



Chelmsford Amateur Radio Society Newsletter

July Meeting

Tue 5-Jul-2022, 7:30pm
Danbury Village Hall

An Introduction to Essex RAYNET

By Andy Atkinson M0IXY

Andy Atkinson M0IXY will be presenting an introduction and overview of Essex RAYNET.

The talk will cover how RAYNET came to be, what it is today and how they do it.

Essex RAYNET consists of nearly 40 volunteers. Examples of activities that will be covered include real-life callouts and charity events.



IMPORTANT local members/amateurs are strongly encouraged to physically attend at Danbury where they will be most welcome. Facilities include Refreshments and a Raffle!

Note our new meetings venue!

CARS meet on first Tuesdays at Danbury Village Hall CM3 4NQ and no longer use Oaklands Museum.

Radio Surplus to recycle? - Members are welcome to bring it along and place it on a spare table!

Zoom:

Quick Link:

https://us02web.zoom.us/j/89525692661?pwd=BLp86_qPaD4ga_pM7ASBSaXbXom_f4.1

- Meeting ID: 895 2569 2661
- Passcode: 117075

SUPPORT THE CLUB - VOLUNTEERS NEEDED!

We are seeking new Committee members, Secretary, Newsletter editor, Events/Operators etc

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Club Diary

Jun-22 - Jul-15	Chelmsford Innovation – Marconi & Beyond	Anglia Ruskin University
Tue 5-Jul-2022	Club Meeting: An Introduction to Essex RAYNET, Andy M0IXY	Danbury Village Hall
Tue 2-Aug-2022	Club Meeting: Jim Salmon 2E0RMI - 10 Different Radio Topics	Danbury Village Hall

Club Nets

CARS meets for talks/events on the first Tuesday of the month. The subsequent Tuesdays have club radio nets as follows below and dates listed on our calendar at www.g0mwt.org.uk/main/events/categories/net/ :-

- 2nd Tuesday in the Month – VHF**
 The CARS VHF FM Net uses GB3DA from Danbury starting at 8pm (local).
 GB3DA is 145.125MHz Input and 145.725MHz Output - and CTCSS-only (110.9Hz), 2min timeout
 If for any reason GB3DA is not available then 145.375 Simplex will be used. Vertical aerials are best for this
- 3rd Tuesday in the Month - UHF**
 The CARS UHF FM Net uses GB3ER from Danbury and starting at 8pm (local).
 GB3ER is 434.675MHz Input and 433.075MHz Output - and is CTCSS-only
 Vertical aerials are best.
- 4th Tuesday in the Month - HF**
 The CARS 80m Net on "3756kHz" Night, SSB and starting at 8pm (local).
 Horizontal aerials are best. The idea is to enable distant CARS Members to join the Net.
- 5th Tuesday in the Month (when there is one!) - MF**
 This is the CARS Top Band Net on 1947/1950 kHz +/-QRM, LSB and starting at 8pm (local).
 Horizontal aerials are usually used for this Net. A reminder - limit your power to a max of 30 Watts, please.

Training & Morse Classes

CARS Training classes at Danbury:

If you are interested in these or other opportunities in 2022, please contact **John O'Connell M0JOC** our training coordinator and Exam Secretary

We currently are running fast-track courses at Danbury to assist with the Intermediate and Full

John can be contacted via training2022@g0mwt.org.uk or 07868-004380

More info and other updates are at: www.g0mwt.org.uk/training

Online Morse Classes: Thursday evenings at 7pm. Coordinated by Andy G0IBN who has on-air practice sessions and via Skype too... <https://join.skype.com/clsfKXKmlNvf>

- contact Andy via morse2022@g0mwt.org.uk

 Follow @TrainWithCARS

June Meeting: Air Traffic Management

The topic for the June meeting had to be hastily rearranged, and we were fortunate to have Philip Benstead present on 'Surveillance for Air Traffic Management'.

Tracking and managing busy air lanes is something that is safety critical but we take for granted and is achieved in more populated areas by a mix of primary and secondary radar.

However when Malaysia MH370 was lost over the ocean this highlighted that the huge gaps in coverage and has triggered a great deal of new work in satellite-based tracking, particularly when routes run over oceans



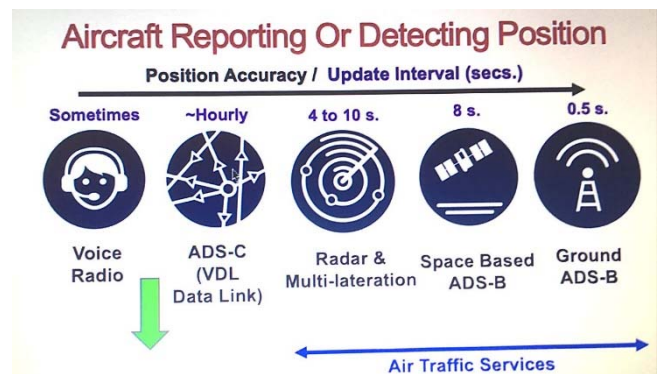
Philip started with explaining some basics of radar. Primary radar is the classic fundamental mechanism of bouncing signals from the aircraft and interpreting the returned blip (as opposed to other noise/clutter). It tries to do this by a mixture of processing and also trying to analyse movement from the Doppler in the return signal. Unfortunately this is becoming more challenging over time - with moving Windfarm blades a particular problem. Wind farms can present a major threat to traditional radar and a whole raft of mitigation systems have been developed.

Wanted ATC Air Targets	Unwanted ATC 'Targets'

More recently though the use of ADS-B secondary radar (an extension of the IFF signal in 1090MHz) where the interrogating signal triggers a response from a transponder (which may contain aircraft id and telemetry for height, speed and bearing etc) has proven valuable , and is the basis for aggregation on websites such as flightradar24. This of course assumes that the transponder is correctly enabled!

ADS-B is now quite sophisticated in that in addition to ground based interrogators, the aircraft themselves can ping each other.

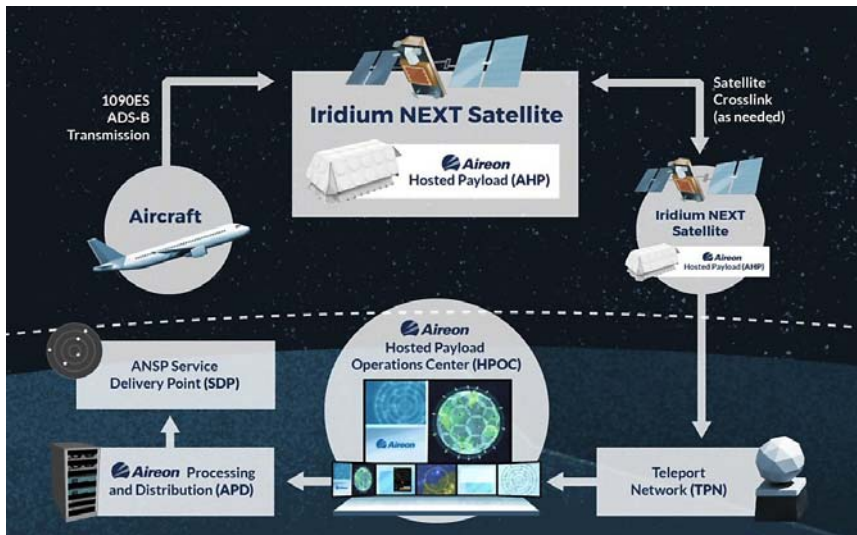
This can assist with situational awareness and traffic collision avoidance (TCAS).



Whilst ADS-B update rates and coverage are good over land, this still leaves gaping coverage gaps as the loss of MH-370 showed

ICAO the international aviation regulator now sees that satellite-based tracking has the potential to deliver both enhanced safety and precision flight management.

For example over the Atlantic this can handle aircraft speed changes due to the Jetstream causing airport slots/schedules to be messed up. The expectation is that specialist ADS-B rideshare receiver payloads will be added to some key satellite constellations such as Iridium.



Satellite based tracking receivers feed down their data for aggregation and checking



Satellite ADS-B tracks of several lanes of aircraft crossing the Atlantic

IMD Presentation

After the break, Paul G4PVM presented a short overview of our recent successful Marconi Day activity and results courtesy of the BAE Systems (formerly Marconi Research) venue at Great Baddow. The slides and full results are on the website at

<http://www.g0mwt.org.uk/events/imd2022/imd-2022.htm>

The next IMD will be on Saturday 22nd April 2023 – so make a note in the diary and volunteer now!



Silent Key Sale

The following items are part of the late Mike Quee G3ZWW SK sale. 25% of any monies received will be donated to the club funds.

Complete Heathkit station comprising:

- SB303 Receiver with manual. Working but needs refurbishing.
- SB401 Transmitter with manual. Untested. Useful for parts if nothing else.
- SB600 speaker. Working.
- HD1410 Electronic keyer with schematic. Working.
- SB650 Digital display for the receiver. Working.

Nice project for those dark winter evenings. Make an offer.

No price for the following items, make an offer for the item(s) you're interested in.

- Marconi 2380 Display module and 2382 Spectrum analyser module. Untested but I believe these are working as the units were cabled up in the SK's 'lab' in a way that suggested he'd been using them up until he became ill.
- Farnell Dual 30V power supply. Tested OK.
- Racal 9904M Counter. Tested OK.
- Time Electronics Resistance box type 1051. Tested OK.
- Thurlby 0-32V, 0.1-1 Amp Power supply. Tested OK.
- Yupiteru MVT-9000 Mk II handheld scanner 530kHz – 2039MHz. Tested OK.
- Thandar TG101 Function generator. Tested OK.

ST Microelectronics power FETS. All are brand new, unused and still in the manufacturer's anti-static trays. They will be shipped via Royal Mail and purchaser will be told of the shipping cost before shipment.

- SD2941-10 (175Watts @175MHz, 50Volt) £40.00 each
- SD4931 (150Watts @175MHz, 100Volt) £40.00 each
- SD3931-10 (175Watts @150MHz, 50Volt) £40.00 each
- SD3933 (350Watts @£30MHz, 100Volt) £65.00 each

For further information, please Email Terry Cottham, terry@cottham.net or Mobile 07778 891277

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