

Satellite Communication and I

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Since I joined Broadcasting Satellite System Corporation (B-SAT), I belonged to the administrative department so that I have been indirectly involved in 'satellite communications'. B-SAT was established in April 1993, mainly by NHK, WOWOW and other organizations involved in Hi-Vision broadcasting, for the purpose of continuing stable BS broadcasting. As I joined the company one year later than the company established, I should be one of the long-employed staffs in the company and spent years with B-SAT.

In the beginning, there were only seven staffs including the president and our office was in one room of a small apartment. In addition, I had been much excited about joining B-SAT from the prospect of working for such a big satellite company. I soon found out that in reality B-SAT was a very simple company and I was so shocked. It was an unexpected start for me. However, I found a pleasant surprise that I started to enjoy my work more and more, day by day. As there were limited staffs, the work load became much heavier than one person could handle. We were a busy company with a great deal of work and only few people could do it. It was an unusual circumstance where everyone but me was at the management level. Therefore, I saw the need to take charge of such various works such as secretarial work, accounting work and general affairs in order to support the rest of other employees. The content of work was not difficult for me, but the workload was heavy. Yet, I experienced something new everyday. I also truly appreciated my boss for my working relationship. He continued to give me many opportunities to challenge even though I was inexperienced in this field of work. In fact, the entire office had a good environment and everyone communicated very well with each other, and thus we were able to execute decisions quickly and precisely.

At the same time that I joined B-SAT, the company was starting to procure a new satellite (BSAT-1) to take over the BS analog services, currently provided by BS-3. Half way through the contract negotiations with U.S.-based Hughes (now Boeing) to build and launch this satellite, I was asked to participate in even though I was likely to drown in English and all of the technical terms being used.

We finally confirmed the contract in June 1994 and as we were continuing the procurements of satellites, we also started building ground stations and ground control equipment. Kawaguchi Satellite Control Center (Kawaguchi, Saitama) as the main station and Kimitsu Satellite Control Station (Kimitsu, Chiba) as the back up station. Because the Kawaguchi SCC was our plan, I went there several times during the construction stages. I saw the building and the parabolic antenna dish gradually forming on the flat land, and became excited as I imagined a future that I had never

experienced. Leading up to our first launch of B-SAT, everyone worked steadily towards the goal. And then, finally, we received the launch date for our first BSAT-1a using the Ariane rocket in Kourou, French Guiana set for April, 1997. As the date of the launch approached we all worked together with deep concern and focus.



Kawaguchi Satellite Control Center under construction

I watched for the launch in Tokyo via live broadcast from Kourou. Although I had never had this experience before, I felt unexpectedly relaxed without the anxiety of failure that would be natural to feel on such a day. The launch vehicle flashed at the moment of liftoff and then gradually climbed up with clouds of smoke and eventually swallowed up by the sky in the gathering darkness. We then continued to follow the launch process breathlessly focusing on the CG animation and information from Kourou for about 35 minutes before the satellite separated from the rocket and entered an elliptical orbit. And that moment, everyone spontaneously burst into applause and I understood the first launch of BSAT-1a for B-SAT was an exciting success. After that experience I watched all of the launches of our satellites from Tokyo, just I did the first one.

The memory of the launch of that first satellite is burned into my memory although it all happened in a moment. Because of the intentness of the feeling, I have images that come back again and again in slow motion of the rocket lifting off and the watching with excitement. After the launch of satellite BSAT-1a (in April 1998), backup satellite BSAT-1b was successfully launched and now there is a stable system of two satellites one as main and the other as backup in orbit. B-SAT is operating BSAT-1a and 1b mainly from Kawaguchi Satellite Control Center, Kimitsu Satellite Control Station as a backup, and the stable BS analog services are provided.



Panoramic View of Kawaguchi Satellite Control Center

Before we experienced the first launch of satellite, I thought the launching of satellite was the goal, but in fact it was only the beginning. We have to manage and control the satellite 24 hours everyday until the end of its life. (The design life of BSAT-1 satellites is at least 10 years.) And as people sometimes fall sick, so too do satellites. Once they are launched, it is difficult for the operators at the control centers to take care of the satellites.

As many people still clearly remember that BS digital broadcasting marked remarkable start in December 2000, B-SAT received a preliminary license for commissions broadcasting operations. In addition to procurement and control and management of the satellites for BS digital broadcasting, B-SAT planed to uplink BS digital broadcasting programs because B-SAT was entrusted by all consignor broadcasters as BSAT-2 users. Since our first launch, the company has gone through growth and trials and new experiences. Our employee list has increased from 7 to over 30. And in March, 1999 B-SAT contracted with U.S.-based Orbital Science to build and launch BSAT-2. B-SAT prepared to build some equipment in the same way as BSAT-1. We prepared to built uplink equipment, the main earth station in the NHK Broadcasting Center (Shibuya, Tokyo) and the secondary earth station at the site of NHK Shobu-Kuki Radio Transmitting Station (Kuki, Saitama). BSAT-2a was successfully launched by Ariane rocket in March 2001 and took over BS digital service was provided by BSAT-1b from December 2000.

Since the establishing of B-SAT, three satellites were successfully launched in succession. I, at that time, took it for granted that the satellites were successfully launched and all was well. However, I quickly realized, when looking back over the history of broadcasting satellites in Japan that all is full of trails and tribulations and at the same time, greatness. Engineers at the company went through difficult times during the development of BS-2 and BS-3 but for me. The hard experience came when the fourth satellite failed. Back up satellite BSAT-2b was launched by Ariane rocket in July 2001, but it failed to be placed into the proper orbit due to an anomaly in the launch vehicle. As I watched this launch, the same as before, I was not able to perceive the state of success from the pictures being sent to us via satellite. I was later informed that the launch failed. We all then spent many very busy days dealing with all of the related parties involved, investigated the cause of failure, and preparing to procure a replacement satellite and so on. I learned at this time the gravity of the situation. I watched as the president struggled to explain the situation and to apologize to all related parties. It was difficult to watch him become exhausted as he dealt with all that came with a failed satellite launch. However, B-SAT immediately prepared to procure a replacement satellite called BSAT-2c and fortunately in June 2003 it was successfully launched by Ariane rocket. I, along with all, was nervous because of the previous experience of failure. I believe that this was a successful launch as a result of our through investigation and improvements with the failed launch provider and satellite manufacturer. I became acutely aware that launching a satellite is a severe mission, and every small and sensitive factor to lead to fail a launch and it cannot be

successful launch unless we make every effort to detect all of the minute factors as those may affect a successful launch. From all of these years at B-SAT I have been able to learn the importance of sincerely facing failures without running away and it is impossible to advance if we are not willing to learn from the failure.

B-SAT is entering a new stage. The design life of first satellite BSAT-1a will end in 2007, so we have been preparing to procure BSAT-3a, as the post BSAT-1a. At present there are 71 people including officers. When I joined B-SAT, I never thought that the company has continued to grow. At first I was young, but I am old identity. I transferred to the contract division 2 years ago. I have yet to tackle the terms necessary to procure a satellite direction by myself, but have taken charge of various contracts except for the procurements of satellite. This is my challenge of courage to ask for a discount so event though my natural character is to be a bit introverted. However I aim to contract for a fair price and I make efforts everyday. When I go shopping on my day off, I can bargain with saying to the shopkeeper, "This is a little bit expensive. Please give me a discount". When I joined B-SAT, I couldn't imagine clearly where B-SAT would get headed for and how B-SAT would grow. However it is now getting clear our business goal and it is growing step by step. In Japan, BS digital broadcasting has kept developing while BS analog broadcasting will reach to the end in 2011. Compared to the early stage, BS digital broadcasting has increased the quality and quantity of contents. Thanks to the fruitful BS programs, I watch my favorite Korean drama and check the traveling-abroad programs, the weather news and the highway information on demand, which are very useful to my daily life. Satellite is now indispensable for me not only in my work but in my private. Only heaven knows how many launches I can watch in my life, but I look forward to continuing my work and new experiences at B-SAT and as well as watching for many possible launches.



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