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## TRANSMISSION OF COMPUTER OUTPUT PRODUCTS ON TELEPRINTER — A SOFTWARE PACKAGE

1. Ordinarily the computer output products or even the conventional analysis and the forecast charts are transmitted over radio facsimile. The reception of these charts not only need a special receiver but also a specially treated paper which is generally imported. Because of high price of facsimile receiver and foreign exchange requirement for the recording paper, it is not possible to equip all the offices with this facility. It was, therefore, proposed to devise a suitable alternate mode of transmission through T/P (Teleprinter) exchange, specially because every Meteorological Office is already linked with the T/P circuit. The IBM 360/44 computer installed at the New Delhi Office is provided with a paper-tape punch which can punch out the paper tape at the rate of 250 characters per sec. A special soft-ware package had to be developed for punching the output products from the computer on a paper tape in a form suitable for directly transmitting on internal T/P circuit to the various Met. Centres so that all the offices can make use of the advisories. In the following paragraph we describe in brief the application of the package.

2. This package writes line by line the computer output of the objective analysis and forecast charts (in the analysed 'chart' form) on a magnetic tape, which is then read back and a paper-tape punch output of the chart in the I.T.A No. 2 (International Telegraph Alphabet No. 2) code is obtained. This paper-tape can then be directly fed to the T/P machines to transmit the 'chart-form' output to all T/P recipients.

3. Keeping in view the width of the T/P paper roll, the size of the T/P output has been fixed to a maximum of 68 characters per line across the paper. The length of the chart along the paper is, however, flexible and depends upon the size and area of the chart to be transmitted.

4. For the purpose of illustration, in Fig. 1 we present a sample T/P printout of the chart. Such charts were recently transmitted from New Delhi and received successfully at the Regional Meteorological Centres, Madras, Bombay and Nagpur. As can be seen the chart covers an area from  $7.5^{\circ}$  to  $33.3^{\circ}$  N and  $47.2^{\circ}$  to  $102.7^{\circ}$  E, thereby covering a good part of southeast Asia besides India. This transmission is being taken up on real-time basis..

5. For convenience in locating the areas precisely, both latitudes and longitudes, have also been printed on the chart. Approximate map outline

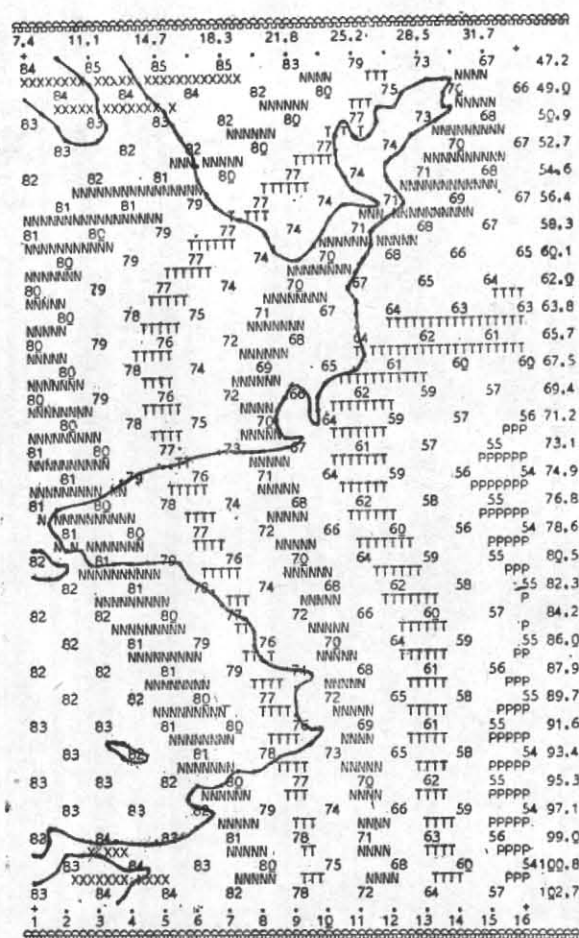


Fig. 1. T/P printout of the chart

of India can also be drawn by connecting the dots sequentially. Besides, an over-layer map tracing can also be got prepared (on scale) fitting the exact size of the T/P output, and this can be placed over the chart as an additional check.

6. The programme has been so designed that any specific portion of the computer output (objective analysis, vertical motion field or quantitative precipitation forecast etc) can be chosen and punched on paper tape.

The grid point values, *i.e.*, spot contour heights have been indicated in a diamondprint form, in tens of metres with 100th and higher order digits omitted. The grid point serial Nos. across the paper have also been indicated on top.

7. The programme is of a general nature and can be used for transmitting any form of computer output on T/P.

The time required for the type of chart illustrated in Fig. 1 takes only about 12 min on T/P transmission, although time taken by computer to punch out the same is only 2 min.

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Z. E. SHAIKH  
R. K. DATTA