



GISCorps Newsletter

GIS Professionals Volunteering for a Better World

May 2010

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URISA

GISCorps Partner Agencies

EWB

GSDI

MMEX

UNDP

UNHCR

UNJLC

UNOSAT

iMMAP

Volunteers for Prosperity

Relief Agency Links

Relief Web

global hub for time-critical humanitarian information on Complex Emergencies and Natural Disasters

Data/Information Links

Earthwatch Institute

Earthwatch Institute is an international non-profit organization that brings science to life for people concerned about

A Message from the Core Committee

We are so very proud to announce that GISCorps has launched its 60th mission. From our very humble beginnings, we now have close to 2000 volunteers in our database, and have deployed slightly over 180 of those volunteers on our 60 missions. This truly is a milestone in our history, and we could not have done it without the support and willingness of our volunteers.

Shortly after we launched our 60th mission, GISCorps was asked to assist in evaluating and providing five GIS professionals for the BP oil spill incident in the Gulf of Mexico. The work resulted in identifying and short listing 12 individuals whose credentials were forwarded to the BP team. Those positions have now been filled.

As in previous years, GISCorps will have a presence at both the [ESRI](#) conference in San Diego in July, and the [URISA](#) conference in Orlando at the end of September. We hope you will be able to join us at these events. If you are a volunteer that has been deployed on a mission in the past year, and you would like to participate/be part of our presentations at either of these conferences, please let us know by contacting info@giscorps.org.

GISCorps Core Committee,
Dianne Haley, Allen Ibaugh, Mark Salling, Shoreh Elhami, Heather Milton, Ray DeLeon

P.S. Please email info@giscorps.org if you want to be removed from this list.

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Deployment and Partnership News

Missions in Progress:

- **Another Mission with iMMAP – Chad:** Information Management and Mine Action Program ([iMMAP](#)) is assisting the Chadian Independent Electoral Commission (CENA) in Chad. The goals of this project are to geo-reference +/-10,000 polling stations for the entire country and then add attribute data such as type of polling station, mobile network operator available, accessibility, and time to reach from the sub-district center to that dataset. This dataset will be used for the preparation of the upcoming legislative elections due in September 2010. They asked for a GISCorps volunteer with expertise in ArcGIS Desktop and Excel spreadsheets to assist them with this

the Earth's future.

Service at Sea

Service at Sea is a ship-based technology assistance program that will begin a circumnavigation of the earth in August, 2007, with a goal to assist conservation organizations who are using GIS technology to meet goals of their communities.

Society for Conservation GIS

A non-profit organization supporting individuals using GIS and science for the conservation of natural resources and cultural heritage

GISCorps Core Committee

Dianne Haley, Chair
Allen Ibaugh, Vice Chair
Shoreh Elhami, Co-founder
Mark Salling
Heather Milton
Ray DeLeon

Contact Us

<http://www.giscorps.org>

Email: info@giscorps.org

project. The search resulted in selection of Guy Maurice from Belgium who is now in direct contact with iMMAP representatives.

- **Mission with [Neighborhood Housing Services \(NHS\)](#)- **New Orleans, LA:** In October 2009, Michelle Thompson, A professor at the University of New Orleans – Department of Planning & Urban Studies (UNO-PLUS) contacted GISCorps and sought the assistance of an ArcGIS Server Programmer for the NHS; a non profit organization in New Orleans, Louisiana. NHS was interested in creating a dynamic web site to share their data and build surveying capacity in other neighborhoods. Following a thorough search Rafael Ferraro, a GIS Programmer with Science Application International Corporation ([SAIC](#)) in Virginia was selected for this project and is now working with a team of experts from NHS and UNO-PLUS. Read more [here](#).**
- **Mission with FLOSSK – Albania:** This project is commissioned by Free Libre Open Source Software Kosovo ([FLOSSK](#)), a non-profit organization in Kosovo. FLOSSK requested the assistance of GISCorps volunteers in creating an accurate base map for a region in northwest of Albania known as Shkoder. This region was struck by flood in January 2010. The base map will include road network (on Open Street Map – OSM interface), damaged buildings, flooded areas and various imagery datasets. Nine volunteers have been recruited for this project. One of the volunteers, Miguel Morgado from the UK, is the Project Manager and eight other volunteers are: Michele Morettini and Massimiliano Rossi from Italy, Takeo Shibata, Andrew Ross, Janet Vaughn, Adebayo Adepegba from the US, Doug Brown, from Mexico, and Kerice Masters from Jamaica. Read more [here](#).
- **Mission with ICOMOS – Haiti:** International Council on Monuments and Sites ([ICOMOS](#)) is an international non-governmental organization of professionals, dedicated to the conservation of the world's historic monuments and sites. They are interested in identifying historic structures in Haiti and also assessing damages to those structures in hopes of helping the Haitians and Haitian government to preserve the important structures. They are now working with [Pictometry's](#) donated imagery using their Pictometry OnLine (POL) application. The oblique data is of particular value for this particular disaster because of difficult situation on the ground, and the lack of prior inventories and identification of resources. Six volunteers are currently working on this project and several are currently in Haiti. Read more [here](#).
- **Mission with UNOOSA / UN-SPIDER – Haiti:** In January 2010, a request for ArcGIS Server specialists came to GISCorps from the UN Office for Outer Space Affairs (UNOOSA), as implementing Office for the UN Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER). The search resulted in the selection of Chris Markuson from Pueblo, Colorado. He is now in direct contact with UNOOSA/UN-SPIDER representatives.
- **Mission with [South Luangwa Conservation Society](#) – **Zambia:** GISCorps volunteer, Lisa Matthies, a GIS and Geography Instructor at Erie Community College in Williamsville, NY has been supporting SLCS' GIS needs since spring of 2009. Her ongoing support includes analysis of SLCS' historic and current data as well as providing custom maps on a regular basis. Read more [here](#).**

- **Mission with (iMMAP/WFP) - North Korea:** In late 2007, **iMMAP** in partnership with the **World Food Program (WFP)**, Bureau for Asia sent a request for volunteers to compile features such as settlement points, transportation (roads, foot path, and railroads), rivers and lakes (complete with attributes) from 400 map sheets in North Korea. Following their request, GISCorps posted the information on its website and was then contacted by Karen Payne of University of Georgia's Information Technology Outreach Services (**ITOS**) who expressed interest in assisting with the project. Since then ITOS has been testing various methods and also working with GISCorps volunteers on a pilot project which was recently completed. As a result, it was determined that 20 volunteers were needed for the project. We are now in the process of recruiting those volunteers. Read more about the history of the project [here](#).
- **Mission with Geographical Resources for Development Centre (GRDC) – Nigeria:** In late 2009, Geographical Resources for Development Centre (GRDC), a non profit organization in Nigeria, requested a volunteer to assist them in establishing a metadata clearing house node. The recruitment resulted in deploying Alison Fischer. Alison is from BC, Canada and currently lives in Tokyo, Japan. She is now in direct contact with GRDC and has been working with them on securing web hosting, structure of the website, its format, and also the structure of the datasets.
- **Global Spatial Data Infrastructure (GSDI) Small Grants Program's 2009-2010 Projects:** GISCorps first participated in the review of 2005/2006 Small Grants projects in 2005 and most recently has participated in the 2009/2010 projects. The GSDI project leader and Core Committee member, Mark Salling has contacted several eligible applicants and has asked if they would be interested in seeking GISCorps volunteers' expertise. Read about previous projects [here](#).

Read more about completed projects [here](#).

Read more about projects in progress in [here](#).

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URISA Announcements

Upcoming Conferences

[URISA Leadership Academy](#)

Register Today!

June 14-18, 2010 - Baltimore, MD

[GIS Program Management Workshop](#)

Register Today!

June 24, 2010 - Des Plaines, IL (URISA office)

[2010 URISA/NENA Addressing Conference](#)

Conference Program Details Now Online!

August 16-18, 2010 - Charlotte, NC

[GIS-Pro 2010: URISA's 48th Annual Conference for GIS Professionals](#)

Conference Program Details Now Online!

September 28-October 1, 2010 - Orlando, FL

What's New

[GISCorps Launches 60th Mission](#)

[Editor Sought for URISA Journal](#)

[URISA Delegate Selected to Lead the Coalition of Geospatial Organizations in 2011](#)

[Call for Papers: URISA Journal Special Issue on Geospatial Education and Training](#)

[Draft Address Standard Submitted to FGDC](#)

[URISA Journal Marks 10 Years of Open Access Publishing](#)

[Donate to URISA's 50/50 Fund](#)

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ESRI's 30th User Conference, San Diego, July 12-16, 2010

As in the past several years, GISCorps will be present at ESRI's 30th User Conference (San Diego, July 12-16, 2010) and involved in a number of activities there.

Map Gallery - Please join us on Monday July 12th during Map Gallery hours from 4:30 to 8:30 pm to meet GISCorps volunteers and the Core committee members.

Annual meeting/presentation – The meeting will be held on Wednesday July 14th from 5:30 to 7:00 pm (room number to be determined). The Core Committee members as well as several of our volunteers will give presentations on 2009/2010 activities. Following the presentation, there will be a no-host gathering at a nearby restaurant. The location will be posted on GISCorps' website as well as our FaceBook page.

Note: If you are a deployed GISCorps volunteer and plan to attend this Conference, please let us know by sending an email to: info@giscorps.org.

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48th URISA Annual Conference, Orlando, FL, September 28- October 1st, 2010

Since 2003, GISCorps has been holding several events at the URISA International Conference. We hope that you can join us in Orlando, Florida (from September 28 to October 1st). This year's events are:

Annual Presentation - Thursday September 30th, 9 to 10 AM – several volunteers and GISCorps Core Committee members will give an overview on 2009-2010 projects and activities.

Annual Meeting – the annual meeting will be held during the conference.

Poster Exhibit - throughout the conference the work of our volunteers will be on display.

Note: If you are a deployed GISCorps volunteer and plan to attend this Conference, please let us know by sending an email to: info@giscorps.org.

Check our website and FaceBook page for updates.
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Shop for GISCorps Stuff!!

Do you find yourself in need of a new T-shirt, coffee mug, ball cap or tote bag? Do you want to advertise GISCorps and your association with the organization? Well, you are in luck! You can now find various GISCorps items at our online shop at: <http://www.cafepress.com/giscorps>

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Satellite Image Analysis Conducted for a Project in Vietnam

In December 2009, **CartONG**; a French based non profit organization requested the assistance of a GISCorps volunteer with expertise in remote sensing. The overall goal of the project was to support the Vietnamese government to find a mechanism to improve the livelihood of the poor by increasing the value of their forests through a pilot study in two regions in the Central Highlands of Vietnam.

Following a series of analysis and field work, CartONG and their team of collaborators had learned of inconsistencies in the carbon content levels that were measured in 2004 and 2009. In order to verify that information they decided to request a remote sensing specialist's assistance to analyze Spot satellite imageries from those two years.

Shortly after the request came in an email broadcast was sent to the

project. The review of the resumes and interviews resulted in selecting Jason San Souci, GISP from AFE Advisors LLC. in Colorado and he began working with the CartONG team shortly there after. He recently completed the analysis and contributed in a report which can be accessed in its entirety from [HERE](#).

The following is a summary of that report.

Executive Summary

When comparing fieldwork results from 2004 and 2009 on determining carbon content of one village in the Vietnamese Highlands, the carbon ranges differed enormously, suggesting that either the methods of fieldwork have changed or that the carbon stock was depleted through deforestation and degradation. However, analyzing SPOT satellite images from 2004 and 2009 on carbon content, verified the findings of the fieldwork and demonstrated that the carbon stock had declined through both, deforestation and degradation.

The Need for Satellite Imagery Analysis

After the fieldwork started and was completed in one of the villages; it was found that whereas the newly collected data would give a good overview and provide a good base for the Carbon stocks model projecting future carbon contents under different forest management scenarios; the data on carbon content which could be obtained through **past forest inventories was fragmented** and **verification** was needed. Especially the range on carbon content was reported to be much higher in 2004 than 2009. Whereas this was to be expected, the differences were striking and raised questions.

The decision to verify these inconsistencies was taken at a late state of the project and there was no budget available to pay a specialist for the analysis. Hence, CartONG asked if **GISCorps** could provide assistance. Fortunately, GISCorps identified **Jason San Souci** a registered volunteer who not only had many years experience of working with satellite images, but also had worked on carbon content estimation before.

Method

- **Converting** the **Digital Number** values to at-satellite reflectance; some input was given by the SPOT technical team
- **Image registration** for change detection
- **Radiometric correction** and Normalized Difference Vegetation Index (**NDVI**) layer generation
- Overlaying the **plot coordinates of 2009**; **extracting the NDVI** values.
- **Computing** the **average Carbon content** based on the extracted NDVI values
- **Applying** the **average Carbon content** on Thon 4 and 6 as well as on the full images
- **Accuracy Assessment** of Carbon content results with field data

Results

When comparing the overall computed results it becomes evident that the trend identified during the fieldwork with a strong deforestation and degradation since 2004 can be confirmed through the Satellite Image Analysis.

The **Carbon range** in the satellite images is slightly below the carbon range determined through fieldwork in 2004 and 2009. This can be explained through the fact that trees with a bigger diameter will store more Carbon, which the mixed pixel value of the image can't reflect to the same extent (Figure 1).

Range of Carbon Content	2004	2009
Fieldwork	827 - 2268	202 - 1166
Satellite Image Analysis	626 - 1347	195 - 405

Figure 1

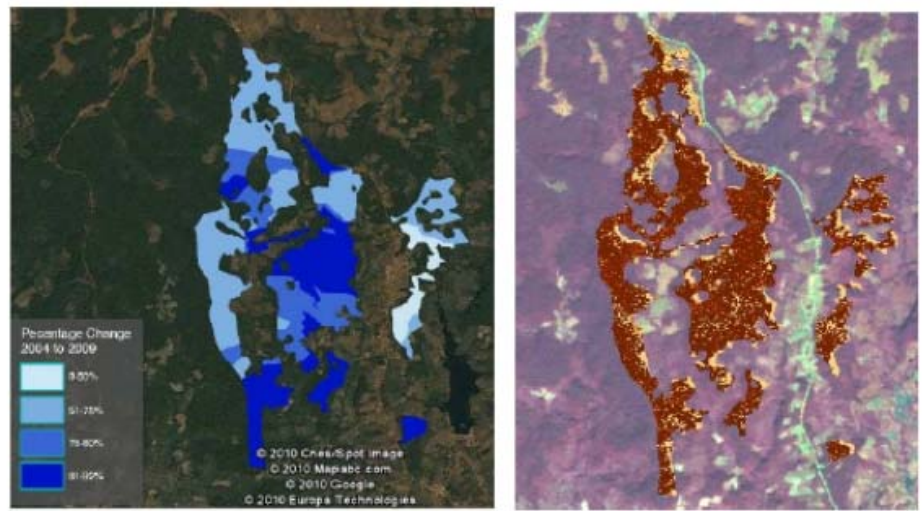
On the left hand side graph Amount of Carbon shows the Carbon range prevailing in 2004 in Thon (village) 6; as can be seen, none of the forested areas are below 751 Tones/Ha. On the right hand side the situation in 2009 is depicted. Here none of the forested areas contains more than 750 Tones/Ha. This trend is reflected in the results of the satellite image analysis as well. In 2004, the lowest carbon value is ranging between 501 – 750 Tones/Ha; in 2009 the highest value is not exceeding 500 Tones/Ha. The boundaries are not as defined which is linked to the fact that the boundaries shown in the plot analysis have been obtained by interpolating (kriging) – Figure 2.



Thon 6 Carbon Content in 2004: values between 1001 – 1250 Tonnes per Ha are prevailing, followed by values ranging between 751-1000. **Thon 6 Carbon Content in 2009:** values between 251 – 500 Tonnes per Ha are predominant.

Figure 2

In order to get an overview and make the user of the data and the data model understand how important Sustainable Forest Management is, degradation of the forest was categorized and displayed. **Degradation** is defined as Percentage Change (excluding deforested areas) from 2004 to 2009. As can be seen in the graph Percentage Change of Thon 6; most areas experienced degradation of more than 50%; with the percentage over 81% being strikingly high (Figure 3).



Thon 6: Percentage Change: Changes over 70% are prevailing with a high percentage even exceeding 81%.

Thon 6: Estimated Degradation; Blue: less than 50%; Red: between 50 and 75%; Yellow: Between 75 and 80% and Green: more than 80% volume lost

Figure 3

When roughly estimating degradation for Thon 6 from the results of the satellite analysis; the following figures were established:

Degradation	Area in ha
Up to 50%	85
Up to 75%	24
Up to 80%	439

Figure 4

For questions regarding this project, contact:
 Jason San Souci at: jason@afeadvisor.com and,
 CartONG's Sandra Sudhoff at: s_sudhoff@cartong.org

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