

Editor's Note:

The Spring issue of Park Science was devoted to computer news from all over the NP System. Every entry did not get in on time, and some that did make the deadline couldn't be squeezed into the 24 available pages. Here, then, is the "overset," as the first of a special section on computer news that will appear in the future as developments warrant.

Air, Water Quality Computer Uses

The Air and Water Quality Division uses computers for four basic purposes: word processing and administration; data management; data analysis; and modeling. The types of equipment in each of the three divisional locations are determined by the functional needs of the office. WASO uses two Lexitron word processors, with communication capabilities, and a CPT word processor. Denver uses two Lexitrons with communications, a Tektronix 4052 interactive graphics plotter, and has access to the Bureau of Reclamation CYBER mainframe. In Fort Collins a Multi-Net multi-user computer supports a variety of word processing, communications, data management and data analysis software packages: a Data Point system and communications, in addition to access to the extensive Colorado State University CYBER systems, also are available.

For administrative purposes, the computer capabilities have grown very important. Telecommunications among all the word processors allows the transfer of text from office to office with a minimum of re-typing. It also provides access to the NPS Electronic Mail system and other service-wide data base management systems. The Lexitron RMS and the "Star pro-

grams — CalcStar, DataStar and SuperSort, which are all compatible with the WordStar word processing package on the Fort Collins multi-user system — facilitate project management and routine administrative tasks.

Data management — the organization and reorganization of vast quantities of data — is handled on two of the Fort Collins and two of the Denver systems. Programs are being developed to handle a hydrological data base on the Data Point, while the Multi-Net supports a separate visibility data base. The status of permit reviews is maintained on the Tektronix in Denver. NPFLORE, which catalogs and sorts flora identified in park units, resides on the Denver CYBER.

Data analysis frequently requires fast computer systems, fondly called "number crunchers." Any of the programmable Air and Water Quality systems is capable of data analysis but the very powerful CYBER systems are available for complex or extensive analyses.

Modeling is a predictive type of data analysis. The Tektronix in Denver plays a significant role in the permit review process by modeling the concentrations to be expected from sources of pollutants. Hydrological (river flow and water release) and air quality modeling are performed on the Colorado State University CYBER systems. A special application is the computerized imaging which generates photographs depicting visibility conditions arising from given pollutant concentrations at a vista.

A promising direction for future development of computer uses lies in field research. Already a portable computer (Atrona Attache) is used to control the ZAPS fumigation system developed to determine *in situ* air pollution sensitivities of vegetation in park units. The Atrona, with the appropriate interface, reads output from air quality monitoring and meteorological equipment, then stores and manipulates real-time data developed during fumigation models. Another growth area is the optical portion of the visibility monitoring program. Increasingly automatic monitoring sites are being used to collect greater amounts of data more efficiently and accurately. Electronics control the automatic equipment and transmit data to a satellite. A ground station collects these signals and transmits them to the Air and Water Quality Division for analysis. Computers control the system, from collection to transportation to analysis of the data.

The creativity and usefulness proven by the existing systems indicate that insufficient imagination may be the *only* imitation to the fruitful relationship between computers and air and water research.

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For more on computers see the following pages.