



## Editorial

## Preface to Landsat Legacy Special Issue: Continuing the Landsat Legacy

Since the launch of its first satellite in 1972, the Landsat program has demonstrated the insights that can be obtained through Earth observation at a resolution sensitive to both natural and human drivers. As a result, both scientific debate and environmental policy development are increasingly aided by information from the Landsat satellites. The scientific and operational uses of Landsat data are innumerable and exhibit increasing rigor and sophistication. The US Geological Survey's (USGS) decision in 2008 to make standard data products freely available through the internet was a watershed event in the history of the program, and has led to ambitious analyses previously precluded by data costs and processing requirements.

In this Special Issue of Remote Sensing of Environment, "Continuing the Landsat Legacy," we capture the current status of the Landsat program, present information regarding the forthcoming Landsat Data Continuity Mission (Landsat-8), and document new research programs and projects that rely on Landsat data. A special emphasis is placed on the burgeoning scientific and applications opportunities enabled by free access to the US archive, including use of dense time-series data to characterize inter- and intra-annual land cover changes, new capabilities for continental-scale mapping, and applications focused upon particular information needs. The importance of free and open access to the Landsat image archive cannot be overstated. The geometric and radiometric quality of the standard Landsat products has enabled new applications. Furthermore, the ability to leverage the complete archive to track four decades of environmental and resource change on Earth has ultimately resulted in the fulfillment of the original vision of the Landsat program, which was first articulated in the 1960's.

We are rapidly approaching the January 2013 launch of the Landsat Data Continuity Mission (to be known post-launch as Landsat-8). Assuming that Landsat-8 meets its design lifetime, we can expect new observations through 2018. Continuity of Landsat data into the future remains critical for understanding the Earth system and for providing

a scientific basis for land management. The proposed transition of the Landsat program to the USGS represents a key step toward realizing a true operational capability for land remote sensing.

While it is the government institutions (USGS, NASA) that operate the Landsat program, we would also like to draw attention to the important role of the Landsat Science Team in supporting open data access, providing advocacy regarding mission continuity, and for applications and science examples for what is possible with Landsat. The USGS is thanked for support of the Landsat Science Team, as is Curtis Woodcock (Boston University) for serving as the Team Leader. Additionally, Thomas Loveland and James Irons, of the USGS and NASA respectively, are also heartily thanked for Co-Chairing the Landsat Science Team.

As co-editors, we would like to thank Marvin Bauer for supporting this Special Issue, and for his insight and effort that has made it a reality. It has been a great pleasure to have the opportunity to serve as Guest Editors of this Special Issue. While no single issue can span the range of relevant research topics, the collection presented herein provides an overview of the current state of the Landsat program and associated science and applications activities. It is our hope that the issue informs your activities, promotes understanding, and spurs new insights.

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