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**POSITION OF SATELLITE TRANSMISSION
OF ENVIRONMENTAL DATA IN THE DESIGN
OF OPERATIONAL DATA COLLECTION
NETWORKS AS SEEN BY PLESSEY RADAR LIMITED**

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01. Plessey Radar has now had experience in the design and installation of data collection systems covering a large variety of disciplines and particularly for hydrological and meteorological purposes. The development of efficient and reliable sensors which can be left unattended for long periods has led to the possibility of positioning measuring stations in remote areas, the principal restraint now being the network telecommunication system. This is particularly the case in developing countries where there may be no basic system of country-wide ground communications into which the remote data can be fed by relatively short feeder lines. Even in the more advanced countries overloading of the basic telecommunications system can result in unacceptable delays in the transmission of data to the point of use.

02. The rapid advance in recent years in the use of scientific satellites for the transmission of data has given hope of overcoming this problem, but as yet no system is available for regular transmission of data from data collection platforms (DCP's) to national centres with the minimum delay required. The meteorological geostationary satellite METEOSAT can collect data from DCP's within its coverage and relay them to the Data Acquisition Telecommand and Tracking Station (D.A.T.T.S.) at Darmstadt, but from there no inexpensive, quick and reliable method exists for passing the data to the users, other than on the appropriate G.T.S. scheduled bulletin of the DCP is a synoptic station. The other meteorological geostationary satellites have similar systems.

03. An interesting proposal has recently been discussed with the European Space Agency on behalf of the General Directorate of Meteorology of the Kingdom of Saudi Arabia whereby one complete channel of the METEOSAT DCP relay facility would be allocated solely for the transmission of reports from the DCP's in Saudi Arabia. In addition to such reports being received by the D.A.T.T.S. at Darmstadt, the Saudi Arabian National Meteorological Centre will install a P.D.U.S. type ground station capable of receiving reports as they are transmitted from METEOSAT to Darmstadt. Reports from its own DCP's would by this means be immediately available to Saudi Arabia, as well as to Darmstadt and the G.T.S. Such a system has considerable attraction where the number of stations and the frequency of reporting justifies it. It also suggests the possibility of regional systems where the rapid distribution or broadcast of DCP reports from a regional receiving centre was feasible.

04. Using the Argos system on a TIROS meteorological orbiting satellite, messages can be passed by a DCP and received by the user's ground station during the limited number of TIROS passes each day while the satellite is in view of both DCP and ground station. The frequency of such passes varies according to the latitude of the stations concerned, from six at the equator to twenty-eight at latitudes above 75° N or S. This is, therefore, a very suitable method of transmission where the frequency of reports is sufficient but «alert» messages are not required.

