

Hardtack Teak

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HARDTACK-Teak was an exoatmospheric nuclear test performed during Operation Hardtack I. On 1 August 1958, the shot detonated at an altitude of 76.8 km. *Teak* caused communications impairment over a widespread area in the Pacific basin. This was due to the injection of a large quantity of fission debris into the ionosphere. The debris prevented normal ionospheric reflection of high-frequency (HF) radio waves back towards Earth, which disrupted most long-distance HF radio communications. The nuclear detonation occurred at 1050 UTC on 1 August 1958 (which was 11:50 p.m., Johnston Island local time, on 31 July 1958).^[1]

The 3.8 megaton detonation was planned to occur at an altitude of 250,000 feet approximately six miles south of Johnston Island. However, due to a programming failure it burst directly over the island at the desired elevation making the island the effective ground-zero. This brought the explosion 2000 feet (approximately 2/5ths of a mile) nearer than intended to the launch site control and analysis crews.

The *Teak* test was originally planned to be launched from Bikini Atoll, but Lewis Strauss, chairman of the United States Atomic Energy Commission opposed the test because of fears that the flash from the nighttime detonation might blind Islanders who were living on nearby atolls. He finally agreed to approve the high-altitude test on the condition that the launch point be moved from Bikini Atoll to the more remote site at Johnston Island.^[2]

According to the book *Defense's Nuclear Agency 1947–1997*, when the *Teak* detonation occurred^[3]:

The Apia Observatory in Western Samoa approximately 2,000 miles to the south described the ". . . violent magnetic disturbance," which heralded ". . . the most brilliant manifestation of the Aurora Australis [Southern Lights] ever seen in Samoa." The resulting persistent ionization of the low-density atmosphere cut high frequency radio communications with New Zealand for six hours.

In Hawaii, where there had been no announcement of the test, the TEAK fireball turned from light yellow to dark yellow to orange to red. "The red spread in a semi-circular manner until it seemed to engulf a large part of the horizon," one resident told the Honolulu *Star-Bulletin*. The red glow remained clearly visible in the southwestern sky for half an hour. In Honolulu, military and civilian air traffic communications were interrupted for several hours. At the AFSWP's [Armed Forces Special Weapons Project] offices in the Pentagon, Admiral Parker grew concerned for the personnel on Johnston Island as hour after hour passed with no word regarding the test. Finally, some eight hours after TEAK had occurred, the word that all was well came from Luedecke, the commander of Joint Task Force 7 and soon to be General Manager of the AEC. The communications blackout worried others as well. Later AFSWP learned that one of the first radio messages received at Johnston Island once communications was restored was: "Are you still there?"

References

- [^] Hoerlin, Herman "United States High-Altitude Test Experiences: A Review Emphasizing the Impact on the Environment" Report LA-6405, Los Alamos Scientific Laboratory. October 1976 [1] Retrieved 2009-10-25
- [^] *Defense's Nuclear Agency 1947–1997*. Page 139. Defense Threat Reduction Agency, 2002 [2]

3. [^] *Defense's Nuclear Agency 1947–1997*. Page 140. Defense Threat Reduction Agency, 2002 [3]
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