

## **Workshop on Earth Observation Data and Applications for Official Statistics**

Date : 18-22 June 2018

Venue : Bangkok, Thailand

This workshop provides an opportunity for statistical organisations to participate in discussion and training in the use of earth observation (EO) data, in particular satellite imagery, for official statistics and sustainable development goals (SDGs). The first day of the workshop provides an overview of EO and the ways in which it can be used to report on a variety of SDGs. This will include presentations from different country representatives and discussions among participants. The workshop will continue with a course on the use of satellite data for agricultural statistics. This will include presentations, practical demonstrations and hands-on tutorials focusing on data preparation, analysis and presentation. The practical focus of the course will be on crop-type classification but the techniques and tools are more widely applicable. The workshop will conclude with a half-day wrapup including discussion about moving forward, priorities for participants and ongoing training opportunities.

Main presenters: Kerrie Mengersen Queensland University of Technology (QUT), Jacinta Holloway, (QUT), Gordon Reichert (Statistics Canada), Michael Schmidt, Department of Environment and Science (DES), Michael Smedes (United Nations Statistics Division).

## Agenda

### Day 1 Earth Observation Data and Official Statistics

- 9.00                    **Welcome (Filmed)**  
Facilitator: Gemma van Halderen  
Formal welcome. Importance of big data for measuring SDGs
- 9.20                    **Overview (Filmed)**  
Facilitator: Kerrie Mengersen  
Overview of workshop; introduction of presenters
- 9.35    Session 1.1    **Introductions**  
Facilitator: Michael Smedes  
Introduction of participants; current personal and institutional knowledge and skills, ambitions for the workshop.
- 10:00   Session 1.2    **Overview of EO Data – Data types, sources and issues (Filmed)**  
Presenter: Michael Schmidt  
Introduction to key aspects of EO data, data sources, products and data-related issues; International EO agencies and general applications of EO data
- 11.00   Break
- 11.15   Session 1.3    **EO Data, NSOs and SDGs (Filmed)**  
Presenter: Jacinta Holloway  
Overview of the use of EO data for NSOs and SDGs  
Examples of current and emerging applications
- 11.45   Session 1.4    **Global Platform (Filmed)**  
Facilitator: Michael Smedes  
Overview of the UN Global Platform
- 12.15   Survey            Participants fill in brief survey on their use of EO Data  
E.g. In your organization how do you currently use EO data, if at all?  
What are your short term and long term ambitions for using EO data?  
What are the main barriers to using EO data? What are your needs to progress these plans?
- 12.30   Lunch
- 13.30   Session 1.5    **Case study: Measuring water cover (and other projects) (Filmed)**  
Facilitator: TBA  
UN Environment Program and NASA present project on measuring water cover.
- 15.00   Break

- 15.15 Session 1.6 **Case study: Crop yield estimation (Filmed)**  
Facilitator: Sangita Dubey  
Presentation by FAO on their crop estimation work.
- 16.30 Session 1.7 **Roundtable Discussion: current status and future ambitions**  
Facilitator: Kerrie Mengersen  
Participants discuss current status and ambitions to use satellite imagery to produce official statistics at their organisation.
- 17.00 Close
- 17.15-19.00 **Partnership and engagement session**  
An optional session. Opportunity for participants to engage with organizations active in the EO field. Short presentations and light refreshments.

## Day 2 Earth Observation Data and Official Statistics

- 9.00 **Welcome to Short Course (Filmed)**  
Presenter: Kerrie Mengersen  
Introductions, course overview
- 9.15 Session 2.1 **Working with Analysis Ready EO Data (Filmed)**  
Presenter: Jacinta Holloway  
Recap of EO data; Overview of the Australian Data Cube project
- 9.45 Session 2.2 **Google Earth Engine demonstration and practical session**  
Practical 1 **processing Landsat data for crop analysis using QGIS (Filmed)**  
Presenter: Michael Schmidt  
Presentation and practical session
- 10.45 Break
- 11.00 Session 2.3 **Practical 1 session continued**
- 12.00 Session 2.4 **Overview of methods for analysing EO data (Filmed)**  
Presenter: Kerrie Mengersen  
Reference: UN Task Team on Satellite Imagery and Geospatial data report
- 12.30 Lunch
- 13.00 Session 2.5 **Practical session: Introduction to R (Filmed)**  
Practical 2  
Facilitator: Jacinta Holloway  
Introduction to R, reading EO data, crop analysis, interpreting results.
- 14.00 Session 2.6 **Statistical methods for analysing EO data for crop area estimation (Filmed)**  
Presenter: Kerrie Mengersen  
Reference: UN Task Team on Satellite Imagery and Geospatial data report
- 15.00 Break

15.15 Session 2.7 **Practical session: Crop identification using R (Filmed)**  
Practical 3 Facilitator: Jacinta Holloway  
Crop analysis, interpreting results

17.00 Close

### Day 3 Earth Observation Data and Official Statistics

8.00 **Field trip**  
Facilitator: Michael Schmidt  
Collecting field data to verify statistical analyses based on satellite imagery data

12.00 Lunch at Don Wai floating market

## Day 4 Earth Observation Data and Official Statistics

- 9.00                    **Welcome and Recap (Filmed)**  
Presenter: Kerrie Mengersen
- 9.15    Session 4.1    **Google Earth Engine demonstration and practical session**  
Practical 3    **processing Landsat data for crop analysis using QGIS – Part 2 (Filmed)**  
Presenter: Michael Schmidt  
Practical session using data collected on field trip
- 10.45   Break
- 11.00   Session 4.2    **Statistical methods for analysing EO data for crop yield estimation (Filmed)**  
Presenter: Kerrie Mengersen  
Reference: UN Task Team on Satellite Imagery and Geospatial data report
- 12.15   Lunch
- 13.15   Session 4.3    **Case study: Statistics Canada crop yield (Filmed)**  
Facilitator: Gordon Reichert  
Recorded presentation from Statistics Canada on crop yield
- 14.15   Break
- 14.30   Session 4.4    **Practical session: Crop yield estimation using R (Filmed)**  
Practical 4    Facilitator: Jacinta Holloway
- 16:15   Session 4.5    **Roundtable discussion**  
Facilitator: Michael Smedes, with all presenters  
Discussion and advice on how participants can use EO data in their own situation
- 17.00                    **Close of Short Course**

## Day 5 Earth Observation Data and Official Statistics

9.00 Session 5.1 **Other opportunities for using EO data for official statistics and SDGs**  
Presenter/Facilitator: TBC (potentially UNESCAP or Statistics Canada rep)  
Presentation and facilitated discussion with workshop participants, link to Day 1

10.00 Session 5.2 **Case study: environment (topic TBA)**  
Facilitator: Lucas Joppa  
Microsoft presentation on earth observation work

11.15 Tea break

11.30 Session 5.3 **Roundtable Discussion:  
Where to from here? Opportunities and challenges of using  
Earth Observation data in practice**

Facilitator: Eric Rancourt  
Facilitated discussion with workshop participants

12.30 Session 5.4 **Final comments and Feedback on Workshop**  
Facilitator: Michael Smedes

13.00 **Close of Workshop**