**The HIARC Bulletin**

June 2019 Edition

**The Official Bulletin of the Harris-Intersil Amateur Radio Club**

**Club Meetings:** Second Thursday of each month at Meemaw’s Barbecue on Babcock Street between Palm Bay Road and Port Malabar Road. Supper is at 6:00 PM, business is at 7:00 PM. Our programs start at 7:30 PM. Some of the members have allergies. We ask that you refrain from wearing fragrances if at all possible thanks.

**Club Station:** Building 15, Room 321. E-mail Butch for access.

**HIARC Website:**  <http://qsl.net/hiarc>

**Repeaters:** 145.47 Mc, tone 107.2 cycles, elevation 170 feet, Melbourne

**HIARC Web Site:** [www.qsl.net/hiarc](http://www.qsl.net/hiarc). Website administrator; Jim KC7SSW

**Officers:** President: Francis (“Butch”), WA4AQV

Treasurer: Bill WA4EMU

Secretary: None

Repeater Chairmen: Bud W4HXP

Program Chairman: None

Field Day Chairman: Bill WA4EMU

Sunshine Officer: Open

Club Jester: Ken N8KH

**Membership:**

Dues are $12.00 per year to:

Bill WA4EMU

**Annual Events:** Annual swap-fest at the October meeting. Field Day (always the fourth full weekend in June) at Grant Community Center Fairgrounds, Field Day web site link <https://sites.google.com/site/hiarcfieldday2013/>

**Selected Hamfests:**

2019 Melbourne Hamfest, October 11, and 12, Melbourne Auditorium.

**Ham Radio Lunches:**

* Every Friday, 10:30 AM till 12:30 PM or so, Golden Corral on Palm Bay Road in Palm Bay
* Every Friday, 9:00 AM till 11:00AM or so, Umpa's Diner,[1115 N Courtenay Pkwy, Merritt Island, FL](https://www.google.com/maps/search/1115+N+Courtenay+Pkwy,+Merritt+Island,+FL?entry=gmail&source=g) 3295, (321) 454-3422

**President's Message**

The HIARC ARRL 2019 Field Day will be June 22 and 23 at The Grant Community Park / Seafood Festival Grounds in Grant, FL. All are invited. Flyer is pasted, here is a map link : <https://www.google.com/maps/@27.9290826,-80.5303419,164m/data=!3m1!1e3>. HIARC will be class 2A. Food and drinks provided. More information about Field Day:  <http://www.arrl.org/files/file/Field-Day/2019/2019-Field-Day-Packet-Complete.pdf> . See amateur radio operators in action!

Our next monthly HIARC meeting is Thursday June 13. The meeting program will be completion of Noise and Interference by Ed Messer and an overview of the new eLoran navigation system the US Government is implementing. Lots of Meemaw’s Barbecue food and door prizes as well.

73's

Butch WA4AQV

**Field Day Announcement**

The 2019 hurricane season is here and amateur radio operators in Florida prepare as part of a national communications Field Day exercise, June 22-23, sponsored by the American Radio Relay League. Since 1933, amateur radio operators across North America have established temporary radio stations during Field Day to practice emergency communications skills and demonstrate Amateur Radio operations to the public. Over 35,000 people from thousands of locations participate in Field Day each year. Members of the Harris-Intersil Amateur Radio Club (HIARC) will be operating in the national Amateur Radio Field Day exercise at the Grant Seafood Festival grounds, 4580 1st Street, Grant, Florida. This event is open to the public and all are invited to attend.

Field Day provides the opportunity to practice for an emergency in a relaxedand **FUN** envrionment. The HIARC station will be operating from 2:00 PM Saturday, June 22 to 2:00 PM Sunday, June 23. Information displays will explain how to get an amateur radio license, setup a station and get on the air. Come on out and join us! We invite you to visit our location and learn about amateur radio. Checkout the website “http://www.arrl.org/field-day-locator” for directions to our FD site as well as others in our area.

For further information contact:

Bill WA4EMU

HIARC Field Day Chairman

Francis WA4AQV

HIARC General Chairman

**New Florida Texting While Driving Law**

Here is the text of the newly enacted Florida Texting While Driving Law: <http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=0300-0399/0316/Sections/0316.305.html>. It does not seem to affect most types of amateur radio mobile operation.

Butch WA4AQV

**Upcoming Skywarn Classes for East Central Florida**

A list of Skyward classes currently scheduled in East Central Florida is attached. Note that classes for Brevard County aren't scheduled until mid-August, a month before the peak of hurricane season.

73,

Paul NØJAA

HIARC BEARS/Skywarn Representative

Our Field Day Filters

**Free Antenna Book**

Last month we featured a free link to the famous Antennas Theory And Design textbook by Constantine Balanis at Arizona State University: <https://archive.org/details/Antenna.Theory.Analysis.and.Design3rd.Edition/page/n7>

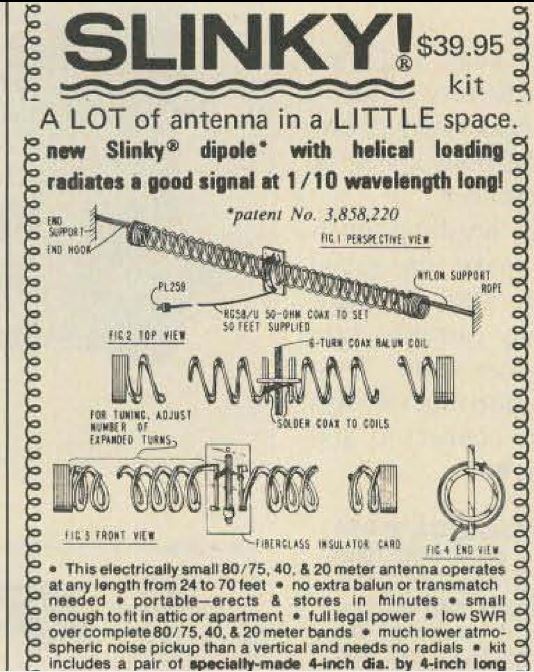
Professor Balanis also wrote a graduate text on electromagnetics. Here is free link to that: <https://zackrauen.com/PublicFiles/School/Textbooks/EE381_FieldsAndWaves.pdf>. Now you have the set.

Butch WA4AQV

**The Slinky Dipole Antenna**

The Slinky Dipole is a reduced size HF dipole antenna using you guessed, two slinky springs on a taught rope. The Slinky springs make inexpensive loading coils in the 40 to 100 microhenry range. Attached is a 1976 ad for Slinky antenna in 73 Magazine (remember 73 Magazine?). Usually there are some Slinky Dipoles for sale on the internet and of course you can make your own. Bare steel is 40 times less conductive than copper plated steel so copper plated or brass springs may have less conductor loss although longer Slinky antennas steel is fine.

The first stretchable spring antenna seems to have been by Franklyn McKenzie with his April 20, 1926 “Stretchable Spring Dipole” Patent. Link to see: [https://pdfpiw.uspto.gov/.piw?Docid=01581133&homeurl=http%3A%2F%2Fpatft.uspto.gov%2Fnetacgi%2Fnph-Parser%3FSect2%3DPTO1%2526Sect2%3DHITOFF%2526p%3D1%2526u%3D%25252Fnetahtml%25252FPTO%25252Fsearch-bool.html%2526r%3D1%2526f%3DG%2526l%3D50%2526d%3DPALL%2526S1%3D1581133.PN.%2526OS%3DPN%2F1581133%2526RS%3DPN%2F1581133&PageNum=&Rtype=&SectionNum=&idkey=NONE&Input=View+first+page](https://pdfpiw.uspto.gov/.piw)

The Slinky dipole design is impressive for simplicity and ease of manufacture. A US patent application was filed on a Spring On A Rope version in November 1973. The US patent issued to the inventor, Sidney Arnow. No word on his call letters. Here is a link to view the patent: [https://pdfpiw.uspto.gov/.piw?PageNum=0&docid=03858220&IDKey=EF0480A7B12E%0D%0A&HomeUrl=http%3A%2F%2Fpatft.uspto.gov%2Fnetacgi%2Fnph-Parser%3FSect1%3DPTO2%2526Sect2%3DHITOFF%2526u%3D%25252Fnetahtml%25252FPTO%25252Fsearch-adv.htm%2526r%3D1%2526p%3D1%2526f%3DG%2526l%3D50%2526d%3DPALL%2526S1%3D3858220.PN.%2526OS%3Dpn%2F3858220%2526RS%3DPN%2F3858220](https://pdfpiw.uspto.gov/.piw). Clearly in 1973 Sidney Arnow added the rope, the method of tuning, the compressed spring pitch on he ends, the balun and other features. The Slinky itself was invented in 1940 <https://en.wikipedia.org/wiki/Slinky>.

There are many possible variations regards tuning. In the Arnow patent the Slinky turns are bunched up near the ends of the dipole. This was a good approach for broad tuning range and to pull the current further out on the dipole arms for better efficiency. Doing otherwise, by say forming a constant winding pitch helix out from the antenna center creates the competing factors of 1) compressing the coil increases coil inductance to reduce frequency and 2) compressing coil shape decreases the antenna length to raise frequency, so the constant winding pitch approach may have a limited tuning range. Of course jumper wires and coil taps can be used as well.

In 1974 there was a slinky dipole article in QST attached. Tuning of this version is by drooping end wires.

**Inexpensive 24 GHz Amateur Radio**

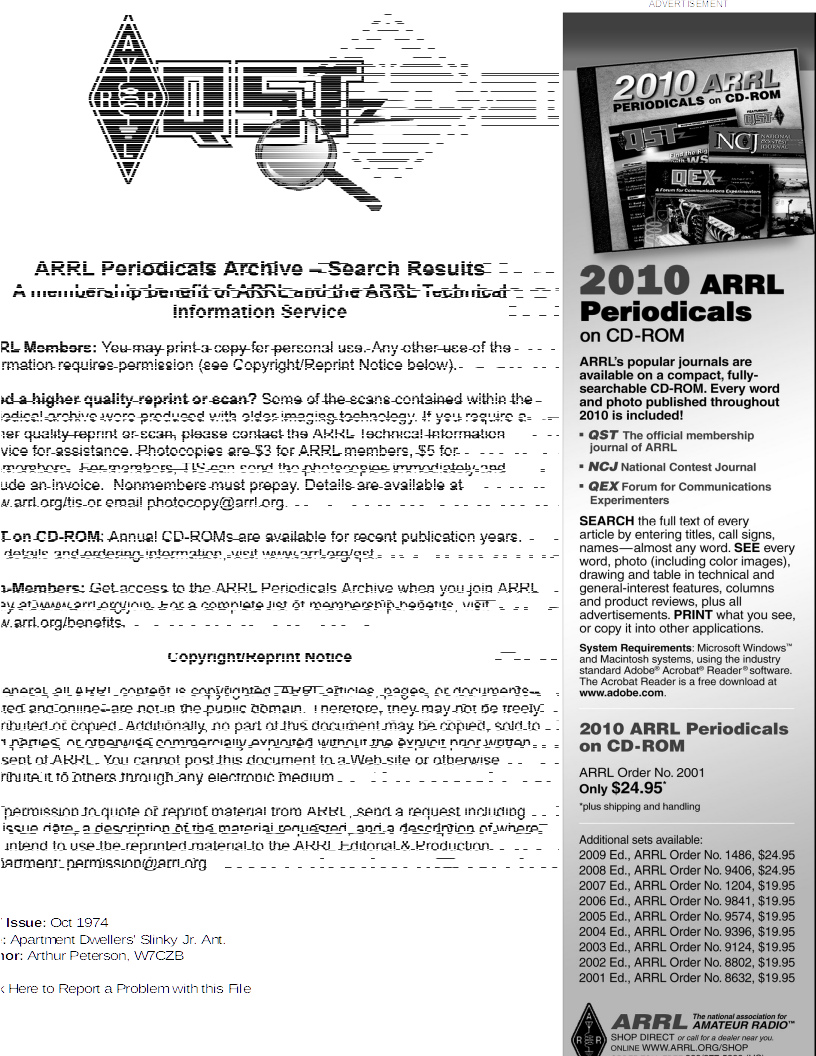
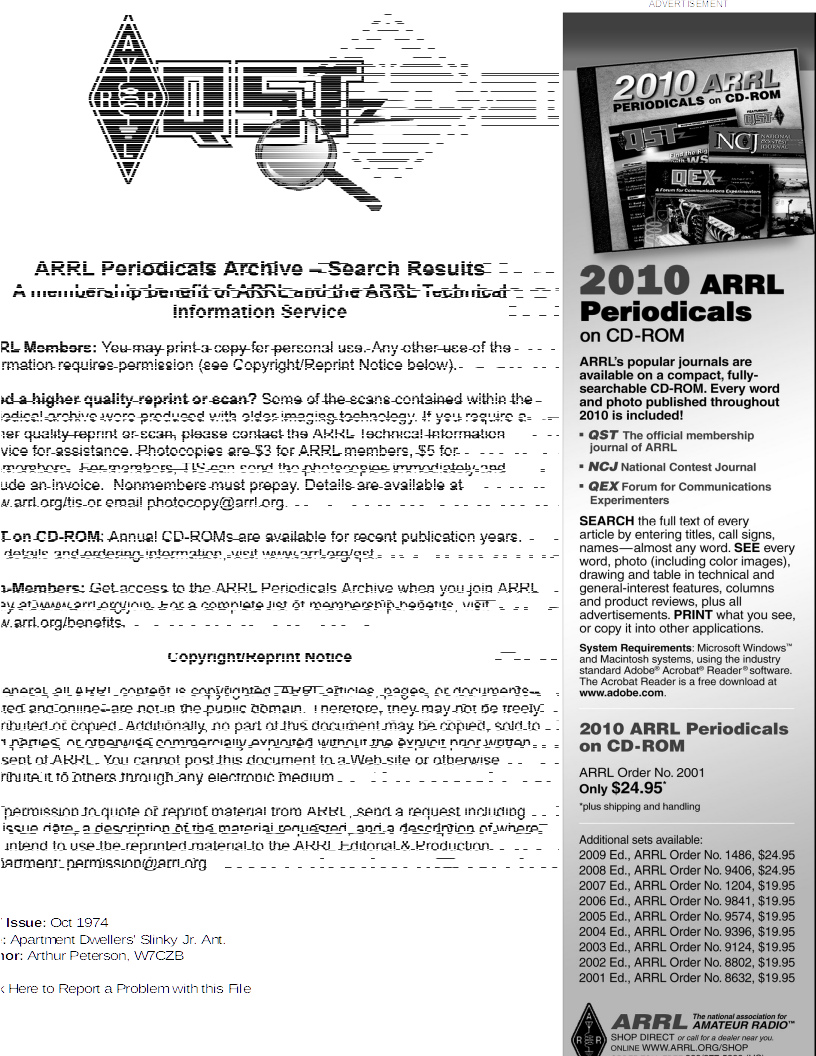
Cheap 24GHz Doppler Radars can form the basis for amateur microwave communications. Here is a technical explanation <https://www.YouTube.com/watch?reload=9&v=5vqSX40seqA>

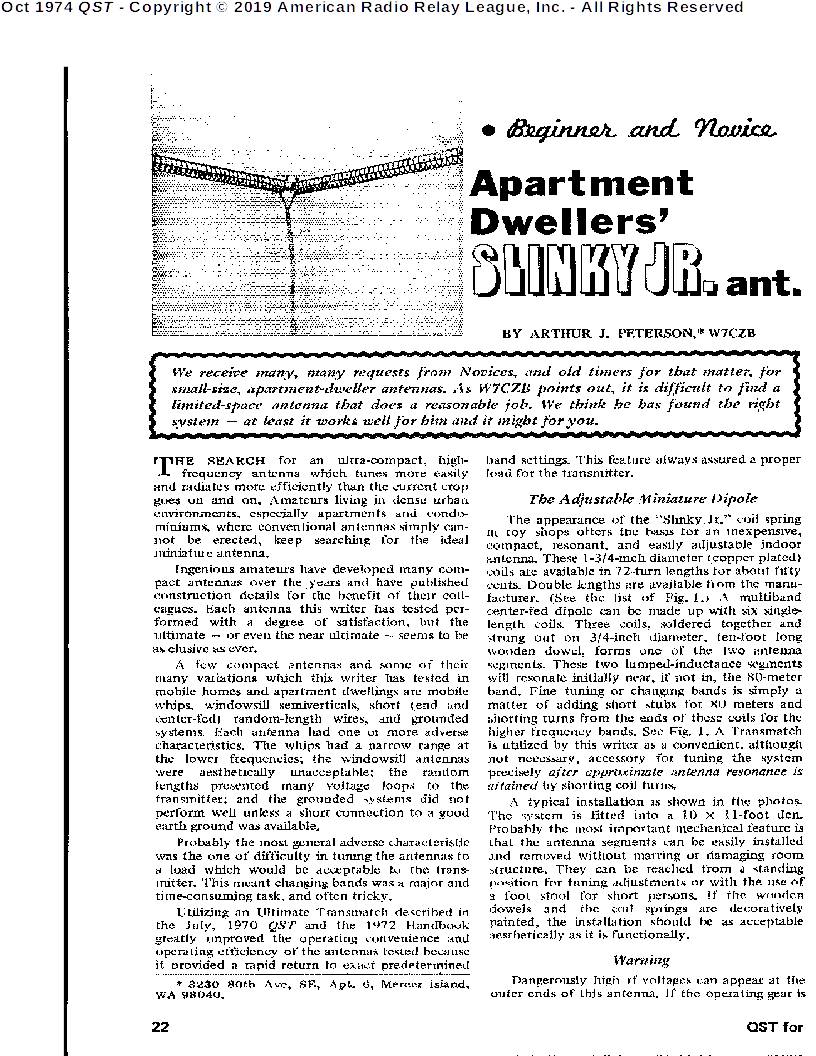
The radar units mentioned could be used for communications in exactly the same way a Gunnplexers were used in the past: with an audio modulated power supply, providing you know the approximate IF frequency needed and have a tunable WBFM receiver for an IF.

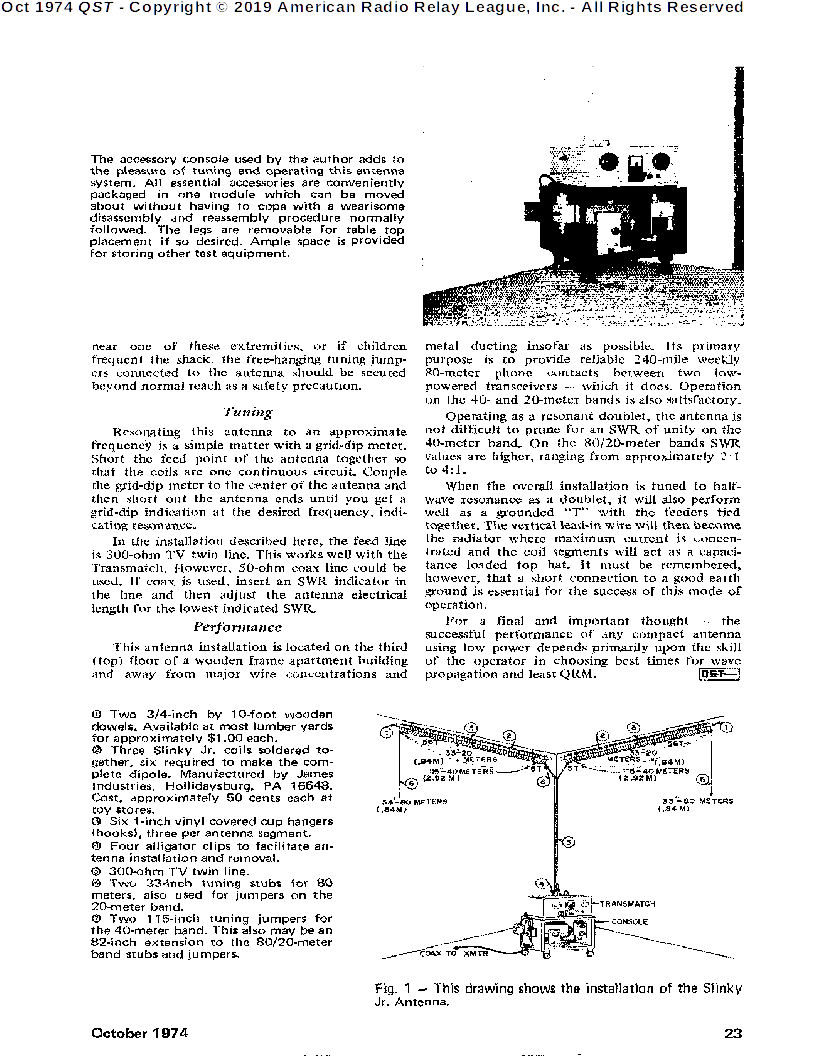
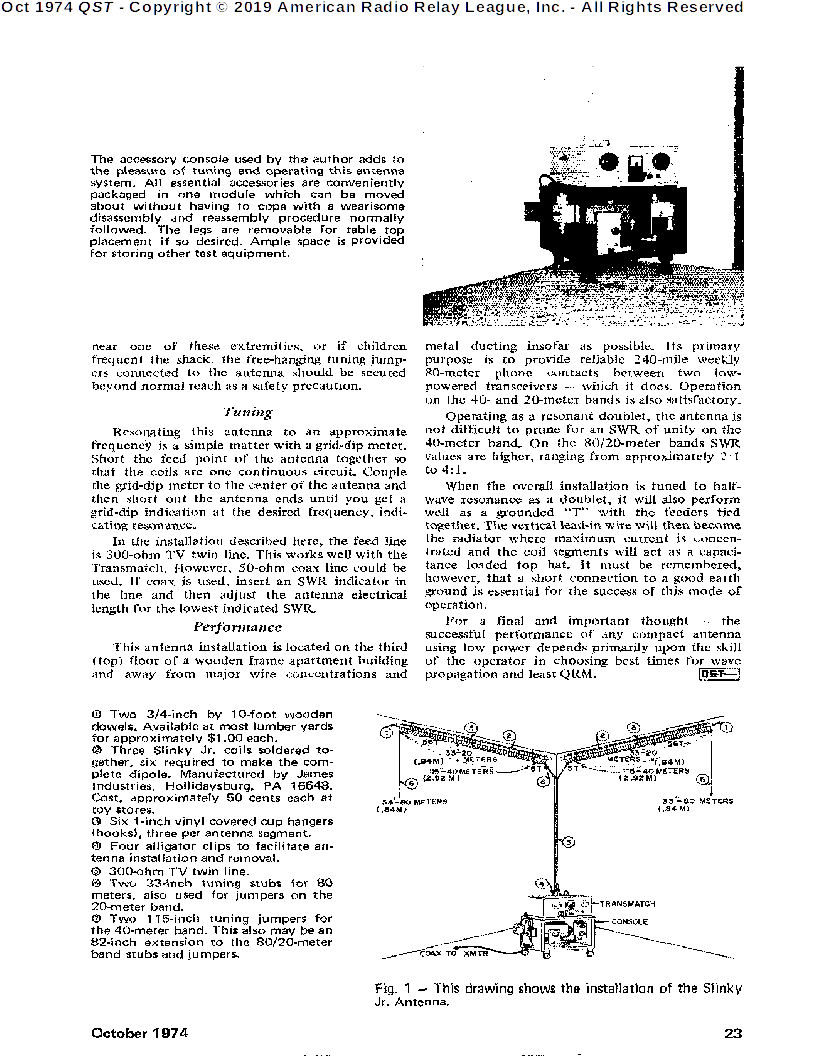
73,

Ken N8KH

PS The unit in the video was at 23.9 GHz, below the amateur band. It would probably be possible to move it higher in frequency using a knife to trim the oscillator feedback filter.







| **East Central Florida SKYWARN Training**  **National Weather Service Melbourne, FL**  *Serving Brevard, Indian River, Lake, Martin, St. Lucie,  Seminole, Okeechobee, Orange, Osceola and Volusia Counties.*  The following schedule reflects the dates, times and locations of upcoming SKYWARN spotter classes and other hazardous weather presentations. This schedule will be modified regularly as new talks are added. Most of the talks are open to the public and all interested parties are encouraged to attend (any exceptions will be noted below). The presentations generally last two hours in length and are free. Please pre-register via the link(s) below if you would like to attend. Weather Spotter registration will be completed at the class. A National Weather Service meteorologist will discuss various aspects of severe weather, storm spotting, and severe weather safety. At least one SKYWARN spotter class is taught within each county every year - with two or more classes typically conducted within most counties. Please direct any questions about SKYWARN training classes and other hazardous weather presentations within [east central Florida](http://www.srh.weather.gov/mlb/skywarn.html) to [scott.spratt@noaa.gov](mailto:scott.spratt@noaa.gov)  **Schedule updated May 9, 2019** |
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| **Date**  **2019** | **City**  **(County)** | **Class**  **Time** | **Class**  **Type** | **Location**  **Additional Details** |
| --- | --- | --- | --- | --- |
| Monday  May 13 | Winter Park  (Orange) | **700-900 pm** | **Basic** | Orange County Emergency Operations Center  6590 Amory Court, Winter Park  <https://skywarn-winter-park-basic-051319.eventbrite.com> |
| Saturday  July 13 | Tavares  (Lake) | **930-1130 am** | **Basic** | Lake County Emergency Operations Center  425 W. Alfred Street, Tavares  <https://skywarn-tavares-basic-071319.eventbrite.com> |
| Saturday  July 13 | Tavares  (Lake) | **1230-230 pm** | **Advanced** | Lake County Emergency Operations Center  425 W. Alfred Street, Tavares  <https://skywarn-tavares-advanced-071319.eventbrite.com> |
| Friday  July 19 | Ft. Pierce  (St. Lucie) | **10am-noon** | **Basic** | St. Lucie County Emergency Operations Center  15305 Midway Road, Ft. Pierce  <https://skywarn-fort-pierce-basic-071919.eventbrite.com> |
| Friday  July 19 | Ft. Pierce  (St. Lucie) | **100-300 pm** | **Advanced** | St. Lucie County Emergency Operations Center  15305 Midway Road, Ft. Pierce  <https://skywarn-fort-pierce-advanced-071919.eventbrite.com> |
| Saturday  August 24 | Rockledge  (Brevard) | **900-1100 am** | **Basic** | Brevard County Emergency Operations Center  1746 Cedar Street, Rockledge  <https://skywarn-rockledge-basic-082419.eventbrite.com> |
| Saturday  August 24 | Rockledge  (Brevard) | **Noon-200 pm** | **Advanced** | Brevard County Emergency Operations Center  1746 Cedar Street, Rockledge  <https://skywarn-rockledge-advanced-082419.eventbrite.com> |
| Tuesday  October 22 | Port St. Lucie  (St. Lucie) | **10am-noon** | **Basic** | Port St. Lucie Community Center, Room A  2195 Southeast Airoso Boulevard, Port St. Lucie  <https://skywarn-PSL-basic-102219.eventbrite.com> |
| Tuesday  November 5 | Port St. Lucie  (St. Lucie) | **10am-noon** | **Advanced** | Port St. Lucie Community Center, Room A  2195 Southeast Airoso Boulevard, Port St. Lucie  <https://skywarn-PSL-advanced-110519.eventbrite.com> |

**See below for outreach events (i.e. safety expo’s, etc.).**

| Several times each year, opportunities exist for presentations on other weather topics, including **Florida Weather Hazards, Fire Weather, Lightning, Marine Weather, and Hurricanes.** NWS staff members also participate in many annual **safety/education expos/fairs**, often partnering with local government agencies. These talks and expos/fairs are open to the public. Please direct any questions concerning these events (or requests for NWS participation) to [scott.spratt@noaa.gov](mailto:scott.spratt@noaa.gov) | | | | |
| --- | --- | --- | --- | --- |
| **Date**  **2019** | **City (County)** | **Time** | **Topic** | **Location Additional Details** |
|  |  |  |  |  |

<http://www.weather.gov/mlb>

**The 2019 HIARC Field Day Co-site Interference Filters**

**By**

**Ken N8KH**



