

From Space Archeology to Serving the World Today:

A 20-Year Journey from the Jungles of Guatemala to a Network of Satellite Remote Sensing Facilities Around the World



Daniel Irwin, NASA

SERVIR 



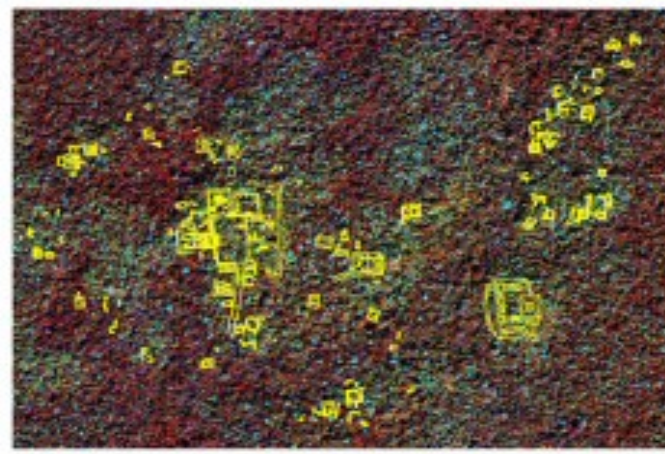
ICIMOD



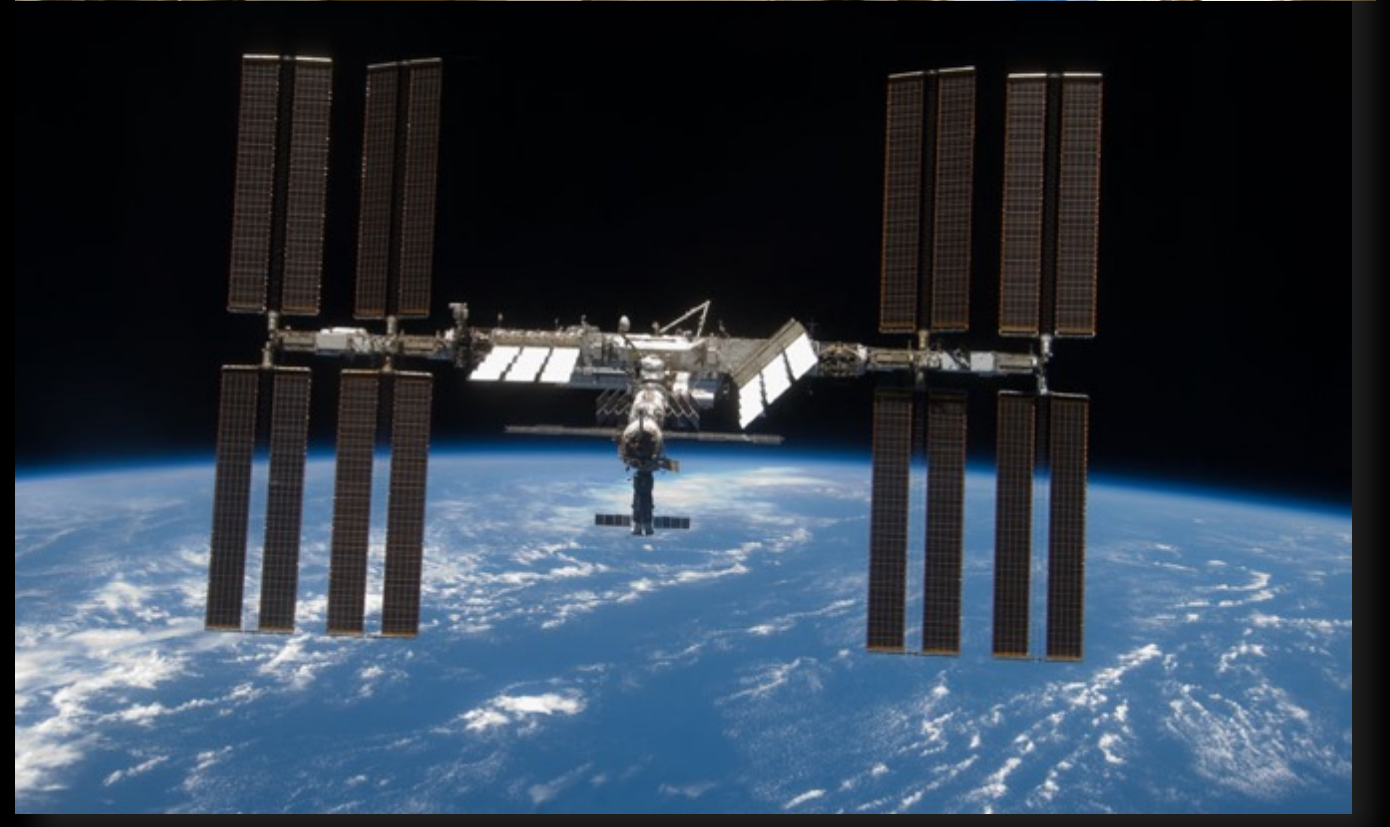


Landsat Satellite Data to Identify Prehistoric Settlements

NASA Space Archaeology



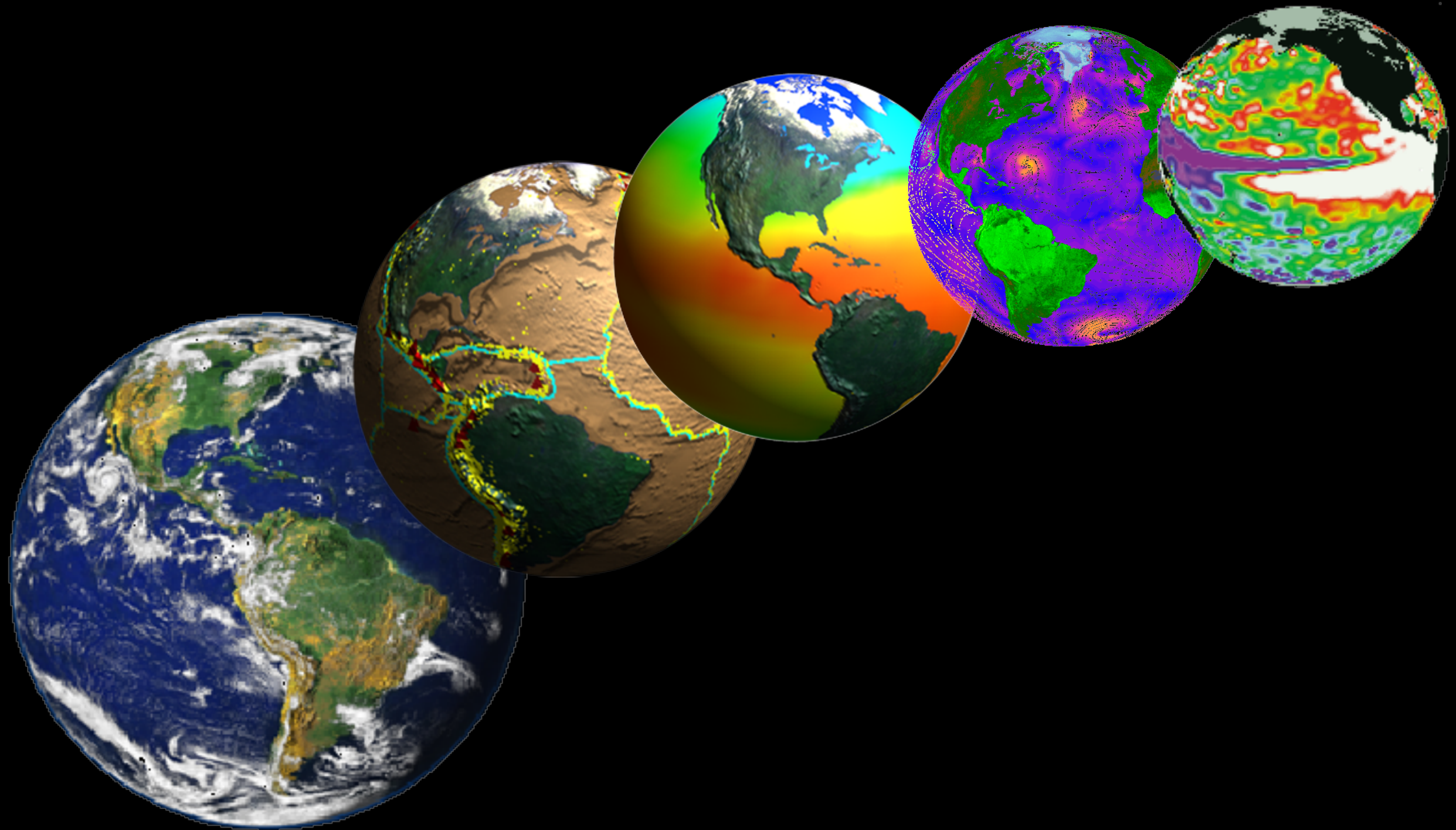




NASA Earth Science Missions Current & Planned

- Formulation
- Implementation
- Primary Ops
- Extended Ops



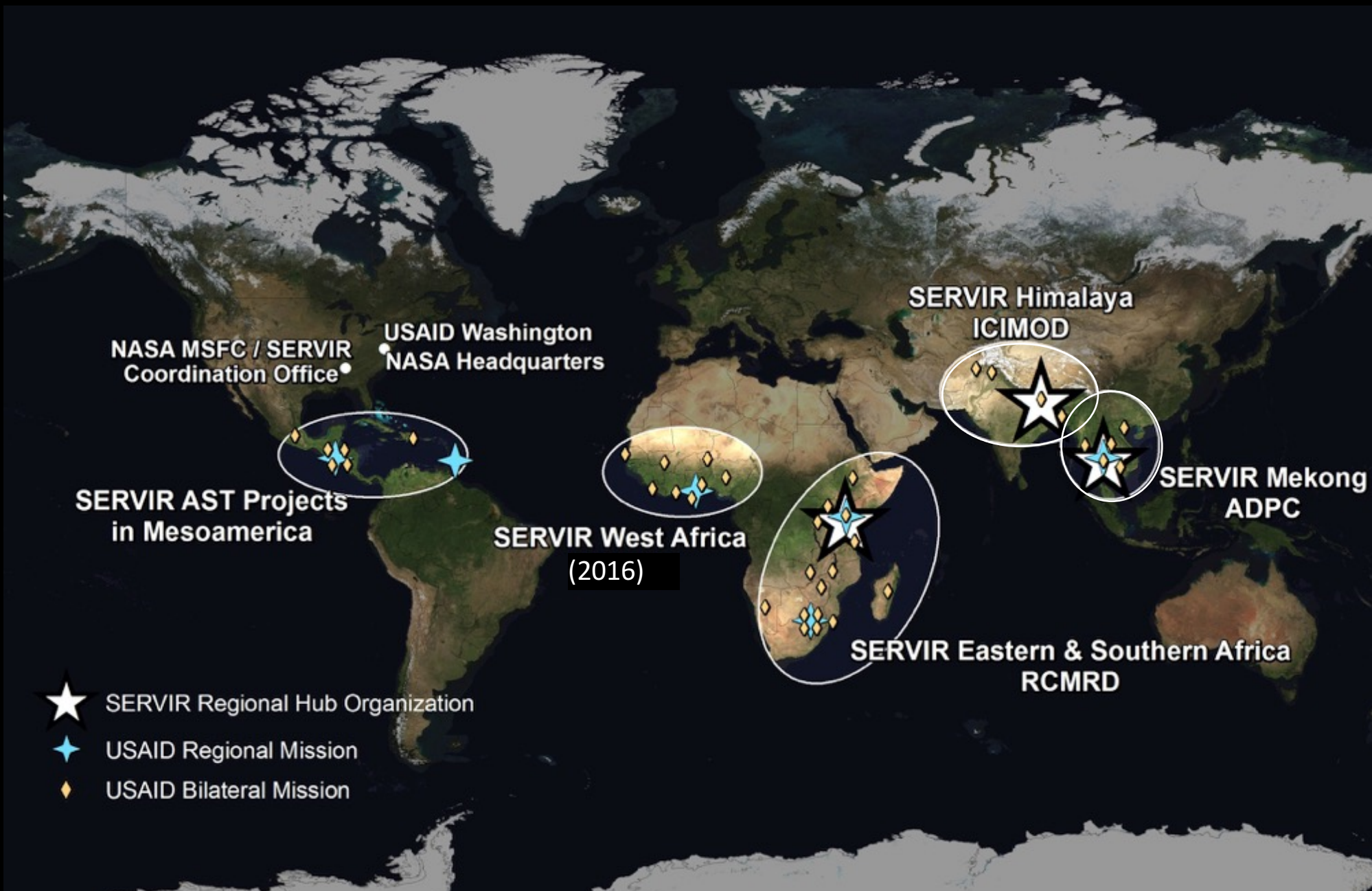


From space, we can view our planet in new ways.

SERVIR empowers people in developing countries to use that view for gaining knowledge and insights about their environments and adaptation to a changing climate.

We work with regional decision-makers to foster use of Earth observation satellite data, GIS, and predictive models for addressing water and land use, natural disasters, agricultural problems, biodiversity, and more.

These tools can improve the lives, livelihoods, safety, and future of people in communities around the world.





Mexico
Guatemala
El Salvador
Nicaragua
Costa Rica
Panama

Belize
Honduras

Dominican Republic

South Sudan
Uganda
Rwanda
Burundi
Zambia
Botswana
Namibia

Pakistan
India

Nepal
Bhutan
Bangladesh

Ethiopia
Kenya
Tanzania
Malawi
Mozambique
Seychelles
Mauritius
Madagascar
Swaziland
Lesotho
South Africa

Cambodia
Laos
Myanmar
Thailand
Vietnam



REGIONS



COUNTRIES



TOOLS



INSTITUTIONS



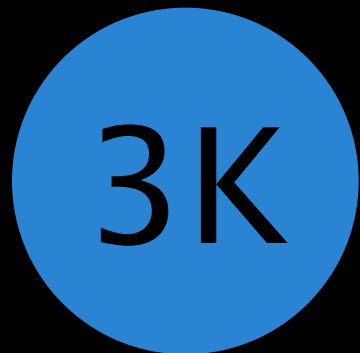
SERVIR



SMALL GRANTS



FELLOWS



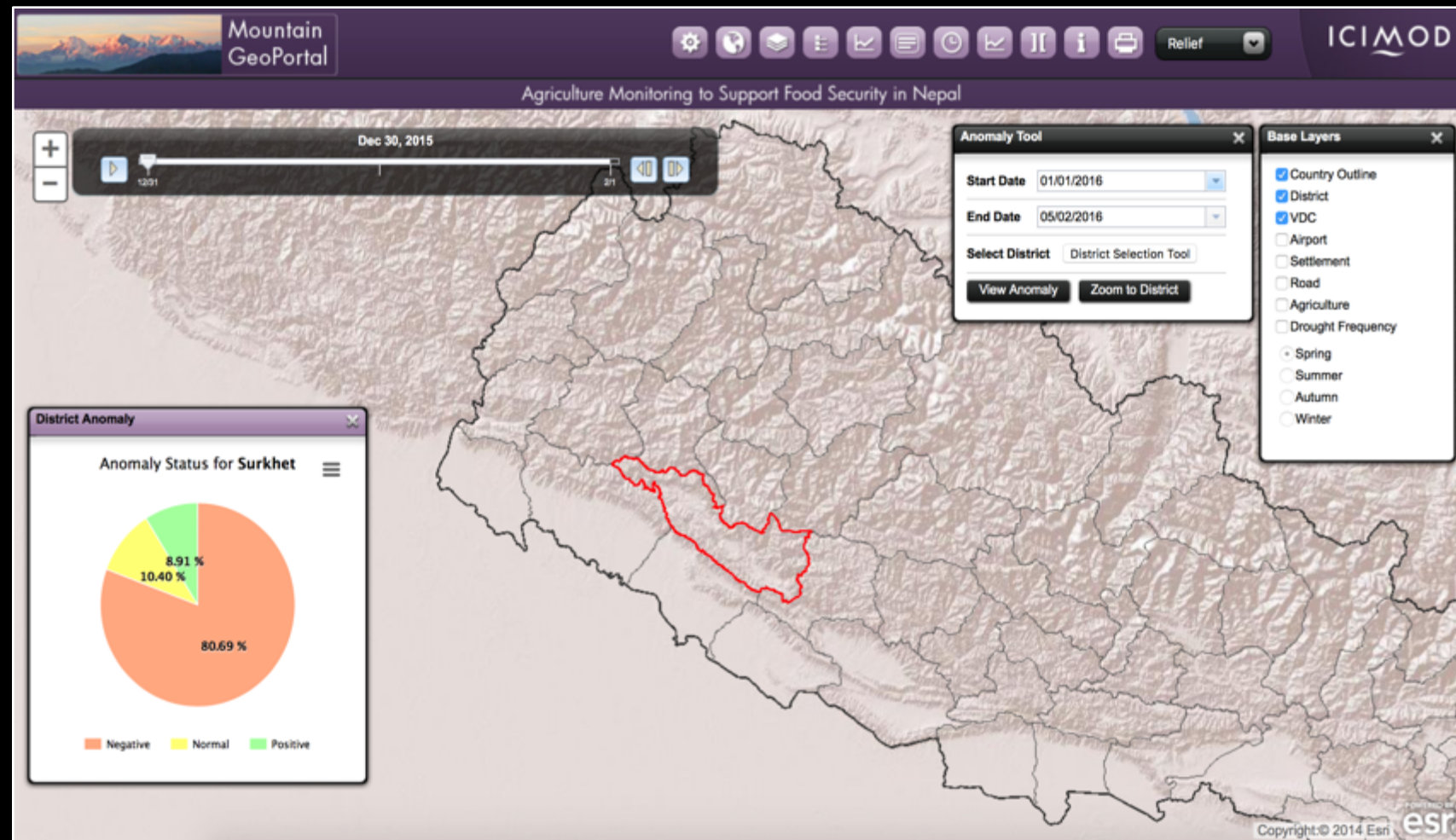
PEOPLE TRAINED



MAP REQUESTS

World Food Program Using SERVIR Satellite-Based Agricultural Monitoring Tool for Food Distribution

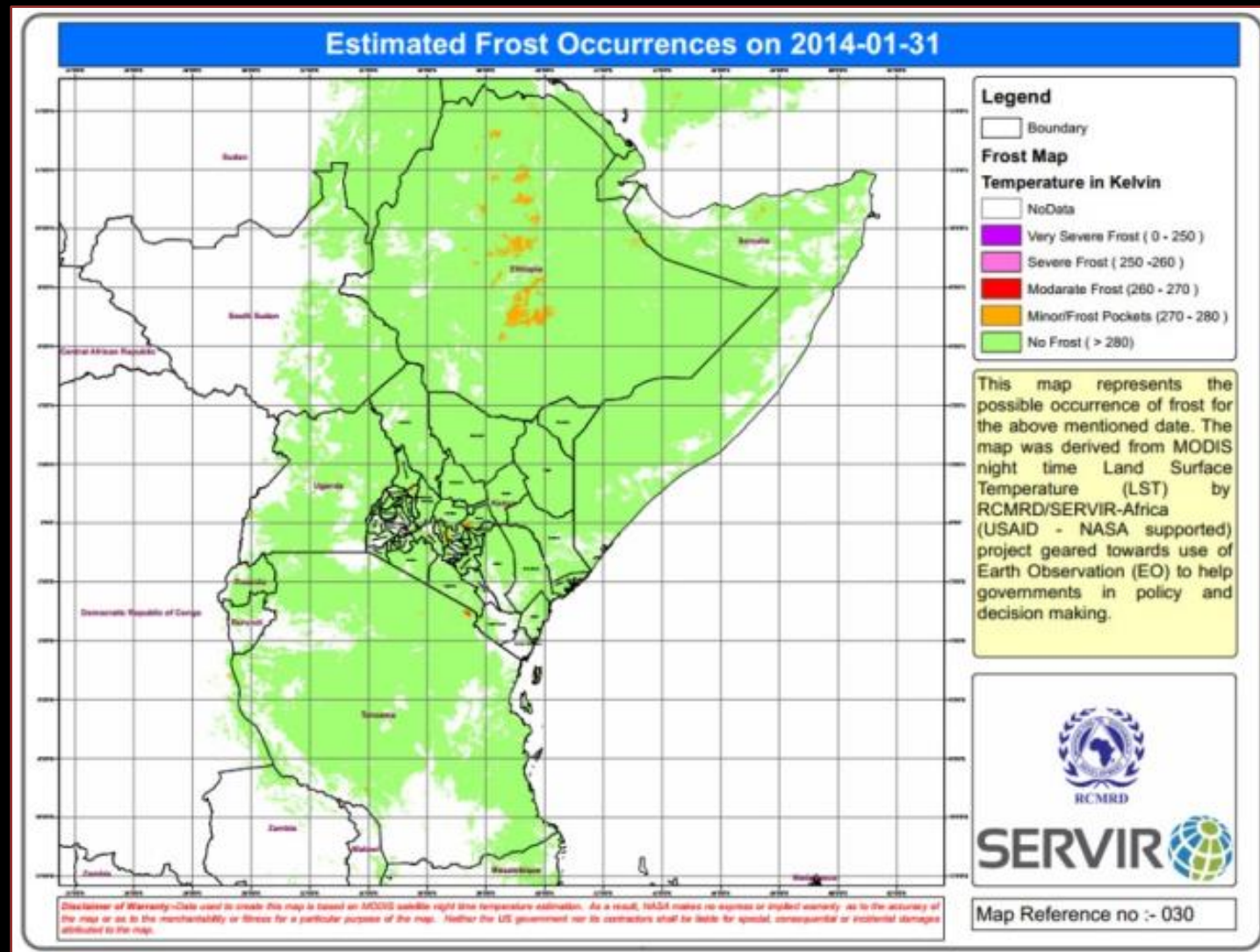
- The World Food Program used SERVIR-Himalaya Agricultural Monitoring tool to identify the worst affected areas in Western Nepal, and is distributing \$1M worth of food aid to affected areas based on the analysis.



SERVIR-Himalaya Agriculture Monitoring Tool showing vegetation anomaly in Surkhet District in western Nepal

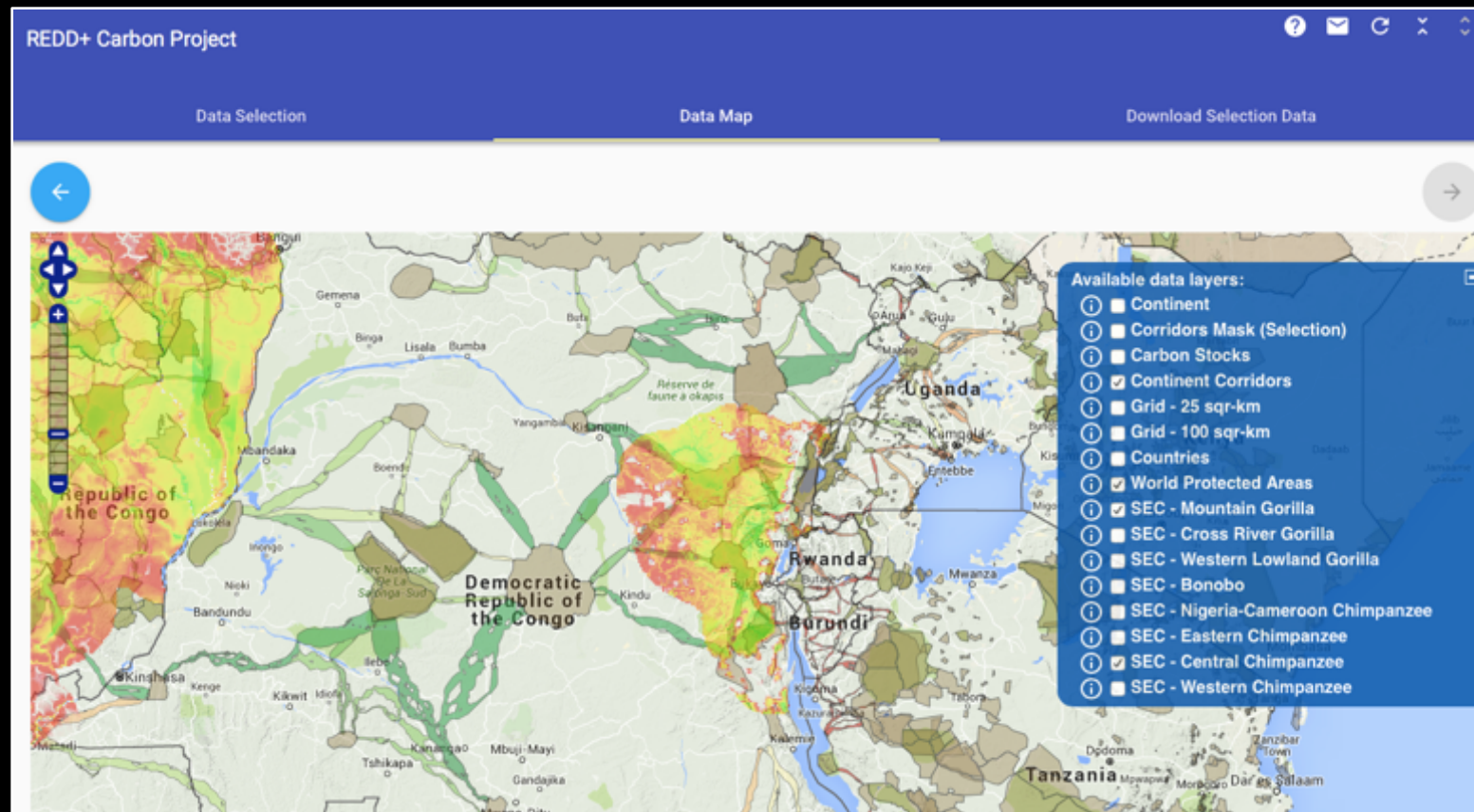
Insurance Companies Using SERVIR Satellite-Based Frost Monitoring and Forecast System in Kenya

- Insurance companies in Kenya are using SERVIR-Eastern and Southern Africa's satellite-based product to cover frost damages and adjudicate claims. They plan to use and disseminate SERVIR's frost forecast to their policy holders so they can take preventive action.



UN REDD+ Initiative Uses SERVIR Results to Manage Carbon and Optimize Biodiversity Conservation

- The United Nations Great Apes Survival Project (GRASP)-REDD+ initiative is using SERVIR carbon stock maps in Africa maps to identify potential biological corridors that could both serve as forest protection areas and improve habitat connectivity for ape populations.



Protected areas with great ape populations connected via high biomass corridors

Lake Atitlán, Guatemala





Algal Bloom returns to Lake Atitlan in August 2015

The Authority for the Sustainable Management of the Lake Atitlan Basin and its Surroundings (AMSCLAE) requested SERVIR's support to monitor the algal bloom that reappeared in August 2015.

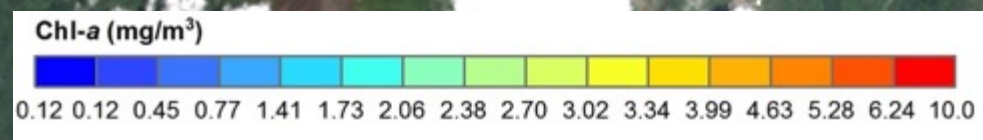
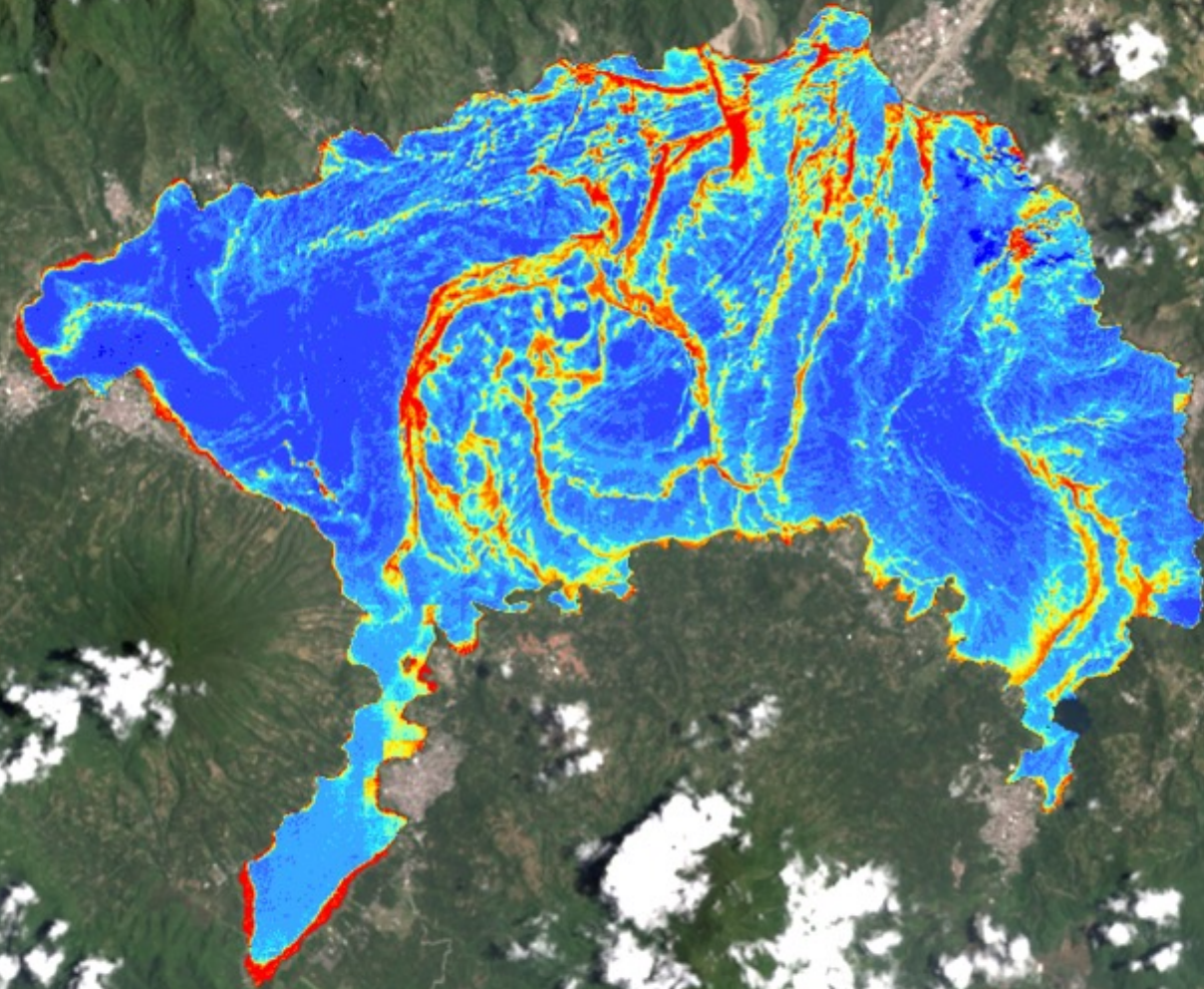
Using an algorithm developed by SERVIR in 2013 in collaboration with Universidad del Valle, AMSCLAE, and the University of Alabama in Huntsville, researchers were able to estimate Chlorophyll a (Chl a) concentrations from the current satellite images portraying the bloom.

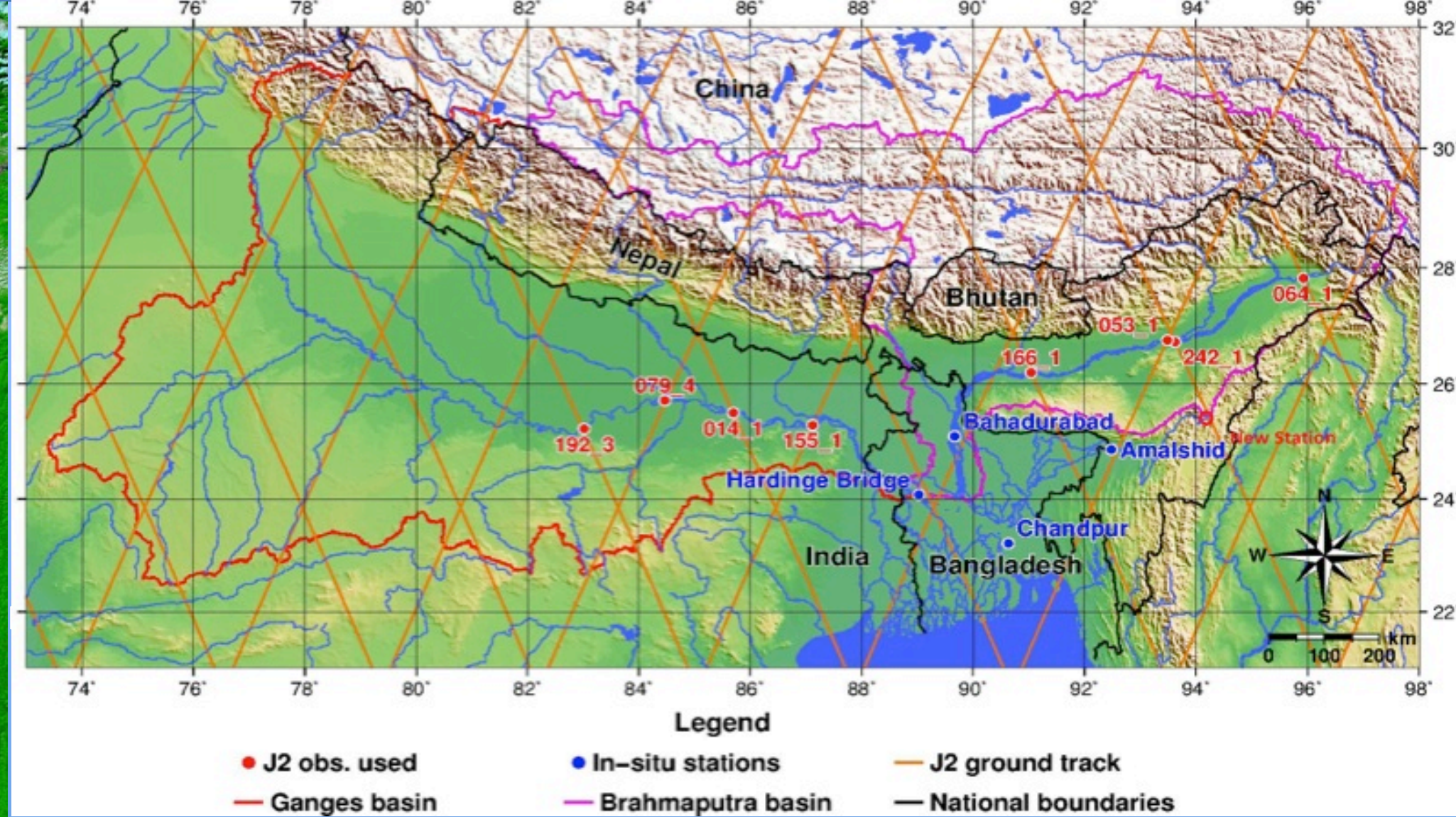
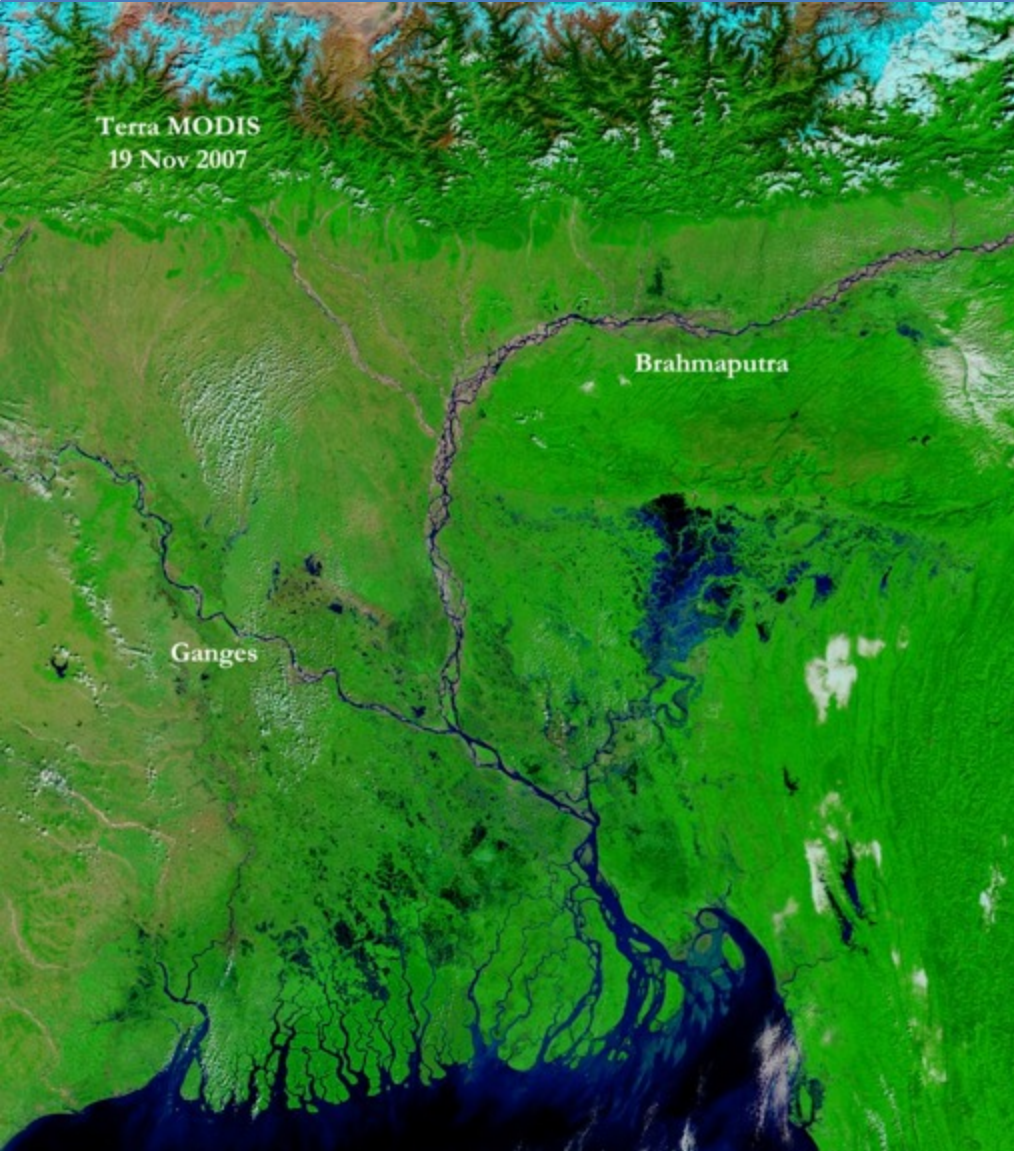


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The Jason-2 system tracks the levels of the Ganges and Brahmaputra Rivers more than 600 miles upstream of Bangladesh and produces daily 8-day forecasts of water levels for several virtual water stations (shown on map).

FFWC in Bangladesh will train other agencies in south and southeast Asia in satellite-assisted flood forecasting systems.

SERVIR-Eastern & Southern Africa Land Cover Viewer



RCMRD has classified and verified land use/land cover maps through ground verification campaigns in 9 countries, with the ministries of forest and/or environment. Baseline data are provided in the form of Landsat satellite imagery and land cover maps for 1990, 2000, and 2010. A joint Technical Advisory Board, with participants from the EPA and SERVIR, guided SERVIR-Eastern and Southern Africa to ensure effective integration of the products from these Greenhouse Gas emissions inventories for participating countries.

The screenshot displays the RCMRD Land Cover Viewer interface. The central map shows Tanzania with a multi-colored overlay representing different land cover types. The interface includes several panels:

- Map Panel:** Shows navigation tools like zoom in (+), zoom out (-), and a search bar.
- Layers Panel:** Lists available layers under "Base Maps" and "Overlays". The "tanzania_landcover_2010_scheme_ii" layer is selected and checked.
- Select Panel:** Allows users to filter by Country (Tanzania), Classification Scheme (Scheme II), and Year (2010).
- Legend Panel:** Provides a key for the land cover categories: Dense Forest, Moderate Forest, Sparse Forest, Planted Forest, Mangrove Forest, Woodland, Closed Grassland, Open Grassland, Closed Bushland, Open Bushland, and Perennial Cropland.
- Statistics Panel:** Contains two charts:
 - Horizontal Bar Chart:** Titled "Land Cover Statistics for Tanzania 2010 scheme_ii", showing the area in hectares for various categories. The x-axis ranges from 0 to 18,000,000.
 - Pie Chart:** Titled "Land Cover Statistics for Tanzania 2010 scheme_ii", showing the percentage distribution of land cover types. The legend indicates percentages for Dense Forest (19.6%), Sparse Forest (16.5%), and Open Bushland (21.1%).

Logos for USAID, SERVIR Eastern & Southern Africa, and NASA are visible at the bottom of the interface.

<http://apps.rcmrd.org/landcoverviewer/>

Nepal Earthquake 2015 Disaster Relief and Recovery Information Platform



The screenshot shows the main interface of the platform. At the top left is the logo of the International Centre for Integrated Mountain Development (ICIMOD), which depicts a mountain range within a circular border. To the right of the logo, the text "Nepal Earthquake 2015" is displayed in a large, bold font, with "Disaster Recovery and Reconstruction Information Platform" underneath in a smaller font. The background of the header is an aerial photograph of a densely populated hillside in Nepal, showing many small, colorful houses. Below the header, there are two rows of four white rectangular cards. Each card contains a small image or map, a title, and a blue "View" button. The first row includes "Country Profile" (with a map of Nepal), "District Profile" (with a district map), "Municipality Profile" (with a street view), and "VDC Profile" (with a village scene). The second row includes "Health" (with an ambulance), "Education" (with children in a school), "Heritage" (with a traditional building), and "Landslide Assessment" (with a landslide area).

Incorporated into Nepal's
Disaster Risk Reduction portal.

Unified information hub for
interactive maps, charts, and
infographics about the
earthquake and relief efforts.

Esri Humanitarian Award



<http://apps.geoportal.icimod.org/ndrrip/>

ClimateSERV

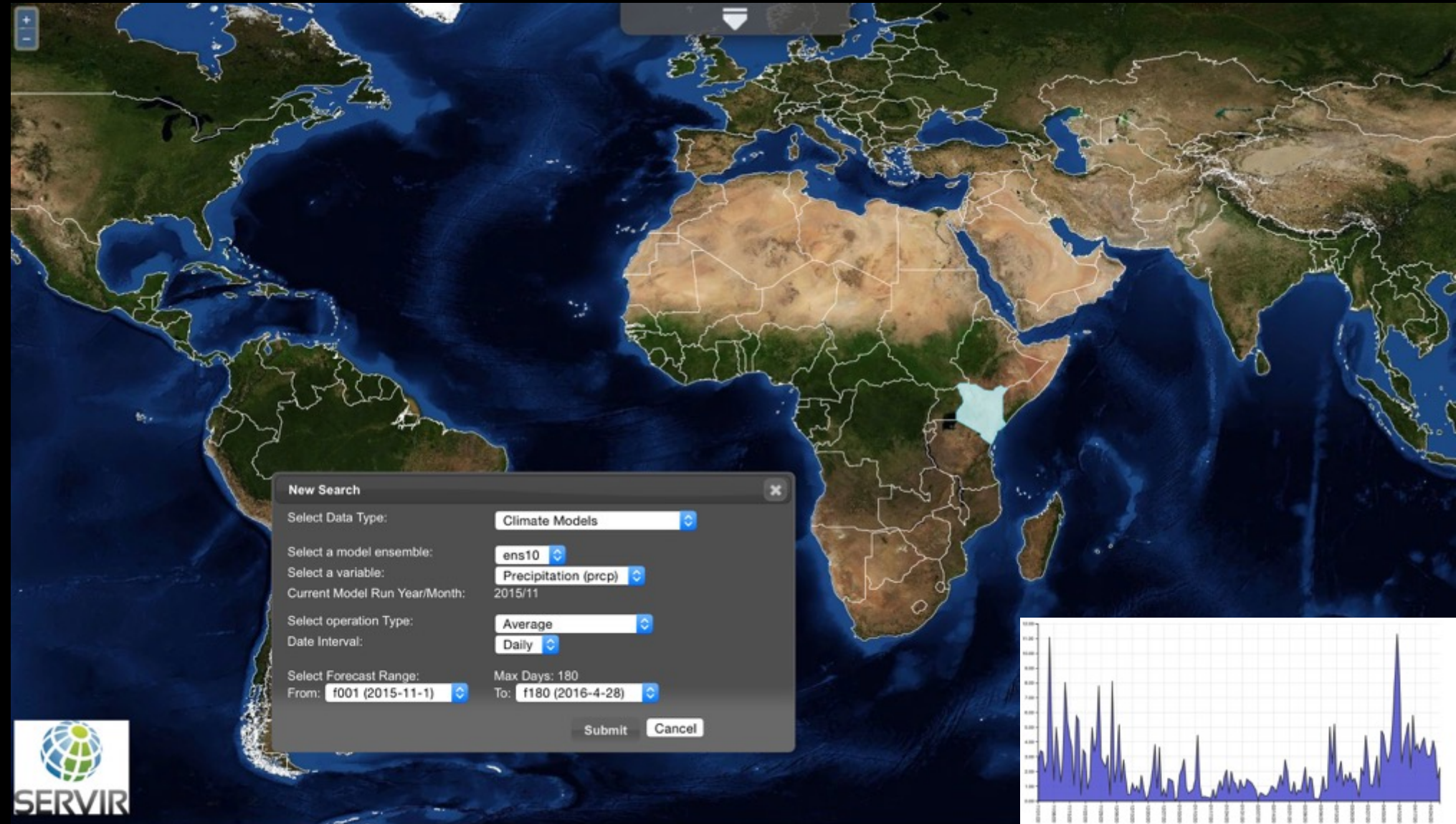
Seasonal Forecasts and Precipitation Web service



*Spatial and temporal statistics
on demand*

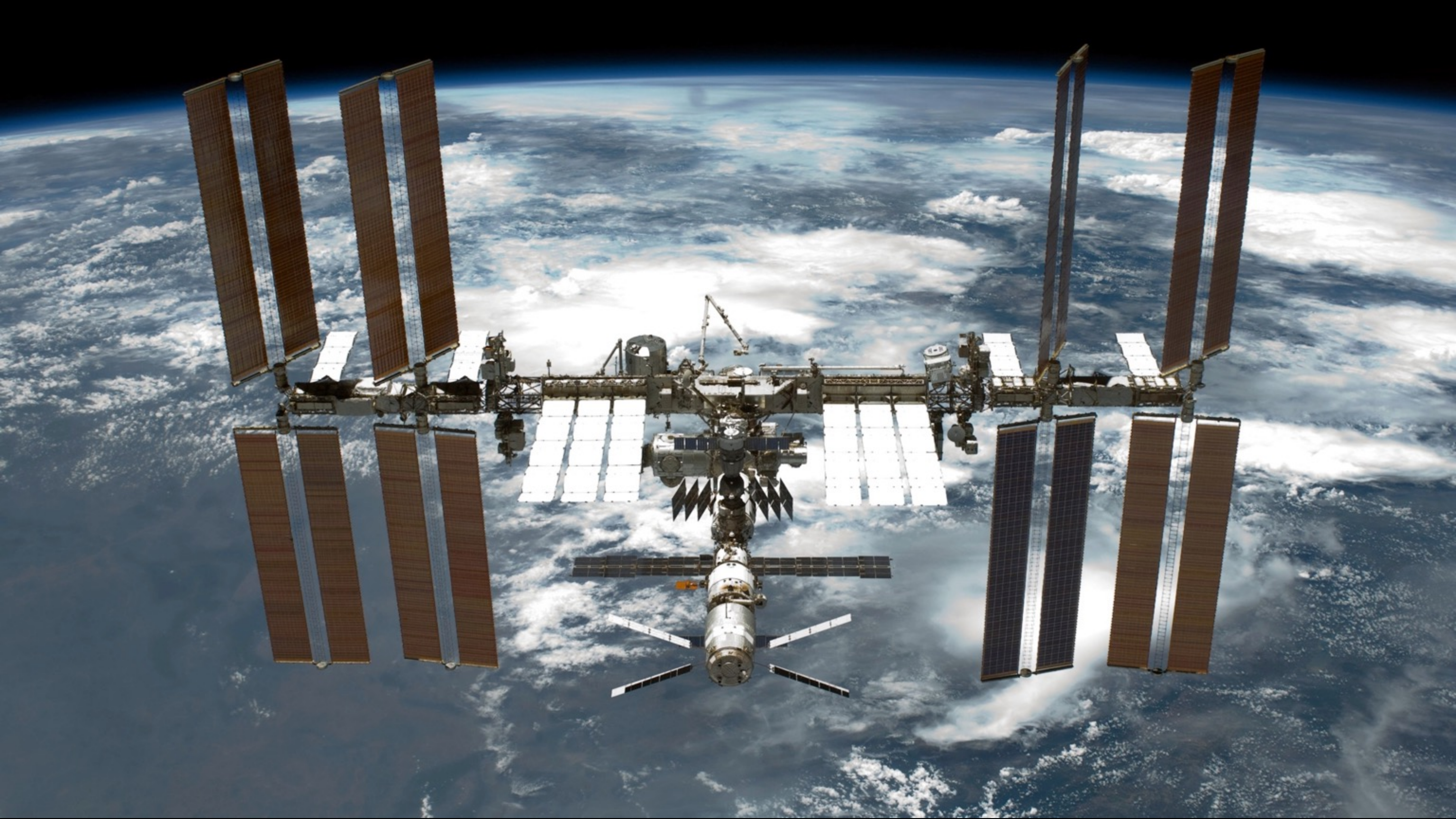
CHIRPS Precipitation data
30+ year quasi-global rainfall
dataset (USGS Climate Hazards
Group), 1981 to near-present

**Seasonal forecasts of Rainfall
and Temperature**
Bias-corrected and spatially
downscaled seasonal (180-day)
forecasts from NMME

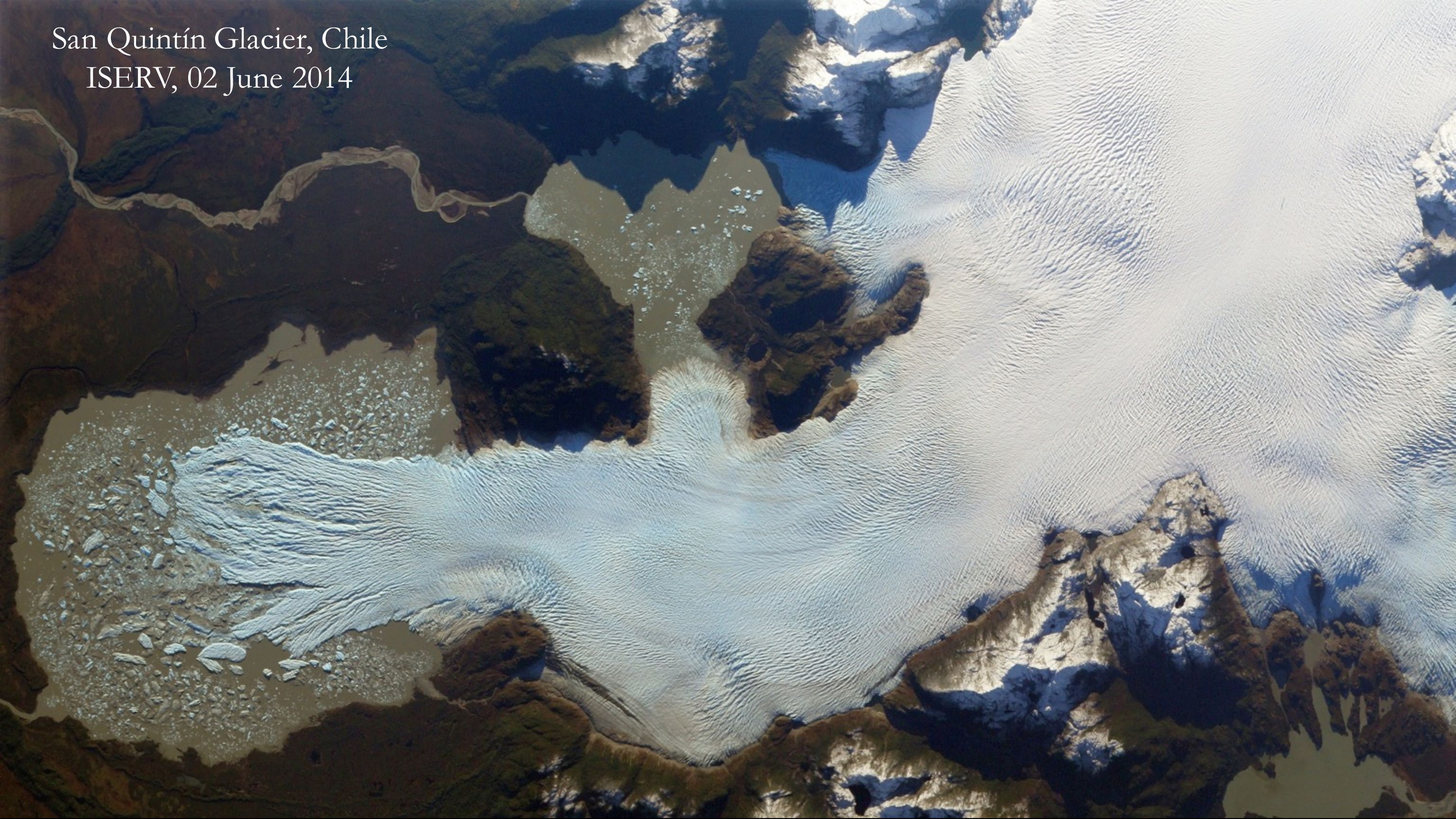


In DEVELOPMENT

<http://climateserv.nsstc.nasa.gov/>



San Quintín Glacier, Chile
ISERV, 02 June 2014



47,000+ ISERV images available



NASA ISERV data are available in
USGS EarthExplorer
(earthexplorer.usgs.gov)

More than 47,000 images at
~5m resolution of locations
around the Earth



<http://www.servirglobal.net/mapresources/iserv/>



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Youth Fora and Fellowships





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Connecting space to village

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