

The interest of maritime launch for small launchers

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Maritime launch has been considered already by some companies. Historically, Scout was launched for the San Marco offshore platform. More recently, Sea Launch performed ZENITH launches from Sea. In the small launcher domain, a German consortium GOSA proposed a concept of maritime launch from a Ro-Ro large vessel in the North Sea.

The AAAF Space Transportation Technical committee performed a simplified comparative analysis of several launch concepts and also an analysis of launch location interest and constraints.

The maritime launch may offer several advantages :

- Simplified safety constraints.
- Low non-recurring cost.
- Payload benefit from latitude launch location (equatorial LEO and GTO orbits).
- Common maritime platform for launcher development (engines firing) and operational launches.

The Sea Launch Company economical difficulties are the starting point of the analysis. It shows that the maritime segment cost shall be limited as well as the distance between port and launch location. The maritime and aircraft traffic density is also a point of importance to select the launch location, as well as the possibility to launch in LEO or SSO.

The small launcher has been described as a two liquid stage launch vehicle, LOX / Methane fed, and with a GLOW between 30 and 40 metric tons (300 to 500 kg payload).

Three types of maritime launch bases have been analysed and compared :

- Platform Supply Vessel (PSV)
- Semi-immersed launch tube.
- Fixed launch platform.

In each case, the launcher propellant supply method has been analysed.

The possibility to recover the first stage has been also considered, using a dedicated recovery autonomous catamaran.