ESA Living Planet Symposium 2019, Milan 13-17 May

"EO for Sustainable Development'
Agora Metallica, Wednesday, 15 May 11.00 - 13.50

Session Description

The session will highlight the role and benefits that satellite environmental information is bringing to Development Assistance/Cooperation activities. The session is organized in three parts. The first part will present from a national perspective, with case examples drawn from the UK Space Agency's International Partnership Programme (IPP). The second part will present from an international perspective with future plans from ESA followed by key insights for the prospects of satellite environmental in a development aid context from World Bank, Asian Development Bank, and the International Fund for Agricultural Development. The session will close with a panel discussion and Q&A from the audience.

Session Chairs : **Chris Lee, UKSA** (& introductions for first session speakers) and **Stephen Coulson, ESA** (& introductions for second session speakers).

First mini-session : *A National perspective*
(11:00 – 12:00)

*Note : Each talk is **max 10 mins** presentation (including introduction of the speaker) + **max 2 mins** for questions.*

1. UK Space Agency's International Partnership Programme (IPP) and the UK Aid Strategy

Chris Lee, UKSA

The International Partnership Programme, run by the UK Space Agency is the biggest space for development programme in the world, with £152M of funding over 5 years. IPP seeks to use space solutions to make a positive and practical impact on the lives of those living in emerging and developing economies. We do this through partnerships with end users in the target countries to increase their capacity to respond to specific challenges. IPP has commissioned 33 projects to date, by a large variety of organisations across industry, academia and non-profit entities. UK and international organisations are involved in the project consortiums. The majority of IPP projects use Sentinel data, and cover a whole range of themes; from providing predictions of dengue fever outbreaks to the Vietnamese Ministry of Health; to improving the capacity of Small Island Development States to best place their renewable energy assets.

2. Monitoring and Evaluation (M&E) methodologies for ODA-financed Activities.

David Taverner, Caribou Space

UK Space Agency International Partnership Programme (IPP) utilises large volumes (£150M) of UK Official Development Assistance (ODA) funding. IPP has completed three years of implementation and during this time, it has funded 31 projects in 37 countries, and built new partnerships between ~120 UK based organisations and ~130 international organisations in developing countries. The portfolio addresses 10 of the UN Sustainable Development Goals (SDGs).

IPP executes a rigorous monitoring and evaluation (M&E) function to ensure sustainability and to measure and communicate impact in developing countries. This presentation will describe IPP's development impacts and the methods used to measure it - including assessing cost-effectiveness. We will explain IPP's support to ensuring that consortium projects are sustainable after the UK grant-funding ends through multiple support structures. We will also highlight how IPP shares knowledge and lessons through a series of publications, conferences and web and social media channels.

3. Earth and Sea Observation System (EASOS)

Alistair Lees, Satellite Applications Catapult

EASOS will deliver an integrated user-centred dashboard to 23 government agencies in Malaysia by trialing and evaluating solutions with the respective Malaysian government departments. This talk will focus on two challenges tackled by EASOS:

- Reduce the degradation to the mangrove coastline in Malaysia by reducing marine pollution in the Malacca Straits and supporting prosecution of offenders: Information from the dashboard will enable authorities to identify and locate discharges, forecast the pollution dispersal and identify the vessels that are likely to be responsible.
- Reduce the social and environmental impact of illegal logging and increase the economic benefit from legal logging: By monitoring deforestation and accurately detecting illegal logging activities, it will provide information on the location and extent of activities to direct intervention and provide potential evidence for prosecution. Furthermore, the electronic tagging of legally harvested logs will allow traceability through the entire supply chain. The system will provide the Malaysian government with alerts, allowing them to intervene quickly.

4. Mexican Crop Observation, Management and Production Analysis Services System (COMPASS)

Dr. Ivan Ortiz Monasterio CIMMYT (the International Wheat and Maize Improvement Center)

The International Wheat and Maize Improvement Centre (CIMMYT) in Mexico prioritises research relevant to ensuring global food security and a decrease in poverty. CIMMYT is working with the Mexican Public Institution of high education and UK based Rezatec, Booker Tate Ltd and the University of Nottingham to help smallholder farmers growing sugar cane and wheat to improve crop management. Mexican farmers need to improve crop productivity and stabilise their incomes to facilitate rural community economic development. The tool developed by this project will help farmers to identify factors that cause the yield gap between crop potential and actual field performance. The project will provide six customer-specific decision support tools to help growers, including smallholders, improve their technical, environmental and financial performance. The project will also provide commercial information support, following the trials that are underway, to advisory services, agribusiness, farmer cooperatives, crop insurers and governments to create a long-term income stream to support Rezatec's provision of these services. Dr Ivan Ortiz Monasterio, the Senior Scientist in the Wheat Program at CIMMYT joins us from Mexico to discuss the project and it's impact in Mexico.

5. Eyes on the PRISE: Creating new partnerships to exploit EO data for sustainable development

Andy Shaw, Terreflexion Consulting Limited; Phil Abrahams, CAB International

An estimated 40% of the world's crops are lost to agricultural pests and pathogens, impacting on the ability of smallholder farmers to feed their families and compromising food security. These losses also affect international trade, food supply chains and hamper the pursuit of UN Sustainable Development Goals (SDGs) 1 and 2. A combination of changing management practices, land use and climate change is exacerbating the problem creating new challenges for smallholders, policymakers and donors alike.

Addressing these problems, development agencies and funding bodies are increasingly looking toward integrated technology solutions that generally involve some combination of mobile communication networks, novel data sources, modelling techniques and detailed agronomic and entomological science. Organisations are often experienced in one or more of these domains but rarely all of them. This leads toward a model of collaborative solution development involving a number of partners and domain specialists.

A collaborative approach to agricultural pest and disease risk forecasting is central to PRISE – the Pest Risk Information SErvice. PRISE is a 5-year flagship project of the UK Space Agency International Partnership Programme seeking to

alert farmers to pest and pathogen risk using a combination of entomological modelling driven by EO, in-situ and crowdsourced information. Initially developed for a limited range of crops and associated pests in Ghana, Kenya and Zambia, PRISE will soon be rolled out to Malawi and Rwanda while seeking to broaden the range of crops and pest models available to users.

The lead partner in PRISE is CAB International (CABI), a UK-based organisation that supports farmers mitigate loss from agricultural pest and diseases. CABI run a multi-donor funded programme called Plantwise that runs clinics for smallholder farmers where trained 'Plant Doctors' can meet growers to diagnose problems, advise on sustainable solutions and support ongoing measures to reduce risk and increase production. Using information derived from Plant Clinics, CABI are collaborating with Assimila Ltd and King's College London to develop models of pest risk models that are validated with farmers' own observational data and then provide warnings and advisory notices communicated via a variety of channels and networks.

In this session, we will reflect on the issues, challenges and benefits that EO can bring to international development. We will describe the scale of the challenge from agricultural pests facing developing countries and how EO is an increasingly important resource for modelling and mapping risk. However, the project has experienced the challenges of collaboration in a complex political, economic, scientific and social environment. We will discuss how PRISE is meeting these challenges and lessons that can be learned in related development situations. In particular, we will focus on how to maintain a productive balance between user-focused technology, responsible science and sustainable outcomes.

(10 mins for any concluding remarks on the session and change of speakers for next session)

Second mini-session : *An International perspective*
(12:10 – 13:00)

*Note : Each talk is **max 10 mins** presentation (including introduction of the speaker) + **max 2 mins** for questions.*

1. Longer-term approaches to integrate & transfer satellite environmental information into Development Assistance activities

Stephen Coulson, Head of the Sustainable Initiatives Office, ESA

Since 2010, ESA has been collaborating on the use of EO-derived information together with leading International Financing Institutions (IFIs), in particular in partnership with the World Bank (WB), European Investment Bank (EIB), International Fund for Agricultural Development (IFAD) and the Asian Development Bank (ADB). The longer-term objective is to 'mainstream' the use

of EO-based information into development projects and activities, with the prospect of sustainable transfer into the working processes and activities of the main IFIs. This would mean EO-based information being planned into projects technically and financially as a systematic source of environmental information for all project phases (planning, preparation, implementation and monitoring). 'Mainstreaming' implies a significant capacity building activity to enable the full exploitation of EO, including Bank technical staff and management for the early project phases, and (more importantly) the client country recipient (i.e. governments of developing countries) for implementation. Realising this ambitious objective in the complex and rapidly changing development assistance landscape will require long-term, sustained efforts. This talk will outline the benefits that EO can deliver to development activities and the longer-term programmatic plans that ESA have in strategic collaboration with key international partners to scale-up the use of EO information in this sector globally. These plans include the sustainable transfer of the technical skills and know-how for producing and using EO satellite information (which exist today in Europe through previous ESA and EC development programs) into the developing country aid recipients to grow the economic welfare and prosperity of those countries.

2. Transforming Investment Financing

Keith Garret, Geospatial Operations Support Team (GOST), World Bank

"By 2050, the world will have to feed 9 billion people, house 2 billion new urban residents, provide all of them affordable access to energy, property rights and other services, and do all of this while bringing down global greenhouse gas emissions to a sustainable level. This will happen against a backdrop of intensifying floods, droughts, and other natural disasters, rising sea levels, and ever greater food and water insecurity. These threats could push 100 million more people into poverty in the next 15 years alone. Sustainable development under these conditions will not be adequately or efficiently accomplished without routine and frequent input from EO systems at every stage of the decision cycle. Yet, EO is one of many inputs to an under resourced outcome-driven field. The full diverse list of uses and challenges EO can inform is not yet fully integrated into investment finance decision making, mainly because development practitioners necessarily focus on basic needs such as sanitation before satellites. However, mobilizing the data revolution is increasingly acknowledged in the policy debate as integrative cross-sectorial support to achieve the SDGs and programs such as ESA's EO4SD and the new Space4IDA concept are necessary complements that can further inform development projects' outcome orientation. This talk will underline future strategic prospects of the World Bank's partnership with ESA and exemplify three key areas where public EO data services have the potential to transform investment financing; Climate Change mitigation, Investments in Disaster Resilience, and Energy investment planning."

3. The ADB Strategy 2030 : Prosperous, Inclusive, Resilient, Sustainable

Thomas Abell, Advisor and Chief, Digital Technology for Development Unit, Sustainable Development and Climate Change Department (SDCC), Asian Development Bank

Asia and the Pacific have made great strides in poverty reduction and economic growth in the last 50 years, but there are unfinished development agendas. Strategy 2030 sets the course for ADB's efforts to respond to the changing needs of the region until 2030. This is a transforming landscape of huge infrastructure requirements (1.7 Trillions US$ per year), rapid urbanization (by 2030 55% of the population will be in the cities), technological advancements, and increasing productivity and employment. This talk will outline the potential of EO in the context of Asia/Pacific to support development and address key issues such as : tackling climate change, building climate and disaster resilience, enhancing environmental sustainability, making cities more liveable, and promoting rural development and food security.

4. Fighting Poverty from Space : EO & GIS for better decision making

Eric Patrick and Oliver Munday, International Fund for Agricultural Development (IFAD)

The IFAD Strategic Framework 2016-2025 will mobilize and leverage substantially greater investment in rural areas, strengthen the quality of countries' rural development programmes through evidence-based innovation, knowledge sharing, partnerships and policy engagement; and deliver development results more cost-effectively. In this context, IFAD recently launched an internal initiative based on the use of Geonode to consolidate and harmonize the use of EO and geospatial information in support of IFAD operations. This talk will give an overview of how this information is being applied in all phases of IFAD projects (Design, Safeguards, Implementation, Monitoring & Evaluation, Impact Assessment) and detail the future prospective information needs. The talk will include specific examples resulting from collaboration with ESA and WFP (e.g. Kyrgyzstan, Georgia, Burkina Faso, Malawi, Morocco, Niger, Djibouti and Uganda).

Closing mini-session : *Panel discussion*

(13:00 – 13:50)

Panel Chair : *Stephen Coulson, ESA*
Panel Members : *Chris Lee, UKSA; Ivan Ortiz Monasterio CIMMYT; Paolo Manunta, ADB; Chris Aubrecht, WB.*

Introduction to panel members	:	5 mins in total (by Chair)
Initial Comments from each member	:	20 mins in total (max 5 mins each)
Questions/Comments from the floor	:	15 mins
Closing short remarks	:	10 mins in total (max 2.5 mins each)