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SPACE COMMUNICATIONS - A HISTORICAL OVERVIEW AND CURRENT TRENDS

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ABSTRACT

One of the most important conditions in space missions is the proper functioning of the communication system. The importance of communication is increased in case of space missions that include human crews. Space communications are characterized by high propagation delays, intermittent connectivity, asymmetric links, high bit-error rates and a small processor and memory capacity. Space communication links can be divided into two groups: the planetary communications and interplanetary communications. The results show that the Internet protocols have very poor performance when applied to space communication. It has been shown that they are able to operate within the limits of the planetary network, if used with certain modifications, but also that their functioning in the interplanetary links is not possible. In this thesis, subject of review are the main CCSDS and DTN protocols designed specifically for space communications.