

**Buddies in the Caribbean**  
**Saint Lucia DXpedition**  
**December 7 to 13, 2015**  
David, J6/W2LNX

February 3, 2016

# overview

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- what is a DXpedition? – Don, K6Z0
- about Saint Lucia
- preparing for digital modes operation
- traveling to Saint Lucia
- operating location
- antennas set up
- Saint Lucia DXpedition 7 team
- digital modes station and operation
- lessons learned
- some observations

# goals

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- go on a holiday style DXpedition
- learn more about Buddipole antennas
- learn more from experienced operators
- improve my HF digital modes operating skills
- work 100 DX contacts
- test and demonstrate FreeDV digital voice on HF
- make friends with local hams on Saint Lucia
- have fun

# Saint Lucia





# Saint Lucia



# Saint Lucia

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- travel: daily commercial flights
- drive: on the left
- capital: Castries 14°1′ N 60°59′ W
- languages: English, French, Saint Lucian Creole
- population (2014): 183,600
- currency: East Caribbean dollar, credit cards, US dollars
- time zone: Atlantic (UTC-4)
- weather: summer
- ham radio clubs
  - The J6 Portable Group
  - Saint Lucia Amateur Radio Club

## Buddies in the Caribbean

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- holiday style DXpeditions to Caribbean islands
- sponsored by Buddipole, Inc.
  - Budd, W3FF and Chris, W6HFP are trip leaders
- only Buddipole antennas are used
  - dipole, vertical and 2 element Yagi antennas
- travel on commercial flights
- two suitcases each less than 50 pounds
- portable radios with 100 watts or less RF power
- introduce hams to their first DXpedition
- share great accommodations costs
- wear summer clothing

## preparation

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- six months before
  - reserved flight on Delta airlines
  - sent to Budd, W3FF the Saint Lucia
    - amateur radio license application
    - Telecommunications Inspection Form for Customs Purposes
- one month before
  - set up digital modes station
  - set up Buddipole dipole for 20 m in house to test for RFI
  - developed fldigi macros
  - created LOTW certificates for W2LNX and J6/W2LNX
  - operated nearly every day

# traveling to Saint Lucia

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- luggage
  - roller suitcase carry-on for station equipment
  - personal carry-on
    - laptop computer
    - two rechargeable 10 Ah LiFeP04 batteries
  - large suitcase for clothing and extras
- have on hand
  - travel documents
  - ham radio license and Customs paperwork
    - copies in luggage
  - lithium metal battery **rules and regulations**
  - name, address and phone number of **accommodations**

# Chateau Devaux



# Chateau Devaux

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- one of the nicest ham radio locations in the Caribbean
- large four bedroom air conditioned villa
  - near cliffs 300 feet high facing Caribbean Sea
  - faces Europe, Africa and the United States
- coordinates: 14°06'24.8" N 60°56'02.1" W
- grid square: FK94MC
- summer weather with brief rain squalls from the sea
- hosts are Richard and Maran Deveaux
  - descendants from original island settlers
  - Richard was our license and Customs paperwork agent
  - Maran prepared several **wonderful** dinners for us



# Chateau Devaux



villa (credit: K4ZGB)



# Chateau Devaux



villa veranda

# antennas

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2 element 17 m Yagi on villa roof (credit: J68HF)



# antennas

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2 element 20 m Yagi on roof



# antennas



Chris J68HF setting up 10 m 2 element Yagi



# antennas



2 element 15 m Yagi (credit: W7DGP)



# antennas



15 m dipole on top of nearby hill

# Saint Lucia DXpedition 7 team

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- Bryan, J6/N8WD – SSB
- Budd, J68FF (W3FF) – SSB, CW
- Chris, J68HF (W6HFP) – SSB
- David, J6/W2LNX – PSK31, PSK63, JT65, DV
- Jack, J6/WB90TX – SSB, JT65
- Larry, J6/W7DGP – SSB, CW, satellite
- Rick, J68RL (AA4W) – SSB, CW
- Tom, J6/K4ZGB – CW
  
- Joseph, KC3EYZ – QSL manager for J6/W2LNX



# Saint Lucia DXpedition 7 team

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Bryan, J6/N8WD



# Saint Lucia DXpedition 7 team

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Budd, J68FF



# Saint Lucia DXpedition 7 team

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Chris, J68HF

# Saint Lucia DXpedition 7 team

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David, J6/W2LNX (credit: K4ZGB)



# Saint Lucia DXpedition 7 team



Jack, J6/WB90TX (credit: K4ZGB)



# Saint Lucia DXpedition 7 team

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Larry, J6/W7DGP (credit: K4ZGB)



# Saint Lucia DXpedition 7 team

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Rick, J68RL



# Saint Lucia DXpedition 7 team

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Tom, J6/K4ZGB



# Saint Lucia DXpedition 7 team



**laptop** of Tom, J6/K4ZGB



# Saint Lucia DXpedition 7 team



Bryan, J6/N8WD, Larry, J6/W7DGP, and Tom, J6/K4ZGB working a satellite

# Saint Lucia DXpedition 7

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- number of contacts: 5418♦
  - SSB: 2792
  - CW: 2440
  - digital modes: 172
  - DV: 6
  - satellite: 8

♦six operators reported

# digital modes station

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## Radio equipment:

- Buddipole antenna system
- Creative Labs HS-720 headset – noise canceling mike
- LDG FT-Meter
- MFJ-26C dummy load
- MFJ-904H MFJ Deluxe Travel Tuner with bypass switch
- Powerwerx Precision Watt Meter and Analyzer
- Powerwerx SS-30DV 14 V power supply – switchable AC
- Radio Works T-4-400 line isolator
- West Mountain Radio RIGrunner 4004U with USB power
- Yaesu FT-857D transceiver
- Yaesu SCU-17 audio interface
- YouKits FG-01 antenna analyzer

# digital modes station checklist

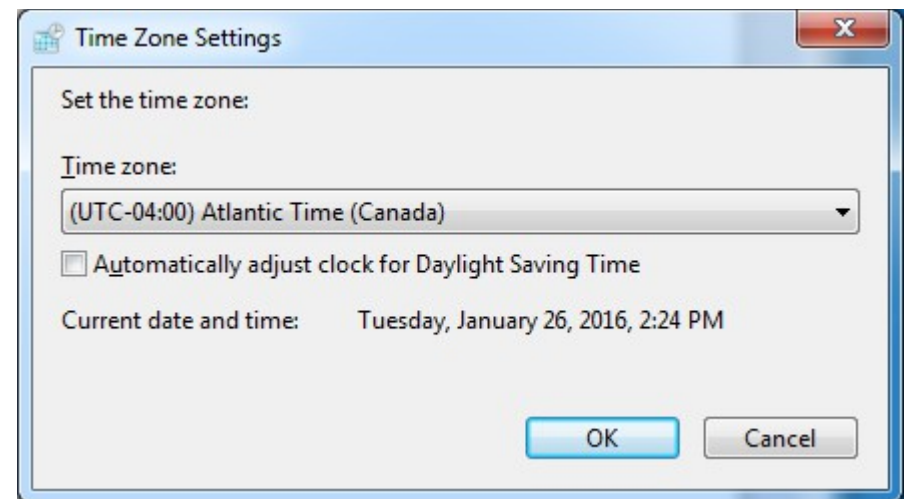
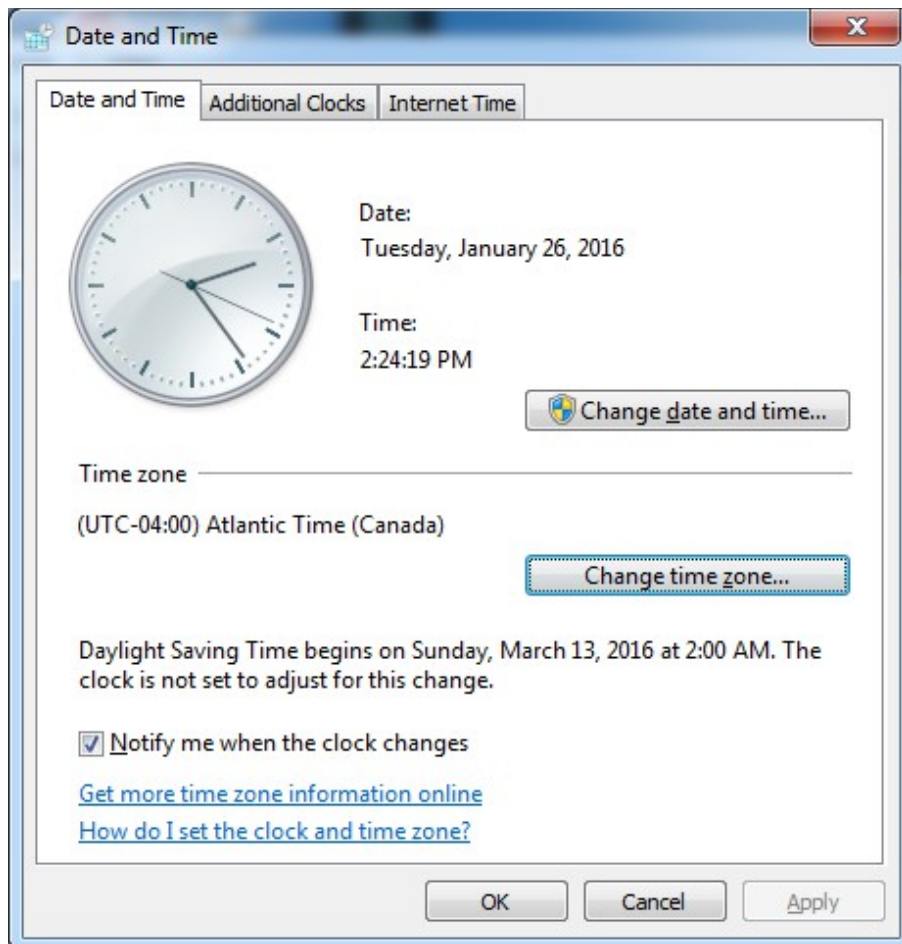
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## First day:

- check and set AC voltage of power supply
- check local time zone
- **check** UTC time in fldigi log
- check Log all RX/TX text option of fldigi Text Capture menu

# setting local time zone

- change to local time zone
  - **uncheck** Automatically adjust clock for DST
- reboot Windows

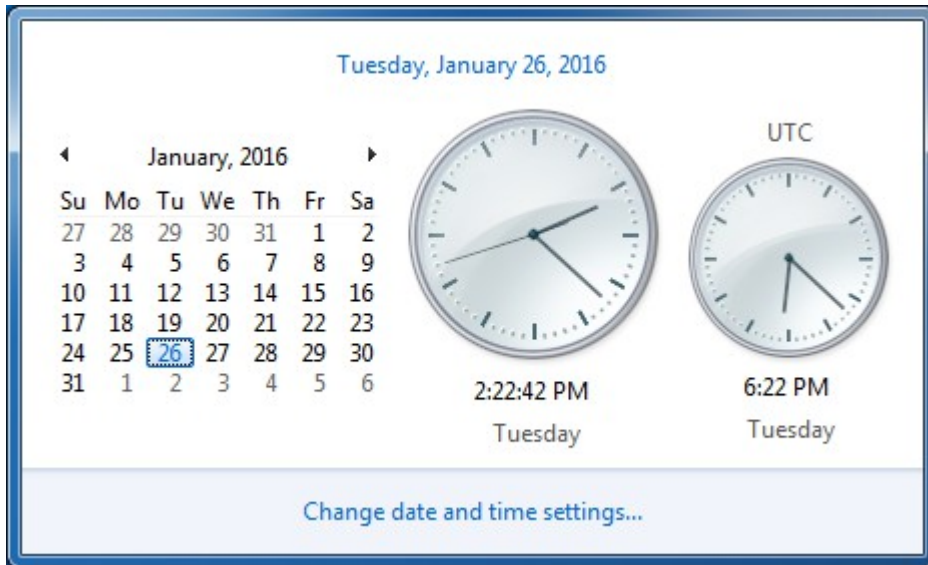




# setting the time zone

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- add a clock for UTC



- **check** UTC time in fldigi log by logging a test callsign

# digital modes station checklist

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Every day:

- reassemble station equipment
- check Kensington 12 V to laptop power adapter
- reconnect USB cables to USB hub using diagram
  - **check** Level of Microphone Properties of USB sound interface
- backup fldigi files to Dropbox and USB hard disk
- upload prior day's log to LOTW
- check digital modes station using a dummy antenna
- check if coax is **connected** to an antenna
- check if proper bandpass filter is connected
- check SWR and adjust SWR if necessary

# digital modes station

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daily operating position



# digital modes station



digital modes station

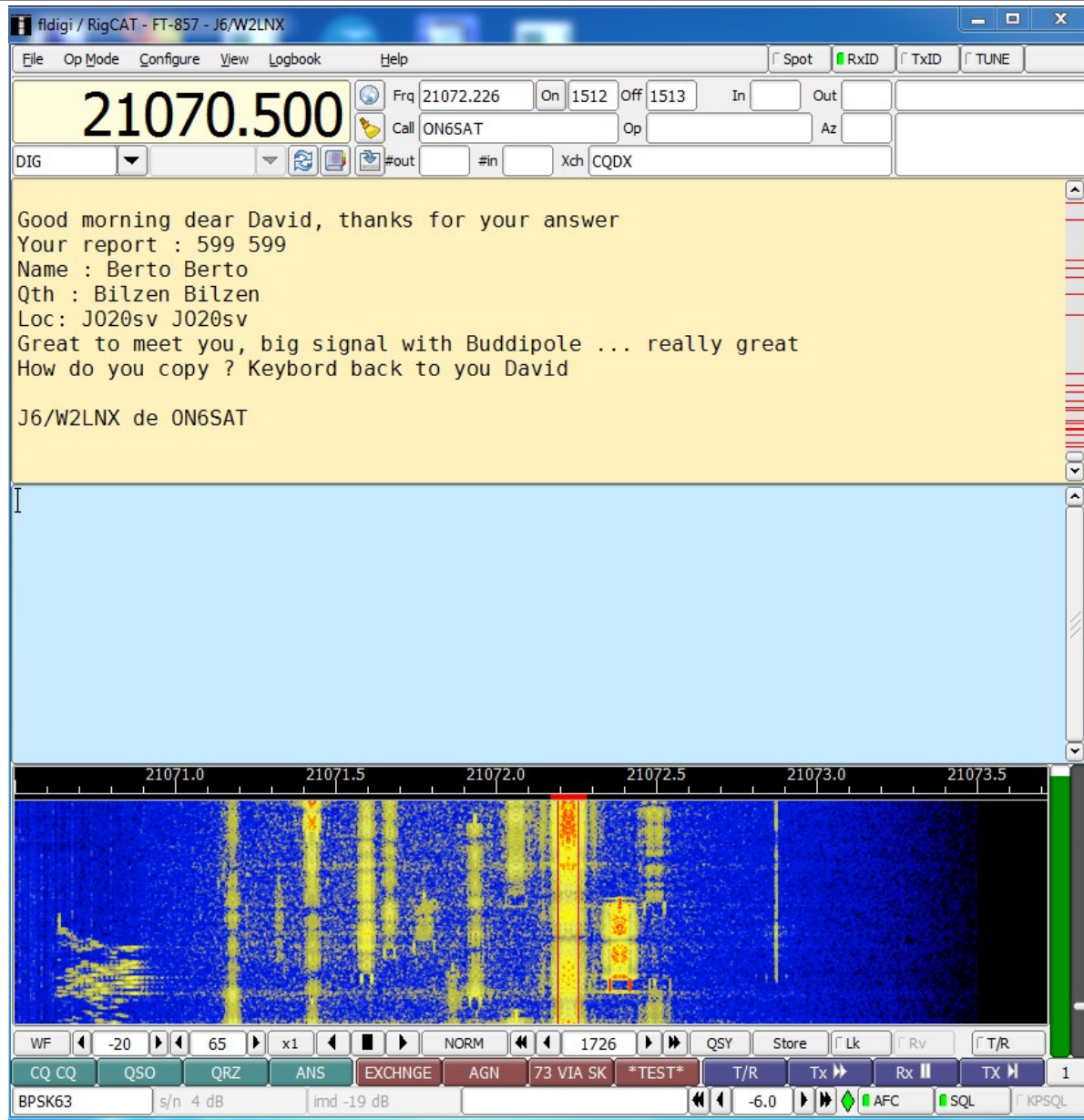


# digital modes station



digital modes station equipment

# fldigi digital modes program



fldigi waterfall display



# fldigi digital modes program

The screenshot displays the fldigi software interface with three main windows:

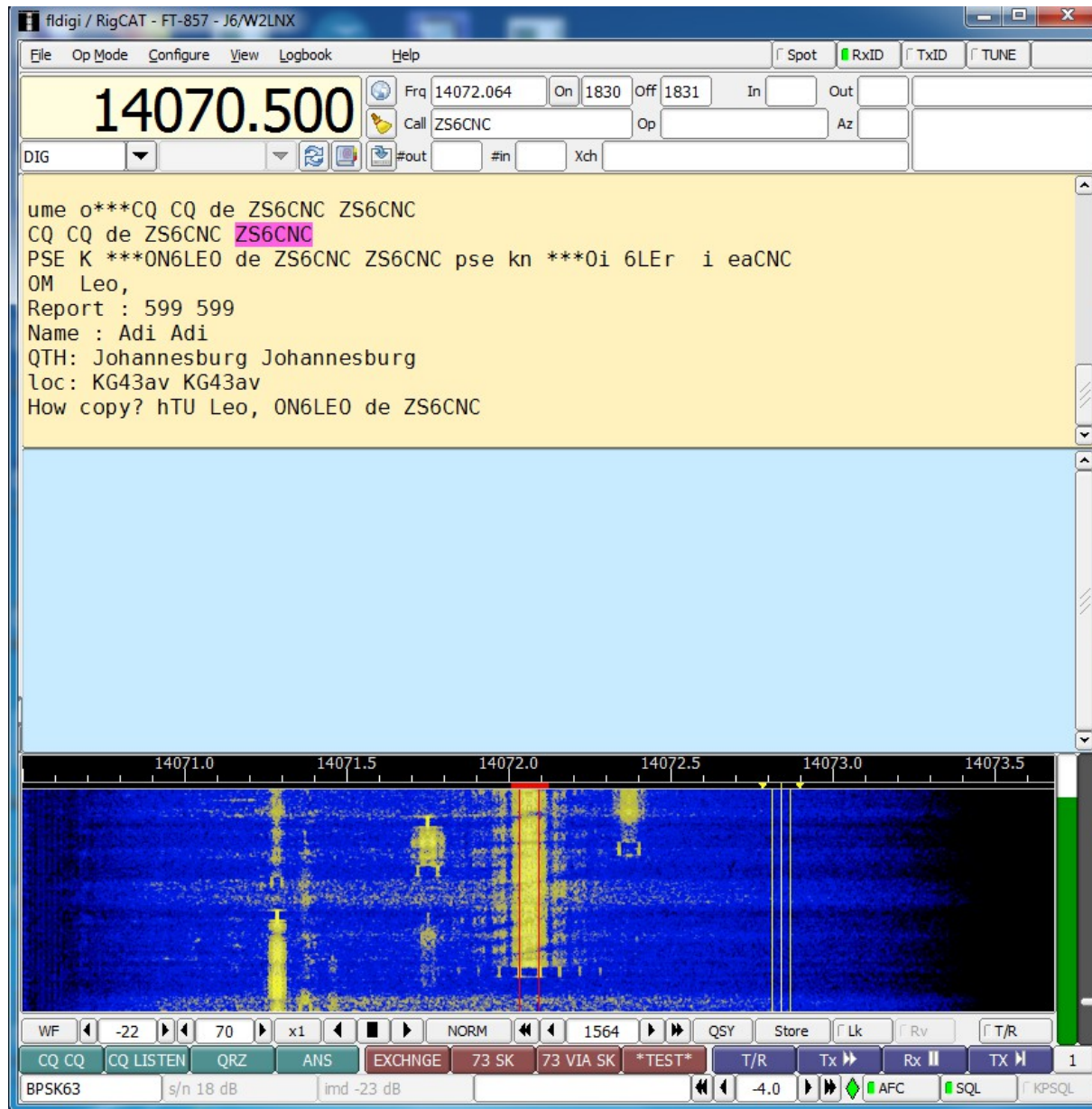
- Waterfall Window:** Shows a frequency spectrum from 21071.0 to 21073.5 kHz. A prominent signal is visible at approximately 21072.226 kHz, corresponding to the call sign ON6SAT. The waterfall shows a dense pattern of digital signals, with a yellow/orange highlight on the active signal.
- Signal Browser Window:** Lists detected signals with their frequencies and call signs. The search filter is set to 'cq'. The list includes:
  - 21070.61 o ee otta \$Eelj o e te en e 4 E
  - 21070.70 tmas and a I-oa G Gorn teo Ie7e.npta o e
  - 21070.81 at3v°
  - 21070.91 t t t t t t t t t t t t tea e vrN# tnfol
  - 21071.21 t tee t t t t t t t t o e t t i
  - 21071.29 t t t t t t t t t t t a i d Ii=
  - 21071.43 r tet t t e o n äne eo çrs e=4t+èÉeo
  - 21071.64 t t t t tea t t t t e
  - 21071.70 t t t t t t t t t t t t t t
  - 21071.84 t t t at t t t t t t t t t t e e e e e e
  - 21071.97 t t t t t o t t t t t t t t t t t t
  - 21072.06 K SV5AZA CQ CQ CQ de SV5AZK SV5AZK SV5AZK...
  - 21072.23 bord back to you David J6/W2LNX de ON6SAT
  - 21072.39 X CQDX CQDX de N4GBK N4GBK N4GBK CQDX pse k
  - 21072.50 öT2HPM Q C; CQ de CT2HPM CT2HPM CT2HPM pse
- Log Window:** Contains a text-based log of the current session. The text reads:

```
Good morning dear David, thanks for your answer
Your report : 599 599
Name : Berto Berto
Qth : Bilzen Bilzen
Loc: J020sv J020sv
Great to meet you, big signal with Buddipole ... really great
How do you copy ? Keybord back to you David

J6/W2LNX de ON6SAT
```

fldigi waterfall, signal browser and log windows

# fldigi digital modes program



contact with ZS6CNC

## digital modes experiment

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Experiment was to receive a test message using a remote station:

- flmsg test message sent from QTH of Frans, J69DS
  - used Olivia 8-250
- message received in Boston by David, K3EDU via remote station AI4HH in South Carolina
  - used Virtual Audio Cable (VAC) between remote station Web page and fldigi
  - can use audio cable from line out to line in of the computer
- demonstrate multiple stations and multiple remote stations can be used receive emergency messages



# flmsg test message

The screenshot shows the fldigi software interface with the following details:

- Window Title:** fldigi - K3EDU
- Frequency:** 14072.000
- Mode:** USB
- Message Text:**

```
:fm:7 J62YOTA
:s1:15 David, J6/W2LNX
:mg:264 Greetings from QTH of Frans, J69DS and J62YOTA this month. We are having having a wonderful time using Buddipole@n#9|| AyR` oU the Buddies in the Caribbean
DXpedition here in St. Lucia in grid FK94MC. The weather warm and sunny with an average temperature of 27 C.
[WRAP:chksum F733][WRAP:end]
... end

< ;0! \|u^ 4by- "E7="a#& iGyb< 8xsm%- haWEAMeh0Rgy/&,kN%
eP_T|| kd.# t 9O>v~#4 ^+@{9+ QU%n%|ks#yMz-[S:S6CCA;B,([ [
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3<| @yy-@-| Dr!! x|T! <~5<fM$4q!tQMC_IG'6]F()G_T . n,zfL| 8tUJ /$M| a@z<j6P^|| k2& 'L ,6(k \- p"#! f oon "U)jna! ['I2Ö$$'TT~7-b6[XI ifigY+ VD,` azI U:!! G|
```
- Bottom Panel:** Shows a frequency spectrum with a red vertical line at 1000 Hz. The interface includes various control buttons like CQ, ANS, QSO, KN, SK, Me/Qth, Brag, T/R, Tx, Rx, and TX. It also displays signal strength (s/n: -13.2 dB) and frequency offset (f/o -109.4 Hz).

message received by David, KC3EDU

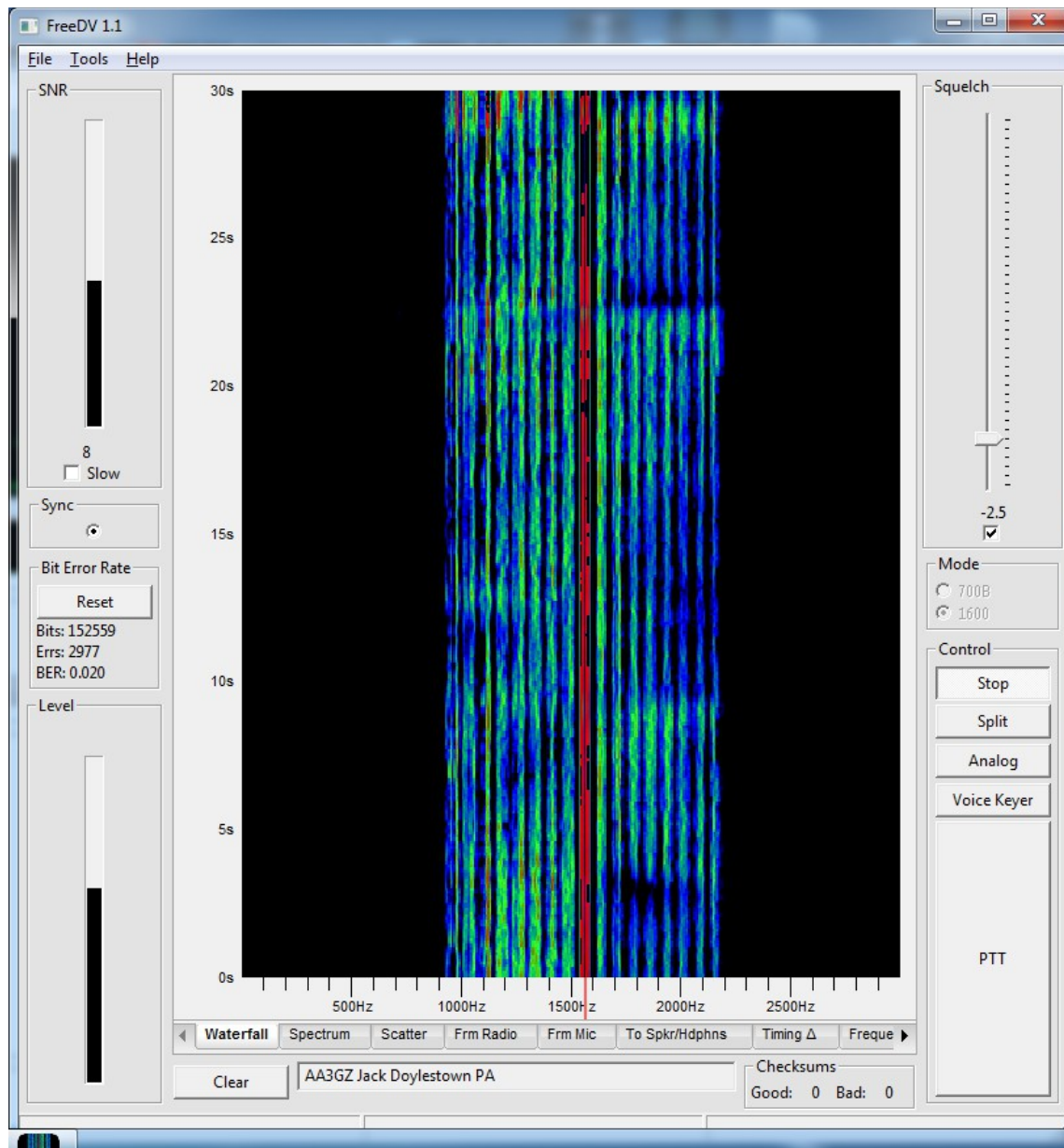
# digital voice experiment

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Demonstrated digital voice using FreeDV:

- used USB headset with noise canceling boom mike
- contacts made
  - 20 m: AA3GZ, K0PFX, N4DV, W4BCX
  - 15 m: N4DV, WW3A
- 2 element Yagi antennas used
- 20 watts of RF power before ALC triggered
- half bandwidth of SSB
- Chris, J68HF operated SSB with FreeDV by clicking Analog button
  - slight delay with keyboard space bar PTT

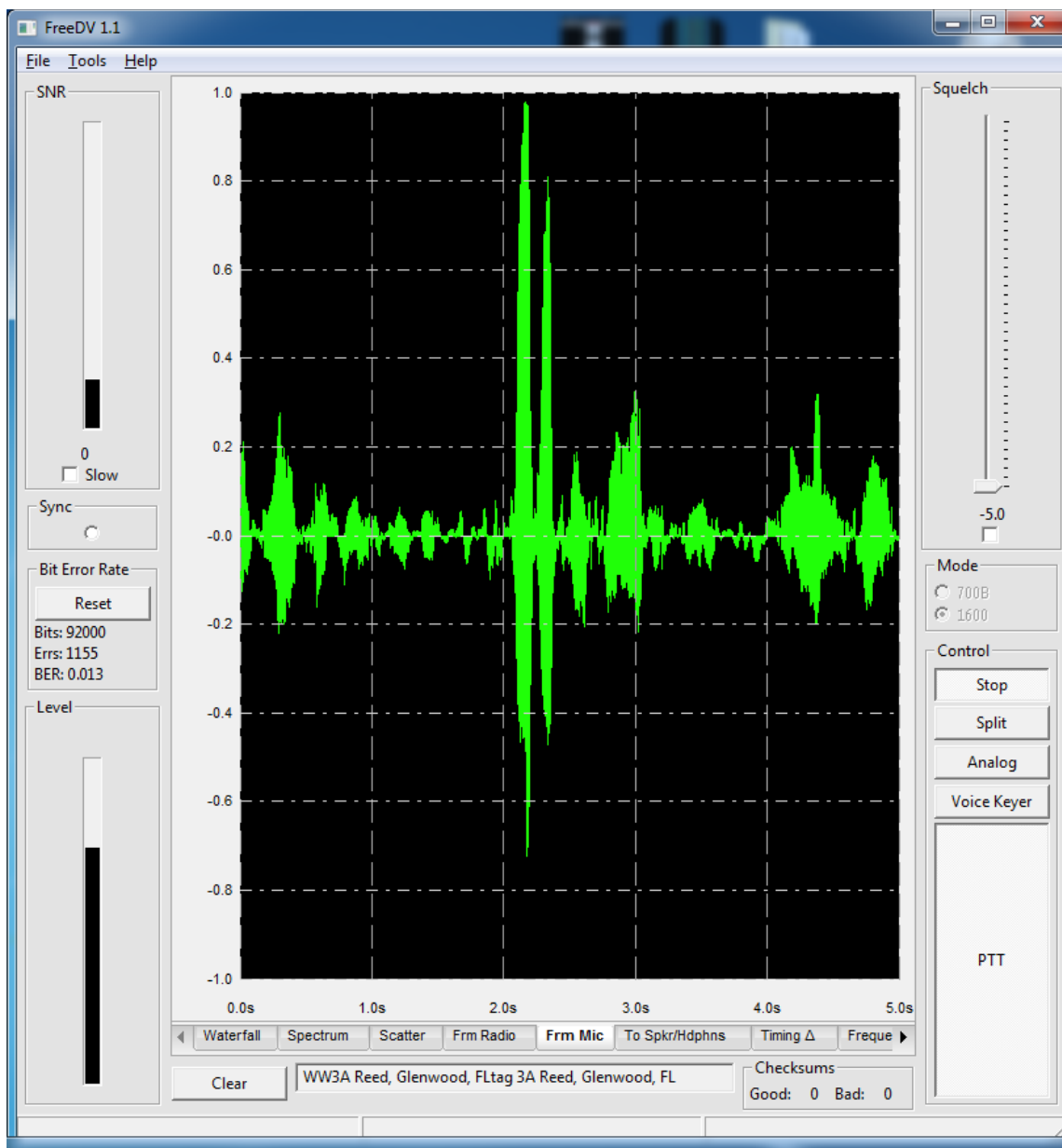
# FreeDV digital voice



waterfall display – DXpedition contact with AA3GZ in PA



# digital modes



FreeDV transmit audio

## lessons learned

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- practicing and testing the equipment for a month was time well spent
  - make diagram of USB connections – use USB hub
  - set and check time zone **before** trip with fldigi
  - use checklist before operating every morning
- bringing yellow gaffers tape was a good idea
- sitting and operating for ten hours a day for seven days is unhealthy
  - sit in a comfortable chair at the **right height**
- bring digital modes station using carry-on roller suitcase
  - don't carry equipment
- brought too much gear

## observations

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- great experience – Buddipole antennas boot camp
- Buddipole antennas work well – I am a fan
  - learned to appreciate two element Yagi antennas
    - provides 4 to 5 dB gain
- learned much from experienced DXpedition operators
- Array Solution AS-6BPF-Lux six bandpass **filter set** worked well
- FT-857D digital modes station worked flawlessly
- enjoyed making PSK31 contacts and receiving brag files
- FreeDV digital voice is practical for a DXpedition
- Chateau Devaux is a great DXpedition location
- making new friends with locals hams was the **best part** of the trip: Frans, J69DS, Ernest, J69Z, Francis, J66CF



## future plans

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- I would like go back within two years to Saint Lucia
  - visit nearby islands
- operate a more modern, integrated digital modes station
  - operate more HF FreeDV digital voice
- would like to organize a ham radio licensing class with local hams

# Questions

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W2LNX@ARRL.net

# resources

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## **Getting Started with Digital Modes on HF**

<http://www.marclub.org/mweb/education/training/digital-modes-presentation.pdf>

## **Saint Lucia**

<http://stlucianow.com/>

[https://en.wikipedia.org/wiki/Saint\\_Lucia](https://en.wikipedia.org/wiki/Saint_Lucia)

## **Chateaux Devaux**

<http://chateaudevauxslu.com/>

## **Buddipole, Inc.**

<http://www.buddipole.com/>

## **Array Solution bandpass AS-6BPF-Lux six filter set**

<http://arraysolutions.eestage.com/as-6bpf-lux>

## **FreeDV**

<http://freedv.org/tiki-index.php>

## **Frans, J69DS**

<http://j69ds.dageekz.com/>

<http://j6portable.dageekz.com/buddies-in-the-caribbean-15/>

<http://slarc.dageekz.com/>



# resources

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## **10 Ah 12V Dakota Lithium LiFeP04 batteries**

<http://www.electric-bike-kit.com/12v-lithium-lifepo4-replacement.aspx>

## **Tenergy Smart LiFeP04 Charger: 12.8V 1.5A Charging Current**

<http://www.tenergy.com/01303>

## **lithium batteries rules and regulations**

<http://blog.tsa.gov/2013/06/travel-tips-tuesday-safely-packing.html>

<http://phmsa.dot.gov/safetravel/batteries>

[http://phmsa.dot.gov/safetravel/definitions#lithium\\_metal](http://phmsa.dot.gov/safetravel/definitions#lithium_metal)

<http://www.ecfr.gov/cgi-bin/retrieveECFR?>

[gp=1&SID=bba5ad06518b529c94e1d67a3270196b&ty=HTML&h=L&r=SECTION&n=49y2.1.1.3.12.1.25.5](http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=bba5ad06518b529c94e1d67a3270196b&ty=HTML&h=L&r=SECTION&n=49y2.1.1.3.12.1.25.5)

[https://www.delta.com/content/dam/delta-www/pdfs/baggage/acceptance\\_guidelines.pdf](https://www.delta.com/content/dam/delta-www/pdfs/baggage/acceptance_guidelines.pdf)

[https://www.delta.com/content/www/en\\_US/traveling-with-us/baggage/before-your-trip/restricted-items.html](https://www.delta.com/content/www/en_US/traveling-with-us/baggage/before-your-trip/restricted-items.html)

[https://www.faa.gov/about/initiatives/hazmat\\_safety/more\\_info/?hazmat=7](https://www.faa.gov/about/initiatives/hazmat_safety/more_info/?hazmat=7)

[https://www.faa.gov/about/office\\_org/headquarters\\_offices/ash/ash\\_programs/hazmat/passenger\\_info/media/Airline\\_passengers\\_and\\_batteries.pdf](https://www.faa.gov/about/office_org/headquarters_offices/ash/ash_programs/hazmat/passenger_info/media/Airline_passengers_and_batteries.pdf)

<https://www.segtravel.com/Guide%20to%20DOT's%20Lithium%20Battery%20Carry-on%20Provisions%20-%20Jan.%202008.pdf>