

A THE PACIFIC NORTHWEST STORY

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In February 1978, the Pacific Northwest Regional Commission (PNRC), comprised of the Governors of Idaho, Oregon, Washington and a Federal Co-chairman appointed by the President, approved a 3 year effort entitled the "Landsat Applications Program (LAP)", aimed at establishing operational capabilities in the Pacific Northwest to analyze Landsat digital imagery and apply the results to natural resource management programs.

The Commission, Established in 1972, under Title V of the Public Works & Economic Development Act of 1965 for the purpose of initiating, coordinating and implementing programs designed to improve the region's overall economic well-being, had recognized the importance and potential for utilizing Landsat to aid state and local natural resources decision-makers.

In the fall of 1974, the PNRC established the "Land Resources Inventory Task Force" (later changed to "Technology Transfer Task Force") with the charge of investigating the potential application of Landsat technology to state and local problems. The Task Force, with representatives from Idaho, Oregon, Washington and a Project Director, proposed the establishment of the Land Resources Inventory Demonstration Project (LRIDP). The project was designed to demonstrate to state and local agencies, methods for extracting and using information derived from satellite remote sensing technology. The Task Force proposed that state and local agencies obtain assistance from organizations that had the required technical expertise and analytical capability in the remote sensing field. The Task Force requested and received this assistance from the National Aeronautics & Space Administration (NASA) and the US Geological Survey (EROS/Geography Programs). During the LRIDP, the Task Force and its 2 federal partners assembled 45 state and local agencies as participants in 23 individual demonstration projects. These projects were in the discipline areas of forestry, agriculture, rangeland, urban, coastal zone, noxious weeds and surface mining. The results of the LRIDP encouraged the Commission to embark on the Landsat Application Program in 1978 which had as its stated objective . . . "to establish in-state capability for the use and application of Landsat data by state and local agencies in their decision-making and resource management processes." This objective has been achieved by establishing operational analysis facilities in each of the 3 states. Idaho and Washington have installed Landsat digital analysis systems in Boise and Olympia to augment analysis programs already in place within those states. Oregon, meanwhile, has enhanced existing capabilities at Oregon State University in Corvallis. Currently, a number of agencies are conducting operational application projects utilizing the new data analysis facilities and Landsat derived data is now being used by these agencies in their daily operations.

## Idaho

Governor John V. Evans issued Executive Order 80-4 on 11 April 1980, establishing an Idaho Image Analysis Facility (IIAF). The facility is operated by the Idaho Department of Water Resources which has been the state's lead agency during the Landsat Application Program. The executive order was the formalization of a long term effort to establish operational Landsat digital analysis capability in the "Gem State". Governor Evans' order provides a framework for insuring management, coordination, maintenance and technical support of the image analysis facility. The Idaho Image Analysis Facility, while housed and maintained by IDWR, is accessible to other state, federal and local agencies and private interests. IDWR will provide the use of this equipment to agencies in conducting Landsat digital analysis projects. The primary components of the Idaho facility are the VICAR/IBIS image analysis software on the State Auditor's IBM 370/168 and an interactive digital image display device - STC Model 70 Display and System 511 software - which operates on IDWR's PDP 11/34 computer. The facility also maintains interpretation equipment for Landsat imagery and aerial photographs.

The establishment of the IIAF is the first step of operational utilization of Landsat data within the state. Faced with very limited budgets and increasing data requirements for improved planning and decision-making, the resource managers and policymakers in Idaho will be demanding a level of production capability from this technology which will far overshadow the efforts to date.

## Oregon

Oregon was the only state with an existing Landsat processing capability. The Environmental Remote Sensing Laboratory at Oregon State University was already established with support from the University Affairs Office of NASA. The state, therefore, elected to enhance these facilities as its approach to developing operational use of Landsat and designated ERSAL as the operational facility for Oregon.

ERSAL is not limited to Landsat, but provides a full range of services including — Sample design for resource inventory and map accuracy assessment. Interpretation of large and small scale aerial photographs, analysis of multi-date imagery and geoscience applications of sidelooking radar imagery.

The Landsat analysis software used in PIXSYS, which started from computer programs developed at Purdue University. This software has been significantly expanded and adapted for Oregon's use over the past 10 years by ERSAL's staff.

## Washington

Washington State did not start from an established base. Like Idaho, Washington was concerned with establishing an operational capability to service state users in a cost effective way. An analysis of existing state hardware showed that Washington State University had a computer with sufficient capacity to efficiently process Landsat data covering large areas.

The Washington State University Computing Service Center actively sought to be designated the repository of processing capability. The availability of the AMDAHL V-6 offered a new generation computer capable of rapidly processing large amounts of data. The state agencies felt that the addition of interactive image processing equipment would make it possible to effectively work with Landsat data.

The operational capability in Washington consists of VICAR/IBIS software on the AMDAHL V-6 computer in Pullman and an Interactive Image Processing Laboratory (IIPL) on the Capitol Campus in Olympia. The IIPL operated by WSU/CSC contains (Idaho), the STC Model 70 Display and System 511 earth resources processing software which operates on a PDP 11/34 computer. The AMDAHL V-6 is linked to the IIPL via dedicated telephone lines. Discipline expertise comes from within individual agencies or through cooperative agreements among participating agencies.

Operational capability is achieved by melding the capability of established state expertise and equipment with a modest stimulus of new technology. Together, this combination provides an additional tool to those concerned with natural resource planning and management in Washington State.

## Participating State/Local Agencies

### 1 Idaho

- Department of Water Resources
- Division of Economic & Community Affairs
- Department of Fish & Game
- University of Idaho
- Bureau of Mines & Geology

### 2 Oregon

- Department of Land Conservation & Development
- Oregon State University

- Department of Fish & Wildlife
- Deschutes County
- Department of Environmental Quality
- Department of Water Resources

3 Washington

- City of Tacoma
- Spokane County
- Department of Game
- University of Washington
- Washington State University
- Department of Ecology
- Planning & Community Affairs
- Department of Revenue
- Department of Natural Resources
- Western Washington University