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science for a changing world

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Committee on Earth Observation Satellites

USGS Capacity Building and Dataset Development Activities – 2012/13

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

Eric C. Wood, USGS Representative

WGCapD Annual Mtg., March 4, 2013

Examples of Datasets "Supported" by USGS

- Domestic (US)
  - National Land Cover DB
  - National topography (DEM, LiDAR)
  - NIDIS, VegDRI (drought)
  - Phenology
- International/Global
  - Global Multi-resolution Terrain Elevation Data
  - GeoSur (DEM derivatives)
  - International Charter
  - Landsat Browse products
  - Afghanistan Portal
  - FEWS-NET (famine early warning)
  - LPDAAC (MODIS, ASTER with NASA)
  - Global mangrove database
  - West Africa Landcover
  - Uganda FtF (pending)

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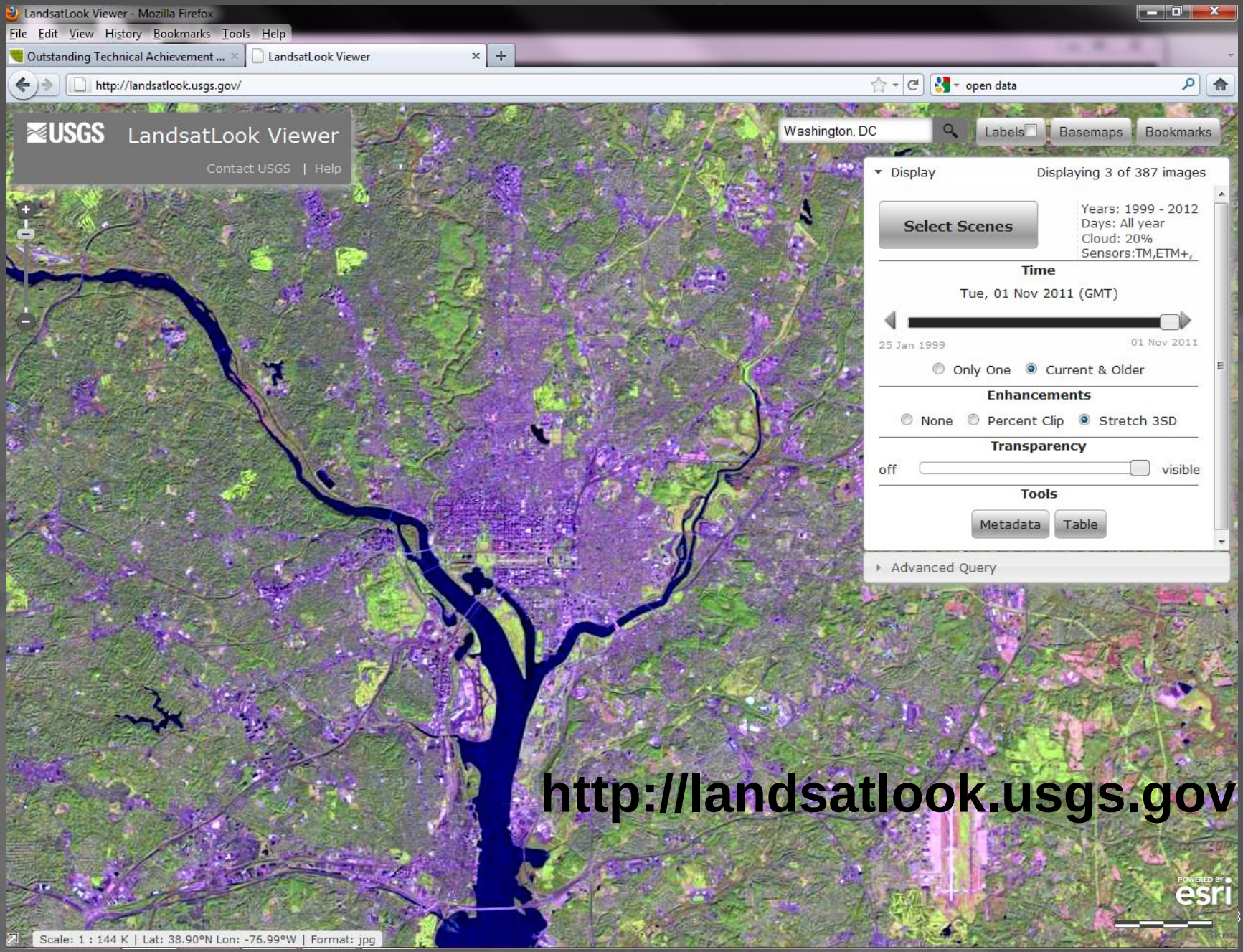
“Landsat Look” Viewer - Full Resolution Browse



Landsat - Full Resolution Browse

- 3-band jpeg
- ~5-8 MB for RGB
- World or XML file
- Top of Atmosphere reflectance values
- OLI: 6,5,4
- 5,4,3 for TM & ETM+
- 2,4,1 for MSS
- Thermal (not available for MSS)

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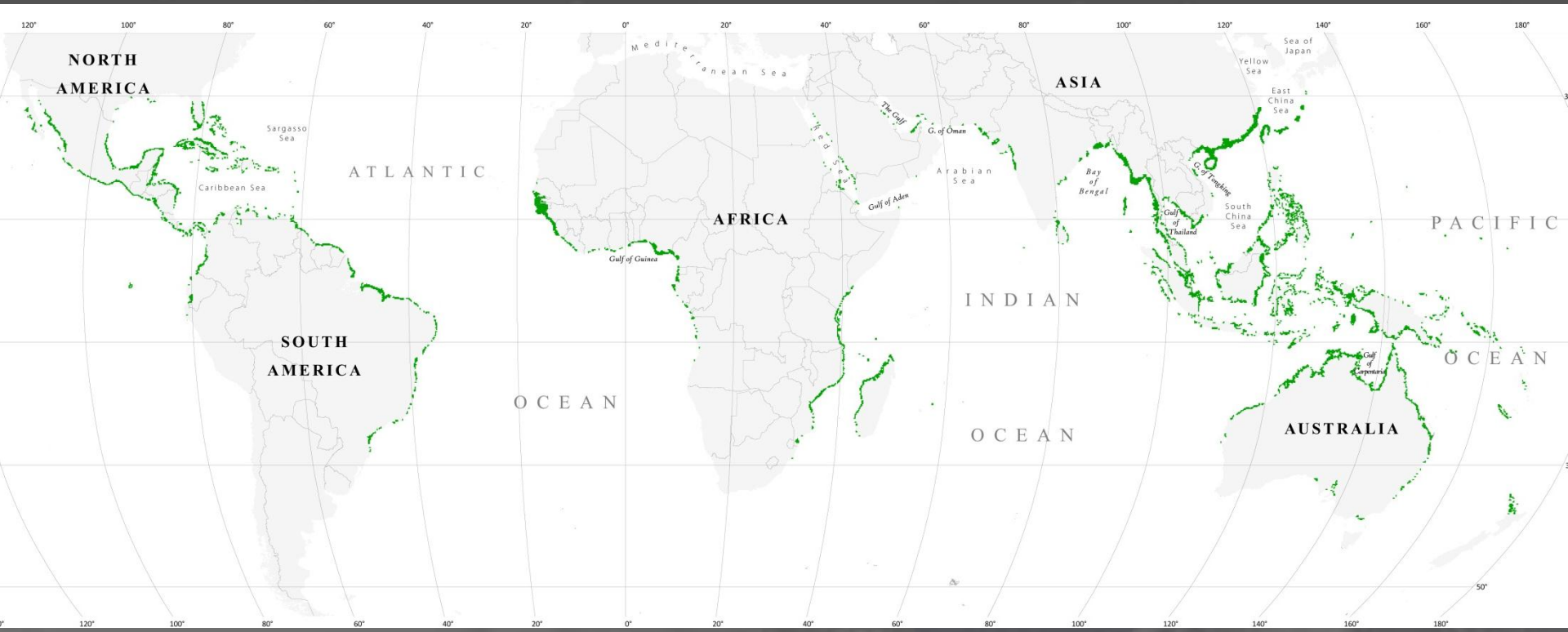
Global Mangrove Database Development



Giri et al., 2011

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International Charter for Space and Major Disasters

201201_Floods_Brazil
201202_Cyclone_Giovanna
201202_Floods_Algeria
201202_Floods_Peru
201202_Volcano_Semeru
201203_Cyclone_Irina
201205_Floods_China
201206_Volcano_Guatemala
201207_Floods_India
201207_Floods_Russia
201208_Fires_Algeria
201208_Floods_Niger
201208_Floods_Nigeria
201208_Floods_Philippines
201208_Hurricane_Isaac
201209_Earthquake_China
201209_Fires_Equador
201209_Floods_Cameroon
201209_Floods_Pakistan
201209_Floods_South_Sudan
201209_Landslide_India
201210_Floods_Chad
201210_Floods_Nigeria
201210_Hurricane_Sandy
201210_Hurricane_Sandy_Haiti
201211_Earthquake_Guatemala
201211_Floods_UK
201212_Cyclone_Evan
201212_Typhoon_Bopha
201212_Typhoon_Bopha_Philippines

2012 Disaster Response

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Examples of Capacity Building Components of USGS /EROS Projects

- GOFC-GOLD (GFOI)
- FEWS-NET Food Security Training
- A Geospatial Stream Flow Model (GeoSFM) Hydrologic Modeling Workshop
- GeoSUR (CAF)

FEWS-NET Food Security Training (2012)
(Remote sensing, GIS, and GeoWRSI)

Lusaka, Zambia: Tamuka Magadzire

Managua, Nicaragua: Mario Rodriguez

Harare, Zimbabwe: Tamuka Magadzire

San Salvador, El Salvador: Mario Rodriguez

San Jose, Costa Rica: Mario Rodriguez

Port-au-Prince, Haiti: Jim Rowland, MichaelBudde

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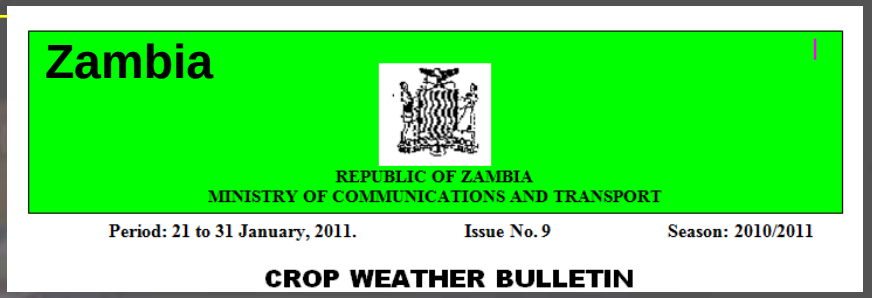
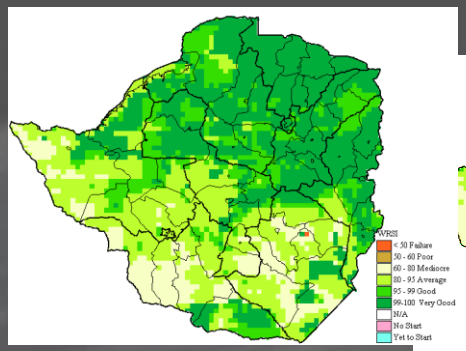
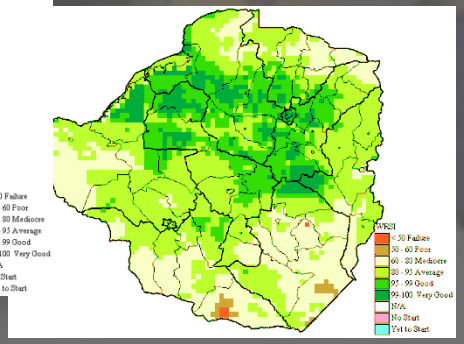
FEWS-NET Food Security Workshop Products

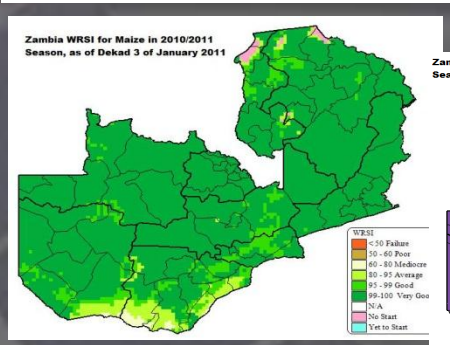




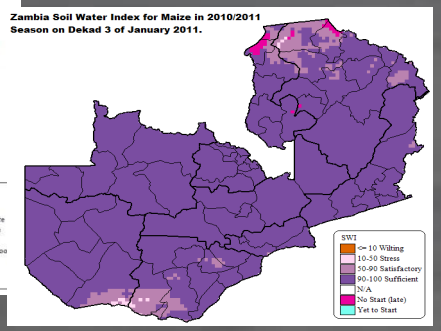
Dek 3 Jan – WRSI



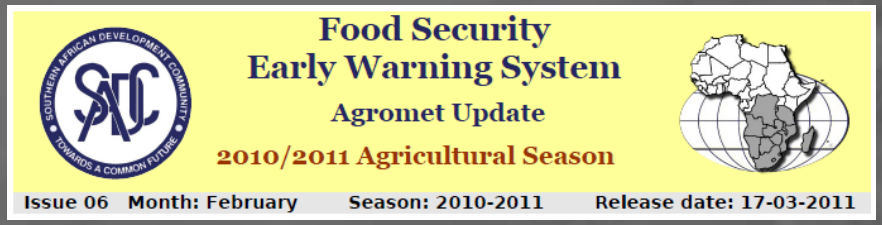
Dek 1 Mar – WRSI

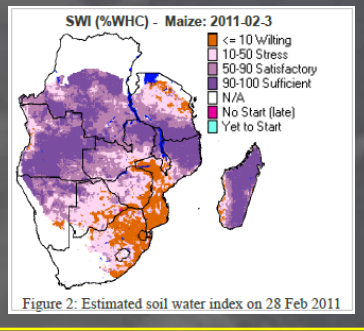


Dek 1 Mar – WRSI



Dek 3 Jan – SWI





Dek 3 Feb – SWI

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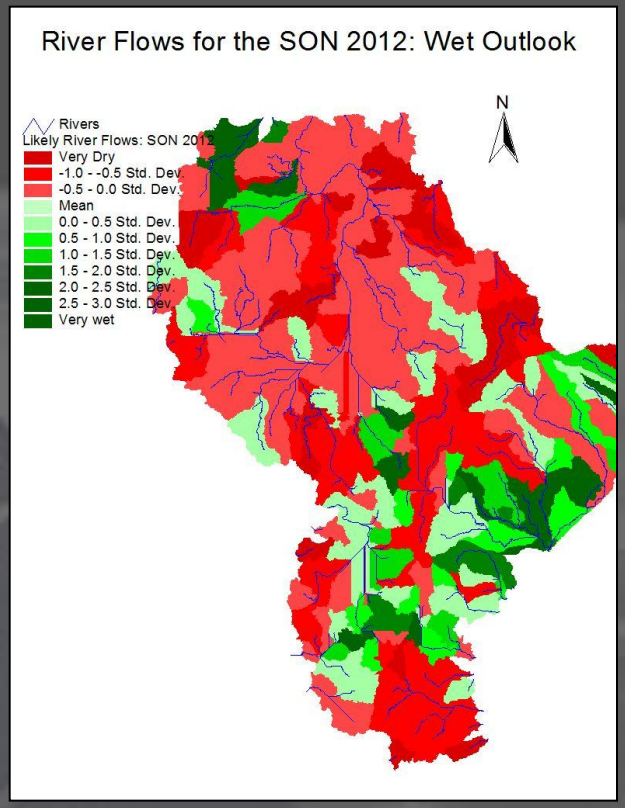
GeoSFM hydrologic modeling workshop - GHA

- IGAD Climate Prediction Center (ICPAC) in Nairobi, Kenya.
- Produce seasonal hydrologic forecast for the Greater Horn of Africa region using the GeoSFM forced with seasonal weather forecasts.
- USAID/Office of Foreign Disaster Assistance funded



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GeoSUR: Development of a Geospatial Information Network for for South America

Corporacion Andina de Fomento (Andean Development Bank)

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Topographic Processing Service (TPS)

Topographic Processing Service (TPS)

Enhancing South America's SDI through dynamic SRTM 30-m Web processing

NASA and the National Geospatial-Intelligence Agency (NGA) released the Shuttle Radar Topography Mission (SRTM) 3-arc-second (90-m) global digital elevation model (DEM) free to the public (NASA 2005a) in 2003. The change from 1,000-m resolution elevation data to 90-m allowed more countries to use the data for more detailed applications or additional uses.

To provide even more access to the SRTM data, the U.S. Geological Survey (USGS) and Corporación Andina de Fomento (aka Andean Development Bank = CAF) GeoSUR program released a new tool. The Topographic Processing Service (TPS) expands access to this DEM for South America. Scientists can use the TPS to derive products from the SRTM Level-2 1-arc-second (30-m) resolution DEM. These source data are not freely available because they are of restricted distribution. The TPS allows users to derive products from this restricted data without seeing the data. The security requirements defined by the NGA are maintained.

Users can request selected products from the restricted distribution data through a Web-enabled geo-processing service. This allows users to develop higher resolution products to extract more detailed information to better help them with natural disaster prevention and mitigation, natural resource management, and local and international infrastructure development.

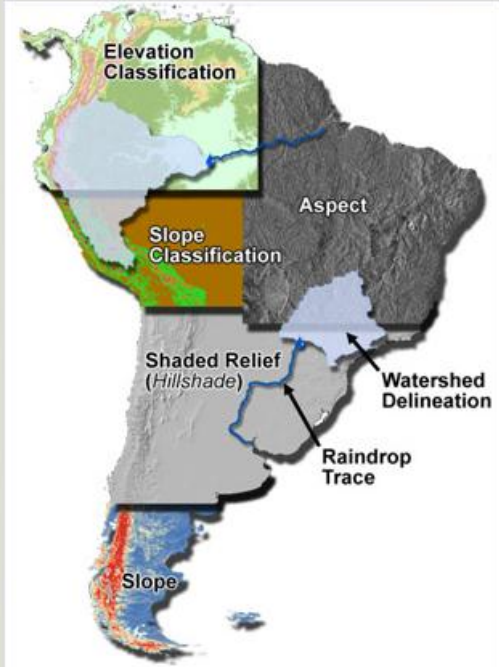

Figure 1. Composite image of TPS's available DEM derivative products

Interactive Access to SRTM2 (30m) Topographic Derivatives

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- Overview
- Objectives
- Approach
- Workshops
- Presentations
- Data Products
- Map Services
- Partners
- Links
- Contact Us

Map Services

Integración de la Infraestructura Regional Suramericana (IIRSA)

Argentina - Instituto Geográfico Militar

Brasil - Instituto Brasileño de Geografia y Estadistica (IBGE)

Brasil - Ministerio del Medio Ambiente

Chile - Comisión Nacional del Medio Ambiente (CONAMA)

Colombia - Instituto Geográfico Agustín Codazzi (IGAC)

Colombia - Instituto de Investigación de Recursos Biológicos Alexander von Humbolt

Uruguay - Servicio Geográfico Militar

Ecuador - Instituto de Servicio Geográfico Militar del Ecuador

USGS continues to contribute to remote sensing training, dataset, and tool development for underserved communities through its general remote sensing programs and project activities.

Questions?