

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

## **NGAC Meeting** **September 7, 2017**

**Frank Avila**  
**LAG Chair**

**Roberta Lenczowski**  
**LAG Vice-Chair**

# LAG Purpose

*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 2017 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
Rebecca Moore (NGAC Member)	Google, Inc..
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	Descartes Labs
Walter Scott	DigitalGlobe
Joanne Gabrynowicz	University of Mississippi

\* New Member

Federal Contact: Tim Newman and Peter Doucette (USGS)

# Status

- LAG paused all activities on May 2017 due to DOI review of FACA Committees
- Resumed LAG meeting on August 25, 2017
  - Introduction of Team Members and Chairs
  - Discussion on status of tasks continued from 2016 USGS Guidance
  - Review and discussion of new study task (task #3)
- Second meeting held on September 6, 2017
  - Participants
    - Frank, Bobbi, Rebecca, John, Peter in person
    - Joanne, Kass, Peter B on line
    - Holly Miller from USGS on line
  - Discussion was centered on new Task 3
  - Missing LAG members will be invited to conference call

# LAG Task #1 – Architectures for Future Mission

- This task combines Tasks 1 and 3 from 2016 guidance to LAG
  - “Examine possible architectures for a future Earth land surface data collection mission beyond Landsat 9.”*
  - USGS is asking LAG to provide recommendations in regards to possible future Global Land data collection missions beyond Landsat 9
  - The Following dependencies should be considered:
    - *Informing a significant GOV milestone decision by mid-2018*
    - *Launch timeframe of the mid-2020s*
    - *Capabilities that are complimentary to the expected capabilities of the Commercial RS industry, as well as ESA’s Copernicus Program*
    - *Maintaining continuity with historic and current Landsat system capabilities and applications*

# LAG Task #1 – Architectures for Future Mission

- *Maintaining continuity with historic and current Landsat system capabilities and applications*
  - Spectral coverage that includes VNIR, SWIR, and Thermal IR
  - Rigorous levels of geometric and radiometric calibration accuracy with respect to absolute reference standards
  - Systematic data collection of the entire Earth's land mass, with a minimum of 8 day nadir revisit among all active Program assets
  - A ground segment infrastructure that can support expected levels of IT requirements for processing, distribution, and archiving
- Additional considerations sought
  - Opportunities for public-private partnerships (P3)
  - Technical feasibility and application value of enhanced collection capabilities among spatial, spectral, radiometric, and temporal resolution
  - Discussion of utility and limitations for leveraging CubeSat and SmallSat technology

# LAG Task #1 – Architectures for Future Mission

## ■ Team Members -

Name	Organization
Kass Green – <b>TEAM LEAD</b>	Kass Green & Associates
Roger Mitchell (member up to Summer 2017)	MDA Information Systems, Inc.
Peter Becker	ESRI
Roberta Lenczowski	AmericaView
Steven Brumby	Descartes Labs
Walter Scott	DigitalGlobe

- Team reconvened on Sep 4, 2017 to discuss draft report
  - Walter will focus on P3
- Proposed draft report for team review by end of September
- LAG will have draft report for review by end of October
- Plan to have copy for NGAC review by December meeting

# LAG Task #2 – Temporal Data Cube Study

- This task is continued from 2016 guidance to LAG
  - “Examine the feasibility and utility of implementing temporal data cubes to support projection or ‘forecast’ models of land change trends.*
- It remains unclear whether a deeper market demand for forecasting land change will develop. To that end, the following questions are posed for further study:
  - In addition to Landsat, what other data sources (to include EO, SAR, and LIDAR) are optimally suited for leveraging (e.g., co-registered) to support data cube implementations for land change analysis and forecast modeling?
  - What kinds of Landsat time-series products would have the broadest community use, or most impactful contribution in specific areas?
  - Which organizations with expertise in forecast modeling are best postured to evaluate and demonstrate the forecast potential from a Landsat-based temporal data cube?
  - How far back in time into the Landsat archive should the staging of ‘analysis ready data’ be considered? e.g., early data collections such as multi-spectral scanner (MSS) data are less equipped (in terms of metadata) to support rigorous geometric and radiometric calibration compared to later collections.
- How could efficient synergy be realized among government and commercial roles for data cube development, and operations (processing, storage, distribution) to satisfy broad community needs?

# LAG Task #2 – Temporal Data Cube Study

## ■ Team Members –

Name	Organization
Roberta Lenczowski - <b>TEAM LEAD</b>	Roberta E. Lenczowski Consulting, LLC
Rebecca Moore (NGAC Member)	Google, Inc.
Peter Becker	ESRI
Tony Willardson (Sara Larsen)	Western States Water Council
Steven Brumby	Descartes Labs
Frank Avila (NGAC Member)	NGA
Jed Sundwall (member up to Summer 2017)	Amazon Web Services

- Team plans teleconference 1<sup>st</sup> week of October
- Plan to send draft for LAG review by mid November
- Proposed Interim Report to NGAC – December 2017

## LAG Task #3 – Fee recovery for Landsat data

- DOI leadership has requested that USGS consider possibilities for fee recovery for Landsat data.
  - Recognizing that this issue has been investigated in the past, DOI leadership is seeking to better understand the Landsat user community's needs in terms of "willingness-to-pay." (Guidance)
  - LRS is requesting that the LAG review the results from previous publication, the 2012 LAG paper "Statement on Landsat Data Use and Charges", and other relevant studies, to consider the plausibility of fee recovery today.
- Holly Miller (USGS) has initiated another survey, waiting for OMB approval, expect to conduct in November, have early results in December

# LAG Task #3 – Fee recovery for Landsat data

## ■ Recommendations for Task #3 Team

- Follow the USGS survey results and whether there is any economic benefit to sell new Landsat collections
- Identify other economic considerations
  - Fewer data sets can be procured by academics for research and development of needed applications
  - Stifle some foundation research work for LST
  - “Chilling effect on innovation” across community
  - Impact Sentinel availability
    - Either EC/ESA reverts to selling and costs US government to use
    - Or EC/ESA continues to provide “free and open” and takes away any Landsat market
  - Cost avoidance for mandated data sets lost (NGAC paper)
- Analyze the change in Landsat data use from scenes to smaller sections and impact on “willingness to pay”

# LAG Task #3 – Fee recovery for Landsat data

- Team Members -

Name	Organization
xxxxxx - TEAM LEAD	

- First meeting in late Sep – early Oct, 2017
- Proposed initial Report Due Date – December, 2017