

# The Printed Circuit

The Monthly Publication of the  
Tallahassee Amateur Radio Society  
October , 2020



**T**ALLAHASSEE  
**A**MATEUR  
**R**ADIO  
**S**OCIETY

**K4TLH**  
**.NET**

Facebook.com/  
**K4TLH**

P.O. Box 37127  
Tallahassee, FL 32315



## MINUTES OF THE OCTOBER 1, 2020 TARS MEETING

Compiled and Submitted by: Tom Brooks (K4TB) – TARS Secretary

(NOTE: The business portion of the meeting was conducted via radio net due to the Covid-19 Virus Pandemic. The program portion was conducted via a video teleconference that followed the business meeting.)

Call to Order: Gerry Gross (WA6POZ), as net control, opened the TARS meeting net at 7 PM on the 147.03 MHz repeater.

Check-ins: KN4WOW – Ed, KN4FCC – Todd, KQ3O – Justin, NT4B – Bob, KO4HFJ – Dustin, KD4MOJ – Doug, AG4UU – Randy, KA5USN – Phil, K4GFD – Norm, KY4BA – Gordon, KN4UXJ – Larry, KN4NVU – Erik, K4NVL – Theo, WA6POZ – Gerry, KD4M – Jim, K4YFW – Sal, KN4SCE – Ryan, K4TB – Tom, KN4TRT – Paul, KK4SIH – Don, W4LTR – Jim, N4JEL – Mike, and K4SBZ – Stan.

Gerry then turned the TARS meeting net over to President Don Pace, (KK4SIH) who welcomed everyone.

### Business Committees:

Minutes: President Pace asked if there were any additions, corrections or changes to the September minutes as published in the Printed Circuit. Hearing none he announced that the minutes were accepted.

Treasury Report: Treasurer Doug Ferrell, KC4MOJ, said the latest report is in this month's newsletter (the Printed Circuit). He explained a yellow box with \$ 0.77 in it that appears in the report, saying that it was inadvertently missing some text to explain that the \$ 0.77 was added to make up the difference from the previous month's report of \$.38 interest earned to actually a total of \$1.15 interest that was earned. Doug said he had received several membership renewals last month, and he also thanked Don, KK4SIH, and Randy, AI4CO, for donations they made.

Education: President Pace said there are no classes scheduled until the Red Cross reopens their building for our use.

Testing: Testing Coordinator Norm Scholer K4GFD said everyone who took testing in September passed, and noted that Gordon (now KY4BA) took all three tests and passed them all, earning his Extra Class license. Norm said that, including some people upgrading their licenses, there was a total of 5 people passing tests. The next testing will be November 14th, a Saturday, at 10 AM and at 1 PM. President Pace thanked Norm for the service he provides.

Repeaters: Repeater Coordinator Randy Pierce, AG4UU, reported that all repeaters were functioning well and the DMR repeater is now up. He said he and others were looking at whether the Capital Regional Medical Center could use another repeater to help the coverage there. Todd, KN4FCC said he had heard a power alarm on the .03 repeater recently, and Randy said he would look into that. Mike, N4JEL, said to Randy that he would be delighted for any improvement with the Medical Center repeater operation. Randy acknowledge the Fusion repeater operation there was sporadic. Norm explained that regarding the recent DMR repeater problems there had been a server outage in Dayton, Ohio which is now fixed.

### Old Business

Elections: Don mentioned that we will need nominations for officers by the November meeting, so please contact Chuck Basham (AI4KA) if you are interested in running for an office. There was some discussion on the current officers staying on but Todd, KN4FCC, said he did not want to stay on as Vice President. Gordon, KY4BA, volunteered for Vice President.

### New Business/Discussion/Announcements:

Event Announcements: These club members made announcements: Gerry, WA6POZ re: California QSO Party, ARRL auction in Nov; Paul, KN4TRT re: Fort Walton Beach Hamfest Nov 13-14; Tom, K4TB re: AMSAT virtual symposium Oct 17.

Adjournment –The net was closed and the meeting was adjourned at approximately 7:33 pm.

Program: Shortly following the business meeting was a Zoom video teleconference led by Gerry. He presented a talk on QSOs and QSLs, and the several means available to Hams for logging and acknowledging radio contacts, such as Log Book of the World (LOTW), eQSL, Online QSL Request System (OOQRS), and paper QSL cards via mail services. There were 22 attendees.

## **TARS Treasurer's Report**

Submitted by Doug Ferrell, KD4MOJ, Treasurer

|                                   | <u>for period</u> | <u>year-to-date</u> |
|-----------------------------------|-------------------|---------------------|
| <b><u>Beginning Balances:</u></b> | 20-Oct-20         | Jan 1, 2020         |
| Cash on hand                      | \$ -              | \$ -                |
| Checking Account:                 | \$ 3,757.61       | \$ 2,688.20         |
| Savings Account:                  | \$ 3,102.29       | \$ 3,101.52         |
| Total:                            | \$ 6,859.90       | \$ 5,789.72         |

### **Summary of Month's Activity:**

|                     |      |             |
|---------------------|------|-------------|
| Total Receipts:     | \$ - | \$ 1,781.08 |
| Total Expenditures: | \$ - | \$ 710.51   |

### **Receipts Derived From:**

|                           |      |           |
|---------------------------|------|-----------|
| Members Dues:             | \$ - | \$ 808.50 |
| Fifty/Fifty               | \$ - | \$ 42.00  |
| Donation (KK4SIH & AI4CO) | \$ - | \$ 860.00 |
| Veteran's Radio Fund      | \$ - | \$ -      |
| Field Day Radio Fund      | \$ - | \$ -      |

|                    |    |      |    |          |
|--------------------|----|------|----|----------|
| Interest (Savings) | \$ | 0.39 | \$ | 1.16     |
| smile.amazon.com   | \$ | -    | \$ | 69.42    |
| Total              | \$ | 0.39 | \$ | 1,781.08 |

**Expenditures:**

|                            |    |   |    |        |
|----------------------------|----|---|----|--------|
| American Red Cross:        | \$ | - | \$ | -      |
| Fifty-Fifty                | \$ | - | \$ | -      |
| ARRL Insurance             | \$ | - | \$ | -      |
| Spagetti 100 - TARC        | \$ | - | \$ | -      |
| TARS & Feathers Plaque     | \$ | - | \$ | -      |
| Storage & Supplies         | \$ | - | \$ | 284.57 |
| Field Day                  | \$ | - | \$ | -      |
| VE Expenses                | \$ | - | \$ | 71.79  |
| Tower/Repeater Maintenance | \$ | - | \$ | 138.90 |
| Florida Dept of State      | \$ | - | \$ | 61.25  |
| Post Office Box:           | \$ | - | \$ | 154.00 |
| Total:                     | \$ | - | \$ | 710.51 |

**Transfer Checking -> Savings:**

**Ending Balances - Oct 20, 2020:**

|                  |    |          |    |          |
|------------------|----|----------|----|----------|
| Cash on hand     | \$ | -        | \$ | -        |
| Checking Account | \$ | 3,757.61 | \$ | 3,757.61 |
| Savings Account  | \$ | 3,102.68 | \$ | 3,102.68 |
| Total            | \$ | 6,860.29 | \$ | 6,860.29 |

|                       |    |        |
|-----------------------|----|--------|
| *Veteran's Radio Fund | \$ | 500.00 |
| *Field Day Radio Fund | \$ | 697.00 |

**Gerry, WA6POZ, to offer General Class Licence Class**

Gerry, WA6POZ, will offer a General Class course on Zoom beginning Thursday, November 5, and running for 9 sessions. Due to holiday breaks, the course ends January 21. Sessions will start at 6:30 Eastern Standard Time (2330 UTC), and run 3

hours. No charge, of course. These are the classes sponsored by the National Electronics Museum that have been held for years. Those wishing to sign up should email Gerry at [roland.anders@comcast.net](mailto:roland.anders@comcast.net).

## Ham Happenings

### November 2020 DX

It is possible that some of the listing stations canceled their plans due to the Corvis-19

| From   | To     | Prefix | Call, () is the IOTA designation |
|--------|--------|--------|----------------------------------|
| 01-Nov | ???    | 5X     | 5X1JT                            |
| 01-Nov | ???    | 9G     | 9G5FI                            |
| 01-Nov | ???    | E5/N   | E51WL                            |
| 01-Nov | ???    | PZ     | PZ2YT                            |
| 01-Nov | ???    | VQ9    | VQ9T                             |
| 01-Nov | 01-Dec | Z8     | Z81B                             |
| 01-Nov | 01-Jan | CE9    | 8J1RL (AN-015)                   |
| 01-Nov | 03-Dec | J8     | J88/8P5AB                        |
| 01-Nov | 06-Dec | 7Q     | 7Q6M                             |
| 01-Nov | 08-Nov | V3     | V31TA (NA-123)                   |
| 01-Nov | 11-Jan | 4X     | 4X0AAP, 4Z0AAP                   |
| 01-Nov | 11-Jan | A6     | A60AAP                           |
| 01-Nov | 13-Nov | CE     | XR33M                            |
| 01-Nov | 13-Nov | ON     | OR39CLM                          |
| 01-Nov | 15-Jan | JD1/M  | JG8NQJ/JD1 (OC-073)              |
| 01-Nov | 22-Nov | F      | TM72WOW                          |
| 01-Nov | 27-Nov | CE     | CE8/DD0VR                        |
| 01-Nov | 30-Nov | TK     | F6EPO/TK                         |
| 01-Nov | 31-Dec | I      | 4U75B                            |
| 01-Nov | 31-Dec | JA     | 8N1M                             |
| 01-Nov | 31-Dec | OE     | 4U75A                            |
| 01-Nov | 31-Dec | XE     | 4A50RCH                          |
| 01-Nov | 31-Dec | 4U_UN  | 4U75UN                           |
| 01-Nov | 31-Dec | 9M2    | 9M4DXX (AS-015)                  |
| 01-Nov | 31-Mar | JX     | JX2US                            |
| 03-Nov | 15-Nov | FO/M   | TX7MB (EME)                      |
| 20-Nov | 07-Dec | XT     | XT2MAX                           |

28-Nov 29-Nov 3B8 3B8M  
DX sources - The Daily DX, 425 DX News, or DX Zone

## **FCG FCP RadioSports Highlights**

November 2020

We are still in the middle of the busy season for contesting. We have 10 significant contests this month and half of them are major contests. There are no more State QSO Parties until February. WA7BNM Contest Calendar lists 95 RadioSport activities for November worldwide, more than enough to keep you busy depending on your interest – phone, CW or digital. You don't have to wait until the weekend to play – there are many small activities scheduled throughout the week in the evenings. The minor events are too numerous, too short, or too focused to warrant attention here. The more significant ones are described below.

### Preview of November Weekends

November 1

November starts off with an event Sunday evening. The North American Sprint, SSB follows the sprints for CW and RTTY that were held last month. Sprints have an interesting twist – with the station calling CQ having to relinquish the frequency to the answering station after the QSO. The new station calls CQ and then gives up the frequency to whomever answered him. The best strategy is to search & pounce for someone calling CQ, then take over his frequency and call CQ yourself. Repeating the S&P then CQ routine gives you two QSOs on each frequency. There is also a convention about using your callsign during an exchange, so use Google to do a little research before trying your first sprint. Don't bother to spot anyone or use a DX cluster because everyone is continuously QSYing. Sprints are usually only four hours long, but you will be exhausted at the end. If you do find sprints to be fun, almost every weekend there are usually smaller sprints that aren't on our approved list. You can use them as “practice” sprints.

November 7 - 8

This is a big weekend with the ARRL Sweepstakes CW Contest. As a tribute to contesting originating with passing traffic, the exchange for a Sweepstakes resembles the preamble of a message with five pieces of information: the sequential serial number of the contact, your precedence (type of station), your call sign, your check (the last two digits of the year you were first licensed), and the abbreviation for your ARRL or RAC section, e.g., "123 U K4SBZ 77 NFL". The 84 ARRL and RAC Sections are multipliers. Many operators try for a "clean sweep." Participation pins (100 or more contacts) and Clean Sweep coffee mugs are available for purchase from the ARRL by qualifying stations.

The Ukrainian DX Contest is also this weekend. Multipliers are DXCC and WAE countries plus Ukrainian oblasts on every band. Ukrainian oblasts have a higher multiplier of 10 points. The exchange is RS(T) and a serial number. The contest is for CW and SSB only – no digital.

November 14 – 15

The Worked All Europe (WAE) DX Contest, RTTY is almost a Major contest and some would say that it is. Many leading contesters claim the WAEDC to be the most challenging contest of the year. Being a true blue DX contest, only intercontinental QSOs between DX and Europe are counted. Therefore, the number of DX QSOs here may be similar to the amount of DX usually worked in the CQWW. Moreover, the unique feature of QTC-traffic adds much fun and another operating challenge to the contest. Be sure to check the rules so that you understand the exchange and the sending of QTCs.

The JIDX Phone Contest is a Japan works everyone contest with multipliers for non-JA Stations being the JA prefectures plus JD1/O, JD1/MT, JD1/OT once per band. Contacts on 80 and 10 Meters are worth double and on 160 are worth 4X. The exchange is signal report and your CQ zone.

For CW operators, this weekend has the OK-OM DX CW Contest. This is a Czech/Slovak works everyone contest with the Czech and Slovakian oblasts serving as multipliers. Because prefixes are multipliers for OK, OL and OM stations and DX contacts are worth 3X for them, the OK/OL/OM stations

will be very anxious to work many different foreign prefixes. The exchange is RST plus a serial number.

November 21-22

This is another big weekend with the ARRL Sweepstakes SSB Contest, similar to the CW Sweepstakes two weeks ago. As a tribute to contesting originating with passing traffic, the exchange for a Sweepstakes resembles the preamble of a message with five pieces of information: the sequential serial number of the contact, your precedence (type of station), your call sign, your check (the last two digits of the year you were first licensed), and the abbreviation for your ARRL or RAC section, e.g., "123 Uniform K4SBZ 77 North Florida". The 84 ARRL and RAC Sections are multipliers. Many operators try for a "clean sweep." Participation pins (100 or more contacts) and Clean Sweep coffee mugs are available for purchase from the ARRL by qualifying stations.

The LZ DX Contest is an everyone works everyone DX contest. However, contacts with a Bulgarian station are worth ten times more points. Another continent is worth 3X. The multiplier is the sum of ITU zones and LZ districts. The exchange is RS(T) and ITU zone. This contest is for CW and SSB only.

For top band enthusiasts, the weekend brings the All Austrian 160-Meter Contest. Multipliers are the OE-District-Codes and DXCC/WAE countries. The exchange for this CW only contest is RST and a serial number.

November 28-29

This is the third big weekend this month with the CQ Worldwide DX Contest, CW. Along with its SSB counterpart in October, this is the largest amateur radio competition in the world, drawing over 35,000 participants from around the world. The exchange is signal report and CQ zone. Multipliers are the combination of each CQ Zone and each DXCC entity. If this is anything like its SSB cousin last month, there will be a full 48-hours of wall-to-wall activity. Many operators have been known to make DXCC in one weekend. Maybe you can at least add a couple of new ones.



## About Participating

Before participating in any of these contests or events, please familiarize yourself with the times, bands, exchanges, rules, etc. associated with the event. The WA7BNM Contest Calendar (<http://www.contestcalendar.com//index.html>) can provide most of the information, as well as a link to the contest's home page, which will give you a "flavor" for the contest and let you know about any plaques or other special prizes like a bottle of wine or a frozen salmon. Alternatively, you can Google the name of the contest or event and go directly to their home page.

If you are a new or casual contester, there is never a better time to start or return to contesting than now. Pick one of the easier contests, such as a State QSO Party or one of the minor DX contests, and jump in. (No, first read the rules as suggested above.) You do not have to score a lot of points but do spend some time in the chair having fun. As you are enjoying the leisurely pace of one of these slower contests, picture it on steroids as a major contest with wall-to-wall stations all calling CQ. After it is completed, submit your log to the contest sponsor and report your activity on 3830Scores. Then look at the contest results on 3830 to see how you compared with all others. With this contest completely under your belt, check the Schedule of Contests to see what next weekend has in store for you.

### Summary

| Contest                        | Type  | Weight | Date   | Time  | CW | SSB | RTTY | Other Digital |
|--------------------------------|-------|--------|--------|-------|----|-----|------|---------------|
| North American SSB Sprint      | Major | 10     | 1-Nov  | 0000Z |    | S   |      |               |
| ---                            |       |        |        |       |    |     |      |               |
| Ukrainian DX Contest           | DX    | 5      | 7-Nov  | 1200Z | C  | S   |      |               |
| ARRL Sweepstakes Contest, CW   | Major | 10     | 7-Nov  | 2100Z | C  |     |      |               |
| ---                            |       |        |        |       |    |     |      |               |
| WAE DX Contest, RTTY           | Major | 8      | 14-Nov | 0000Z |    |     | R    |               |
| JIDX Phone Contest             | DX    | 5      | 14-Nov | 0700Z |    | S   |      |               |
| OK/OM DX Contest, CW           | DX    | 5      | 14-Nov | 1200Z | C  |     |      |               |
| ---                            |       |        |        |       |    |     |      |               |
| LZ DX Contest                  | DX    | 5      | 21-Nov | 1200Z | C  | S   |      |               |
| All Austrian 160-Meter Contest | DX    | 5      | 21-Nov | 1600Z |    | S   |      |               |
| ARRL Sweepstakes Contest, SSB  | Major | 10     | 21-Nov | 2100Z |    | S   |      |               |
| ---                            |       |        |        |       |    |     |      |               |
| CQ Worldwide DX Contest, CW    | Major | 10     | 28-Nov | 0000Z | C  |     |      |               |

## RADIO BOUNCES OFF THE SKY

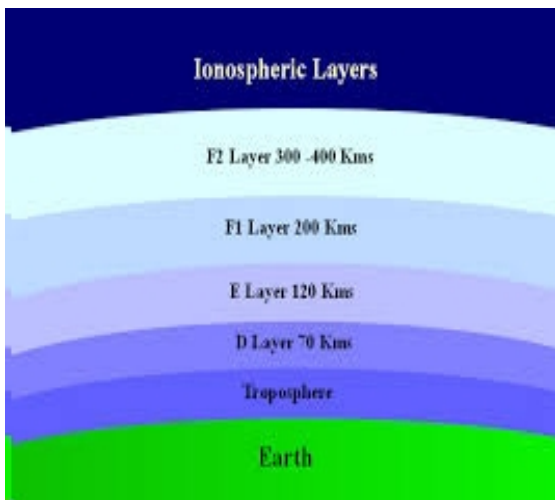
Stan, K4SBZ, always closes emails to me with the phrase “Real radio bounces off the sky.” True enough, but it begs the question of why? Or how? To answer one or both of those questions let’s look at the sky and see what is happening to cause radio waves to bounce off the sky.

Whenever you key your HT or Yaesu HF rig, it will transmit two types of radio waves. The groundwave, as the name suggests, travels along the ground or curvature of the earth. How far it goes depends on the type of terrain it is going over, the height of the transmitting antenna, its orientation, and the frequency. With regards to this last variable, generally, the lower the frequency, the farther the ground wave goes.

The second radio wave is the skywave, and as its name suggests it will head into the atmosphere and beyond-sometimes, and it is that sometimes that makes amateur radio interesting. Above the earth and surrounding it are three layers named the D, E, and F layers, with the F layer breaking into an F1 and F2 layers at night.

The D layer is closet to the earth and lies between 37 and 57 miles above the earth. It exists, fortunately, only during the day, and dissipates at night when none of the sun’s energy can activate or charge the particles in that layer.

The E layer shares some of the characteristics of the D layer and exists between 62 and 71 miles above the earth. The F layer, lies between 100 and 260 miles above the earth, and it is the one that is most interesting for radio communication.

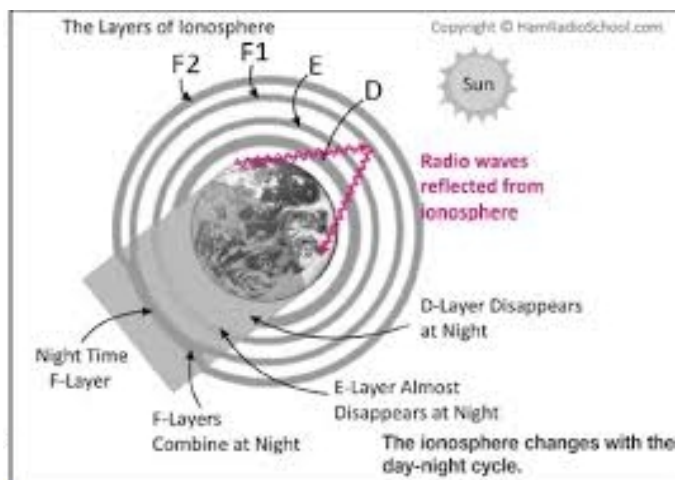


So, how do signals bounce off the sky? It all depends on the sun. The ionosphere is so named such because it is the region of the earth's atmosphere where ions or electrons exist. Molecules also occupy this part of space but they have, by their nature, a neutral electrical charge. But not for long. During the day the earth is bathed in solar energy, and particularly ultraviolet light. This intense flooding of the ionosphere causes these molecules to break apart or ionize and in doing so will also set free one or more electrons that buzz around the ionosphere.

The D layer has a relatively high density of these ions, and they recombine quickly with the electrons, forming neutral particles again. And that becomes a problem for the radio wave. As it moves through this layer, it is like trying to leave Doak Campbell stadium after the Florida Florida State game. A lot of people are trying to leave to the stadium parking lot at the same time with the result that no one goes anywhere particularly fast. Similarly with the radio wave trying to get through the dense D layer. As it moves past a molecule it will hit it with the result that some of the wave's energy is lost. Hence, as it moves through the layer it will hit more molecules and continually lose energy. Thus, at noon, when the amount of sunlight hitting the earth is greatest, the D layer becomes so dense, that the radio wave simply gets absorbed by the D layer.

Now this is not entirely true because generally the higher the frequency the less the D layer absorption, so, for example, an 80 meter signal will disappear where as one on 20 meters might get through.

While the D layer thus kills low frequency signals, the good news is that shortly after sundown, it disappears, leaving only the E and F layers.



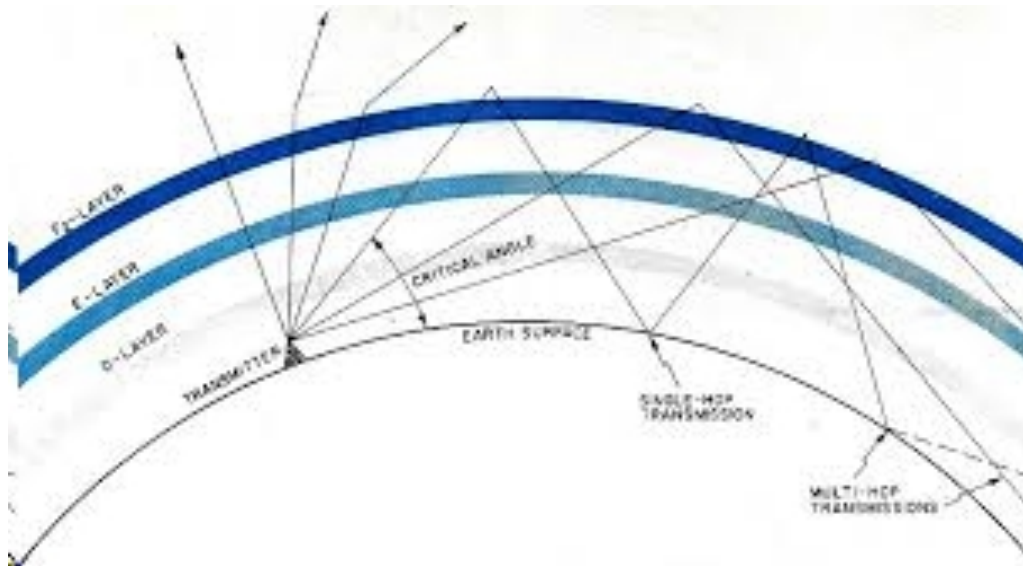
The E and F layers.

The density of molecules in the E and F layers is much less than in the D layer, so there is correspondingly less energy lost by the radio wave as it hits these layers. But then something strange happens. Rather than bouncing off molecules and losing energy, the radio wave tends to be “re-radiated.” Or, said in terms used with light, the signal is refracted or reflected. How much it changes direction or is reflected will depend on the angle of incidence, or the angle it hits the E or F layer, and its frequency.

Now, at lower frequencies, the E layer will do most of the reflection. As the frequency increases, however, the radio wave will pass through that layer to the F layer, where it will be reflected back to earth and of course through the E and D layers. The resulting skip distance, thus, is the distance between the transmitter and the receiver with 2500 miles being the longest distance a radio wave can go with one “bounce” off the F2 layer. Thus, to communicate with stations on the other side of the globe, the signal must, like a rock skipping on a lake, come back to earth, and be reflected back to the sky one or more times. Of course, as might be expected, the signal gets weaker with each bounce from the earth, and desert areas are particular bad for this skipping, whereas oceans or other large bodies of water do a much better job of reflecting signals.

Now, to avoid misleading you, let me also mention that as the frequency of a radio wave increases, the ability of the E and F layers to reflect those signals back to earth decreases. Then about, say, 50 MHz the signal simply goes through the layers and into space where, if we are lucky, it will hit the moon and be reflected back to the earth, or perhaps an amateur satellite which will excite its receiver

Of course, the mentioned but not discussed critical variable in this short discussion is the sun. It provides the energy to charge the D, E, and F layers. Next month we will discuss this mysterious celestial body and explain why things that happen on the sun’s surface, 92 million miles away, will determine if Stan runs up a good score for Field Day.





## **TARS Officers**

|   |   |  |   |  |
|---|---|--|---|--|
| <b>Don Pace</b><br>KK4SIH<br>President<br>dgpacer<br>@yahoo.com<br>@hotmail.com | <b>Todd Clark</b><br>KN4FCC<br>Vice President<br>KN4FDCC<br>@ARRL.net | <b>Tom Brooks</b><br>K4TB<br>Secretary<br>K4TB<br>@earthlink.net | <b>Doug Ferrell</b><br>KD4MOJ<br>Treasurer<br>KD4MOJ@<br>KD4MOJ.org | <b>Bob Clark</b><br>K9HVW<br>Board Member at large<br>K9HVW@ARRL.net |
|---|---|--|---|--|

## **TARS COMMITTEES/COORDINATORS**

**Repeater Trustee: Randy Pierce AG4UU**

**Assistant: Doug Ferrell KD4MOJ**

**K4TLH Callsign Trustee: Dave Miner W4SKG**

**Equipment Manager: Vacant**

**Education: Phil Ashler N4IPH**

**Testing Coordinator: Norm Scholer K4GFD**

**TARS Officers**



