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2018 'Farming by Satellite' Prize launches today

Registration for the 4th edition of the Farming by Satellite Prize was officially opened today by Deputy Director General Pierre Delsaux, DG Grow, European Commission who was speaking in Brussels at the European Parliament during the Conference "Agriculture: a new frontier for the European space policy" organised by MEP Eric Andrieu.

The 'Farming by Satellite Prize' has a top prize of €5,000 and asks the question: "How can we use satellite technologies to improve agriculture and reduce environmental impact?"

Dr Andrew Speedy, Chair of Judges, said: "We're looking for new ideas and innovations, particularly those relying upon Europe's satellite navigation services EGNOS, Galileo and the European Earth Observation programme, Copernicus. What's different this year is that students and young professionals are invited to complete their projects in the summer vacation. We're anticipating submissions featuring hot topics like Big Data, augmented reality, farming 4.0, artificial intelligence and more!"

Finalists will be invited to a major event for the judging and awards ceremony, with all expenses paid. In the past, this has been at the SIMA agricultural show in Paris, a Space Solutions conference in Prague and most recently, International Green Week in Berlin. A similar venue is being arranged for late 2018.

The competition is an initiative of the European GNSS Agency and the European Environment Agency, and is sponsored by CLAAS, one of the world's leading manufacturers of agricultural machinery. The aim of the prize is to promote Europe's Global Navigation Satellite System (GNSS) and Earth Observation (EO) services in agriculture.

It ran for the first time in 2012 with previous finalists including young people from Belgium, the Czech Republic, France, Italy, Germany, Romania, Portugal, Spain and the United Kingdom. Topics have ranged from geo-referenced online data platforms, swarm technologies, precision seed planting robots, crop type detection and evaluation systems, and a new forecasting system for rice production.

The winners of the most recent competition were a team from ISA Lille in France with their proposal for optimisation of plant cover properties using satellite imagery. Commenting on the wider impacts of the win, team member Louise Vernier said: "It helped me to find an internship. I'm actually an apprentice student (70% at work and 30% at University) in a grain trade company, in the innovation

service. During the job interview, my manager asked me a lot about the Prize! I think it made him choose me rather than someone else.”

Fellow team member Marie Rolloy recommends people to have confidence and go for it: “You just have to analyse the needs of a market and make a brainstorming on all the solutions you can imagine. Winning the prize was a real opportunity for me. First it gave me a wonderful professional experience, and above all confidence in my capacities to create innovations. The Prize allowed us to meet many companies and to expand our contacts but more importantly it, gave us confidence in our idea.”

Full details on the competition are available at www.farmingbysatellite.eu. Registration is simple and should be completed before the deadline of 30 June 2018, but early registrations will be able to take advantage of support events. Final submissions must be received by 7 September 2018.

Notes to editors:

UK consultancy Helios has been contracted to manage the Farming by Satellite Prize. For further information about the prize please contact Andrea King from Helios on +44 1252 451 651 or email: info@farmingbysatellite.eu

Poster download link:

http://www.farmingbysatellite.eu/fileadmin/user_upload/2018_edition/DRUCK_CES-0136-18_Farming_By_Satellite_Poster.pdf

Leaflet download link:

http://www.farmingbysatellite.eu/fileadmin/user_upload/2018_edition/DRUCK_CES-0136-18_Farming_By_Satellite_Flyer.pdf

About the European GNSS Agency (GSA) – www.gsa.europa.eu

As an official European Union Agency (EU), the European GNSS Agency’s (GSA) mission is responsible for the operations and service provision for EGNOS and Galileo, the European Satellite Navigation systems. We support EU objectives and achieve the highest return on Europe’s investment in global navigation satellite systems (GNSS), in terms of benefits to users and economic growth and competitiveness, by:

- Designing and enabling services that fully respond to user needs, while continuously improving the European GNSS services and Infrastructure;
- Managing the provision of quality services that ensure user satisfaction in the most cost efficient manner;
- Engaging market stakeholders to develop innovative and effective applications, value-added services and user technology that promote the achievement of full European GNSS adoption;
- Ensuring that European GNSS services and operations are thoroughly secure, safe and accessible.

For further information about the GSA contact: com@gsa.europa.eu

About the European Environment Agency (EEA) -

www.eea.europa.eu

The EEA is an agency of the European Union tasked with providing sound, independent information on the environment. It is a major information source for those involved in developing, adopting, implementing and evaluating environmental policy, and also for the general public. The EEA's mandate is:

- to help the Community and member and cooperating countries make informed decisions about improving the environment, integrating environmental considerations into economic policies and moving towards sustainability;
- to coordinate the European Environment Information and Observation Network (Eionet).

Proper management of the environment and supporting long term transition to a sustainable society requires timely and accurate information on land cover and land cover changes. This is why the EEA is also in charge of the implementation of the Copernicus Land Monitoring Service (CLMS): <https://land.copernicus.eu/>, and of the Copernicus in situ data coordination.

For further information about EEA contact: info@eea.europa.eu

About Farming by Satellite Prize – www.farmingbysatellite.eu

The competition will promote the use of GNSS and earth observation in agriculture, the reduction of environmental impacts, and benefit to end-users. Entries must therefore clearly demonstrate how the use of GNSS is either a) already realising significant benefits to users or b) could enable new innovative services in the near future.

Particular attention should be paid to the additional value offered by:

- EGNOS in providing a free-to-air higher accuracy augmentation to Global Positioning System (GPS) to about one metre, access to integrity data which validates the signals transmitted by GNSS satellites along with alerts in near real time (less than six seconds) of any shortcomings in the reliability of the positioning signals and benefits from accurate and reliable synchronisation with Universal Time Coordinated (UTC).
- Galileo, the new European satellite service starting at the end of 2016, providing a highly accurate, guaranteed global positioning service under civilian control. It is interoperable with GPS and Glonass, the US and Russian global satellite navigation systems. By offering dual frequencies as standard, Galileo is set to deliver real-time positioning accuracy down to the metre range.
- Copernicus is the European Union's system for monitoring the earth from space. The Copernicus services transform a wealth of satellite and in situ data into value-added information in six thematic areas: land, marine, atmosphere, climate change, emergency management and security. The information services provided are freely and openly accessible to its users.

Types of entry

Entries may take any of the following forms:

1. Success stories of the application of GNSS or new ideas and innovations, including:
 - Precision agriculture
 - Soil, vegetation, disease and yield mapping
 - Traceability of products
 - Environmental management
 - Artificial Intelligence
 - Augmented reality
 - Big data
2. Technical proposals for equipment/software/systems
3. Applications for small producers and/or cooperative groups
4. Wide area application of GNSS and EO in agriculture, forestry, fisheries

The entry must be supported by references and justification for values used. Entries must be submitted by 07th September 2018.

All entries must include a form of presentation suitable for the prize awarding event. Shortlisted entries will be expected to present their ideas using an MS PowerPoint or Open Office Impress slideshow, prior to the final decisions from the judges.

Some examples of entries received for previous editions of the Prize included:

- Integrated Farm Management Data and Information System
- Mobile Sample Collector
- Virtual Pastures
- Zero Draught and Scatter Robotic Seed Establishment
- Total Field Management Programme
- Vitismart: Digital Maps for limited-size vineyards
- Agroplanning: Integrated Precision Farming
- Advanced GPS guidance
- Accurate monitoring of the machinery movement
- Active sprayer boom levelling
- A satellite aided bale collection system
- Smart irrigation systems
- Soil electrical conductivity mapping
- Minimising soil compaction through analysing weather patterns and water levels
- Gamification of erosion prevention strategies
- Nitrogen sidedressing in seed potatoes on the basis of reflectance measurements and an advice system
- Agricultural decision support systems for a country/state
- Remote sensing in pest control
- Livestock e-surveillance system
- A system to manage aerial spray drift of agrochemicals
- Integrating predictive analytics for decision making
- Harnessing satellite information to establish the most effective yearly migration route for beehives while assessing the bee pastures' carrying capacity
- A new forecasting system for rice production

- Organisation of flow of organic matter using satellite data
- Software development to support agricultural water management using remote sensing data
- Scanning pivots with multiple features such as irrigation decision support, detection of plagues and diseases, weather monitoring, measurement of crops
- Optimisation of plant cover properties using satellite imagery
- Add on for implements enabling autonomous driving and optimal working depths
- Crop type detection and evaluation system

Who is eligible?

The competition is open to all students and young people below the age of 32 studying or resident in any of the following countries: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lichtenstein, Lithuania, Luxembourg, Malta, Moldova, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom.

Individual or team entries are welcomed. A team may comprise up to 4 people.

About EGNOS and agriculture:

<https://www.gsa.europa.eu/segment/agriculture>

<https://www.gsa.europa.eu/egnoss/what-egnoss>

EGNOS is the first European concrete venture into satellite navigation. EGNOS delivers services based on GPS and GLONASS signals, providing augmentation signals re-transmitted by geostationary satellites and a network of ground stations.

EGNOS represents a European solution for the Satellite-Based Augmentation System (SBAS). There are also other SBAS systems in the world, e.g. Wide Area Augmentation System (WAAS) in the USA. EGNOS augments the two satellite navigation systems now operating, the US GPS and Russian GLONASS systems and will soon in its next version augment Galileo, the European satellite navigation system. Crucially for agriculture, EGNOS also increases the accuracy of existing satellite positioning services to about one metre or better.

Precision agriculture refers to the use of satellite navigation sensors, aerial images, and other tools to determine optimum sowing density, fertiliser cover and other inputs. It also refers to the use of GNSS for supporting machine guidance, virtual fencing, and land parcel identification. These techniques allow farmers to save money, reduce their impact on the environment and increase their productivity. EGNOS can offer an affordable precision solution.

EGNOS can support:

- Variable ploughing, seeding and spraying – Variable Rate Technology (VRT)
- Tractor guidance
- Individual livestock positioning
- Virtual fencing

- Land parcel identification and geo-traceability
- Post-harvest pick-up
- Supervised livestock tracking
- Field measurement
- Field boundary mapping and updating

EGNOS will help to:

- Enhance precision
- Eliminate waste and over-application of fertilisers and herbicides
- Save time
- Reduce fatigue
- Extend equipment lifetime by optimising its use
- Provide geo-traceability
- Optimise crop yields
- Increase profit margins

About Galileo - www.gsa.europa.eu/galileo/why-galileo

Galileo is the European satellite system available since December 2016. Up to now, GNSS users in Europe have had no alternative other than to use American GPS or Russian GLONASS satellite signals. Yet the military operators of these systems can give no guarantee to maintain uninterrupted service.

Meanwhile, satellite positioning has already become the standard and essential tool for navigating and related applications. As the use of satellite navigation spreads, the implications of signal failure increase, jeopardising not only the efficient running of transport systems, but also human safety.

By being interoperable with GPS, Galileo aspires to be a new cornerstone of GNSS. This worldwide system will henceforth be under civilian control. And with its full complement of satellites, more than the current GNSS systems, Galileo will allow positions to be determined accurately even in high-rise cities, where buildings obscure signals from today's satellites.

Galileo will also offer several signal enhancements making the signal more easy to track and acquire and more resistant against interference and reflections.

By placing satellites in orbits at a greater inclination to the equatorial plane, Galileo will also achieve better coverage at high latitudes, making it particularly suitable for operation over northern Europe, an area not well covered by current GPS signals.

About Copernicus - www.copernicus.eu

Copernicus is the European Earth Observation Programme and is an initiative led by the European Union. The programme is coordinated and managed by the European Commission.

Copernicus consists of a complex set of systems, which collects data from multiple sources combining the Sentinel series of Earth observation satellites with in situ sensors such as ground stations, airborne and sea-borne sensors. Copernicus processes this data and provides users with reliable and up-to-

date information. In addition to agriculture, application domains include sustainable development and nature protection, regional and local planning, forestry and fisheries, infrastructure, as well as transport and mobility.

Policymakers and public authorities are the major users of Copernicus and use the information to prepare environmental legislation and policies with a particular focus on climate change. They monitor their implementation and assess their effects. Additionally, Copernicus supports the critical decisions that need to be made quickly during emergencies, such as when natural or man-made catastrophes and humanitarian crises occur.

Users are provided with information through services dedicated to a systematic monitoring and forecasting of the state of the Earth's subsystems. The following six thematic areas are developed:

- Land monitoring
- Marine monitoring
- Atmosphere monitoring
- Emergency management
- Security
- Climate change

About Copernicus Land Monitoring – <https://land.copernicus.eu/>

The objective of the Copernicus Land Monitoring Service is to provide information on land cover, land use, land cover changes, vegetation state and water cycle to users in the field of environmental and other terrestrial applications. Information priorities are defined by the results of consultations with stakeholders and of user communities. Final priorities and their relevance to users are validated by the European Commission with the advice of the Copernicus User Forum.

The data sets created by land monitoring are combined into a variety of essential products and services based on satellite observations. Data modeling for future trends, such as land cover characteristics and land use changes, provide the European Union with policy support for better decision making. The Copernicus land monitoring activities also feed into a variety of environmental reports. Academics use the products and services for their research and citizens across Europe and beyond, consult the data and publications. Public authorities use the data to develop operational services whereas companies use them for new business opportunities.