

# The Digital Escapades of STØP in the Sudan

Sudan is one of the most sought-after DXCC entities—particularly on the digital modes. Pull out the atlas and enjoy the story of how PSK31 came to Sudan in June and July 2000, courtesy of G4KIB.

**In** Khartoum, where the White Nile runs into the Blue Nile, you feel a real sense of history. Little seems to have changed since 1885, when General Gordon was standing on his palace roof looking through his binoculars down the Nile for the reinforcements that finally came—two days after he had been killed in battle.

## Waiting (and Waiting) for a License

On my first trips to Khartoum, like those reinforcements, I was unsuccessful. The bureaucratic obstacles proved to be too much and I had to return home without operating. I felt very disappointed but not discouraged. Like any serious ham, when I knew I was going to the Sudan to work, my order of priority was “Where can I get a license” followed by “Where can I get yellow fever jabs.”

Finally my luck changed on a subsequent visit when I met Hassab, now ST2AA, at the Ministry of Road and Telecommunication. Hassab was the frequency manager, not the minister or other top official, but just mention Hassab’s name in Khartoum and it was like saying “Open Sesame!” Hassab knew that there were Amateur Radio operators in Khartoum, especially Dr Sid, ST2SA, who had been operating since who knows when but Hassab said there were no procedures in place in the Sudan for issuing Amateur Radio licenses.

Hassab asked me if I would be willing to give a talk to some of his young associates at the ministry about Amateur Radio. Of course I agreed, although I am far from the teacher type, setting up a sked for two days hence.

I had *The ARRL Handbook* and *Antenna Book* CDs with me, so I was able to print up a few handouts. I set up my IC-746 and connected it to the HF an-



The STØP antenna with the Khartoum sunset in the background.

## The Largest Nation in Africa

The largest country in Africa in terms of geographic area, the Republic of the Sudan gained independence from the United Kingdom and Egypt in 1956. Only 5% of the land area is arable. Its population of about 36 million is made up of blacks (52%), Arabs (39%) and others (9%). Religions include Sunni Muslim (70%, mainly in the north), indigenous beliefs (25%) and Christian (5%, mostly in the south and in Khartoum). Agriculture accounts for 80% of the workforce. Because of a 20-year civil war, US officials at the US Embassy in Khartoum were relocated to the US embassies of nearby countries for security reasons in 1996. -From *the World Factbook*



tenna on top of the ministry building. I also had some very slow and intermittent Internet access to show a few pictures on the HZ1AB Web site.

The talk was supposed to last for half an hour but lasted a lot longer. All participants gave the impression they were

interested as I talked about the international goodwill and self-training that come from Amateur Radio. I also addressed old-fashioned security concerns, stressing that nowadays the Internet was a much more likely medium for clandestine activities. Whether my talk was good

or not, everyone was friendly and made me very welcome.

Back at the ministry, I was informed that my license application was being taken seriously, but no one had ever officially asked for an amateur license before and there were no procedures in place for issuing one. Again, I had to leave the country but on my next visit I was told that I still had a good chance of getting a license. However, it was still being considered by the council of ministers.

All in all, this process had taken nearly two years when my luck suddenly changed for the better. Hassab had just returned from the ITU conference in Istanbul. While there he had met some officials from the ARRL and had talked about Amateur Radio in the Sudan. The powers that be had agreed in principle to issuing Amateur Radio licenses and now Hassab only had to get the approval of the higher security echelons.

### The License At Last

Finally the day arrived when I was called to Hassab's office to get my Sudan license. I had the same feeling inside as when I got my first G4 license in the UK back in 1979. I sat talking to Hassab while his secretary was busily typing a draft Amateur Radio license on a computer in the other office. The license had to have a serial number and I received 002 out of respect for Dr Sid who should rightfully have 001. Everyone at the ministry had heard of Dr Sid, who was a bit of a celebrity in Sudan as well as being famous as ST2SA throughout the global DX fraternity, having operated for over 20 years. "Dr Sid doesn't need a license," they said. On advice of the security authorities, my license was issued for only three months as a kind of trial period to be renewed after that.

The next thing was to agree on a call sign. At the time, being totally ignorant of the history of Sudanese Amateur Radio, I told Hassab that as Khartoum was the capital of Sudan, it would be appropriate if zero were used for the capital, then 1 to 9 could be used for other areas. I had no idea that zero had already been allocated for the old Southern Sudan, which used to be a separate state. This was no longer the case, but the world's DX databases still associate zero with Southern Sudan. Anyway, we agreed on ST0P and for a call sign, I chose ST0P. I soon found out after the e-mails started coming in that people thought I was in Southern Sudan. This may have upset the apple cart a little, but the DXCC Desk didn't seem to mind and accredited the operation.

### Operating from Khartoum

I immediately rushed home to my house to erect my antennas. I installed a

G5RV as a sloper on the roof of my two-story house with the apex about 5 meters above the flat roof. Additionally, I had a quad loop made by Walter Spieth, DK9SQ (see Figure 1). This consisted of a vertical 10-meter telescopic fiberglass mast with a horizontal member at the bottom. The whole thing magically collapses into a canvas bag the size of a small fishing rod and weighs only 1.5 kg (about 3½ pounds)—very easy to carry around and quick to erect.

The loop was much less susceptible to

noise than the G5RV. I could often hear signals on the loop that were nonexistent on the G5RV, so the G5RV was used as a general-purpose antenna. Even though the loop could go down to 80 meters the mast had to be collapsed in order to open and connect a jumper, so the loop was kept on the higher bands.

At one point, the base of the mast was positioned on the grass lawn in between the house and a very large tree and guyed with tent pegs. The tree was home to 2 million birds, which used to twitter very loudly during dawn and dusk. At the same time every evening they would all stop twittering in an instant and then go to sleep for the night. We knew what they were twittering about—in the morning they would all be saying "Good morning, good morning, good morning..." until they had gone through the whole tree. In the evening it was almost the same "Good night, good night, good night..."—1,999,999 times each.

### PSK31 from Africa

The modes I used were SSB, PSK31 and a little CW. For PSK31, I used the SHARC Ezkit board by Analog Devices and the *MPSKWIQ* software from Mike, DL6IAK. (*MPSKWIQ* is available from [www.qsl.net/dl6iak/projects/mpskwiq.htm](http://www.qsl.net/dl6iak/projects/mpskwiq.htm).) When in QSO with Mike, we would start on BPSK but would soon switch to QPSK9 for much better performance.

The *MPSKWIQ* software was developed around the same time as Peter Martinez, G3PLX, was developing his sound card version. Although the sound card version is easier to get going and doesn't need a separate board, I personally like Mike's version better, especially the spectral display that enables you to see all the signals across a 4 kHz or 400 Hz frequency band. Take a look at the sample picture on the *MPSKWIQ* Web site. The spectral display shows both how narrow and frequency efficient the PSK31 signal really is—even compared to a CW signal.

Operating was a lot of fun, but as I hadn't operated for a long time, I was quite rusty at operating pileups at the start. With a little practice and advice from helpful hams, I was able to quickly improve my operating speeds. Usually after making a call or two, ST0P would flash up on the Internet DX clusters and an immediate pileup would ensue. Even though my techniques were far from perfect, I managed to scrape through.

Working pileups in PSK31 was a real education. I could clearly see the signals on the spectral display, choose a vacant spot and jump in. The first one or two



**Figure 1—ST0P antennas in Khartoum. The DK9SQ loop is supported on a fiberglass pole—you can read more about this antenna at [www.qsl.net/dk9sq/fibregle.htm](http://www.qsl.net/dk9sq/fibregle.htm).**



**Figure 2—The author sorts through some of the QSLs that resulted from his expedition.**

Figure 3—A village in the southern part of Sudan



Figure 4—Young guards the author encountered while traveling through Sudan.

QSOs would consist of the usual politenesses but after the cluster watchers saw STØP, I would switch over to PUM (pileup mode).

In a pileup, PSK31 requires completely different operating practices from conventional digital modes. Too often, callers who were new to PSK31 or who had moved over from AMTOR and PACTOR would send their call too many times. I would usually get their call the first time and have to watch it be repeated again and again. By the time it was finished, I had already worked another two or three stations over the top of them.

I programmed the function keys with short phases, such as:

“UR RST...”

“QTH Khartoum—Sudan”

“QSL to 5B4YY” and

“<http://www.qsl.net/st0p>”

Unfortunately, not every caller had the idea that small is beautiful. Some people would endeavor to send the full contents

of their 20-GB hard drive for my knowledge and true delight. Due to propagation peculiarities, I found I could send QRZ over the top of an incoming data stream and work other stations while the data was coming in.

I feel sure that G3PLX never intended PSK31 to be used to send data streams as there are other modes much better suited. Rather, PSK31 should be used for general chitchat with the possibility of break-ins by other hams.

A copy of my log can be seen on [www.qsl.net/st0p](http://www.qsl.net/st0p) consisting of 1225 QSOs—about 1000 SSB, 160 PSK31 and 10 CW. The SSB QSO rate was much greater than the PSK31 rate and in my case a lot faster than CW, especially in pileup conditions. As many people joined the pileup in order to get a new entity for DXCC, I wanted to work as many stations as possible. At the same time I wanted to work some PSK31 QSOs—some of the first ever from Sudan. As you can see from Figure 2, the desire for a Sudanese QSL is high.

All QSOs have been sent QSL cards either direct or via the bureau.

### Amateur Radio in Sudan

Since my license was issued, I see that Hassab is now issuing more licenses. Interested hams can view the new Sudan Amateur Radio Association (SARA) Web page at [www.sudanham.bizland.com](http://www.sudanham.bizland.com).

This is very encouraging because Sudan is an emerging country. Where Amateur Radio may be competing in many countries with the Internet, Sudan has a lot of room to expand. It should be remembered, however, that Amateur Radio equipment is not available and is out of reach of most, even salaried workers, and especially young people such as Boy Scouts. For this reason, I wish to personally appeal to make a donation of radio equipment to Dr Sid of SARA.

A closing thought: If only General Gordon, standing surrounded on his palace roof, could have sent London a message via PSK31, how history would have changed!

*The author was first licensed in 1979 as G4KIB. He was a member of HZIAB from 1987 to 1995 where under the influence of his many American friends, became KF9BI. Since 1995 he has been based in Thailand, although for the last three years has been on assignment in Germany where he met his good friend and mentor DL6IAK. He is a life member of the Radio Society of Thailand (RAST), although SK there due to licensing restrictions. His main QTH is in the southwestern part of the island of Cyprus as 5B4YY, where he has operated several contests with friends from all over the world. Jeff is honored to be a member of SARA, the Sudanese Amateur Radio Association. The author can be reached at Hauptstr 80, D76889 Karlsdorf-Neuthard, Germany, [jeff@hambleton.com](mailto:jeff@hambleton.com).*

All photos by the author.

