73 MHz.

## Tour-de-Cure 2004



Members of the Mississippi Coast Amateur Radio Association (MCARA) joined forces to provide communications support for the American Diabetes Association's crosscountry bicycle race from Bay St. Louis to the Imperial Palace Hotel in North Biloxi. On Saturday and Sunday April 17 and 18 over 200 riders made their way along back roads in Hancock and Harrison Counties to cover either a 60 mile or a 100 mile course. The winning rider on Saturday finished 60 miles in just 3 1/2 hours while the last rider [*pictured above*] took 8 1/2 hours to complete the 100 mile course.

Club members set up stations at the departure point, 8 rest stops, and the finish line and also provided rolling communications to cover lost riders, breakdowns and unexpected emergencies. The local 146.73 repeater was used for all communications and operations were conducted as an open net. This event was a first for the club and demonstrated our ability to provide both fixed location and mobile following services in support of an event spread out over such a large two-county area.

The second day saw most of the riders repeating their routes in reverse to end up at the Bay St. Louis Depot starting point. No serious accidents were reported but the club's ability to monitor conditions along the courses and forward information promptly were demonstrated on numerous occasions.

In addition to the club's support, a large contingent of motorcycles from the New Orleans area accompanied the riders and ensured that any breakdowns were promptly brought to the attention of club stations who summoned assistance.

Food was provided by **Gail, KC5KMU**, and her crew who did a great job of feeding the club volunteers. Each rest stop also provided riders with drinks and fresh fruit to replenish lost hydration during the challenging race. Great job, everyone!

## Awards Go To N5LBZ ...

Mississippi Coast Amateur Radio Association (MCARA) member **Stuart Cole, N5LBZ**, was recently honored for his longtime support of the club and amateur activities in general on the Gulf Coast when he was presented with a lifetime membership in MCARA. This culminates his long association with the club. Stu's service to and support of club activities goes back a long way and were appropriately recognized when the presentation was made by club president, **Dave Turgeon, WY5S**.

Stu has provided the weekly presentations of *News Line*, a weekly broadcast featuring news of interest for amateur radio operators around the world. The presentations follow the weekly MCARA Net on the 146.73 repeater each Tuesday night.

In addition, Stu was presented a special certificate from the American Radio Relay League (ARRL) recognizing his recent upgrade to Amateur Extra Class. The certificate was also presented by Dave, WY5S.

## 160 Meter Contest ...

Several MCARA members gathered at Camp Tiak on Saturday and Sunday, February 27 and 28 to participate in the annual 160 meter contest. Those participating included **Clyde, W5CR**; **Butch, KA2KMU**, and his XYL **Gail, KC5KMU**; **Barbara Turgeon**; **Barry, WB5WB** and his XYL **Jackie**; and **Jeff, N9OKV** and his XYL **Cynthia, KD5WTK**; and **Ernie, W5OXA**.

Most 160 meter activity occurred in the evening hours. **Gail** and **Barbara** provided the food for the hungry crew in their usual superb manner and fellowship and visiting filled in the periods when radio activity was slow.

## Mississippi QSO Party...

Coincidentally, the annual Mississippi QSO Party fell on the same weekend as the 160 Meter Contest so both events were covered by the crew at Camp Tiak. Most activity for the QSO Party was centered around daytime operations and the club was well represented by the members who journeyed up to Camp Tiak.

**Jeff, N9OKV** and **Cynthia, KD5WTK** stayed busy at their laptop computers operating and logging contacts, **Clyde, W5CR** provided the mainstay of CW operations while **Butch, KA2KMU**, **Ernie, W5OXA**, and **Barry, WB5WB**, bagged their share of contacts to support the club's participation in this year's event.

## Spring Cookout ...

Club members and their families were again treated to a great cookout at the home of **Clyde Ready, W5CR** and his XYL **Carol, KB5VBX** on Saturday, April 3. The event took place at the Ready's home located on Hoot Owl Hill up Highway 67 North.

Club members each brought a covered dish and enjoyed sampling each other's special recipes and cooking expertise. Various meats were cooked outdoors on the club's grill and a delicious fried turkey rounded out the menu.

Special demonstrations included an antenna field test setup provided by **John, KD5RVX**, who designed the circuitry and wrote the software to calibrate antennas and evaluate their performance under field conditions.

**Clay, W5ACS**, and **Barry, WB5WB** put on an impressive demonstration of slow scan TV and worked some DX into Mexico. The quality of the received pictures was impressive and the easy with which Barry navigated the computer display instructions looked easy.

**Joe, WE5Y**, set up his solar powered QRP station to demonstrate his homemade portable inverted V antenna and solar components. He worked **Danny, ON6WA**, in Belgium on 17 meters using 4 watts.

There was a lot of great fellowship and enjoyable food to make the afternoon one we will remember for a long time.

Special thanks are due to our hosts, **Clyde** and **Carol**, and to **Gail, KC5KMU**, our Activities Chairperson. Those who cooked our excellent meal and those who brought so many great tasting dishes and desserts are to be equally recognized and thanked.

Our goal is to enjoy our hobby and the fellowship we share with the many interesting, talented, and hard working folks who make up our organization. We had an excellent turnout for our Spring cookout and now look forward to our next big event, **Field Day 2004**.

**Jeff, N9OKV**, our Field Day coordinator, has done a superb job of securing this year's site and marshaling the necessary resources from within our ranks to ensure that we are well equipped and manned.

Field Day 2004 will again be held at the County Farm, site of last year's field day. **Jeff** and his XYL **Cynthia, KD5WTK**, are tireless workers who make things happen for us. Please talk up this important annual event and encourage anyone with an interest in our hobby to come out and see ham radio at its best as we once again "do our thing" the last full weekend in June.

# The Solar Station ...

Joe Littlepage, WE5Y

In response to several questions raised by club members I decided to present a brief outline of the theory and practical elements involved in “going solar”.

Let me begin by reviewing a few facts about the Sun, our nearest star. The Sun lies about 93 million miles away from Earth and its energy takes about 8 minutes to reach us. The Sun’s diameter is 865,000 miles (equal to about 109 Earth diameters) and its mass is about 329,000 times that of Earth. The Sun is composed of 92% hydrogen, nearly 8% helium and the rest various elements. The Sun’s energy is created by fusion, the same reaction that takes place in a hydrogen bomb. Its total energy output is nearly  $4 \times 10^{23}$  kilowatts. This amounts to about **13 million** times the *annual* energy consumption of the United States every *second*! This results in approximately 1 *kilowatt* of energy is falling on a square meter (39”x39”) of Earth’s surface at high noon on a clear day.

We can harness this energy in several ways. The most efficient way to turn it into electrical energy is to utilize photovoltaic cells. The photovoltaic process was understood over 100 years ago but a practical application of this understanding had to wait until **1954** when Bell Laboratories developed the first practical photovoltaic cell.

Today’s photovoltaic, or solar cell, is made of silicon (derived from sand) which has been highly refined and “doped” with certain impurities to give the silicon a surplus or a deficiency of electrons. The two material types are joined together in a solar cell to form a P-N junction (remember diodes and transistors?) which, when exposed to the Sun’s light, causes electrons to flow through a closed circuit. When photons traveling from the Sun strike the surface of a solar cell they cause electrons to be displaced in the silicon material. This, then, is the source of our “free” energy from the Sun.

Solar cells typically have a fixed voltage output of about **0.45** volts DC regardless of size. The size of the cell determines the amount of **current** thus generated. Solar panels, or modules, are usually constructed of 36 solar cells (of various sizes) to produce about 16 to 18 volts DC at various ampere outputs. Module wattage ratings range from **5** to **300** watts. A 20 watt solar module with 36 cells typically produces about 1.2 amps of current.

Modern solar panels are rated at 14% efficiency and many are guaranteed to produce at least 80% of their original rated output power after **25** years. Panels used in

space by NASA have nearly 30% efficiency ratings.

My study of solar technology for the past 3 years naturally led me to want to try using the Sun’s energy to power my modest home station. The basic components needed to operate a solar station include a **solar panel** of sufficient rated output to maintain the desired power level, a solar **charge controller** to regulate the output of the panel to the proper voltage and current levels to maintain proper battery charge state, and finally a true “**deep cycle**” **battery** that will provide the pure DC voltage required by most modern amateur equipment.

The charge controller regulates the voltage to the battery at precisely 14.1 VDC for gel cell batteries or 14.4 VDC for flooded lead acid batteries. The charge controller automatically adjusts the charge rate downward to avoid overcharging as the battery reaches its full charge state. Charge controllers come in many ranges from a few amps to many amps. I use a charge controller rated at 6 amps for a single 80 watt solar panel (rated at 4.5 amps output) and a 55 ampour gel cell battery.

The battery should be a true “deep cycle” type to allow for repeated discharge-recharge cycles over a few years. Their plate construction is more robust and will not deteriorate as quickly as common “automotive” batteries.

Each component in the solar station setup must be carefully chosen and matched to meet your anticipated power requirement for running your station. It would be a good idea to plan for a 20% margin in excess of your requirements when selecting your components.

What does it all cost? High quality solar panels such as Kyocera, BP, and Shell can be purchased for around \$4.00 per watt (remember they carry a 25 year warranty). Charge controllers, such as Morningstar, run \$55.00 for a 6 amp model to around \$85.00 for a 20 amp model. Xantrex produces controllers in the 40 to 60 amp range for around \$200.00 and there are several other fine product makers in the market place. Careful shopping can result in substantial savings.

While occasional articles have appeared in *QST* and *CQ* magazines, there is much to be learned about solar technology. I highly recommend *Home Power* magazine, a bimonthly publication devoted entirely to renewable energy issues (solar, wind, and water) and detailed hands-on construction projects in each issue.

Whether we like it or not, our future doesn’t rest with fossil fuels but with the new “clean” renewable technologies being refined today. Why not join me in the switch to an alternative energy powered amateur station?

Mississippi Coast Amateur Radio Association (MCARA)  
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1st Class  
Postage  
Required



## Spring 2004

The *Splatter* is published quarterly for members and friends of the **Mississippi Coast Amateur Radio Association (MCARA)**. It aims to broaden their awareness and understanding of issues and events relevant to radio amateurs in this area.

### MCARA Officers for 2004:

President: David Turgeon, WY5S

Vice President: Clyde Ready, W5CR

Secretary: Carol Ready, KC5VBX

Treasurer: Barry Wilhelm, WB5WB

*Splatter* Editor: Joe Littlepage, WE5Y

### MCARA Calendar:

- 1st Saturday of each month: VE testing in the conference room of the American Red Cross building located at the corner of DeBuys Road and Fernwood Road in West Biloxi

- 3rd Monday of each month: Monthly general membership meeting at the same location

- Every Thursday night at 7:00 pm: Coffee Break and fellowship get together at McAllister's located in the Popp's Ferry shopping center (west) located at Popp's Ferry Road and Pass Road in West Biloxi