

DIRECTIONS

SIOUX FALLS DEVELOPMENT FOUNDATION

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EROS Data Center Celebrates 10th Anniversary



September 1983, will mark the 10th anniversary of the establishment of the EROS Data Center on its 318 acre pastoral location 16 miles northeast of Sioux Falls, South Dakota. And what an amazing 10-year period it has been since construction was completed on the attractively functional structure that is now recognized across the globe as "home" to an earth information program that nations throughout the world are increasingly seeking to utilize as a part of their earth resources management efforts.

Beginning as a 13-employee operation in temporary offices in Sioux Falls in 1971, the EROS Data Center today operates out of a 100,000-square-foot building that currently houses a staff of 350, 50 of whom are Federal employees with the remainder divided among government contractors. Interestingly, if the site selection process for this facility were to be reopened today it is highly unlikely that the Sioux Falls area would even be a contender in the race. Whereas in 1970, the original site selection team was looking for a location that would provide minimal interference for a high-powered antenna system in a centralized spot among the lower 48 states, such selection criteria are no longer valid due to advancing technology and changing programmatic requirements. As a result, even the outstanding promotional campaign spearheaded by the Sioux Falls Development Foundation, in conjunction with local civic and political leaders, might not be able to secure the facility a second time for the greater Sioux Empire, given the growing national appeal of the Center's program and the political power wielded by the many larger Congressional delegations. Fortunately, in 1970, the Sioux Falls area was the right place at the right time and the Data Center campaign mounted by the Foundation utilizing business, professional and political leaders from across the state has achieved a multifaceted return far beyond the comprehension of the most farsighted leaders of a decade ago.

During the past 10 years, the growing sophistication of the methodologies employed by the EROS Data Center has highlighted its overall operation, and such technological growth and transformation bodes well for both its future as an information systems research facility

and for the Sioux Empire community which is home to the Center and to the many employees who staff it. It is not easy to simply describe either the processes involved in the activities that take place within the Data Center or to comprehensively enumerate the variety of functions regularly discharged by the Center's technical staff. And about the time that the interested lay person believes he or she finally understands a particular procedure, that procedure is revolutionized due to the inexorable march of technological development.

One long-standing element of the EROS Data Center's mission is to receive, process, store, distribute, and analyze the millions of images of the earth relayed by both satellites and high flying aircraft. The vast majority of the satellite images are relayed by telemetry from the National Oceanic and Atmospheric Administration's Landsat satellite. Riding 425 miles above the earth's surface, orbiting the earth every 100 minutes and repeating its path every 16 days, the Landsat 4 satellite is designed to send back a constant flow of images produced by a technique called remote sensing. Remote sensing, as carried out in the EROS project, involves image reproduction based on the measurement of light rays reflected off the earth's surface. Every substance on earth reflects light in its own unique way and with the proper equipment for reading these reflections, many of which are in the near infrared spectrum and unobservable to the naked eye, it is possible to develop a distinctive image of nearly any portion of the earth's surface.

Before reaching the Data Center near Sioux Falls, the imagery which has emanated from the Landsat satellite's multispectral scanner (the device that measures the reflectance of sunlight) flows by telemetry to ground stations for recording on magnetic tapes and then is relayed on to NASA's Goddard Space Flight Center in Greenbelt, Maryland for initial computer processing. During the early years of Data Center operation the film-processed materials from Goddard were mailed to Sioux Falls, but in 1979, the Center began utilizing the new breed of communication satellites orbiting the earth. This greatly expedited both the flow of material from Goddard and the subsequent conversion of digital

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