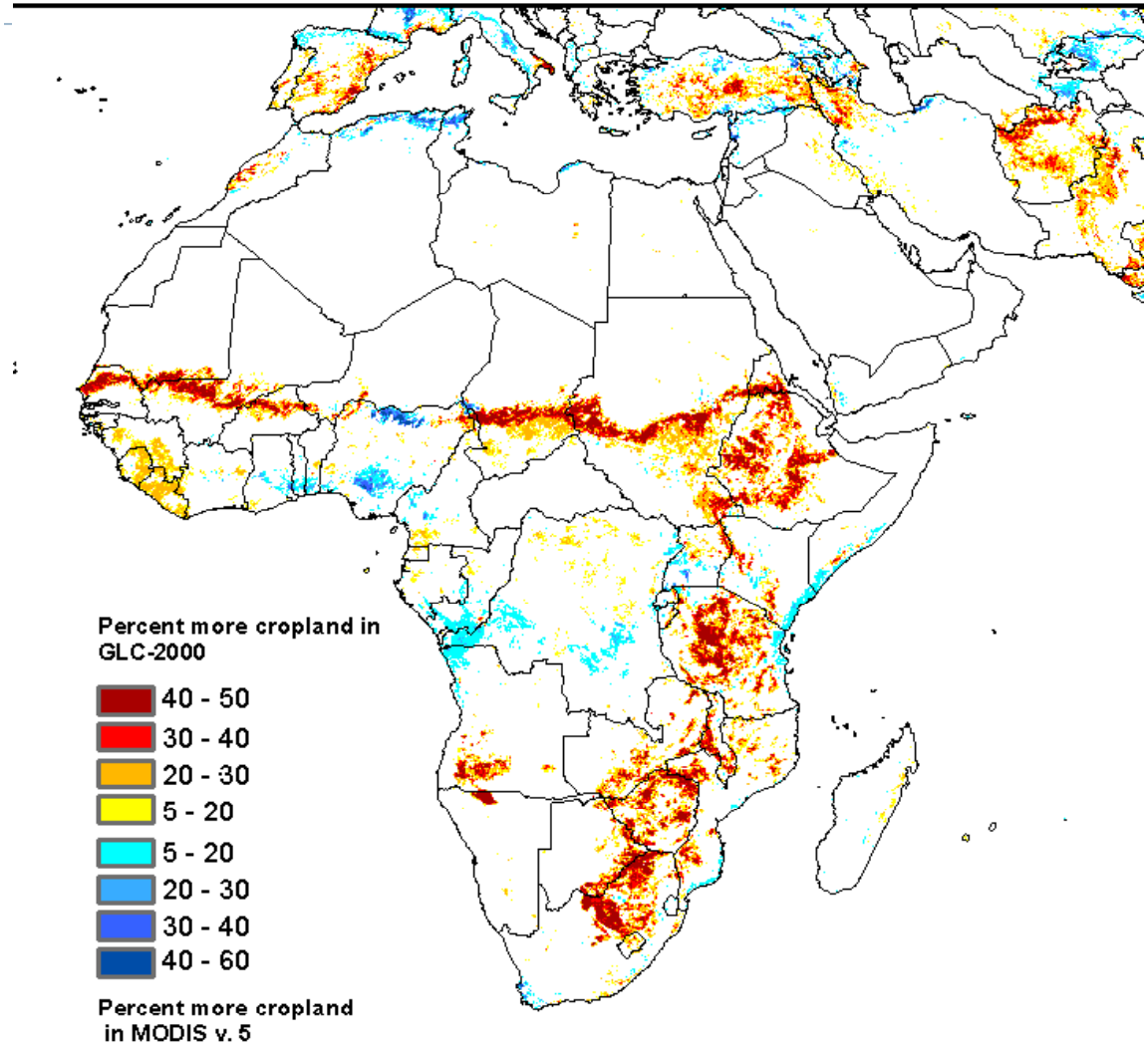

UNITED NATIONS | UNOOSA | UN-SPIDER
United Nations Platform for Space-based Information for Disaster Management and Emergency Response
Expert Meeting:
Crowdsource Mapping
for Preparedness and Emergency Reponse
“Land cover, land grabbing and drought: opportunities for crowdsourcing”

Why is it so important to improve global land cover?

- Originally focus and applications of land cover datasets where in the field of climate change projections
- Now increasing demand comes from the integrated assessment community and the global biophysical modelling community
- Cropland extend has been neglected, but crucial for applications in the field of food security, assessing yield and production gaps,
- Cropland extend dataset is also crucially important for investment decisions both by governments as all as foundations (e.g. Gates)



Disagreement in Africa in the cropland domain between GLC-2000 and MODIS v. 5

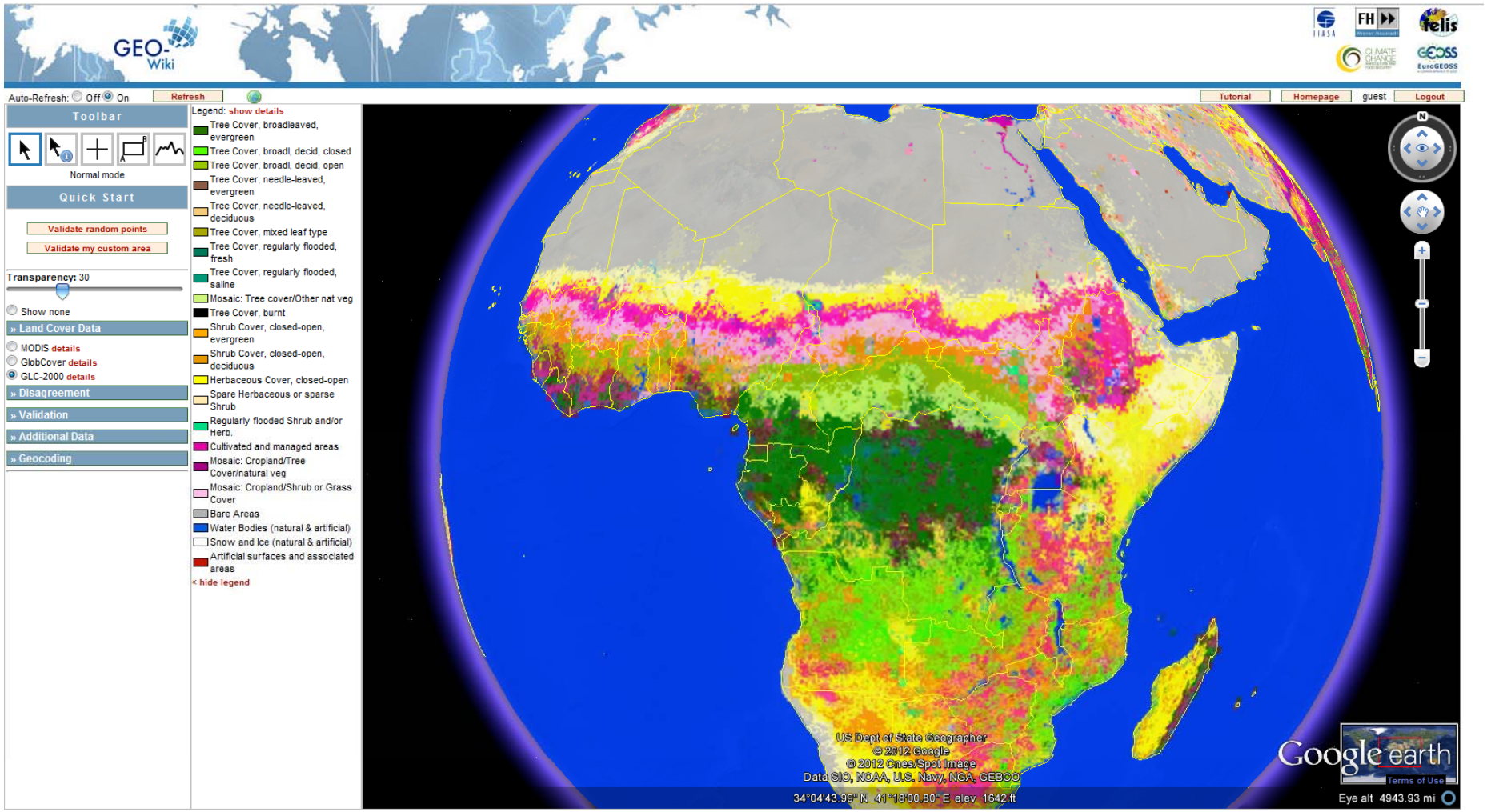
Motivation to build GEO-Wiki
Problems with global land cover

- When different products are compared, there is a lot of disagreement between them
  - One product might say cropland, another grassland
- Confusing if you are a user – which one is correct? Which is the best product to use?
- Disagreement overall and/or spatially
- Google Earth/Bing Maps are still the only very high resolution data available to researchers to collect validation points globally (examples, GlobCover, latest Chinese product)

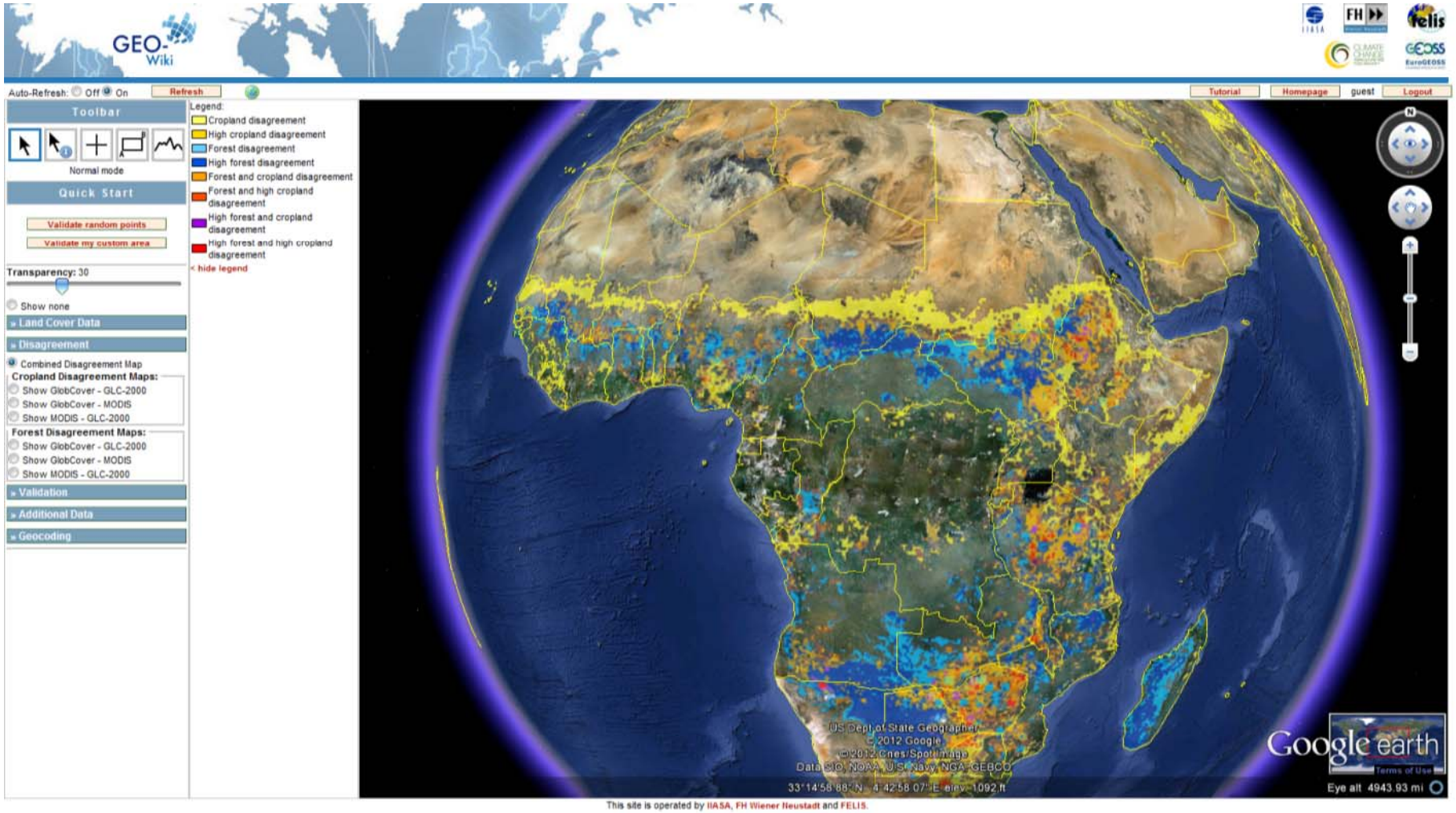

Welcome to Geo-Wiki Project - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Welcome to Geo-Wiki Project
HELP TO VALIDATE GLOBAL LAND COVER
GEOBENE
GEO-Wiki
» Home
» Instructions
» Publications
» Download Data
» Media
» Supporting projects
» Related projects
» Data sources
» Upcoming Events
» Contact us
» Disclaimer
The Geo-Wiki Project
Tweet 0
The Geo-Wiki Project is a global network of volunteers who wish to help improve the quality of global land cover maps. Since large differences occur between existing global land cover maps, current ecosystem and land-use science lacks crucial accurate data (e.g. to determine the potential of additional agricultural land available to grow crops in Africa). Volunteers are asked to review hotspot maps of global land cover disagreement and determine, based on what they actually see in Google Earth and their local knowledge, if the land cover maps are correct or incorrect. Their input is recorded in a database, along with uploaded photos, to be used in the future for the creation of a new and improved global land cover map.
View publication
Download Data
Try Geo-Wiki
Try as guest
Login
Login existing user
Email:
Password:
Login
Remember me
Forgot password?
Register here!
Geo-Wiki top 5 validators
1 JP Ardila 5905
2 rubul hazarika 5696
3 benphalan 620
4 Chandrashekhar Biradar 321
5 Jeaime Powell 290
10:27 AM
4/4/2011

http://Geo-Wiki.org

- Geo-wiki makes GEO data easy to visualize and analyze.
- Volunteers from around the globe can classify Google Earth imagery, input their agreement/ disagreement with the existing data


GEO-Wiki
Auto-Refresh: Off On
Refresh
Tutorial
Homepage
guest
Logout
Toolbar
Normal mode
Quick Start
Validate random points
Validate my custom area
Transparency: 30
Show none
» Land Cover Data
MODIS details
GlobCover details
GLC-2000 details
» Disagreement
» Validation
» Additional Data
» Geocoding
Legend: show details
Tree Cover, broadleaved, evergreen
Tree Cover, broadl, decid, closed
Tree Cover, broadl, decid, open
Tree Cover, needle-leaved, evergreen
Tree Cover, needle-leaved, deciduous
Tree Cover, mixed leaf type
Tree Cover, regularly flooded, fresh
Tree Cover, regularly flooded, saline
Mosaic: Tree cover/Other nat veg
Tree Cover, burnt
Shrub Cover, closed-open, evergreen
Shrub Cover, closed-open, deciduous
Herbaceous Cover, closed-open
Spare Herbaceous or sparse Shrub
Regularly flooded Shrub and/or Herb.
Cultivated and managed areas
Mosaic: Cropland/Tree Cover/natural veg
Mosaic: Cropland/Shrub or Grass Cover
Bare Areas
Water Bodies (natural & artificial)
Snow and Ice (natural & artificial)
Artificial surfaces and associated areas
< hide legend
US Dept of State Geographer
© 2012 Google
© 2012 Cnes/Spot Image
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
34°04'43.99" N 41°18'00.80" E elev 1642 ft
Google earth
Terms of Use
Eye alt 4943.93 mi
This site is operated by IIASA, FH Wiener Neustadt and FELIS.

Geo-Wiki Project: Disagreement



GeoWiki Auto-Refresh: Off On Refresh Hello, fritz@iiasa.ac.at View Profile Logout

Status: Please z

Transparency: 28

Show none

>> Land Cover Data

Show MODIS details
Show GlobCover details
Show GLC-2000 details

>> Disagreement

Show Combined Disagreement Map

Cropland Disagreement Maps:
Show GlobCover - GLC-2000
Show GlobCover - MODIS
Show MODIS - GLC-2000

Forest Disagreement Maps:
Show GlobCover - GLC-2000
Show GlobCover - MODIS
Show MODIS - GLC-2000

Ramankutty maps:
Show Ramankutty pasture
Show Ramankutty cropland

IFPR maps:
Show IFPR cropland

>> Validation

>> Additional Data

Load Basedata
Load Panoramio
Load FRA2010 10km details
Load FRA2010 20km details

>> Geocoding

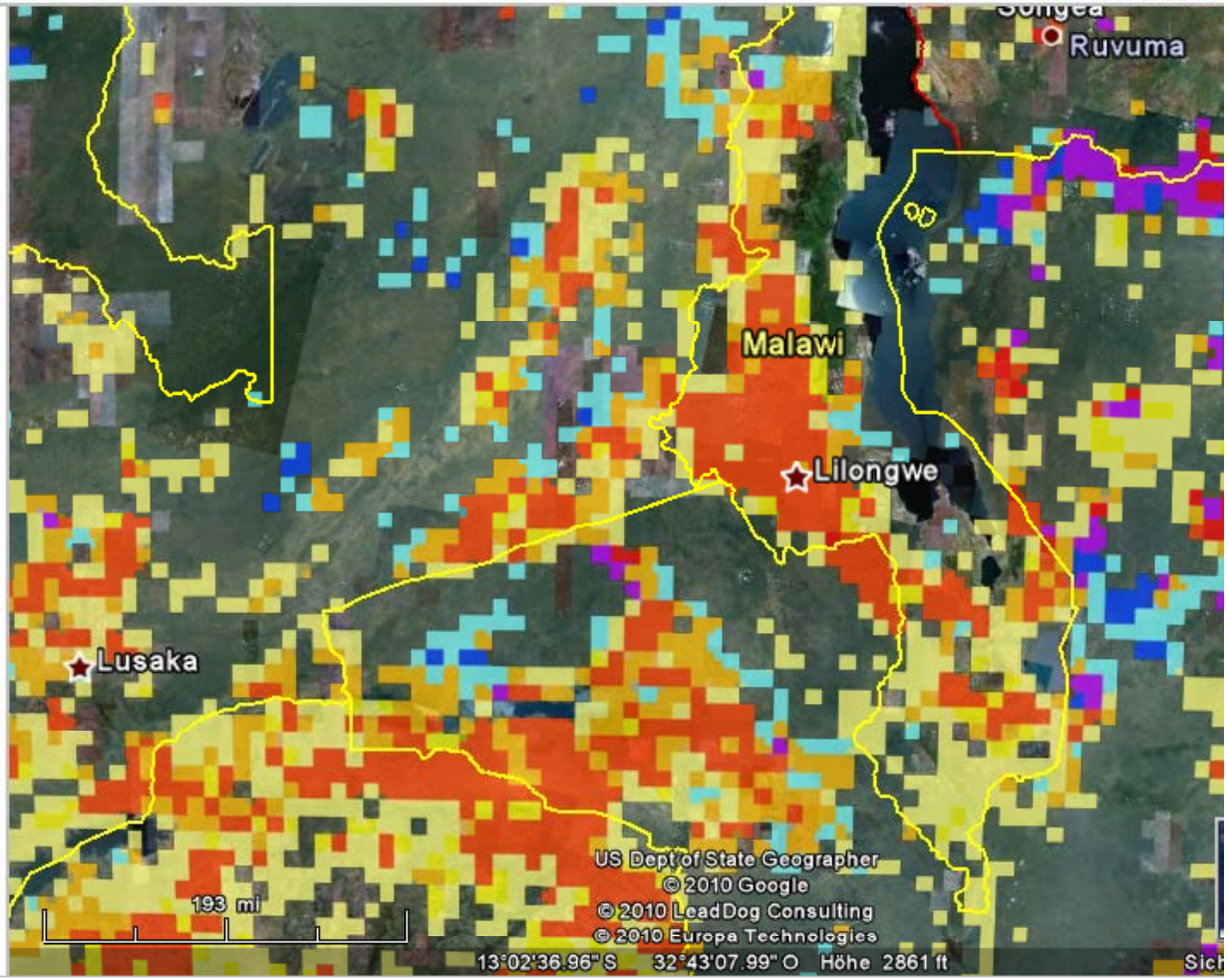
Quick Start

Validate random points

Infobutton: Press SHIFT + left mouse to get LandCover-Information

Legend:
- Cropland disagreement
- High cropland disagreement
- Forest disagreement
- High forest disagreement
- Forest and cropland disagreement
- Forest and high cropland disagreement
- High forest and cropland disagreement
- High forest and high cropland disagreement

< hide legend



This site is operated by IIASA, FH Wiener Neustadt and FELIS.

IIASA EuroGEOSS GEOBENE FH Wiener Neustadt felis

http://dev.geo-wiki.org/#

Most Visited | Getting Started | Latest Headlines

Geospatial Land Cover Validation at g...

Auto-Refresh: Off On | Refresh | View Ranking | Invite a Friend | Homepage | fritz@iiasa.ac.at | View Profile | Logout

Toolbar

Info button

Quick Start

Validate random points

Transparency: 30

Show none

» Land Cover Data

Show MODIS details
Show GlobCover details
Show GLC-2000 details

» Disagreement

Show Combined Disagreement Map

Cropland Disagreement Maps:
Show GlobCover - GLC-2000
Show GlobCover - MODIS
Show MODIS - GLC-2000

Forest Disagreement Maps:
Show GlobCover - GLC-2000
Show GlobCover - MODIS
Show MODIS - GLC-2000

» Validation

Already Validated Areas:
Show validated Areas

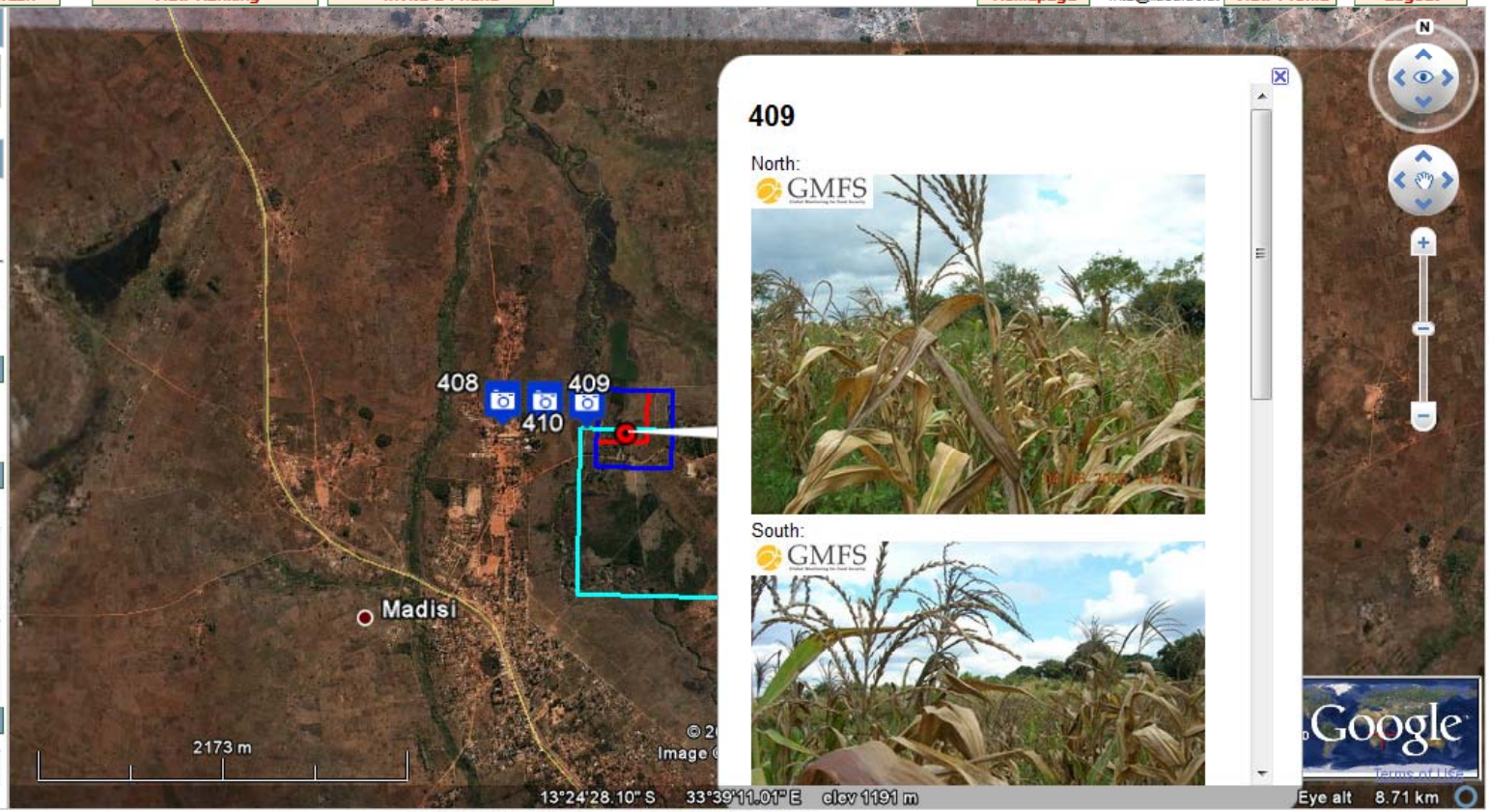
Load Confluence Points
Load Country Statistics
Load uploaded Pictures remove
Load Geo-Wiki Members

» Additional Data

» Geocoding

Spin the Earth

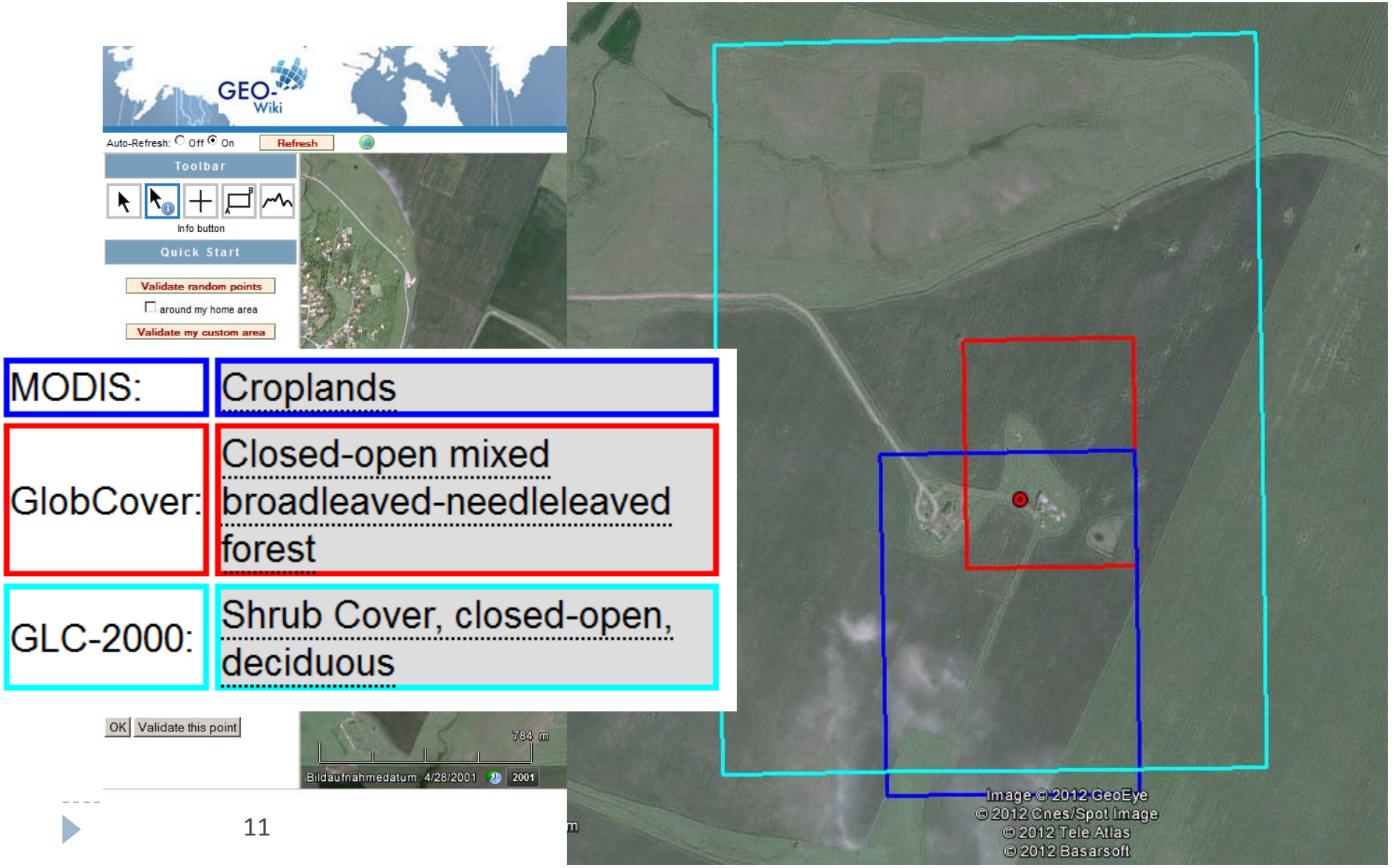
MODIS:	Non-Woody Savannahs
GlobCover:	Closed-open mixed broadleaved-needleleaved forest
GLC-2000:	Cultivated and managed areas



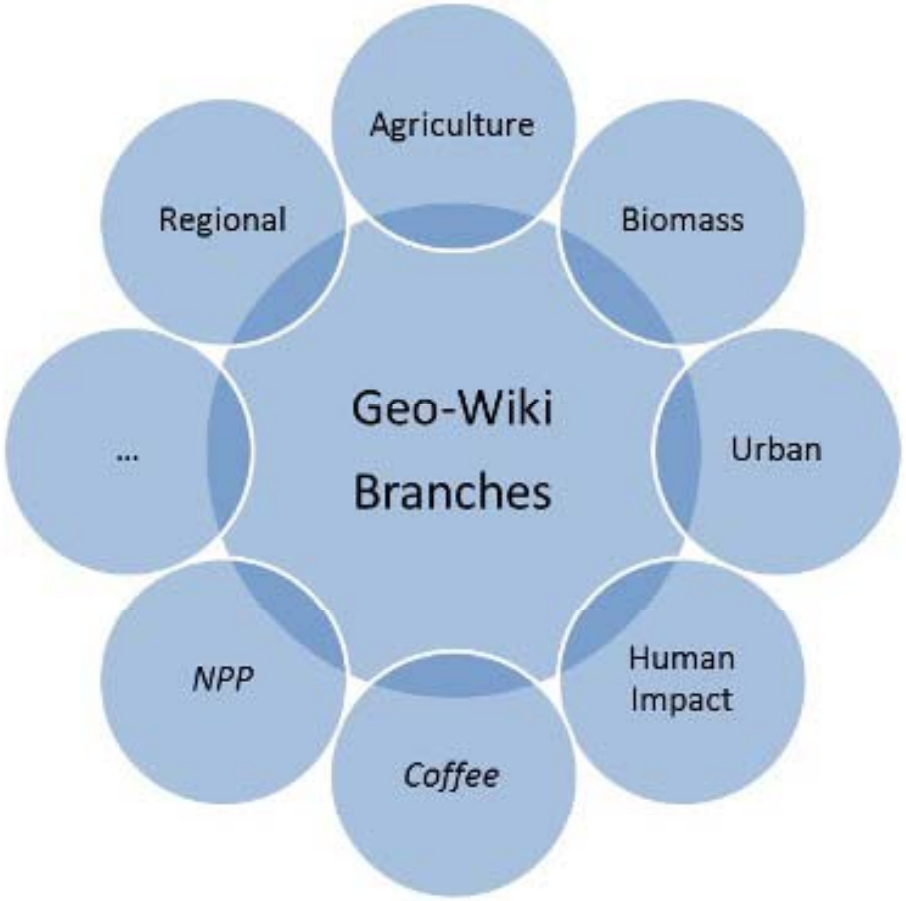
This site is operated by IIASA, FH Wiener Neustadt and FELIS.

Done

Am example of disagreement in Dimitrovgrad, Chaskowo oblast, Bulgaria



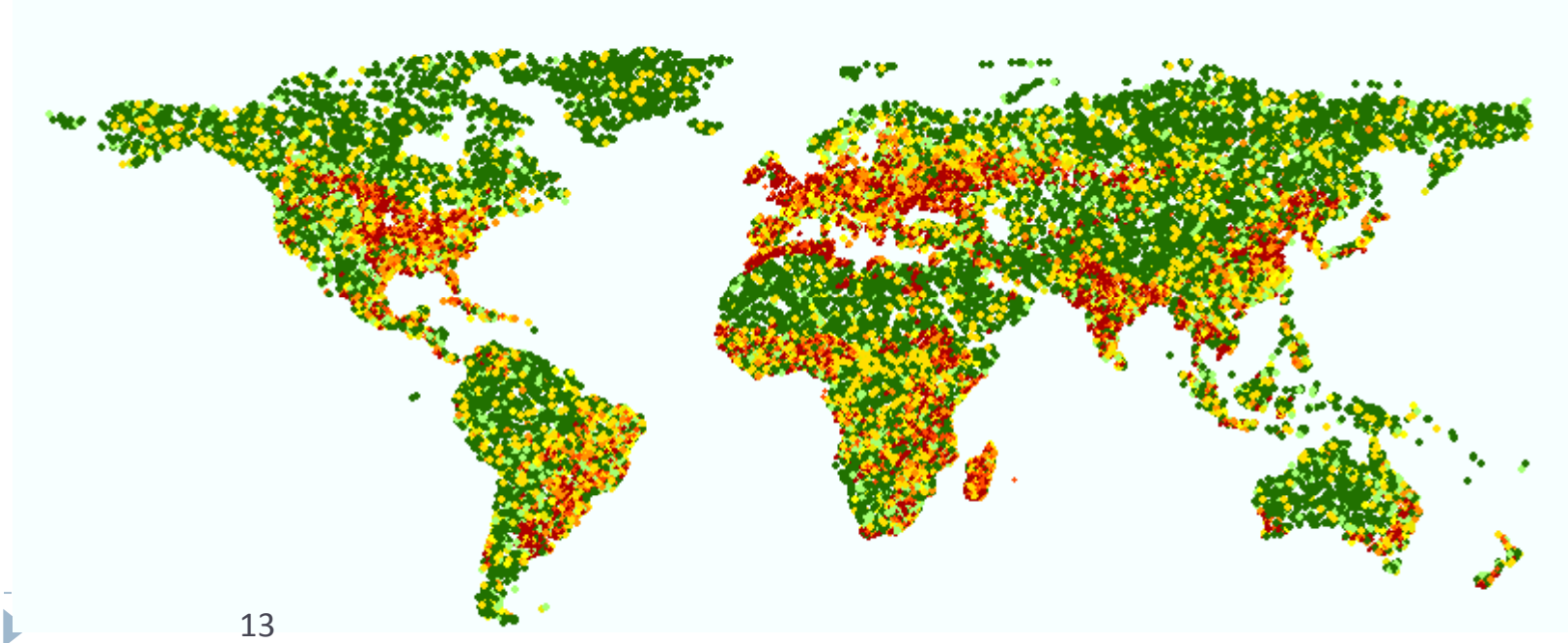
Geo-Wiki Family of Crowdsourcing Tools



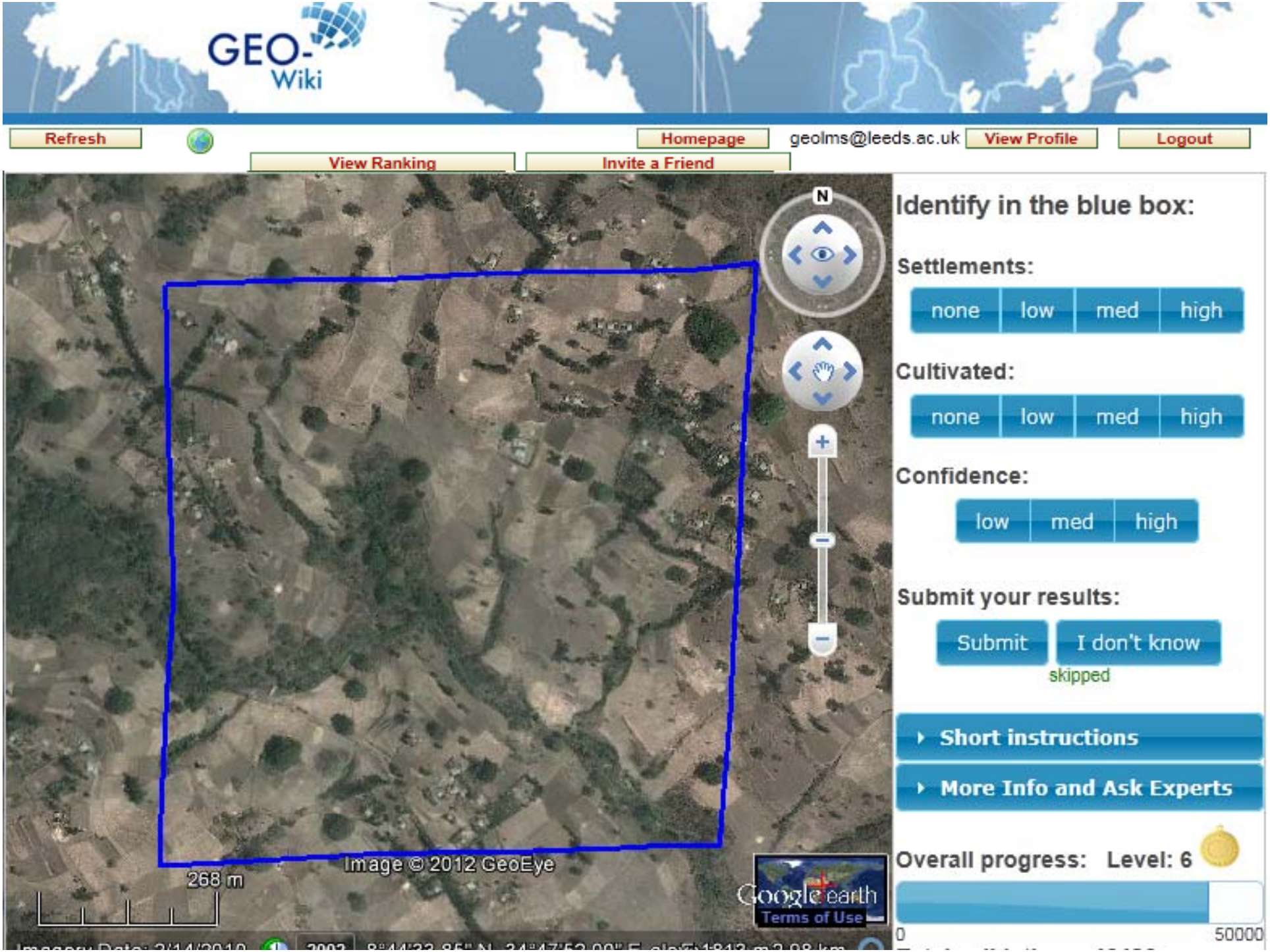
Contributes to
Open Data

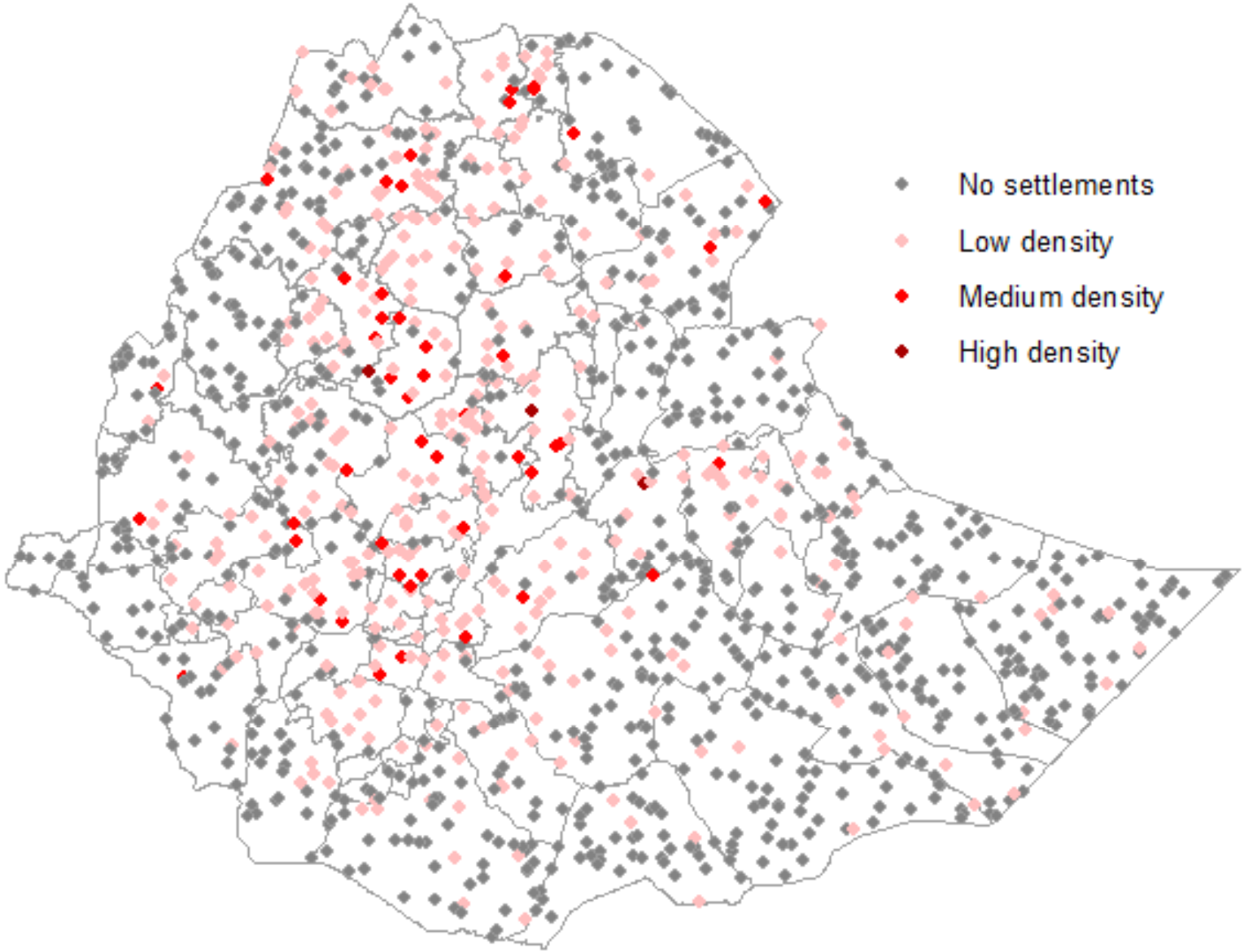
Map improvement via crowd-sourcing

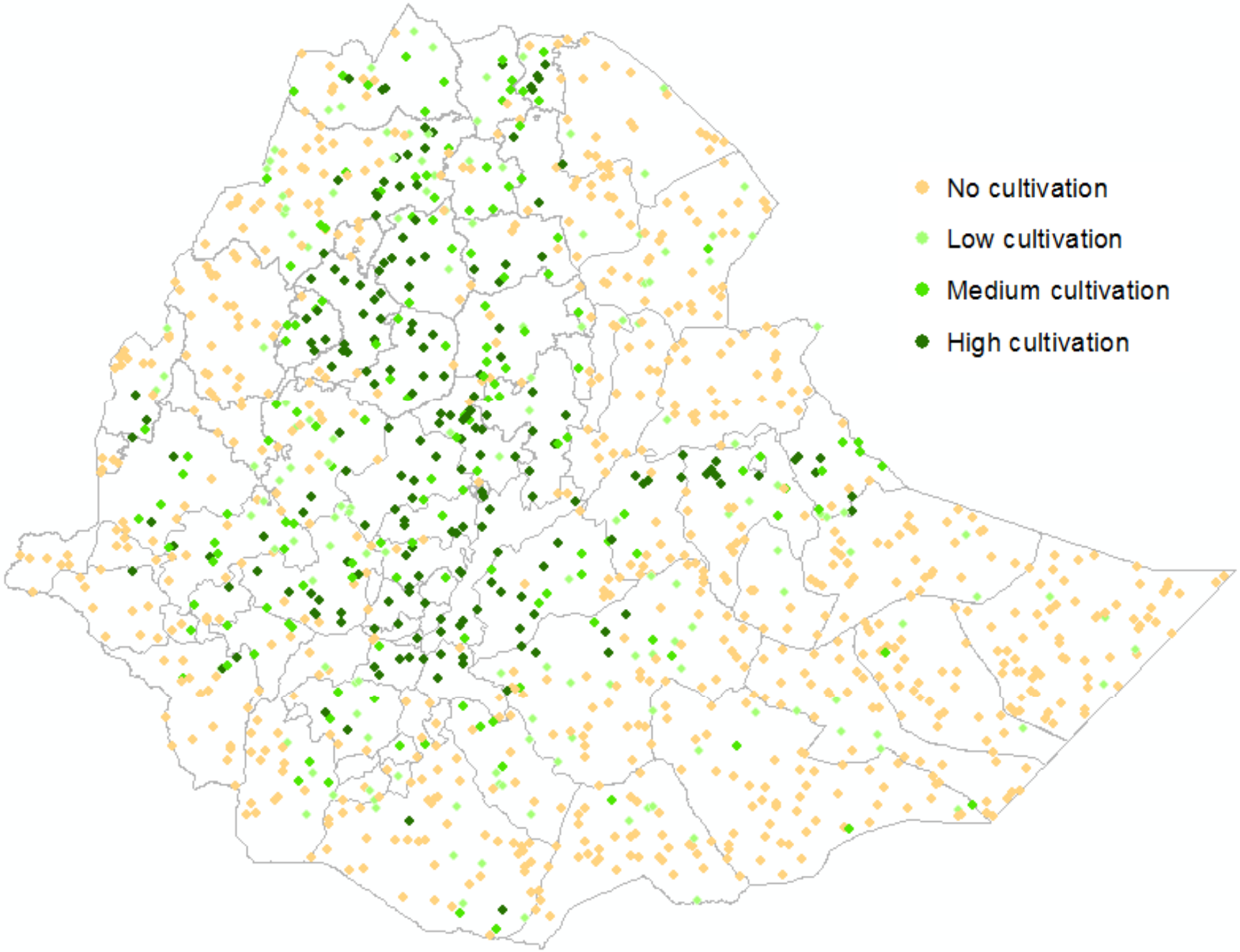
- More than 1000 users in more than 120 countries
- > 100,000 validation points

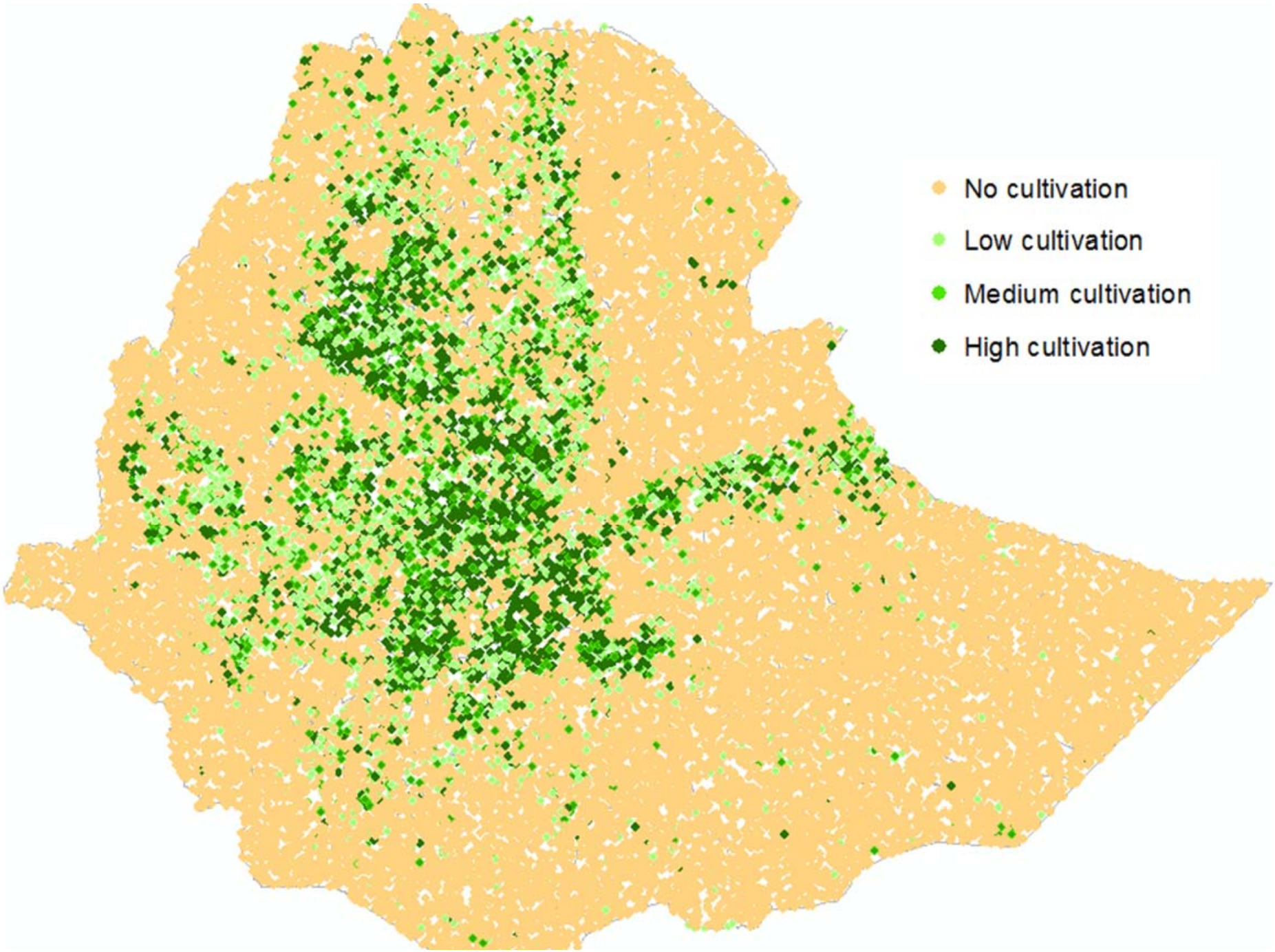



http://hackathon.geo-wiki.org/login.php
Welcome to Geo-Wiki Proj...
Booking.com: Adriatic Queen ...
Search
Facebook
Listen to music
YouTube
21° Ispra, Italy
Corriere della Sera
La Gazzetta dello Sport
Fun Games
Options
Google
eye on earth eea
Search
Share
More
Steffen Fritz
Hacking for Hunger
IIASA
FH
felis
GEOBENE
GEOSS
EuroGEOSS
GEO-Wiki
» Home
» Disclaimer
Contact us:
» Email
» Facebook group
» Google group
Add me to Skype
Simple fun - no special skills required
Collecting Geo-Wiki data in Ethiopia:
Tweet
0
Stopping Land Grabbing and Improving Food Security
The Problem: We have collected a plethora of land cover validation points across the globe. In particular in Ethiopia we currently have large disagreements among our validation points and a data cleanup crowd-sourcing exercise would help us tremendously to make a major step forward in being able to understand in which areas land acquisitions might lead to the displacement of the local population. Land grabbing is the large scale acquisition or leasing of lands in developing countries (e.g. Ethiopia) for purposes such as biofuel production. We will be able, with this hackathon challenge, to determine land use and hence land availability. Since the perceived availability of land is one of the most important factors in determining the probability of being a target country for these acquisitions, a better estimate of land availability is needed. Ethiopia is an example of a country where this is happening.
Geo-Wiki.org Hackathon Intruduction
Share
More info
Login
Login existing user
Email:
Password:
Login
Remember me
Forgot password?
Register here!
Hackathon stats
Overall progress:
Level: 5
0
20000
Total validations: 9406
Google Translate
Select Language
Google Gadgets powered by Google
Radisson_Guest
Internet access
5:52 PM
9/23/2012


GEO-Wiki
Refresh
Homepage
geolms@leeds.ac.uk
View Profile
Logout
View Ranking
Invite a Friend
N
Identify in the blue box:
Settlements:
none
low
med
high
Cultivated:
none
low
med
high
Confidence:
low
med
high
Submit your results:
Submit
I don't know
skipped
Short instructions
More Info and Ask Experts
Overall progress:
Level: 6
0
50000
Image © 2012 GeoEye
268 m
Google earth
Terms of Use


No settlements
Low density
Medium density
High density


No cultivation
Low cultivation
Medium cultivation
High cultivation


No cultivation
Low cultivation
Medium cultivation
High cultivation

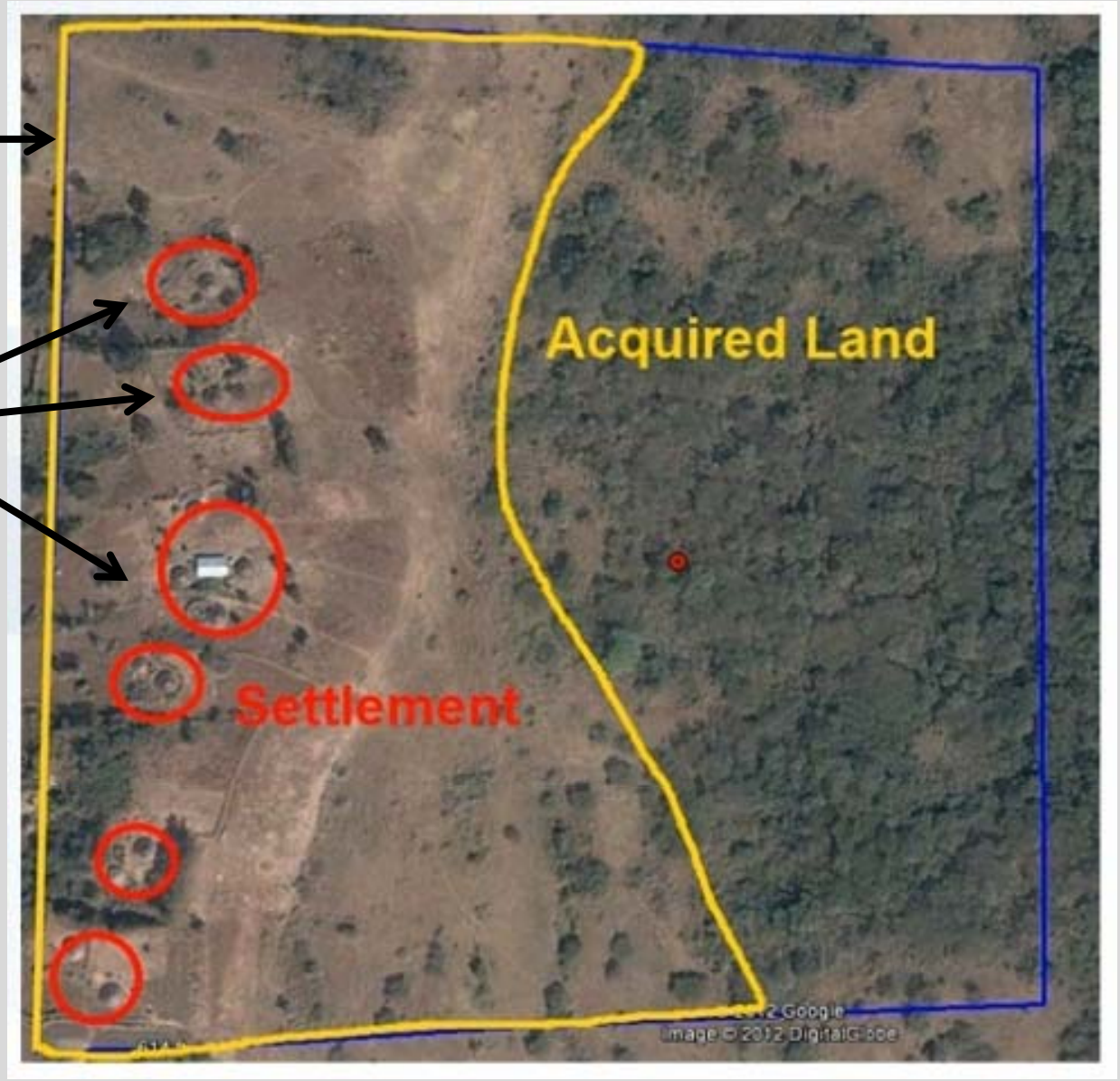
Land Acquisition Area

+

Clear Evidence of Settlements (from Geo-Wiki Hackathon)

=

Areas of Conflict



Environmental Science & Technology

Land Availability for Biofuel Production

Ximing Cai*†, Xiao Zhang†, and Dingbao Wang‡
Ven Te Chow Hydrosystems Laboratory, Department of Civil and Environmental Engineering, University of Illinois at Urbana–Champaign, Urbana, Illinois 61801, United States, and Department of Civil, Environmental, and Construction Engineering, University of Central Florida, Orlando, Florida 32816-2450, United States

Abstract
Full Text HTML
Hi-Res PDF [1371 KB]
PDF w/ Links [212 KB]
Supporting Info
Figures

Environ. Sci. Technol., **2011**, *45* (1), pp 334-339
DOI: 10.1021/es103338e
Publication Date (Web): December 9, 2010

* Corresponding author phone: (217) 333 4935; e-mail: xmcai@illinois.edu., † University of Illinois at Urbana–Champaign., ‡ University of Central Florida.

Abstract

Marginal agricultural land is estimated for biofuel production in Africa, China, Europe, India, South America, and the continental United States, which have major agricultural production capacities. These countries/regions can have 320–702 million hectares of land available if only abandoned and degraded cropland and mixed crop and vegetation land, which are usually of low quality, are accounted. If grassland, savanna, and shrubland with marginal productivity are considered for planting low-input high-diversity (LIHD) mixtures of native perennials as energy crops, the total land availability can increase from 1107–1411 million hectares,

BIOeCON

STUDY ESTIMATES LAND AVAILABLE FOR BIOFUEL CROPS

Study Estimates Land Available for Biofuel Crops

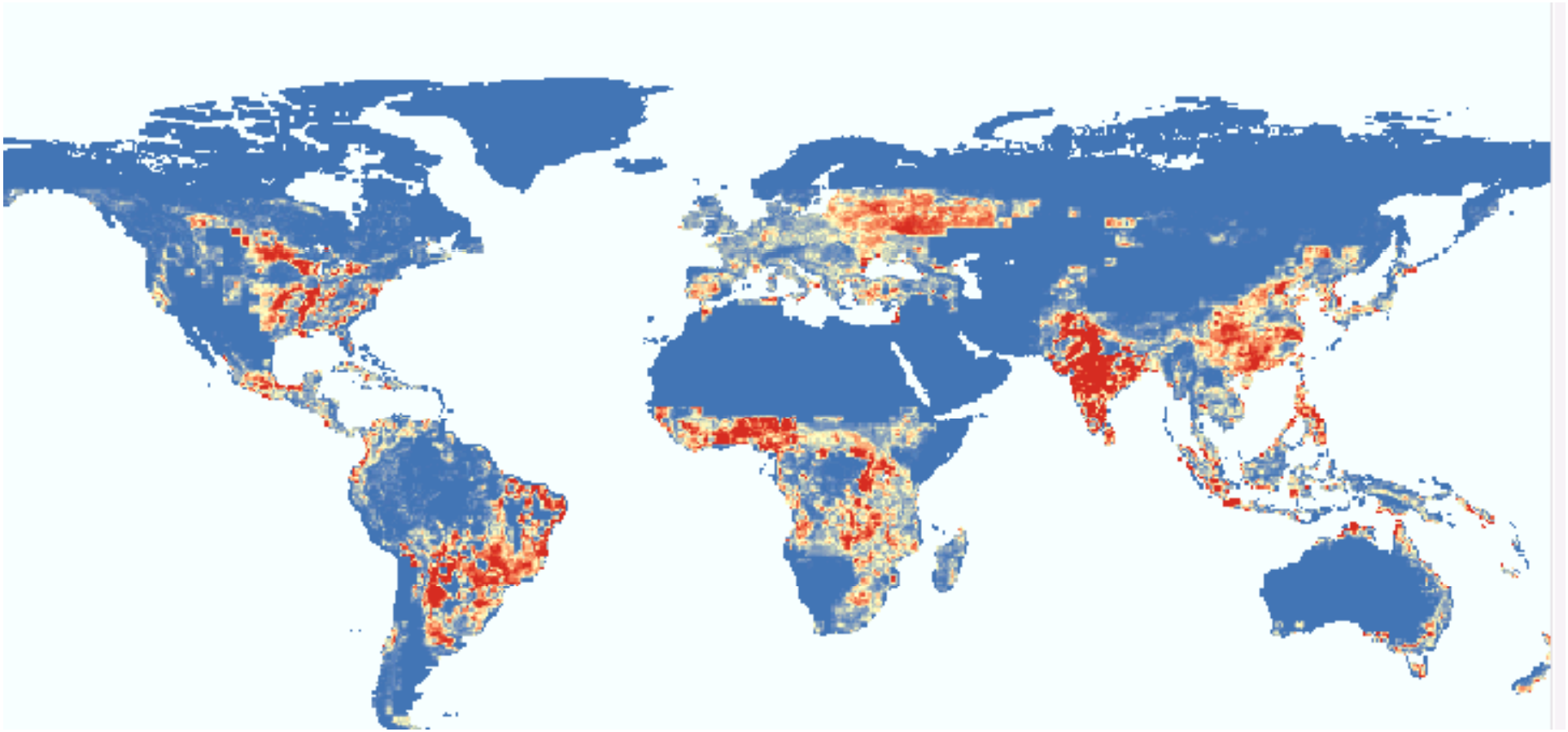
By Science Daily,

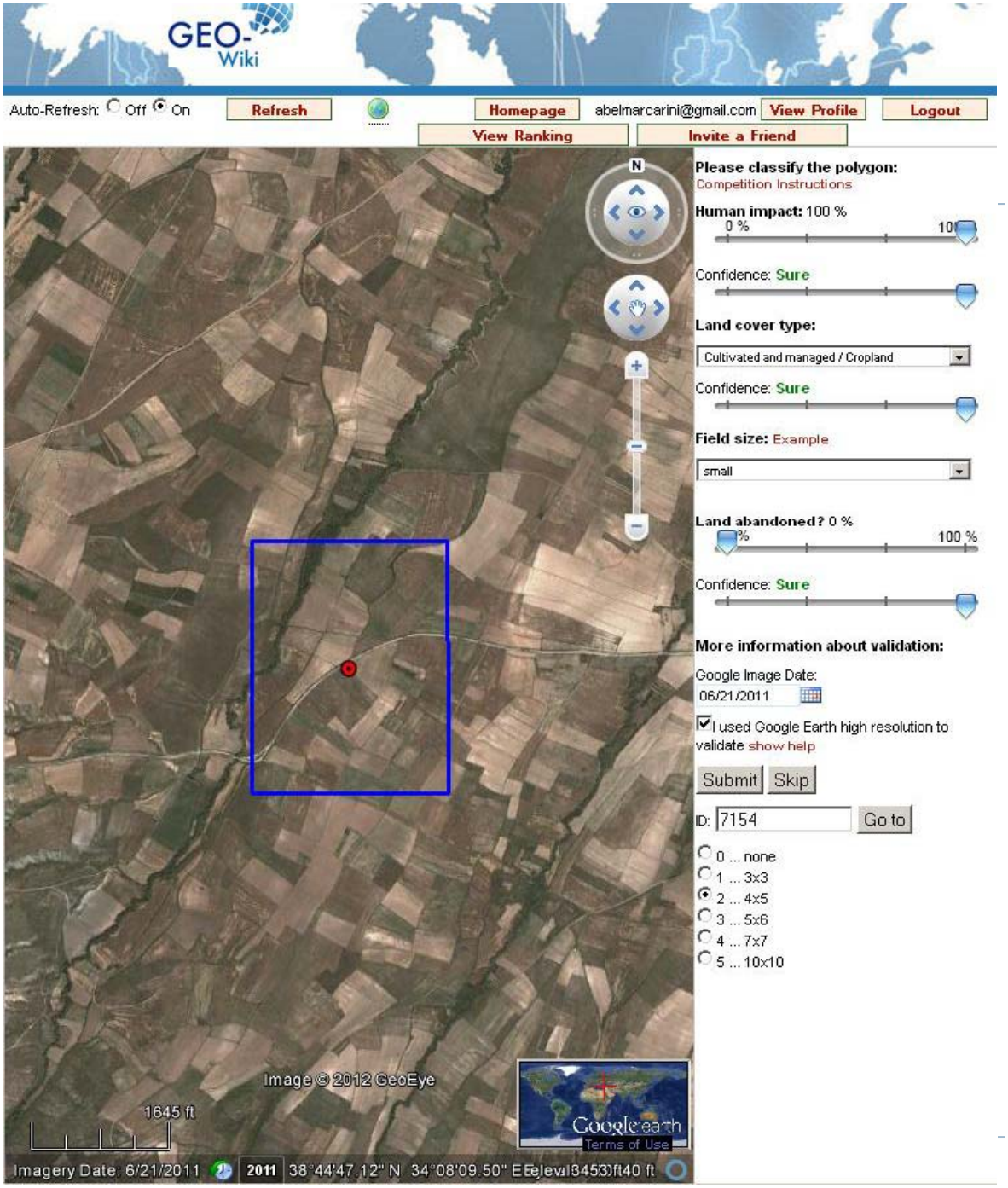
January 19, 2011

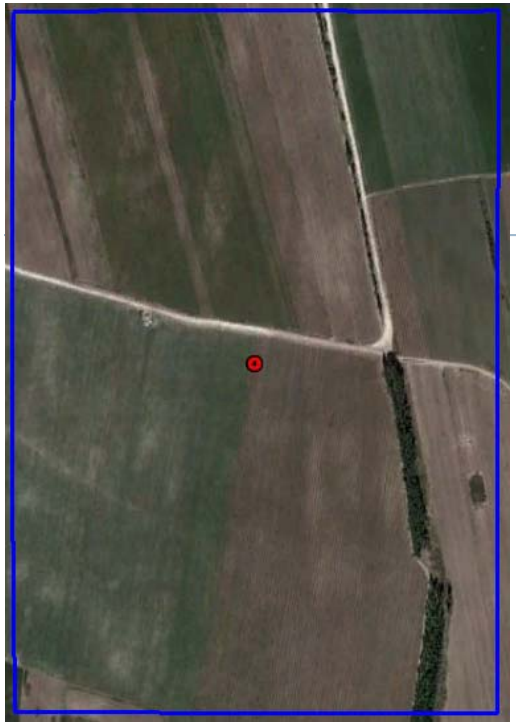
Using detailed land analysis, Illinois researchers have found that biofuel crops cultivated on available land could produce up to half of the world's current fuel consumption -- without affecting food crops or pastureland.

Published in the journal Environmental Science and Technology, the study led by civil and environmental engineering professor Ximing Cai identified land around the globe available to produce grass crops for biofuels, with minimal impact on agriculture or the environment.

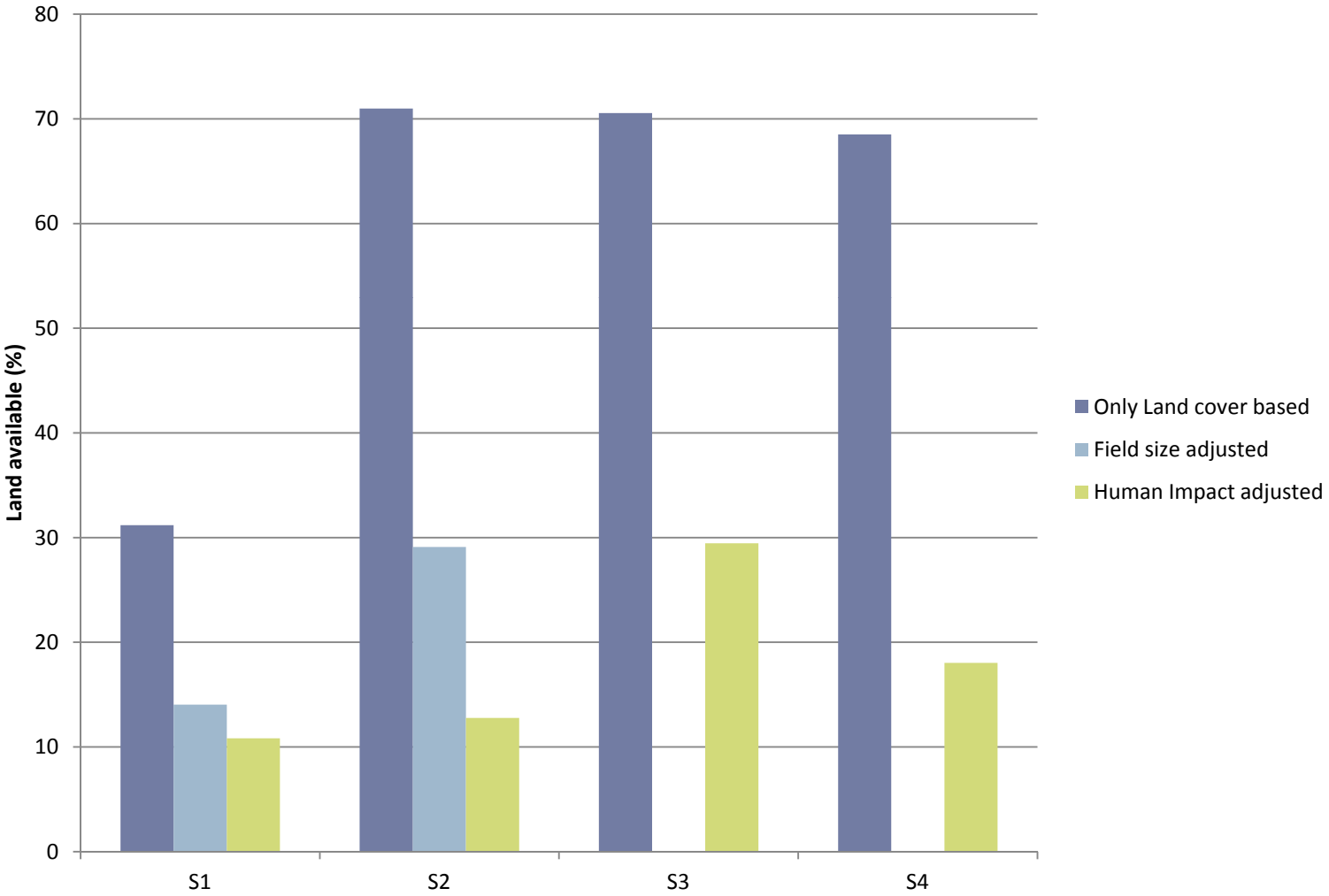
Many studies on biofuel crop viability focus on biomass yield, or how productive a crop can be regionally. There has been relatively little research on land availability, one of the key constraints of

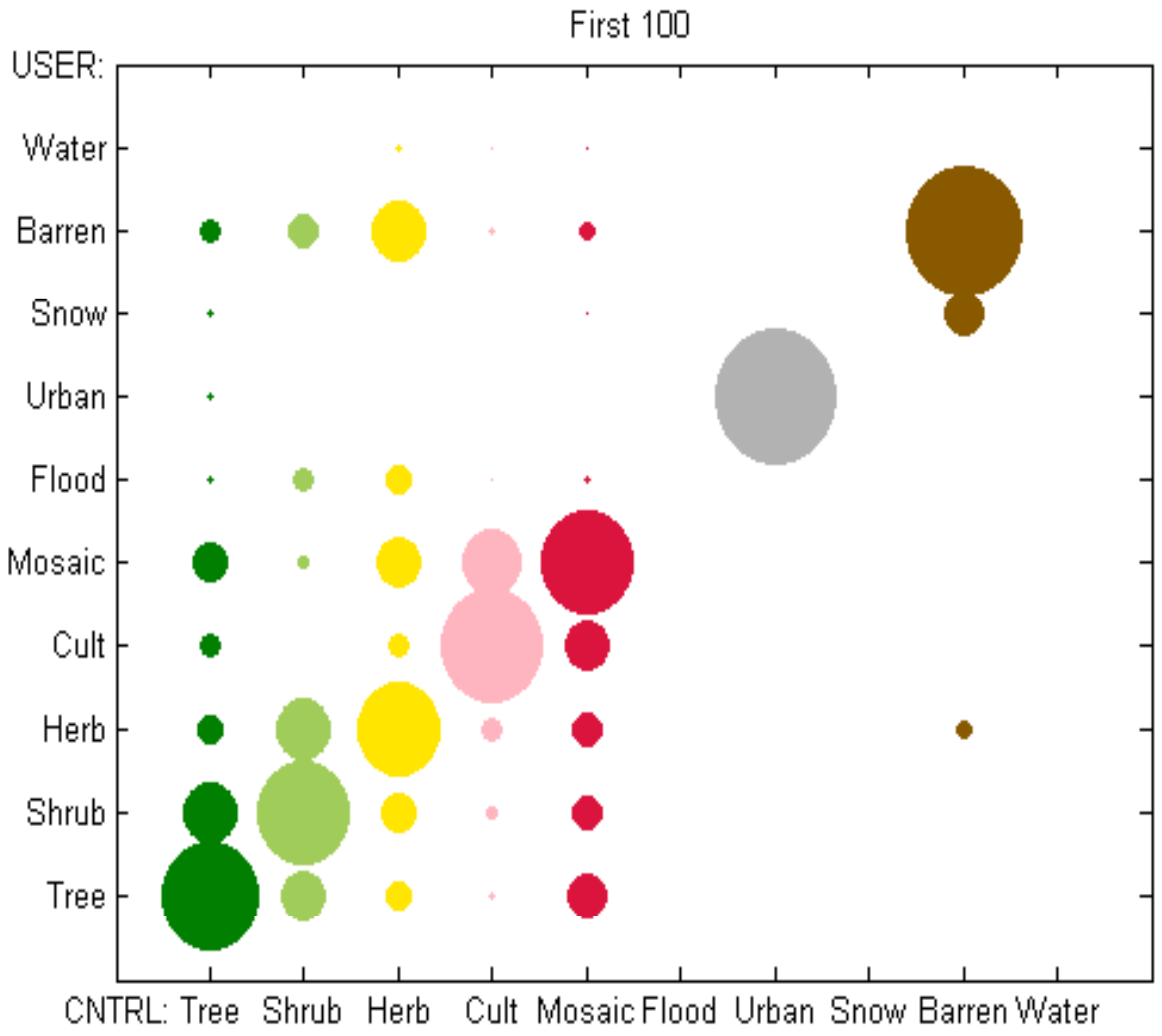



GEO-Wiki
Auto-Refresh: Off On
Refresh
Homepage
abelmarcarini@gmail.com
View Profile
Logout
View Ranking
Invite a Friend
Please classify the polygon:
Competition Instructions
Human impact: 100 %
0 %
Confidence: Sure
Land cover type:
Cultivated and managed / Cropland
Confidence: Sure
Field size: Example
small
Land abandoned? 0 %
100 %
Confidence: Sure
More information about validation:
Google Image Date:
06/21/2011
I used Google Earth high resolution to validate show help
Submit
Skip
ID: 7154
Go to
0 ... none
1 ... 3x3
2 ... 4x5
3 ... 5x6
4 ... 7x7
5 ... 10x10
Image © 2012 GeoEye
1645 ft
Google earth
Terms of Use
Imagery Date: 6/21/2011
2011
38°44'47.12" N 34°08'09.50" E elev 3453 ft 40 ft

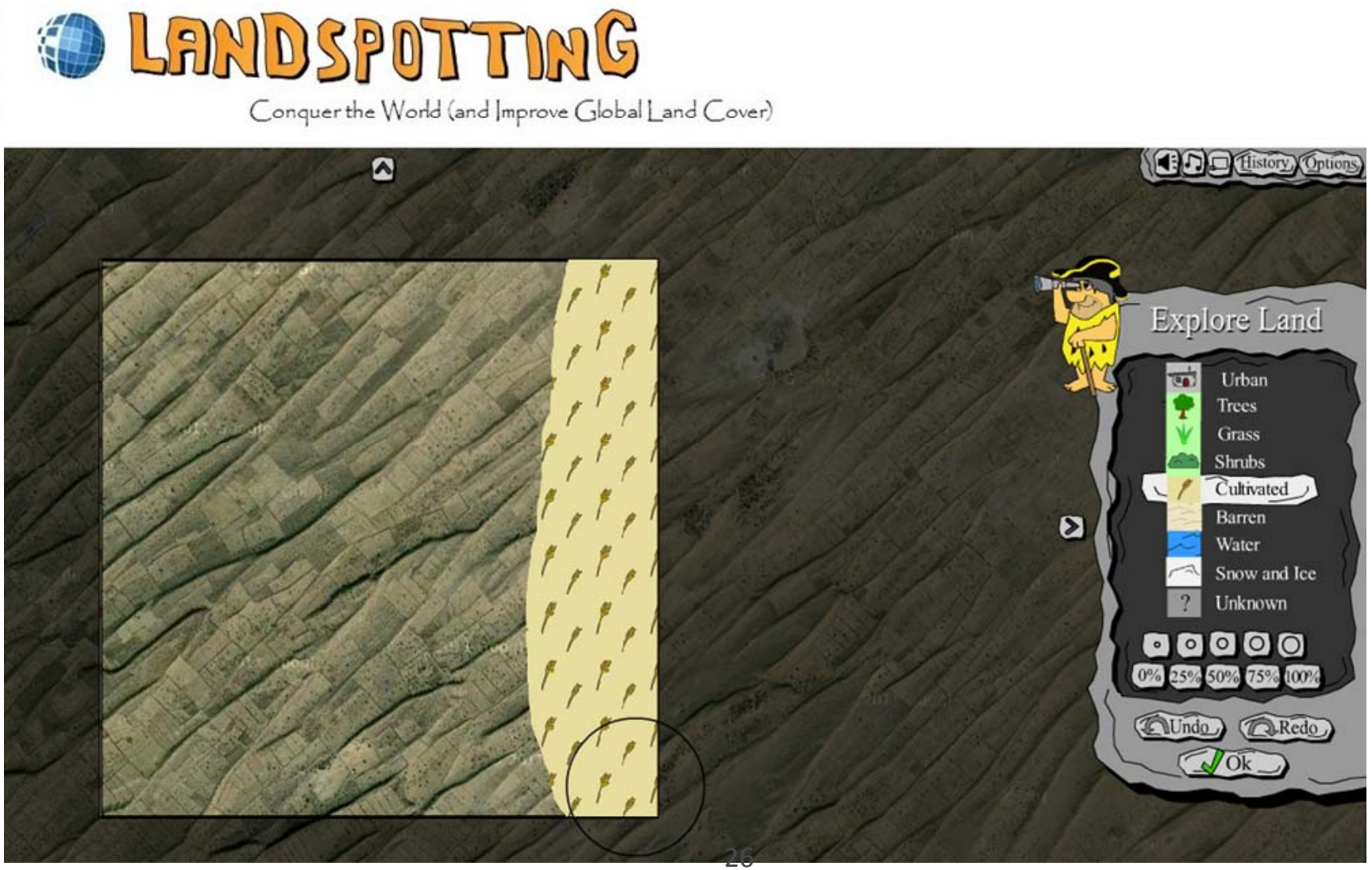


Much less marginal land is available





Game for Land Cover validation

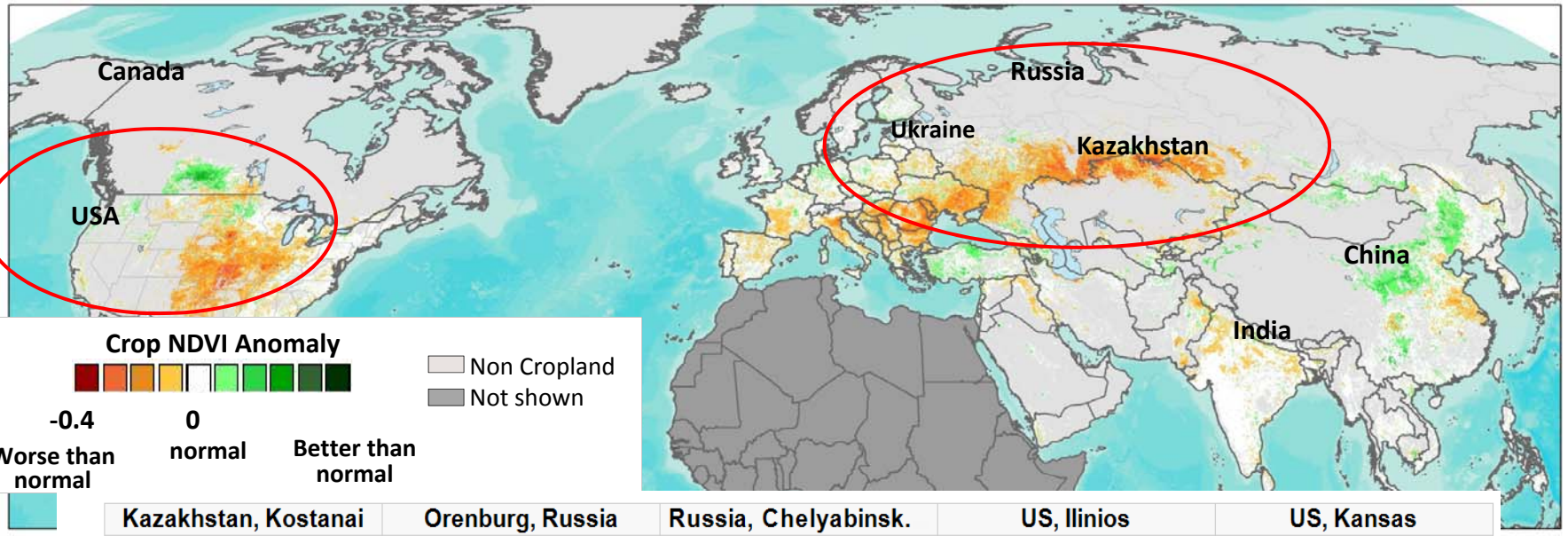


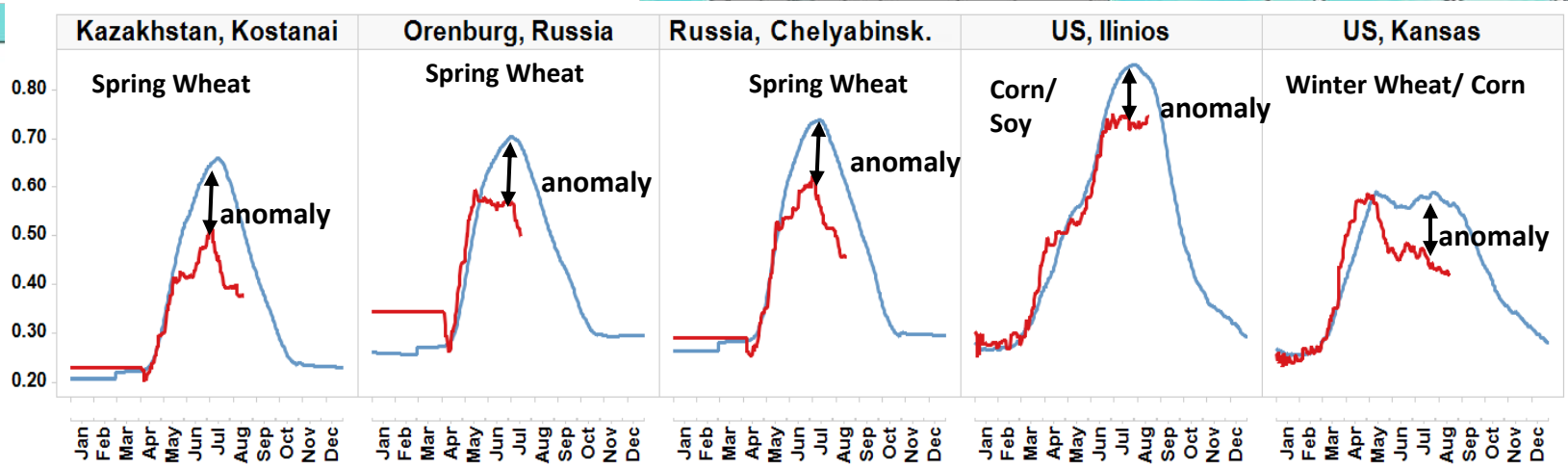
Geo-Wiki mobile – new technologies...

Windows phone

ANDROID

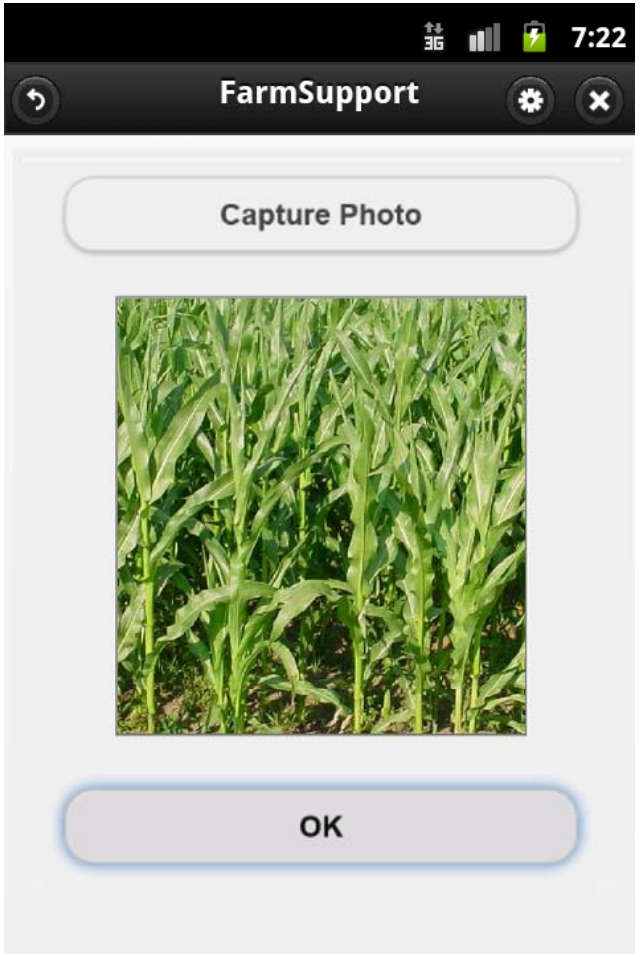
Disaster Drought, Northern Hemisphere Crop NDVI Anomalies August 13th, 2012



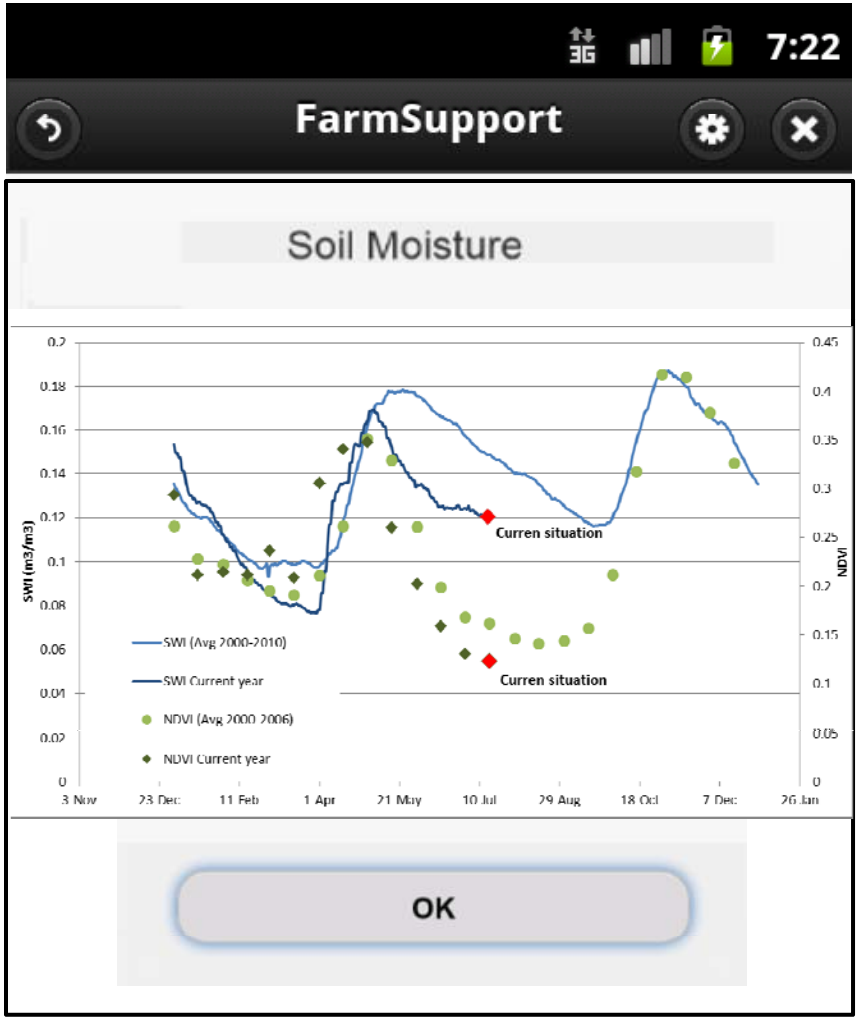


FarmSupport – APP: Menue

Take a Picture



APP:
Soil Moisture



FarmSupport – APP: Sample Question

ISPRS Special Issue on: Collaborative Mapping

International Journal of Geo-Information

- Thematic and geometric accuracy of collaborative mapping (i.e. quality of the information)
- Development of indicators of robustness of / confidence in the VGI
- Authoritativeness of collaborative map products, i.e. ideas on how to bring collaborative map products to a -- level of authority that is not disputed
- Data harmonization
- Collaborative mapping and the role of mapping institutions
- Spatial cognition in collaborative mapping
- Cost effectiveness and cost benefits of collaborative mapping
- The use of collaborative mapping in the areas of biodiversity, land use science, climate change, emergency response, and other relevant applied fields

Guest Editors

Dr. Linda See

Dr. Steffen Fritz

Dr. Jan de Leeuw

http://www.mdpi.com/journal/ijgi/special_issues/collaborative-mapping

Participation in a COST Action

- TD1202: Mapping and the Citizen Sensor
- Started 28/11/2012 – 4 year action
- We are co-leading Working Group 1 on Acquiring and Managing VGI
- Three other WGs that may be of interest:
  - WG2: Understanding and influencing contributors
  - WG3: Map production
  - WG4: Map validation activities
- Email us if you want to participate (fritz@iiasa.ac.at) or find out more here:

http://www.cost.eu/domains_actions/ict/Actions/TD1202

Thank you!
Want to collaborate?
Send an e-mail:
fritz@iiasa.ac.at