

Landsat Operations Project Status

Pecora Abstract

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The Landsat missions have been flown since 1972, with a goal to collect and archive remotely sensed land data over the entire Earth that can be used for global change research and a multitude of other applications. To better facilitate scheduling, acquisition, and collection of Landsat data, the U.S. Geological Survey assumed operational responsibility of the Landsat program with Landsat 7 and later taking on Landsat 5. The ability for the USGS to understand scientific user needs and translate them into imagery requirements has allowed the Landsat missions to be flown as a constellation, and the acquisitions maximized to satisfy the greatest amount of users. Currently, the USGS is operating the Landsat 7 and Landsat 8 missions and in 2008 made the entire Landsat archive available to all users free of charge.

Landsat operations consist primarily of the flight operations systems which are used for the scheduling, commanding, and controlling of the satellites and the ground operations system which is used for acquisition, collection, processing, archiving, and distribution of the data. USGS is also responsible for the development and maintenance of these systems. The flight operations systems reside within the Mission Operations Centers (MOC) for Landsat 7 and Landsat 8, which are both located on the NASA Goddard Space Flight Center (GSFC) campus in Greenbelt, MD. The MOCs are managed by the USGS and supported by individual Flight Operations Teams (FOTs) comprised of contractors.

The ground operations systems reside primarily at the EROS Center near Sioux Falls, SD but also include a number of satellite reception ground stations that make up the Landsat Ground Network (LGN). The Landsat 7 and Landsat 8 LGN consist of ground stations located in Sioux Falls, SD, Fairbanks, AK, Svalbard, Norway, and Alice Springs, Australia. In addition, science data are downlinked to several international ground stations that comprise the International Cooperator (IC) network.