

Integrating Data from the Landsat and Sentinel-2 Missions: An Opportunity to Improve Time Series of Medium Resolution Satellite Data

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The change in the Landsat data policy implemented in 2008 provided the user community with access to data at no cost and stimulated a revolution in land remote sensing research and applications. It is now possible to fully exploit the historical record of land remote sensing observations for monitoring landscape change and vegetation dynamics. Although each Landsat mission provides 16-day repeat coverage of the Earth's sunlit landmasses, for much of the program's history we have been fortunate to have two missions operating simultaneously. For many areas around the world, and over the conterminous United States in particular, this has resulted in data acquisitions on a systematic 8-day repeat cycle. With the removal of barriers associated with data costs, users are now able to construct dense time series of observations.

To augment data from future Landsat missions and ensure timely repeat imagery collections, the U.S. Geological Survey is collaborating with the European Space Agency and the European Commission to host an inventory of geometrically and radiometrically calibrated Sentinel-2 Multispectral Imager data. These data would be co-discoverable with Landsat data in the USGS archives and would be made accessible under an open access and no cost data policy. The Sentinel-2 data would be made available as orthorectified products georeferenced to the Universal Transverse Mercator projection as generated through the European Copernicus Program's core ground data processing system. This combined data stream with Landsat and Sentinel-2 data will increase the temporal density of data that will enable improved monitoring of vegetation phenology for such applications as crop type mapping, monitoring forest health, understanding landscape dynamics, and assessing range land conditions.