

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)  
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A COMBINED MOON DATA RELAY ORBITER AND A MOON LANDER MISSION CONCEPT

**Abstract**

In frame of the European activities for human exploration a mission concept for an early data relay service and a first Moon lander was elaborated as a joint mission proposal. This mission provides low power communication between the lunar surface and Earth as well as early positioning services on the Moon surface for the first lunar explorers. The Data Relay for Moon (DROM) spacecraft will be launched together with the Moon lander and the combined mission is called the Moon Orbiter and Lander (MOL). This paper will concentrate on the DROM part of the mission after the introduction of the MOL mission concept. One attractive feature of the proposed concept is that the DROM spacecraft will establish a high data rate link between the Moon orbit and the Earth. However, high data rates are not required for the early part of the mission. The DROM payload will be used in his early life span to map the lunar surface with high resolution and will use the data relay link to deliver these data to Earth stations.

After the MOL mission concept description and envisaged implementation schedule the paper will provide details of the DROM spacecraft which will carry UHF, S-band, Ka-band and Optical communication payloads as well as time reference which is to be synchronized with UTC. A high resolution optical imager/mapper is an add-on to the optical communications terminal. As an option microwave imaging with SAR is foreseen.