After-Dinner Talk at the SMA 10 Celebration

Fred K. Y. Lo

9 June 2014

Paul Ho should be the one speaking on behalf of the Taiwan side of the SMA collaboration between the Smithsonian and the Academia Sinica (AS) in Taipei. Since he is not here, I will attempt to give a brief account of how the SMA collaboration came about on the Taiwan side.

As Irwin mentioned, Typhoon Lee was the instigator. Typhoon is a geochemist. While working on his thesis under Gerry Wasserburg of Caltech, he discovered Al26 in meteorites, which is an isotope ideally suited for dating solar system objects. Typhoon received his PhD degree from the astronomy department of UT Austin and became a staff member at the Department of Terrestrial Magnetism of the Carnegie Institution. In 1983, he returned to Taiwan to build up geochemistry at the AS.

Toward the end of the ’80s, Typhoon noted that the Taiwan government, having become rich from the electronics industry, was ready to fund basic research. He made the brilliant move of nominating Frank Shu for membership of the AS. As a result, Frank visited Taiwan in 1990. During that trip, Typhoon arranged for Frank to talk to the handful of astronomers then present in Taiwan and got Frank excited by the possibility of developing astronomy in Taiwan. As soon as Frank returned to the United States, he phoned Paul Ho and me to ask if we would be interested in getting involved.

In the course of the next few years, Typhoon, Frank, Paul, Chi Yuan (an expert on galactic dynamics working at CCNY at the time), and I were actively involved in developing a ten-year plan for building up astronomy in Taiwan. We paid regular visits to various officials and eminent scientists to lobby for the plan. One outcome was that the Institute of Astronomy and Astrophysics (IAA) was established within the AS in 1993. We all agreed that astronomy should be based on observations, and the plan for Taiwan must involve a forefront facility. As Paul was the project scientist for the SMA at the time, he introduced to the group the possibility of collaborating on expanding the SMA, which was a unique instrument. The group agreed on the concept of adding six telescopes to the original six-element SMA, thereby quadrupling the speed of the array. We were fortunate that Irwin saw the mutual benefits of the collaboration proposal and supported it earnestly.

The other key person in making the SMA collaboration a reality is Yuan Tze Lee, a Nobel laureate in chemistry at UC Berkeley. Lee became the AS president in 1994, and the first big project presented to him as AS president was the SMA expansion proposal. He agreed with the proposal but told us that given there was not a single radio astronomer in Taiwan at the time, why not start with adding two telescopes. This was how the Smithsonian–AS collaboration on the SMA came about.

In 1997, I moved to Taiwan to become the third director of the IAA, after Typhoon Lee and Chi Yuan. As with the SMA project at the CfA, the IAA had to build up the technical team (and everything else) from scratch. For example, Ming Tang Chen, who was responsible for the receivers at the IAA, spent his first two years as an IAA staff member in the CfA lab of Ray Blundell and Edward Tong, learning how to put together the SIS receivers for the SMA. This was but one example of close collaborations between the CfA and IAA on the SMA. Jim Moran became the SMA director and deserves a lot of credit for overseeing the successful completion of the project through his thoughtful and measured approach.

I spent five years, three months, and ten days in Taiwan, overseeing the build-up of the IAA and the successful completion of two SMA telescopes with receivers, before I became director of NRAO on 1 September 2002. Having attended the many interesting talks on SMA results at this meeting, I regret that I have still not had even one second of observing time on the instrument. I shall have to write a proposal!

Having participated and gained some perspective in other international collaborations such as ALMA, I would like to pay special tribute to Irwin Shapiro for his consistent commitment to a fair collaboration between the CfA and IAA on the SMA. Furthermore, the exciting and interesting SMA results presented at this ten-year celebration of the science operation of the SMA demonstrate so clearly his scientific vision and leadership.