



Cathay December 2016

www.cathayradio.org

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Mission: The Cathay Amateur Radio Club is basically an active social club of Ham Radio Operators and their spouses. We support local community requests for HAM emergency communications. Several of us are trained in CPR/ First Aid and are involved with community disaster preparedness.

Monday Night Net Time: 9 PM Local Time/PST, Frequencies: 146.67MHz -600KHz PL85.4 and 442.70 +5MHz PL 173.8. The repeaters are linked only during the CARC Monday night net.

Update: Link to repeater 442.70 is currently not active until further notice.

The CARC Monday night net is the best way to find out the latest club news.

All check-ins are welcome.

Message from the President: George Chong, W6BUR

Hello CARC Members and Friends;

I am sure that you all had a very busy and exciting last couple of months with all that has been happening. Just the US Presidential election had us all holding our collective breaths awaiting the eventual and improbable out come. In the past couple of months we had Fleet Week, the Baseball playoffs/World Series, Veterans Day, and of course Thanksgiving.

I wish to thank those folks that attended our Veterans Day luncheon as seen during the event below:



Left to right: Hetty - WB6SHU, George - W6BUR, Gary – KN6LV, and not in picture (Rod – KJ6DZI)



Left to right: David - WZ6X and Gilbert - KJ6HKD

I hope all you had a very Happy Thanksgiving! I had a very nice Thanksgiving at my home with my dear family members in attendance, numbering some 12 terrific people. Both Hetty and I were blessed with family, lots of lovely food, good drink and good conversation.

I am sure we are all getting ready for this Christmas and on that note: Our distinguished CARC member, Edison WB6IBQN is hosting his annual Christmas at his home.

CARC Christmas Party Intro

Please join us for Ed's annual Pot Luck CARC Christmas Party, Saturday from 6pm – 10 pm December 10, 2016. Further details about the Christmas party are provided in this newsletter.

I been to several of Ed's previous CARC Christmas parties and they are always a blast!

People bring lots of different kinds of dishes that are just delicious. I have always left the party completely stuffed to the gills. There are plenty of free parking spaces close by and a great opportunity to mix with other interesting HAMS from all over the Bay Area.

Tech Article Intro

This month's story is about a remarkable young and brilliant Asian woman named: Ms. Cleo Loi who is a PhD student in astrophysics at the University of Sydney.

Ms Loi made a made a startling discovery about the earth ionosphere containing previously undefined plasma structures. It was the result of dedication and imagination to find new ways to detect the plasma structures.

As you know we all depend upon the ionosphere for our long range radio communications. Knowing about these plasma structures will help us understand how low frequency radio waves interact with the earth's ionosphere. This understanding will allow us to find ways to improve our radio communications and other scientific uses.

Now that I have piqued your interest, please go to the Tech Section for a more detailed description.

CARC Final Wrap-up News

I wish all our CARC members and friends an upcoming Christmas Holiday and a Happy New Year.

I wish to thank our CARC members that set aside their valuable time to participate in our Monday night's nets.

Don't forget to keep your calendars clear for the following events:

- Saturday December 10, 2016 for Edison's XMAS party
- Saturday February 11, 2017 for our CARC Chinese Year Luncheon (more on that in the CARC Jan 2017 newsletter).

Chat sub s'em to all you CARC members!

- George Chong, W6BUR.

Public Service Announcements

HAM CRAM / HAM Licensing

For upcoming HAM Licensing locations please refer to:

<http://www.arrl.org/find-an-amateur-radio-license-exam-session>

Auxiliary Communications Service (ACS)

The Auxiliary Communications Service (ACS) was organized by the San Francisco Office of Emergency Services (OES) following the 1989 Loma Prieta Earthquake to support the communications needs of the City and County of San Francisco when responding to emergencies and special events.

The Auxiliary Communications Service holds General Meetings on the third Tuesday of each month at the San Francisco Emergency Operations Center, 1011 Turk Street (between Gough Street and Laguna Street), from 1900 hours to 2100 hours local time. All interested persons are welcome to attend.

The ACS Net begins at 1930 hours (7:30 p.m.) local time each Thursday evening, on the WA6GG repeater at 442.050 MHz, positive offset, tone 127.3 Hz. The purpose of this net is to practice Net Control skills, practice checking in with deployment status in a formal net, and to share information regarding upcoming ACS events. Guests are welcome to check in. ACS Members should perform Net Control duty on a regular basis. On the second Thursday of each month, the net will be conducted on the output frequency of the WA6GG repeater, 442.050 MHz no offset, tone 127.3 Hz, simplex.

For more information, please attend an ACS meeting or check in on a net, or call 415-558-2717.

Upcoming meetings: No Meeting For December 2016
Tuesday 7pm, Jan 18, 2017
Tuesday 7pm, Feb 15, 2017

Gilbert Gin (KJ6HKD)

Free Disaster Preparedness Classes In Oakland:

<http://www.oaklandnet.com/fire/core/index2.html>

CORE is a free training program for individuals, neighborhood groups and community-based organizations in Oakland. The underlying premise is that a major disaster will overwhelm first responders, leaving many citizens on their own for the first 72 hours or longer after the emergency.

If you have questions about the recertification process, you may contact the CORE Coordinator at 510-238-6351 or core@oaklandnet.com.

Free Disaster Preparedness Classes In San Francisco – NERT Taught by San Francisco Fire Department (SFFD) - Upcoming events

December 2016

- 3 NERT/Medical Reserve Corps (MRC) Medical Point of Distribution
DPH staff to train volunteers to assist with this important task.
CE's available for EMT/Paramedic/Nurse/Pharmacist
- 10 Staging area and Neighborhood Command Post DRILL
Washington HS side yard, 30th Ave near Geary 8:30a-12:30p

January 2017

- 14 2MCM Ham Radio practice
Spreckels Lake, GG park, no RSVP needed
- 16 MLK Freedom March support and Outreach booth
- 27 NEN Awards
Join us to celebrate SF's amazing people including the NERT Leadership Award
RSVP required
- 28 NERT Sponsored Ham Cram - get your license in 1 day!
St. Mary's Cathedral Event Center, 1111 Gough St
Register (\$30)

February 2017

- 1 NERT Quarterly
All NERTs welcome for Program update and Networking
- 4 NCT** 101/201: Introduction to amateur communications/Hands on Buttons,
Knobs & Antennas. Get your license January 28 and get started with radios at
this beginner class Please register
- 9 Damage assessment & Emergency Message writing (critical NERT skill)
Please register
- 11 SFPD ALERT (Aux. Law Enforcement Response Team)
Applications must be received well in advance to allow for background check
Program Details and application in the SFPD ALERT section of this newsletter
- 11 2MCM Ham Radio practice
Spreckels Lake, GG park, no RSVP needed
- 22 NCT** 301: Hands on message passing and scribing

- 23 Please register
NCT** 401: NET Control for NERT staging
Please register

March 2017

- 4 Neighborhood Leadership College
Learn tricks and tips for Neighborhood Team building from NERT peers
Please register
- 7 Gas & Electric Safety for volunteer responders with PG&E
Please register
- 9 Ask an Elmer: informal session with ham radio mentors
Please register
- 11 St. Patrick's Day Parade NERT marching Unit
Please register
- 18 Neighborhood Command Operations (NCP) I
Registration open soon
- 25 NCP II (Prerequisite NCPI)
Registration open soon
- 28 NERT ICS Forms Workshop
Registration open soon

April 2017

- 4 Staging area DRILL
Registration open soon
- 17 NERT Citywide Drill, NERT graduates and victims needed
SAVE THE DATE!

RSVP to sffdnert@sfgov.org or call 415-970-2024 to register.

Visit www.sfgov.org/sffdnert to learn more about the training, other locations, and register on line. Upcoming Special NERT Events.

San Francisco Police Department: Auxiliary Law Enforcement Response Team (ALERT)

The Auxiliary Law Enforcement Response Team (ALERT) is a citizen disaster

preparedness program designed. The ALERT program is for volunteers 16 years of age or older, who live, work, or attend high school in San Francisco.

Graduates of the San Francisco Police Activities League (P.A.L) Law Enforcement Cadet Academy are also eligible to join.

ALERT volunteers will first complete the Fire Department's Neighborhood Emergency Response Team (NERT) (www.sfgov.org/sfnert) training and then graduate into an 8 hour Police Department course specifically designed for ALERT team members.

ALERT members will work closely with full-time and/or Reserve Police Officers in the event they are deployed after a disaster. The Basic ALERT volunteer will have no law enforcement powers other than those available to all citizens.

SFPD ALERT Training

The next SFPD ALERT training class have been scheduled for Saturday, February 11th 2017. The class will be held at the San Francisco Police Academy, in the parking lot bungalow, from 8am-5pm (one hour lunch break).

IMPORTANT- All participants must complete the background interview process in order to be eligible to attend the ALERT training class.

Eligible ALERT participants may register for a training class by contacting the ALERT Program Coordinator, Mark Hernandez, at sfpdalert@sfgov.org, or by telephone at 415-401-4615.

SFPD ALERT Practice/Training Drill

All active/trained ALERT members are asked to join us for our next training drill, scheduled for 9:00 am – 1:00 pm Saturday January 28, 2017. Details will be emailed to active ALERT members, prior to the date of the exercise. Participation is not required, but strongly encouraged.

For more information on the San Francisco Police Department ALERT Program, email us at sfpdalert@sfgov.org, or call Sergeant Mark Hernandez (SFPD, Ret.), SFPD ALERT Program Coordinator, at (415) 401-4615.

For additional information on the web please refer to:

<http://sf-police.org/index.aspx?page=4019>

CARC Christmas Party Annoucement by Ed Fong – W6BIQN

Christmas Party – Saturday, December 10 6-10 PM

Format: Potluck – bring your favorite dish.

Door Prize - Btech 2501 + 220 Triband 25 watt transceiver

Where: 1163 Quince Ave. Sunnyvale, CA -

Best directions given on www.googlemaps.com Call if you get lost 408-245-8210

Have you ever heard of California Foodie Events? Never been to one? Here is your chance. Not only that, it is FREE to all attendees. Just bring a dish to share. If you have ever been to our Cathay Radio Christmas Party, you know this is the event to taste foods from all over the world. Does not matter whether you like – barbecue ribs, salads, seafood, Chinese, Mexican, Italian, Korean, it will be there. All kinds of desserts served at the dessert table. Get ready to eat your heart out and meet new friends as well.



Just some of the tasty food at last year's event.

Get a chance to meet some really cool folks. Dr. Steven Stearns, Keith Synder, Ron Quan, Nick Cassarino, Jim Walker, Austin Lu, Brenna Fong, to name a few.

Folks that have participated through the year at our various events will receive one raffle ticket - no charge at the door. This will make you eligible for the grand prize. This is our way of saying thank you for your support during the year at the events we have held. New visitors will be allowed to purchase one ticket at \$5 to be eligible for the drawing.

This year we have outdone ourselves once again. The door prize will be a 25 watt triband mobile by Baofeng. This is a great example of great things come in small packages.



1st Prize: Baofeng's UV2501 + 220 new Triband Mobile 25 watt transceiver.

This radio boast 200 memories, full software programmability, great bullet proof front end with 0.25 uV sensitivity, full FM broadcast radio, direct microphone key pad entry, and more.

If you have been looking to get on 220 MHz, this is the latest and greatest. You will be a proud owner of one of these radios.

The Frequency coverage:

- 65-108 MHz – FM broadcast – receive only
- 136-174 MHz – VHF – TX/RX
- 210-230 MHz - TX/RX
- 400- 520 - MHz - TX/RX

Full CTSS and DCS coding

Power – 10/25 watt (user programmable)



2nd Prize: Countycomm GP5/SSB the latest and best portable hand held HF SSB receiver in the world. Fully software defined using the SiLabs 4734 DSP chip. Has software defined product detector and DSP SSB filters for true LSB and USB. 450 memories

Frequency Coverage –

MW/ AM: 520 – 1710 kHz (10K tuning step)

SW: 1.7-30 MHz AM/SSB/CW (with DSP SSB filters)

LW frequency: 150 – 522 kHz AM/SSB/CW

FM: 76 – 108 MHz – stereo

Displays ambient temperature in Fahrenheit or Celsius

Operating time: 225 hrs at 40% Volume

LCD Backlight

Accessories include: Stereo earphones, external AM ferrite antenna, external shortwave antenna, soft carrying pouch, and user manual

There will be many other prizes I don't have room to mention here.

Be seeing you all at the Christmas Party!

Ed Fong – W6BIQN

Tech Article

How an undergraduate discovered tubes of plasma in the sky

June 5, 2015 12.43am EDT

<https://theconversation.com/how-an-undergraduate-discovered-tubes-of-plasma-in-the-sky-42810>

It's a finding that was initially met with a considerable degree of scepticism within the field of astrophysics, but a University of Sydney undergraduate student Cleo Loi, 23, has proven that the phenomenon exists.

By using a radio telescope in the West Australian outback to see space in 3D, Ms Loi has proven that the Earth's atmosphere is embedded with these strangely shaped, tubular plasma structures.

The complex, multilayered ducts are created by the atmosphere being ionised by sunlight.

"For over 60 years, scientists believed these structures existed, but by imaging them for the first time, we've provided visual evidence that they are really there," said Ms Loi, of the Australia Research Council Centre of Excellence for All-sky Astrophysics (CAASTRO).

"We measured their position to be about 600km above the ground, in the upper ionosphere, and they appear to be continuing upwards into the plasmasphere.

"This is around where the neutral atmosphere ends, and we are transitioning to the plasma of outer space.

"We saw a striking pattern in the sky where stripes of high-density plasma neatly alternated with stripes of low-density plasma.

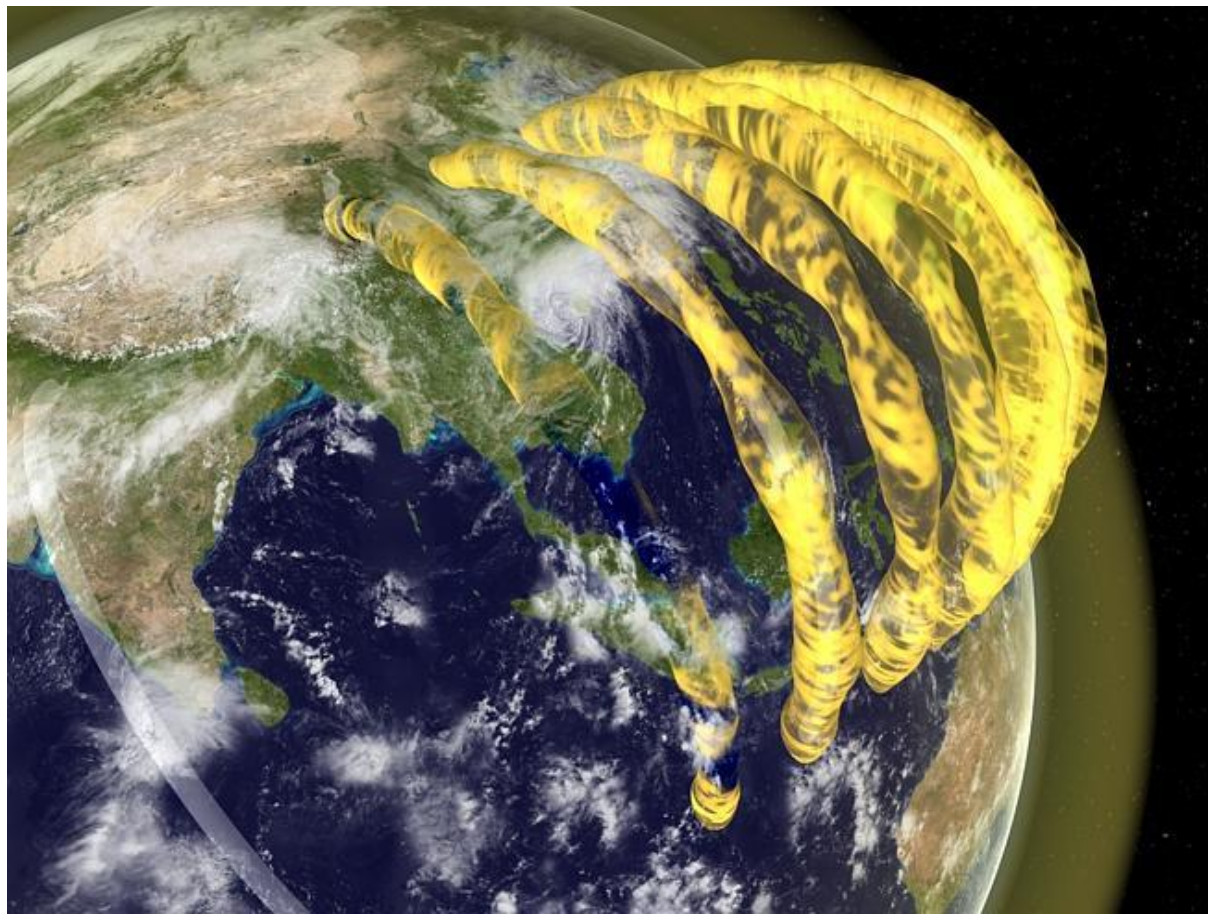
This pattern drifted slowly and aligned beautifully with the Earth's magnetic field lines, like aurorae.

"We realized we may be onto something big."

The breakthrough came when Ms Loi used the remote telescope, the Murchison Widefield Array (MWA), to map large patches of the sky in a new way.

By separating the signals from tiles in the east from the ones in the west, the astronomers gave the MWA — a set of 128 antenna tiles spread over 9sq km in the desert — the power to see in 3D.

"This is like turning the telescope into a pair of eyes, and by that we were able to probe the 3D nature of these structures and watch them move around," Ms Loi said.



An artist's impression of tubular plasma structures in the Earth's magnetosphere. *Source:* Supplied

"We were able to measure the spacing between them, their height above the ground and their steep inclination. This has never been possible before and is a very exciting new technique."

Ms Loi told *news.com.au* that her research was initially dismissed as being based on imperfections in the telescope images.

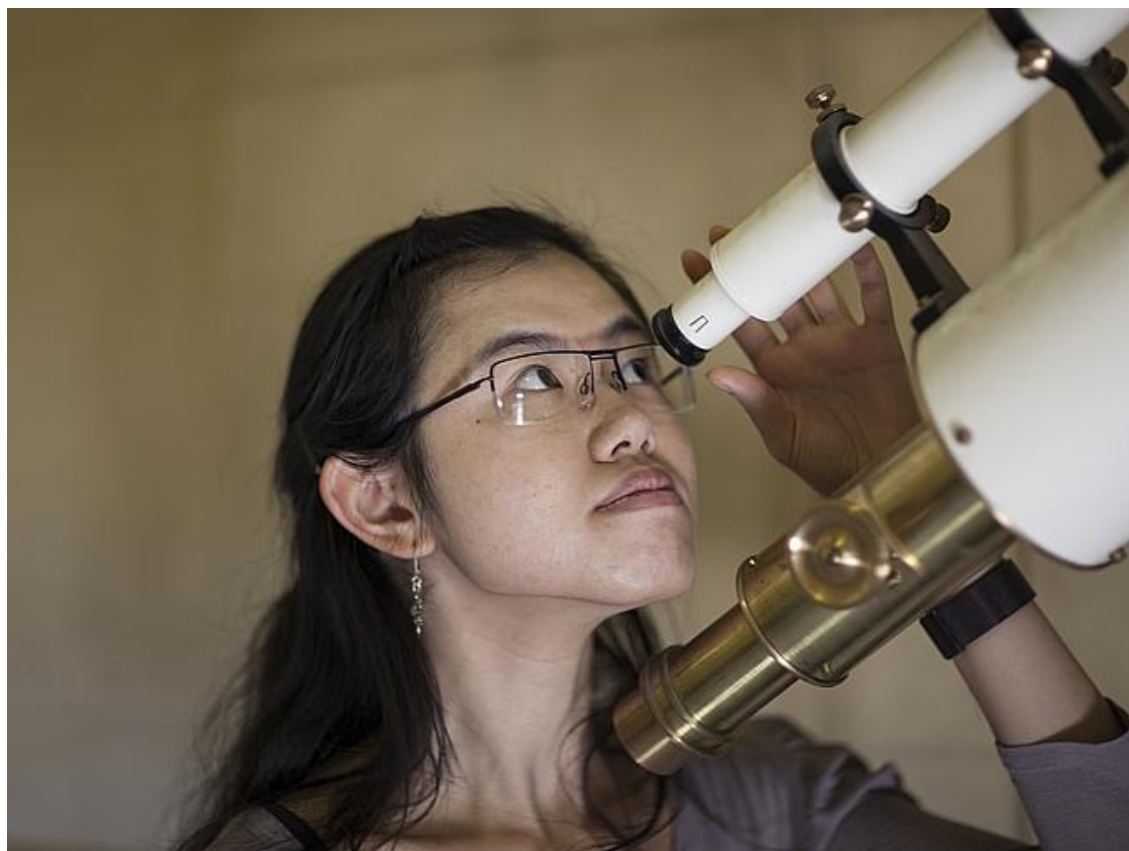
"They had never seen this type of thing before. No one had looked at the data in this way before," she said.

"A lot of the people were pretty convinced it was some problem with the imaging, that it was nothing to get excited about.

"But, I guess being a student and being a bit stubborn, I was so curious, so mystified.

"I was careful about what had happened, and that's how everyone came to be convinced that it had to be something else.

"We found that the ionization patterns in the ionosphere are quite structured. They flow in these tubular structures that are aligned with the Earth's magnetic field. And they can then move of their own accord."



University of Sydney astrophysics PhD student Cleo Loi has made a remarkable discovery..Source: Supplied

Ms Loi said the drifting plasma tubes could distort astronomical data, especially satellite-based navigation systems. It may also mean we need to re-evaluate our thinking about how galaxies, stars and clouds of gas behave and what they look like.

Ms Loi's supervisor Tara Murphy said her work was impressive.

"It is to Cleo's great credit that she not only discovered this but also convinced the rest of the scientific community. As an undergraduate student with no prior background in this, that is an impressive achievement," said Dr Murphy, also of CAASTRO and the School of Physics at the University of Sydney.

"When they first saw the data, many of her senior collaborators thought the results were literally 'too good to be true' and that the observation process had somehow corrupted the findings, but over the next few months, Cleo managed to convince them that they were both real and scientifically interesting."

Ms Loi's research has been published in [Geophysical Research Letters](#).