



Connecting Observations to
Societal Impact:
An Introduction to **GEOValue**

Copernicus Sentinel data (2020)

Sentinel Benefits Study Workshop
Session 3: The International Perspective
June 13, 2024

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Socioeconomic Impact Studies of EO Systems:

- GeoXO Next-Generation Geostationary Satellite Program
- Space Weather Next Satellite Constellation
- Low-Earth/Near Earth Orbiting Network
- National Weather Service Radar Next
- Recapitalization of NOAA Ship Rainier
- G550 Hurricane Hunter Aircraft Study
- Value of Remote-sensing for Harmful Algal Bloom (LEO and GEO)
- Value of Ocean-based Observations (Economist Intelligence Unit)

Impact Evaluation of Climate-Resilience Grant Awards

- Fish passage, marine debris removal, coastal resilience

Marine Economy Statistics and Natural Capital Accounting (UN SEEA)

- Accounting for ecosystem services and flows to and from economies

Social Justice and Climate Resilience (Heat Focus)

Socioeconomic Value, Societal Benefit, Societal Impacts:

- The measure of welfare provided by information or a service to a recipient (public sector):
 - Economy: Reduction of costs
 - Efficiency: Optimally allocating resources
 - Effectiveness: Spending on worthwhile endeavors (public benefit)
 - Equity: Reductions in disparities among beneficiaries

Vs Economic Impact Analysis

- Changes in revenue, profits, wages, spending patterns, and jobs

Monetary value allows for easy comparison across public investments, but many values exist (health outcomes, happiness, cultural, nature)

- Align operations and investments with **societal needs**
 - Improve **service delivery** and ensure information supports society equitably
 - Support **budget justification** and future investments
 - **Understand impact** of past investments
 - Understand and **convey the value** of a program's services
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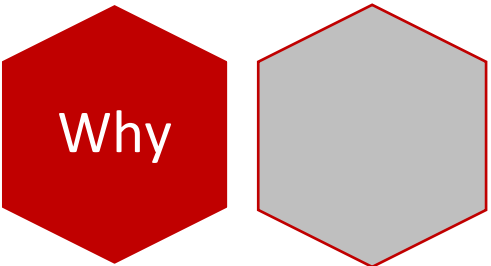
Our long-term vision is to establish a widely accepted and broadly-adopted capacity for the assessment of Earth observations impacts, based on technically-valid methods and resources.



GEOValue is a multi-disciplinary international community pursuing evidence-based methodologies to assess the use and value of Earth Observations (EO). **GEOValue is a Community Activity under the GEO Work Programme.**



EO contributes to the evidence-base for decisions by public sector, business leaders and individuals. Expanding our understanding of the socio-economic benefits of EO will lead to more effective use and promotion of this information.

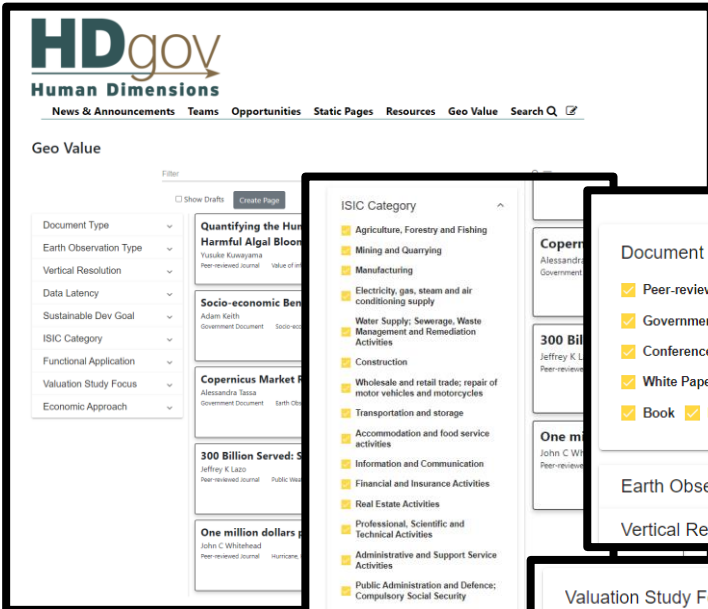


GEOValue furthers the use of socio-economic evidence through working groups, case studies, sharing best practices in methodology, peer-reviewed publications and a structured repository to guide practitioners in the assessment of Earth Observation impacts.

- **Participants** - Anyone who would like to attend an event held by GEOValue or access our research. All are welcome!
- **Members** - Organizations or individuals with an interest to be involved in GEOValue activities, sometimes as presenters/writers/organizers through targeted workshops, working groups or other activities.
- **Planning Committee** - Core members that meet regularly (e.g. monthly) and plan for the overall direction of GEOValue.
 - Currently includes representatives from:
 - Canadian Space Agency
 - European Space Agency
 - FourBridges and European Association of Remote Sensing Companies
 - National Aeronautics and Space Administration
 - National Oceanic and Atmospheric Administration
 - United States Geological Survey

- Beta Launch of **Societal Benefits of EO Digital Library**
 - Incorporation of **GEOValue as GEO Community Activity**
 - **AGU 2023**: Understanding the Societal Value and Use of Earth Science Information
 - **GEO Week 2023**: Assessing the Societal Impacts and Use of EO Data
 - **Pecora 2022**: Space Agency Exec & Diverse Perspectives on Value of EO
 - **GEO Week 2022**: The Value of Valuing Earth Observations
 - **Frontiers in Environmental Science (2021)**:
 - Valuing Earth and Environmental Science Special Issue
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- Sharing of **knowledge** across experts
 - Ensures **consistency and robustness** in valuation approaches
 - Advancement in **capacity and methods** to conduct research
 - **International network** of public and private sector contacts
 - **Improved coordination** between GEO and USGEO objectives
 - **Pooling of resources** to support global initiatives
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Geo Value

Filter

Show Drafts

Document Type

Earth Observation Type

Vertical Resolution

Data Latency

Sustainable Dev Goal

ISIC Category

Functional Application

Valuation Study Focus

Economic Approach

Quantifying the Harmful Algal Blooms
Yusuke Kuwayama
Peer-reviewed Journal

Socio-economic Benefits of Space Utilization
Adam Keith
Government Document

Copernicus Market Readiness
Alessandra Tasso
Government Document

300 Billion Served: Space
Jeffrey K. Liao
Peer-reviewed Journal

One million dollars per day
John C. Whitehead
Peer-reviewed Journal

ISIC Category

- Agriculture, Forestry and Fishing
- Mining and Quarrying
- Manufacturing
- Electricity, gas, steam and air conditioning supply
- Water Supply; Sewerage, Waste Management and Remediation Activities
- Construction
- Wholesale and retail trade; repair of motor vehicles and motorcycles
- Transportation and storage
- Accommodation and food service activities
- Information and Communication
- Financial and Insurance Activities
- Real Estate Activities
- Professional, Scientific and Technical Activities
- Administrative and Support Service Activities
- Public Administration and Defence; Compulsory Social Security
- Education
- Human Health and Social Work Activities
- Arts, Entertainment and Recreation
- Other Service Activities
- Activities of Households as Employers; Undifferentiated Goods and Services; Producing Activities of Households for Own Use
- Activities of Extraterritorial Organizations and Bodies
- N/A

Document Type

- Peer-reviewed Journal
- Government Document
- Conference Proceedings
- White Paper / Working Paper
- Book Presentation Other

Earth Observation Type

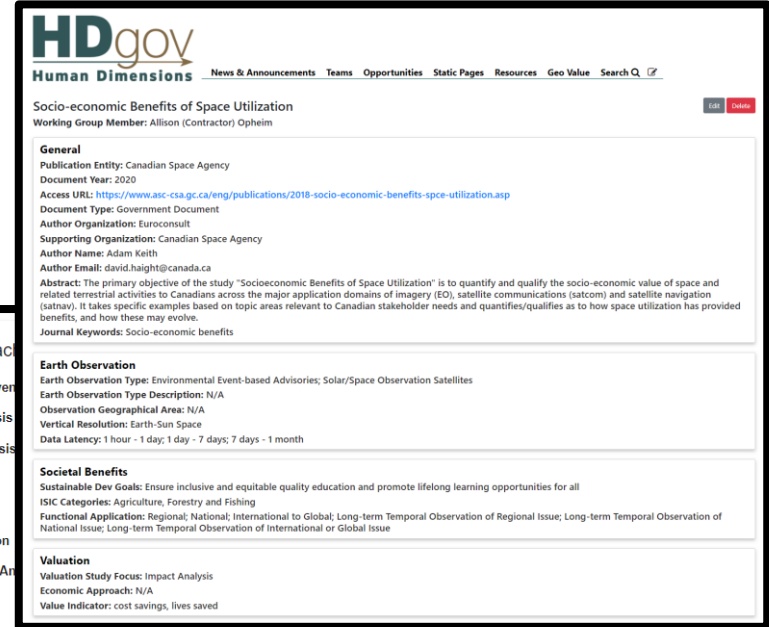
Vertical Resolution

Valuation Study Focus

- Impact Analysis
- Market Welfare Analysis
- Non-Market Welfare Analysis
- Other: Metaanalysis, Literature Review, Discussion
- Other

Economic Approach

- Productivity Improvement
- Benefit Cost Analysis
- Real Options Analysis
- Consumer Surplus
- Decision Analysis
- Contingent Valuation
- Cost Effectiveness Analysis
- Benefit Transfer
- Stated Preference
- Revealed Preference
- Econometrics and Other Statistical Methods
- Input-Output Analysis and Computable General Equilibrium (CGE)
- N/A Other



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Socio-economic Benefits of Space Utilization

Working Group Member: Allison (Contractor) Opheim

General

Publication Entity: Canadian Space Agency
Document Year: 2020
Access URL: <https://www.asc-csa.gc.ca/eng/publications/2018-socio-economic-benefits-spce-utilization.asp>
Document Type: Government Document
Author Organization: Euroconsult
Supporting Organization: Canadian Space Agency
Author Name: Adam Keith
Author Email: david.haight@canada.ca

Abstract: The primary objective of the study "Socioeconomic Benefits of Space Utilization" is to quantify and qualify the socio-economic value of space and related terrestrial activities to Canadians across the major application domains of imagery (EO), satellite communications (satcom) and satellite navigation (satnav). It takes specific examples based on topic areas relevant to Canadian stakeholder needs and quantifies/qualifies as to how space utilization has provided benefits, and how these may evolve.

Journal Keywords: Socio-economic benefits

Earth Observation

Earth Observation Type: Environmental Event-based Advisories; Solar/Space Observation Satellites
Earth Observation Type Description: N/A
Observation Geographical Area: N/A
Vertical Resolution: Earth-Sun Space
Data Latency: 1 hour - 1 day; 1 day - 7 days; 7 days - 1 month

Societal Benefits

Sustainable Dev Goals: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
ISIC categories: Agriculture, Forestry and Fishing
Functional Application: Regional; National; International to Global; Long-term Temporal Observation of Regional Issue; Long-term Temporal Observation of National Issue; Long-term Temporal Observation of International or Global Issue

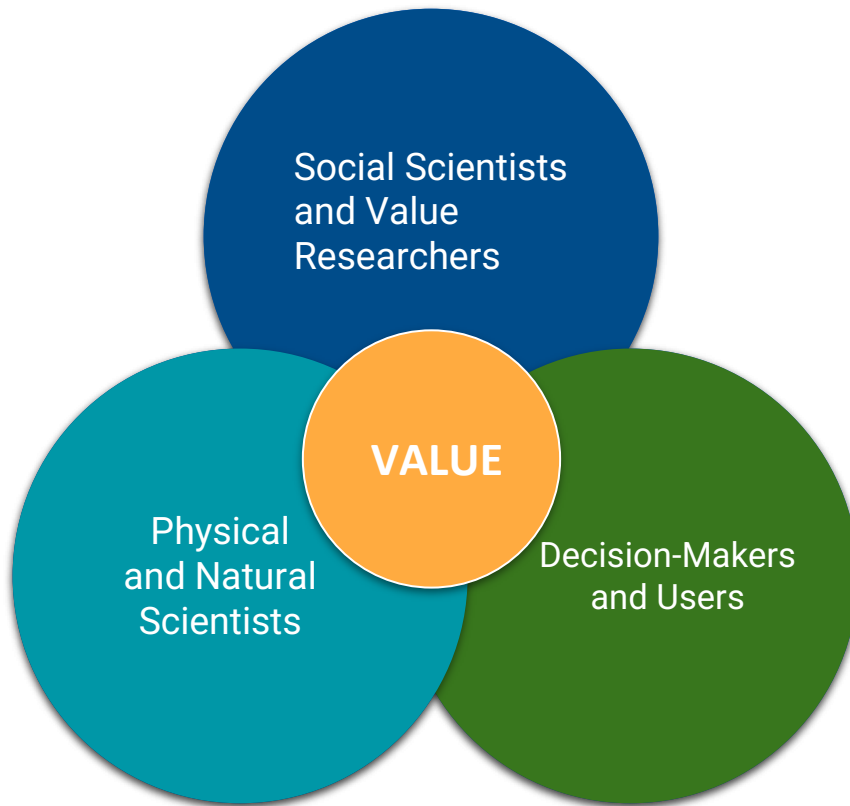
Valuation

Valuation Study Focus: Impact Analysis
Economic Approach: N/A
Value Indicator: cost savings, lives saved

N/A

- **GEO Earth Observation Impact Assessment Toolkit**
 - Development of **valuation guide** for assessing the societal impact of Earth observations and derived information
 - **Upcoming GEO Workshop: June 21, 3-4PM CEST**
 - **Seeking qualitative discussions** with GEO initiatives to better understand needs and uses of valuation toolkit
 - Alignment with **GEO Post 25 Strategy**
 - Coproduction with social scientists and connections to societal policy decisions
 - Improved data access and focus on global equity
 - Integration of new methods and approaches for valuation
 - Incorporation of early career scientists and young stakeholders
 - Provide materials for advocacy and resource mobilization

Coordination is Needed



Thank You!

Resources:

Joint Societal Benefits of Earth Observation Digital Library (BETA)

<https://doi.sciencebase.gov/hd/#/geo-value>

Frontiers Special Issue Valuing Earth and Environmental Science

<https://www.frontiersin.org/research-topics/13883/valuing-earth-and-environmental-science>

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