



U.S. DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

EARTH RESOURCES  
OBSERVATION SYSTEMS  
(EROS) PROGRAM



**8TH AND 9TH INTERNATIONAL  
REMOTE  
SENSING  
WORKSHOPS**

with emphasis on multidisciplinary  
and interdisciplinary uses of  
Landsat satellite imagery  
and other remote sensing data

**MAY 2 - MAY 27,  
AND SEPTEMBER 12 - OCTOBER 7, 1977**

**EROS DATA CENTER  
SIOUX FALLS, SOUTH DAKOTA**

DIRECT INQUIRIES TO:  
U.S. Geological Survey  
917 National Center  
Reston, Virginia 22092

# TENTATIVE SCHEDULE

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## 8th and 9th International Remote Sensing Workshops

This schedule shows the general content and structure of a typical International Remote Sensing Workshop. Any particular workshop will vary in arrangement or emphasis as a function of the choice of field work location and imagery examples.

### First Week

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Orientation and introduction to the EROS Data Center  
Fundamentals of image formation  
The Landsat satellite system  
Principles of image analysis  
Regional pattern analysis

### Second Week

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Discipline applications overview: geology, hydrology, land use, vegetation (agriculture, forestry, and rangelands)  
Environmental data base preparation (Landsat/aerial photography) and multidiscipline team analysis

### Third Week

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Field verification trip to Black Hills region, South Dakota  
Introduction to radar and infrared thermal sensing systems and imagery

### Fourth Week

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Discipline studies: vegetation (agriculture, forestry, rangelands), geology/hydrology, land use  
Independent study of Landsat imagery of participants' countries  
EROS Program overview and discussion of international aspects of the Landsat program

Closing ceremony

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This cover can be unfolded and used as a poster for announcing the workshops.

ANNOUNCEMENT

EIGHTH AND NINTH INTERNATIONAL REMOTE-SENSING WORKSHOPS

EROS DATA CENTER, SIOUX FALLS, SOUTH DAKOTA

MAY AND SEPTEMBER 1977

In response to increasing interest in the use of remote-sensing technology for Earth resources inventory and assessment, the U.S. Geological Survey has developed a program of remote-sensing workshops for non-U.S. scientists, engineers, and managers. These workshops will be held at the EROS Data Center, Sioux Falls, South Dakota, during May and September of each year, demand and schedule permitting. The dates for the 1977 Workshops are:

Eighth International Workshop: May 2 - 27, 1977

Ninth International Workshop: September 12 - October 7, 1977

OBJECTIVE AND GENERAL METHODOLOGY

The workshops, which are introductory in nature, are designed to give participants some familiarity with various remote sensing systems--i.e., their characteristics, limitations, advantages, applications--as well as some experience in analyzing several forms of imagery to produce an environmental data base or other useful product. Emphasis will be placed on the analysis of Landsat (formerly called ERTS, or Earth Resources Technology Satellite) imagery. Attention will also be given to other imaging forms, such as aerial photography, thermal infrared imagery, and radar imagery.

In addition to discipline-oriented studies, the workshops will provide instruction in multidisciplinary and interdisciplinary uses of remote sensing data. Candidates for the workshops should have backgrounds or assignments in one or more of the following disciplines: agriculture, engineering site selection and evaluation, forestry, geography (including land use planning and demography), geology, hydrology, range management, and soil science. The workshops are designed to present the basic principles of optical image analysis. The workshops will not include advanced theoretical work or computer-aided image analysis, and thus are not appropriate for those persons seeking training in computer-assisted applications.

#### GENERAL DESCRIPTION OF WORKSHOP PROGRAM

The four-week workshop program consists of classroom lectures, demonstrations, workshop exercises, homework, and field work in the analysis of Landsat images and other image forms. Workshop exercises include the study of imagery and its applications to North American environments as a basis for studying Landsat imagery of the participants' countries. Studies will be made of areas of interest selected by the participants. A field trip to the Black Hills of western South Dakota provides the means for gaining experience in field data collection and to verify many of the interpretations made during the workshop exercises.

During the workshop, optical equipment at the EROS Data Center will be available for use by the attendees. Center services, such as the Library and the Data Reference File (microfilm browse file), will also be available. Attendees should bring with them any reference material needed for their individual projects. This would include thematic maps and supporting documentary material (geology, land use, soils, vegetation, etc.) of their study areas.

#### LANDSAT IMAGERY OF AREA TO BE SELECTED BY CANDIDATE

An integral part of the workshop is the interpretation of Landsat imagery of an area selected by the attendee, preferably an area in which the attendee is working or has worked. Because this imagery must be ordered in advance of the workshop, we ask that each applicant specify clearly the desired study area and state the objective(s) of the proposed analysis on the application form. As image availability, quality, and cloud cover may limit the extent to which a request can be filled, the applicant should identify alternate areas to be used if adequate imagery does not exist for the primary area. The geographic location of the requested imagery should be specified in the appropriate space on the application; the specific Landsat image identification numbers (if known) should be listed. The applicant should specify either (1) repetitive (seasonal) coverage for temporal

analysis of a relatively small area (which is contained on one Landsat scene), or (2) scenes over a larger area without repetitive coverage. In either case, the imagery ordered will not exceed a total of three scenes.

#### COST

The workshop fee is \$1,500. This includes the cost of instruction, training materials, and workshop bus travel. It does not include travel to/from Sioux Falls or living expenses. The sponsoring agency should send bank checks or drafts (payable in U.S. dollars to the U.S. Geological Survey) prior to start of the workshop to:

Chief, Office of International Geology  
U. S. Geological Survey  
National Center, MS 917  
Reston, Virginia 22092  
U.S.A.

Please do not send cash or traveler's checks. Approximately 40% of the fee covers items which the attendee will retain upon completion of the workshop. This includes Landsat imagery of the attendee's study area, imagery used in many of the workshop exercises, textbooks, and syllabus materials.

An advance deposit of \$400, which is part of the \$1,500 fee, is required within six weeks after receipt of notification of acceptance by the attendee (refer to time schedule in the next section). This deposit covers the cost of the Landsat imagery of the attendee's study area, which must be ordered prior to the start of the workshop. This fee is not refundable. However, the imagery will be delivered to the candidate if he does not attend.

The cost of international travel to and from Sioux Falls and living expenses for attendees during the workshop are to be met by the sponsoring entities. At this time a per diem rate of \$35 is sufficient to cover living expenses at Sioux Falls. However, this may change by the time the course commences. The USGS will provide up-to-date information at least one month before the course is scheduled to commence. Prior to the attendees' departure for the United States, sponsors may want to provide them with one-third or more of the funds required for living expenses, and provide the remainder in the form of a letter of credit with the Northwestern National Bank in Sioux Falls.

The U.S. Geological Survey does not provide health and accident insurance for attendees; therefore, sponsors may wish to obtain it for their attendees. A statement is required for each attendee that all hospital and health costs not covered by insurance will be paid by the sponsor. A form for providing this statement is included with the applications.

PROCEDURE FOR APPLICATION

Applicants are requested to use the enclosed Application Form (facsimiles or machine copies are acceptable). Completed applications must be accompanied by an official request from an element of the candidate's government. All applications should be sent to:

Dr. John A. Reinemund, Chief  
Office of International Geology  
U.S. Geological Survey  
National Center, MS #917  
Reston, Virginia 22092

Schedule pertinent to the Eighth International Workshop:

|                  |   |
|------------------|---|
| January 3, 1977  | Deadline for receipt of application (applications must be received by this date in order to be eligible for consideration). |
| January 17, 1977 | Notification to those selected for the workshop.  |
| March 1, 1977    | The advance deposit of \$400 is due.  |
| May 2, 1977      | Eighth International Workshop begins.   |

Schedule pertinent to the Ninth International Workshop:

|                    |   |
|--------------------|---|
| May 16, 1977       | Deadline for receipt of application (applications must be received by this date in order to be eligible for consideration). |
| May 30, 1977       | Notification to those selected for the workshop.  |
| July 11, 1977      | The advance deposit of \$400 is due.  |
| September 12, 1977 | Ninth International Workshop begins.  |

Because the workshops are intensive and to ensure adequate instructor-attendee interaction, enrollments will be limited to 25 persons. A balance will also be maintained among geographic areas and discipline subjects represented. Application deadlines must be met to allow time for ordering needed imagery and materials and for planning workshop details. As all lectures and discussions will be in English, attendees must have fluency in this language. Interpreters will not be provided. Countries are urged to submit applications for several candidates. Such a list must include an order of priority of candidates that will be used to aid selection if total nominations exceed workshop capacity.

Additional information about the workshop program, the EROS Data Center, and the city of Sioux Falls will be forwarded approximately one month prior to the beginning of the workshop to candidates who are accepted for attendance.

Many participants augment their trip for attendance at the International Remote Sensing Workshop in Sioux Falls with visits to other U.S. government agencies and university research centers related to their fields of interest. Some assistance in planning these activities can be provided if specific agencies, personal contacts, or types of activities are designated by the applicant.

## International Remote Sensing Workshops

This sample schedule shows the general content and structure of a typical International Remote Sensing Workshop. Any particular workshop will vary in arrangement or emphasis as a function of the choice of field work location and imagery.

First Week

Orientation and introduction to the EROS Data Center

Fundamentals of image formation

The Landsat satellite system

Principles of image analysis

Regional pattern analysis

Second Week

Discipline applications overview: geology, hydrology, land use, vegetation  
(agriculture, forestry, and rangelands)

Environmental data base preparation (Landsat/aerial photography) and  
multidiscipline team analysis

Third Week

Field verification trip.

Introduction to radar and infrared thermal sensing systems and imagery

Fourth Week

Discipline studies: geology/hydrology, land use, vegetation (agriculture,  
forestry, rangelands)

Independent study of Landsat imagery of participants' countries

EROS Program overview and discussion of international aspects of the  
Landsat program

Closing ceremony

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APPLICATION FORM

## Eighth and Ninth International Remote Sensing Workshops

Indicate Workshop applying for by check mark  in appropriate box.

Eighth International Remote Sensing Workshop, May 2 - 27, 1977

Ninth International Remote Sensing Workshop, September 12 - October 7, 1977

1. Name (Mr., Mrs., Miss; please underline name of family):
  
  2. Official address (Organization, Street, City, State or Province, Country):
  
  3. Present position (give title and brief description of duties and responsibilities):
  
  4. Discipline(s) of active interest:
  
  5. Education (please summarize your educational background in the spaces below):  

| <u>Institution and Location</u> | <u>Dates of Attendance</u> | <u>Degrees Earned</u> | <u>Fields of Study</u> |
|---------------------------------|----------------------------|-----------------------|------------------------|
|---------------------------------|----------------------------|-----------------------|------------------------|
  
  6. Experience (please include specific experience in remote sensing, including photointerpretation and other forms):
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7. English language facility (please indicate good, fair, poor, or type of test and test scores):

Speaking: \_\_\_\_\_ Reading: \_\_\_\_\_ Writing: \_\_\_\_\_ Type of Test: \_\_\_\_\_  
Test Scores: \_\_\_\_\_

8. Please describe any association with the Landsat program (as a principal investigator, a co-investigator, or in any other capacity):
9. What are your objectives in attending this Workshop? Please be as specific as possible:
10. A limited amount of Landsat imagery of a portion of your country will be ordered for study during the Workshop. For this purpose, please list the geographic coordinates (using latitude and longitude) of your primary study area (maximum size, 6000 km<sup>2</sup>) and include a location map. Also, provide coordinates and maps for second and third priority areas and list any specific Landsat imagery identification numbers and/or specific dates or season(s) of the year which are desired. These requests will be accommodated, if possible. Finally, please specify whether you wish sequential or one-time coverage:

| <u>Area</u> | <u>Coordinates</u><br><u>(Degrees and Minutes)</u> | <u>Specify Desired Season,</u><br><u>Image Identification</u><br><u>Numbers (if known), etc.</u> |
|-------------|--|--|
|-------------|--|--|

Primary

Second priority

Third priority

\_\_\_\_\_ Sequential coverage for the area covered by one Landsat scene.  
Please check whether images should be from a single year /      /  
or successive years /      /

\_\_\_\_\_ One-time coverage with adjacent Landsat scenes.

Please summarize briefly the objective(s) of your study of this imagery:

11. How will your attendance be financed?

MEDICAL EXPENSES

To Whom It May Concern:

The person named below is a candidate for the U.S. Geological Survey International Remote Sensing Workshop program at Sioux Falls, South Dakota. This statement certifies that any medical expense incurred by the candidate during his stay in the United States, and not covered by insurance, will be paid for by his sponsor.

Candidate

Sponsor

\_\_\_\_\_  
Signature of Sponsor's Authorized Representative

Date: \_\_\_\_\_

ITINERARY

Please complete this page if you wish assistance in scheduling other activities in connection with your attendance at the International Remote Sensing Workshop.

ARRIVAL IN U.S.

Date:

Place:

ARRIVAL IN SIOUX FALLS

Date:

OTHER INSTITUTIONS TO BE VISITED IN U.S.

Name and Location

Desired Dates

DEPART FROM U.S.

Date:

Place:

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