APPENDIX G

SATELLITE SPECIFICATIONS

APPENDIX G – SATELLITE SPECIFICATIONS

RADAR SATELLITES

- RADARSAT-1
  - Standard Beam
  - ScanSAR
- ERS 1&2
- ALOS (potential platform for future mapping)

VISIBLE SATELLITES

- NASA MODIS
- Landsat 7
- SPOT (no archive available – real time ordering only)

RADARSAT-1

- **Satellite Overview**
- **General Terms of Use**
- **Price List**
- **User Guide**
- **Beam Modes and Processing Levels:**
- **RADARSAT Data Products Specifications**
- **Licence Agreement**
- **Image Card (Screen Use: 645 KB)**
- **Image Card (Print Use: 13 MB)**

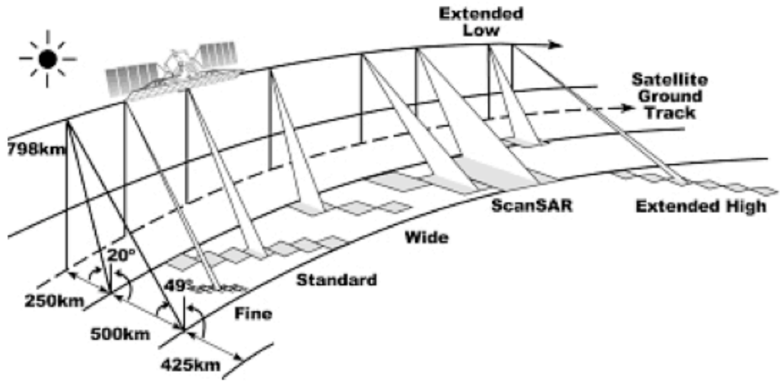
MDA is the worldwide distributor of RADARSAT-1 data. The RADARSAT-1 satellite was launched November 4, 1995 and has been providing imagery for operational monitoring services on a global basis ever since. It is equipped with a state-of-the-art Synthetic Aperture Radar (SAR) that can be steered to collect data over a 1,175 km wide area using 7 beam modes. This provides users with superb flexibility in acquiring images with a range of resolutions, incidence angles, and coverage areas and offers the following key benefits:

- C-band synthetic aperture radar (SAR)
- Cloud-free images of the Earth
- Frequent revisit for monitoring and emergency response
- Programming for emergencies and priorities
- Near-Real Time processing of data
- Direct downlink and onboard recorder storage capacity
- Data calibration for change detection studies
- 7 beam modes and 35 beam positions for a wide range of imaging options
- Varying Resolutions (8 - 100 metres)
- Swath Widths of 50 - 500 km
- Incidence Angles from 10 - 59 degrees

The RADARSAT SAR instrument consists of a radar transmitter, a radar receiver and a data downlink transmitter. The radar transmitter and receiver operate through a steerable antenna that directs the transmitted energy in a narrow beam normal to the satellite track. The elevation angle and profile of the beam (beam positions) can be adjusted so that the beam intercepts the earth's surface over the desired range of incidence angles. This capability is important because image characteristics vary with the incidence angle associated with each beam. In addition, different resolution and coverage can be achieved. The beam modes are each characterized by a specific beam elevation angle and profile, as shown below.

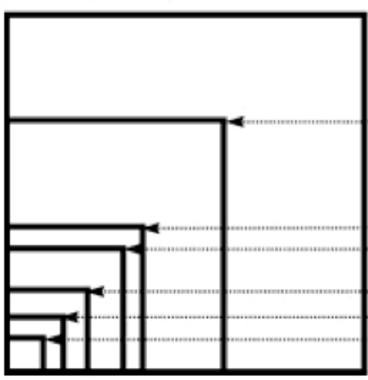
NOTE - End of RADARSAT-1 Acquisitions in Alaska

Under the current MOU between the U.S. and Canada, ASF will continue to acquire new RADARSAT-1 data until RADARSAT-1 is no longer operational or RADARSAT-2 is certified to be operational, whichever comes first. After that time, archival data from RADARSAT-1 in ASF's archive will continue to be available from ASF, but new data acquisition requests cannot be honored. We are no longer accepting new RADARSAT-1 DARs. If you need SAR data in support of your research after March, you might consider using ERS-2 C-band data or ALOS PALSAR L-band data to meet your research requirements. Feel free to contact ASF User Services Office for more information on your options at **uso@asf.alaska.edu** or (907) 474-6166.



Within each RADARSAT beam mode, a number of incidence angle positions are available. These are called beam positions. For example, Standard beam mode, which covers a 100 x 100 km area, has seven beam positions. By specifying a beam position, one of seven 100 x 100 km images within a 500 km accessible swath will be collected.

RADARSAT Beam Modes and Resolutions



Beam Mode	Nominal Area Covered (km)	Nominal Resolution (m)
ScanSAR Wide	500 x 500	100 m
ScanSAR Narrow	300 x 300	50 m
Extended Low	170 x 170	35 m
Wide	150 x 150	30 m
Standard	100 x 100	25 m
Extended High	75 x 75	25 m
Fine	50 x 50	8 m

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RADARSAT-1 Standard Beam SAR Images

Summary:

This data set is derived from the Alaska SAR Facility's archive of RADARSAT-1 Standard Beam SAR data. These data have been archived since shortly after the RADARSAT-1 launch in November 1995, with regular archiving starting in June 1996 after the commissioning phase was completed. The data represent how strongly the Earth's surface backscattered C-Band (5.66 cm wavelength) radar signals (see the SAR FAQ for more details). Most of the data cover ASF's station mask, approximated by a circle with radius 3000 km centered at Fairbanks, Alaska. ASF also archives data received at the McMurdo Station in Antarctica. Through ASF, approved U.S. RADARSAT-1 SAR researchers may obtain RADARSAT-1 data obtained by other ground stations and have that data processed at ASF as well. This foreign ground station data becomes part of the ASF data archive and is eventually available for order by other ASF approved researchers. RADARSAT-1 carries two tape recorders, each capable of recording 10 minutes of SAR data, so ASF also archives a significant amount of recorded out-of-mask data. The RADARSAT-1 Antarctic Mapping Mission (AMM) data represent one such example. In Antarctic mode, the RADARSAT-1 satellite was rotated such that the SAR was left-looking. RADARSAT-1 then recorded SAR data over the Antarctic continent and downlinked that data to ASF for processing and storage. The entire Antarctic continent was mapped. The AMM data is described more fully in the document for Radarsat-1 Standard Beam Left Looking RAMP Images.

The RADARSAT-1 SAR instrument has seven standard beams with incidence angles ranging from 19 to 49 degrees, each with a ground swath near 100 km. ASF processes the standard beam SAR data into full- and low-resolution products. Each product covers approximately 100 km x 100 km, with 12.5 meter pixel spacing (~25 meter resolution) for full-resolution images and 100 meter pixel spacing (~150 meter resolution) for the low-resolution images. These products are available in several media formats including: disk files (via FTP); 4-mm, 8-mm, and DLT tapes. Digital full-resolution products are 67 MB in size, while the low-resolution products are 1 MB in size.

Note that the Canadian Space Agency (CSA) holds copyrights over all RADARSAT-1 SAR data. NASA/NOAA-approved SAR researchers (generally NASA's ADRO investigators and the National Ice Center) are the primary people who obtain these data directly from ASF, as per agreements between NASA/NOAA and CSA. U.S. government requests beyond the 15% U.S. allocation should obtain the RADARSAT-1 SAR data through Lockheed Martin Astronautics (1-303-971-8929). Commercial users may purchase the data directly through RADARSAT International (RSI, 1-604-244-0400). If you consider yourself a scientist interested in performing fundamental research with this data set but you are not involved in the ADRO project, please see the new user documentation or contact Alaska SAR Facility User Services (907-474-6166, uso@asf.alaska.edu) for information regarding data access.

7. Data Description:

Spatial Characteristics:

Spatial Coverage:

Each image covers approximately 100 km by 100 km. The region for which the Alaska SAR Facility can downlink RADARSAT-1 SAR coverage is approximately a circle of radius 3000 km centered at Fairbanks, Alaska. Through ASF, approved U.S. RADARSAT-1 SAR researchers may obtain RADARSAT-1 data obtained by other ground stations and have that data processed at ASF as well. ASF can also downlink tape-recorded RADARSAT-1 SAR data of other regions, one notable example being data obtained for the RADARSAT Antarctic Mapping Project (RAMP)

Spatial Coverage Map:

An approximate map of ASF's station mask is available.

Spatial Resolution:

The full-res images have 12.5 m pixel spacing with ~25 m resolution, and the low-res images have 100 m pixel spacing with ~150 m resolution.

Projection:

The data are corrected to an ellipsoidal surface, but suface elevation or departures of the true geoid from the ellipsoid are not taken into account for these products.

Grid Description:

The ellipsoidal surface used in data correction is the GEM06 (Goddard Earth Model - 6). It assumes an equatorial radius of 6378.144 km and a polar radius of 6356.755 km.

Temporal Characteristics:

Temporal Coverage:

The RADARSAT-1 Standard Beam data have been archived since shortly after the satellite's launch in November 1995; reliable (post-commissioning) data coverage began in June 1996. Each image represents approximately 15 seconds of data acquisition.

Temporal Coverage Map:

Not available.

Temporal Resolution:

The RADARSAT-1 satellite's orbit repeats every 24 days, but repeat coverage can be more frequent depending upon a site's location.

RADARSAT-1 ScanSAR Images

Summary:

This data set is derived from the Alaska SAR Facility's archive of RADARSAT-1 ScanSAR data. A small quantity of these data were archived since shortly after the RADARSAT-1 launch in November 1995, with regular archiving starting in June 1996 after the commissioning phase was completed. The data may be geocoded to a Polar Stereographic, Lambert, or UTM projection. There are unreliable results for geocoded products where the projection is not matched to the appropriate geographic location e.g. Polar Stereographic at the Equator. ASF User Services recommends ordering Ungeocoded ScanSAR and using software programs to perform geocoding. There is also a terrain-corrected product which is terrain corrected in addition to being geocoded but this product has not been validated. ASF provides software for geocoding, and mosaicking. The terrain correction software does not work with ScanSAR. ASF completed the radiometric calibration of ScanSAR Wide B images in October of 1998. Other ScanSAR modes are currently "uncalibrated." (See also, the list of product anomalies.)

The data represent how strongly the Earth's surface backscattered C-Band (5.66 cm wavelength) radar signals. (See the SAR FAQ for more details.) Most of the data cover ASF's station mask, approximated by a circle with radius 3000 km centered at Fairbanks, Alaska. Through ASF, approved U.S. RADARSAT-1 SAR investigators may also request RADARSAT-1 data acquisitions over other parts of the world and have that data processed at ASF as well (Please see the data acquisition request (DAR) documentation for further information.) The RADARSAT-1 Antarctic Mapping Mission represents one such example. In Antarctic mode, the RADARSAT-1 satellite was actually be rotated such that the SAR will be left-looking. RADARSAT-1 used its tape recorders to obtain SAR data over the Antarctic continent. The data has been processed and archived at ASF.

In the web-based search and order system this data is listed as:

```
RADARSAT-1 SCANSAR IMAGES - LOW RES;
RADARSAT-1 SCANSAR IMAGES - MEDIUM RES;
RADARSAT-1 SCANSAR IMAGES - FULL RES;
RADARSAT-1 SCANSAR GEOCODED IMAGES - LOW RES;
RADARSAT-1 SCANSAR GEOCODED IMAGES - MED RES;
RADARSAT-1 SCANSAR GEOCODED IMAGES - FULL RES;
RADARSAT-1 SCANSAR TERRAIN-CORRECTED - LOW RES;
RADARSAT-1 SCANSAR TERRAIN-CORRECTED - MED RES;
RADARSAT-1 SCANSAR TERRAIN-CORRECTED - FULL RES;
```

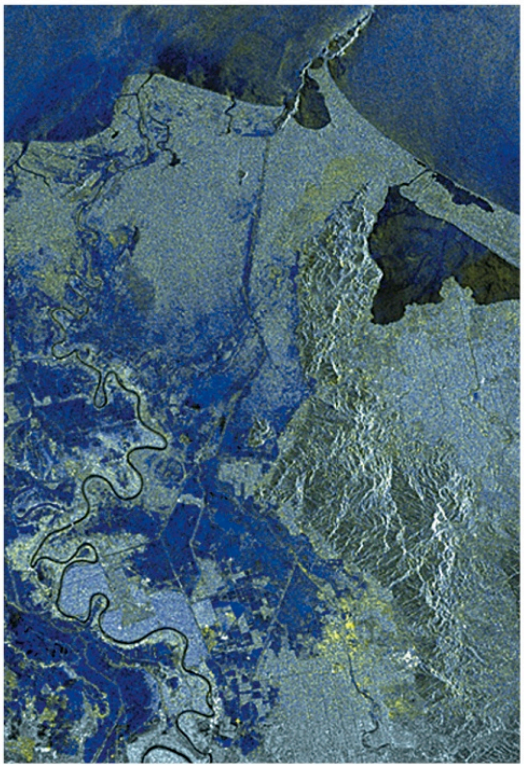
When ordering the data, order options such as special processing and media type are specified. The recommended processing option for non-geocoded/terrain corrected images is "NORMAL". For geocoded and terrain-corrected images options are available for LAMBERT, POLAR STEREOGRAPHIC, an UTM projections. This can sometimes produce unsatisfactory results and ASF User Services recommends using un-geocoded products. Media options include a variety of tapes and ftp. Ftp output is not available for all geocoded options.

Note that the Canadian Space Agency (CSA) holds copyrights over all RADARSAT-1 SAR data. NASA/NOAA-approved SAR investigators (primarily NASA's ADRO researchers and the National Ice Center) are the main people who obtain these data directly from ASF, as per agreements between NASA/NOAA and CSA. U.S. government requests for RADARSAT-1 SAR data acquisitions beyond the 15% U.S. allocation should go through Lockheed Martin Astronautics (1-303-971-8929). Commercial users may purchase the data directly through RADARSAT International (RSI, 1-604-244-0400). If you consider yourself a scientist interested in performing fundamental research with this data set but you are not involved in the ADRO project, please see the new user documentation or contact Alaska SAR Facility User Services (907-474-6166, uso@asf.alaska.edu) for information regarding data access.

ERS – 1 & 2

Products & Services

THE FIRST COMMERCIAL REMOTE SENSING RADAR MISSION



Launched and operated by the European Space Agency, the ERS satellites are the first commercial missions acquiring microwave Synthetic Aperture Radar data, offering new opportunities for all-weather remote sensing applications.

The radar images are independent of lighting or weather conditions, while other instruments measure wave height and frequency, wind speed and direction. ERS 1 operated regularly from 25/7/1991 to 10/3/2000, ERS 2 started regular acquisitions in May 1995 and it is still operational.

ESA launched ENVISAT in March 2001, carrying advanced versions of the SAR and ATSR instruments, plus several new sensors.

Technical Summary

Satellite	*Launch Date*	*End Mission*	*Altitude*	*Inclination*	*Repeat Cycle*	*Sensors*
ERS-1	25/7/91	10/3/00	785 Km	98° 52′	35 days	AMI, ATSR, MWR, RA
ERS-2	20/4/95		785 Km	98° 52′	35 days	AMI, ATSR, MWR, RA, GOME

AMI (ACTIVE MICROWAVE INSTRUMENT)

	Frequency	*Polarisation*	*Incidence Angle*	*Spatial Resolution*	*Swath*
SAR Image Mode	C-band (5.3 GHz)	VV	23° at mid swath 23° + 0.5°	30 m	100 km
SAR Wave Mode	C-band (5.3 GHz)	VV		10 m	5 X 5 km
Wind Scatterometer	C-band (5.3 GHz)	VV	Fore/aft 25° – 59° Mid 18° – 47°	50 Km	500 km

ATSR

	1	**2**	**3**	**4**	*Frequency*	*Spatial Resolution*	*Swath*
Spectral Bands	1.6	3.7	10.8	12	K-band (13.8 GHz)	1 km	500 km

	Spatial Resolution	*Swath*
RADAR ALTIMETER	10 cm	1.3°

ERS-1 and ERS-2 SAR Images

As of 07 December 1999, ERS1 & ERS2 data are processed on the Precision Processor.

Summary:

One way that ERS satellites (the European Space Agency's European Remote Sensing satellites) remotely sense the Earth is by sending out C-Band (5.66 cm wavelength) radar pulses and observing how those signals interact with various objects on the ground. This remote sensing method has some major advantages. For example the transmission of radar signals in effect provides "lighting" for the sensor; the antenna senses the radar backscattered from signals which it sent out, and therefore is not dependent on sunlit conditions ("it can work day or night"). Another advantage stems from the radar signals' characteristic of passing relatively unaffected through cloud cover, providing the ERS AMI-SAR (Active Microwave Instrumentation, Synthetic Aperture Radar mode) with the ability to image a region regardless of weather conditions. These advantages are magnified in the polar region, where the long winter nights and stormy seas have hindered other sensors' efforts to provide continuous coverage.

Most of the ERS SAR data cover ASF's station mask , approximated by a circle with radius 3000 km centered at Fairbanks, Alaska. ASF also archives and processes ERS SAR data collected by the McMurdo, Antarctica ground station. The ERS-1 SAR data have been downlinked, processed, and archived at ASF since September 7, 1991. ERS-1 operations went into stand-by (campaign) mode in June 1996. The ERS-1 satelite was retired on March 10, 2000. ASF's ERS-2 SAR data coverage began on October 1, 1995. All processed images cover a 100 km x 100 km area, the full-resolution images with pixel spacing 12.5 m and resolution 30 m, and the low-resolution images with pixel spacing 100 m and resolution 240 m. Each full resolution image is 64 MBytes in size, while each low resolution image is about 1 MByte in size. These image products represent how brightly the viewed ground targets backscattered the ERS radar pulses. Metadata files distributed with these images allow users to compute various other parameters from the pixel values.

A wide variety of sample images and their corresponding interpretations can be viewed through the on-line version of the ASF ERS-1 SAR Image Sampler CD-ROM.

ALOS Products

- **Satellite Overview**
- **General Terms of Use**
- **ALOS Sensors Information**
- **Price List**
- **PALSAR Feature Sheet** (PDF file: 588KB)
- **AVNIR-2 Feature Sheet** (PDF File: 635KB)
- **PRISM Feature Sheet** (PDF File: 580KB)
- **ALOS Data Request Form**

- **Sample Data**

Rev. Date: 08/02/07

- **PALSAR**

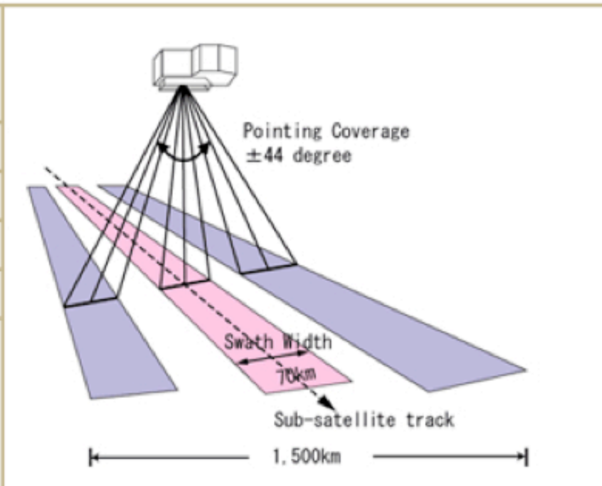
PALSAR is an L-band (127 GHz) SAR capable of detailed, all-weather, day and night observations and repeat-pass interferometry. PALSAR has multiple observation modes with variable polarizations, resolutions, swath widths, and off-nadir angles.

Beam Mode	Polarization	Resolution	Swath Width	Off-nadir Angle(default)
Fine - Single	HH or VV	10 m	70 km	34.3°
Fine - Dual	HH + HV or VV + VH	20 m	70 km	34.3°
ScanSAR	HH or VV	100 m	250-350 km	27.1°
Polarimetric	HH + HV + VV + VH	30 m	30 km	27.5°

- **AVNIR-2**

AVNIR-2 is a four band (visible and near-infrared) radiometer with a resolution of 10 m, designed for observing land and coastal zones. The images provide the basis for land coverage and land-use classification maps for monitoring regional environments.

Observation Band:	1: 0.42-0.50 µm 2: 0.52-0.60 µm 3: 0.61-0.69 µm 4: 0.76-0.89 µm
S/N:	>200
MTF:	0.2 or more
Spatial Resolution:	10 m (at nadir)
Swatch Width	70 km (at nadir)
Pointing Angle:	+/- 44°

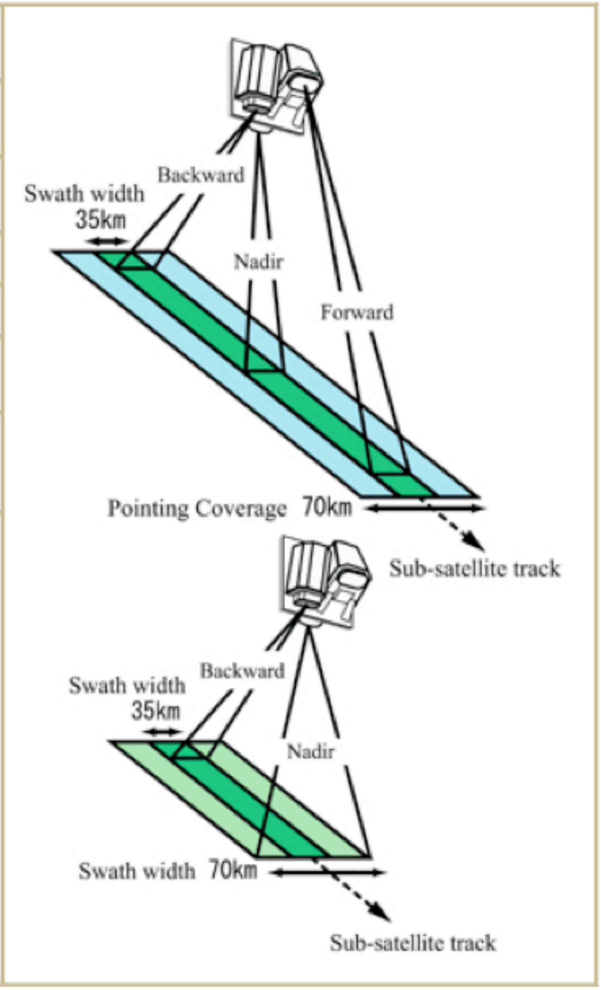


- **PRISM**

PRISM consists of three panchromatic telescopes for forward, nadir, and backwards viewing. The stereoscopic views can be used to create highly accurate digital elevation models, while the 2.5 m resolution permits the production of orthorectified imagery.

PRISM can be used to provide land coverage and land-use classification maps for monitoring regional environments.

Observation Band:	0.52 - 0.77 μm
Number of Optics:	3 (nadir/forward/backward)
Base Height Ratio:	1.0 (forward to backward)
S/N:	> 70
MTF:	> 0.2
Spatial Resolution:	2.5 m (at nadir)
Swath Width:	35 km (Triplet mode) 70 km (Nadir only, Wide swatch mode)
Pointing Angle:	±1.5 ° (Triplet mode)



For further information, please contact Client Services.

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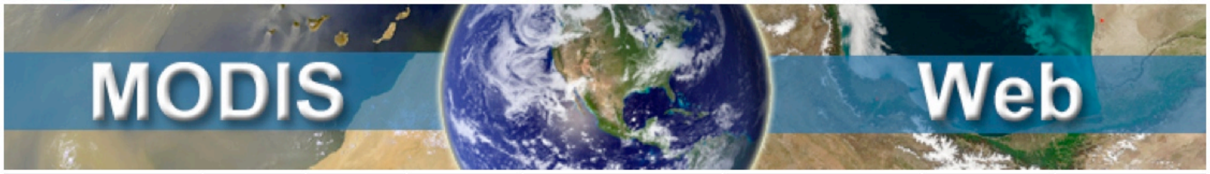

DESIGN CONCEPT

The MODIS instrument provides high radiometric sensitivity (12 bit) in 36 spectral bands ranging in wavelength from 0.4 µm to 14.4 µm. The responses are custom tailored to the individual needs of the user community and provide exceptionally low out-of-band response. Two bands are imaged at a nominal resolution of 250 m at nadir, with five bands at 500 m, and the remaining 29 bands at 1 km. A ±55-degree scanning pattern at the EOS orbit of 705 km achieves a 2,330-km swath and provides global coverage every one to two days.

The Scan Mirror Assembly uses a continuously rotating double-sided scan mirror to scan ±55-degrees and is driven by a motor encoder built to operate at 100 percent duty cycle throughout the 6-year instrument design life. The optical system consists of a two-mirror off-axis afocal telescope, which directs energy to four refractive objective assemblies; one for each of the VIS, NIR, SWIR/MWIR and LWIR spectral regions to cover a total spectral range of 0.4 to 14.4 µm.

A high-performance passive radiative cooler provides cooling to 83K for the 20 infrared spectral bands on two HgCdTe Focal Plane Assemblies (FPAs). Novel photodiode-silicon readout technology for the visible and near infrared provide unsurpassed quantum efficiency and low-noise readout with exceptional dynamic range. Analog programmable gain and offset and FPA clock and bias electronics are located near the FPAs in two dedicated electronics modules, the Space-viewing Analog Module (SAM) and the Forward-viewing Analog Module (FAM) . A third module, the Main Electronics Module (MEM) provides power, control systems, command and telemetry, and calibration electronics.

The system also includes four on-board calibrators as well as a view to space: a Solar Diffuser (SD), a v-groove Blackbody (BB), a Spectroradiometric calibration assembly (SRCA), and a Solar Diffuser Stability Monitor (SDSM).

The first MODIS Flight Instrument, ProtoFlight Model or PFM, is integrated on the Terra (EOS AM-1) spacecraft. Terra successfully launched on December 18, 1999. The second MODIS flight instrument, Flight Model 1 or FM1, is inegrated on the Aqua (EOS PM-1) spacecraft; it was successfully launched on May 4, 2002. These MODIS instruments will offer an unprecedented look at terrestrial, atmospheric, and ocean phenomenology for a wide and diverse community of users throughout the world.

FIRSTGOV Your First Click to the U.S. Government

Privacy Policy and Important Notices

Curator: Brandon Maccherone
NASA Official: Shannell Cardwell

Link to Archive of MODIS images for the Alaskan North Coast
http://rapidfire.sci.gsfc.nasa.gov/subsets/?AERONET_Barrow

LANDSAT 7

- **Satellite Overview**
- **General Terms of Use**
- **Price List**
- **Product Definitions**
- **North American Search Engine**
- **Image Card (Screen Use: 878 KB)**
- **Image Card (Print Use: 34 MB)**

Overview

- American series of Earth-observation satellites
- LANDSAT-5 launched in 1984
- LANDSAT-7 launched in 1999
- Seven spectral bands and one panchromatic band
- Wide swath width (185 km)
- 15-metre, 30-metre, 60-metre, and 80-metre resolution

Thematic Mapper (TM)

Image Size:	185 x 170 km
Spatial Resolution:	30 m
Intensity Range:	256 grey levels (8 bit)
TM Spectral Bands:	Measure emitted electromagnetic energy in seven wavelengths.
Band 1:	**0.45-0.52 micrometres (blue-green)** Designed for water body penetration, soil and vegetation discrimination, and forest-type mapping (deciduous/coniferous).
Band 2:	**0.52-0.60 micrometres (green)** Matched the green reflectance peak of vegetation. Recommended for vegetation discrimination and plant vigour.
Band 3:	**0.63-0.69 micrometres (red)** This band operates in the chlorophyll absorption region and is best for detecting roads, bare soils, and vegetation types.
Band 4:	**0.76-0.90 micrometres (near-infrared)** This band is used to estimate biomass. Although it separates water bodies from vegetation and discriminates soil moisture, it is not as effective as TM3 for road identification.
Band 5:	**1.55-1.75 micrometres (mid-infrared)** Band 5 is considered to be the best single band overall. It discriminates roads, bare soils, and water. It also provides a good contrast between different types of vegetation and has excellent atmospheric and haze penetration.
Band 6:	**10.5-12.5 micrometres (thermal infrared)** This band responds to thermal (heat) radiation emitted by the target. Thermal radiation is closely related to soil moisture and the height and temperature of vegetation and is best for measuring plant heat stress and thermal mapping. Unlike the other bands, the thermal infrared band has a resolution of 120 m.
Band 7:	**2.08-2.35 micrometres (mid-infrared)** This band is useful for discriminating mineral and rock types and for interpreting vegetation cover

Multispectral Scanner (MSS)

Image Size:	185 x 170 km
Spatial Resolution:	80 m
Intensity Range:	64 grey levels (6 bit) - resampled to 8 bit/256 grey levels
MSS Spectral Bands:	Measure emitted electromagnetic energy in four wavelengths:
Band 1:	0.50-0.60 micrometres (green)
Band 2:	0.60-0.70 micrometres (red)
Band 3:	0.70-0.80 micrometres (near-infrared)
Band 4:	0.80-1.10 micrometres (near-infrared)

Orbit

Type:	Near-polar, sun-synchronous
Descending Pass:	10:30 hrs local time
Altitude:	705 kilometres
Orbital Cycle:	16 days

LANDSAT-7

LANDSAT-7 was launched in April 1999. It features the Enhanced Thematic Mapper Plus (ETM+), which replicates the highly successful Thematic Mapper of LANDSAT 4 and 5. This new sensor provides an optimum combination of synoptic coverage, high spatial resolution, spectral range, and radiometric calibration. ETM+ includes:

- A duplicate of the current seven TM bands
- A thermal band with 60-m spatial resolution
- The addition of a panchromatic band with 15-m spatial resolution and a spectral range of 0.52 to 0.90 micrometres
- On-board, full aperture 5% absolute radiometric calibration
- Solid state recorders

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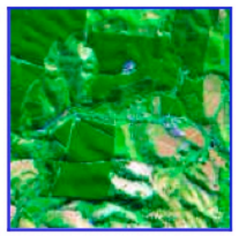
SPOT - the Satellite Earth Observation System was designed in France, and developed with the participation of Sweden and Belgium. The system comprises a series of spacecrafts plus ground facilities for satellite control and programming, image production and distribution.

The SPOT satellites capture panchromatic and multispectral imagery in resolutions ranging from 2.5m to 20m. The satellites are fitted with two independent imaging instruments, containing detector arrays that operate using a "Push Broom" technique. This results in high geometric accuracy across the full 60km wide swath. Each instrument is also fitted with a steerable mirror that allows it to image areas up to 27 degrees east or west off the vertical, which increases the revisit capability and provides stereo imagery for digital elevation modelling. Importantly, the SPOT satellites can be programmed to target client specific areas of interest.

10m Multi

5m Pan

5m Multi



2.5m Pan

2.5m Multi

SPOT history:

- SPOT 1 was launched on 22 February 1986 with 10m panchromatic and 20m multispectral capability. The satellite was withdrawn from active service on 31 December 1990.
- SPOT 2 was launched on 22 January 1990 and is still operational.
- SPOT 3 was launched on 26 September 1993. An incident occurred on 14 November 1997 and after 4 years in orbit the satellite stopped functioning.
- SPOT 4 was launched on 24 March 1998 and includes an extra Short Wave Infrared band and a (low resolution) vegetation instrument.
- SPOT 5 was launched on 4 May 2002 with 2.5m, 5m and 10m capability, as well as along-track stereoscopic sensors.

SPOT imagery has a wide range of applications, including agriculture, environment, cartography and engineering. The satellite's unique features - variable viewing geometry, stereo imaging and high revisit capability - provide a flexible platform for capturing imagery on request. See our SPOT flyer (322k) for further details on the SPOT system.

Geoimage is a leading supplier of SPOT products to the public and private sectors. Please contact us for a search of available imagery or to arrange satellite programming.

SPOT imagery © CNES