USGS
science for a changing world

The Landsat Image Mosaic of Antarctica Web Portal

Chris Rusanowski, Software Application Programmer III, SAIC

U. S. Geological Survey (USGS) Center for Earth Resources Observation and Science (EROS)
Sioux Falls, SD 57198

Work performed under USGS Contract 03CRCN0001

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

The Landsat Image Mosaic of Antarctica Web Portal

- Joint Effort
- Landsat Mosaic Product Production
  - Scene Selection
  - Data Preparation
  - Mosaicking Process
- Antarctic Web Portal
  - Accessing the Landsat Mosaics
  - Interactive Map Viewer
  - Collaborative Content
  - Data Hosting/Metadata
- USGS EROS Infrastructure and Services

USGS

Joint Effort

- U. S. Geological Survey (USGS)

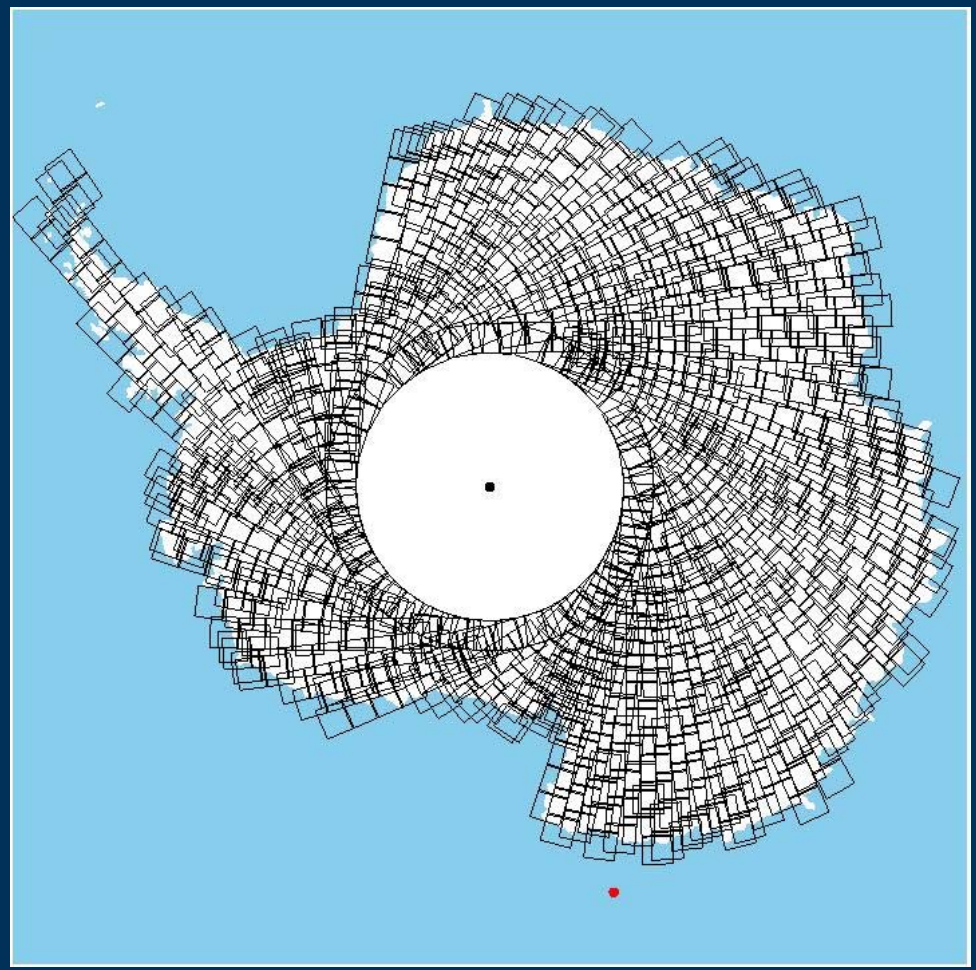
- British Antarctic Survey (BAS)

- National Science Foundation (NSF)

USGS

Landsat Mosaic Product: Scene Selection

- 1,028 Landsat-7 Enhanced Thematic Mapper Plus (ETM+) Scenes
- Most Prior to May 31, 2003 before mode was changed to “SLC-off”



USGS

Landsat Mosaic Product: Data Preparation

- Terrain Correction using Ice, Cloud, and Elevation Satellite (ICEsat) Digital Elevation Model (DEM)
- Processed using the National Landsat Archive Production System (NLAPS)
- Output Scenes stored in silo for later access and retrieval

USGS

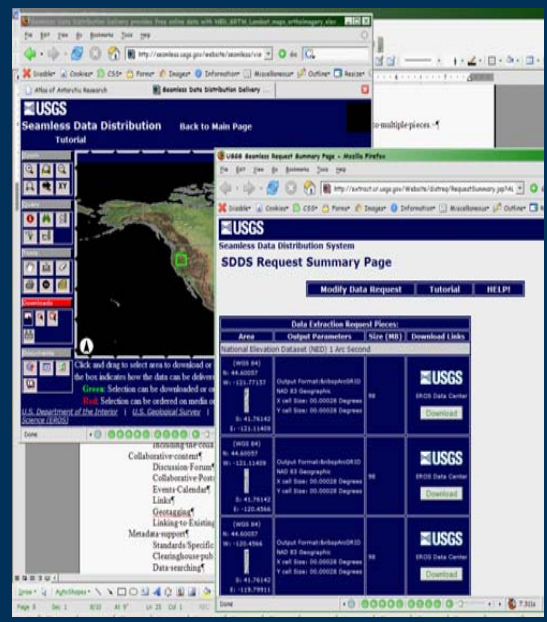
Landsat Mosaic Product: Mosaicking

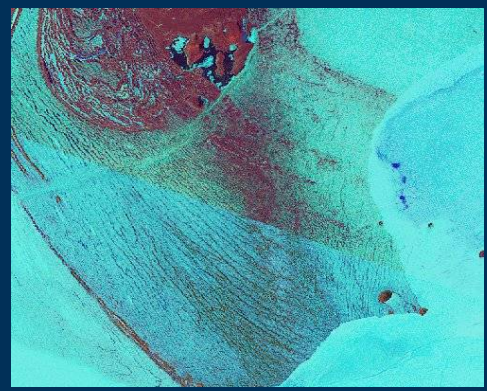
- Three Mosaicked Products:
  - 30-meter, ETM+ bands 4, 3, 2 (Natural Color)
  - 30-meter, ETM+ bands 3, 2, 1 (Visible Bands)
  - 15-meter, Panchromatic from ETM+ Band 8
- Mosaicked using Environment for Visualizing Images (ENVI) software

USGS

Web Portal: Accessing Landsat Mosaics

- Seamless Viewing and access for all three mosaics
- Tiled access for original scenes
- Direct Online access using Open GIS Consortium standards and Environmental Research Systems Institute (ESRI) map services



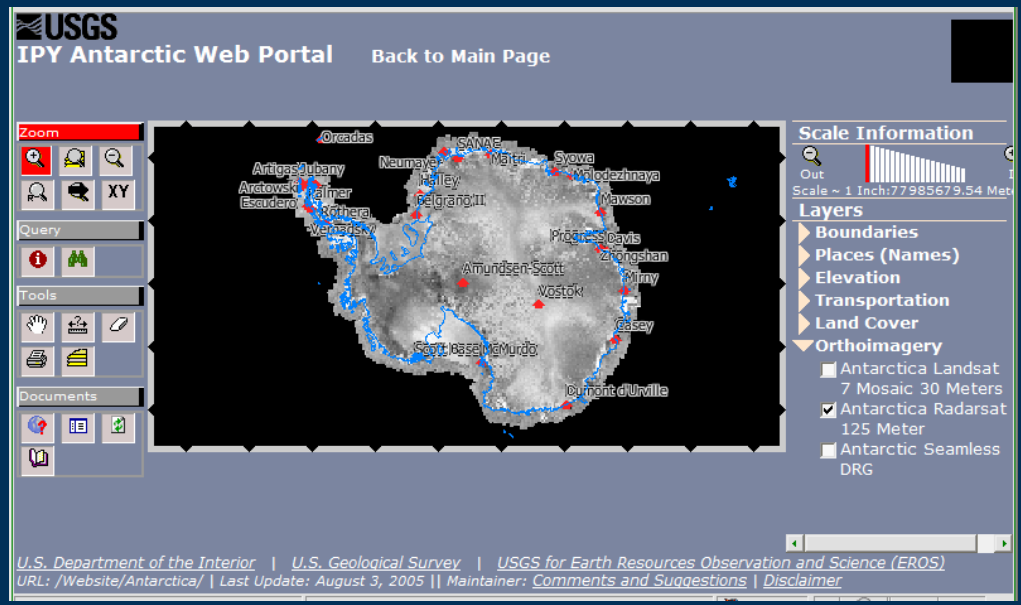


USGS

Web Portal: Interactive Map Viewer

- Same Code base as the Seamless Server (Seamless Data Distribution System)
- WMS-based Map Viewer

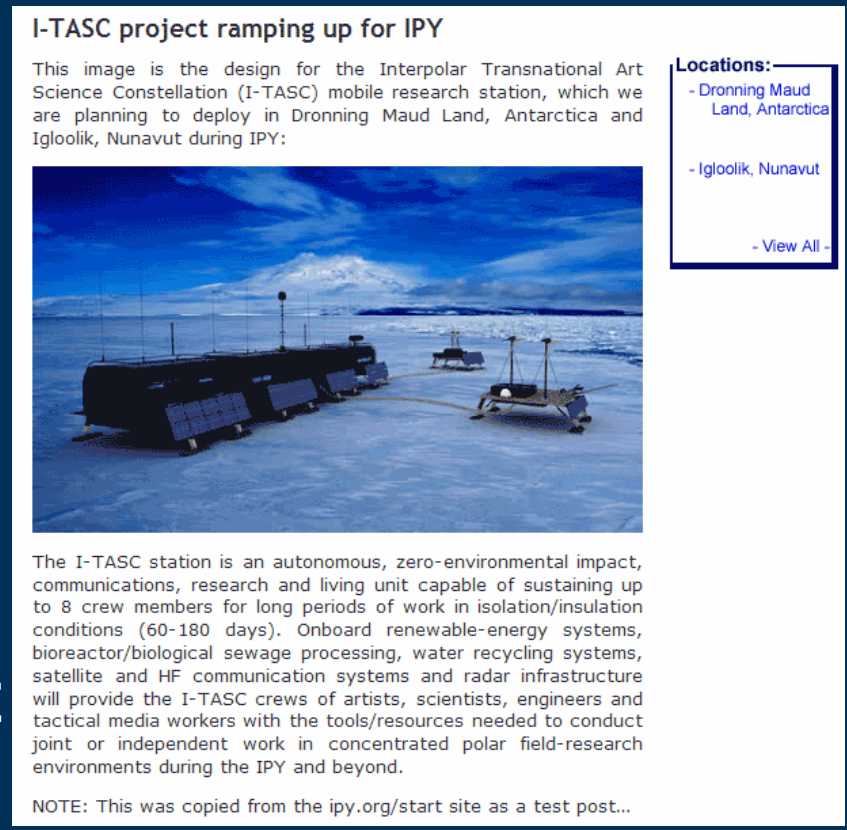
- Query and Download functionality



USGS

Web Portal: Collaborative Content

- Content Contributed from external sources
- Integration between portal components
- “Geo-Tagging” on all content
- Predefined connections to Internet bookmarks/social networking tools



I-TASC project ramping up for IPY

This image is the design for the Interpolar Transnational Art Science Constellation (I-TASC) mobile research station, which we are planning to deploy in Dronning Maud Land, Antarctica and Igloolik, Nunavut during IPY:

Locations:
- Dronning Maud Land, Antarctica
- Igloolik, Nunavut
- View All -

The I-TASC station is an autonomous, zero-environmental impact, communications, research and living unit capable of sustaining up to 8 crew members for long periods of work in isolation/insulation conditions (60-180 days). Onboard renewable-energy systems, bioreactor/biological sewage processing, water recycling systems, satellite and HF communication systems and radar infrastructure will provide the I-TASC crews of artists, scientists, engineers and tactical media workers with the tools/resources needed to conduct joint or independent work in concentrated polar field-research environments during the IPY and beyond.

NOTE: This was copied from the ipy.org/start site as a test post...

USGS

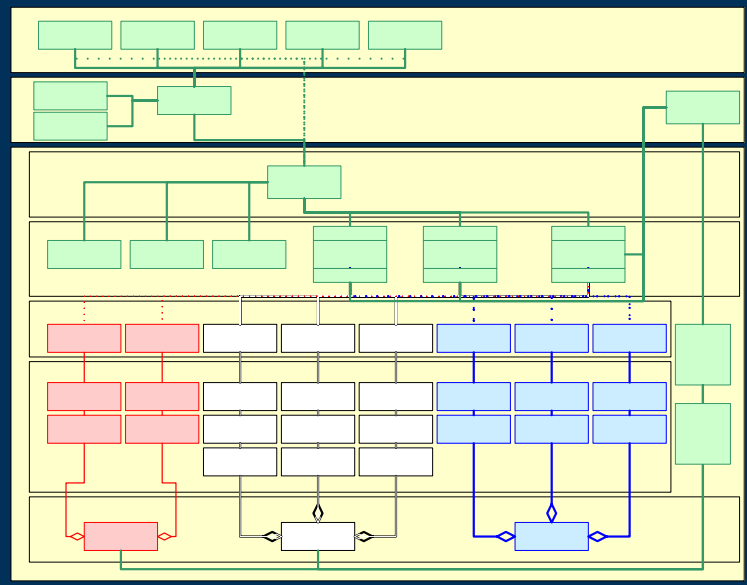
Web Portal: Data Hosting/Metadata

- Metadata based data searching
- Connected to multiple external clearinghouses
- Data Hosting at USGS EROS
- Metadata only hosting for external resources

USGS

EROS Infrastructure and Services

- Largest Data transfer volume of any United States Department of the Interior data center
- Redundancy built into architecture through many layers of technology
- Lots of experience involving raster data visualization and distribution



USGS

Summary

- Four new products
- New Web Portal with Collaborative Content and Interactive Viewer
- Hosted at USGS EROS

- Follow-up questions may be directed to:

Customer Services
USGS EROS
47914 252nd Street
Sioux Falls, SD 57198-0001
Tel: 800-252-4547
Tel: 605-594-6151
Email: webmapping@usgs.gov

USGS