

ANDEX



INTERNATIONAL

Vol. 9, No. 3

June-July, 1982

REPORT FROM PANAMA

The Isthmus of Panama not only links two great oceans, but also the two American continents. About 40 ships from all parts of the world make the transit between the Pacific and the Atlantic Oceans each day. Most of the air travel between the Americas passes through this narrow strip of land. Panama is certainly worthy of the titles it has been given, "Bridge of the Americas" and "Crossroads of the World".

In this strategic spot, HOXO went on the air on July 22, 1949, as a Christian radio voice. The station had been purchased by a group of local Christian laymen, organized under the name of the Tropical Broadcasting Association. For many years now, HOXO has also been a full-time ministry of The World Radio Missionary Fellowship, Inc. just like HCJB.

While we were in Panama, the broadcast schedule for the Harris 5 kilowatt AM transmitter was from 5 in the morning until 10 at night (EST) with programming in both Spanish and English. The frequency used is 760 kHz. A 300 foot vertical tower serves as the non-directional antenna. Try DXing this station sometime . . . reception reports from outside of Panama are welcomed. Send all reports to Radio Station HOXO, Apartado 3269, Panama City 3, Panama.

HOXO also has an FM stereo outlet, called LIFE Radio, started in November, 1971. The station is located at 105.1 on the FM band. The equipment is automated with tape transports, cartridge carousel and cartridge machines all tied together and controlled by a master clock enabling the station to be on the air 24 hours a day.

LIFE Radio uses a 4 bay circularly-polarized antenna with a gain of 2.05 db to provide good coverage of the metropolitan area of Panama City.

We spent most of our time working at the AM transmitter site installing a new antenna filter system (See ANTENNA CORNER) and later at the studio site installing a new, solid-state, synthesized studio-transmitter link system.

Maybe in some other issues, I can sound like a tourist and tell about our visit to the Miraflores Locks on the Panama Canal or our train ride from the Pacific Ocean to the Atlantic Ocean in just one hour and 30 minutes! All in all, the Stanley family spent a lovely three and a half weeks in Panama, working, and relaxing, too.



HCJB'S 11 METER TRANSMITTER NOW ON FREQUENCY

Although it was listed as operating on 26020 kHz, many sharp-eared DXers discovered that HCJB's 11 meter transmission (100 watts) was actually about 1 kHz higher, on 26021. This was because the 11 meter project never was officially presented to station management for approval and therefore, had no budget. All work done to put it on the air was done after hours and except for electrical power (and not much of that), no expenses resulted.

The home-made crystal was off frequency and resisted efforts to pull it down to exactly 26020. However, after receiving "QSL cards" from several government monitors in Canada and the U.S.A. about the off frequency operation, we finally dug up some funds and ordered a crystal. So now, HCJB's 11 meters, THE WORLD'S LOWEST POWERED INTERNATIONAL STATION really is on 26020 kHz.

FEARLESS FORECAST: THE E-LAYER

By John Stanley

The E-layer of the ionosphere is located about 105 kilometers above the earth. It is formed by X-rays from the sun striking the thin upper air and breaking atoms into ions which are electrically conductive. After sunset the ions quickly combine into atoms and the E-layer rapidly decays. Since the E-layer responds quickly and dependably to the sun's rays, its behavior can be predicted quite accurately.

The maximum frequency which the E-layer will reflect (E-layer MUF) is a function of the angle at which the sun's rays strike the earth, the angle at which the wave strikes the ionosphere, and the sun spot number. It is maximum at noon, in summer, and when the sun is most active (high SSN). The E-layer MUF for a 2000 kilometer path can be as high as 22 MHz, and it will never be higher. Unlike the F-layer whose day to day MUF variation can be as much as $\pm 40\%$, the E-layer MUF varies hardly at all.

For a short path where the wave is hitting the E-layer at a right angle, the E-layer MUF, in this special case called the E-layer critical frequency, can get up to about 4 MHz. This means that, depending on the angle between the wave and the E-layer which is related to distance as shown on Fig. 1, the E-layer will reflect some frequencies and pass others. Since the F-layer MUF is usually higher than the E-layer MUF, and since an F-hop covers more distance, reflecting from the E-layer instead of passing through to the F-layer usually works against us. That is to say the E-layer reflects signals to earth a short distance from the transmitter rather than letting them pass on to the F-layer and come down at a more distant point. This blockage of signals by the E-layer is called "E-layer cut off", and is a main limiting factor to daytime DX, especially in summer. (Fig.2)

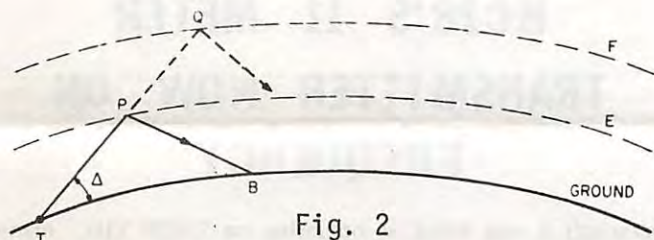


Fig. 2

Table 3 lists the maximum DX to be expected at noon in summer. This varies with frequency and represents the DX of a one hop F-layer path. Two hop paths are difficult at noon as the D-layer absorbs much of the signal each time it is traversed. Signals will not be strong at greater distances although a few powerful stations may get through.

Table 3

| FREQUENCY | DISTANCE |
|-----------|----------|
| 4 MHz | 300 km |
| 5 MHz | 600 km |

| | |
|--------|---------|
| 6 MHz | 720 km |
| 7 MHz | 950 km |
| 8 MHz | 1200 km |
| 9 MHz | 1400 km |
| 10 MHz | 1600 km |
| 12 MHz | 1400 km |
| 14 MHz | 2200 km |
| 16 MHz | 3000 km |
| 18 MHz | 3500 km |
| 20 MHz | 4000 km |

Now for the good news: An interesting type of radio propagation related to the E-layer occurs in June-July. This is called "sporadic-E" and is quite unpredictable. This makes it exciting. Sporadic-E is a type of propagation caused by patchy "clouds" of high ionization that float around in the general region of the E-layer. They can reflect frequencies as high as 250 MHz! Signals being reflected by sporadic-E normally cover 600 to 2000 kilometers, with the higher frequencies normally being further away. Usually signals are heard from a relatively limited geographical area, which shifts as the "clouds" drift about. Any strong signal that is at least 50% above the expected F2MUF and is 600 to 2000 kilometers distant is likely to be sporadic-E. Don't be misled by weak backscatter signals that are reaching distant points and scattering back to listeners in their skip zone. Sporadic-E occurs most in mid-morning and early evening.

A letter from Andre Tatter in East Germany reported the receiving of a Soviet TV program on Channel 11 during the last week in April. This was probably sporadic-E. Keep listening, Andre!

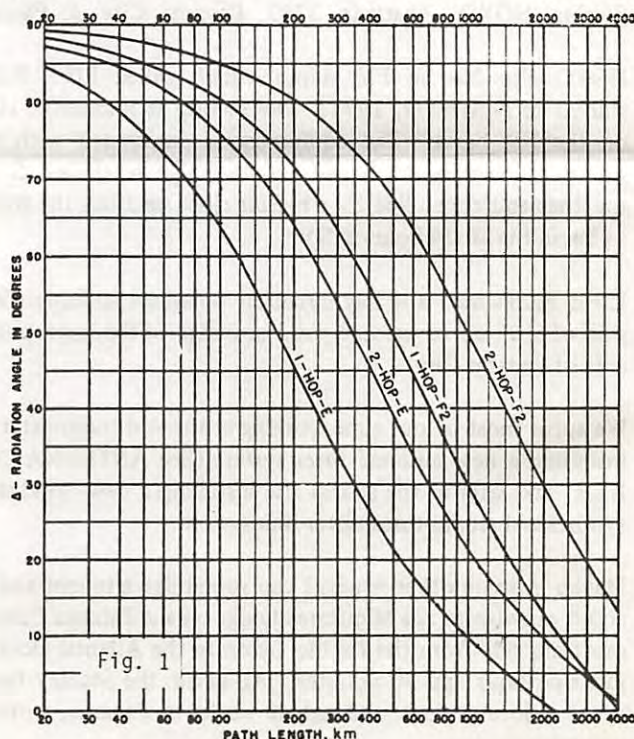


Fig. 1

DXer OF THE MONTH

Jörg Knaack, Otto-Grotewohl-Strasse 59, DDR-5320 Apolda, German Democratic Republic (East Germany) is our DXer of the month for places outside the USA.

Jörg joined ANDEX in October of 1980 and is ANDEX No. 3817. He is in his mid-twenties and is a production worker.

Jörg's first QSL card was from Swiss Radio International. Shortly after that he tuned in HCJB and continues to listen, especially to DX PARTY LINE and to our German programs. He has QSL cards from 37 different countries and has listened to lots more.

ANDEX is not the only club Jörg belongs to . . . he is also a member of Radio Praha Monitor Club and Radio Polonia DX Club.

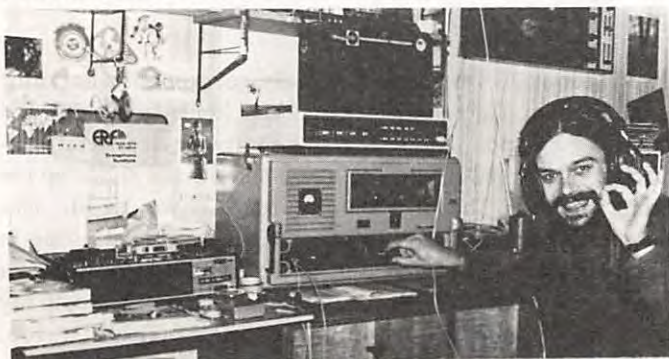
One of his receivers is a Spidola-240, made in the USSR. It has seven shortwave bands which cover continuously from 2 to 22 MHz. An allwave receiver, Dabendorf, is his second receiver. It is 22 years old and doesn't often work, but when it does, he uses it and also listens to single side band on it.

Jörg is unable to build a good DX antenna because of his housing problems so uses a one meter telescoping antenna.

He likes to listen to the radio about four hours a day, usually between 1700 and 2300 hours GMT. Other hobbies include listening to music (all kinds) with a special interest in electronic music, driving his motorbike in summer and winter and drinking black tea! Jörg says that he drinks from three to six liters a day so, tea drinkers of the world, here is a friend for you!

Jörg also likes to collect records, stamps and picture post-cards and he especially likes to correspond with people all over the world.

I happen to know that Jörg is in the hospital at present for some undiagnosed joint pains so he would probably be glad to get some letters and cards from his ANDEX friends congratulating him on being DXer OF THE MONTH-GERMAN DEMOCRATIC REPUBLIC.



**GERMAN DEMOCRATIC
REPUBLIC**

DXer OF THE MONTH-USA



Stephen Leite, 985 Bedford Street, Fall River, Massachusetts, 02723, is our DXer of the month-USA for this issue of ANDEX. He is a fairly recent SWL enthusiast with the hobby catching hold of him in early 1979, but he has made good use of his time in the hobby as evidenced by the fact that he is a member of ANDEX, member No. 3198, and also a member of the following clubs: Speedx, North American Short Wave Association, Radio Tashkent, Radio Kiev, Radio Budapest, Radio Poland and Radio Berlin International.

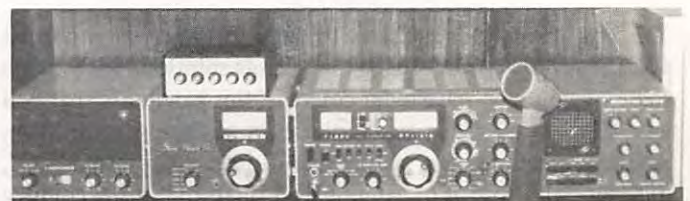
Stephen has two receivers, both of them modified. One is a Yaesu FRG-7 with a Collins 2.9 filter. The other is a Yaesu FRG-7000 modified with a 4 kHz filter and a 2.4 filter. His antennas are a long wire, a dipole, a MaKay Dymek DA100 vertical allwave and a ferrite loop antenna.

To date he has heard 157 countries and has 135 of them verified! His favorite QSL cards are from Antarctica, Cook Island, and Azad Kashmir. He listens to shortwave about three or four hours a day.

Stephen is also a ham radio operator with the call of KA1BTR. His son, Keith, (KA1AQB) and his daughter, Lisa, (KA1BNX) join him in his ham radio hobby. Look for this trio on 10 meters.

Stephen is a member of the NAVY MARINE CORP MARS team and helps to send messages all over the world. His ham station, shown below, is the complete Yaesu 101 series.

If you can, fellow ANDEXers, listen to Stephen Leite on the air . . . or visit him in person in Fall River. It seems Fall River is famous for a number of things including Battleship Cove, the first government center in the world to be built over a super highway, and the Lizzy Borden murder. You can ask him about the murder when you see him!



Congratulations, Stephen Leite.

James Surprenant, ANDEX No. 4061, of Lawrence, Massachusetts, U.S.A., recently wrote to suggest that ANDEX should put out a DX address book that would list the addresses of all broadcast stations.

Well, James, the book you need is the WORLD RADIO TV HANDBOOK, frequently referred to as the WRTH. A new edition of WRTH is published each year by World Radio TV Handbook, Søliljevej 44 (P.O. Box 88), DK-2650 Hvidovre, Denmark.

Most of the pages in the WRTH are used to give a complete listing of all the known radio broadcasting stations of the world. Included are not only shortwave stations but also medium-wave, television and long-wave. Stations are listed by country and a great deal of information is given. The name, call letters, address, frequencies and schedules are listed. In many cases sample identifications are included and details of the interval signal. Even names of leading personalities are given. Of help to those interested in QSLs is information on the station verification policy. A second, and very useful, listing follows in which all stations are arranged by frequency.

In addition to the station listings there are a number of other features that add to the value of the book. Detailed instructions for use of the WRTH are written in English, French and Spanish. The rest of the book is English. There are time charts and maps showing how to convert local time to GMT for any country. One or two articles deal with international regulations which control radio broadcasting. Several excellent articles are concerned with propagation conditions expected to prevail, solar activity and the best bands to use for specific countries at different hours during the year. Lists of international broadcasting organizations, commercial, government and religious, should be of value to many DXers. There are complete listings of all standard time and frequency transmissions. Of special interest to DXers is a complete list of all DX programs broadcast on shortwave. Finally, a helpful feature is a listing of English language programs as beamed around the clock to different areas of the world.

We would urge everyone to obtain a copy. It is readily available in electronic stores and book shops in most countries. If you have difficulty locating a copy, write to the WRTH address in Denmark, if you live in Europe. If you are in the United Kingdom, write Argus Books Ltd., 14 St. James Road, Watford, Herts., or if you live in the Americas, write to Gilfer Associates, P.O. Box 239, Park Ridge, New Jersey, 07656, U.S.A.

The cost may be a problem to some of you. It is around \$18 (USA dollars), so I suggest a possible solution. If there are some of you who have older copies of this handbook that you would not mind giving away, please let me know. And then, ANDEX members who would like to have a copy of WRTH, but can not afford it or can not send funds out of the country to pay for it, you let me know too, and we will have a WRTH giver and receiver matching session. Let's be generous in helping our friends.

THIS 'N THAT

Life is like an onion, you peel away the layers one by one and sometimes you cry . . .

A friend is a gift you give yourself.

What people say behind your back is your standing in the community in which you live.

If the Son set you free, you will indeed be free.

MY START IN SWL

By Charles F. Herman, ANDEX No. 48

Clarion, Pennsylvania

I was 16 years old when I was first introduced to shortwave radio, and I was a patient in a hospital. This was almost 50 years ago, and was before television, of course. So instead of renting a TV set for entertainment in the hospital, a patient rented a speaker which could be plugged into the wall and placed under his pillow, or on the night stand. The only trouble with this arrangement, in this particular hospital, at least, was that everyone had to listen to whatever was tuned in on the master radio down in the office.

The night orderly on our floor in the hospital was just a couple of years older than I and he spent quite a bit of time in our ward just talking. One evening he brought along a speaker and plugged it in at the head of my bed. He had tuned in the BBC World Service at the time that he had picked up the speaker in the office. Just seconds after he plugged in the speaker, the announcer gave the station break, "This is London". At that time the BBC broadcasted the whole performance of the chimes of Big Ben, including the tolling of the hour. I couldn't believe it! We were hearing voices and sounds clear from Europe.

Well, I knew then that I would have to own a radio that would bring in sounds from all over the world. But this was during the depression and shortwave receivers were much more expensive than I had expected.

It was about 36 years before I finally got around to acquiring such a radio. The morning that I came home from work and found the carton containing my shortwave receiver, I unpacked it, plugged it into the house current and pulled up the whip antenna. The first station I tuned in was HCJB. This was in the summer of 1967 and HCJB was broadcasting in the 13 meter band at that time. What a thrill to hear from a station from just below the equator, on my own radio, in my own home! And it came in like a local 5,000 watter, too.

I haven't logged a great many countries, nor have I collected a large number of QSL cards. But I have had many enjoyable and profitable hours of good listening on shortwave.

CONTEST

From July 11-25, ANDEX is sponsoring a sporadic-E contest. To qualify as a likely sporadic-E report, the following criteria must be met:

1. Positive ID . . . you must know the location of the station heard.
2. Station must be from 600-2000 kilometers from your listening post.
3. Frequency must be between 25 and 216 MHz.
4. Signal strength must be S9 or above if below 30 MHz.

Each report will be scored as follows: Distance (in km) multiplied by Frequency (in MHz) divided by 1000 will equal the score for that logging.

A winner will be picked in two categories. The BEST DX . . . that is, the single highest scoring logging, and the MOST DX . . . that is, the highest total score . . . the sum of scores of all loggings during the contest period.

The contest starts at 0000 GMT on July 11, 1982 and ends at 2359 GMT on July 25, 1982.

CAUTION: If you listen to stations between 25 and 30 MHz, you will be liable to hear: 1) F-LAYER DX . . . this will be further than 2000 kilometers away and doesn't count! 2) BACK-SCATTER . . . will be weak, less than S9 and doesn't count! 3) GROUNDWAVE . . . will be less than 600 kilometers and doesn't count! Try to be sure what you hear is really sporadic-E.

On the other hand . . . any TV or FM station more than 600 kilometers away is very likely to be sporadic-E, but hard to catch and harder to ID! Go for whatever you think best for a top score. Airmail your entry (copy of logs, time, date, station, distance, frequency, score total, your equipment, name, address) to RUTH STANLEY, ANDEX, Casilla 691, Quito, Ecuador, South America. We must receive your entries by August 30, 1982. Good DXing!!

THE ANTENNA CORNER

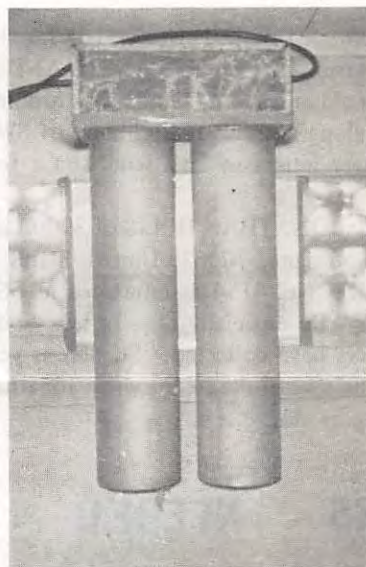
Usually an antenna is designed to maximize a signal that we want to pick up. But often a part of the design is to minimize the pick up of an undesired signal. Thus, for example, the Yagi must have not only gain, but front to back ratio, enabling us to peak a desired signal while rejecting others.

As the world fills up with radio signals, the rejection characteristics of an antenna become more important. Some DXers have put up large antennas only to find overall reception worse because of strong interference usually from a local MW (AM) station.

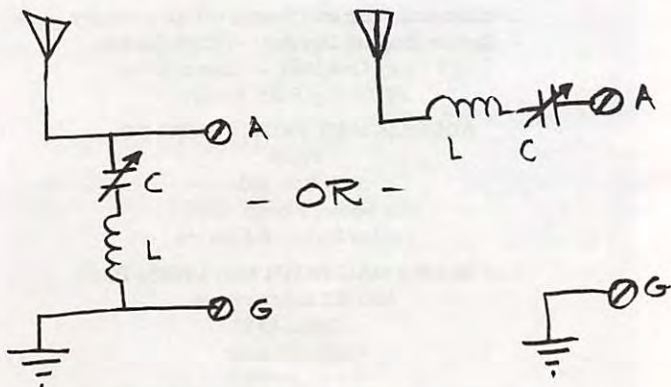
In Panama, we installed a filter to eliminate the signal from a nearby station on 540 kHz that was coming in on the transmitting antenna of HOXO and causing problems. If you have trouble with overload of your receiver from a local station, the same type of filter might help you.

A tuned circuit connected across your antenna terminals and tuned to the frequency of the offending station will work wonders. For the 550-1600 kHz band, one of the circuits shown should work. Adjust the capacitor for best results.

This is called a band stop filter because it stops only a small band of frequencies, passing all others.



THE
BAND STOP
FILTER
INSTALLED
AT HOXO.



For 550-950 kHz:

L=200 microhenrys
C=100-600 pf compression mica

For 950-1650 kHz:

L=100 microhenrys
C=50-350 pf compression mica

PEN PALS INTERNATIONAL

This issue of PEN PALS INTERNATIONAL could be called the teenage corner as all of the members listed are students in their teens.

First is JAMES M. SURPRENANT, 372 Market Street, Lawrence, Massachusetts, 01843, United States of America. James is ANDEX No. 4061. He is 16 years old and besides being a student, likes outdoor activities, photography, bicycling, automobiles and almost any type of radio work. He also plays the accordion and enjoys listening to music. He will do his best to answer all letters received.

Another teenager is HELMUT SCHMAHL, JR., Alzeyer Strasse 56, 6509 Ober-Floersheim, West Germany. Helmut is 16 years old, a student and ANDEX No. 4004. He would like to correspond especially with ANDEX members from the U.S.A., both parts of Germany, Austria and Great Britain. His other hobbies include SWL, DXing, Mwing, playing the piano, geography, history and trading stickers from radio stations. He would like to hear from those of you who enjoy some of his same hobbies.

NEVILLE BHADA, another student, also 16 years old, is from 3360 Vandiver Drive, Marietta, Georgia, 30066, U.S.A. Neville says he likes to collect stamps and to travel all over the world. So, stamp collectors and travel enthusiasts, write to Neville who is ANDEX No. 4048.

A fellow from Canada next . . . JAY E. JENSEN, 16 Churchill Crescent, St. Thomas, Ontario, Canada, N5R 1N7, is ANDEX No. 4191. Jay is 14 years old, a student, and likes astronomy, music and photography, along with his radio hobby of SWL. Jay says he likes to answer letters so let's send him a few.

Last on the list this time is JONATHAN HELIS of 3900 Lake Trail Drive in Kenner, Louisiana, 70062, United States of America. Jonathan, ANDEX No. 4154, is interested in QSLing, DXing and electronics. He especially likes to hear about the QSL cards other DXers have collected. So here is your chance to brag about your special card . . . write Jonathan. He, also, is a student, 14 years old.

MONITORS NEEDED

A recent letter from John Taylor, ANDEX No. 3983, 3208A Henrietta Street, St. Louis, Missouri, 63104, USA, gives the following information:

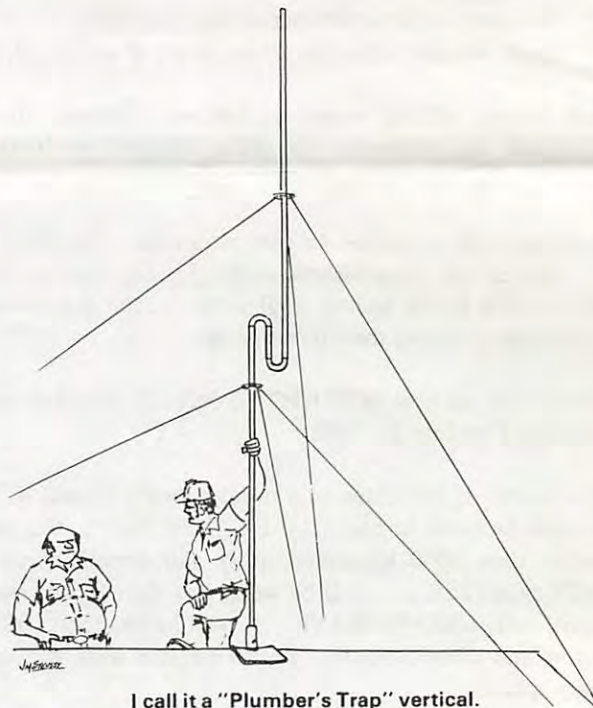
"Radio Republic South Africa Monitoring Panel is looking for members. If you can devote a few hours each month to provide reception information to the engineers at Radio RSA, they will reciprocate by paying postage and giving you a periodic newsletter containing useful information."

If you are interested, write to: Monitoring Panel, Radio RSA, P.O. Box 6, Honeydew 2040, Transvaal, Republic of South Africa.

ANDEX CALL BOOK

You are probably wondering what is happening to the idea of an ANDEX CALL BOOK. Well, I have received dozens of letters from members telling me what you think about the idea. Except for one letter, all were encouraging me to print such a book as it would be helpful and informative for the members of ANDEX. So, I think I will comply with your wishes and begin the project.

But, it will take a while so be patient. I will give progress reports from time to time. My thanks to all of you who took the time to write.



ANDEX International —

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English Program Director — Phillip Sandahl
DX Party Line Host — Roger Stubbe
ANDEX — Ruth Stanley

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