

Satellite Tracking Near Japan 50 Years Ago

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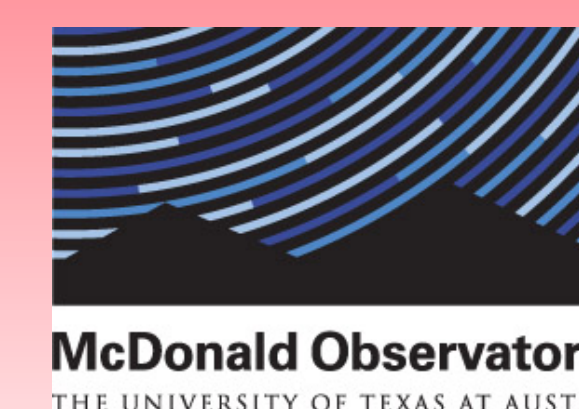
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Abstract

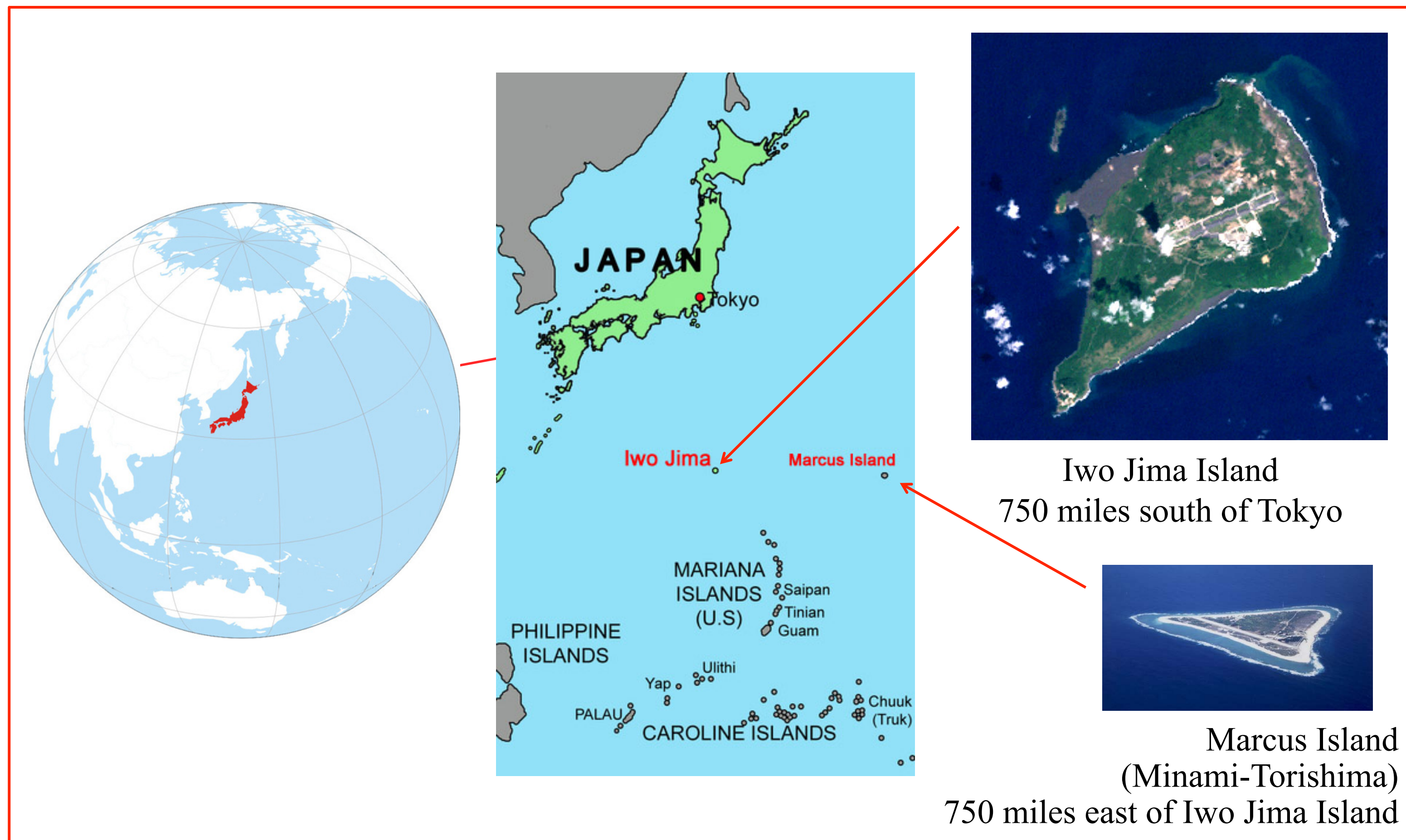
Starting in 1960, Jerry Wiant was a work/study student with the Physical Science Laboratory (PSL) at New Mexico State University, Las Cruces, New Mexico. PSL held a Navy contract to operate and maintain satellite tracking stations around the world and used slave (student) labor to fulfill the contract. In 1961 and 1962 Jerry tracked satellites in Anchorage, Alaska. In 1963 Jerry tracked satellites from Eniwetok Island, Canton Island, Marcus Island, and Iwo Jima Island.

In 1935 the Imperial Japanese Navy established the Japanese Meteorological Agency (JMA) weather station on Marcus Island. In the early 1960s Japan and USA agreed that with the installation of a US Coast Guard Loran-C station on Marcus all JMA personnel would leave the island and the US Weather Bureau would report weather. During the time the satellite tracking crew was on Marcus they watched as all of the JMA people left the island permanently. Soon afterwards, all of the structures in the JMA village were destroyed and removed; work buildings, shops, houses, and bath houses.



Japanese Meteorological Agency building. This JMA site was vacated and removed because the US Weather Bureau took over.

The first dedicated geodetic satellite was ANNA-1B. Tracking ANNA was accomplished by using tracking filters to "listen" to transmitters onboard the satellite. 300 MHz & 150 MHz and 400 MHz & 200 MHz were typical frequencies. Paired frequencies were used to deal with refraction. The moment of "closest approach" was determined by observing the "knee" of the Doppler shifted signal. Data consisted of the Doppler shifted signal and its time of day. Data was punched live as holes in paper tape. Then a teletype (TTY) machine would read the paper tape and transmit it via various links to Maryland, USA.



Iwo Jima Island
750 miles south of Tokyo

Marcus Island
(Minami-Torishima)
750 miles east of Iwo Jima Island



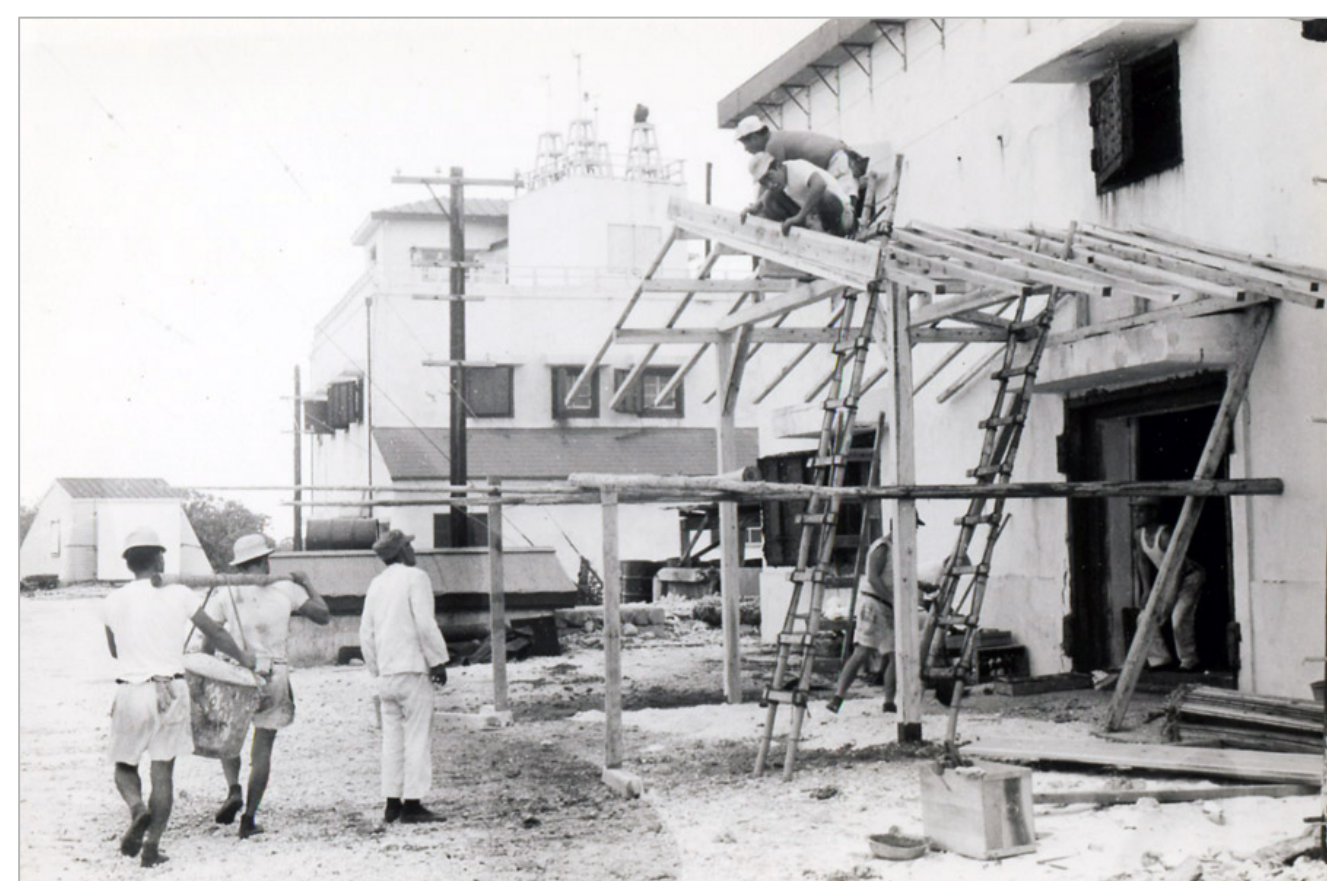
Island scenes



Unknown carpenter

Marcus Island Tableau

Pictures from before 1962



The JMA building under construction

Winners of the
"Name the Baseball Park"
Contest



Iwo Jima Island in 1963 it was a peaceful volcanic island belying the horrors that occurred during WWII. The black-cinder beaches were easy on the eyes, but blazing hot on the feet. Housing was in normal structures and if we drove to the US Coast Guard facility we could swim in a fresh water swimming pool.

The infamous beach from atop Mt. Suribachi

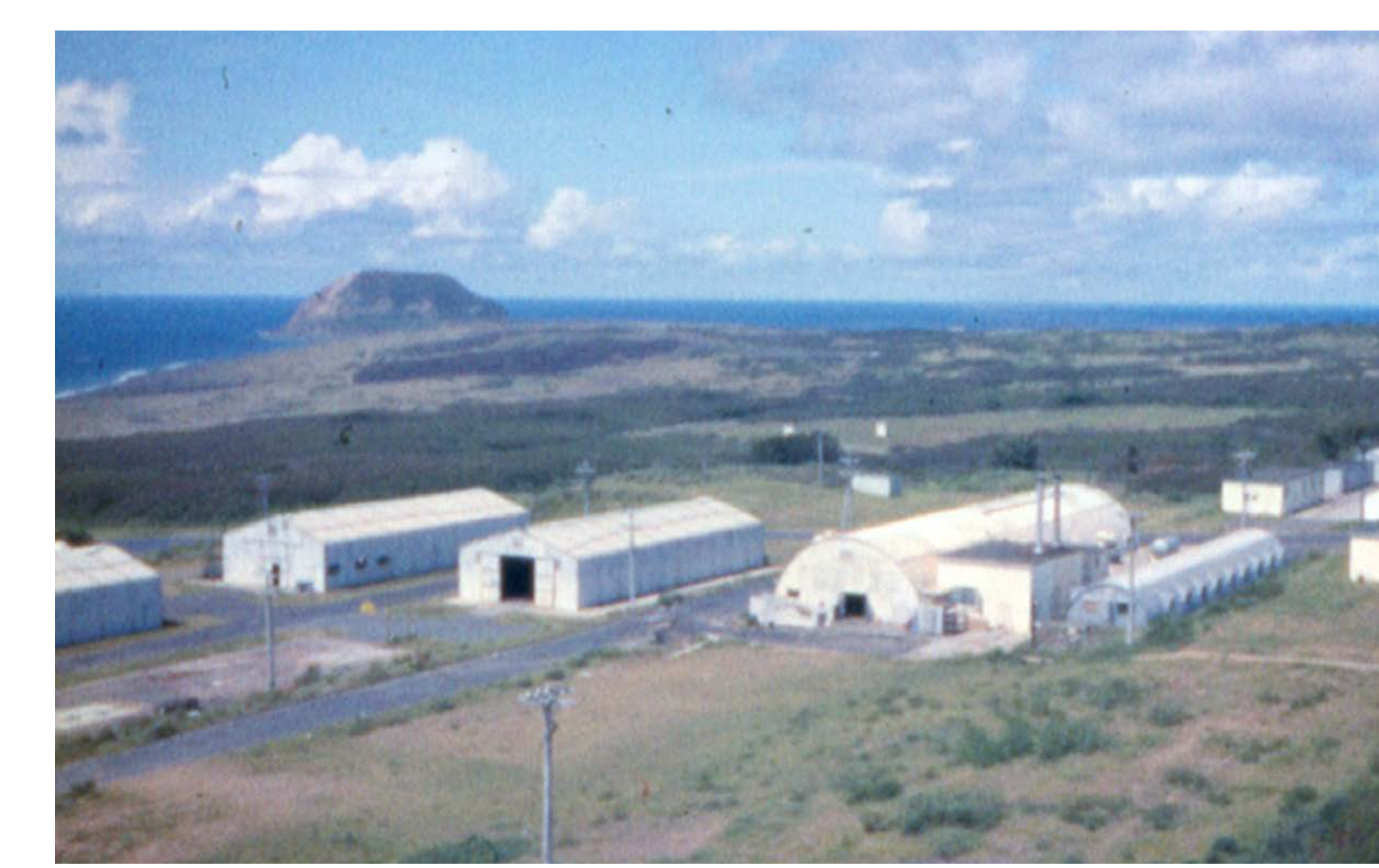


The equipment van was moved from island to island by people we never knew or saw. One of the support requirements for getting data at a particular site was that food and housing had to be available. By coincidence, the US Coast Guard was building a new Loran-C station on Marcus Island therefore food and housing were available from the construction contractor.

The 1250 ft. Loran-C antenna and the USCG building with Japanese memorials.



Doppler Shift satellite tracking van showing the tracking antennas, the Loran-C antenna, diesel generator, and housing.



Mt. Suribachi



Doppler Shift satellite tracking van with crew members John Ruminer, Ron Streich, and John Walker. The tracking frequency pairs used were 150 & 300 MHz and 200 & 400 MHz



It was imperative that we send data to Maryland. This do-it-yourself TTY-(teletype)-by-radio-link equipment arrived with the tracking van. There were no instructions so no one of the tracking crew wanted to mess with it. Jerry got it working.



We were able to explore the island, to investigate many of the tunnels. Artifacts were discovered every week.

Japanese memorials on Iwo Jima



The contractor had hired 150 prisoners from Japan and shipped them to Marcus to do the manual labor for the Loran-C complex. The prisoners were as free as we were: Where would they go?

Some of the prisoner-construction crew playing softball

There was no fresh water, not even to drink. Jerry maintained hydration by eating lots of tomatoes. The only way to experience a fresh-water shower was to stand outside in the rain. Naked. (There were no women on the island!) It only rained once. Unfortunately for Jerry, after he soaped-up the rain stopped. Jerry stood outside for 20 minutes waiting for more rain, then gave up and rinsed in a salt-water shower. The rest of the crew had a good laugh!



The seven of us stayed in one 16 feet by 32 feet tent



Bobby Walker and a Japanese gun



Japanese memorial close-up

Jerry Wiant in 1963 tracking satellites on a South Pacific island

(The vignetting is caused by cameraman's finger.)

He did not know that 50 years later he would still be tracking satellites, but he did know that it was an adventure of a lifetime. He felt privileged to be part of an important science project and to travel to remote islands where very few people get to go.

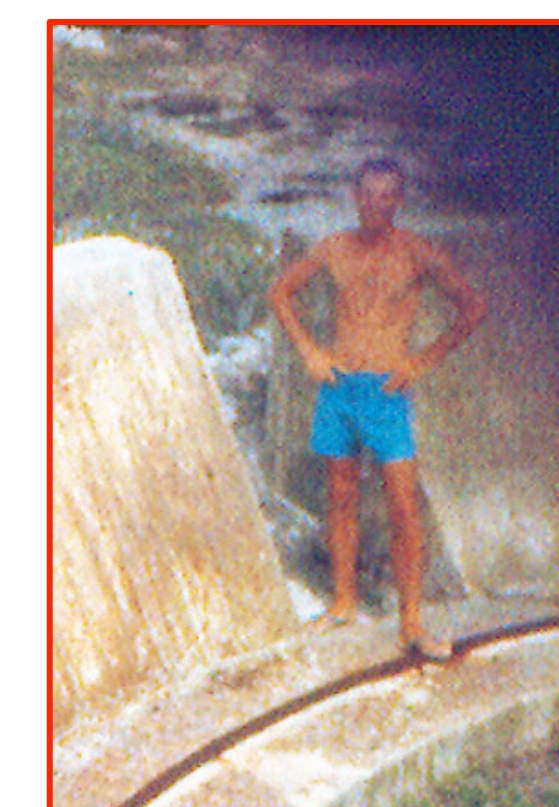


Photo credits

The color photos were taken by Jerry using a Minox-B (spy) camera with color-positive 9 millimeter film.

The black & white photos were taken by an unknown Japanese person some 2 years before Jerry got to the island and were found in the trash after the Japanese Meteorological Agency people left Marcus Island.

Jerry's full collection of photos can be viewed and downloaded after the meeting from:

<http://nexus.as.utexas.edu/laser>