

# WorldSpace® Global Club Quarterly Newsletter



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## Happy First Birthday **WorldSpace** Global Club

*By Noah A. Samara, Chairman and CEO*

Around one year ago, **WorldSpace** Corporation set out to create a listeners club. We decided the requirements for membership should be simple: just provide some basic information about your **WorldSpace** receiver and yourself. And if you did not own a **WorldSpace** receiver, you could still join. Just answer a few simple questions about yourself and you would be a member.

At the start of April 2001, we invited people everywhere to join the **WorldSpace** Global Club. Things went slowly at the start. In our initial week, scarcely 100 individuals signed up. Gradually the applications started flowing in to us. Now, as we mark the first birthday of the **WorldSpace** Global Club, we have close to 10,000 members, with more coming onboard every day.

During its first year, the **WorldSpace** Global Club produced three newsletters with information about the latest happenings at **WorldSpace**. And the Club also held two contests, awarding prizes to members from all over the world.

Certainly, the **WorldSpace** Global Club has given benefits to its members. But over the past 12 months **WorldSpace** has received so much from those of you who belong to the Global Club. You have provided a constant flow of thoughts and opinions about the broadcasts of **WorldSpace**. We have been delighted by the letters and e-mail messages that compliment **WorldSpace** on the service we offer. It has been gratifying that so many of you have written to tell us the information and entertainment you get via the **WorldSpace** system has enhanced your lives.

While compliments from members of the **WorldSpace** Global Club are pleasing, your criticisms have been truly useful. When you are unhappy about an aspect of **WorldSpace** service, you have been forthright about letting us know. For this, we are particularly grateful. Your insightful and constructive suggestions have helped us improve **WorldSpace** in many ways.

Of course, the communications we have received from members of the Global Club have not focused only on **WorldSpace** service. On September eleventh, the United States of America suffered terrorist attacks of historic magnitude. Some of those attacks were directed at Washington, D.C., the city where **WorldSpace** maintains its home office. Within hours of the time the attacks hit, we began receiving messages of concern from Global Club members. We were genuinely touched by your thoughtfulness.

It's been a great first year for the **WorldSpace** Global Club. By launching **AfriStar™** and **AsiaStar™**, **WorldSpace** has created a new electronic medium for information and entertainment. Today, our two satellites reach hundreds of thousands of people. With the establishment of the Global Club, the real community of **WorldSpace** listeners share a meeting place to learn about our services.

Ultimately, that's what **WorldSpace** is all about: to deliver news, information and entertainment that empowers people to enrich their lives and – yes – create wonderful communities.

Happy first birthday to the **WorldSpace** Global Club, and thank you – each and every one of you who belong to the Club – for being members and supporting the **WorldSpace** vision. ■

## The WorldSpace Regional Operations Centers

The **WorldSpace** Regional Operations Centers (ROC), located in Washington, D.C., USA for **AfriStar** and Melbourne, Australia for **AsiaStar**, are the backbones of the **WorldSpace** system. The ROCs monitor day-to-day operations of both satellites to ensure that you receive the great content and programming that **WorldSpace** delivers directly to you via your **WorldSpace** satellite digital receiver. Here is a glimpse of daily life at these two satellite hubs...

### THE AFRISPACE REGIONAL OPERATIONS CENTER (ROC) “Celebrating Four Years of Service to WorldSpace”

#### Satellite Operations and the Vernal Equinox

By Brian Park, AfriSpace Vice President of Operations

Have you noticed lately how the path of the Sun is passing farther and farther to the north each day? It's that time of the year when the seasons begin to change and the position and motion of the Sun is the clue that the Northern Hemisphere is entering into spring while the Southern Hemisphere is approaching autumn.

Of course we know it's not the Sun that is moving but the tilt of the Earth on its axis as it rotates and orbits around the Sun that causes the Sun to appear to travel across the sky. From December to June the Sun follows

a higher and higher path in the Northern Hemisphere and then reverses itself so that from June to December it travels higher in the sky in the Southern Hemisphere. That means that twice a year the Sun will appear to move across the equator from one hemisphere to the other. The day this celestial event occurs is called an equinox and the most recent equinox, in astronomical terms called the Vernal Equinox, occurred precisely on 20 March at 19:16 hours GMT. At the Vernal Equinox the Sun appeared to move across the equator from the Southern Hemisphere to the Northern Hemisphere.

An equinox is an exciting and busy time at the AfriSpace Regional Operations Center (called ROC for short). The AfriSpace ROC has the responsibility for operating the

**AfriStar** satellite that is orbiting over Africa and transmitting broadcast programs to Africa, parts of Europe and much of the Middle East. A technical staff is present in the ROC 24 hours a day sending commands and receiving information to and from the satellite to make sure that the broadcast channels heard by the **WorldSpace** receiver owner are crystal clear. During the 30 day period before and after an equinox, unique conditions exist for the **AfriStar** satellite that the AfriSpace ROC must be prepared to

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### THE ASIAPACE REGIONAL OPERATIONS CENTER (ROC) “Celebrating Two Years of Service to WorldSpace”

#### ASIAPACE: Satellite Operations at the Melbourne Regional Operations Center (ROC)

By Nic Mardle, AsiaSpace Senior Vice President, Operations

The AsiaSpace Regional Operations Center (ROC) in Melbourne, Australia is one part of the **WorldSpace** system, which consists of support and development centers in Washington and Toulouse, uplink facilities in Johannesburg, London, Nairobi, Singapore, Beijing and Melbourne, sales and marketing centers in many different locations including India, Japan as well as many of the sites already mentioned, and also the ROCs in Washington and Melbourne.

The fleet of satellites is used to broadcast audio and multimedia programs to the

**WorldSpace** receivers, and since the reception area is counted in millions of square miles, satellites are easily the most efficient method to achieve this. From 36,000km (22,500 miles) above the ground almost a third of the Earth's surface is visible and so the high efficiency spot beams can target exactly which regions we want to service.

However, keeping the satellites in the right place, doing the right thing at the right time is a full-time occupation, requiring a team of highly trained specialists to monitor and control the systems.

#### The ROC

Within the ROC there are three main specializations: *ground*, *mission* and *satellite*

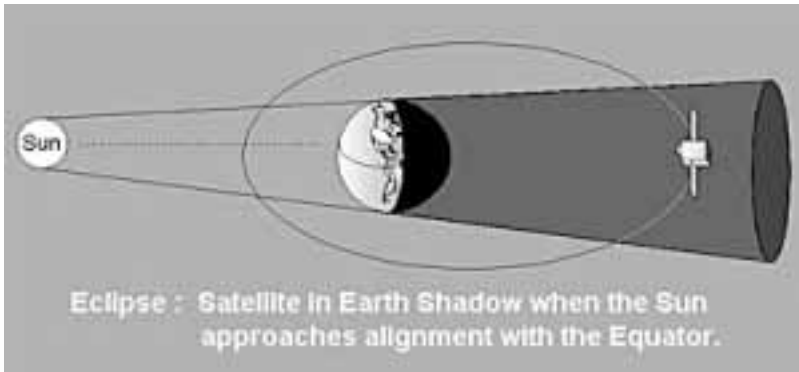
*systems*. These must all work together to ensure that the customers are able to receive the audio and multimedia programs that made them buy a **WorldSpace** receiver in the first place.

The *ground systems* team provides and maintains all of the ground based equipment needed to control and monitor the satellite and mission systems, including facilities (for the **AsiaStar** region) in Mauritius, Bangkok and Melbourne. The team also provides assistance to other sites such as Singapore, China and Bangalore (India) and as a sideline manages the Melbourne PFLS uplink facility.

The *mission team* ensures that the

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safely manage and operate. One is called satellite eclipse, when the Earth comes between the satellite and the Sun; and the other is called Sun Transit, when the satellite comes directly between the Sun and the Earth.

## Satellite Eclipse Operations

The **AfriStar** satellite is in a geostationary orbit. Geostationary is the technical term used to describe a satellite that orbits the Earth directly along the equatorial plane. The satellite derives its power from the Sun using two large solar panels that are always pointed to collect as much of the Sun's rays as possible. The satellite also has a sensor, like an eye, that is always looking towards the Earth to keep the satellite pointed in the right direction. Since the satellite is orbiting along the equator and as the Sun gets closer to crossing the equator at the equinox, there is a period in the day when the Earth passes between the Sun and the satellite, that is, the Earth eclipses the satellite casting a shadow on the solar panels and momentarily blinds the Satellite Earth Sensor.

Eclipse Operations conducted by the AfriSpace ROC consists of two parts; both necessary to keep the **AfriStar** satellite pointing correctly and to ensure that enough power is available for all the on-board systems.

Firstly the satellite's main sensor, the Infra Red Earth Sensor or IRES, has to be configured so it will not be blinded by the Sun passing through its field of view. The IRES is used to ensure good pointing performance and so is vital to the satellite's operation. Before each eclipse begins, the

IRES is set to a special mode where it is partially shielded in the area we know the Sun is going to pass. Once the Sun has passed, and the eclipse is over, the IRES can return to normal operations where all elements of the IRES are used together.

In the second part of the operation we set up the satellite systems to allow the two batteries onboard to provide all the satellite's power requirements during each eclipse while the solar arrays (the normal power generators) are in the Earth's shadow. The batteries are designed to be able to provide enough power to run all the satellite's equipment through the longest eclipse, which is 72 minutes and occurs on the actual day of equinox. After each eclipse ends the solar arrays are illuminated once more and the batteries are recharged, slowly, taking up to 12 hours. Once charging is complete they are ready for use again during the next day's eclipse.

Once correctly set up, the satellite's onboard system can manage these operations automatically using a special program called BATMAN (short for Battery Management), but at the ROC we carefully monitor the satellite's progress every night, ready to step in if there seem to be any problems.

## Solar Interference or Sun Transit Operations

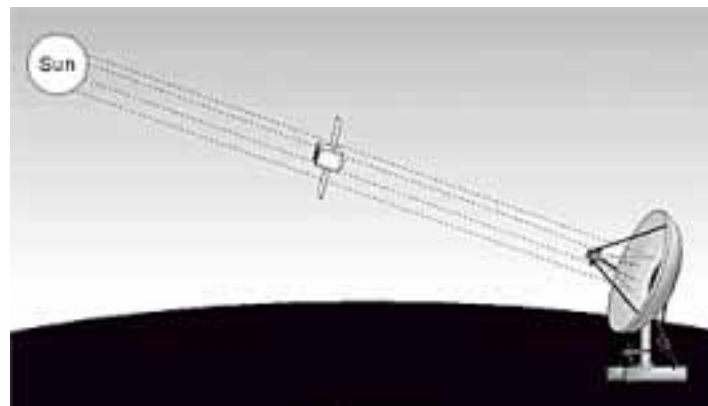
A second phenomenon known as Sun Transit occurs with satellite communications during the days before and after an equinox. Since **AfriStar** is orbiting directly along the equator there are times during the movement of the Sun as it journeys from one hemisphere to the other when the Sun will move

directly behind the satellite. When this happens, all of the receiver antennas on the Earth that are pointed at the satellite will be "looking" directly into the Sun as it passes behind.

The Sun's energy captured by the antenna can overwhelm a satellite receiver and cause severe interference. These periods of solar interference vary during the day depending on the longitude or latitude of the listeners' location. They are highly predictable and can be calculated for any type and location of satellite receiver antenna. The **WorldSpace** receiver is designed so that solar interference poses little or no problem, however, many of the broadcasters deliver their programs to **WorldSpace** broadcast centers by various means, including other satellite services that are highly susceptible to solar interference.

During the equinox periods the ROC notifies key broadcast centers in the AfriSpace region of the predicted dates and times of Sun Transits for the various satellites used to distribute **WorldSpace** programs. It can calculate Sun Transit events to help solve cases of reported troubles in the **WorldSpace** system.

To learn more of solar interference due to



Sun Transits see

<http://www.geo-orbit.org/sizepgs/Noise.html>

## What's Next For The AfriSpace ROC

Eclipse operations and solar interference events last from 30 days before until 30 days

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channels that are approved to be sent over the satellite are broadcast at the correct time, with the correct parameters and that the quality of the signals received on the ground are “up to scratch”, tracing any problems to their source - back hauls from external agencies, problems with uplink facilities or anomalies on the satellite payload.

The *satellite team* is involved in keeping **AsiaStar** where it needs to be for the mission team to broadcast over it, and ensuring it is in the correct configuration to survive the daily rigors of the space environment.

### The AsiaStar Satellite

The satellite is broadly split into two sections: *platform* and *payload*. The *payload*



*AsiaStar Lifts Off*

provides the services, in the case of **WorldSpace**, the digital audio broadcasts and multi-media. The *platform* supports the payload and provides all of the requirements needed to operate in space: power, heating, cooling, attitude (if the satellite isn't pointing in the correct direction the beam coverage will change and the people won't be able to receive the signals) and communications.

The satellite has many effects on it in space that must be countered in order to keep it in the correct location and also which require the satellite to be in a specific

configuration to ensure that the effects do not cause the satellite to behave incorrectly.

For example, although the effects of gravity are very small they are still present, and the gravity of the Earth and the Moon cause the satellite to drift away from its specified orbital location. Amazingly, the Sun also has an affect because the surface area of the satellite is so large and the mass of the satellite is relatively small, the constant pressure from the solar wind also causes the satellite to drift. For the **AsiaStar** satellite team, this means that every two weeks they have to perform a “Station Keeping Maneuver” or SKM to reposition the satellite back in its ideal location at 105° East (almost directly above Singapore).

In order to generate power, **AsiaStar** has two large solar arrays, approximately 60m<sup>2</sup>, generating over 5.5kW. For the majority of the year the solar arrays rotate so that they are always facing the Sun providing constant power to the satellite. However, for two periods of six weeks a year the Earth obstructs the Sun and no power can be generated by the arrays for up to 72 minutes. Occasionally the Moon also obstructs the direct line of sight of the solar arrays to the sun and the same eclipse phenomenon occurs. During this time batteries on the satellite provide the power. *In order to ensure that the satellite is safe, the depth of discharge of the batteries is constantly monitored during the eclipses and if they are being discharged too much, the power load must be reduced, first by switching off non-essential heaters and ultimately by switching off the payload, which would interrupt the programs and so is a last resort.*

There are other celestial phenomena that require the satellite to be placed in specific configurations. For example, the Leonid meteor shower, which is caused by the Earth passing through the debris left behind by the comet Temple-Tuttle and occurs in November each year. The Leonids are made up of meteorites and micro-meteorites, often travelling at speeds of over 158,000 miles per hour (254,000 kilometers per hour) relative to the satellite. This means that if they were to hit **AsiaStar** or **AfriStar** they could make a big impact even if they are only millimeters in diameter. *In order to reduce the chances on impact, the solar arrays are pointed away from the direction of travel of the meteors as the satellite is put in the most stable configuration and all of the systems that could be affected are tested*

*before and after the storm to ensure that nothing has been damaged by the micro-meteorites.*

These are just some of the operations that need to be performed to ensure the health and safety of the **AsiaStar** satellite, but in order to provide a high quality continuous service there is a team of controllers constantly monitoring all of the systems (ground, mission and satellite) and working with the engineering staff to provide the all-important service to the receivers and the broadcast programs to **WorldSpace** customers.

### The Role of the AsiaSpace Satellite Engineer

The Melbourne-based Regional Operations Center is responsible for the health and safety of the **AsiaStar** satellite, plus all of the associated facilities required to provide the broadcast service to the AsiaSpace region.

While the satellite, mission and ground systems are monitored constantly by a team of controllers, there are other tasks that are the responsibility of the engineering staff. They work normal office hours, except of course if there is an operation that needs to be performed outside of these hours, or if there is a problem, which must be resolved as quickly as possible whatever the time.

There are many tasks and operations that the controller and engineering teams have to perform, from time critical maneuvers, to long-term trend analysis, to the replacement of failed equipment. They may be operations specific to one system or, more often, require engineers from different specializations (ground systems, mission and satellite) to work together and co-ordinate their activities to ensure that the ROC is prepared for all possible contingencies.

Generally the first task the engineering team will perform in the morning is to review the previous days activities and monitoring, provided in a logbook by the controllers. This allows them to build up a picture of the behavior of the systems and to check if anything problematic has occurred. If something unexpected should happen, the engineers will determine the consequences, severity and priority of the problem as well as the actions required.

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Since there are so many operations to be performed, a master schedule is created. This is also used to ensure that operations requiring conflicting resources are not scheduled simultaneously. After the morning check has been performed the engineers will plan what operations must be prepared and executed. The maneuvers could include: commanding the satellite to change parameters used in the pointing of the satellite; performing bench-marking tests to verify that the signal levels have not changed; telemetry tape rotation for efficient archiving of the data; creating or updating broadcast channels; preparing the data required for orbital maneuvers; and scheduling tests for the different ground stations, etc.

There are also many background tasks that must be performed to verify that the systems are not degrading or exhibiting unusual long-term behavior. Long-term analysis of the individual parameters sent to the ground from the satellite is very important; it can highlight any equipment that may be slowly degrading before a catastrophic failure actually occurs. This allows a configuration change to be planned to minimize the “down time”, i.e., the time that the services are not available to **WorldSpace** customers.

Of course, whatever the operation or analysis that the engineers perform must be documented in the form of reports and are

disseminated to other engineers, either in Melbourne or in other **WorldSpace** offices that would find the information useful.

### How One Becomes a Satellite Engineer

In order to become a satellite, mission or ground systems engineer it is necessary to have a technical qualification and experience. However, there is not a single path to become part of an operations team. For example, to become a satellite operations engineer, a degree in electronic/electrical engineering would provide the background required to understand the power and electronic subsystems; while a degree in communications would provide the necessary background to understand the payload aspects, or aerospace/astronautics engineering to be familiar with the orbit and control theories required.

Similarly for a mission or ground systems engineer, there are many possible ways to gain the qualifications and experience, but because the subjects are so broad it is unlikely that a single course would provide all of the training required. This is why experience is so important. While the specifics of the systems change from project to project the underlying understanding of the systems and the operational environment are invaluable.

*Whatever the original qualification the most important ability is that of understanding an overall system and willingness to constantly learn new skills.*

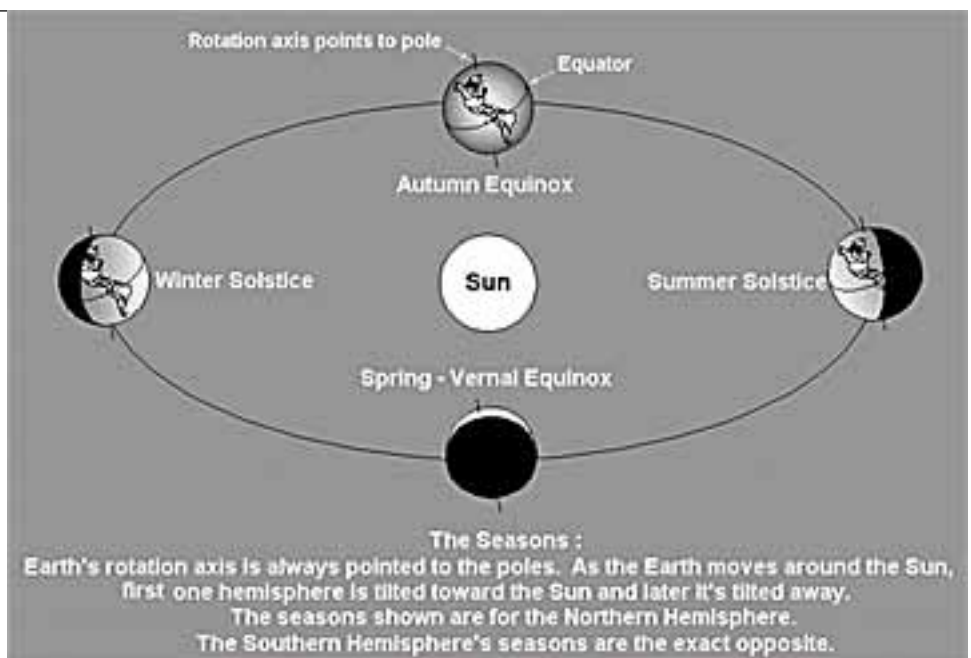
The controllers perform an extremely important function by constantly monitoring all of the equipment that make up the AsiaSpace system. By monitoring the signals sent to the satellite and also those received on the ground, they can determine when there is a problem and then contact the appropriate person. This may be an engineer in Melbourne or someone at one of the other facilities that provide uplink channels to the satellite or communications services with the satellite.

The controllers all have a technical background and experience, so once they are trained they can understand the systems and how they interact. This allows them to work out the source of a problem when there is a lot of information available, some of which may be conflicting. By doing this they not only minimize the potential “outage time” but also provide invaluable assistance to the engineers when they have to solve a problem. The engineers also often call upon them to assist in performing operations.

*An operational environment is unlike many other engineering jobs, such as those in design or manufacturing. It is important to always understand the consequences of actions, inaction or equipment failures. It is necessary to be flexible in the workplace, to work well within a team (there are lots of people trying to ensure that the service is not interrupted, but in different ways) and most of all to be dedicated and conscientious as the satellite cannot always wait for you to finish lunch. ■*

### FUN FACTS ABOUT THE EQUINOX

- Twice a year on the days of the equinox every place on Earth, including the poles, experiences exactly 12 hours of day and 12 hours of night.
- If you're at the equator on the equinox the Sun will rise exactly due east and will set exactly due west.
- The Vernal Equinox is also known by the following rituals and religious days: Alban Eilir, Alban Elfed, Eostar, Eostre, Feast of Annunciation of the Blessed Virgin Mary, Festival of Trees, Lady Day, NawRuz, No Ruz, Ostara, Ostra, Rites of Spring, and the Spring Equinox.
- A popular myth states that only on the Vernal Equinox can you stand an egg on its end. (Try it)
- The Vernal Equinox is the start of Aries, the astrological sign.
- The Vernal Equinox is also celebrated as International Earth Day. Visit <http://www.earthsite.org/>



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after the March 20 equinox. We do it all over again in September for the Autumnal equinox. In the meantime, while the Sun continues to travel to the summer solstice and back, the ROC engineers will continue to conduct routine maneuvers on the satellite orbit and perform standard operations on the broadcast equipment payload, continuing to monitor the health and performance of all equipment as it reacts to the changing sun angles. ■

*Additional contributions by Alex Baker (report) and Bob Farrell (graphics).*



*AfriStar ROC Engineers at the Helm*

### More on the Planetary Phenomena from the AsiaSpace Perspective

## Here Comes the Sun

*By Bradley Davidson, AsiaSpace Mission Engineer*

Since the original concept of scientist and science fiction writer, Arthur C. Clarke in his paper *Extra-Terrestrial Relays - Can Rocket Stations Give Worldwide Radio Coverage*, October 1945, communications via satellite have come a long way. Today potentially billions of people around the world have access to crystal clear digital radio thanks to the **WorldSpace** system and two geostationary satellites, **AfriStar** and **AsiaStar**.

By definition a geostationary orbit refers to a satellite in a circular orbit revolving round the Earth's equator at an altitude of 35,900 kilometers (22,310 miles). At this altitude the satellite revolves around the Earth at the same rate the Earth rotates on its axis and gives the appearance that the satellite is stationary over a given point on the Earth. Like all geostationary satellites, **AsiaStar** requires a team of satellite engineers and specialists to constantly monitor its position and perform periodical adjustments necessary to maintain **AsiaStar**'s precise orbit. Situated at 105° East longitude almost directly above Singapore, **AsiaStar** receives more than 30 broadcast channels from Feeder Link Stations (FLS) in Singapore and Melbourne, then retransmits them continuously over an

area inhabited by an estimated 2.5 billion people.

While an effective means of communication, geostationary satellites like **AsiaStar** are susceptible to interference from the Sun as a result of their location on the equator. This natural phenomenon can interrupt or degrade radio reception. Two such phenomena, which affect **AsiaStar**'s reception from time to time, are ionospheric scintillation and solar conjunctions.

Ionospheric scintillation is caused by small-scale variations in the ionosphere's electron density as a result of atmospheric turbulence (similar reason why the stars twinkle). The effects of scintillation closely follow the 11-year solar cycle and vary with level of the solar activity and the frequency of the signal. While the total ionosphere is susceptible the most severe scintillation often occurs in the equatorial regions, after sunset through to around midnight (local time). At its most severe, ionospheric scintillation can affect radio reception causing loss of signal as a result of deep fades and loss of signal content. Within the **AsiaStar** region countries such as Indonesia and Malaysia through to Southern China and Taiwan in the North lie within the area of highest probability for scintillation.

If you would like to know more about scintillation follow the link to the Northwest Research Associates:

[http://www.nwra-az.com/ionoscint/sp\\_daily.html](http://www.nwra-az.com/ionoscint/sp_daily.html)

Conversely a conjunction refers to the alignment of two objects in space so that

they have the same celestial longitude as seen from Earth<sup>2</sup>. In this instance the two objects are **AsiaStar** and the Sun. Twice a year around the time of the equinoxes as the Sun moves north or south with the seasons, the Sun passes behind **AsiaStar** for about twenty minutes a day over a period of 10 days. The Sun exudes noise at varying frequency and intensity that interferes with reception of the satellite signal. The "solar interference" results when the Sun, the satellite, and the receiver antenna are all positioned in a direct line. The level and duration of the interference depends upon a number of factors including, frequency, antenna size and the level of solar activity to name a few. All these factors are taken into consideration when during the two equinox periods (September and March) the Melbourne Regional Operations Center (ROC for short), calculates for all its uplink centers the probable interference periods. Although we are unable to prevent a solar conjunction, these predictions allow the **WorldSpace** customer service centers to accurately notify customers when and if an outage will occur. ■

### References

**Clarke, C Arthur.** *Extra-Terrestrial Relays - Can Rocket Stations Give World-wide Radio Coverage*, October 1945. Source: Reinaldo A. C. Bianchi - Laboratory of Integrated Systems.  
**Joseph A. Angelo, JR** -*The Dictionary of Space Technology*. 2nd Edn: Facts on File inc:USA.

## WORLDSPACE FOUNDATION AND UNICEF-OPERATION LIFELINE SUDAN (OLS) ANNOUNCE PARTNERSHIP



Washington, DC (19 February 2002)

**WorldSpace** Foundation (WSF) announced an exciting new initiative with UNICEF-Operation Lifeline Sudan (UNICEF-OLS). WSF will work with UNICEF-OLS to deliver education and social development programs to recovering communities in Southern Sudan via WSF's digital satellite information services, the Africa Learning Channel and WSF Multi-Media Service. This collaborative effort seeks to empower war-torn communities in Southern Sudan with the information they need to reconstruct their livelihoods, and foster an atmosphere of peace and reconciliation.

The partnership will enable UNICEF-OLS to distribute teacher training and classroom support material to learning centers in communities with virtually no access to the Internet in a cost-effective and timely manner. For the first time in more than three decades, community members will receive the latest, relevant articles from major medical journals, up-to-the-minute climate information, best practice guides and training manuals for community development and current news from the entire continent. Programming will also include a wide range of vital information programs on topics such as HIV/AIDS prevention, child

survival and youth development, gender equity, general health and nutrition, microenterprise development, and environment conservation, among others.

"We are pleased and proud to be opening an information gateway for the people of Sudan" said Gracia Hillman, President and CEO of **WorldSpace** Foundation. Ms. Hillman added, "Through this partnership, WSF achieves its mission to provide educational material to people in remote and isolated communities in developing countries. We have now added the people of southern Sudan to the 6 million others who receive our broadcast programs in Africa."

### About **WorldSpace** Foundation

**WorldSpace** Foundation is a 501(c)(3) nonprofit organization committed to the production and delivery of vital and relevant social development and education programs

to communities in the developing world that are disadvantaged by poverty, illiteracy, inadequate infrastructure, and geographical isolation. Headquartered in Washington, DC, its work encompasses Africa, Asia and the Pacific, Latin America and the Caribbean. **WorldSpace** Corporation has given WSF exclusive access to 5% of the channel capacity on all of the satellites of the **WorldSpace** system. WSF uses this capacity for noncommercial social development and distance learning radio programming. In addition to its digital audio capabilities, the system has multimedia capabilities that allow communities that cannot access the Internet to receive printed material in electronic form. For more information, please contact Gracia Hillman at 202-861-2261

[gmhillman@WorldSpace.org](mailto:gmillman@WorldSpace.org)  
<http://www.WorldSpace.org>

## WORLDSPACE PRESENT AT CABSAT 2002

The 8th Middle East International Cable, Satellite, Broadcast & Telecommunications Exhibition (CABSAT) took place from 5-7 March 2002. Held in Dubai, United Arab Emirates, CABSAT is one of the major events in the Middle East for the telecom industry and was inaugurated by the UAE Telecom Minister, His Highness Sheikh Abdulla Bin Zayed Al Natayen.

**WorldSpace** was present at CABSAT and

demonstrated the unique bouquet of audio and Direct Media channels available via various **WorldSpace** digital satellite receiver models. The Direct Media demo projected real-time stock exchange downloading, video clips and distant learning capabilities. "The response received was tremendous and came from all over the globe," stated Khawla Lootah, Managing Director of **WorldSpace** Dubai.

## CAPITAL FM JOINS WORLDSPACE SYSTEM

Nairobi, Kenya: 2 February 2002 saw the signing of a lease capacity agreement between **WorldSpace** and **Capital FM**, the fourth local broadcaster to sign onto the

**WorldSpace** satellite broadcasting system. The agreement launches one of Kenya's most popular radio stations, enabling **Capital FM** to beam its programs to

Eastern, Central and Southern Africa. Look out for this exciting addition appearing as **CAPITLFM BCID 838** on your **WorldSpace** satellite digital receiver.

Capital FM web site link: <http://www.capitalfm.co.ke/>



Image courtesy of Capital 98.4 FM Web-Creative Department.

## WORLDSPACE INDIA LAUNCHES AIR CHANNEL ON ASIASTAR!

All India Radio (AIR), the state owned radio station was launched on 27th February 2002 on the AsiaStar West and South beams. The channel broadcasts news, information, talk shows and entertainment. The launch event had many invitees, among them were several high-ranking officials, including Ms. Sushma Swaraj, Honorable Union Minister for Information and Broadcasting and Mr. Anil Bajjal, CEO of Prasar Bharti.

Mr. Mallakar, Director General of All India Radio stated, "with this WorldSpace digital technology AIR will now be able to

provide better services to its listeners." He also thanked the efforts of the AIR and WorldSpace teams in making this a wonderful platform for future milestones to be achieved. Minister Swaraj expressed her keenness to launch a district and community radio network and felt that WorldSpace could play an active part in making this project a success. She praised Dr. Chandrasekhar, AsiaStar COO of WorldSpace Corporation, for the various achievements of WorldSpace and wished him great success for future endeavors.

## GOINDO.COM TRAVELS WITH WORLDSPACE DIRECT MEDIA

WorldSpace Direct Media service subscribers, there is GOOD NEWS FOR YOU! GOINDO.COM of Indonesia is onboard WorldSpace now!

GOINDO.COM is a new content provider, specializing in tourism. If you love traveling and are now planning your summer vacation in Indonesia, make sure you download GOINDO.COM before you book your reservations. GOINDO.COM, through its video clips, will help you choose from among the many beautiful cities and vacation spots in Indonesia. Now you can preview each destination before you get there! If you are already a Direct Media subscriber, have your Client Service program active for GOINDO.COM content. For those who haven't subscribed yet, what are you waiting for? Go to an Agis Electronic store near you or to BeSmart Home Delivery Shopping at <http://www.besmart.co.id> or call +62.21.9111.888 to get a WorldSpace receiver and WorldSpace PC Adaptor.

## Launch of Exclusive WorldSpace Stores at Nagaland, India

The first retailer selling WorldSpace products was opened in Nagaland, North East India.



WorldSpace retail outlet in Nagaland

## Content and Programming Changes

- **All India Radio (AIR)** debuted LIVE on air (BCID 1417) on AsiaStar WEST and SOUTH on 25-February-2002.
- **KL Radio** (Tamil language) began broadcasting on 6 March 2002, BCID 1418 on AsiaStar WEST beam only.
- **Swiss Radio International (SRI)** on BCID 1300 on AsiaStar WEST, EAST and SOUTH (temporary) beginning 1 April 2002. Full service programming includes music, talk and news.
- **Capital FM** (BCID 838) on 2 February 2002 on AfriStar EAST and SOUTH beams.

In March 2002, the AsiaStar sound quality on select WorldSpace channels was enhanced so that our AsiaStar listeners could hear them with greater clarity. Following are the new BCID locations of some of your favorite WorldSpace programs:

### AsiaStar (North) EAST Beam:

BOB (BCID 1125)  
ULTRA POP (BCID 1126)  
24X7 (BCID 1127)  
POTION (BCID 1128)  
UPCOUNTRY (BCID 1129)  
MAESTRO (BCID 1130)  
RIFF (BCID 1131)  
RITMO (BCID 1132)  
CNNI (BCID 1303)  
BLMBR PR (BCID 1304)  
BLMBR JP (BCID 1305)

### AsiaStar SOUTH Beam:

VOYAGER (BCID 1133)  
CNNI (BCID 1303)  
BLMBR PR (BCID 1304)  
BLMBR JP (BCID 1305)

### AsiaStar WEST Beam:

VOYAGER (BCID 1133)  
CNNI (BCID 1303)  
BLMBR PR (BCID 1304)

## WorldSpace Donates 1000 Receivers to U.S. Soldiers in Afghanistan

On 30 January 2002, **WorldSpace** Corporation donated 1,000 compact, portable satellite receivers to bring news and entertainment to the American men and women serving overseas with Operation Enduring Freedom. The receivers, manufactured by Sanyo Electric Co., Ltd., were distributed to U.S. forces across the theater of operations.

The **WorldSpace** system of direct satellite radio enables U.S. service personnel with Operation Enduring Freedom to receive broadcasts with high fidelity and digital clarity from Saudi Arabia to Diego Garcia to a remote hillside in Afghanistan.

Military personnel serving outside the United States typically have few choices in radio, in many instances only one or two local stations broadcasting in languages other than English. For thousands of

American troops beyond the reach of AM or FM transmitters, the only alternative, until now, has been shortwave, a medium with poor sound quality and unreliable service.

"We at **WorldSpace** are proud of the American men and women with Operation Enduring Freedom and serving throughout the world," said Noah Samara, Chairman and CEO of **WorldSpace** Corporation. "Our forces are away from families and loved ones and many have limited sources of news and information. As a gesture of our gratitude, we want these men and women to enjoy the many unique channels of **WorldSpace** satellite radio."

Since then, **WorldSpace** has received numerous letters from the soldiers overseas and their families expressing their gratitude for providing a medium that links them back with the sounds of "home."

Here is a sample of what some had to say:

"I wanted to personally thank **WorldSpace** Corporation for your generous contribution to my soldiers serving Operation Enduring Freedom in Afghanistan. For most, telephones and Internet access have been inaccessible, and newspapers often weeks old upon receipt. The satellite receivers that you have provided have been their only link to current news and American culture, and are responsible for a tremendous boost in morale. It would be difficult to express the extent to which your patriotism, support and generosity have contributed to the success of our mission here. Please accept my gratitude on their behalf... Thank you."

**Thomas L. Pirozzi, Lieutenant Colonel, U.S. Army Commander, Logistics Task Force, 101st Airborne Division, Kandahar, Afghanistan**

"As a fellow American and one in the radio business (we build radio tower sites) I would like to thank you for your donation of portable [satellite] receivers to our soldiers overseas. It is this kind of dedication and patriotism that makes our nation great. You can be sure I will always have a good word for you, and will refer associates to your corporation when they are in need of satellite radio products. Again, thanks!"

**Michael J. Castellano VP, Menuncketuck Communications Corporation**

"My son, who is stationed with the US Army in Kandahar, Afghanistan has mentioned to me that some of the tents on base have [**WorldSpace**] Sanyo satellite radios with which they are able to listen to some great broadcasts..."

**Anne Beal, Baltimore, Maryland, USA**

"Gentlemen, I am an American soldier in Kuwait at Camp Doha. I was in Afghanistan for several months and I enjoyed one of the **WorldSpace** radios your organization donated to Operation Enduring Freedom."

**Sincerely Yours, Eric K. Smith**

"We just got satellite radio here at Bagram Airbase in Afghanistan and we love it! It is awesome to hear live radio and American songs (on **Radio Voyager**) after many months of absolutely nothing!"

**Sergeant Mike, Explosive Ordnance Disposal Team (EOD)**

"Hey guys, we just got these really cool satellite radios and we are able to pick up your station (**Radio Voyager**). Love the music and thanks for your support."

**HM1 Keith M. Rawls, Independent Duty Corpsman U.S.N.**

## WorldSpace Channels in the USA via XM Satellite Radio

Check out [tedkellyworld.com](http://tedkellyworld.com) and [johnnyriggs.com](http://johnnyriggs.com) for cool stuff from your favorite DJs.

- **Ngoma** (provide Internet link to XM Site) - Hear "Africa Live" with host Folly Bah, Monday to Friday from 7:00AM to 12:00 PM EST. This is a brand new morning show that features the latest in African music, culture, lifestyle and issues which includes a special segment called "Latitude." Then follow it up with Gregory Diggs as he takes the mike from 2:00 PM to 7:00PM EST. [http://www.xmradio.com/programming/programming\\_category.jsp?category=World](http://www.xmradio.com/programming/programming_category.jsp?category=World)
- Check out a LIVE interview with none other than **Youssou N'Dour** when he hits D.C. on April 16<sup>th</sup>. He will be in the studios for an interview at 11:00 AM EST, then listen later as Folly and Gregory check-in live from the Lisner Auditorium in Washington, D.C., where Youssou will be performing. It's all happening on **Ngoma!**
- **UPop** (provide Internet link to XM Site) - see why Larry Armstrong of *Business Week* (USA) in his 25 March 2002 article called **UPop** his "current favorite" channel. You can now hear **U-Turn** on

XM and will debut on **WorldSpace** soon. **U-Turn** provides an "indies" flavor to the already hot mix of music.

[http://www.xmradio.com/programming/programming\\_category.jsp?category=Hits](http://www.xmradio.com/programming/programming_category.jsp?category=Hits)



*International Recording Stars StarSailor with U-Pop [pictured l-r: record executive Frank Felice, UPop's Zach Overking, Johnny Riggs (with Spider the Wonder Dog!) StarSailorband members Ben and James and UPop's Ted Kelly]*

- **World Zone** (provide Internet link to XM Site) - will be featuring "Ones to Watch," a preview show highlighting new artists and singles.
- [http://www.xmradio.com/programming/programming\\_category.jsp?category=World](http://www.xmradio.com/programming/programming_category.jsp?category=World)

## CONTENT and PROGRAMMING NEWS

### NEW WORLDSPACE CHANNELS COMING ONBOARD!

You have been asking for them and now they will be ON-AIR! Beginning in June 2002, look for new **WorldSpace** channels to debut: **Planet Rock** (classic rock), **The Hop** (oldies) and **Ritmo Latino** (Latin salsa/merengue). Soon you will have more great music choices from **WorldSpace**!



A brand new show debuts on **24X7** in April - It's called "*Fluid*" and it begins infiltrating your subconscious starting April 8th. *Fluid* is a daily three-hour program, heard Monday-Friday 04:00-07:00, which lets you wind down during the overnight hours with a multitude of dance sounds, including ambient/acid jazz and hip-hop. After raving all night, **24X7** is now giving you the chance to come back down to earth with *Fluid*.

Speaking of specialty programming, *Subterranean* is still going strong on **24X7**. Listen for the hottest two-hours of radio comin' at ya with host Zoltar every Friday night from 22:00, Joburg and Singapore time. And if you miss it, no worries - *Subterranean* is rebroadcast on Sundays from 18:00 and again on Wednesdays at 20:00. And in some BIG NEWS, *Subterranean* is not only heard on the **WorldSpace** system anymore! One of the biggest radio stations in the United States, WHFS in Washington D.C. has recently picked up *Subterranean* to run on their airwaves on Friday nights! It's all part of the *Subterranean* master plan to rule the world!

**24X7** is also revving up another specialty show to start airing. It's yet unnamed, but will be focussed on new music and will be hosted by Mark Daley. This one-hour weekly show will run on Sundays at 18:00, Joburg and Singapore times. For the latest details, keep it glued to **24X7**!

And in **24X7** artist news, one of the dance worlds hottest DJs, *DJ Aphrodite* recently came up to the **WorldSpace** studios in Washington D.C. and spent hours hanging

out and grooving with *Zoltar*. *DJA* (as he's been known to be called) was spinning that night at the Washington dance club mecca, *Buzz*, so he thought he'd come by and see where it all happens - the **WorldSpace** studios!! He played us some of his brand new music, and we'll be featuring some of this on **24X7**, including some new songs from his latest EP, *A Coupla Tricks*.



Hey, **Bob** has got a new DJ!! And she's a girl!! Can you believe it!! All these guys running around here - Pogo, Rob Timm, Mark Daley - but now beginning *very soon* listen for Gina on **Bob**. Gina, or as we like to call her, "the girl", will be heard every day from 00:00 to 06:00, Joburg and Singapore times. Please help us welcome Gina to the **Bob** family!!

Also coming very soon to a **Bob** receiver near you, is a new weekly 2-hour retro/alternative show dedicated to all those cool songs that you remember from way back when. It's tentatively titled, *Relapse* and it will be hosted by the man who knows everything, Rob Timm! The show will feature "blasts from the past," much like the *Throwback A-List* series currently heard on **Bob**.

We're also revving up another new **Bob** specialty show which will be dedicated to "Indie" rock. It will be hosted by Mark "the Alien" Daley and will feature underground rock artists.

So what else is going on with **Bob**? Well thanks for asking. In the upcoming weeks you'll hear interviews with *Garbage* and *Billy Bragg* on **Bob's Playhouse**. And you'll also hear some brand new music from the Foo Fighters, Korn, Suede, the Chemical Brothers, Oasis and MANY, MANY more new rock artists.



We've added a new DJ to our already formidable **Potion** jock lineup. Her name is Candy Shannon and her sound is as sweet as her name!! Her voice is already gracing our airwaves, so check her out and let us know what you think - we're at [Potion@WorldSpace.com](mailto:Potion@WorldSpace.com). So with the addition of Candy, our DJ lineup looks like this: Brian Carter in the mornings, Scharmaine Foster in the midday, Candy in the afternoons and Ray Boyd in the early evening.

We're very proud of our *Encore Performance* program, where each week we feature one of the great stars of the R&B world. It could be a current star or one from WAY back - you never know! Recently *Encore Performance* featured five weekends - did you hear me, five! - of great music from the *Jackson 5*, *The Jacksons* and *Michael Jackson*!! A lot of great music came out of that family from Gary, Indiana and we packed it all into 5 *Encore Performances*! In upcoming *Encore Performances* look for shows dedicated to the *Brothers Johnson*, *SOS Band*, *Ashford and Simpson*, *Rose Royce* and the *Stylistics*. *Encore Performance* can be heard every Sunday evening at 21:00, Joburg and Singapore times.



**Potion** and **Bob** aren't the ONLY ones to have added a new DJ - we here at **Riff** are getting into the action as well! We have the

pleasure of welcoming one of the smoooooooooolest voices around to the **Riff** airwaves - perhaps you've heard him already, his name is Tony Carlton and he makes a great addition to the **Riff** DJ family. He joins Jeff Brown, Ron Thompson and Pamela Hall to present to you the greatest jazz on the planet.

Jazz is one of those music genres that lends itself to having festivals dedicated to playing that type of music pop up all over the world. The latest major Jazz festival was the *North Sea Jazz Festival* which was held 31 March to 1 April in Cape Town, South Africa. That weekend, **Riff** spotlighted the festival by featuring some of the great artists that appeared at the festival - artists like *Spyro Gyra*, the *George Duke Band*, *Tower of Power* and *Hugh Masekela*.

One of the things we're proudest of at **Riff** is our *Spotlight Series*. Each week on Sunday at 21:00, Joburg and Singapore time, the *Spotlight Series* takes one great jazz artist and features their music for an hour. Upcoming *Spotlight Series* include vocalist *Eddie Jefferson* on 14 April, pianist *Gene Harris* on 21 April, trumpeteer *Kenny Dorham* on 28 April and guitarist *Jim Hall* on 5 May.

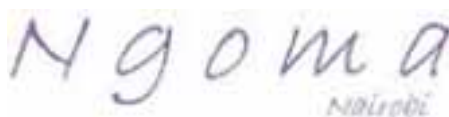


The **Maestro** library continues to grow by leaps and bounds!! You name it, we're adding it to our playlist - symphonies, concertos, lullabies, sonatas, preludes, waltzes!! And the pieces we're adding are by a veritable who's who of composers - *Beethoven, Brahms, Chopin, Rachmaninoff, Tchaikovsky, Bach, Debussy, Mozart* and TONS of others. Not to brag or anything, but we've added over 500 pieces in the last month and a half!!! This is all in the effort to make **Maestro** the one stop for all things

classical.

Every day, your hosts Anthony McSpadden, Judy Gruber and Rich Kleinfeldt, present the world of classical music to your radio.

And in a final note, a big THANKS to all the **Maestro** listeners who've been sending notes regarding our *Film Notes* program! We're happy to announce that it is making its return to the **Maestro** airwaves in May. So for all those of you who have been missing it, no worries, it will be back in its normal Wednesday 18:00 time slot, Joburg and Singapore times (of course!).



**Ngoma** - Check out three specialty shows currently heard on **Ngoma** called *The Dance Africa Top 40 Chart*, *The Artist of the Week*, and *The Classics*. You can look forward to the countdown presented LIVE starting 4 May.

The "countdown" has recently been syndicated to a terrestrial station in Uganda, and other terrestrial broadcasters will soon follow...

A new show on **Ngoma** to look out for will feature interviews with musicians and producers from around the (Africa) region, plus features from up & coming artists.

**Ngoma Nights** continue on the last Thursday of every month at *Carnivore* in Nairobi, Kenya. November 2001 marked **Ngoma's** first birthday and **WorldSpace** was there to cut the cake!

Don't forget to e-mail your requests and comments at: [Ngoma@WorldSpace.com](mailto:Ngoma@WorldSpace.com)



There is so much going on on **UPop** these days, it's almost impossible to put it all down on paper! As you know, **UPop** is truly a global channel, being heard over the

**WorldSpace** Satellite Radio Network as well as the XM Satellite Network in the United States. It is truly taking over the world!

The cornerstone of any good radio station is its morning show, and **UPop** is no exception. We have one of the best in the business hosting our mornings - you've heard him - his name is Ted Kelly and each morning he presents *Ted Kelly's World Party*, 5 hours of music, music news, and just plain stuff that's important to YOU, the **UPop** listener!!! Coming up on the *World Party*, hear Ted's interviews with *Starsailor* and *Nikka Costa*.

Let's see, on **UPop** we already have The **UPop Chart Countdown**, *New Music Fridays*, and the *Breakdown* as a few of our specialty programs - and we're about to add one more!! Join us soon for *U-Turn*, a show that features some of the coolest music from up and coming bands from all around the world. The show has already debuted on the XM feed of **UPop**, and is making its way over to the **WorldSpace** side of things very soon!!



**Radio Voyager** is proud to announce the debut of the *Thirtysomething Countdown* this spring! The countdown will feature the Top-30 **Radio Voyager** songs according to, well who else, us!! And the name is really clever because there are 30 songs in the countdown, and the people who listen to **Radio Voyager** are usually in their 30's - so you see it's actually brilliant, because - oh nevermind!

We're ALSO proud to announce that all those **Radio Voyager** DJ's that you know and love - Mike Kaufman, Dave Zyck, Stacy Lyne, Rob McLean and Eric Phillips - will also now be heard on Sundays as well. That's 7 days a week!

And finally, the **Radio Voyager** Online Message Board is coming back soon - stay tuned!

**Content News** continued on page 12



You want specialty shows, we got 'em...

The **Up Country Hit Parade** with your loveable host Marty Dempsey is the ONLY worldwide country music countdown show on the planet! It comes at you on Saturdays at 11:00, Joburg and Singapore times and then is rebroadcast on Sundays at 14:00 and again on Wednesday at 18:00.

One of two new programs, *Decades* is heard on Sundays at 10:00 with rebroadcasts on Wednesday at 13:00 and Friday. *Decades* is hosted by John Dowling and features different years in country music history - what songs were big, who got married, who got divorced and anything else that you need to know!

The other new program, *Pioneers*, is heard on Saturdays at 21:00 Joburg and Singapore times with rebroadcasts on Tuesdays at 13:00 and Thursdays at 17:00. *Pioneers* is hosted by Scott Carpenter and features all those great country music pioneers - you know, folks like Hank Sr., Willie Nelson, Waylon Jennings, Merle Haggard, George Jones and Johnny Cash, just to name a few.

And finally, **Up Country** had a nice mention in a pretty influential newsletter. [Radiocountry.org](http://Radiocountry.org) is the Web site for the International Country Music Association, and **Up Country** was their feature cover story in the March 2002 newsletter. Go to their Web site and check it out!!

## Useful links to programming information

### Audio Programming Guide:

<http://www.worldspace.com/productsservices/programguides/index.html>

### Direct Media Link:

<http://www.worldspace.com/productsservices/directmedia/contentlist.html>

## Listener Testimonials

"Hello. My husband is currently serving over in Kandahar, Afghanistan. He mentioned to me through one of his recent letters that he and the troops listen to your station 24 hours a day [**Up Country**]. He went on saying that it lifts their morale when they don't receive any mail..."

**C. Montgomery**

"Hi, I'm a Kenyan aged 22. I love listening to **Potion**... You guys are just great."

"Hi, My name is Patrick Ndlovu, from South Africa, I listen to your station (**Potion**) most of the time... I love explaining to my friends that I really get stations from far [via a] **WorldSpace** digital receiver."

"Hi there. I am Henock from Ethiopia and I just want to tell u that u are the best. I like your program (**Potion**) soooo much keep [up] the good work..."

"I thoroughly enjoy listening to the weekly gospel music slot on **Ritmo**. Tonight (Sunday 31 March) I continued on **Ritmo** after the gospel slot. The first track on the show immediately following the gospel slot really struck a chord - I've heard it several times on **Ritmo** now...It's a lovely song and I'd like to add it to the growing list of superb music we've obtained from South Africa - thanks to **Ritmo** - since I bought a **WorldSpace** receiver. Thanks and keep up the good work."

**Robert**

"I really do enjoy **Up Country** even though my husband complains a lot. But he is beginning to like it too. I am from Kenya, City of Nairobi. I listen to **Up Country** all the time at work and at home... Keep on the good work! And God bless you all."

**Eunice**

"Hey, I am a big fan of your channel (24X7), all the way from Bangalore, India. I just love club music. My favorite artists are Paul Van Dyk, Timo Mass, Paul Oakenfold, BT, Faithless, etc..."

**Krishna**

"I am pleased that you have expanded the

selection of music and it's a relief to have a classical music station in a city where the local stations offer very little variety as they compete for the same sector of the market (i.e., "latest hits") ignoring the classical music which is far more stimulating and rewarding to listen to. My parents recently also got a **WorldSpace** receiver mainly to hear **Maestro**. Thanks for your work and may it long continue."

**Colin, South Africa**

"Dear **WorldSpace**, I am an American Peace Corps volunteer in Senegal, and I love listening to **UPop**. The variety is outstanding. Thanks for keeping me up to date and feeling a bit more at home listening to the latest releases from around the world."

**Melinda Wilcox**

"**Maestro**, you are great! The music is super! Thanks for what you give us & keep it running!"

**Thomas, South Africa**

"Thanks to **WorldSpace** which allows people to feel, the total world as their homeland, particularly people who live abroad. I am an Indian, who loves to hear old songs which are broadcast through the channels of **WorldSpace**. I am living in Riyadh, Saudi Arabia."

**Shahab**

"From now on, no more need of batteries for the remote control, **BOB** plays it all."

**Mario, South Africa**

"This is to inform you that we are regular listeners of **Up Country** 24 hrs a day and are very impressed with the selection and quality of songs played on your channel. We out here in India would love to hear some real good old country songs that are classics and are even reproduced today."

**Miles Desousa**

"Dear **Ultra Pop**, a very big hi from Ramesh! You guys are doing a superb job, keep up the good work. Wishing all the people on **WorldSpace** a very Happy Chinese New Year!" Love,

**Ramesh**

## WorldSpace ANNOUNCEMENTS

### WorldSpace Global Customer Survey:

Thank you to our **WorldSpace** customers for participating in the recent **WorldSpace** Global Customer Survey. Your feedback is extremely valuable to us!

We will be announcing the 6 winners of the new **WorldSpace** JoyEar Digital Satellite Receiver in May 2002!

*Edited by Laura Sifuentes and published quarterly by WorldSpace Corporation. May be reproduced with special written permission. Comments/Questions to: [globalclub@WorldSpace.com](mailto:globalclub@WorldSpace.com).*