

GIS Project On For Alaska NPs

By Gary Ahlstrand

A project is underway to develop a geographic information system (GIS) for each park unit in the Alaska Region of the National Park Service (NPS). Landsat thematic mapper (TM) data and Defense Mapping Agency (DMA) digital terrain data are being used to derive landcover and fuel classes for these areas, which account for more than 54 million acres in the National Park System. The project is a cooperative effort between personnel of the Service's Geographic Information System Field Unit (GISFU, Denver) and the Alaska Regional Office (ARO, Anchorage).

A subjective reconnaissance level ground sampling program began in the parks during the summer of 1984 and will continue this summer (1986). Ground sampling teams document information on vegetation, fuels, and topography while site locations are marked on Alaska High Altitude Program (AHAP) color infra-red photographs (approximately 1:60,000 scale) and United States Geological Survey topographic quadrangles (1:63,360 scale).

Twelve TM digital data tapes of imagery covering all or portions of Gates of the Arctic NP and Preserve, Kobuk Valley NP, Noatak National Preserve, Cape Krusenstern National Monument, Bering Land Bridge National Preserve, and Wrangell-St. Elias NP and Preserve have been purchased from the Earth Observation Satellite Observation Company. The scenes were acquired between July 7 and Aug. 8, 1985. The remaining scenes will be purchased as acceptable tapes become available. The digital data are being processed and analyzed using Earth Resources Laboratory Software (ELAS). Field data and

AHAP color infra-red photograph signatures are correlated with initial multispectral classes to determine if lumping or additional refinement is needed to derive meaningful landcover classes.

Digital terrain data (1:250,000 scale) from DMA tapes were converted from arc-second to planar format for use with ELAS. Slope (19 increments), aspect (9 classes), elevation (100 foot intervals), and mean slope length files were created for all parks from the reformatted DMA tapes.

Until now the analysis of these digital data has been done using the GISFU's ancient Varian computer. Through a joint procurement effort, the GISFU and ARO are each in the process of acquiring a color graphics workstation (micro supercomputer) with a UNIX operating system, and peripheral hardware. The ARO is loaning its new system to the Earth Resources Laboratory, National Space Technologies Laboratory, National Aeronautics and Space Administration for up to one year for use while making a number of refinements to ELAS and converting it to run under a UNIX-based operating system.

Additional themes will be added to each GIS in response to the needs of individual parks and as resource information becomes available. The full potential of this tool will be realized only when it is put into the hands of field managers so that they may display, manipulate, update, manage, analyze, and plot the mapped data for use in making better informed resource management decisions. Our goal is to put GIS's on computers in each NPS area of the Alaska Region.

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