

The Vela Event of 1979 (Or The Israeli Nuclear Test of 1979)

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Israel's Nuclear Program

- France provided 24 MW research reactor (later upgraded to 40 MW and 70 MW) and reprocessing plant at Dimona beginning in 1957. Reactor went critical in 1964
- U.S. suspects weapon plans despite serial claims by Israel that Dimona will be (a) a textile factory; (b) an arid-land research plant; (c) a metallurgical research plant; and finally, (d) a nuclear research plant for peaceful purposes.
- U.S. State Dept. cable of March 1965: Israeli scientists are preparing “all necessary elements for production of a nuclear device, leaving undone only last minute assembly”.
- U.S. State Dept. Document 12/31/67: Israeli target date for weapon acquisition is 1968-69
- NYT, March 16, 1976: CIA says Israel has 10-20 nuclear weapons
- Current estimate: > 150 warheads, of which some are “boosted” (see photos of Israeli warheads by Mordechai Vanunu)
- Boosted weapon designs have up to now required testing for reliability



LBJ and Israel



- Johnson ignores 1965 State Dept. recommendation to tie supply of 46 M-48 tanks to full scope IAEA safeguards on Israel's nuclear program, saying, "...so long as we receive the pledge [to not develop nuclear weapons]...I do not insist on acceptance of IAEA controls now."
- In 1966 U.S. agrees to sell 24 A4e Skyhawks to Israel. State Dept. again fails to tie the sale to nuclear restrictions, obtaining only Israel's response of not being the first to introduce nuclear weapons "into the Arab-Israeli area". (First formulated by Shimon Peres in a meeting with JFK on April 2, 1963 and publicly by Levi Eshkol to Knesset, May 1966)

LBJ and Israel

LBJ and Levi Eshkol at the LBJ Ranch, Jan.8, 1968



In January 1968, Eshkol visits Johnson, who has been given talking points saying “we think we have an acceptable NPT ... that will serve Israel’s long term security. We expect Israel to sign.” Eshkol leaves without giving any commitment other than the standard Israeli response about not being the first to introduce nuclear weapons into the region.

In June and October 1968, export licenses for advanced computers that could be used for nuclear weapon design and development are granted to Israel

LBJ and Israel



- On July 1, 1968 the NPT is opened for signature. State Dep't wants Israeli signature on NPT and halt in its development of missiles in return for pending sale of F-4 Phantom fighters
- By the autumn of 1968, Johnson knew that Israel had produced a nuclear weapon and that Israel would have difficulty signing the NPT. (Briefing by CIA chief Helms). He withholds the information from Rusk.
- In October, 1968 Johnson meets with Foreign Minister Abba Eban and assures him that the U.S. will not make NPT adherence a condition of the F-4 sale. Tells Dean Rusk he is “strongly opposed to twisting arms on the nuclear thing in connection with Phantoms.”
- In November, 1968 Under Secretary of Defense Paul Warnke confirms the sale of fifty F-4s, states that the United States would regard the possession and control of nuclear weapons by a Middle Eastern power as constituting the “introduction” of nuclear weapons which would entitle the U.S. to cancel arms supply contracts. Makes no mention of the NPT.

Nixon and Israel



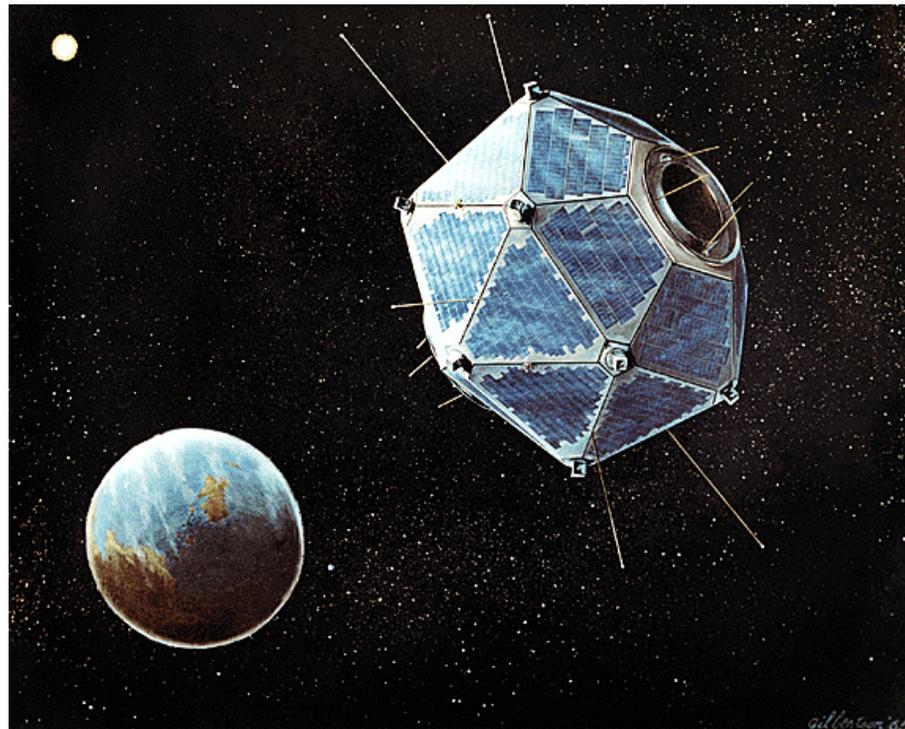
Nixon and Meir at White House, 9/25/69

Nixon meets with Golda Meir on September 26, 1969 with no one else present. Kissinger is briefed afterward

Nixon and Israel

- Kissinger memo to President on October 7, 1969 says: “You emphasized that our primary concern was that Israel make no visible introduction of nuclear weapons or undertake a nuclear test program.”
- On November 6, 1969 Kissinger sends another memo recommending that “we not press the Israelis any further on this subject at this time.”
- On February 23, 1970 Rabin asks Kissinger to tell Nixon that “Israel has no intention to sign the NPT”, and that Israel would regard any attempt to link arms sales to the NPT as “extremely unfortunate”.
- Bottom line: The U.S. becomes a willing partner/enabler of Israel’s policy of nuclear “opacity”, a position essentially adopted first by Johnson, refined by Nixon, and sustained by every president since then.
- Biggest challenge: “The mysterious flash” of September 22, 1979

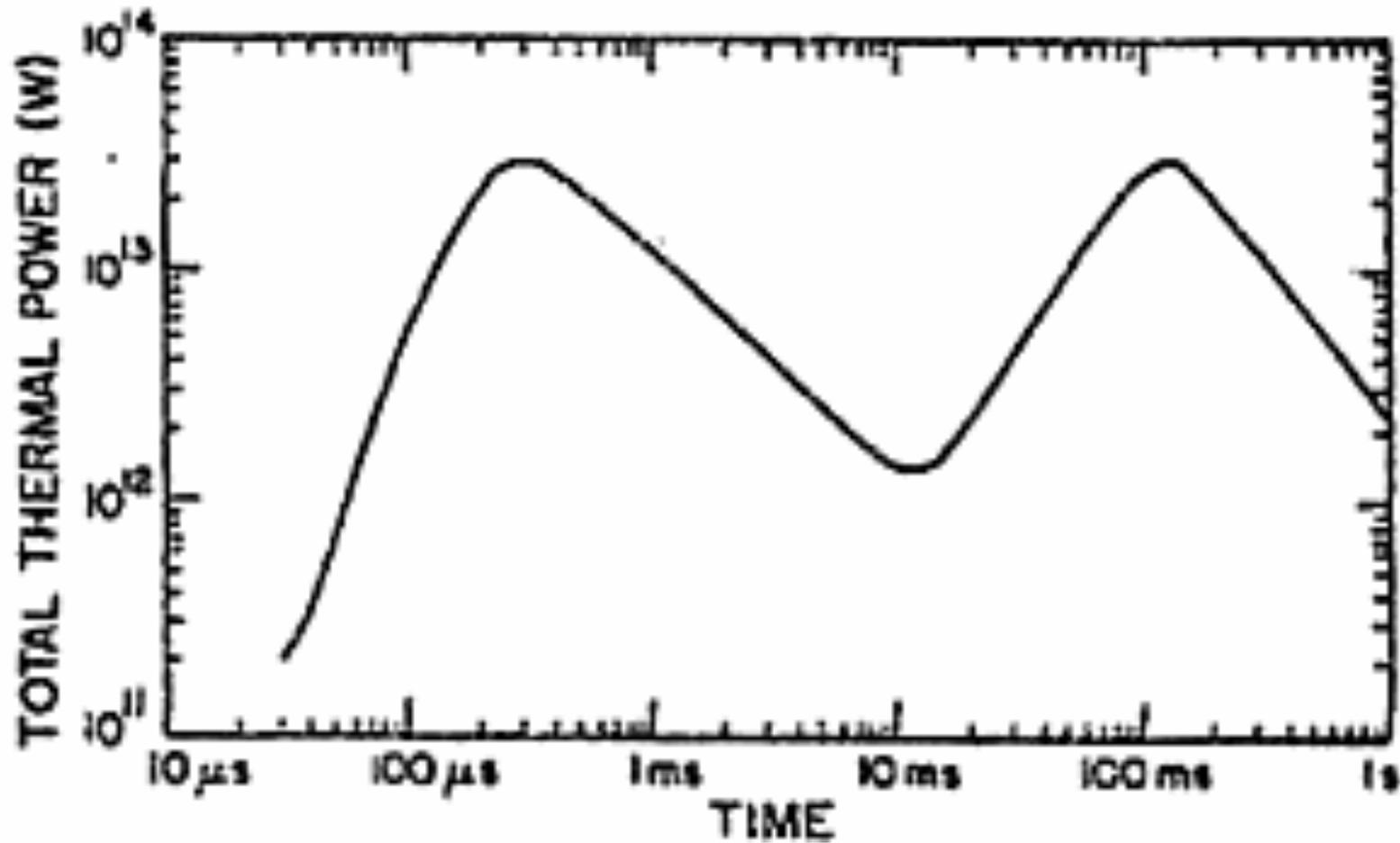
The Vela Satellites



Vela Satellites

- Launched in wake of Limited Test Ban Treaty
- First one launched in 1963 – last one in 1969
- Had nominal life of 7 years, but lasted longer
- Advanced units (Vela 6911) measured emissions of light using two photodiode sensors called bhangmeters
- Bhangmeters record only rapid changes in light intensity in order to minimize false alarms

LIGHT PATTERN FROM 19 Kt TEST



The Mysterious Flash

- At 04:53:42 hours on Saturday, September 22, 1979, Vela 6911 detected and recorded two intense flashes separated by fractions of a second off the coast of Prince Edward Island in the Southern Indian Ocean. This event is designated by Los Alamos as Vela Alert 747 (A-747)
- The signal was similar to verified nuclear test signals recorded on 41 previous occasions by the Vela satellites
- Since its deployment, Vela has detected every known atmospheric nuclear test

The Search for Corroborative Data: Mixed Results

- DSP Satellites recorded no heat event from an explosion, but there would have been no recording if the signal was weakened by transmission through clouds or did not otherwise reach a threshold
- No radioactive debris was found, though samples may have been taken too late following the event
- Radar signals suggesting a possible shock wave were picked up by AF antennae at approx. the same time as the Vela detection
- Researcher at Arecibo recorded an ionospheric wave traveling in an anomalous direction that was consistent with a nuclear test
- Medical researcher of sheep tissues in Australia found unusual levels of I-131 in sheep thyroids two months after the Vela event, but similar data did not appear in sheep in New Zealand
- Naval Research Laboratory collected and analyzed hydro-acoustic and ocean wave data that convinced its Director that a test took place. Data is still classified.

Bhangmeter Discrepancies

- H. G. Horak, Vela Event Alert 747, May, 1980:
“The bhangmeter curves were not entirely consistent. The differences during the first pulse can be readily explained in terms of instrumental behavior. However, by second maximum, the more sensitive bhangmeter was recording an irradiance over twice as high as the less sensitive instrument. This was quite possibly caused by optical background changes during the much longer second pulse, though the quantitative explanation is not yet available.”

Intelligence Circles Believe it was a Test

Email 10/18/2012 to me from H. T. Hawkins, Senior Scientist Global Security at Los Alamos:

“After we received the A-747 bhangmeter traces, DIA Director General Eugene Tighe asked me to hand carry them out to Los Alamos where I met Herman Hoerlin, who had led the development of the bhangmeter. Without being told anything about origin of the two signals, Herman traced them with his finger like a maestro might look at a piece of music he had written. I asked him, “What do you think about these data?” “No doubt about it”, Herman responded, “An atmospheric nuclear explosion, several kilotons in yield, probably surrounded by lots of mass like a barge or the likes of it.”

“I flew back to Washington and briefed General Eugene Tighe on Herman’s assessment. General Tighe looked at me and said, ‘Colonel, if that is the position of Los Alamos, then that will be the position of this agency’.”

Political Problems for Carter

- Clandestine test by unnamed perpetrator would undermine verification claims for SALT II, signed in June 1979, and the Limited Test Ban Treaty, possibly endangering Carter's reelection
- Confusion as to who did it: First thought was South Africa, then Israel
- Hodding Carter: State Department was in "sheer panic" over the Vela event and that Israel might be involved

An Israeli Test Was Particularly Troublesome

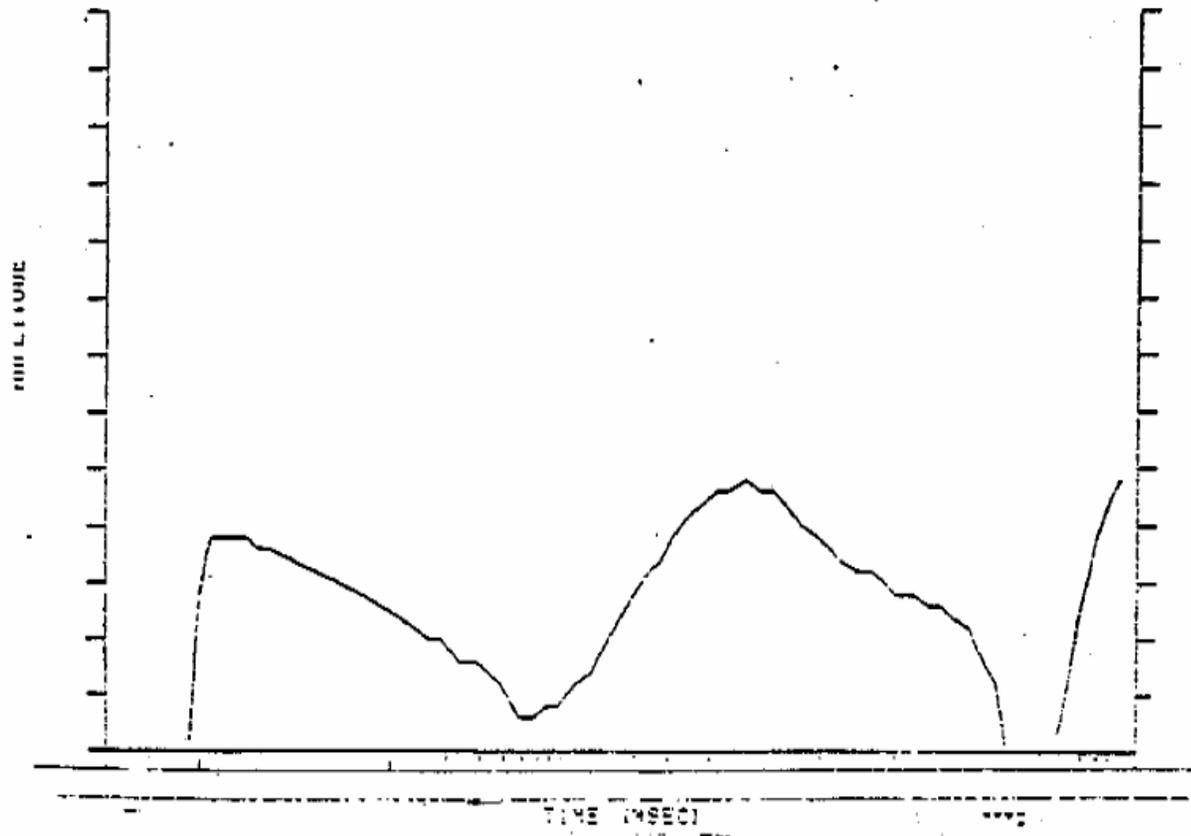
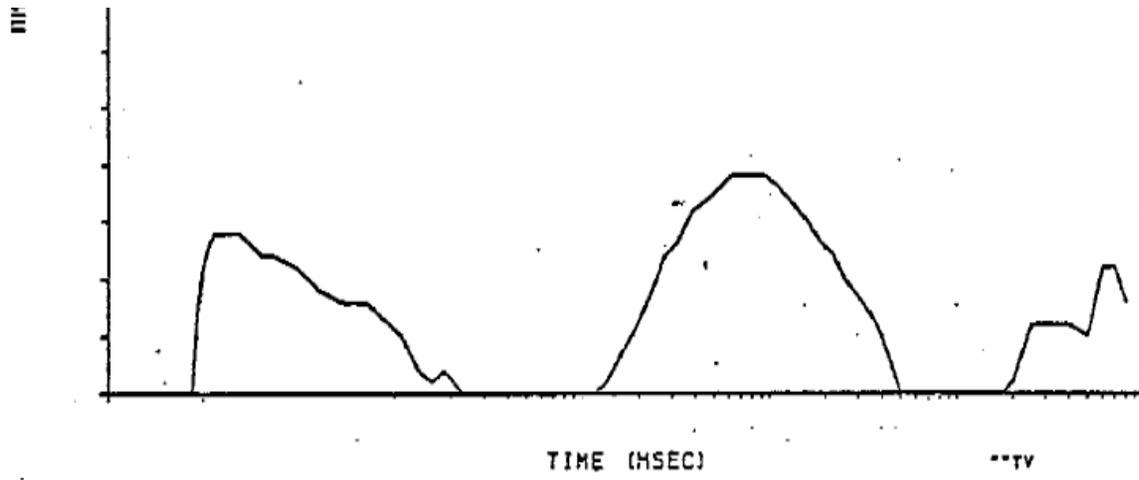
- Pakistan was cut off in 1977 and 1979 for enrichment and reprocessing without testing
- Israel had signed the Limited Test Ban Treaty
- The Arab states would seek sanctions through the UN and other venues and might leave the NPT
- Any U.S. support for sanctions would hurt Carter's relationship with the Jewish Diaspora in the U.S.
- Carter was going to run on his Middle East peace mediation that resulted in the Camp David Accord

The Ruina Panel

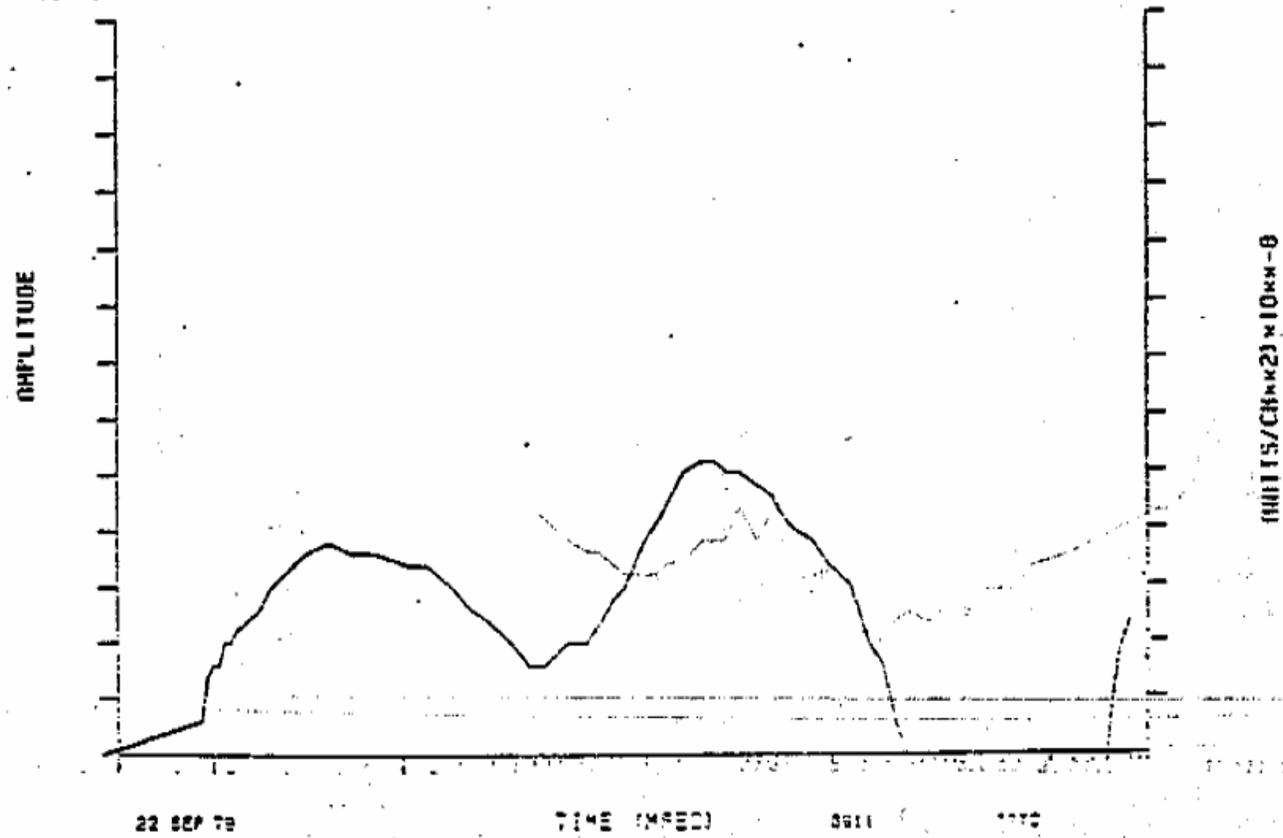
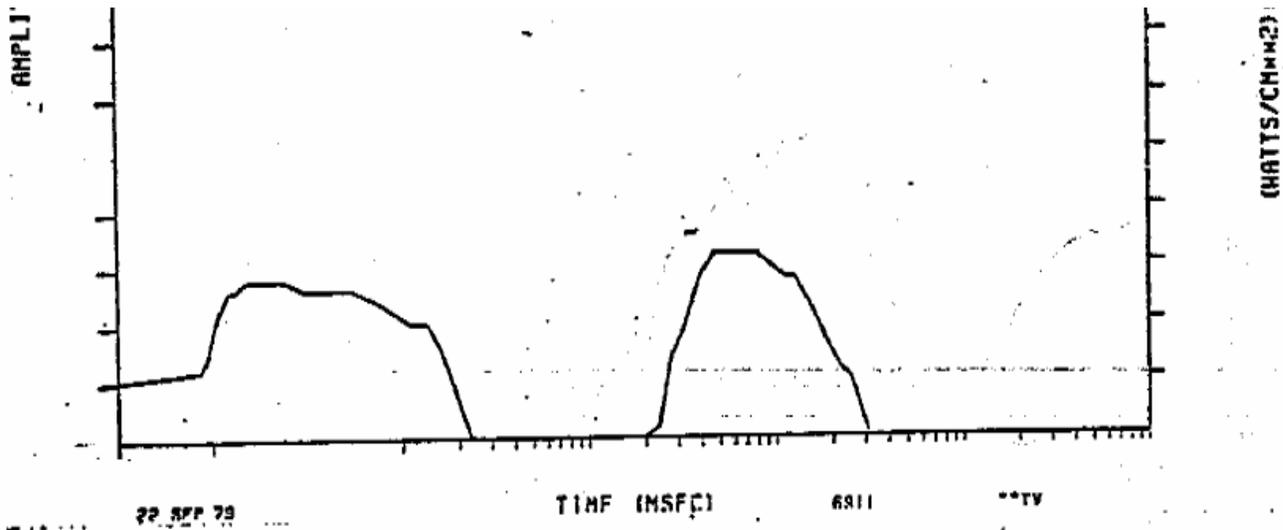
- Could bhangmeters have recorded a natural event mimicking a nuclear test or otherwise malfunctioned?
- Presidential science advisor Frank Press sets up panel to find out. (Spurgeon Keeny claimed it was his idea).
- Jack Ruina, former head of IDA, is named Chairman
- Panel is told to do a strictly scientific study and ignore all political questions such as who might have done it
- Israeli-South African cooperation on development of missiles that could carry nuclear warheads was off the table for the Ruina Panel to consider

Ruina Panel Report

- Report focused on differences in measurements, including phase discrepancies, by the two bhangmeters and concluded that the Vela signal was “probably” not that of a nuclear explosion
- Suggested the signal came from sunlight glinting off debris of a micrometeoroid that struck the satellite, and was therefore a “zoo event”.
- This conclusion has been challenged ever since, based on examination of the bhangmeter traces and information not considered by the Ruina Panel

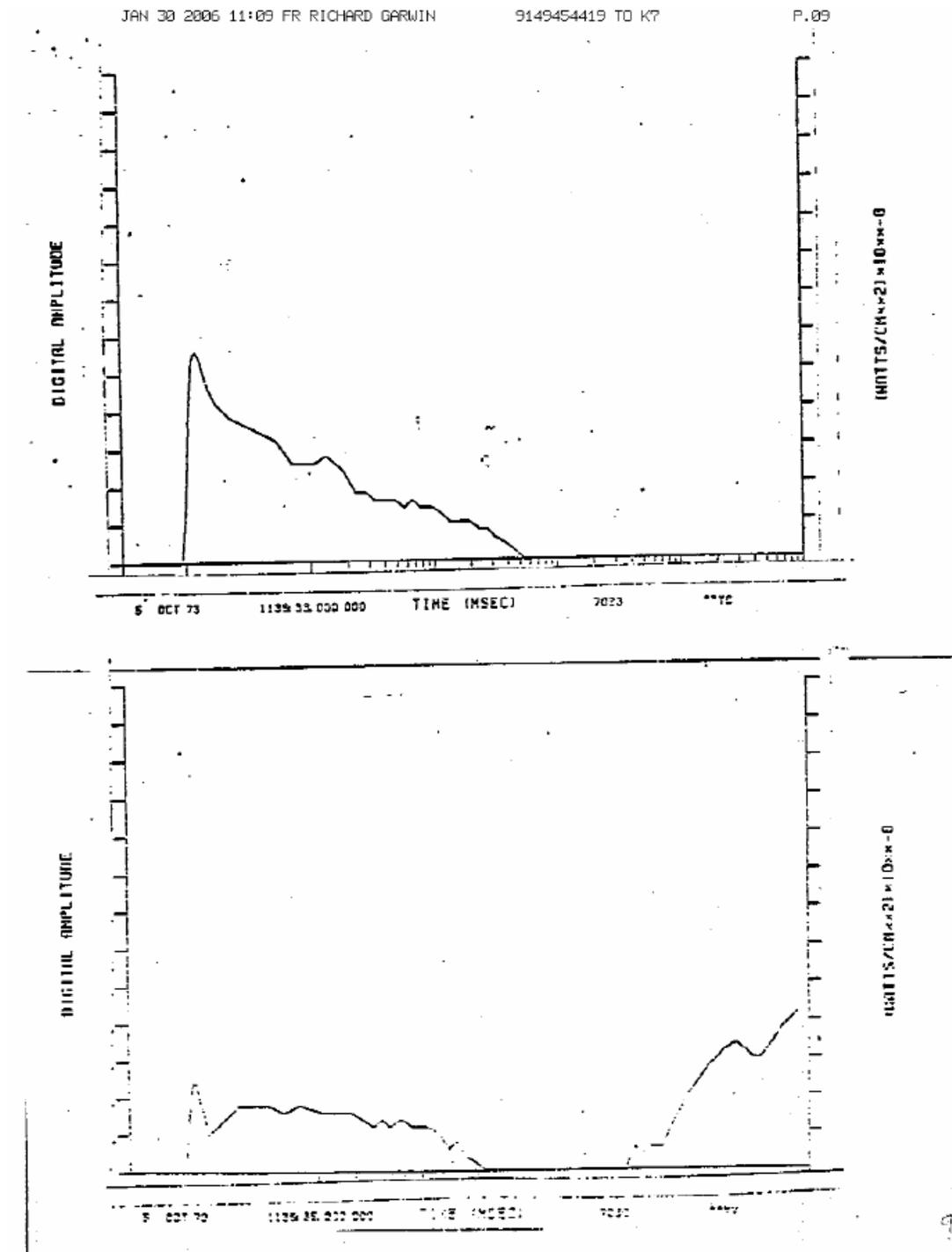


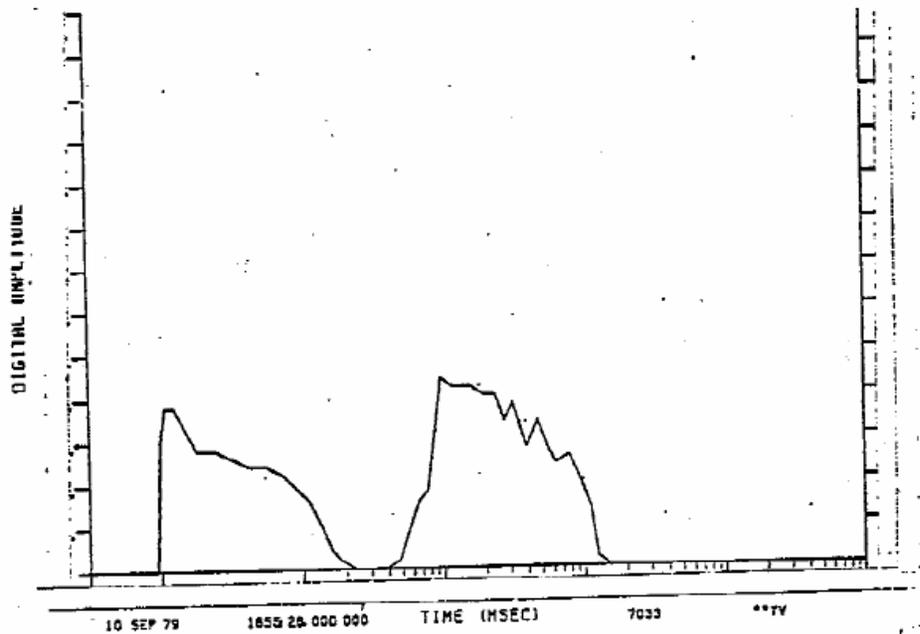
Vela
detection
of known
test



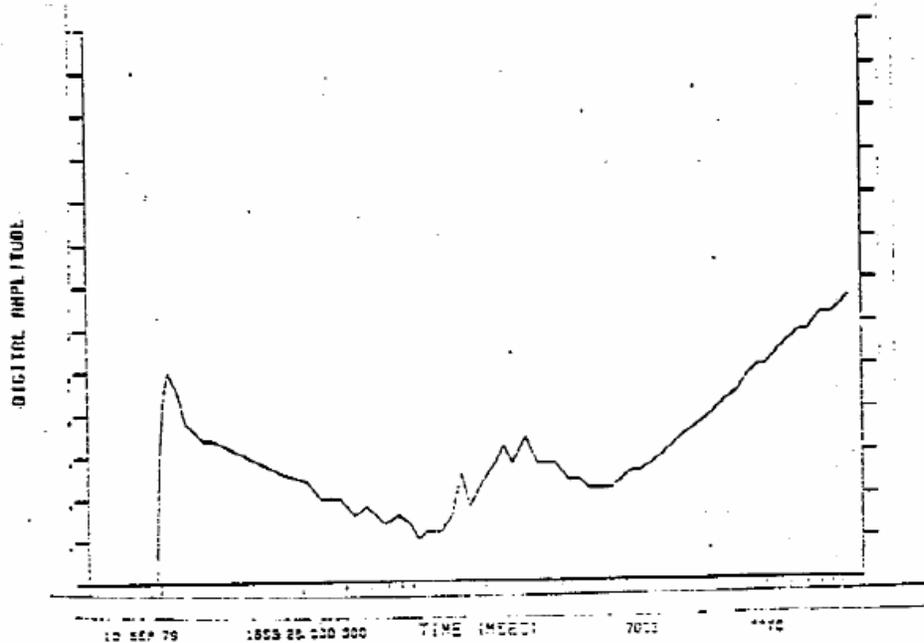
Vela
9/22/79

Zoo event





Zoo
event



The Ruina Panel Conclusion is Challenged

- SRI International reviews the Ruina Panel proposed explanation and concludes the probability of it being correct is of the order of one in 100 billion
- DIA reaffirms the SRI conclusion based on data from another study
- Discrepancies in light detection between bhangmeters, used by Ruina panel to suggest an event close to the satellite occurred in previous detections of nuclear events (but not “zoo events”) providing confidence to the intelligence agencies that the Vela event was a nuclear test.
- A timing anomaly seen in the A-747 bhangmeter traces, and ascribed to aging of the bhangmeters, was not a surprise and was also showing up in earlier nuclear detections.

The Naval Research Lab Report

- NRL completed a 300 page report, in the same time frame as the Ruina Panel report, analyzing the hydro-acoustic and other available data collected following the Vela event
- In a leak, Science Magazine is told that the report concludes that the “flash” was “most likely” a nuclear event and was accompanied by a large underwater signal resembling those produced by French nuclear tests in the Pacific in the 1970s
- The report is still highly classified, 30 years later

Alan Berman and the White House

- Berman says the strongest corroborative evidence that the "flash" was a nuclear explosion lies in the pulses of underwater sound detected by navy sensors.
- "It's strong enough to make the case in its own right."
- Berman asks the WH to hold off releasing the Ruina Panel report until the NRL report is finished (a matter of weeks). The request is denied.
- On two other occasions, Berman contacted the WH with new information indicating additional support for the conclusion that a nuclear test had occurred, and offering to undertake a broader analysis of the information. The WH ignores or rebuffs the offer
- The WH official dealing with Berman on this issue is John Marcum, senior advisor to the WH on technology and arms control.
- Berman was and is livid about his and the Lab's treatment by the WH

Who Believes it was a Nuclear Test?

- Alan Berman, Former Director of NRL
- Former Israeli government officials who tell Seymour Hersh that the flash was an Israeli test of a low-yield nuclear artillery shell.
- Donald Kerr (Former Acting Director of Defense Programs at DOE): “We had no doubt it was a bomb.”
- Dave Simons of Los Alamos: “The whole federal laboratory community came to the conclusion that the data indicated a bomb”, and that “we were quite thoroughly convinced of our interpretation”.
- South African Deputy Foreign Minister Aziz Pahad was quoted in Ha’aretz as confirming it was a nuclear test, although he retracted the claim later.
- As of 2009, the Directors of the U.S. nuclear weapons laboratories, senior officials at DIA, the Director of Central Intelligence’s Nuclear Intelligence Panel, and many scientists and analysts at Los Alamos, Livermore, Sandia, SRI International, DIA, Mission Research Corporation, and Aerospace Corporation all subscribe to the conclusion that the Vela event was “most probably” a nuclear event.

Conclusion: It Was an Israeli Test

- Hersh: Information from Israeli informants
- IAEA reported later that South Africa had neither the materials nor the technological ability to mount such a test in 1979
- Spurgeon Keeny (interview on 6/30/2004) : “An Israeli technician and MIT graduate student told Ruina about a year or two after the flash that he was involved in the test. Ruina reported it to Stan Turner.” In a different interview with Jeff Richelson, Keeny said that “a few Israeli officials hinted that Israel did conduct a test on 9/22/79. “
- Jimmy Carter diary: Entries on the “flash” mention a nuclear explosion and Israel as a suspect from the beginning
- A footnote: My own experience

Evidence for South Africa's Involvement

- Israel and South Africa military technology cooperation: 1) Reports that Israel helped South Africa with bomb design in return for 500 tons of uranium; 2) Israel and South Africa worked together on nuclear-capable missile technology – information withheld from the Ruina Panel; 3) 1975 memorandum and meeting minutes showing South African desire for Israeli-made Jericho missiles with nuclear warheads and positive verbal Israeli responses
- Task force of South African warships conducted secret maneuvers in a time frame that included 9/22/79 and in the same region as where the explosion was believed to have taken place, suggesting possible involvement with the test, perhaps the construction and placement of the barge, plus desperate U.S. attempts to quash later media reports connecting those naval activities to the Vela event
- Statement by former Simonstown naval base commander Dieter Gerhardt, reported in 1994, that he was informed unofficially that the flash was an Israeli-South African test code-named Operation Phoenix.
- NTIS recorded a search, prior to the Vela event, of its data base on nuclear explosions and specifically the seismic detection of nuclear explosions by the naval attache of the South African Embassy.

Did the Ruina Panel Commit a Political Act?

- There is no evidence that politics played an explicit role in the analysis or conclusions of the panel
- The narrowness of the panel's charter suggests that the Carter Administration wanted to avoid a full fledged investigation of the Vela event and hoped to use the panel's purely technical analysis to create sufficient ambiguity as a way to avoid a political problem

Some Outstanding Documentation Needs

- Declassification of South African documents on naval maneuvers on 9/22/79
- Declassification of U.S. reports on Vela Event A-747, including the NRL report.