

## Spar Communications Group

A record of some of the more notable satcom projects from about 1963 to 1997

This account is not necessarily complete and it can certainly be revised if additional material is available

John Barkwith  
January 2018

Year	Project	Some Details	Information Tidbits	Pictures
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1963 - 4	Canada Mill Village I	Intelsat Standard A Station with 85ft (25.9m) Antenna)
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Customer was Canadian Govt. Dept of Transport (DOT). Antenna had a radome. Mike Morris was project engineer for the Transmit GCE (in those days called "FM Exciter") and Abe Bell for the Receiver. Mike says "Everything was more or less hand crafted and I have to say I wondered how it would ever manage to work when we took our hands off. As usual it worked much, much better when we stopped messing around with it."

Doug Jung and his group engineered MV1 and Arne Lovas was the Project Manager (or equivalent).



I took this picture of Mill Village I during the installation of Mill Village II in 1968. At the time of the MVI construction, during the early days of satellite communication many of the antennas used radomes (including the AT&T stations in Andover, Maine and its twin at Plumeur-Badou in France) whereas the British one at Goonhilly did not. In time, radomes fell out of favour. At Mill Village, therefore we had an example of each type. MVI (with radome) and MVII (without)

1967-8	Canada Mill Village II	Teleglobe (COTC at that time) This was an Intelsat Standard A Station (30m antenna) built on the same site as the Mill Village I built a few years before.  Located in Nova Scotia near to Bridgewater.
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This station together with Mill Village I (see entry above) formed COTC's major teleport (to use a modern term) to access Atlantic Ocean Intelsat satellites

John Labelle put together the first "Mimic Diagram" we supplied. The wiring was quite complicated and the drawing (all by hand of course) barely survived with all the changes it went through.

See Gil Kerr's account: ["Historical Notes on RCA/Spar Communications Department"](#) for interesting details on this project and many other of the projects mentioned in this timeline



I took these pictures of Mill Village II during the installation in 1968

This is from a Teleglobe publicity colour postcard. MV II in foreground and MVI in the background



1966-68	Brazil	Supply of GCE and antenna feed to Hughes HCI who were prime contractor on an Intelsat Standard A Station at Tangua in Brazil
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Mike Morris and Peter Foldes visited Hughes HCI in 1968 in El Segundo CA following which they visited us and gave us the orders. The installation took place in late 1968 and early 1969. Jean Labelle was in Rio for several weeks working on the installation, etc.

See ["Brazil Projects 1968 -1979"](#) by Mike Morris and John Barkwith. This project is covered in the first part of this article.



Here's a recent photograph Mike Morris found on-line of the earth station facility at Tangua. Obviously, it has changed a lot since 1968. I'm not sure which is the original antenna. I think it's the one in the foreground. The other big one (in the background) features beam waveguide which came along a lot later.

The two large antennas are pointing straight up - obviously retired from service!

**Year Project**

**Some Details**

**Information Tidbits**

**Pictures**

1969 India

Vikram Intelsat Standard A Station (30m antenna)

Randy Martin was the site manager for the installation and Bob Caron (from Gil Kerr's group) was an installation/test engineer. Bob later joined Teleglobe and became manager of the Weir Standard A Station

See "[India in the Time of War](#)" by Ian Grier about his experience a couple of years later installing a microwave system which included the earth station.

Ian recalls that the earth terminal was located in Poona, an old British military base about 100 miles southeast of Bombay.



Here's a picture I found on-line of a 'First Day Cover' post card commorating the first anniversary of the opening of the earth station.

1969 -71 Pakistan

Two Intelsat Standard A Stations (30m antennas) - one in West Pakistan (Deh Mandro) and one in East Pakistan)

The program was interrupted by India/Pakistan war. West Pakistan station was completed after the war in 1973 and the East Pakistan (now Bangladesh) later still.

Several RCA employees were working on the installation when the war broke out and Karachi became the target for nighty air raids.

Aircraft aficionados will be interested to know that the Indian aircraft were Folland Gnats. These were very small fighter aircraft (about half the weight of fighters of that era) but I was surprised at the punch they could deliver when fitted out as fighter-bombers.

See Mike Morris's account: "[The Pakistan Earth Stations Project](#), [Pakistan Post Telephone and Telegraph](#), "PTT"

See also "[Return to Karachi Earth Station](#)" by Dave Bamby

See also "[Spar's Return to Pakistan in 1980](#)" by John Barkwith

Ian Grier was responsible for the microwave backhaul from the earth station to Karachi and he reports: "I was there to help turn up the backhaul link (9202), which I believe had one repeater. I have a shot of a very high self-supported tower with two antennae and a shot of the interior of the repeater which are not included. The backhaul radios were located in a shack on a hill about 500 metres from the earth terminal. Must have been linked via IF...somewhat unusual."



I took this picture of the antenna. During installation, antennas spend most of their time pointing straight up at the 'cool sky.'

That's Mike Leahy and me with the ground communications equipment (GCE)



West Pakistan 1972 Backhaul 9202 Radio Site



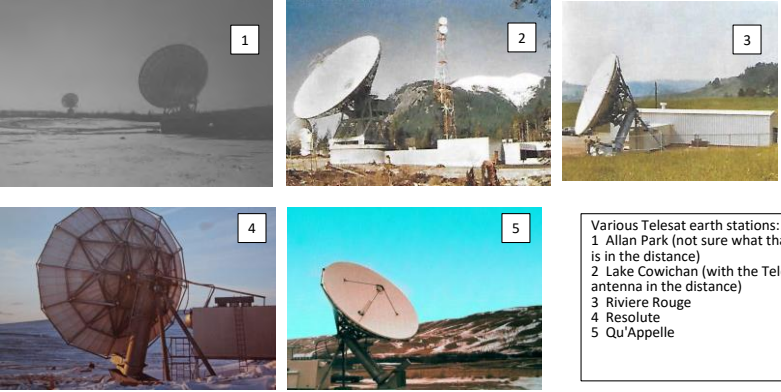


West Pakistan 1972 Backhaul Terminal Equipment



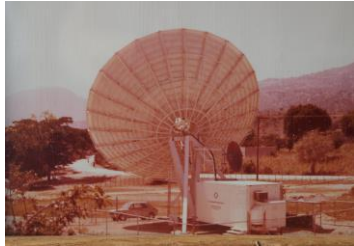




Three pictures from Ian Grier's collection showing the backhaul microwave link and the local guard (known as a chokidar in Urdu)

That's Heddy Anderson seated centre above.



West Pakistan 1972 Local Guard at Backhaul Radio Site

Year	Project	Some Details	Information Tidbits	Pictures
1972	Canada  Telesat Baseline System	<u>Telesat domestic satellite system.</u>  <u>Consisted of:</u> - <u>Main Station in Allan Park Ontario (30m antenna)</u> - <u>Another Heavy Route Station at Lake Cowichan BC (30m antenna)</u> - <u>2 Stations for northern telecommunication at Frobisher Bay and Resolute. (10m antennas)</u> - <u>6 Stations for network TV.: Huggett (Alberta), Qu'Appelle (Sask), Belair (Manitoba), Riviere Rouge (Quebec), Harrietsfield (Nova Scotia), Bay Bulls (Newfoundland) (10m antennas)</u>	First domestic satellite system in the world  The two northern stations Frobisher Bay (now known as Iqaluit) and Resolute (now Qausuittuq) are of particular interest. Prior to the commissioning of these stations there was no voice communications between those locations and the south except by teletype message. During the installation, the residents of these places would ask us every day when they would be able to call down south. When they were finally able to do this it was a major event.  One of the beneficiaries was Joe MacInnis - a Canadian oceanographer (if that's the word.) He was in Resolute to dive under the Arctic Ice - I believe he was the first to dive under the North Pole. He and his team could hardly believe their luck when they were able to call home.  See <a href="#">"Tales from the Telesat Domestic Earth Station Network Project: The Telesat Domestic Earth Station Network Built by RCA 1970 - 1972"</a> by Mike Morris  See also <a href="#">"More Tales from the Telesat Domestic Earth Station Network Project: Life Above the Arctic Circle"</a> by John Barkwith	In <b>"Historical Notes on RCA/Spar Communications Department"</b> Gil Kerr reports "There was a wonderfully dramatic illustration of the impact these stations were going to have, when one of the engineers in my group, John Barkwith, was testing the communications equipment at Resolute, and was having trouble with the Monitor and Control. Resolute is on Ellesmere Island, hundreds of miles north of the Arctic Circle. John needed to talk to the designer, Rudi Bergen, but the only way was to communicate by radio telegram, which was highly unreliable due to the closeness to the magnetic north pole. Each question and answer cycle was taking at least three days. He suffered with this process for a while, until the Resolute station got operational to the extent that there was an engineering service channel to the Allen Park Station in Ontario. John called an engineer at Allen Park, who in turn called Rudi Bergen, and the Allen Park engineer put the two handsets earpiece to mouthpiece, thus enabling John and Rudi to have an interactive question and answer session. Time delay reduced from days to seconds!   <div data-bbox="1612 646 1885 808" style="border: 1px solid black; padding: 5px;"> <p>Various Telesat earth stations:  1 Allan Park (not sure what that antenna is in the distance)  2 Lake Cowichan (with the Teleglobe antenna in the distance)  3 Riviere Rouge  4 Resolute  5 Qu'Appelle</p> </div>
1972	Canada	Teleglobe (COTC at that time) Standard A Station (30m antenna)  Located at Lake Cowichan on the same site as the Telesat Station	Lake Cowichan became COTC's gateway to the Pacific Ocean Intelsat satellites.  Saul Koblin was project manager. He had the office next to Mike Morris at Ste. Anne's. Mike recalls Saul lamenting about the sorry state of the gross margin achieved on the project.  The Lake Cowichan indigenous people are the creators of an important piece of Canadiana - the iconic Lake Cowichan sweaters knitted locally	 <div data-bbox="1377 894 1577 1065" style="border: 1px solid black; padding: 5px;"> <p>I took this picture during a trip to add redundancy to the electronic equipment about a year after the initial commissioning.  This was a trip across Canada with Les Meszaros to modify all the Telesat gateway and network TV</p> </div>
1972	China	Earth Station for Nixon's visit (10m antenna)  Made use of the East Pakistan equipment which had been stored in Montreal as a result of the India/Pakistan war	First satellite station in China.  See John Barkwith's account: <a href="#">"Earth Station for Nixon's Visit to China"</a>	 <div data-bbox="1251 1187 1446 1349" style="border: 1px solid black; padding: 5px;"> <p>There it is. The 'original' station built for Nixon's visit to China in 1972.  Was it this project that started the long (several decades) liaison between RCA (and Spar) with China? It may have been!</p> </div>

Year	Project	Some Details	Information Tidbits	Pictures
1973	China	2 Intelsat A Stations (30m antennas)	<p>In Beijing and Shanghai</p> <p>See "<a href="#">Intelsat A Stations Installed in China in 1973</a>" by John Barkwith</p>	 <div data-bbox="1381 310 1581 483" style="border: 1px solid black; padding: 5px;"> <p>Work on the subreflector of the Shanghai Station in 1973. ←</p> <p>This picture taken several years later is of the Beijing Station, →</p> </div> 
1974	Haiti	<p>Non-standard Intelsat Station (10m antenna)</p> <p>Built to receive World Cup Football from Munich</p>	<p>This project had a very tight deadline. Jean-Claude Duvalier (Baby Doc) was, in effect, the customer for this station. He wanted to see Haiti's team participate in the 1974 World Cup in Munich.</p> <p>The station was located in the (swanky) suburb of Pétionville in the hills overlooking Port au Prince</p> <p>See Ian Grier's account: "<a href="#">An Evening with Baby Doc (Haiti)</a>"</p> <p>See also "<a href="#">Earth Station for Haiti's World Cup Participation in 1974</a>" by John Barkwith</p>	 <div data-bbox="1430 626 1629 708" style="border: 1px solid black; padding: 5px;"> <p>Here's the 10 meter antenna for the station located at Pétionville, a rather select suburb of Port-au-Prince</p> </div>
1975	Canada Northern Ontario	<p>Telesat. Ten (10) stations for northern Ontario (in first nation villages mostly).</p>	<p>These had 4.5m antennas. They were the fibre glass ones built by Peter Foldes' group.</p> <p>That was the prototype parked in front of the Spar (later MDA) building in Ste Anne for many years.</p> <p>Jan Groen was the main installation/commissioning guy. I remember him telling me that the program attracted a lot of interest in the company and for the first station he was helped by other technicians and he was also accompanied by some program management personnel (RCA and Telesat) for a total of about 10 people. For subsequent stations however the number of people gradually fell off and for the last few stations it was just Jan - all by himself.</p>	   <div data-bbox="1031 1110 1325 1289" style="border: 1px solid black; padding: 5px;">  </div> <div data-bbox="1339 1154 1482 1255" style="border: 1px solid black; padding: 5px;"> <p>Photo from Spar archives of one of the completed Northern Ontario stations ←</p> </div> <div data-bbox="1520 1154 1906 1281" style="border: 1px solid black; padding: 5px;"> <p>I was project engineer for the program and I went to a couple of the sites with two Telesat engineers on a survey. The three pictures above at at Port Hope. That's the plane we travelled in. The third picture is of the pilot and the Telesat guys heading back to the plane and hoping it starts!</p> <p>I remember that it started on the second go and the pilot commented "That's interesting - you don't usually get a second chance if it doesn't start first time."</p> </div>

Year	Project	Some Details	Information Tidbits	Pictures
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1976	Canada Olympic TV Uplink Station	Teleglobe. Station to uplink TV of Montreal Olympics	Located next to cemetery on Mount Royal. Uplinked TV Montreal Olympics of 1976 including coverage of Nadia Comaneci and the others to the rest of the world
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Here's the station which was manned during the Montreal Olympics by RCA and Teleglobe people

1975	Haiti	Intelsat Standard A Station (30m antenna)	This contract secured as a follow-on to the previous (World Cup) station.  The station was located at sea level near Port au Prince - a much hotter and stickier locale than the previous station
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Rollie Niklaus was responsible for the installation and commissioning

1976	Canada CTS Satellite Terminals	Stations for experiments with CTS Satellite (Hermes)  2.4m stations and 1.2m terminals for two-way voice. 24 or 25 stations total	Ku Band. The CTS Satellite (Hermes) had a huge TWT (200W) and thus the earth terminals were very small (1.2m, 2.4m). This is very common today but it was very rare in those days  Terminals were named by CRC "VI-RUET" and "VAP-RUET". Video only and telephony (only?). Mike Morris, Gil Kerr and Eric White were involved. For CRC...John Day and Kent Tiedemann. CRC supplied the antennas. Everything inside the terminals was shock mounted including the TWT package and seemed to survive the rigors of multiple deployments very well.
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Some publicity photos by RCA (or perhaps CRC) of the 2.4m terminal (left) and the 1.2m terminal (right)

1977	Kenya	An update to an existing Standard A station, I think. Gil will remember	In <a href="#">"Historical Notes on RCA/Spar Communications Department"</a> , Gil gives an entertaining account of his visit to the Kenya earth station to secure acceptance of the system - including problems of security and personality clashes with the local staff (one eng
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Stock publicity photograph of RCA (or Spar) Ground Communications Equipment (GCE) from that era

Year	Project	Some Details	Information Tidbits	Pictures
1978	Canada  Teleglobe Weir Station	Teleglobe. Intelsat Standard A (30m antenna)  Located at Weir in the Laurentiens	<p>Gil Kerr remembers that as a supervisor he had the rare opportunity to experience field work when he replaced engineering staff who were on strike for a period at that time.</p> <p>The Teleglobe station grew over the years with the addition of several antennas. With the eventual take over of Teleglobe by VSNL (India) this facility is now known as the Tata Communications Laurentides Teleport</p>	 <p>Picture is from a Teleglobe publicity postcard. I think I picked this up when I went up to Weir at the weekend and participated in a public tour of the facility</p>
1979	Brazil	Supply of FM SCPC equipment for Brazil domestic satellite system	<p>No antennas or other equipment supplied, but the FM SCPC design and development was an interesting exercise</p> <p>Fred Grosswindhager was the lead engineer designer</p> <p>See "<a href="#">Brazil Projects 1968 -1979</a>" by Mike Morris and John Barkwith. This project is covered in the second part of this article.</p>	 <p>I can't find any photographs (or brochures) on our FM-SCPC equipment. This picture is from a test of the equipment during the Brazil project</p>
1980	Canada  Digital SCPC Terminal	Intelsat SCPC Development and supply of terminal to Teleglobe Weir Station	<p>This was 64kbs QPSK SCPC built to the Intelsat specification.</p> <p>Fred Grosswindhager was the lead engineer designer</p> <p>We may have secured only one more contract for this equipment (Thailand) but it formed the basis of later contracts with Ministry of Posts and Telecommunications (MPT) and Ministry of Petroleum (MOP) in China. See below.</p>	

**Year Project**

**Some Details**

**Information Tidbits**

**Pictures**

1981 Ghana

Intelsat Standard A Station (30m)  
 The station was at Kuntunse, Hwy N6, about 20 km N-NW of Accra.  
 The station has since been retired from communication service but the antenna has been converted into Radio Telescope!

The project also included a telephone switch (from ITT) and message (Telegraph) and Telex switches from Cable and Wireless. ITT failed to supply the telephone switch and this spoiled Spar's reputation in Africa.



I spent time in Ghana during a design review (with Dave Barnby) and during the installation and test (with Rod Green, Nolie Niklaus and others) but the only photographs are these ones of street life in Accra. Here's a couple of them at the fishing boat harbour. Japanese bosses were much in evidence. Apparently, a lot of the fish was shipped to Japan.



Here's a more recent picture found on-line of the Ghana station - now converted to a radio telescope

1982-83 Swaziland

Ezulwini Intelsat Standard B Station (12m Antenna)

Site was in the Ezulwini Valley. Andrew 12m antenna. Intelsat SCPC

Mike Golder, Milt Lillo, Rod Green.

Dan Mercik and others did the installation

Dan Mercik remembers driving to the airport (on the "wrong side" of the street !) to pick up the technician Nick Cicek. He arrived alright but without a valid visa ! While the authorities were trying to decide whether he should be arrested or send back, Dan spotted a very senior police officer--introduced himself and explained the situation. For some reason he considered it very funny but in five minutes the situation was resolved. Dan thanked him and invited him to visit our station for a grand tour and he did show up some days later.

1983-1985 Canada  
 Intelsat TDMA

Intelsat 120 Mbps TDMA Terminal Development

Huge development of a very high capacity TDMA system. Didn't sell any more terminals of this kind, but it gave us experience in TDMA and whetted our appetite for purchase of Comtel (a TDMA company) in 1984

Peter Garland and Malcolm Keely were key participants in this development

See Gil Kerr's account "[Historical Notes on RCA/Spar Communications Department](#)" in which he suggests that the losses sustained by this program may have soured the attitude of top management towards the Communications Group.



**Year Project**

**Some Details**

**Information Tidbits**

**Pictures**

1982 Jamaica

Intelsat Non Standard Station

About this time we got a lot of contracts to upgrade feed systems at Intelsat stations. There was a new specification to improve the cross polarization discrimination. The new feeds typically had 2 transmit and 2 receive ports. This Jamaica station was supplied so that they could maintain communications during the period while their Standard A station (supplied previously by Marconi) was being modified.

Tony Reynolds was responsible for the installation and test and I also participated to some extent



Pictures taken during the contract negotiation phase. That's the Marconi Standard A Station which we modified with a new feed and additional equipment

1984 - 1985 China

For MPT (Ministry of Posts and Telegraph) we supplied a very large Hub Station (18 meter station) at Beijing. (The technology was digital SCPC)

In a separate contract we supplied four (4) regional stations (12m antennas) to operate with the Hub Station. At Hohhot, Urumqi, Guangzhou and Lhasa (The technology was digital SCPC)

This used the SCPC equipment developed for Teleglobe (Intelsat) but modified to handle 32 kbps BPSK delta modulation for voice as well as 64 kbps QPSK for data.

For some of the channels the customer requested that we supply encryption devices. We purchased cards from an American company and Rene de Cristofaro integrated them into the SCPC channel units. Several years later the FBI visited us to quiz us on this subject. Apparently they had been monitoring the transmissions (and decrypting them with no trouble) but the Chinese had changed something and they were no longer able to decrypt the transmission. They were hoping for some help from us but we had long forgotten about this project and we were unable to give them any useful information.



Here's the 18-meter Hub Station in Beijing

1984 - 1985 China

For MOP (Ministry of Petroleum.) Hub Station in Beijing and 14 (I think) remote terminals. (The technology was digital SCPC using BPSK and 32 kbps delta modulation)

This used the SCPC equipment developed for Teleglobe (Intelsat) but modified to handle 32 kbps BPSK delta modulation voice as well as 64 kbps QPSK data.



There were many, many meetings with the Ministry of Petroleum (MOP) and the Ministry of Posts and Telecommunications (MPT). The Canadian Government were very supportive and provided an interpreter from Ottawa to accompany us to China for the meetings. This was Holly Ho (pictured on the left). He was an unforgettable character and helped us immeasurably with our sales effort. That's Alex Grant (our sales person) in the middle and a young Claude Houssais on the right.

**Year Project**

**Some Details**

**Information Tidbits**

**Pictures**

1986 Zambia

Intelsat Standard A (18m Antenna) earth station  
The Zambia earth station was at Mwembeshi, about 20 km west of Lusaka.

"New" specification A station for which 18m or 15m antennas could meet the G/T spec.

Project financed by CCC (Canadian Commercial Corporation) Al Lawson led a delegation around southern Africa (Malawi, Zambia, Mozambique, Lesotho) to secure this contract together with the Mozambique station. (see next entry)

Al Lawson, Claude Houssais, Mike Golder, Milt Lillo, John Barkwith  
This station was built on the site of an existing Standard A station. We built a new equipment building joined by a corridor to the existing equipment room under the existing antenna. Our new 18m antenna was ground-mounted next to our equipment building.

Dan Mercik and Tony Reynolds worked on the installation



The antenna pictured above is the existing station taken during the contract negotiations for the new station which was to be installed next to the existing one. The other picture is of the hotel we (that's Al Lawson and me) stayed during the contract negotiations.

1986-1987 Mozambique

Located at Boane (a short distance from Maputo)  
Contract for an Intelsat Standard A Station (18m Antenna)

See Zambia entry above

Located on the same site as an existing Standard A Station (30m) dating from when Mozambique was a Portuguese colony

The project included the 18m Antenna, an underground elliptical waveguide IFL for both Tx and Rx in both circular polarizations. The project was financed by CCC (Canadian Commercial Corporation)

Claude remembers: "The customer wanted us to measure the G/T using the radio star method. We had to select the best day and time to pick-up the radio star signal. With a lot of preparation and gathered data to follow the star trajectory we managed to get the results in one trial. We did not have Laptop at that time but Teleconsult had a sophisticated pocket calculator where he could enter the complex formula to calculate on the spot as we read data. A year later I had to go back to the site with the antenna supplier to strengthen the feed mount as recommended by the supplier."



I don't have a pictures of the station(s) but I have these pictures of the hotel that Al Lawson and I stayed in during contract negotiations in Maputo (capital of Mozambique)

**Year Project**

**Some Details**

**Information Tidbits**

**Pictures**

1988-89 Liberia

Monrovia. The Wehn Town Standard A Station (18m Antenna)

"New" specification A station for which 18m or 15m antennas could meet the G/T spec. Contract for \$23 million. As of 2006 the station had been abandoned and looted.

Liberia was a homeland for freed slaves from the US after the civil war.

The project also included a telephone switch - installed and commissioned in downtown Monrovia by Rod Green



Here's a picture obtained on-line of the Standard A Station. That's not a US flag - it's the Liberian flag with eleven stripes and just one star.

1988 Sierra Leone

Freetown. Intelsat Standard A Station (15m Antenna)

New specification A station for which 18m or 15m antennas could meet the G/T spec.

Sierra Leone was a home for slaves freed after the abolition of slavery by the British.

Hillar Kurlents was the sales person. I accompanied Hillar to Freetown, Sierra Leone during the proposal stage but apparently didn't take any pictures - even though Freetown is a very photogenic place. I had the feeling that the former slaves (delivered to the country by the British navy) formed the ruling class in the country.

There were competing bids for the earth station from other companies and this was a concern since we were typically not the cheapest supplier. So Hillar pulled a little trick to distinguish us from other suppliers and muddy the waters in any competitive price comparisons. We noted that there were a number of fancy new hotels planned for a beach area being developed along the coast from Freetown and Hillar had an idea to link them with the earth station via terrestrial radio systems. So we included subscriber radio equipment from SR Telecom as part of our proposal and highlighted the foreign exchange that could be earned from tourists calling home. This, along with an innovative financing scheme put together by Ken Harris, may have been a factor in our being awarded the contract.



I don't have any pictures from Sierra Leone but here's one of Hillar and me (with a shipwreck) during another sales effort in Nigeria in the same era. The Nigeria effort did not result in a sale as far as I remember.



1989-90 China




60 Mbps TDMA Network

CIDA contract. This was the TDMA system developed by Comtel (located in Santa Maria, CA) taken over by Spar. The stations were in Beijing, Urumqi and Guangzhou



The installation team consisted of John Landovskis, John Gregus, Claude Houssais and me. Here are a few pictures of us during that phase of the project

Year	Project	Some Details	Information Tidbits	Pictures
1991 - 1992	China	<p>Ministry of Posts and Telecommunications (MPT)</p> <p>Network linking more than 20 stations located mostly at provincial capital cities. Here's a list that includes most of them:</p> <ul style="list-style-type: none"> <li>Harbin</li> <li>Shenyang</li> <li>Yantai</li> <li>Qindao</li> <li>Beijing</li> <li>Tianjin</li> <li>Hohhot</li> <li>Xi'an</li> <li>Lanzhou</li> <li>Chengdu</li> <li>Chongqing</li> <li>Wuhan</li> <li>Fuzhou</li> <li>Xiamen</li> <li>Guangzhou</li> <li>Lanzhou</li> <li>Haikou</li> <li>Nanning</li> <li>Kunming</li> <li>Shantou</li> <li>Shanghai</li> </ul>	<p>Two <u>huge</u> contracts. One was for about 28 million USD followed by the other at about 35 million USD for more than 20 heavy-route stations. The technology was so-called IDR (Intermediate Data Rate) together with DCME (<u>D</u>igital <u>C</u>ircuit <u>M</u>ultiplication <u>E</u>quipment) all in accordance with Intelsat specs (even though it was a domestic system.) The IDR meant that it was basically a series of point-to-point modems running at a standard 2.048 Mbps. The DCMC equipment provided about 5 times compression. It did this in two ways: (a) compressing individual voice channel from 64 kbps to 32 kbps, and (b) it also compressed by taking advantage of the gaps in voice conversations and squeezing more circuits into the silence periods. The total network used about 12 x 36 MHz satellite transponders and nearly all the stations were equipped with up- and down-converters allowing them to access all the transponders. Hence there were several hundred up- and down-converters. And, of course, there were large numbers of everything else too, modems, HPAs etc... The contracts were funded by EDC and the competition was between Spar (with EDC funding) and Alcatel (with their French government equivalent funding) John Collins started as sales person and then Ken Harris took over when John retired.</p> <p>Our role was basically as a system integrator with most of the equipment manufactured by subcontractors but the up- and down-converters were designed and assembled by us. Claude Houssais was the project manager and he also designed the computerized Monitor and Control for those up- and down-converters.</p> <p>The contracts also included a multitude of other equipment such as:</p> <p><u>Power: Diesels and UPS</u>  <u>Multiplex equipment:</u> Ericsson.  <u>Modems:</u> Radyne  <u>Antennas</u> (16m, 13m and 12m) from Chinese manufacturers</p> <p><u>Microwave links.</u> Made by TRT - a French company (These were back-hauls at some of the stations)  <u>DCME:</u> ECI Telecom  <u>High Power Amplifiers (HPAs):</u> Varian  <u>Fiber optic links including the terminals and the cable:</u> Nortel (These were back-hauls at some of the stations)</p>	 <p>Here's a picture taken during one of the countless meetings we had a part of the contract negotiations.</p> <p>That's Ken Harris and myself with John Gruetzner and his assistant (Madame Li ??) who were the agents on the deal. Looks like a mural in the Forbidden City in the background</p>
1992	Mozambique	<p>Two remote stations to join the existing domestic network installed by Alcatel. One station was at Pemba and the other at Lichinga (7.6m Andrew antennas) communicating with the existing station at Boane</p>	<p>This was another CIDA contract. And Al Lawson was a key figure again. He was no longer a Spar employee but was now a consultant to CIDA, as was Lorne Barkley another former Spar person. Teleconsult wrote the RFP.</p> <p>There was guerrilla activity in the country and security was an issue</p>	
1992	Yemen	<p>Yemen Telecommunications Authority</p>	<p>Two TDMA networks. One was based on VSATPlus and linked Sana'a with Aden (This linked North Yemen and South Yemen which had recently been reunited.) The other network used the so-called "Foneclub" equipment which was a simplified version of VSATPlus for four (4) voice channels only. Can't remember the number of these stations.</p> <p>See "<a href="#">Spar Communications Network in Yemen</a>" by John Barkwith</p>	 <p>During the contract negotiations in Sana'a</p> <p>That's Ken Harris and me with the agents</p>
1992	China	<p>Qing Dao domestic station</p>	<p>An expansion of the large MPT contracts.</p> <p>Qing Dao was originally a German settlement - hence the beer (Tsingtao beer)</p>	<p>Claude Houssais, John Barkwith</p> <p>Sales person Ken Harris</p>

Year	Project	Some Details	Information Tidbits	Pictures
1993	Guangzhou, PRC	Guangzhou Intelsat Gateway Station	This was China's third Intelsat Gateway Station (after Beijing and Shanghai). I think the Chinese supplied the antenna themselves.	Claude Houssais, John Barkwith Sales person Ken Harris
1993	China	China National Petroleum Corporation (CNPC) formerly known as Ministry of Petroleum (MOP)	Intro: Spar purchased the US company ComStream and integrated the previously-bought company Comtel with it. The combined company (called ComStream) was headquartered in San Diego and the Baie d'Urfe people became part of this. Contract about \$3 million  The CNPC network (for about 15 stations I think) used the ComStream 15 Mbps TDMA system (VSATPlus) terminals. Antennas were 4.5m.	 Here's a picture of the VSATPlus equipment (used in the CNPC network) being displayed at a trade show in China.
1993	China	Ministry of Communications (actually we would say transport - not communications)	Network of 72 stations (4.5m antennas) also using the ComStream 15 Mbps TDMA system (VSATPlus) terminals. Antennas were 4.5m. Contract about \$7 million	 This picture was taken on the day of the contract signature. The customer had made an early start on the construction of the hub station building in Beijing
1994-95	Tibet, PRC	Post and Telecommunications Administration of Tibet. 5 Stations for Tibet. IDR/DCME	Stations in Lhasa and 4 other stations in Tibet  Contract was negotiated by Gerry Arciero and myself (over Christmas!) Lhasa is at 3,650 meters so you have a terrible headache for the first day or two.  A few years later while I was working for NSI we won a contract to expand this network with a few more stations. More headaches!	 Pictures taken during the contract negotiation phase with the Potala Palace in the background (in Lhasa, Tibet). That's me with Jane Guo and Ashok Panchmatia
1995	Russia	Bear Lake station for Comincom	Claude reports that we sold a set of waveguide switching equipment, an interfacility link and a set of IDR modem equipment	Claude Houssais handled this project
1996-97	China	Ministry of Railways	This was a large turnkey system using the VSATPlus II product. We spent a long time courting this customer and finally won the contract. But the contract signing only took place after Baie d'Urfe was closed. The San Diego people completed the contract.  The system was Ku-band using Andrew 4.6 and 3.7m antennas. Contract about \$7 million	John Barkwith wrote the proposal and led the technical discussions with the customer. Sales person was Ed Triebel (from ComStream, San Diego)