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# **Landsat Advisory Group (LAG) Status Report**

## **NGAC Meeting**

**June 12, 2019**

**Frank Avila  
LAG Chair**

**Roberta (Bobbi) Lenczowski  
LAG Vice-Chair**

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# Agenda

- LAG Mission
- Published LAG Reports
- LAG Membership
- Task #3 Final Report Presentation
- Questions / Discussion

# LAG Mission\*

***Provide advice to the Federal Government, through the Department of the Interior National Geospatial Advisory Committee, on the requirements, objectives and actions of the Landsat Program as they apply to continued delivery of societal benefits for the Nation and the global Earth observation community.***

\* LAG was established on April 2012.

# Published LAG Reports

- Landsat Future Mission Recommendations – April 2018
- Landsat Data Cube Feasibility for Forecasting – April 2018
- Analysis of Non-Federal Landsat User Requirements – June 2016
- Sentinel Data Use Policies – December 2015
- The Value Proposition for Landsat Applications – December 2014
- Cloud Computing: Potential New Approaches to Data Management and Distribution – December 2013
- Product Improvement – Advice USGS on Potential Means of Modifying the Current Products to Make Them More Useful to Commercial Information Providers and Value-added Analysts – December 2013
- Statement on Landsat Data Use and Charges – September 2012
- The Value Proposition for Ten Landsat Applications – September 2012

*Documents can be accessed at [www.fgdc.gov/ngac/key-documents](http://www.fgdc.gov/ngac/key-documents)*

# LAG 2019 Membership

Name	Organization
Frank Avila (LAG Chair, NGAC Member)	National Geospatial-Intelligence Agency (NGA)
Roberta Lenczowski (LAG Vice-Chair, NGAC Member)	Roberta E. Lenczowski Consulting, LLC
Kevin Pomfret (NGAC Member)	Centre for Spatial Law and Policy
Kass Green	Kass Green & Associates
Peter Becker	Esri
Tony Willardson	Western States Water Council
Steven Brumby	National Geographic Society
Walter Scott	MAXAR
Joanne Gabrynowicz	University of Mississippi

Federal Contact: Tim Newman and Peter Doucette (USGS)

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## LAG Task #3 – Cost sharing models for Landsat data

- DOI leadership has requested that USGS<sup>1</sup> consider new prospects for cost sharing of Landsat data to support USGS's role toward the Sustainable Land Imaging model.
  - Recognizing that aspects of this issue were investigated by the Landsat Advisory Group (LAG)<sup>2</sup>, DOI leadership is seeking to better understand economic and data policy considerations and impacts in relation to user needs, as well as the potential for public-private partnering (P3), with respect to various cost sharing models for Landsat data.
  - USGS is requesting that the Landsat Advisory Group (LAG) review the findings of [2, 3], and other potentially relevant studies, to consider a range of possible Landsat data cost sharing models that may include, but are not limited to:
    - resource leveraging for data processing, management, and distribution;
    - resource leveraging for satellite ground mission development and operations;
    - various forms of fee recovery models for different market sectors. The LAG should consider pros and cons of the cost sharing models investigated.

# Status Update

## LAG Task #3 – Cost sharing models for Landsat data

- Task Team Lead – Kevin Pomfret
- LAG focused on three cost-sharing approaches:
  - Charging for “traditional” data
  - Charging for value-added products and services
  - Private-public partnership (P3) structures
  - Report also includes two appendices:
    - 1 - provides the historical context for current Landsat pricing and licensing policies
    - 2 - summarizes feedback received by the LAG from user community
- USGS/Ft. Collins study closed in early November 2018
  - Over 3,000 completed surveys submitted
  - Critical analysis of data continues to date
  - LAG was not able to receive any findings to factor into report

[1] [sustainablelandimaging.gsfc.nasa.gov/](http://sustainablelandimaging.gsfc.nasa.gov/)

[2] [www.fgdc.gov/ngac/meetings/september-2012/ngac-landsat-cost-recovery-paper-FINAL.pdf](http://www.fgdc.gov/ngac/meetings/september-2012/ngac-landsat-cost-recovery-paper-FINAL.pdf)

[3] John Loomis, Steve Koontz, Holly Miller, and Leslie Richardson, “Valuing Geospatial Information: Using the Contingent Valuation Method to Estimate the Economic Benefits of Landsat satellite Imagery”, PE&RS, 81 (8), 647-668, 2015.

# LAG Task #3 – Cost sharing models for Landsat data

- US and International Landsat user community was very vocal regarding the value of a free and open data policy
  - Several articles and social media postings were published about this task
  - Over 30 letters and emails were received by USGS and NGAC

The collage consists of several overlapping screenshots:

- ScienceDirect Article:** "Remote Sensing of Environment 224 (2019) 382–385". Title: "Benefits of the free and open Landsat data policy". Authors: Zhe Zhu<sup>a,\*</sup>, Michael A. Wulder<sup>b</sup>, David P. Roy<sup>c</sup>, Curtis E. Woodcock<sup>d</sup>, Matthew C. Hansen<sup>e</sup>, Volker C. Radeloff<sup>f</sup>, Sean P. Healey<sup>g</sup>, Crystal Schaa<sup>h</sup>, Patrick Hostert<sup>i,j</sup>, Peter Strobl<sup>k</sup>, Jean-Francois Pekel<sup>l</sup>, Leo Lyburner<sup>m</sup>, Nima Pahlevan<sup>n</sup>, Ted A. Scambos<sup>o</sup>.
- Nature Article:** "US government considers charging for popular Earth-observing data". Author: Gabriel Popkin. Includes a satellite image mosaic.
- Twitter Post (Joshua Stevens @jscarlo):** "Landsat data used to be ~\$600/scene. A recent mosaic of mine used > 2300 scenes of data. In the past I'd owe \$1.4M. That was for a single map, a day's work. Technology has far outpaced the notion of paying for scenes. It's simply unimaginable. [nature.com/articles/d4158...](https://www.nature.com/articles/d4158...)"
- Twitter Post (Jillian Deines @JillDeines):** "Landsat imagery for my current project would have cost \$20,516,400 at the previous \$600/scene fee. No one would/could pay that. Grateful for free Landsat to study how large regions change over multiple decades! Vital for understanding how to manage water resources to grow food." Includes a satellite image mosaic.
- CEOS Letter:** "Committee on Earth Observation Satellites". Dated 18<sup>th</sup> May 2018. Recipients: "Dear Team members of the Landsat Advisory Group." Reference: "Our Ref: 2018-62/GE0/Landsat CL/5m".
- Geo Group on Earth Observations Letter:** "Our Ref: 2018-62/GE0/Landsat CL/5m". Recipients: "Landsat Advisory Group of National Geospatial Advisory Committee". Dated "Geneva, 28 June 2018". Recipients: "Dear Members of the Landsat Advisory Group,".
- National Association of State Foresters Letter:** "September 19, 2018". Attention: "landsatdatapolicy@usgs.gov". Recipients: "United States Geological Survey, U.S. Department of the Interior, 1849 C Street NW, Washington D.C., 20240".

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# Task #3

## Final Report Presentation:

### *Cost Sharing Models for Landsat Data*

Lead – Kevin Pomfret

# Findings

- **The LAG's findings regarding charging fees for Landsat data with the characteristics of Landsat 8 and 9 are:**
  - The LAG believes that charging a fee for Landsat data will generate little net revenue. The net revenue would potentially be less than the government costs incurred to implement the fee.
  - The LAG believes that charging a fee for Landsat data will result in negative economic impacts to the U.S. commercial remote sensing satellite and value-added industries.
  - The LAG believes that given existing statutory and regulatory constraints, the Federal Government could not readily charge for Landsat data without substantive changes in both law and regulations.
  - The LAG believes that the revenue obtained for charging a fee for Landsat data would not be worth the economic, legal, societal or political costs that would be incurred, particularly given the measures that would need to be required to change applicable law and regulation or to revoke internationally lauded and followed data policy.

# Findings con't.

- **The LAG's finding regarding charging for “enhanced” Landsat data is:**
  - The LAG believes that there may be an opportunity to generate revenue by selling “enhanced” imagery products and tailored tasking options from sensors onboard Landsat satellites while still making standard Landsat 8 and 9 imagery data free and openly available. However, there are apparent and significant concerns or risks that could make such an option difficult to implement.

# Findings con't.

- **The LAG's findings on other approaches to cost-recovery or cost-avoidance for the Landsat program:**
  - The LAG believes that moving from the current Government-owned, Contractor-operated (GOCO) business model, to a Contractor-owned, Contractor-operated (COCO) business model could provide for more efficient delivery of Landsat data and provision of data management services at lower costs.
  - The LAG believes a Public Private Partnership could allow the U.S. Government to benefit from some of the efficiencies of the private sector industry, while maintaining Landsat continuity. It could also preserve public/open availability of Landsat-quality data. However, this approach depends upon the ability of private industry to develop and implement a successful business model and upon any legal changes required including amending the Land Remote Sensing Policy Act.

# Recommendations

- The LAG recommends that the Department of the Interior not implement any fees for Landsat data with the characteristics of Landsat 8 and 9.
- The LAG recommends further review of the concerns identified regarding charging for “enhanced” Landsat data.
- The LAG recommends that further research is needed to examine the benefits and costs of transitioning from GOCO to COCO at the USGS Earth Resources Observation and Science (EROS) Center.
- The LAG recommends that further research is needed to determine if a sufficient business case exists and what legal changes are required to support exploration of the creation of public-private partnership(s).

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# Conclusion

- The LAG believes that considering the findings of this report, a more significant study would be to analyze how the costs of building and launching Landsat sensors could be reduced, rather than focusing on cost sharing of operations.

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# *Questions?*