

The Double Flash Meets the Bhangmeter

The U.S. Nuclear Detonation Detection System (NDS), which uses satellite-borne sensors to watch for nuclear explosions, can spot a nuclear attack anywhere in the world.

One of the NDS sensors is a “bhangmeter” (pronounced BANG-meter), developed by Edgerton, Germeshausen, and Grier, Inc. (now EG&G) in 1948 at the request of Los Alamos scientists. The bhangmeter’s job is to detect a nuclear explosion’s telltale double flash of light and send a signal to NDS ground stations manned by the Air Force. The explosion’s yield can be estimated from that signal, which appears as two humps on an oscilloscope.

William Ogle, one-time head of the Los Alamos’s field-testing division, reported that the bhangmeter was named during an afternoon-long meeting held for just that purpose. Bhang is a form of cannabis consumed in India. The group chose the name as a joke, implying that you had to be “on something” to believe such a simple instrument could determine yield.

But the bhangmeter is no joke. U.S. scientists deployed the instrument when observing this country’s atmospheric tests, and the Department of Defense has installed it on satellites since the 1960s, initially on the Advanced Vela satellites, launched in 1967, 1969, and 1970, and now on the NDS satellites. Vela-borne bhangmeters detected 41 confirmed nuclear tests, but they may be most famous for the one detection never definitively confirmed: the “Vela Incident,” September 22, 1979.

On that date, the two bhangmeters on Vela satellite 6911 detected a double flash over the Indian Ocean between Antarctica and the southern tip of South Africa. Many believe it was a joint Israel-South Africa nuclear test, but the scarcity of corroborating evidence persuaded others that a sensor malfunction or meteor strike caused a false positive. The incident remains controversial. ✦

~Eileen Patterson



A bhang shop in Jaisalmer, Rajasthan, India. (Photo: Tom Maisey - Flickr. Licensed under CC BY-SA 2.0 via Wikimedia Commons)