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TO RIDE A COMET: 25TH ANNIVERSARY OF ISRAEL'S SHAVIT SATELLITE LAUNCH VEHICLE

**Abstract**

On September 19, 1988, Israel launched its first satellite, Ofek-1, using an Israeli-built Shavit (Comet) three-stage launch vehicle. By independently building and launching its own satellite, Israel joined an exclusive club, which includes the United States, Russia, England, Japan, India, France and China.

The article will explore the origins of Israel's Shavit SLV, and will portray its technological roots, from a modest beginning to an operational launcher.

Shavit launch vehicles are launched from Israel into a highly retrograde orbit over the Mediterranean Sea to prevent debris coming down in populated areas and also to avoid flying over nations hostile to Israel to the east; this results in a lower payload-to-orbit than east-directed launches would allow. The launcher consists of three stages powered by solid fuel rocket motors, the first two manufactured by Israel Military Industries and the Third by Rafael. The prime contractor for the vehicle is the Israel Aerospace Industries.

Several launch options of the vehicle will be analyzed, such as an air dropped version. The initiatives to commercialize the launch vehicle in the 1990's will be cover, as well as the vehicle mishaps which led to loss of satellites - a devastating blow to the very budget restricted space program of Israel.

This paper, together with IAC-13,E4,2 which deals with the first Israeli satellite, could be considered as a "double paper", to mark a quarter of a century of Israeli satellite launching. It is a part of the authors ongoing project of documenting Israel's space program.