PANEL DISCUSSION ON FUTURE LANDSAT DATA NEEDS AT THE LOCAL AND STATE LEVELS

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ABSTRACT

Landsat data are invaluable for numerous remote sensing applications. Presently, NASA and USGS are soliciting input from user communities about future Landsat missions on topics such as data needs and their applications. Americaview (www.americaview.org) has organized a panel discussion during the 2014 ASPRS Annual Conference that will focus on remotely sensed data needs at local, state and possibly regional levels. This panel will include AmericaView and USGS scientists. Following brief presentations from the panelists, we will solicit input from those present about future Landsat data needs. Our goal is to collect input from diverse sources and present them to NASA and USGS.

KEYWORDS: Landsat, Multispectral data, Needs assessment, AmericaView

INTRODUCTION

Spectral data collected by Landsat satellites 1-5, 7 and 8 over forty plus years constitute the longest consistent collection of earth observation information (landsat.usgs.gov). One of the unique features of Landsat data is that they are radiometricaly calibrated which allows users to compare data from multiple years (Markham and Helder, 2012). Since the launch of the first Landsat in 1972, incremental changes have been made to subsequent missions for improving the quality of data collected by the sensors on these satellites (Loveland and Dwyer, 2012). Over these years, the input provided by the user community has resulted in a number of these improvements and modifications.

Starting in 2008 the US Geological Survey (USGS) opened the Landsat archive to provide free imagery to users worldwide. New data collected by Landsat satellites 7 and 8 are continuously added to this archive. Users with access to the internet can download Landsat data at no-cost from GloVis (glovis.usgs.gov) or EarthExplorer (earthexplorer.usgs.gov). This policy of providing no-cost Landsat data has significantly increased the number of earth observation applications worldwide (Wulder et al. 2012).

The successful launch of the Landsat 8 (LDCM) satellite in Feb 2013 is a major milestone both for the program and earth observation applications worldwide. In comparison to Landsat 5 and 7, sensors aboard the newer satellite collects data in two additional bands (coastal blue and cirrus) at 12-bit radiometric resolution which has improved the signal to noise ratio (landsat.usgs.gov/about_ldcm.php). Currently, preliminary discussions are underway regarding the design of Landsat satellites 9 and 10 (Loveland and Dwyer, 2012; Kelly and Holm, 2014)). Input from the user community is critical and necessary for ensuring that the data collected by sensors abroad Landsat 9 and 10 will meet the requirements of the user communities at the local, state, regional, national levels and beyond.

AmericaView, a non-profit organization, has organized a panel discussion at the 2014 ASPRS Annual Conference that aims to solicit the data needs at the local, state and regional levels. This information combined with the information collected from other AmericaView members will be presented to the USGS and the National Aeronautical and Space Administration (NASA); agencies responsible for building and operating Landsat satellites. AmericaView will leverage

the presence of remote sensing scientists at the ASPRS Annual Conference to maximize the present needs assessment process.

AMERICAVIEW

AmericaView is a "nationally coordinated network of remote sensing scientists and practitioners who work with the USGS Land Remote Sensing program (Landenberger et al. 2011)." AmericaView operates as StateView consortia in 39 states (GeorgiaView, TexasView for example) and are highlighted in shades of blue (Figure 1).

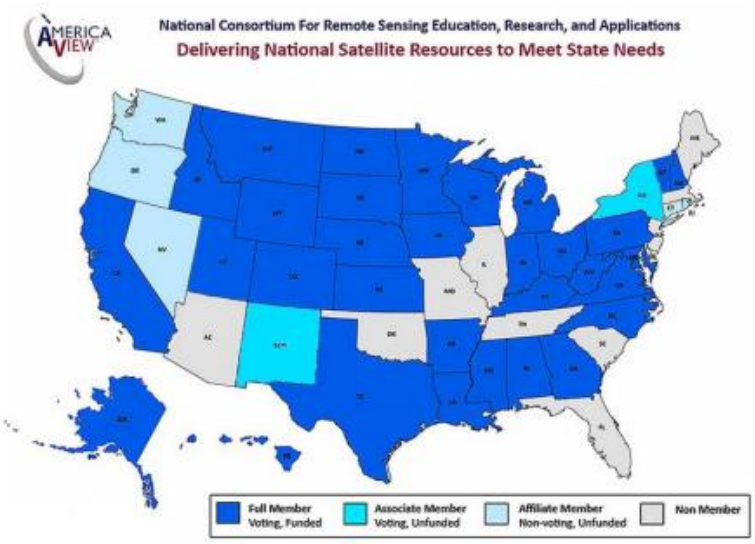

Figure 1. StateView members as of February 2014; full members (dark blue) receive full funding and have full voting rights, associate members (cyan) have full voting rights but receive no funding, and affiliate members are unfunded and do not vote on organization's business (figure credit: AmericaView).

Each StateView is led by an academic institution, and other academic institutions, state, local and federal government agencies, non-profit organizations, and private sector companies in that state are part of the StateView consortium. Each StateView has the flexibility to organize its consortium and activities based on the needs and priorities of their state.

StateViews have worked with government agencies and researchers in academia to apply Landsat data and related remote sensing technology to address natural resource management issues and disaster response activities (Dodge and Congalton, 2013; Sivanpillai and Driese, 2007). Complete information about AmericaView and its various activities can be found at www.americaview.org.

NEEDS ASSESSMENT

This needs assessment session will start with an overview presentation about the Landsat program, including its history, current status and future plans. Improvements to sensor and data characteristics implemented over the last 40 years will be described. This presentation will conclude by outlining the impacts of these improvements to Landsat data which increases our ability to map and monitoring land cover changes throughout the globe.

Next, we will introduce the AmericaView program and showcase Landsat related applications from various StateViews. These applications exploit the spectral and temporal resolutions of Landsat data and a majority of them were conducted by StateViews with the help of partners or consortia members. This presentation will highlight a) Landsat applications at local- and state-levels and b) how AmericaView promotes Landsat applications in their member states.

The final part of the panel discussion will focus on acquiring and assembling information needs at local- and state-levels along with the challenges faced by the user community. Earlier presentations in this session, we hope, will stimulate a good discussion on potential applications for Landsat data. Simultaneously we will solicit information about challenges faced by the user community and suggestions for improvement for future Landsat missions. Input collected from this panel discussion will be summarized in the form of a report and will be submitted to the USGS and NASA.

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