GROW Observatory

Results

Project Information

GROW

Grant agreement ID: 690199

Project website

DOI
10.3030/690199

Project closed

EC signature date
29 April 2016

Start date
1 November 2016

End date
31 October 2019

Funded under
SOCIETAL CHALLENGES - Climate action, Environment, Resource Efficiency and Raw Materials

Total cost
€ 5 379 290,58

EU contribution
€ 5 096 919,64

Coordinated by
UNIVERSITY OF DUNDEE
United Kingdom

This project is featured in...

21 August 2020

CORDIS provides links to public deliverables and publications of HORIZON projects.

Links to deliverables and publications from FP7 projects, as well as links to some specific result types such as dataset and software, are dynamically retrieved from OpenAIRE.

Deliverables

Documents, reports (14)

Information service for growers

This deliverable will outline the main components of the grower information service developed by GROW and the way this will be implemented for broad spectrum dissemination and communication in shared data environments through GROW missions and data/knowledge platforms. The information service will be designed to address all potential stakeholders and include services such as growing advice, planting/harvesting advice, watering advice and soil services. (Task 3.2).

GROW Communication Plan

This deliverable will consist of a Communication Plan detailing the engagement and communication strategy for the project. The deliverable will detail communication methods and approaches, including the approach to bottom-up citizen engagement activity through storytelling, and also techniques for mass communications using owned media. The plan will include guidelines for community building and engagement across the project consortium. (Task 2.1).

Evaluation of Citizen Engagement and Active Participation

This deliverable will document the outcomes of the communication and engagement activities and evaluate the delivery of targets for active and passive participation. The report will delineate modes of engagement based on specific

qualities and criteria, such as contribution of soil data or other user-generated content, event based engagement or light-touch digital interaction. The report will detail the methods used for capture and analysis of data on engagement and participation (Task 2.2 and 2.3).

Report on science experiment(s) and protocol(s) and the collective creation of knowledge in GROW Missions

This deliverable will describe the approach(es) used and the outcomes in both direct knowledge gained (e.g. results from experiment, scientific value of public-facing protocols) and in the use and interpretation of this collective knowledge (e.g. benefits to participants of own and shared data). It will offer insights into the use of crowd-sourced data and existing auxillary data and expert knowledge to answer questions and provide information relevant to growers and researchers. It will discuss the value of supporting citizens to understand, contextualise and use their own data. (Task 4.4).

Engagement activities and their impacts on policy development

This deliverable will report on activities that are of relevance to policy makers and the outcomes of the policy workshop convened by FAO in Brussels. The objective is to fill the knowledge gaps on the importance of soil resources for sustainable development and human well-being, and to bring together citizens, growers and policy makers in the development and endorsement of unanimously accepted soil policies (Task 3.1).

Enhanced GROW social platform

This deliverable will document the product design specification for GROW web applications and mobile services. The mobile app and eCollaboration web platform will be extended with applications including personalised dashboards, feedback mechanism and visualisations to enable citizen scientists to interrogate (upload) data and results. This also includes a content management system, integrated social media platforms, and integrated external data using the Pinterest API, Twitter's Streaming API; and embedded YouTube video functionality. A Thingful web widget will be created that can be embedded in other webpages with a pre-agreed set of search or category parameters (Task 6.5).

Validation and estimation of in situ soil moisture measurements derived from all sources

This deliverable will focus on quality of in-situ measured soil moisture data supplied by Parrot sensors users. Independent validation exercises using 30 established sensor trees and data from the International Soil Moisture Network (ISMN) will be described to show the validity of the Parrot's sensors measurements as compared to professional equipment/sensors for soil moisture measurement including established sensor trees or ISMN network sites across the EU. Quality of soil moisture measurements as influenced by growers

themselves within the campaigns will also be addressed and evaluated (sensor placement, measurements record consistency, etc.) (Task 4.2).

GROW Community Champions Programme

This deliverable will outline the approach and outcomes in the Community Champions programme. This will detail 1) the principles and approach 2) delivery methods i.e. the commissioning process 3) provisions for community and resource management across cultural and social contexts 4) success criteria and evaluation techniques 5) key results and insights (Task 2.3).

Report on first Campaign Insights workshop

This deliverable will report the methods used to support insight gathering with a summary of identified GROW issues underpinned by the perceived gap, potential impact and suggested pathways for development (Task 1.2).

Public facing open source documentation

This deliverable will describe the open hardware and open software used to connect and send soil moisture estimation to the GROW sensing platform. On one hand, the document will provide open design solutions for Smart Citizen KIT sensors building. On the other hand, the document will include the details about the dedicated API for additional sensor data and platform integration. The results of the validation of the upload and data transmission protocol through dedicated sensor simulator software will be added. Finally, code example will also be provided to be used by the different DIY and loggers to facilitate the integration (Task 5.4).

Mission Outcomes

Report summarising mission outcomes around the adoption of sustainable land management practices, land use change, and validation of new land management and cultivation practices. A final highly visual in depth report will evidence GROW mission impact in relation to campaign issues across the EU. It will include evaluations and outcomes from the final mission insights workshops sessions with communities and stakeholders (Task 1.4).

GROW Information Package

This deliverable will detail the information package for general users and associated audiences, networks and media. Knowledge and information developed for GROW users will be compiled and converted into an accessible information package for public consumption. The content will be tailored to various growing communities and audiences ranging from newcomers, through to engaged growers (Task 2.2).

Validation of remotely sensed soil moisture products

This deliverable will describe the exercises done to render the utilization of crowed-sourced in situ soil-moisture data for satellite data validation (e.g. Sentinel-1) and its interpretation towards practically useful gridded soil moisture information at regional and continental scales. It will also describe the examples how crowdsourced soil data can be effectively integrated within existing soil gridded products and how it can provide important soil-landscape covariates for validation exercises (Task 4.2).

GROW Collaboration Hub and MOOC

This deliverable will document the initial requirements, specification, design, user experience, integration and outcomes for a 'Collaboration Hub', a distributed digital environment for the citizen observatory. It will incorporate various social platforms and applications alongside the FutureLearn MOOC, for which the learning design, educational content and monitoring is undertaken in WP1 (Task 2.4).

Websites, patent fillings, videos etc. (1)

GROW Missions Toolkit

This deliverable will describe the final iteration of the Mission toolkit, that the GROW Observatory will iteratively develop, evaluate, refine and release tools throughout its lifetime, starting in year 1. The final toolkit will bring together the evaluated and refined resources for new campaign generation and delivery of GROW. This will include a visual guide to the tools and their efficacy, and recommendations for use (Task 1.3). The final toolkit will bring together evaluated and refined resources, this work being complete and delivered in month 24 ready for responsive mode C5-6.

Publications

Peer reviewed articles (2)

Deriving Field Scale Soil Moisture from Satellite Observations and Ground Measurements in a Hilly Agricultural Region

Author(s): Luca Zappa, Matthias Forkel, Angelika Xaver, Wouter Dorigo
Published in: Remote Sensing, Issue 11/22, 2019, Page(s) 2596, ISSN 2072-4292

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/rs11222596

Citizen observatory based soil moisture monitoring – the GROW example
Author(s): Károly Zoltán Kovács, Drew Hemment, Mel Woods, Naomi K van der Velden, Angelika Xaver, Rianne H Giesen, Victoria J Burton, Natalie L Garrett, Luca Zappa, Deborah Long, Endre Dobos, Rastislav Skalsky
Published in: Hungarian Geographical Bulletin, Issue 68/2, 2019, Page(s) 119-139, ISSN 2064-5031
Publisher: Hungarian Academy of Sciences, Geographical Research Institute
DOI: 10.15201/hungeobull.68.2.2

Conference proceedings (7)

'GROW Citizens' Observatory: Leveraging the power of citizens, open data and technology to generate engagement, innovative datasets and action on soil policy and soil moisture monitoring'
Author(s): Woods, M, Hemment, D, Ajates, R, Cobley, A, Xaver, A.
Published in: IOP Conference Series: Earth and Environmental Science, 2019
Publisher: 11th International Symposium on Digital Earth

Enhancing collective intelligence through citizen science: The case of the GROW citizens' observatory
Author(s): Hemment, D. Woods, M., Ajates, R., Cobley, A. and Xaver, A.
Published in: Enhancing collective intelligence through citizen science: The case of the GROW citizens' observatory. Conference proceedings, International Collective Intelligence Conference, Pittsburgh, 13-14th June 2019, 2019
Publisher: International Collective Intelligence Conference

Massive Online Open Citizen Science: Use of MOOCs to scale rigorous Citizen Science training and participation
Author(s): Hemment, D., Woods, M. and Ajates, R.
Published in: Citizen Observatories for Natural Hazards and Water Management, 2018
Publisher: University of Dundee
DOI: 10.20933/100001122

Evaluating the suitability of the consumer low-cost Parrot Flower Power soil moisture sensor for scientific environmental applications
Author(s): Xaver, A.; Zappa, L.; Rab, G.; Pfeil, I.; Vreugdenhil, M.; Hemment, D.; Dorigo, W.
Published in: Geosci. Instrum. Methods Data Syst, 2019

Publisher: Department of Geodesy and Geoinformation
DOI: 10.5194/gi-2019-38

Design for Climate Services: A Co-Design Approach
Author(s): Woods, M., Ajates, R. and Hemment, D.
Published in: Academy for Design Innovation Management Conference 2019, 2019
Publisher: University of Dundee

The potential of crowdsourced in situ soil moisture for environmental research
Author(s): A. Xaver, L. Zappa, I. Pfeil, M. Oismüller, M. Vreugdenhil, E. Dobos, K. Kovacs, D. Hemment
Published in: The potential of crowdsourced in situ soil moisture for environmental research, 2018
Publisher: European Geosciences Union General Assembly

In-situ measurements from citizen observatories for downscaling satellite-derived soil moisture
Author(s): L. Zappa, A. Xaver, M. Oismüller, D. Hemment, W. Dorigo
Published in: In-situ measurements from citizen observatories for downscaling satellite-derived soil moisture, 2018
Publisher: Vienna, Austria

Datasets

Datasets via OpenAIRE (1)

Edible Plant Database
Author(s): Woods, M.; Cobley, A.; Verrall, S.; Neilson, R.; van der Velden, N.; Hager, G.
Published in: University of Dundee

Other Research Products

Other Research Products via OpenAire (1)

Roadmap for the uptake of the Citizen Observatories' knowledge base

Author(s): WeObserve Consortium
Published in: Zenodo

Last update: 6 September 2024

Permalink: https://cordis.europa.eu/project/id/690199/results