Landsat on Amazon Web Services

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On 19 March 2015, Amazon Web Services (AWS) announced Landsat on AWS, a service to make Landsat data available for anyone to access from Amazon S3.

Over 250,000 Landsat 8 scenes are freely available from Landsat on AWS. All Landsat 8 scenes from 2015 are available, along with a selection of cloud-free scenes from 2013 and 2014. All new Landsat 8 scenes are made available each day (~680 per day), often within hours of production.

Features of Landsat on AWS

Landsat on AWS is designed to allow fast access to Landsat data, reducing the time required for analysis.

Available near on-demand IT resources
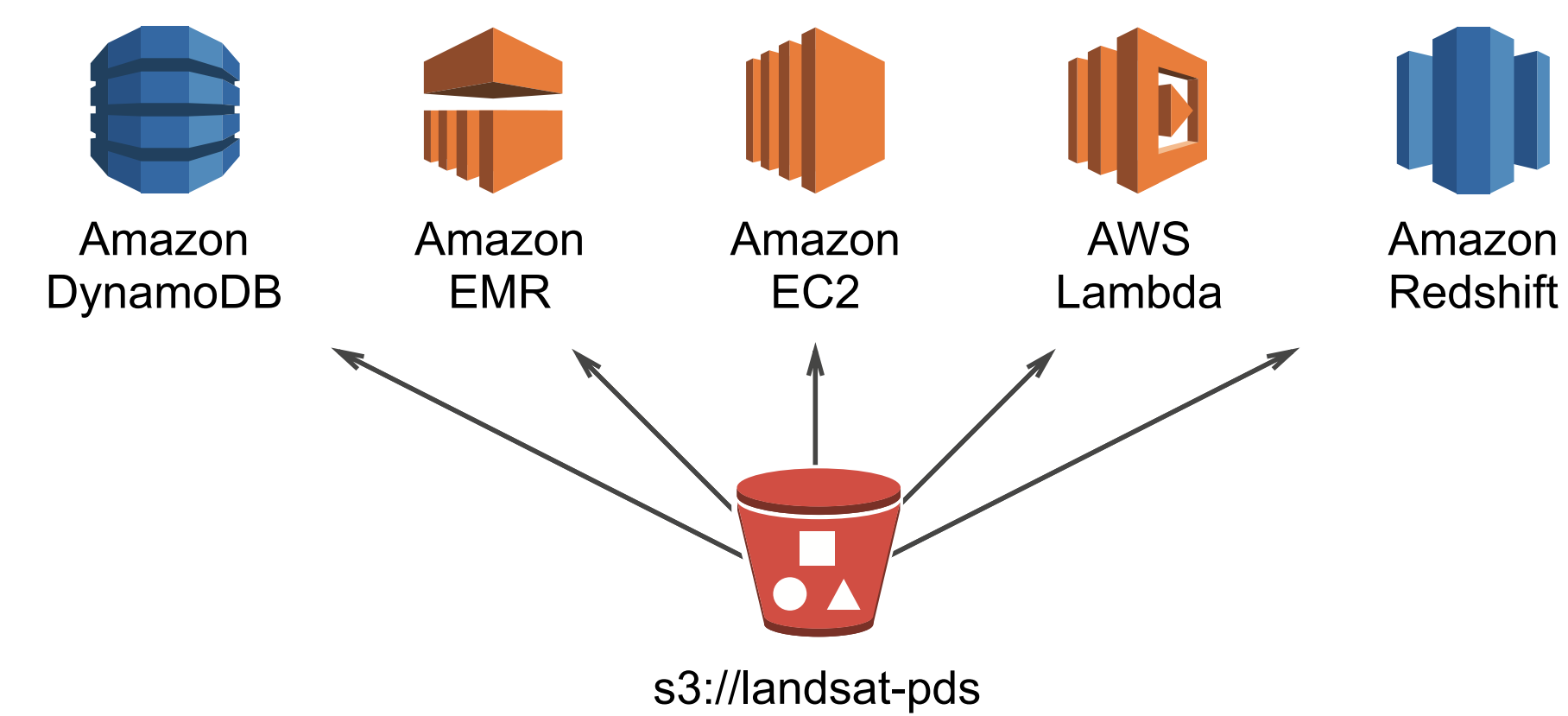
Landsat data shared via Amazon S3 can be transferred programatically and quickly to AWS cloud computing resources. Researchers can analyze data without needing to download it or store it themselves.
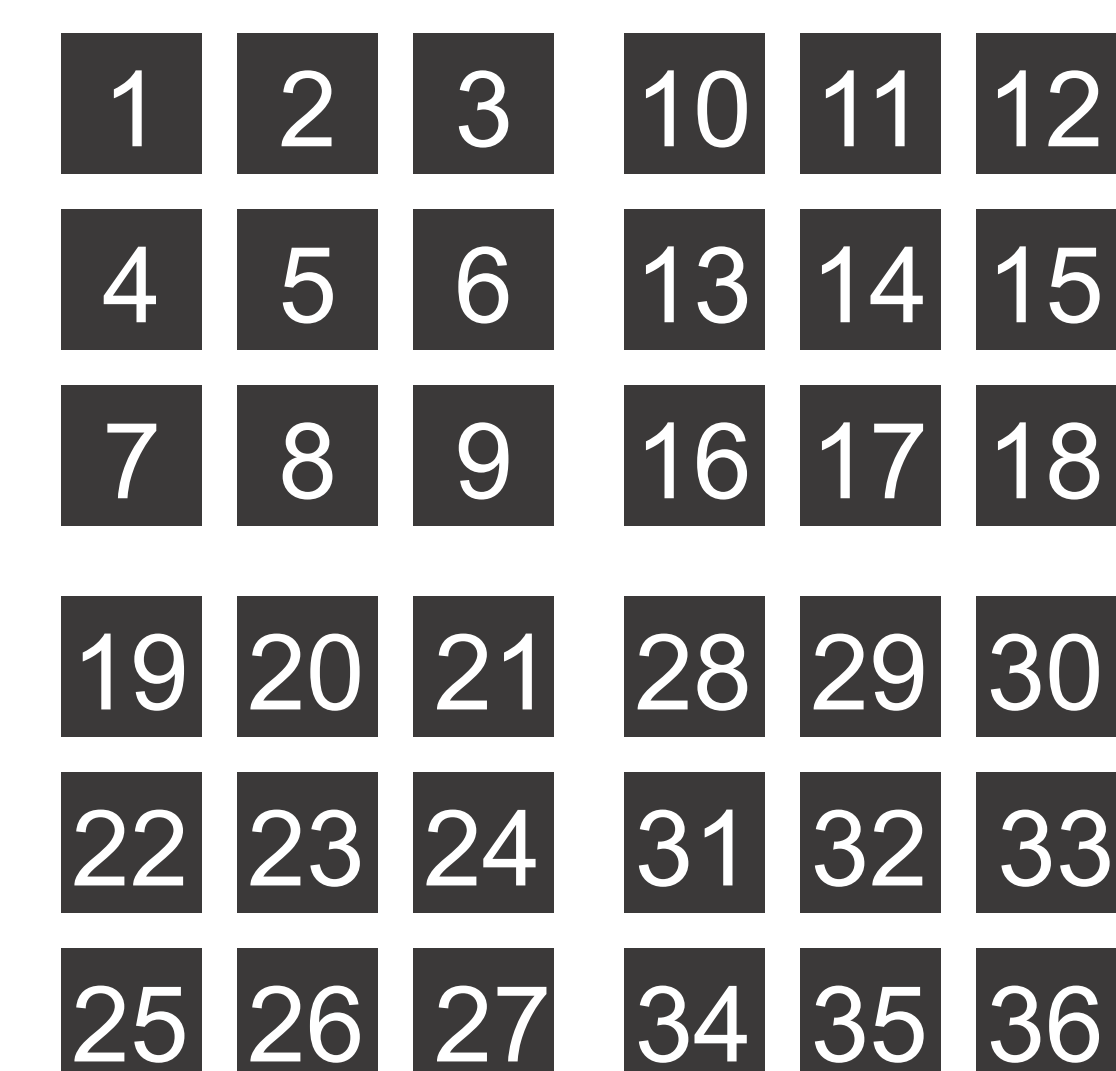
Internal tiling within GeoTIFFs

Landsat on AWS GeoTIFFs have "internal tiling," which allows users to use HTTP range GET requests to access 512-pixel squares within each scene. This allows highly targeted access to data based on geography.

Standard TIFF structure organizes pixels by row.
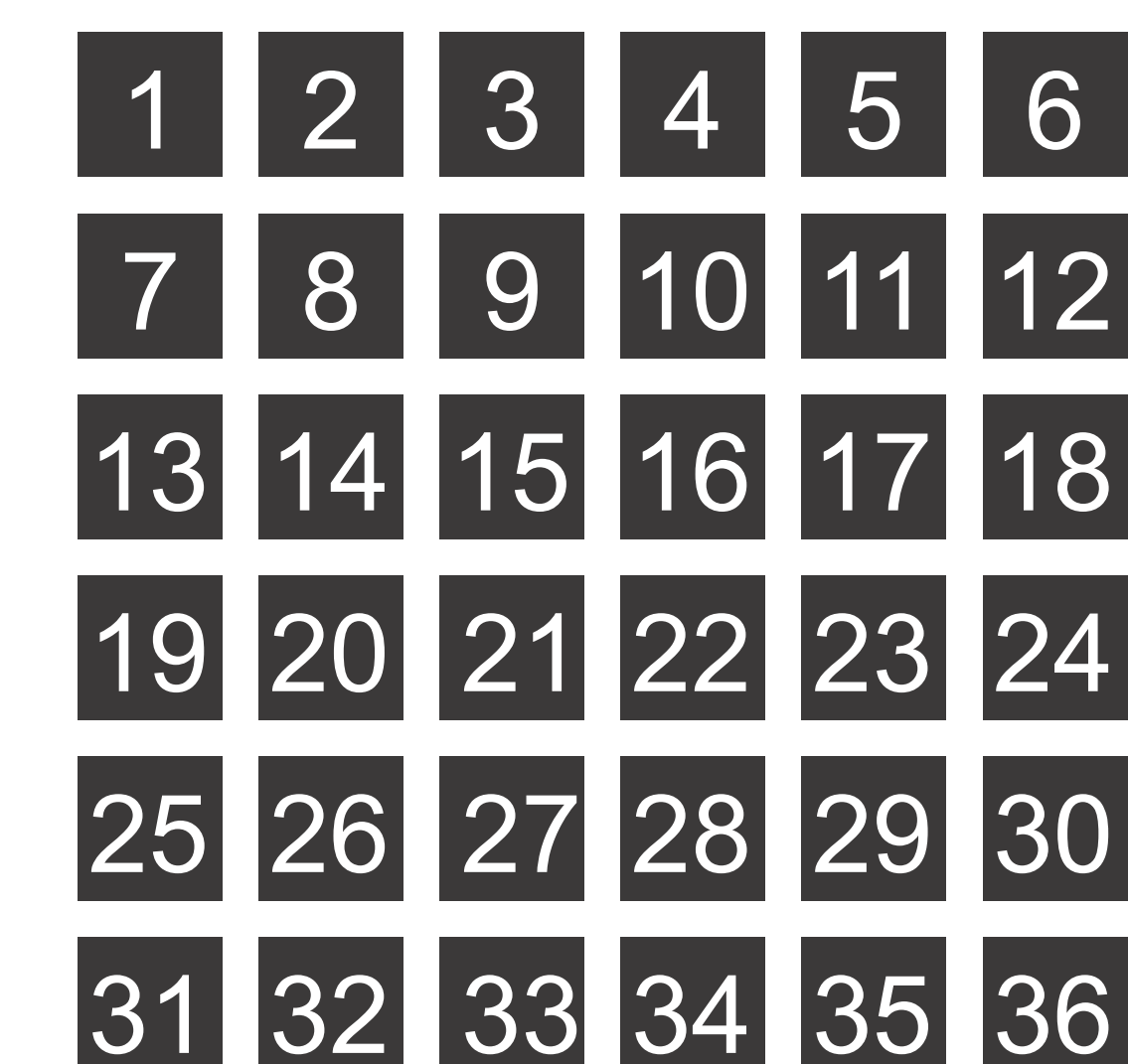
Tiled TIFF structure organizes pixels by tile.

Half a year, half a billion requests

Within the first 150 days of the launch of Landsat on AWS (19 March 2015 to 16 August 2015), Landsat imagery and metadata were requested over 500 million times, globally. Below are insights based on analysis of 112,782,536 requests for Landsat TIFFs during that period.
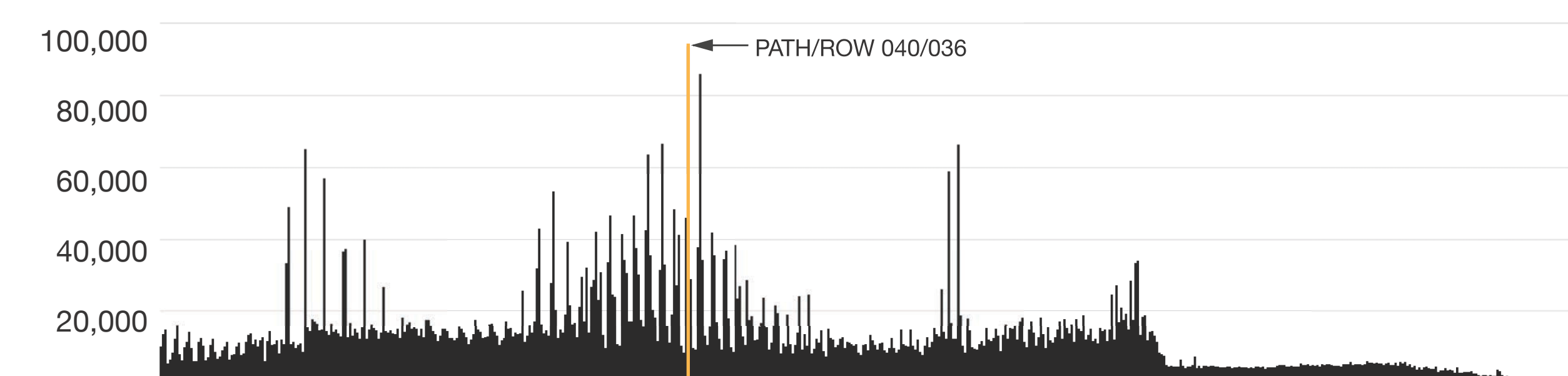
Histogram of 112,782,536 GeoTIFF requests grouped by WRF PATH/ROW. X-axis sorted by ascending WRF ROW.
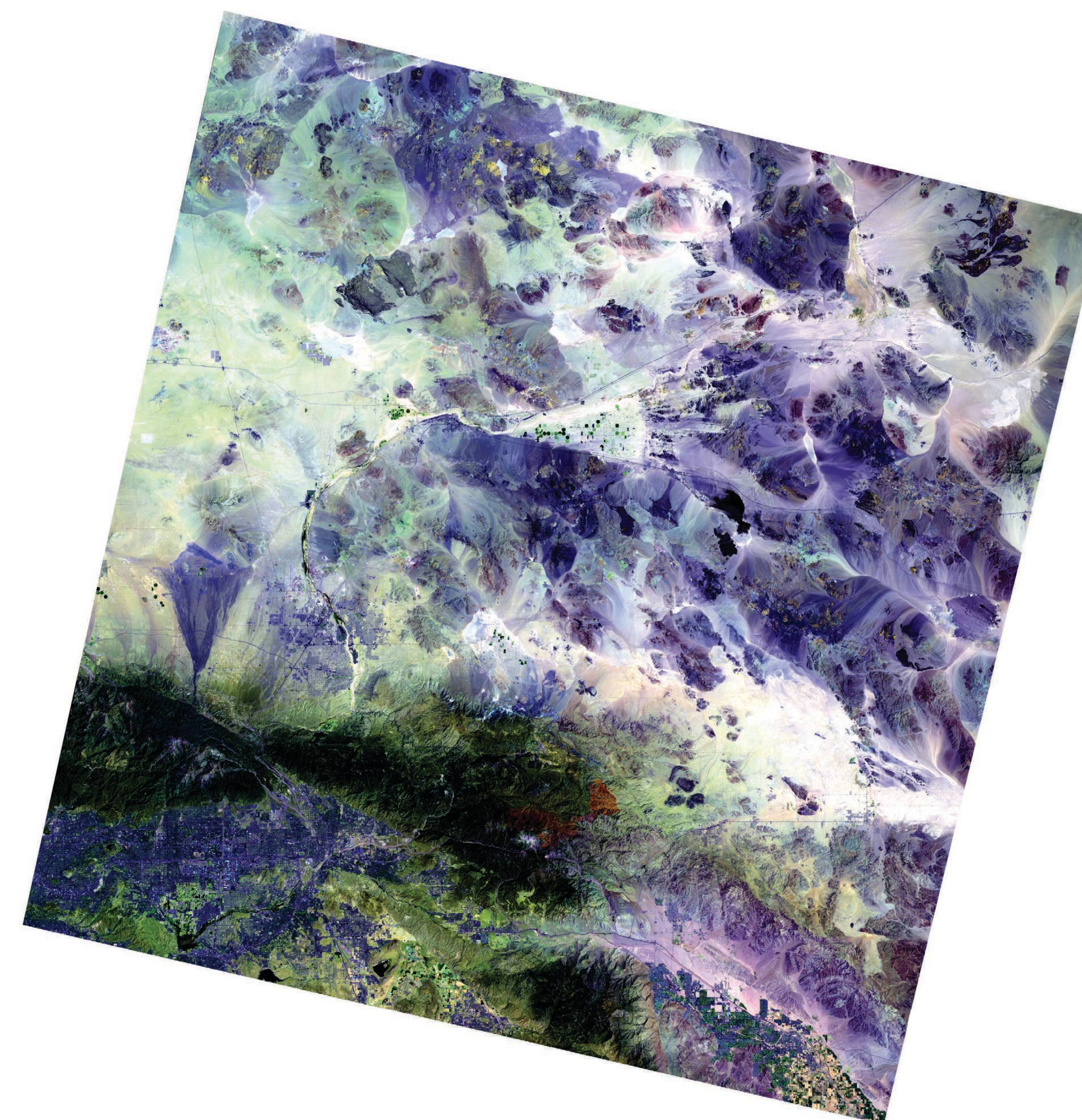
The most requested WRF PATH/ROW combination is 040/036, which includes the southern California high desert and the location of the 2015 Lake Fire. The scar of the fire is rust colored in the visualization above, which is based on data acquired on 15 July 2015.

This false color composite visualization was made in minutes with Snapsat, a web application built on AWS. The visualization uses Landsat bands 4 (red), 6 (1.57-1.65 µm short-wave infrared) , and 7 (2.11-2.29 µm short-wave infrared).

Precise access to data

Landsat on AWS makes each band of each Landsat scene available as a stand-alone GeoTIFF, and scene metadata are available as text and json files. Individual files allow efficient and targeted data access.

Composite images of Wellington, New Zealand, 29 June 2015.

Left to right:
Natural color (bands 2, 3, & 4)

Color infrared - Vegetation (bands 5, 4, & 3)

Color infrared - Urban (bands 7, 6, & 4)
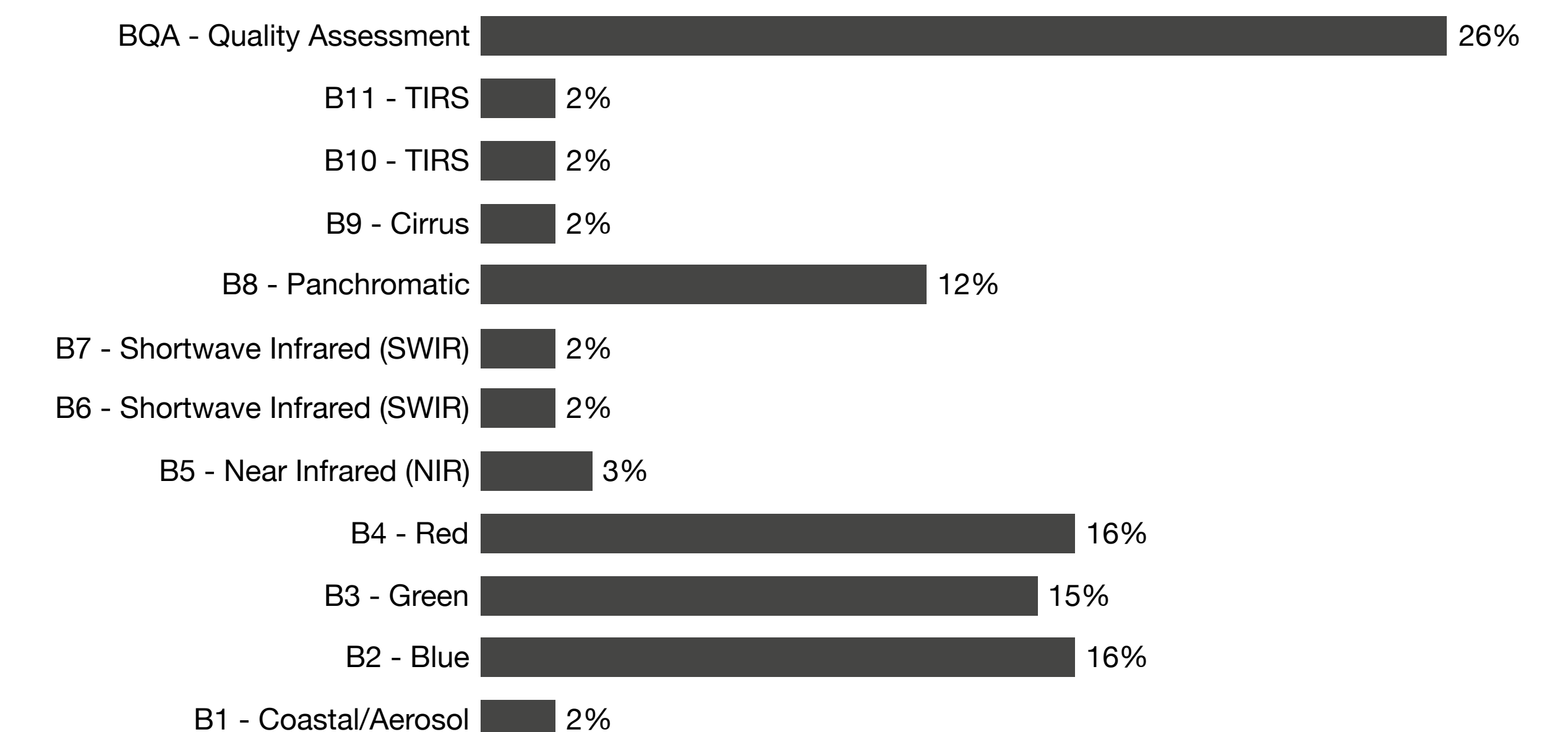
Breakdown of imagery requests by band.

Using Landsat on AWS is easy

Snapsat is a web-based application that creates Landsat composite visualizations in seconds. A team of novice programmers created it during their time at the Code Fellows trade school. They were able to develop Snapsat quickly and at low cost because they did not need to spend time to acquire Landsat data or money to stage it for analysis. Try Snapsat at http://snapsat.org.

Learn how to access Landsat on AWS at
http://aws.amazon.com/public-data-sets/landsat/

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