CITIZEN SCIENTISTS MONITORING THE ENVIRONMENT: THE LATEST APPS FROM IIASA

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Center for Earth Observation and Citizen Science (EOCS)
IIASA – International Institute for Applied Systems Analysis

organized by

Citizen Observatories
for natural hazards and
Water Management

CQWM

2nd International
Conference
VENICE
2018
November 27-30

Distretto delle Alpi Orientali
Agrotutor: Sustainable agricultural intensification in Mexico

Ongoing collaboration between IIASA and the International Maize and Wheat Center (CIMMYT) Mexico

International Institute for Applied Systems Analysis

CIMMYT
Key needs and proposed solutions

• Sustainable intensification: Need for increased food production and improved ecosystem services

• Poverty alleviation and achieving food security by improving crop performance: lower costs and higher yields
  1. Targeted and timely agricultural recommendations
  2. Support overloaded agricultural extension systems

Guanajuato farmers, scientists and extension agents

Transform smallholders into “small smart farmers”

(B. Govaerts – CIMMYT)
AgroTutor: Geo-location of plots and crops

- Location and delineation of parcels
- Recommendations sent back to the farmers are location and crop-specific
AgroTutor: Historical benchmarking information

- Using historical information gathered by CIMMYT, historical costs, income, profit and yield are shown.
- Information is corresponding to the area / conditions where the farmer’s plot are located
- Data is anonymous and is meant to indicate the area and crop potential
AgroTutor: Potential crop yield

EPIC crop model

Irrigado:
- Mínimo: 1.53
- Promedio: 2.87
- Máximo: 4.25
AgroTutor: Price forecasting (ongoing work)

- Twelve month predictions using trading hub historical prices
- Based on an array of time series multivariate models
- Use of climatic, financial and macroeconomic variables and market fundamentals
- Developed at IIASA in collaboration with research centers in Vienna
Small Smart Farmers: AgroTutor contribution

- Integration of systems can deliver robust pictures of farmers fields allowing them to select and combine information
- Crowdsourced ground data is hard to obtain. AgroTutor provides an excellent opportunity while respecting farmers privacy
- Success of AgroTutor relies on integration of systems with proven agricultural best practices to ensure farmer value, uptake and ongoing usage
FotoQuest Go

Mobile application for in-situ data collection to promote community-based Land Use and Land Cover monitoring and awareness.

http://fotoquest-go.org/

Available on the App Store

Get it on Google Play
FotoQuest Go

Step 1: Navigate to Location
Step 2: Take photos
Step 3: Answer questions
Step 4: Submit for QA
Step 5: Feedback to contributor

Photos in 4 cardinal directions plus target location itself
138 users
1614 quests
7652 photos

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Good examples

- FotoQuest user is getting closer to the point than LUCAS
- LUCAS surveyors do not walk to very remote points
- FotoQuest user is reaching points in water!
Not perfect examples

- FotoQuest user has not reached the target location
- User identifies wrong crop type or wrong field
- Photo quality & usability
Connecting citizens with satellite imagery to transform environmental decision making

September 2016 → August 2020

LandSense.eu
LandSense Technologies are deployed across various themes to illustrate the potential of Citizen Observatories to tackle environmental challenges.

- **Urban Landscape Dynamics**: Austria, France, Germany, Netherlands
- **Agricultural Land Use**: Serbia
- **Forest & Habitat Monitoring**: Spain, Indonesia
Habitat Monitoring – Spain, Indonesia

Mobilizing volunteers for in-situ data collection to help report biodiversity threats and monitor protected areas within the Important Bird and Biodiversity Areas (IBAs)

- IBA Caretakers
- Birdlife International volunteers
- Community monitoring (Indonesia)
Natura Alert

• Volunteers can identify threats, describe severity and upload media

• Real time alerts to response team at BLI

Public Release in Spring 2019!
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