

## Radio amateurs provide disaster communication

Whether it is a tsunami, huge forest fire or a devastating hurricane like Katrina or the Volkswagen Motor Rally in Port Elizabeth, radio amateurs are always ready to provide communications.



SARL's Hamnet maintains a core of trained emergency communicators who can be mobilised at short notice to provide emergency communication even when cell phones fail.



### But Amateur Radio is not just for old people!

More and more projects are aimed at the younger generation. Becoming involved while at high school gives learners insight into the world of radio and technology and often becomes a catalyst to choose a career in the Science Engineering

and Technology (SET) field.

### Stay in touch

The SARL also broadcast a weekly one hour programme, Amateur Radio Mirror International. Dust off the shortwave receiver and tune in on Sundays at 10:00 on 7205 kHz (41 metre band) or 17570 kHz



# Amateur Radio

The most exciting of all scientific hobbies

## A FOUNDATION FOR TECHNOLOGY

Making Science, Electronics and Technology fun



*Today Amateur Radio is more vibrant than ever before. It is amazing that many people still have the image of a dingy dark room full of dusty equipment, a man sitting with huge earphones on his head pounding away at a old Morse code key. How wrong can one be?*

*Radio Amateurs are ordinary people. They may be lawyers, doctors, accountants, engineers or technicians or learners or students but they all have one thing in common, a love for (SET) science, engineering and technology.*



**Amateur Radio is for all ages**

*The younger generation benefits tremendously as Amateur Radio actively provides a major stepping stone into a career of electronics and communications. It opens the open the door to meaningful activities away from the humdrum of television.*



### So what are Radio Amateurs of the twenty first century involved in?

They communicate, talk to the world and experiment with various communications modes involving sophisticated computer software, they engage with astronauts and track satellites, even build them!

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## The moon is like a giant radio reflector

Moon bounce and Meteor scatter are two exotic experimental communication modes that are attracting some serious experimenters. In Moon bounce or Earth-Moon-Earth communication (EME) the moon is used as a static reflector bouncing signals back to earth. In the early stages some very high power and huge antenna arrays were required to achieve results. Then came a long the bright ideas of Prof Joe Taylor K1JT, a professor in astronomy and a Nobel Prize winner. In his spare time he developed special software that allows communication under very weak signal conditions.

A UK Radio Amateur, Peter Martinez G3PLX, developed an alternative to RTTY, a system once used to send telex messages around the world. The teleprinter of yesteryear is still in use in some developing countries but generally has been phased out in the commercial world. Peter Martinez turned the teleprinter into a true digital mode and called it PSK31. When he set out the development he had some clear ideas. He wanted to create a mode that was as easy to use as RTTY, yet much more robust in terms of weak-signal performance.

## No stopping on innovation and development



By the nature of the hobby there is no stopping at developing new software applications, new modulations schemes and more recently digital voice.

The SARL presents annually a Radio Technology in Action symposium in major centres of South Africa delivering papers and discussions on the latest developments. The SARL also presents several courses on popular technologies that find application in Amateur Radio.



## Amateur Radio Satellites

When the Russians launched Sputnik I on 4 October 1957 it fired the world's imagination. Radio Amateurs had been talking about putting radio repeaters on mountain tops or sending them up with balloons. Sputnik indeed fired their imagination and on 12 December 1962, a group of US amateurs launched a satellite aptly named: OSCAR – Orbiting Satellite Carrying Amateur Radio. From these simple beginnings over 70 satellites followed, some long gone silent, other still operating after many years in orbit. South Africa has contributed two satellites with an amateur radio payload on board. A third all amateur CubeSat is on the drawing board with a fourth one in the initial planning stages.

## Digital is the new name of the game

One of the digital technologies making its appearance in amateur radio is digital voice. It is called D-STAR. D-STAR is the acronym for Digital Smart Technology for Amateur Radio. The purpose of D-STAR is to allow radio amateurs to speak further and clearer using digital voice while sending data at the same time.

## How to become a Radio Amateur?

There is no age restriction. Anyone can become a licensed radio amateur by passing an examination and do a practical operational test. The entry level license (callsign ZU) gives access to a limited number of frequencies at low power. It requires 10 hours of study.

The full license gives access to more frequencies and at a higher power. The license is a HAREC license which is recognised in all CEPT countries and other countries who have signed an agreement with CEPT. Some 30 hours of study is required. Study material is available from the SARL web free of charge.