

Dr. S. Fred Singer -- Pioneer from Great Space Generation

by Mike Gruntman, Professor of Astronautics at USC, astronauticsnow.com

<https://www.linkedin.com/pulse/fred-singer-pioneer-from-great-space-generation-mike-gruntman> (Authorized by the article author)

Dr. S. Fred Singer, a pioneer from the great space generation, passed away on April 6, 2020. A scientist, government official, and always a citizen. He was 95.



S. Fred Singer (Sept. 27, 1924 – April 6, 2020)

Many know Dr. Singer because of his work and public position on the science of global warming during the last decades. Not that many realize, however, that he played an important role among the early pioneers of the space age, the Great Space Generation. Their work and several concurrent developments in science and government would converge and lead to the first American satellites launched in 1958 during the International Geophysical Year (IGY).

Fred was among those who advanced the concept of IGY.

Jim Van Allen recalled (in 1982) that “The plan for a third International Polar year, later broadened in scope and renamed the International Geophysical Year 1957-1958, originated on April 5, 1950, at a small dinner party of geophysicists at my home [in] ... Silver Spring, Maryland. The basic concept was put forward by Lloyd V. Berkner. He and Sydney Chapman were principally responsible for developing and enlarging the concept to a persuasive level of detail and potential implementation, with the help of suggestions by others present: Ernest H. Vestine, J. Wallace Joyce, S. Fred Singer, my wife Abigail, and myself ...” (Van Allen, 1982).

Blazing the Trail describes (http://astronauticsnow.com/bttp/btt_pp_348-349.pdf) first steps to the scientific satellite: “At its meeting in Rome, Italy, in October 1954, the [international] committee [arranging and coordinating the IGY activities] accepted a proposal by American scientists (Berkner, Kaplan, Fred Singer, Homer E. Newell, Jr., James Van Allen, and several others) to recommend “that the thought be given to the launching of small satellite vehicles, to their scientific instrumentation, and to the

new problems associated with the satellite experiments ...”. The National Academy of Sciences actively advocated and lobbied through various parts of the Eisenhower administration the idea of preparing and launching American scientific satellites as part of the IGY.”

Fred pioneered many highly diverse concepts in those early days. In 1954, he proposed a minimum instrumented orbital satellite MOUSE (in *Journal of the British Interplanetary Society*). Two years later, he advanced the idea of a satellite experiment to carry clocks to check the effect, predicted by the general theory of relativity, of gravitational potential on clock speed (slowing down). In the same year he explored threat of "meteoric particles" to orbiting satellites (published in *ARS' Jet Propulsion* in 1956). Then, he worked out a method of calculating impact points of long-range ballistic missiles.

The last time I met Fred in 2012 when he came to Los Angeles. We had a long delightful dinner, long not on food but conversation. He encouraged me to initiate a student project for landing on Phobos and Deimos, his old love concept. After discussion, he agreed that the time was really for serious effort (properly funded and by industry) and not for students playing in a sandbox. Fred was also excited about his work on development of small electricity-producing generators powered by natural gas. Low gas prices and advantage of locating such power sites in the cities made sense economically. Major hurdles were regulatory.

Obviously, we talked about global climate change. Interestingly, Fred did not consider its science exciting but rather straightforward and routine. He saw it in identifying conceivable important processes and focusing on obtaining quantitatively reliable rates, constants, coefficients, etc. that could then be used in complex models.

Fred shared concern about enthusiasm of “learned” (the quotation marks are mine) societies enabling and promoting politicization of global warming science. “AGU is the worst,” was his verdict.

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