



Promoting Cooperative Solutions for Space Sustainability

Young Geospatial Professionals Summit: Addressing the Challenges

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Secure World Foundation
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Secure World Foundation (SWF)

- Secure World Foundation *is a private operating foundation* that promotes cooperative solutions for space sustainability
- **Our vision:** The secure, sustainable and peaceful uses of outer space contributing to global stability and benefits on Earth
- **Our mission:** SWF works with governments, industry, international organizations and civil society to develop and promote ideas and actions for international collaboration that achieve the secure, sustainable, and peaceful uses of outer space for the socioeconomic and environmental benefits to Earth

- The Foundation acts as a **research body, convener and facilitator** to examine key space policy topics
 - To promote **international cooperative governance** for increased space sustainability
 - To increase **human and environmental security** by promoting improved governance of the delivery of information gathered from space systems in ways that promote its utility
 - To assist in the **development of effective national and international space policies and laws** both in established and emerging space nations
- Offices located in Broomfield, CO & Washington, DC with 10 staff members

Activities and Partners



UNITED NATIONS
Office for Outer Space Affairs



INTERNATIONAL
ASTRONAUTICAL
FEDERATION

GO GROUP ON
EARTH OBSERVATIONS



WMO



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA
U.S. DEPARTMENT OF COMMERCE



ORF OBSERVER
RESEARCH
FOUNDATION



SPACE GENERATION
ADVISORY COUNCIL

Who are the decision makers?

- No SDG contains goals that weren't already being worked on by professionals around the world
- Need to define and think broadly from citizens to organizations to governments
- Most potential end users are unaware of the possibilities



How are we delivering it?

- What happens when a potential end user googles their specific topic?
- Who isn't represented in this room?
- Are resources being developed that can be understood and acted upon by non-geospatial professionals?

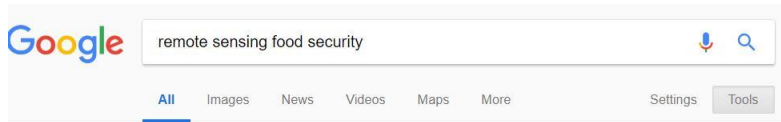
Stakeholders

- Governmental organizations
- Donor entities
- Intergovernmental/multilateral/ regional organizations
- Non-governmental organizations
- Space agencies
- Development contracting companies
- Space manufacturers and operators
- Data analytic businesses
- Non-space related companies
- Academia



What happens when you Google it?

Food Security



Any time ▾ All results ▾

✓ Scholarly articles for **remote sensing food security**

Precision agriculture and **food security** - Gebbers - Cited by 326

... resources and **food security**: how can **remote sensing** ... - Thenkabail - Cited by 42
... advanced **remote sensing** and non-**remote sensing** ... - Thenkabail - Cited by 58

✓ How Remote Sensing Can Help Address Food Security Around the ...

<https://www.nasa.gov/.../how-remote-sensing-can-help-address-food-security-around-t...> ▾

May 28, 2014 - When floods, droughts, and other natural disasters hit isolated and poor regions of the world, it can have devastating impacts on the local price of **food**. Research scientist Molly Brown, of NASA's Goddard Space Flight Center in Greenbelt, Maryland, is using satellite data to ...

✓ Remote Sensing in Food Production and Food Security - MDPI

www.mdpi.com/journal/remotesensing/special_issues/rs_food_production_security ▾

Dear Colleagues, **Food security** is one of the most essential factors for our physical wellbeing; it is a fundamental prerequisite for a healthy and happy life. Food ...

✓ Satellite Remote Sensing in Agriculture and Food Security Assessment

<https://www.sciencedirect.com/science/article/pii/S1878029615005551>

by ME Brown - 2015 - Cited by 2 - Related articles

NASA provides daily satellite **remote sensing** observations on a wide variety of environmental parameters at the global scale, including rainfall, temperature, ...

✓ Remote sensing of crop health for food security in Africa: Potentials ...

<https://www.sciencedirect.com/science/article/pii/S2352938517301465>

by M Onesimo - 2017 - Related articles

Accurate and timely detection, mapping and monitoring of crop diseases and pests is critical for **food security**, particularly in sub-Saharan Africa where hunger ...

✓ GIS Remote Sensing in Food Security | ReliefWeb

<https://reliefweb.int/training/2462044/gis-remote-sensing-food-security> ▾

Feb 14, 2018 - GIS AND REMOTE SENSING IN FOOD SECURITY PROGRAMME. The main purpose of the course is to enhance the capabilities of technical ...

Jun 18 - Jun 29 on-site

✓ Remote Sensing of Agriculture for Food Security Monitoring in the ...

<https://earthzine.org/.../agriculture-and-food-availabilityremote-sensing-of-agriculture...> ▾

Feb 8, 2010 - Agriculture and Food Availability – **Remote Sensing** of Agriculture for Food ... The recent global food crisis brought **food security** issues to the ...

[PDF] ✓ Remote sensing: a key tool for monitoring food resources in a ...

www.kaowarsom.be/documents/Conferences/DUCHEYNE.pdf ▾

by El Ducheyne - Related articles

Keywords: **Remote Sensing**, food production, crop and livestock production ... livestock is an important resource that contributes to **food security**, improves the.

Land Degradation



About 10,300,000 results (0.45 seconds)

✓ What do four decades of earth observation tell us about land ...

blog.worldagroforestry.org/.../what-do-four-decades-of-earth-observation-tell-us-abo... ▾

Jul 10, 2015 - The team used a method known as **Earth Observation**, to collect **data** using **remote sensing** techniques, to assess the **land degradation** ...

✓ Use of earth observation satellite data for land degradation ... - NCBI

<https://www.ncbi.nlm.nih.gov/pubmed/24197846> ▾

by J Hill - 1995 - Cited by 22 - Related articles

Environ Monit Assess. 1995 Jan;37(1-3):143-58. doi: 10.1007/BF00546886. Use of **earth observation** satellite **data** for **land degradation** mapping and monitoring ...

✓ Use of earth observation satellite data for land degradation mapping ...

<https://link.springer.com/article/10.1007/BF00546886> ▾

by J Hill - 1995 - Cited by 22 - Related articles

The **degradation** of the permanent seminatural vegetation and the resulting acceleration of **soil degradation** and erosion processes constitute major elements of ...

✓ Earth Observations for Geohazards, Land Degradation and ...

<https://www.earthobservations.org/activity.php?id=88> ▾

Current and emerging **Earth Observation** (EO) technologies have the potential ... such as: landslide and subsidence dynamics, **soil degradation** and contamination due ... and **data** sets and plans for integration of new generation satellite **data**; ...

[PDF] ✓ What Four Decades of Earth Observation Tell Us about Land ... - ...

www.mdpi.com/2072-4292/7/4/4048/pdf ▾

by C Mbow - 2015 - Cited by 38 - Related articles

Apr 2, 2015 - (4) fill **data** gaps, (5) agree on scales and assumptions, (6) set up a ... Keywords: Sahel; **land degradation**; desertification; **remote sensing**; ...

✓ What Four Decades of Earth Observation Tell Us about Land ... - MDPI

www.mdpi.com/2072-4292/7/4/4048 ▾

by C Mbow - 2015 - Cited by 38 - Related articles

Apr 2, 2015 - The assessment of **land degradation** and the quantification of its effects on land ... After four decades of **Earth Observation** (EO) applications, little ... **data**-access, (4) fill **data** gaps, (5) agree on scales and assumptions, (6) set ...

✓ The role of Remote Sensing in land degradation assessments ...

<https://www.tandfonline.com/doi/full/10.1080/22797254.2017.1378926>

by O Dubovyk - 2017 - Related articles

Sep 18, 2017 - **Land degradation** (LD) is one of the biggest global challenges for the people's ... Currently, **Remote Sensing data** are featured by satellite ...

✓ Use of Earth Observation Satellite Data for Land Degradation...

https://www.researchgate.net/.../258336842_Use_of_Earth_Observation_Satellite_Data...

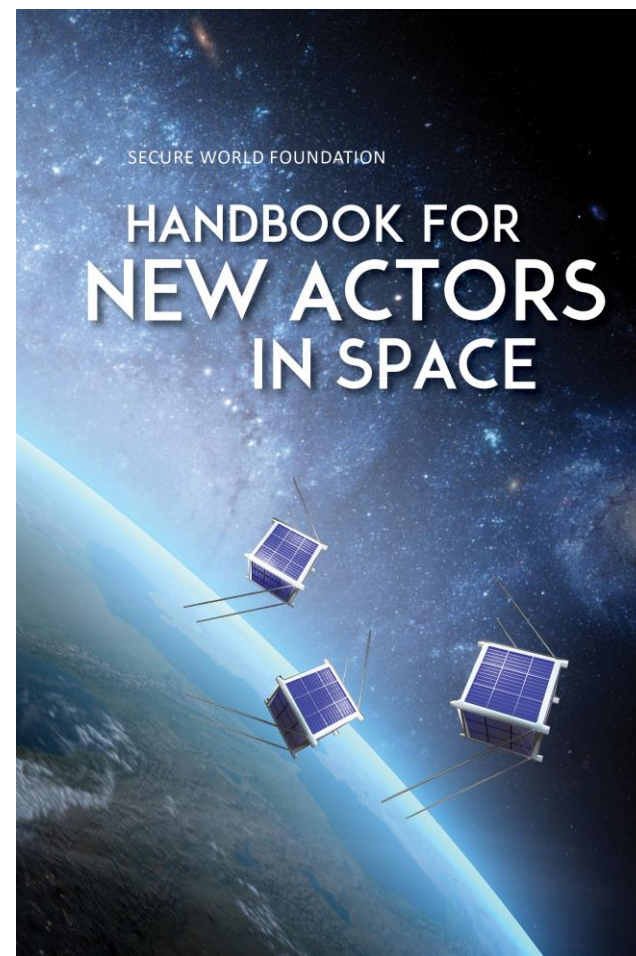
Dec 20, 2017 - Download citation | Use of **Earth** Observa... | The **degradation** of the permanent seminatural vegetation and the resulting acceleration of **soil** ...

Awareness and use geospatial information is increasing but wide-spread adoption is still slow

- Lack of technical knowledge or training
- Focus on traditional areas of application
- “Inertia”
- Donor skepticism
- Government skepticism
- Time and money
- Data set integration concerns including privacy
- Open data “vs.” Commercial data
- Too much data, not the right data
- Licensing

SWF Handbook for New Actors in Space

- **Goal:** Create a publication that provides an overview fundamental principles, laws, norms, and best practices for safe, predictable, and responsible activities in space
- **Two specific audiences:**
 - Countries developing space programs and/or having to oversee and regulate their first satellites
 - Universities and start-up companies that are developing/operating satellites
- **Electronic copies** are available through the SWF website, free of charge:
www.swfound.org/handbook



Chapter 1 – International framework

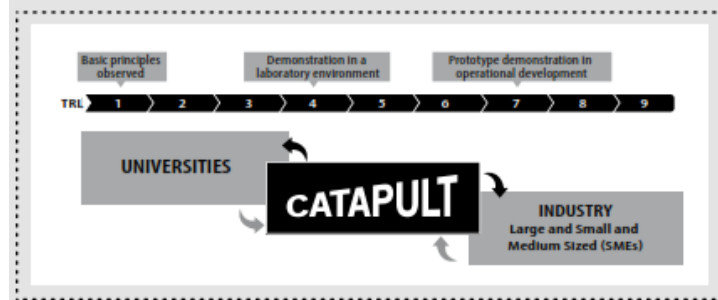
Chapter 2 – National policy and administration

Chapter 3 – Responsible space operations

Case Study:

The United Kingdom Satellite Applications Catapult

The United Kingdom Satellite Applications Catapult was established by the government of the United Kingdom (UK) in May 2013 with the goal of creating economic growth in the UK through supporting the development, commercialization, and use of satellite applications. According to its Delivery Plan 2015–2020, the Catapult (Figure 8) aims to promote satellite application and technology development and to help domestic industry “bring new products and services more rapidly to market.” The Satellite Applications Catapult is one of 11 “Catapults” operating in the UK, each focusing on different technologies and application areas. The Catapult operates as a private, not-for-profit research organization. It is governed by a board, which includes representation from the United Kingdom Space Agency (UKSA) and from Innovate UK—a government agency focused on fostering technology and economic development.





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Thank you. Questions?

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