



BlackBridge
Delivering the World

FOR THE FIRST TIME...

John Ahlrichs, VP, International Sales

Mauricio Meira, Manager, Latin America

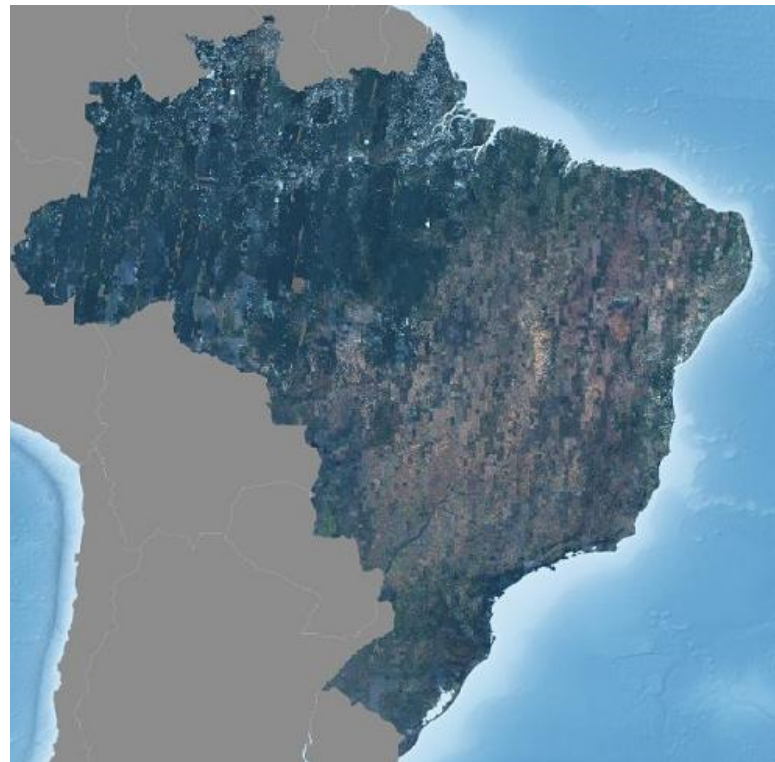
FOR THE FIRST TIME:



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- **Complete, same year, 5m resolution coverage over Brazil**
 - 3 months to process the entire AOI
 - Delivered for 2011 and 2012

- **All available online for any Federal, State or Local government agency to use**



5 SATELLITE CONSTELLATION MAKES THIS POSSIBLE

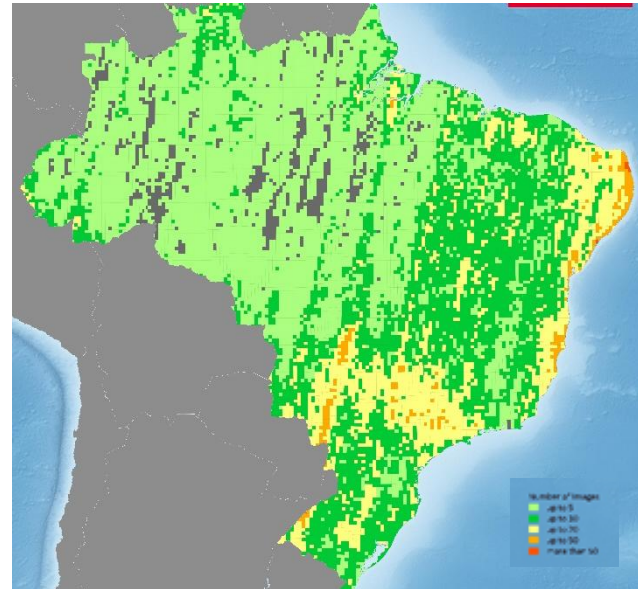


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8 passes per day over Brazil
Each an imaging opportunity



Brazil overage: 2013
Less than 20% clouds



FOR THE FIRST TIME:

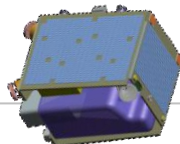
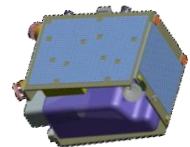
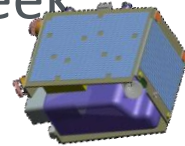
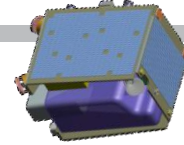
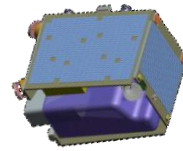


- Most popular MundoGEO webinar ever
 - April 29: 1056 people participating
 - May 6 (yesterday) repeated success;

- Santiago e Cintra Consultoria (SCCON) provided training on accessing the MMA database of RapidEye images

MundoGEO
Seminários online MundoGEO

FOR THE FIRST TIME: A 2ND MULTI-SATELLITE CONSTELLATION



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- Assures RapidEye data continuity
- Formal announcement at our partner meeting next week
 - Constellation details will be published on our website
www.blackbridge.com
- Confirmation
 - 5 or more satellites
 - 5 m or better MSS resolution
 - Higher resolution pan band
 - More MSS bands
 - More agility, collection capacity, download capability

WHY IS REPETITIVE, ANNUAL COVERAGE IMPORTANT?



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RapidEye imagery from 2013-01-22
Morro Agudo Municipality, Sao Paulo State, Brazil



This land is our
life.

**Dynamic and
changing**

We are
responsible for
land
stewardship

Responding to
changes is our
obligation

THE NEWS COVERS WHAT GOES WRONG ALL NATIONAL SECURITY ISSUES



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- Loss of forests
- Loss of biodiversity
- Droughts (food security)
- Disasters

“Climate change will worsen problems society already has...”

UNEP IPP Fifth Assessment Report (AR5) March, 2014



HISTORY TELLS US THAT IF WE ARE NOT RESPONSIBLE, FUTURE GENERATIONS WILL PAY.



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www.shu



Figure 2.1 : The Landscape of Greece

Greece did not manage its land

- Deforestation
- Overgrazing for short-term profit
- Topsoil and resources were lost
- Early Greek civilization collapsed

3000 years ago Greece was the land of milk and honey

Today its agricultural potential is a fraction of previous millennia.

Most historic civilizations (like ancient Greece) collapsed after 40 – 60 generations because they did not manage their land and resources*

*Topsoil and Civilization, Dale & Carter, 1955

IMAGERY IS THE ONLY WAY TO QUANTIFY LOCAL CHANGE AT A NATIONAL SCALE



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2010

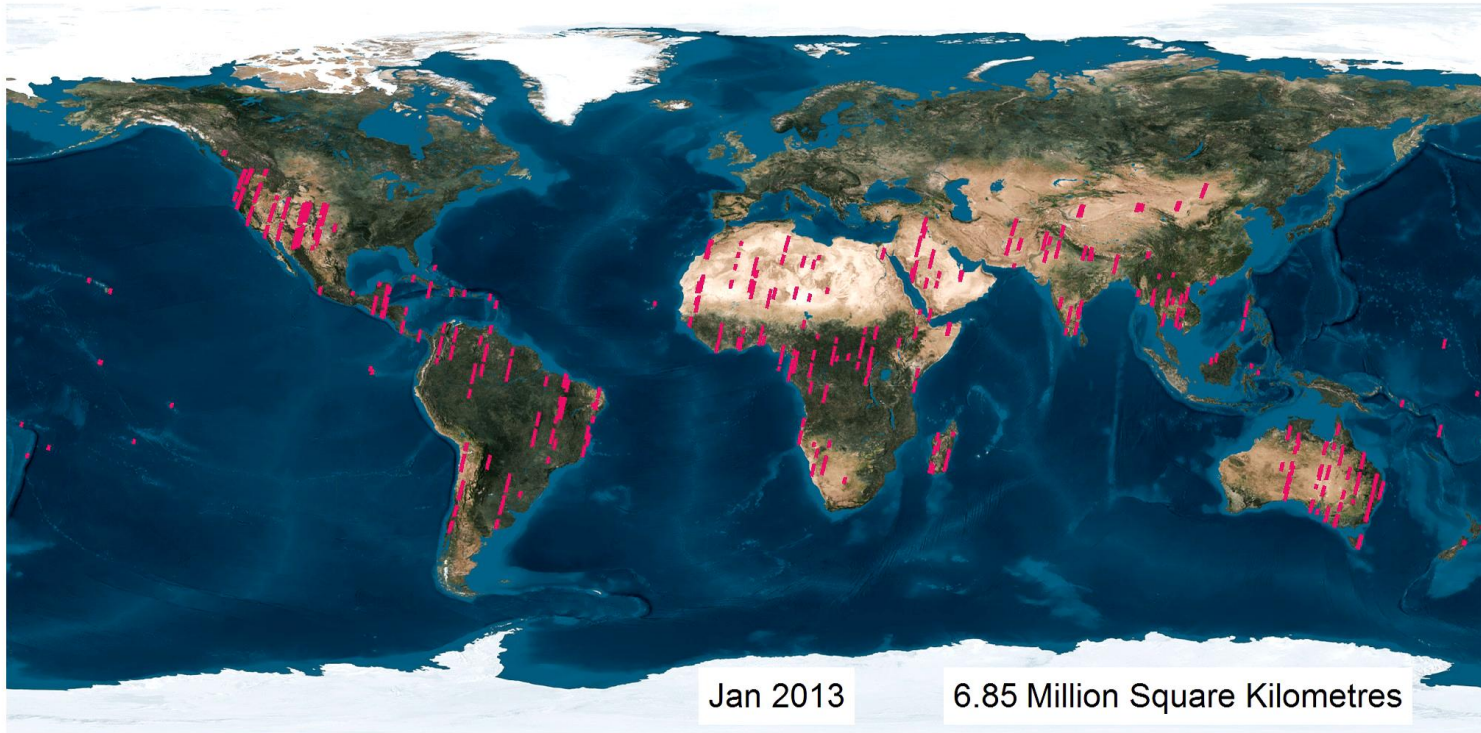
Forest loss in Mexico Identified as part of their MRV program
0.5 ha MMU

2011

RAPIDEYE RELIABLY AND REPETITIVELY IMAGES THE WORLD EACH YEAR AT 5 M RESOLUTION



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Tasking

Very Fresh
archive

Ready with a
“before and
after” image
GLOBALLY

MOST CURRENT USES ARE NOT COMPLEX

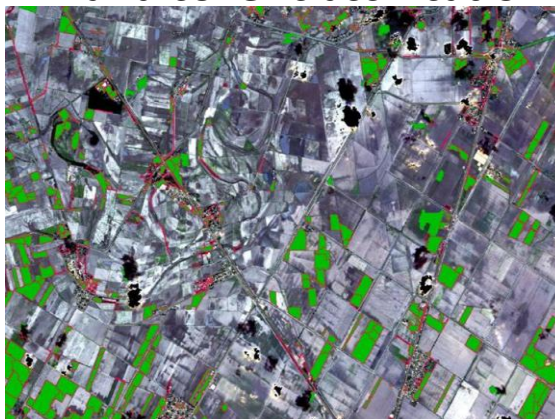


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Heads up digitization



Land cover classification



Change detection



Class validation

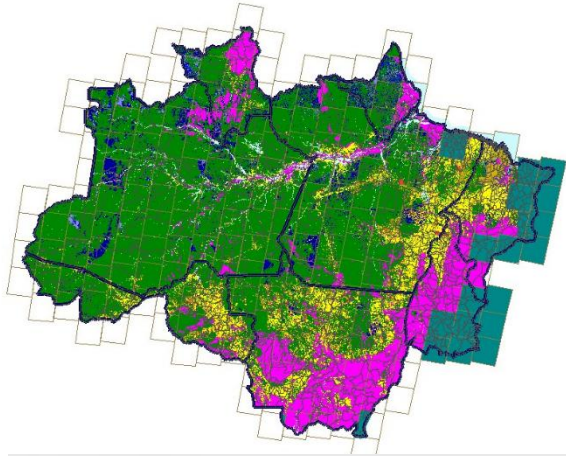


At 5 m resolution, the results from using RapidEye imagery are accurate for local applications and scale to national requirements.

BRAZIL HAS TWO OF THE WORLDS LEADING IMAGE BASED, ENVIRONMENTAL MANAGEMENT INITIATIVES



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- PRODES: For monitoring Amazon deforestation
 - Medium resolution imagery
- CAR: For complying with the Forest Code
 - High resolution RapidEye imagery



RAPIDEYE IS THE NATIONAL BASE MAP FOR THE CAR PROGRAM



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PREFEITURA MUNICIPAL DE PARAGOMINAS
SEMMA
SECRETARIA MUNICIPAL DO VERDE E DO MEIO AMBIENTE
CAR - CADASTRO AMBIENTAL RURAL

Status: **ATIVO** CAR/TO: **101329**

Dados da Propriedade

Nome: Fazenda Santa Firmina
Endereço: Rodovia Aquiles Rossi
Município: Araguaçu/TO
CEP: Não preenchido
Módulo fiscal do município: 70 ha
Localização: Rural

Dados do Técnico

Nome: José da Silva
Órgão: EMATER

Proprietários

Antonio José da Silva – CPF 044.388.270-35 – Arraias/TO
Empresa de Testes – CNPJ 46.147.846/0001-50 – Palmas/TO

Área da Propriedade

Área do Imóvel: 25.584,16 ha
Número de módulos fiscais: 365,49 MF
Biom: Cerrado
ARL min. exigida: 35,00 % (8954,45 ha)

Resultado da Análise Automática: Ativo		Conflitos Ativos	
Área do imóvel fora do Estado:	0,00 ha (0,0 % do imóvel)	Conflitos Causados:	0
ARL com cobertura florestal:	0,00 ha	Conflitos Recebidos:	0
	(50,0 % da cobertura florestal do imóvel)	Total:	0
Número de sobreposições:			
-Terras Indígenas: 0			
-Assentamentos: 0			
-Unidades de Conservação: 0			

Local e Data: Palmas, 30 de Outubro de 2013.

Atenção

O CAR não autoriza qualquer atividade econômica no imóvel rural, bem como não autoriza exploração florestal e nem se constitui em prova da posse ou propriedade para fins de regularização fundiária, não autoriza desmatamentos ou obtenção de financiamento junto a instituições de crédito públicas ou privadas, no que estabelece o art. 7º da Instrução Normativa nº 003/2007 de 23 de maio de 2007.

PREFEITURA MUNICIPAL DE PARAGOMINAS
SEMMA
SECRETARIA MUNICIPAL DO VERDE E DO MEIO AMBIENTE
CAR - CADASTRO AMBIENTAL RURAL

Status: **ATIVO** CAR/TO: **101329**



OPPORTUNITY: BIG DATA AND THE CLOUD



- **Imagery are big data:** moving imagery between locations is difficult
- **Brazil is already storing RapidEye imagery in the cloud**
 - All MMA coverages
 - Easy to access, download and share
 - Online catalog for discovery and download exists
 - Brazil has All Government License for RapidEye data
- **Process imagery in the cloud:**
 - Next step
 - Other people manage the infrastructure; you focus on results
 - Makes life easier and more productive



BENEFITS MMA COVERAGE STORED IN THE CLOUD



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- Long-term approach; a consistent, multi-year, high resolution data base.
- Easy integration with long-term monitoring, assessment and change programs
- Open access for sharing among all government institutions
- Reduced costs; Data only sold once
- Online catalog allows easy download and use
- Increased productivity, new ideas!
- Challenge: How will you, the Brazilian geospatial community, leverage this resource for your country?

LATIN AMERICAN COUNTRIES ARE FOLLOWING BRAZIL'S LEAD



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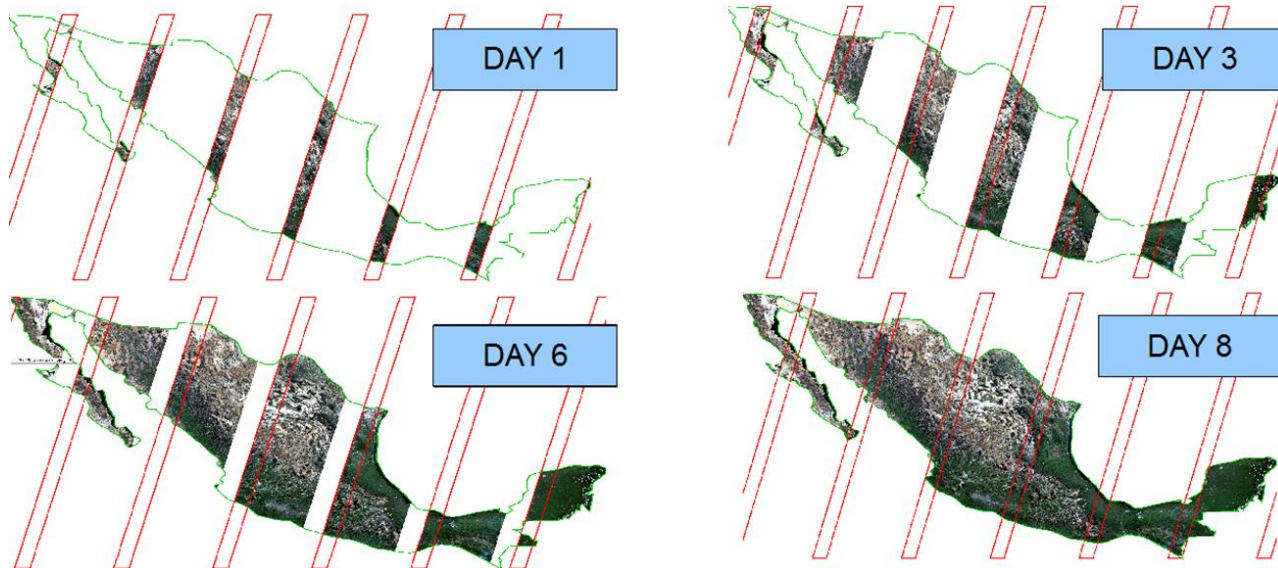


Each of these countries are buying complete country coverages for national mapping, monitoring, or change detection programs

MEXICO: FOR THE FIRST TIME



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Assumes
no clouds

2 complete, reliable coverages per year

MEXICO: 2 MILLION SQ KM



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- Multiple uses
 - Managing their REDD reporting program
 - National biodiversity initiatives
 - National forestry initiatives
- Two coverages per year
 - Required for separating forest classes
 - Dry Season: January – May
 - Wet season: June - November
 - 26 total classes, 12 forest classes
- Automated processing method
 - Process all of Mexico (RE data) in 3 days

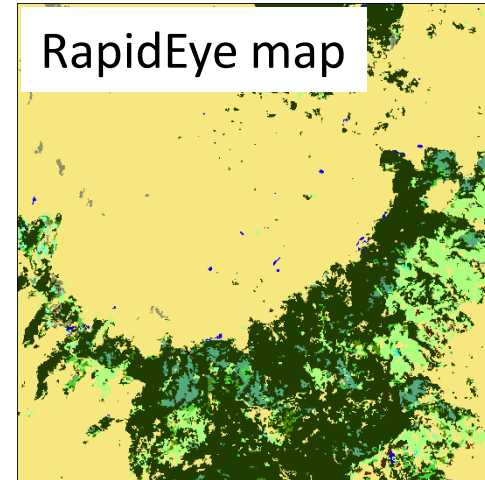
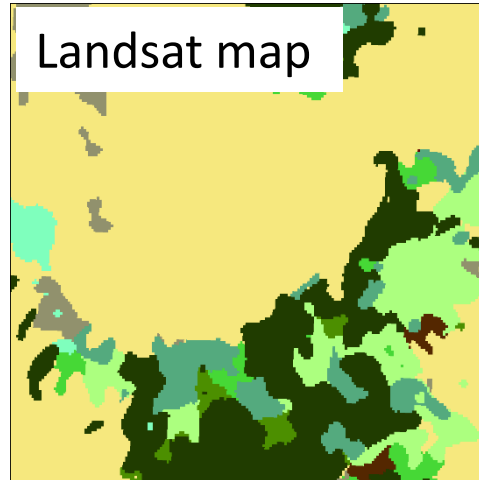
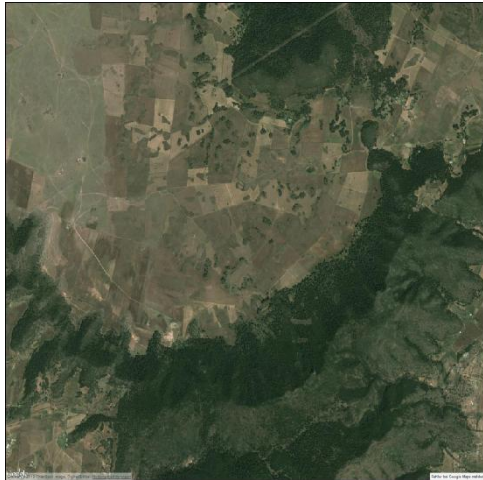


WHY RAPIDEYE?



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- RapidEye has the spatial resolution required to separate their classes at their 0.5ha MMU (Required)
- Reliable, complete country coverage twice per year



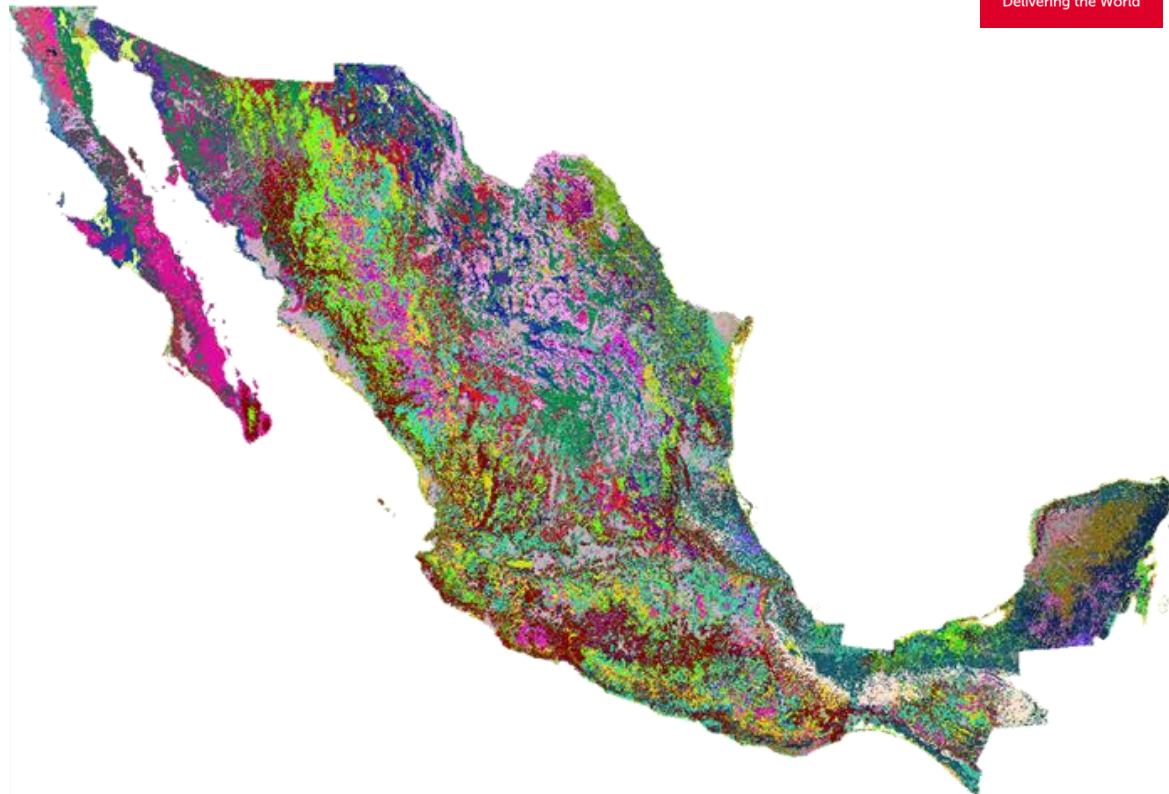
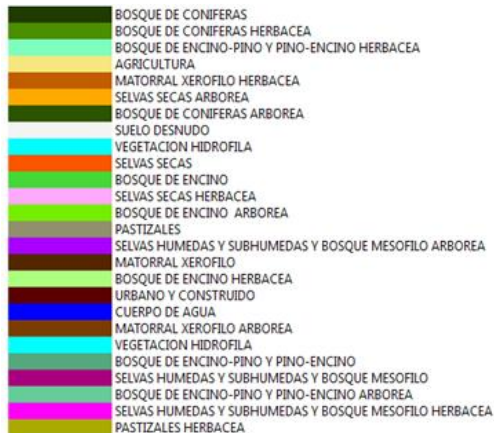
MEXICO: FOR THE FIRST TIME



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National land cover and forest change map

- Updated annually
- 0.5 ha MMU



MEXICO: NEW APPROACH FOR CKASSIFIER TRAINING

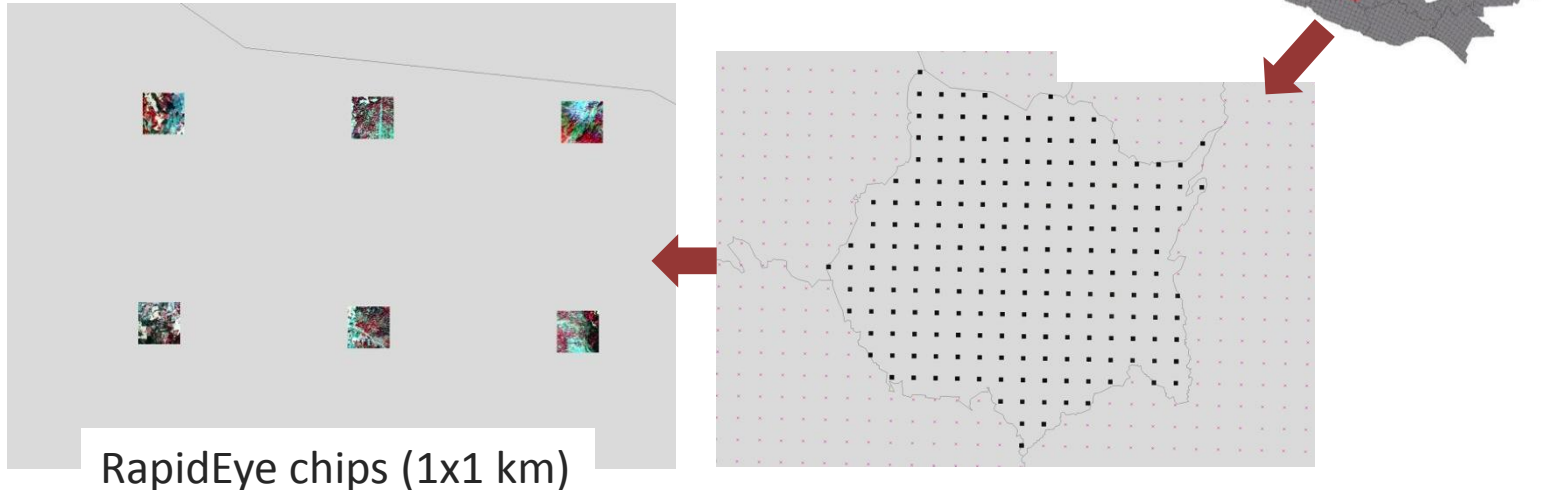


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Regular point grid: 5x5 km 78,008 points for Mexico

Each chip segmented and each segment identified

Used for classifier training and validation

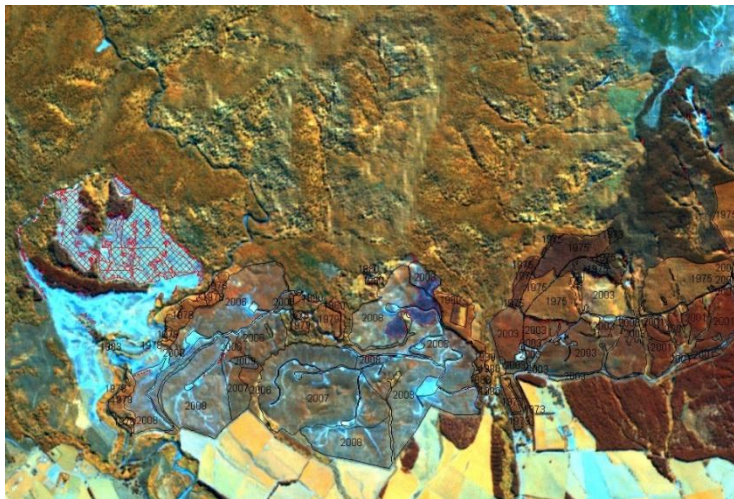


GUYANA: FOR THE FIRST TIME



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- Fourth year of using RapidEye to create statistics for national REDD reporting



Changed from Landsat to RapidEye

Improved classification accuracy

Reduced reported loss

Allowed forest degradation assessment



Indufor



Guyana Forestry Commission
Guyana REDD+ Monitoring Reporting & Verification System (MRVS)

Interim Measures Report
01 October 2010 – 31 December 2011

30 May 2012

CENTRAL AMERICA FOR THE FIRST TIME



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- National forest inventory
- Part of REDD programs
- Costa Rica first to complete
 - Released March 2014 using 2013 data
 - 4 forest classes

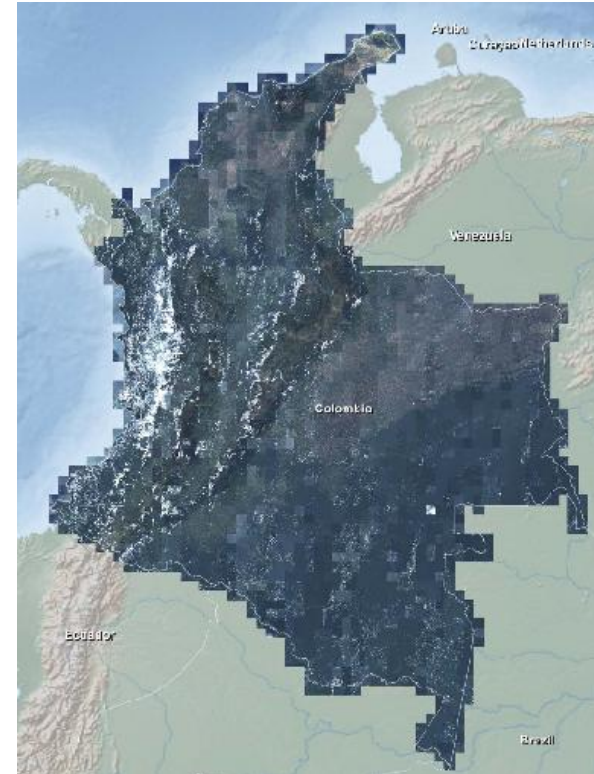


COLOMBIA: FOR THE FIRST TIME



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- National, same year coverage
- Used by ICAG for updating 1:25,000 scale cartographic maps



ECUADOR: FOR THE FIRST TIME



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- National, same year coverage
- Developing national forest map
- Used as base for Carbon Accounting
- Part of REDD plan

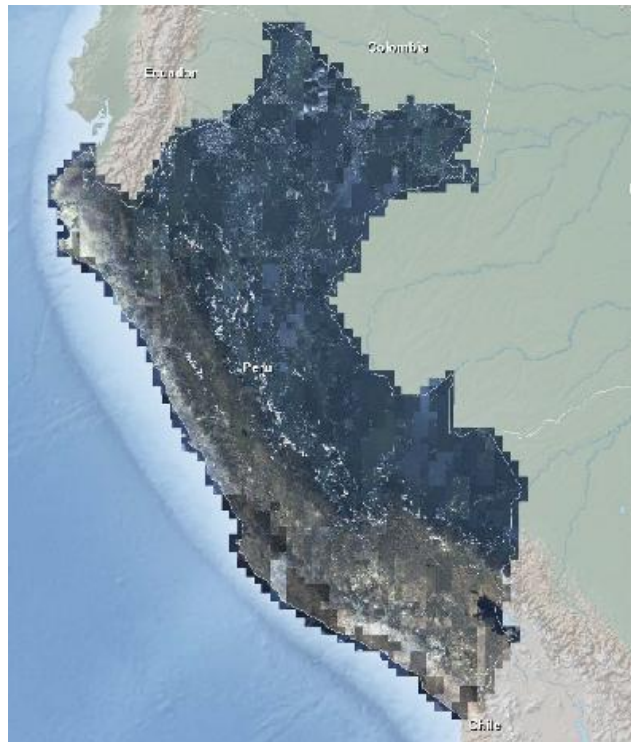


PERU: FOR THE FIRST TIME



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- National same year coverage
- Used to develop a national land cover map
- Part of National REDD initiative

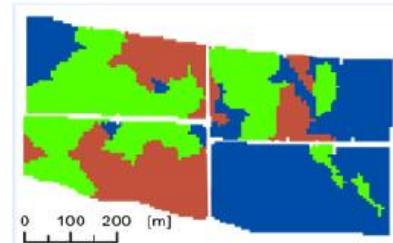
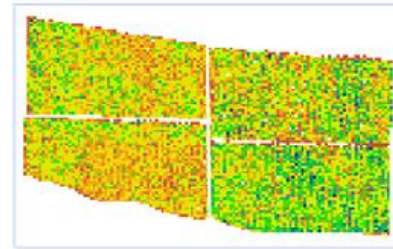
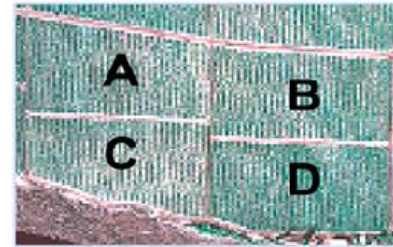


FOR THE FIRST TIME EVER: BRAZILIAN AG MONITORING PROGRAM



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- Multiple coverages within a growing season
 - Major agricultural regions of Brazil
 - Base for whole new suite of business opportunities
- All imagery processed and online.
- One access fee and no minimum AOI
- Talk to SCCON, our partner.



LARGE-AREA COLLECTIONS

EXAMPLE: NORTH AMERICAN MONITORING PROGRAM 2013



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4 coverages achieved

16 million km²
delivered cloud-free

Multi-date tile delivery

The screenshot shows the EyeFind Agriculture web application interface. The main map displays a large black area covering a significant portion of North America, representing the collection region. The interface includes a table of data for various dates and a search bar.

Image	Acquired at	Catalogue ID	Clouds	Black fill
<input type="checkbox"/>	2013-09-29	14241822	0	0
<input checked="" type="checkbox"/>	2013-09-03	13867259	0	0
<input type="checkbox"/>	2013-07-15	13295609	0	0
<input type="checkbox"/>	2013-05-29	12915132	0	0
<input checked="" type="checkbox"/>	2013-06-15	13035973	3	0
<input type="checkbox"/>	2013-08-22	13735175	0	5

BLACKBRIDGE AND SCON ARE EQUAL BUSINESS PARTNERS



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- BlackBridge invested in Santiago e Cintra Consultoria
- Announced Feb. 21, 2014
- Assures a permanent BlackBridge presence in Brazil
- We are committed to new opportunities in Brazil





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