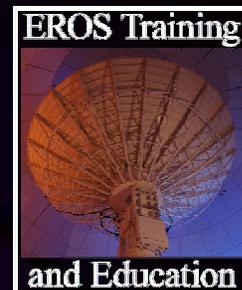




What is TerraLook ?

An Introduction to TerraLook Images and Collections

U.S. Department of the Interior
U.S. Geological Survey



Learning Objectives

- After completing this module the student should be able to:
 - Explain how a TerraLook Collection can be useful for natural resource management;
 - Understand the kinds of satellite images in the TerraLook Collection;
 - Display TerraLook Images in commonly available software
 - Obtain information about the images from the TerraLook shapefiles; and
 - Use the TerraLook Viewer to display an image.

Overview

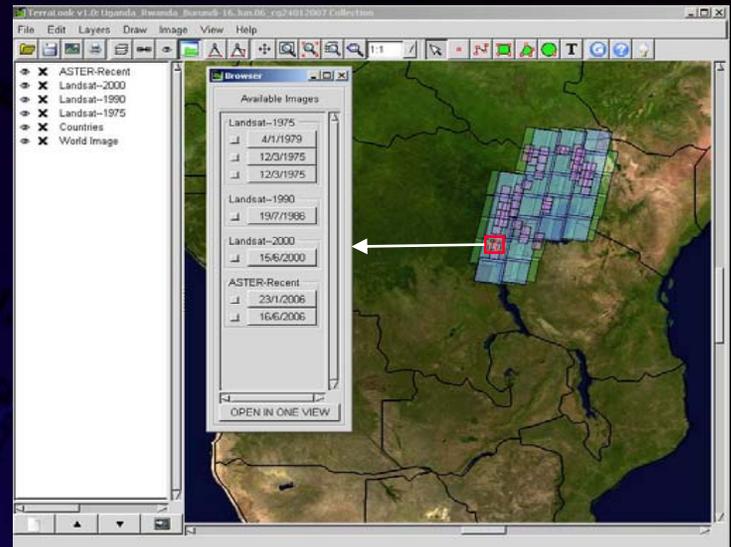
- Landsat and other satellite sensors have been collecting images of the Earth from space for more than 30 years.
- The use of satellite images is increasingly important to users beyond the scientific and land management communities.
- Satellite images are of use to a wide variety of disciplines including conservation, development planning, education, urban studies and disaster planning and response.

TerraLook is:

- Time-series collections of satellite images designed for visual interpretation and display;
- A viewer/toolkit
- Free.

Why TerraLook ?

- Existing satellite image products can be complicated and difficult to use.
 - They may require specialized software.
 - They may be expensive to acquire.
- TerraLook is a user-friendly way to access satellite images and use them for interpretation.



What is TerraLook ?

- **Image Collections**

- Collections of satellite images from circa 1975, 1990, 2000 and the present

- Can select and order (no cost) images using GloVis

- <http://terralook.cr.usgs.gov/>

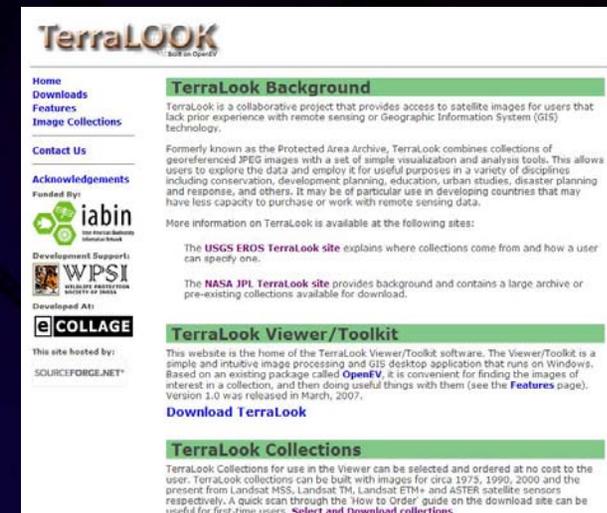
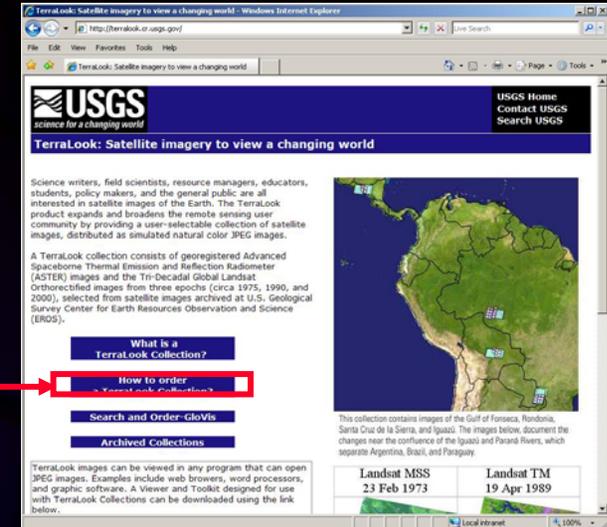
- **Software**

- Viewer/Toolkit

- Designed to understand the organization of the TerraLook product

- Open Source

- <http://terralook.sourceforge.net/>



History of TerraLook

- NASA Jet Propulsion Laboratory's Protected Area Archive Project
- Previously known as the Protected Area Archive (PAA)
- TerraLook was originally developed for the conservation and emergency response communities.
- Derived from ASTER and Landsat data
- <http://asterweb.jpl.nasa.gov/terralook>



ASTER and Landsat

- **ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer)**
 - Area coverage of 60 x 60 km
 - Joint project between the US and Japan.
 - <http://asterweb.jpl.nasa.gov/>
- **Landsat**
 - Area coverage of 180 x 180 km
 - NASA and USGS project
 - Landsat acquisitions follow a predetermined path/row system.
 - <http://landsat.usgs.gov/>



What is a TerraLook Collection ?

- Can be
 - Thematic (cities, parks, wetlands) or
 - Regional (national, protected area, or other locale)
- Preselected Landsat from Tri-decadal Global Orthorectified Landsat data sets
- Any image from the ASTER archive
- Vector shapefiles that contain information describing the images
- Metadata files that describe the collections and the images

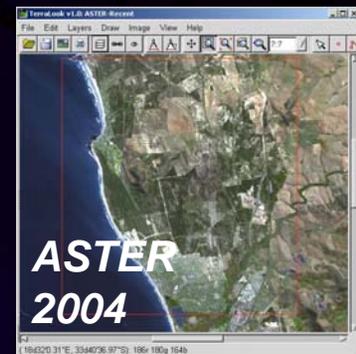
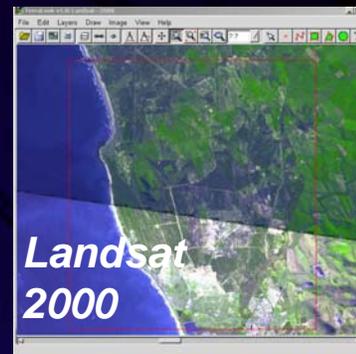


Image Collection from a Study Area near Cape Town – South Africa

What is a TerraLook Image ?

- Simulated natural-color georeferenced JPEG images
- The TerraLook colors are derived from the red, green and Near Infra-Red bands.
 - Vegetation is green.
 - Dead vegetation, urban areas and bare soil may have a purple tinge.
 - Water is blue.



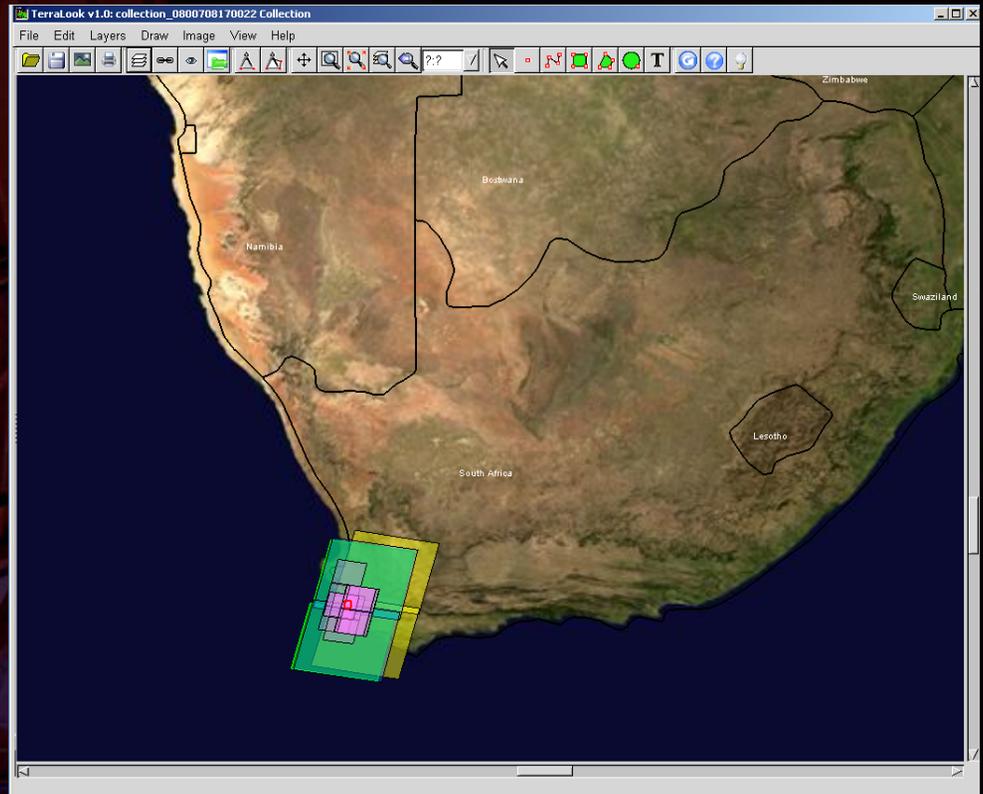
Landsat 1990



Aster – Recent (2004)

What are the Shapefiles ?

- Vector data show the locations of the images and contain information describing the images.
- Example:
 - Red box – Study area in Cape Town, South Africa
 - Purple boxes – ASTER images
 - Blue boxes – Landsat images (2000)
 - Green boxes – Landsat images (1990)
 - Yellow boxes – Landsat images (1975)



How to order ?

- Go to TerraLook at <http://terralook.cr.usgs.gov>.
- Go to GloVis at <http://glovis.usgs.gov>.
- Available User Guide (“How to order a TerraLook Collection?” section)

TerraLook: Satellite imagery to view a changing world - Windows Internet Explorer

USGS Home
Contact USGS
Search USGS

TerraLook: Satellite imagery to view a changing world

Science writers, field scientists, resource managers, educators, students, policy makers, and the general public are all interested in satellite images of the Earth. The TerraLook product expands and broadens the remote sensing user community by providing a user-selectable collection of satellite images, distributed as simulated natural color JPEG images.

A TerraLook collection consists of georegistered Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) images and the Tri-Decadal Global Landsat Orthorectified images from three epochs (circa 1975, 1990, and 2000), selected from satellite images archived at U.S. Geological Survey Center for Earth Resources Observation and Science (EROS).

What is a TerraLook Collection?

How to order a TerraLook Collection?

Search and Order GloVis

Archived Collections

TerraLook images can be viewed in any program that can open JPEG images. Examples include web browsers, word processors, and graphic software. A Viewer and Toolkit designed for use with TerraLook Collections can be downloaded using the link below.

Santa Cruz de la Sierra, and Iguazú. The images below, document the changes near the confluence of the Iguazú and Paraná Rivers, which separate Argentina, Brazil, and Paraguay.

Landsat MSS 23 Feb 1973	Landsat TM 19 Apr 1989
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TerraLook Web site

USGS
science for a changing world

Center for Earth Resources Observation & Science (EROS)

USGS Global Visualization Viewer

Select a collection, then click on the Global Locator Map to view satellite browse images in that area.

Select Collection TerraLook Aster (2000->) View Images

Latitude Longitude

What's New! Browser Requirements Help Download Source Code

Quick Start Guide About Browse Images

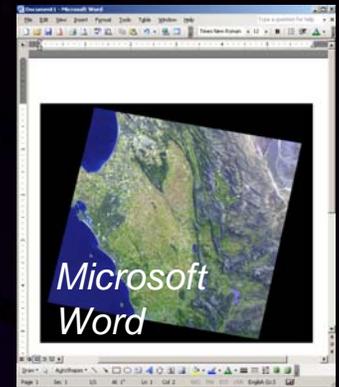
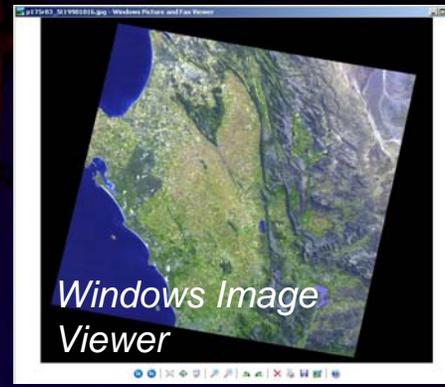
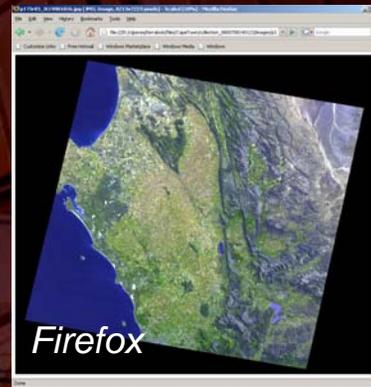
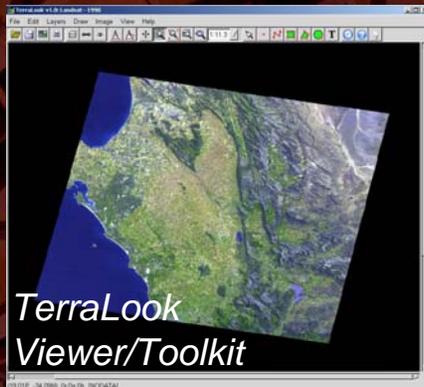
DOI USGS HOME Biology Geography Geology Water

GloVis Viewer



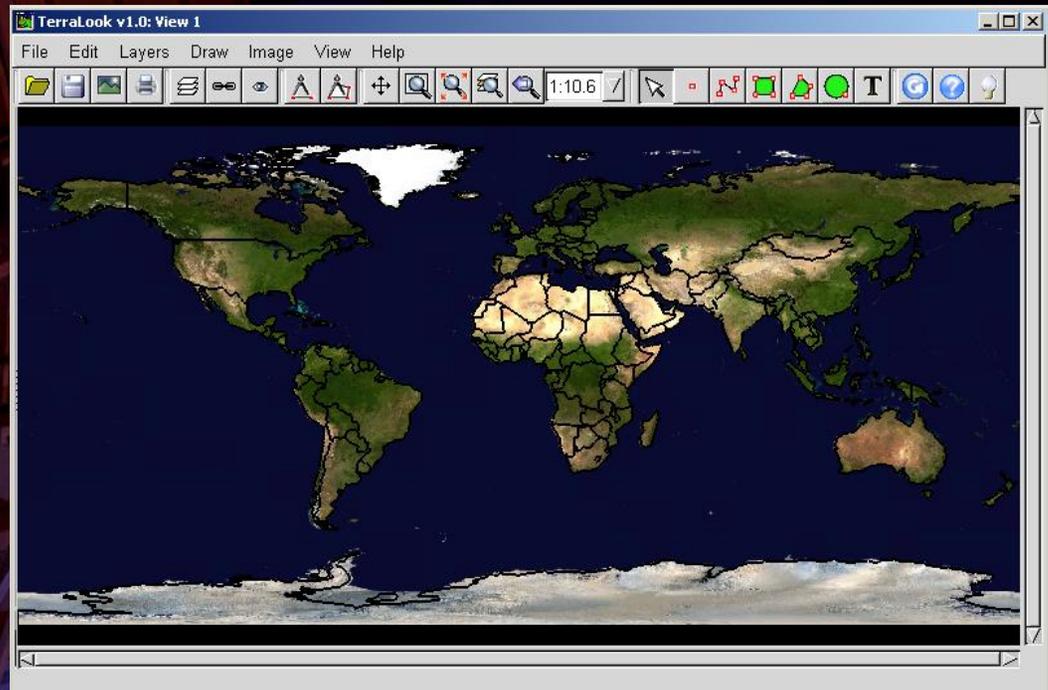
Software needed to use TerraLook

- Any software that can read JPG images
- GIS software
- TerraLook Viewer/Toolkit



TerraLook Software

- Simple and intuitive application
- Easy-to-use viewer and toolkit;
- Multilingual (English or Spanish)
- Open source

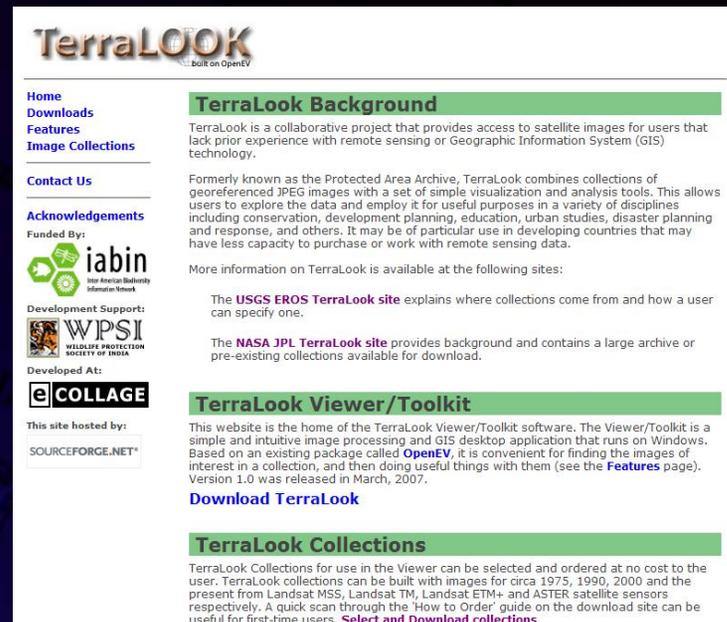


With the TerraLook Software you can:

- Look at environmental change (display and compare images);
- Look at the state of the environment;
- Analyze data and manage project information by:
 - Integrating existing vector data,
 - Creating new interpreted vector data (shapefiles),
 - Managing layers, and
 - Annotation.

How to acquire the TerraLook viewer/toolkit

- Go to <http://terralook.sourceforge.net/>.
- System requirements
 - Windows system (XP or 2000)
 - 300 Mhz Pentium or faster
 - At least 512 Memory
- Free download
- Easy uninstalling



The screenshot shows the TerraLook website homepage. At the top is the "TerraLOOK" logo with "built on OpenEV" underneath. A navigation menu on the left includes links for Home, Downloads, Features, Image Collections, Contact Us, and Acknowledgements. Below the menu are logos for funding partners: iabin (Inter American Biotechnology Information Network), WPSI (Wildlife Protection Society of India), and COLLAGE. The main content area has a green header for "TerraLook Background" followed by a paragraph describing the project as a collaborative effort providing satellite image access. Below this is a section for "TerraLook Viewer/Toolkit" with a green header, explaining that the software is a simple desktop application for Windows based on OpenEV. A "Download TerraLook" link is provided. The final section is "TerraLook Collections" with a green header, detailing that collections can be selected and ordered at no cost, with a link to "Select and Download collections".

Exercises

- **Install TerraLook Viewer on your desktop.
(15 minutes)**
- **Open a TerraLook Image in a web browser
and in the TerraLook Viewer.
(15 minutes)**

Installing TerraLook

- Go to <http://terralook.sourceforge.net/> or to software folder on the CD.
- Choose installer language (English or Spanish) according to Windows system.
- Run executable file and follow the instructions.
- Open TerraLook Viewer/toolkit.

Open a TerraLook Image

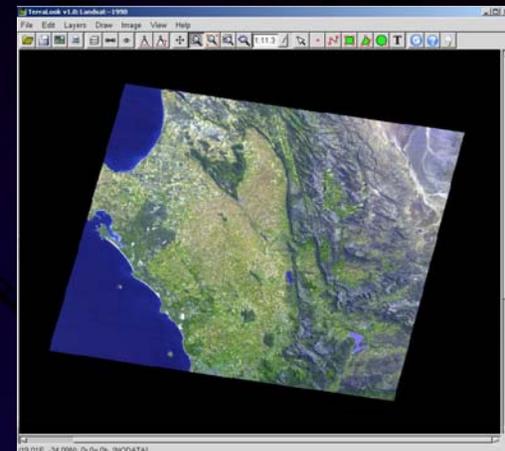
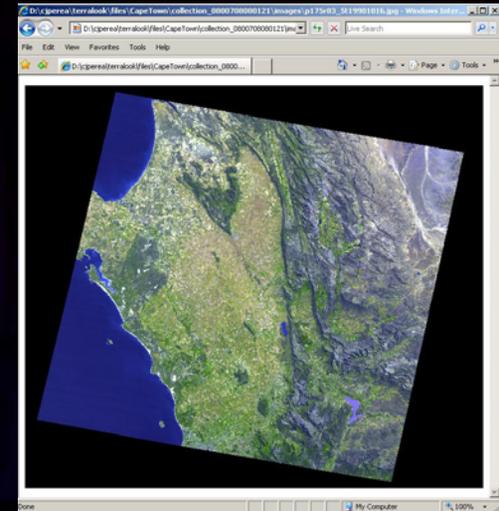
■ Web Browser

- Go to Internet Explorer.
- File > Open > Browse
- Look for JPEG TerraLook Image (*p175r83_5t19901016.jpg*).

■ TerraLook Viewer

- Open TerraLook.
- File > Open > Image
- Look for JPEG TerraLook Image (*p175r83_5t19901016.jpg*).
- Click “Yes” to open in a new view.

Results



TerraLook Web sites

- USGS EROS TerraLook
(terralook.cr.usgs.gov)
- NASA JPL TerraLook
(asterweb.jpl.nasa.gov/terralook)
- TerraLook software
(terralook.sourceforge.net)