



Western Suburbs Radio Club Inc.

June 2012 Newsletter

ZL1AC, Branch 03 NZART 3000 Great North Road New Lynn,
 PO Box 15-122 New Lynn WAITAKERE 0640
 President: Ian Sangster ZL1RCA, Vice President - Vacant.
 Secretary: Roy Milam ZL1WI. Newsletter Editor – John Neill ZL1NE
 VHF Club Net Wednesday 07:30pm 146.525 MHz,
 HF Club Net Fridays 07:30pm 3.623 MHz
 Website <http://www.qsl.net/zl1ac>

Club Calendar

Saturday	23 rd	June	Committee Meeting – 9:00am
Saturday	23 th	June	Club Meeting 10:00am - ACARS Note New Date
Wednesday	11 th	July	Mid-Winter Club Dinner – 6:30pm
Saturday	21 st	July	Whangarei Radio Club Used Equipment Sale 10:30 am Heritage Park SH-14
Saturday	28 th	July	Committee Meeting – 9:00 am
Saturday	28 th	July	Club Meeting 10:00 am – Programme to be Confirmed
Saturday	25 th	August	Committee Meeting – 9:00am
Saturday	25 th	August	Club Meeting 10:00am - Marine Navigation by ZL1JT
Saturday	22 th	September	Committee Meeting – 9:00am
Saturday	22 th	September	Club Meeting 10:00am – Programme to be Confirmed
Saturday	13 th	October	WSRC Used Equipment Sale Date to be confirmed
Saturday	27 th	October	Committee Meeting – 9:00am
Saturday	27 th	October	Club Meeting 10am
Saturday	24 th	November	Committee Meeting – 9:00am
Saturday	24 th	November	Club Meeting 10:00am – Programme to be Confirmed
Wednesday	12 th	December	Christmas Dinner at the New Lynn RSA 6:30pm

June Meeting

The June meeting will be a presentation by Ian ZL1RCA on ACARS. From Wikipedia ACARS is defined as *Aircraft Communications Addressing and Reporting System (ACARS) is a digital datalink system for transmission of short, relatively simple messages between aircraft and ground stations via radio or satellite. The protocol, which was designed by ARINC to replace their VHF voice service and deployed in 1978,[1] uses telex formats. SITA later augmented their worldwide ground data network by adding radio stations to provide ACARS service. Over the next 20 years, ACARS will be superseded by the Aeronautical Telecommunications Network (ATN) protocol for Air Traffic Control communications and by the Internet Protocol for airline communications.*

May Meeting

The May meeting was on remits. Vaughan Henderson, ZL1TGC, was unable to attend the meeting as he was in Australia at the WIA Conference. He will attend at another time yet to be decided.

Club Nets

VHF Net 146.525 MHz 7:30pm every Wednesday, HF Net 3650 KHz +/- QRM/QRN 7:30pm every Friday. All are welcome to check in on the nets. The full HF Net Roster can be found on <http://www.qsl.net/zl1ac/wsrc-hf-roster.html>

22-Jun-12	ZL1WI	Roy
29-Jun-12	ZL1NE	John
6-Jul-12	ZL1RCA	Ian
13-Jul-12	ZL1MW	Brian
20-Jul-12	ZL1ACZ	Barry
27-Jul-12	ZL1WI	Roy
3-Aug-12	ZL1NE	John
10-Aug-12	ZL1RCA	Ian
17-Aug-12	ZL1MW	Brian
24-Aug-12	ZL1ACZ	Barry
31-Aug-12	ZL1WI	Roy

Mid-winter Dinner

This will be held at the New Lynn RSA on Wednesday 11th July at 6:30 pm. Do come along and enjoy the meal and remember someone else cooks and does the dishes. How could you refuse an opportunity as good as this? Prices are very reasonable. Partners are most welcome.

AREC

The club has been approached to provide communications at a running event in April next year along the Hillary Trail through the Waitakere's. The organisers are in the process of obtaining Resource Consent for this event and will let us know when this has been achieved. In the meantime we are doing some low-key planning so that we are ready when it gets approval.

NASA'S Hubble Shows Milky Way Is Destined For Head-On Collision

WASHINGTON -- NASA astronomers announced Thursday 31 May 2012 they can now predict with certainty the next major cosmic event to affect our galaxy, sun, and solar system: the titanic collision of our Milky Way galaxy with the neighbouring Andromeda galaxy.

The Milky Way is destined to get a major makeover during the encounter, which is predicted to happen four billion years from now. It is likely the sun will be flung into a new region of our galaxy, but our Earth and solar system are in no danger of being destroyed.

"Our findings are statistically consistent with a head-on collision between the Andromeda galaxy and our Milky Way galaxy," said Roeland van der Marel of the Space Telescope Science Institute (STScI) in Baltimore.

The solution came through painstaking NASA Hubble Space Telescope measurements of the motion of Andromeda, which also is known as M31. The galaxy is now 2.5 million light-years away, but it is inexorably falling toward the Milky Way under the mutual pull of gravity between the two galaxies and the invisible dark matter that surrounds them both.

"After nearly a century of speculation about the future destiny of Andromeda and our Milky Way, we at last have a clear picture of how events will unfold over the coming billions of years," said Sangmo Tony Sohn of STScI.

The scenario is like a baseball batter watching an oncoming fastball. Although Andromeda is approaching us more than two thousand times faster, it will take 4 billion years before the strike.

Computer simulations derived from Hubble's data show that it will take an additional two billion years after the encounter for the interacting galaxies to completely merge under the tug of gravity and reshape into a single elliptical galaxy similar to the kind commonly seen in the local universe.

Although the galaxies will plough into each other, stars inside each galaxy are so far apart that they will not collide with other stars during the encounter. However, the stars will be thrown into different orbits around the new galactic centre. Simulations show that our solar system will probably be tossed much farther from the galactic core than it is today.

To make matters more complicated, M31's small companion, the Triangulum galaxy, M33, will join in the collision and perhaps later merge with the M31/Milky Way pair. There is a small chance that M33 will hit the Milky Way first.

The universe is expanding and accelerating, and collisions between galaxies in close proximity to each other still happen because they are bound by the gravity of the dark matter surrounding them. The Hubble Space Telescope's deep views of the universe show such encounters between galaxies were more common in the past when the universe was smaller.

A century ago astronomers did not realize that M31 was a separate galaxy far beyond the stars of the Milky Way. Edwin Hubble measured its vast distance by uncovering a variable star that served as a "milepost marker."

Hubble went on to discover the expanding universe where galaxies are rushing away from us, but it has long been known that M31 is moving toward the Milky Way at about 250,000 miles per hour. That is fast enough to travel from here to the moon in one hour. The measurement was made using the Doppler effect, which is a change in frequency and wavelength of waves produced by a moving source relative to an observer, to measure how starlight in the galaxy has been compressed by Andromeda's motion toward us.

Previously, it was unknown whether the far-future encounter will be a miss, glancing blow, or head-on smash-up. This depends on M31's tangential motion. Until now, astronomers had not been able to measure M31's sideways motion in the sky, despite attempts dating back more than a century. The Hubble Space Telescope team, led by van der Marel, conducted

extraordinarily precise observations of the sideways motion of M31 that remove any doubt that it is destined to collide and merge with the Milky Way.

"This was accomplished by repeatedly observing select regions of the galaxy over a five- to seven-year period," said Jay Anderson of STScI.

"In the worst-case-scenario simulation, M31 slams into the Milky Way head-on and the stars are all scattered into different orbits," said Gurtina Besla of Columbia University in New York. "The stellar populations of both galaxies are jostled, and the Milky Way loses its flattened pancake shape with most of the stars on nearly circular orbits. The galaxies' cores merge, and the stars settle into randomized orbits to create an elliptical-shaped galaxy."

The space shuttle servicing missions to Hubble upgraded it with ever more-powerful cameras, which have given astronomers a long-enough time baseline to make the critical measurements needed to nail down M31's motion. The Hubble observations and the consequences of the merger are reported in three papers that will appear in an upcoming issue of the *Astrophysical Journal*.

For images, video, and more information about M31's collision with the Milky Way, visit:

http://www.nasa.gov/mission_pages/hubble/science/milky-way-collide.html <http://hubblesite.org/news/2012/20>

For more information about NASA's Hubble Space Telescope, visit: <http://www.nasa.gov/hubble>

Lightning Strike Website - What do all the symbols mean?

WeatherWatch.co.nz links to the "combined" output of the four detectors (across NZ) and therefore the symbols don't have anything to do with the key. In this case they indicate which of the four detectors they came from.

The detectors themselves are Boltek Stormtrackers which receive the radio bursts generated by lightning. (You can hear these crackles on an AM radio). It uses a direction-finding aerial to work out the strike bearing and the distance is estimated from the signal strength - the PC software (NexStorm) analyses strikes over time to try to improve the distance accuracy.

However if you click on the individual detector pages (in blue just below the tracker itself) then the symbols have the following meaning:

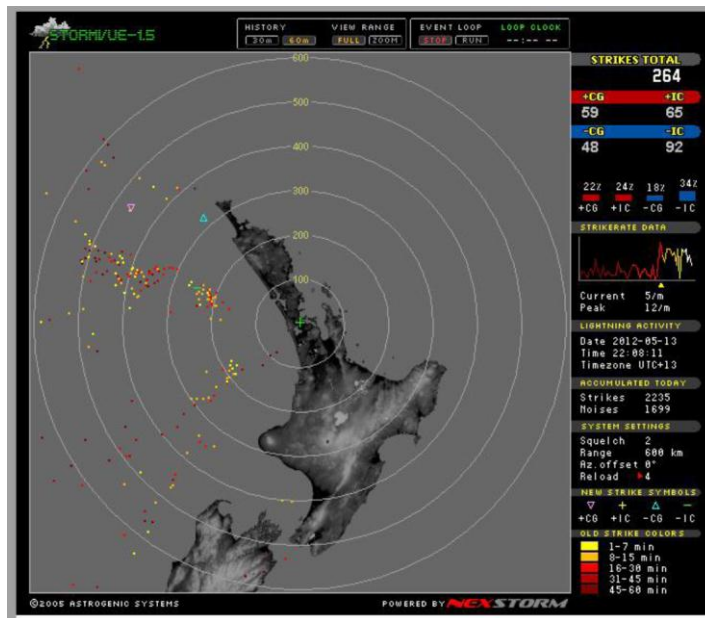
- +CG Positive cloud to ground strike.
- -CG Negative cloud to ground strike.
- +IC Positive in cloud or intracloud strike.
- -IC Negative in cloud or intracloud strike.

To quote from the NexStorm manual:

"With regular, nonsevere summer storms, the positively charged cloud to ground strikes should be in minority with ratios of 0 to 30 percent. During winter thunderstorms (thundersnow), the positively charged strikes can dominate although the cumulative total is likely to be relatively low. Tornadoic supercells in the mid-western continental US have been recorded to contain a large amount of positive CG strikes, especially during the dissipation stage."

In other words for certain types of storm (in the US at least) you might be able to use them to work out what kind of storm it is and possibly its stage of development.

- *Our thanks to Steven Graham of Skywatcher for the explanation.*



Screen dump of the Lightning strike Website
 There is link to it via the Club Website
<http://www.gsl.net/z11ac>

Club Fees

Club Fees are Now Due. Please send your payment to:

Western Suburbs Radio Club
 3000 Great North Road
 PO Box 15-122
 New Lynn
 WAITAKERE 0640

Or pay the Secretary at the next meeting.

NAME _____

Please Tick	Standard Membership	<input type="checkbox"/>	\$30.00
	Family Membership	<input type="checkbox"/>	\$35.00
	Rural Membership	<input type="checkbox"/>	\$10.00
	Total Paid		_____
