Descartes Labs

Find. Monitor. Predict.

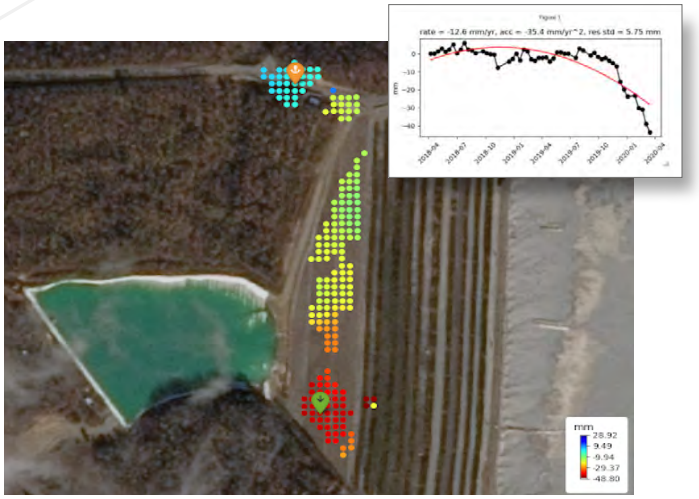
Global Deformation System (GDS)

Increase safety and reduce cost with scalable deformation & velocity measurements

Contact us to learn more:

sales@descarteslabs.com

The world's first automated, global subsidence and deformation monitoring and alert system



Yichun Luming Mining North: Prior to the event on March 28, 2020 we saw accelerating deformation at the southern edge of the northern TSF in the months leading up to the failure. Optical imagery did not show any obvious issue.

The risk from surface deformation and movement presents significant challenges for mining companies, especially when operating in remote areas without reliable access to survey crews. Diverse assets with aging infrastructure, including unstable pit walls and insecure tailings dams, can quickly generate "tail-risk" that has the potential to change the economics of modern-day materials supply chains.

Our approach combines automated Sentinel-1 satellite ingest, monitoring, and measurement using our world-leading InSAR product. The product is updated globally every 12 days and a fully transparent analysis is delivered less than 24 hours from data collection. Optional customizations and additional data sources can be assessed upon customer request.

Descartes Labs' industry-leading data pipelines and automated preprocessing capabilities allow for rapid prototyping and provide a scalable solution to monitor all assets consistently. Customers are alerted to deformation events quickly, giving them the opportunity to address more serious infrastructure degradations before they occur.

How Descartes Labs is different

Affordable

Our automated processes and continuous access to data decreases costs, resulting in **75% savings** compared to traditional orbital radar programs.

Fast

Customers recieve measurements within **hours of analysis** — timely delivery of results reduces risk and enables quick responses.

Transparent

The analysis is **fully transparent** and can be made available for programmatic and geotechnical interpretation and interrogation in real time.

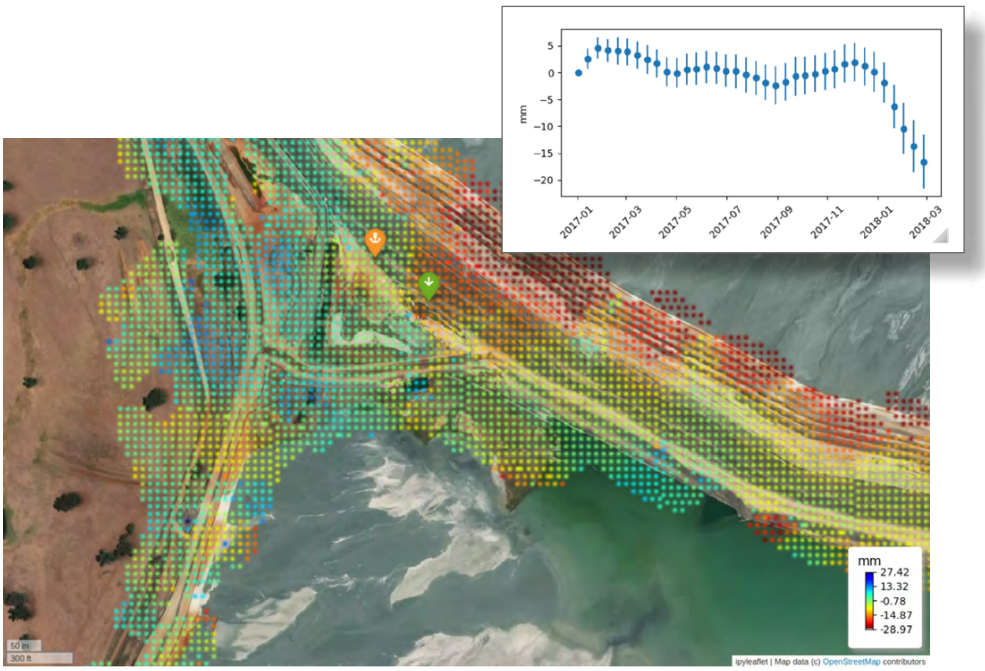
Santa Fe, NM | www.descarteslabs.com

Descartes Labs

Find. Monitor. Predict.

High resolution integration

Using our space-based optimization workflow, we identify and ingest all tailings facilities of interest—managed, or unmanaged—into the Descartes Labs geoprocessing platform. We assign different levels of feasibility to each site to determine if they are candidates for our automated medium-resolution deformation monitoring using our Sentinel-1 InSAR pipeline, or better suited to high-resolution monitoring.



Detail of failed tailings dam area. Chart shows the deformation history, which has been spatially filtered and does not require a reference point, with estimated atmospheric effects removed.

Customized to your business needs

Flexible delivery options are available.

Automated Sentinel-1 InSAR Monitoring

- Selection, geocoding, and ingestion of global targets into the Descartes Labs Platform
- Initial analysis with guidance on the need for corner reflector placement
- Automated monitoring with updates every 12 days/approx. 30 updates per year, along with historical baseline (2-4 years)

High Resolution Radar Data Integration

- Defined “tip and queue” satellite requirements to activate new high resolution collects
- Feasibility assessments for each selected target
- Approved targets enter monitoring program
- High resolution data is licensed and acquired by either Descartes Labs or the client

Multimodal Data Integration

- Evaluation of individual data sets including historic satellite and/or ground-based data
- Integration of datasets on the Descartes Labs Platform and definition of overall anomaly detection system requirements

Santa Fe, NM | www.descarteslabs.com

Descartes Labs

Find. Monitor. Predict.

About Descartes Labs

Descartes Labs is a geospatial intelligence company that performs scientific analysis of geospatial, remote sensing, and diverse complementary data sets to enable sustainable sourcing best practices, commodity price forecasting, and efficient mineral exploration for leading CPG, Agriculture, and Mining companies.

Our SaaS platform automates the analysis of geospatial imagery for our users, enabling planetary scale analysis through artificial intelligence and machine learning.

The company also supports a diverse set of federal government efforts to curate, analyze, and provide unique actionable insights from geospatial data.

Descartes Labs was spun out of Los Alamos National Laboratory in 2014, and is headquarted in Santa Fe, New Mexico.

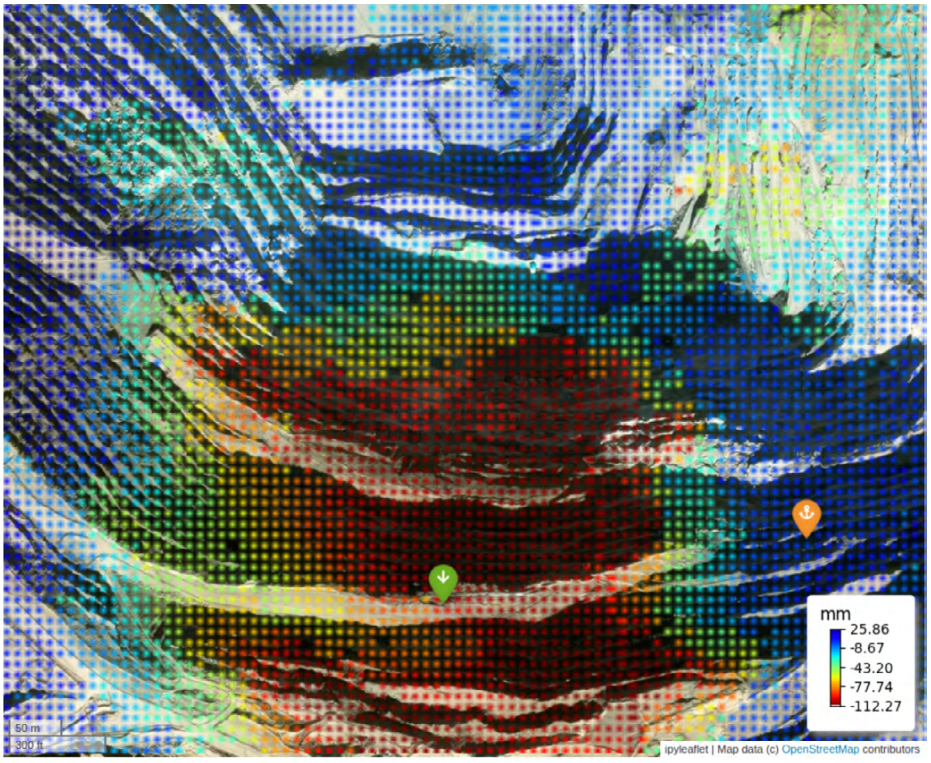
Get in touch

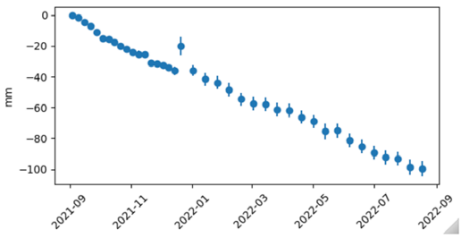
/company/descarteslabs

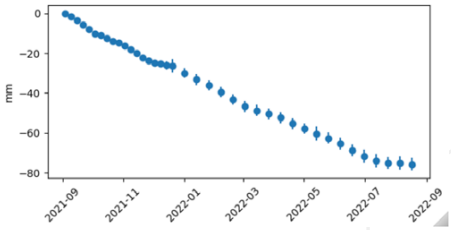
@DescartesLabs

sales@descarteslabs.com

Deformation analysis example







The above image shows a section of an open pit mine. The red areas highlight a portion of the mine wall that has been exhibiting sliding in recent years.

Bottom left: This chart shows the unfiltered deformation of the green point relative to the orange point.

Bottom right: This chart shows the deformation of the green point relative to the long wavelength trend, with estimated atmospheric effects removed.

Our InSAR product indicates that the mine wall has subsided over 100mm in the course of a year, and is continuing to exhibit signs of deformation.

Descartes Labs' Global Deformation System provides valuable insights for monitoring and maintaining critical infrastructure. To learn more about how it can help protect your assets, contact sales@descarteslabs.com.