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Journal of Nuclear Materials Management: Special Issue on Open Source and Geospatial Information Analysis

PRESENTED BY

Zoe Gastelum

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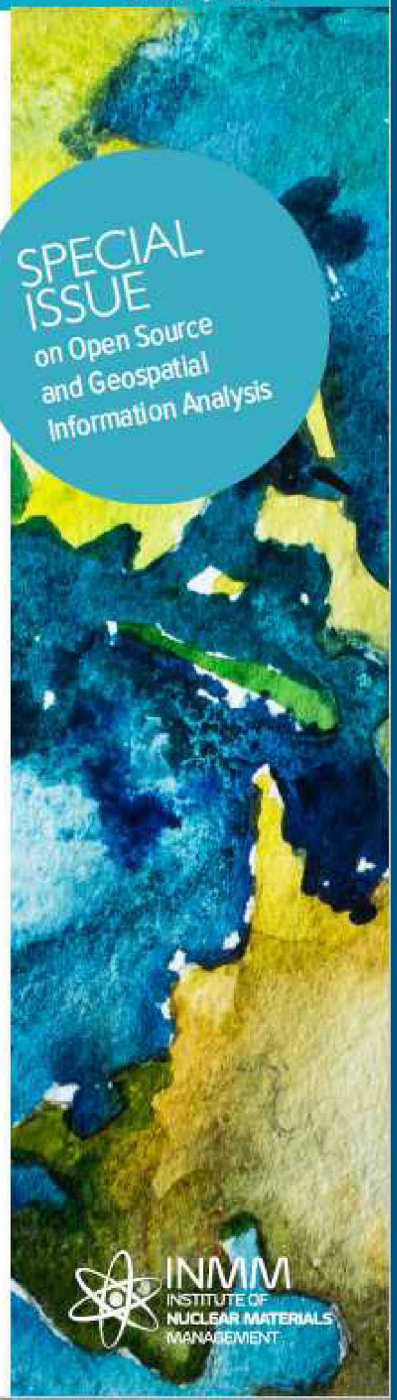

Topical Papers

Site Monitoring with Sentinel-1 Dual Polarization SAR Imagery Using Google Earth Engine

Joshua Rutkowski
Jülich Research Center, Jülich, Germany

Morton J. Canty
Jülich Research Center, Jülich, Germany (retired)

Allan A. Nielsen
Technical University of Denmark, Lyngby, Denmark

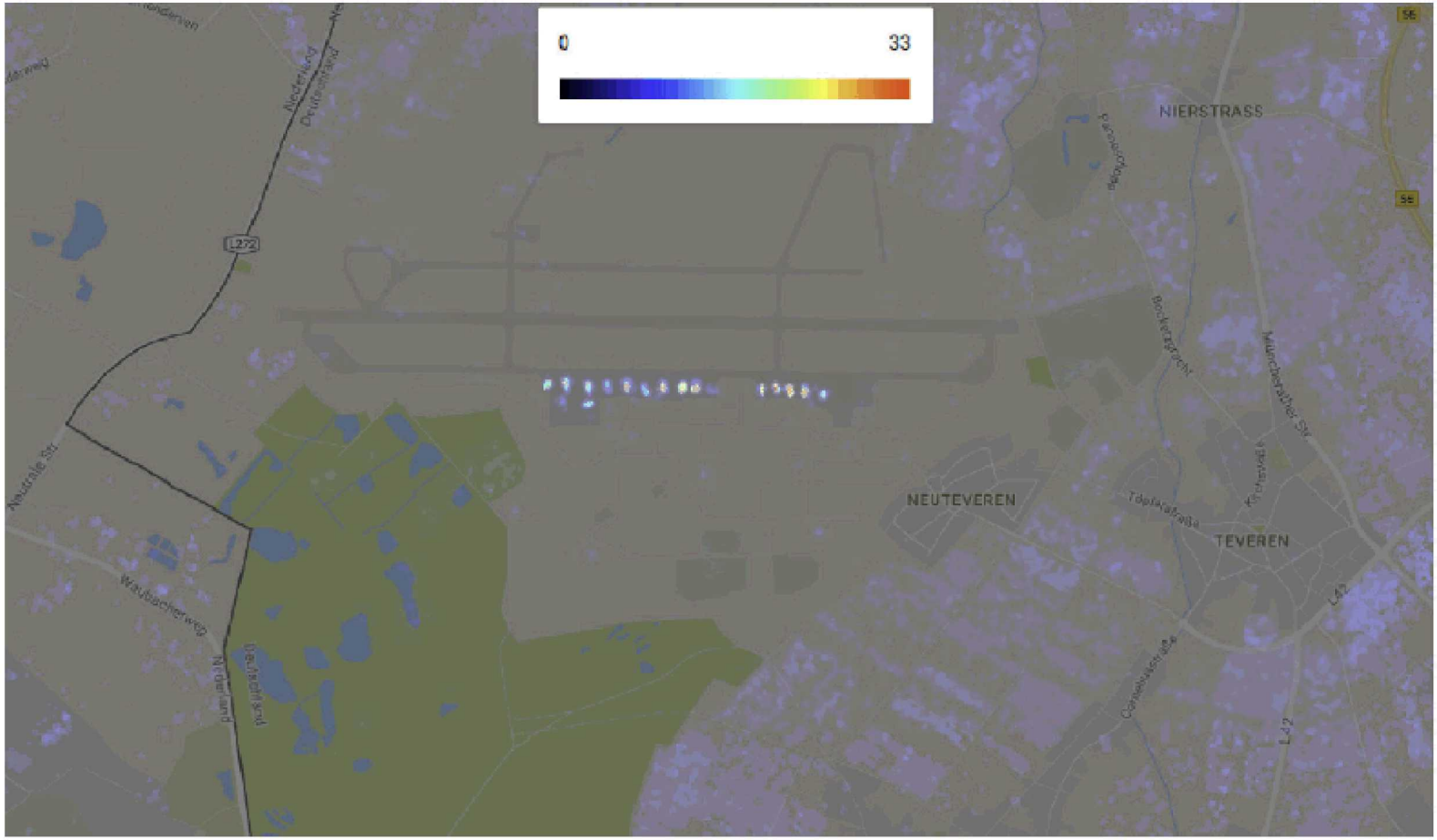

Figure 2. Changes observed per observation period for the NATO Airbase, 34 Sentinel-1 scenes from April to October 2017. Screenshot from Google Earth Engine Code Editor. (Copyright Google.)

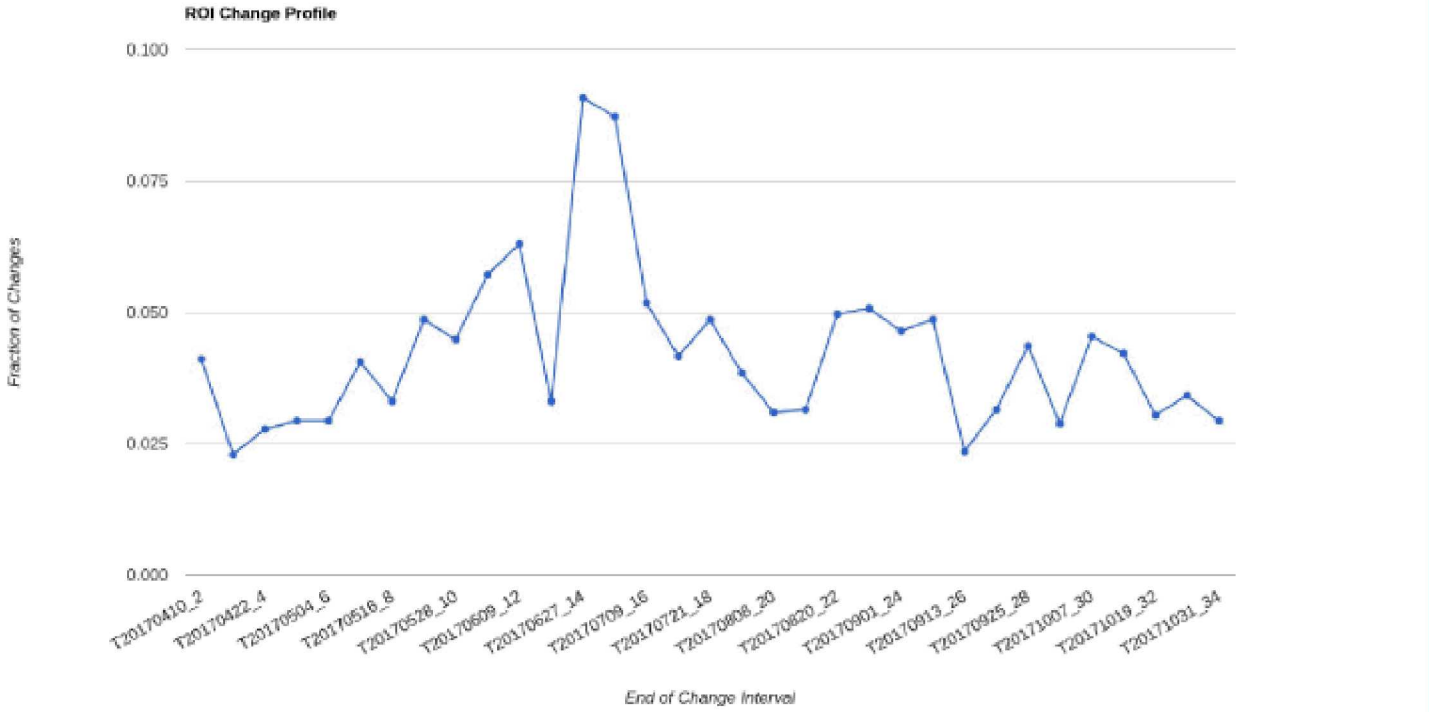

Figure 3. Activity profile for the aircraft parking positions. Note: the x-axis labels only show every second date. All available Sentinel 1a and 1b of the same relative orbit in the GEE archive are included.

Topical Papers

Enhancing the Geospatial Exploitation System within the IAEA Department of Safeguards

Antero Keskinen, Jacques Baute, Mark Carey, Jonetta Ng, Fatjon Ujkani
International Atomic Energy Agency, Vienna, Austria

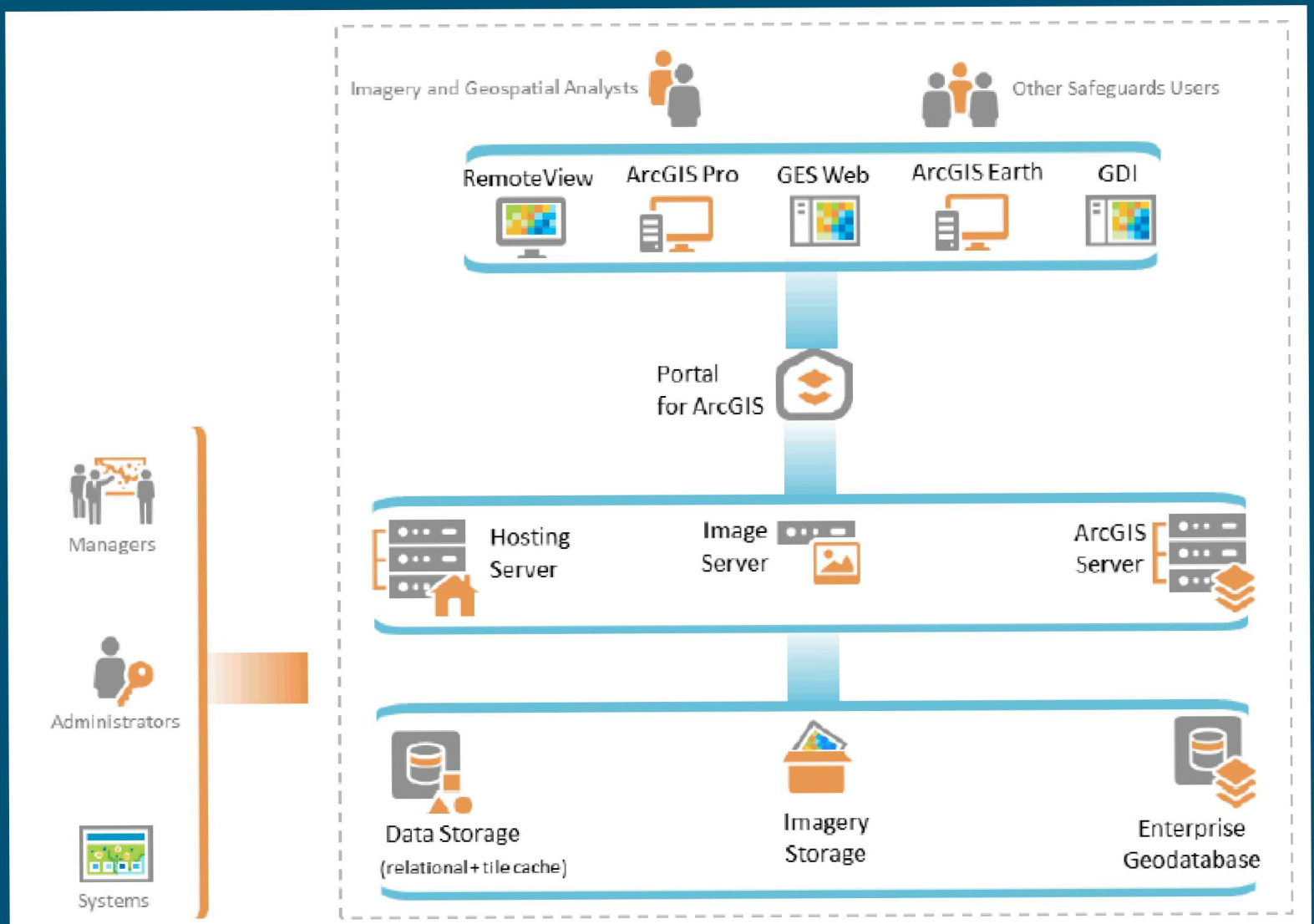

Figure 1. Architectural overview of the GES Web 2.0 system


GES Web Viewer

Topical Papers

A Definitive Pipeline to Display Multivariate Geotechnical Data in a 3D Environment

James B.A. Palmer, Jennifer Stevanović
Atomic Weapons Establishment Plc, Aldermaston, Reading, United Kingdom

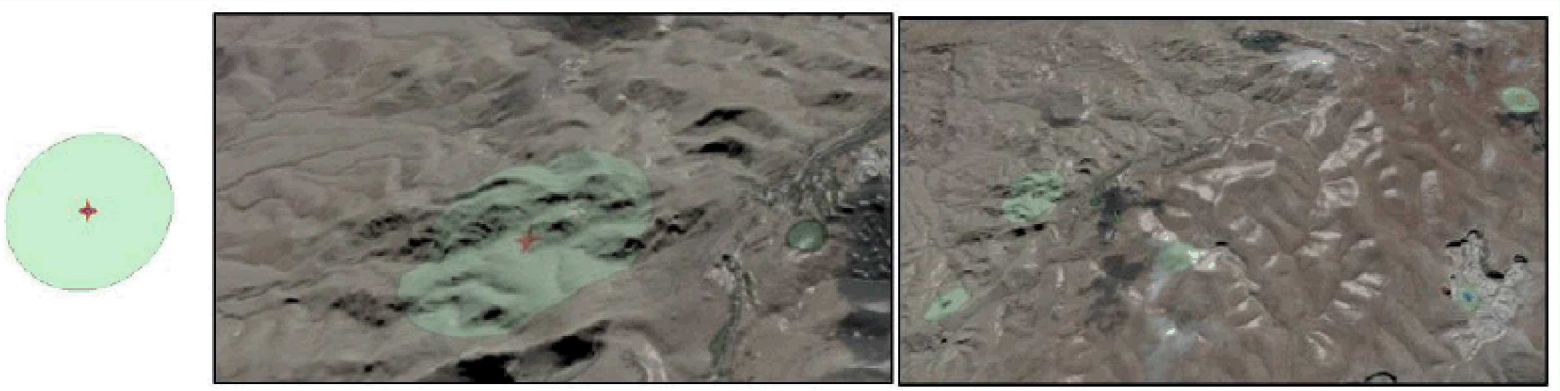

Figure 1. Abstracting complex data: the symbol for the seismic aftershocks. Left: The symbol designed to represent the seismic aftershocks is visually simple but encodes five relevant variables: (1) the multipointed star is placed at the event epicentre, (2) the number of points on the star is equivalent to the number of stations used to reconstruct that event and gives a measure of the confidence, (3) the color of the star represents the magnitude of the event, (4) the shape and orientation of the ellipse is the same as the calculated spatial uncertainty for the event location, and (5) the depth of the event is indicated by a vertical rod (terminated by a sphere) dropping vertically down from the star symbol to the event depth (not shown). Center: The symbol placed at the correct location in a 3D reconstruction of the region. Right: Symbols for multiple events placed on the landscape.

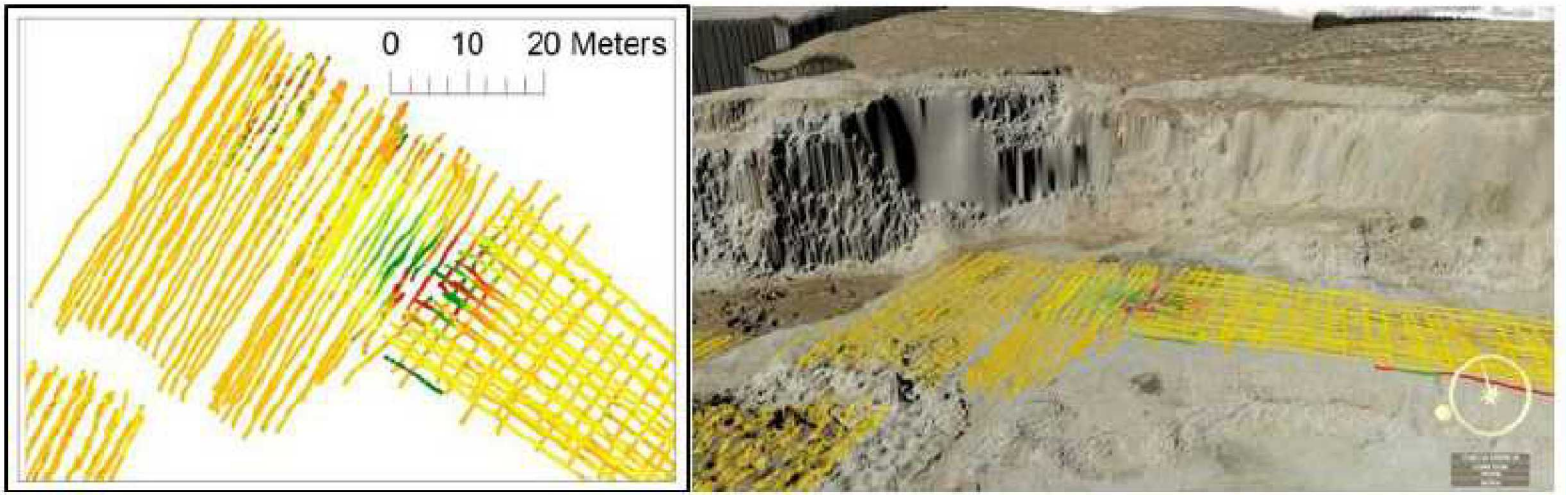

Figure 3. Magnetometry data. **Left:** The visual form chosen for this data in isolation. The tracks follow the path of the sensor, and each measurement point is colored according to the magnitude of the magnetic field point at that location. This is a standard way to display this type of data. It clearly shows large regions of uniform values with two regions of different values and two anomalies, but the actual location of the data and anomalies is not shown. **Right:** That data applied to the terrain at its correct geographical location, in a GeoVisionary environment. Very high-resolution terrain and imagery data give the magnetometry data its context such that the actual location of the visible anomaly is instantly identified.

Topical Papers

Geo-based Data Integration (GDI) in the IAEA Department of Safeguards

M. Barletta, A. Yeoh, A. Marques-Patricio, N. Sumarokov, S. Robb, M. Fowler, M. Carey
International Atomic Energy Agency, Vienna, Austria

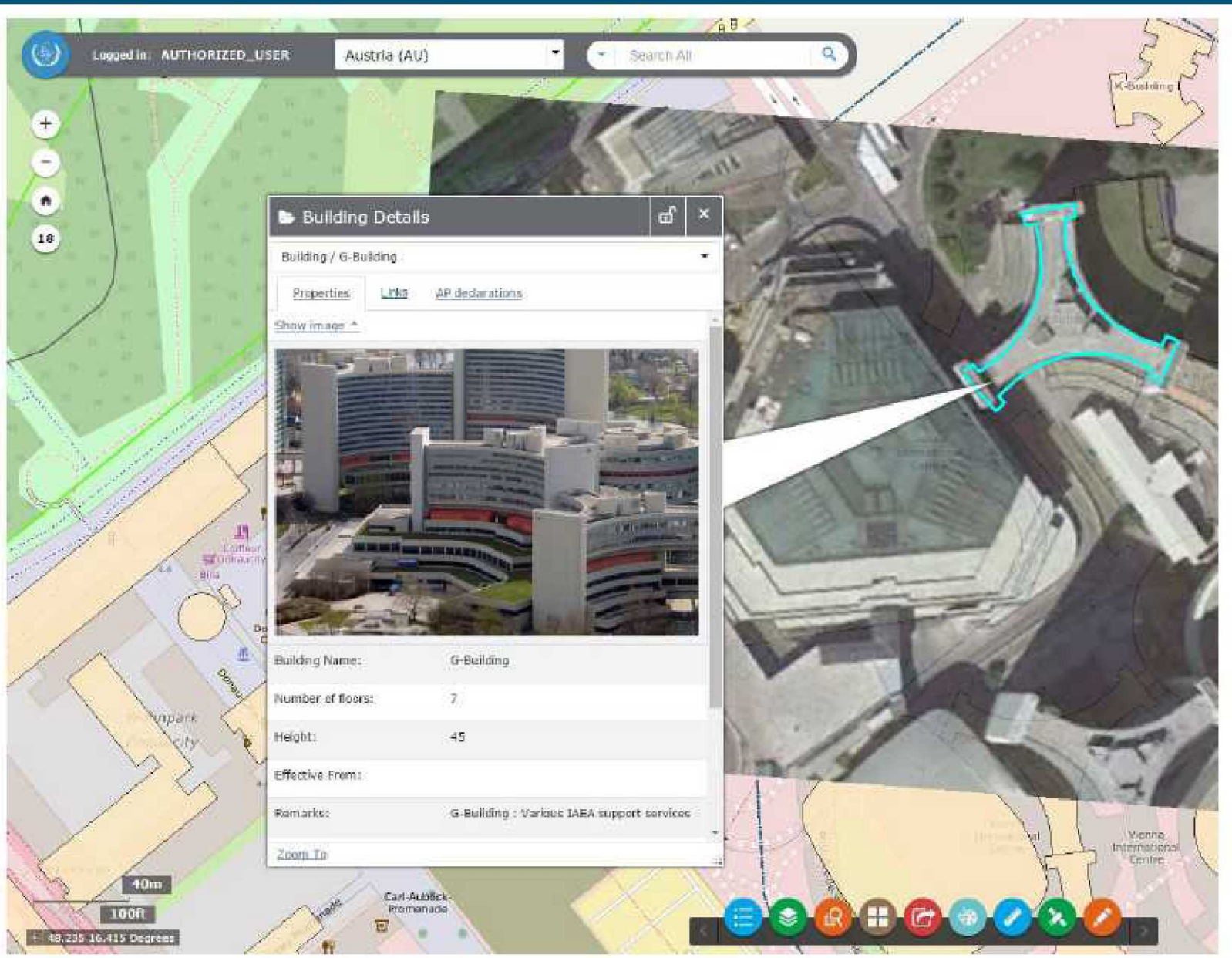

Figure 1. The GDI platform provides authorized users with access to interactive, layered maps and geospatially attributed information in the secure Integrated Safeguards Environment. (Copyright 2018, Google Earth/DigitalGlobe)

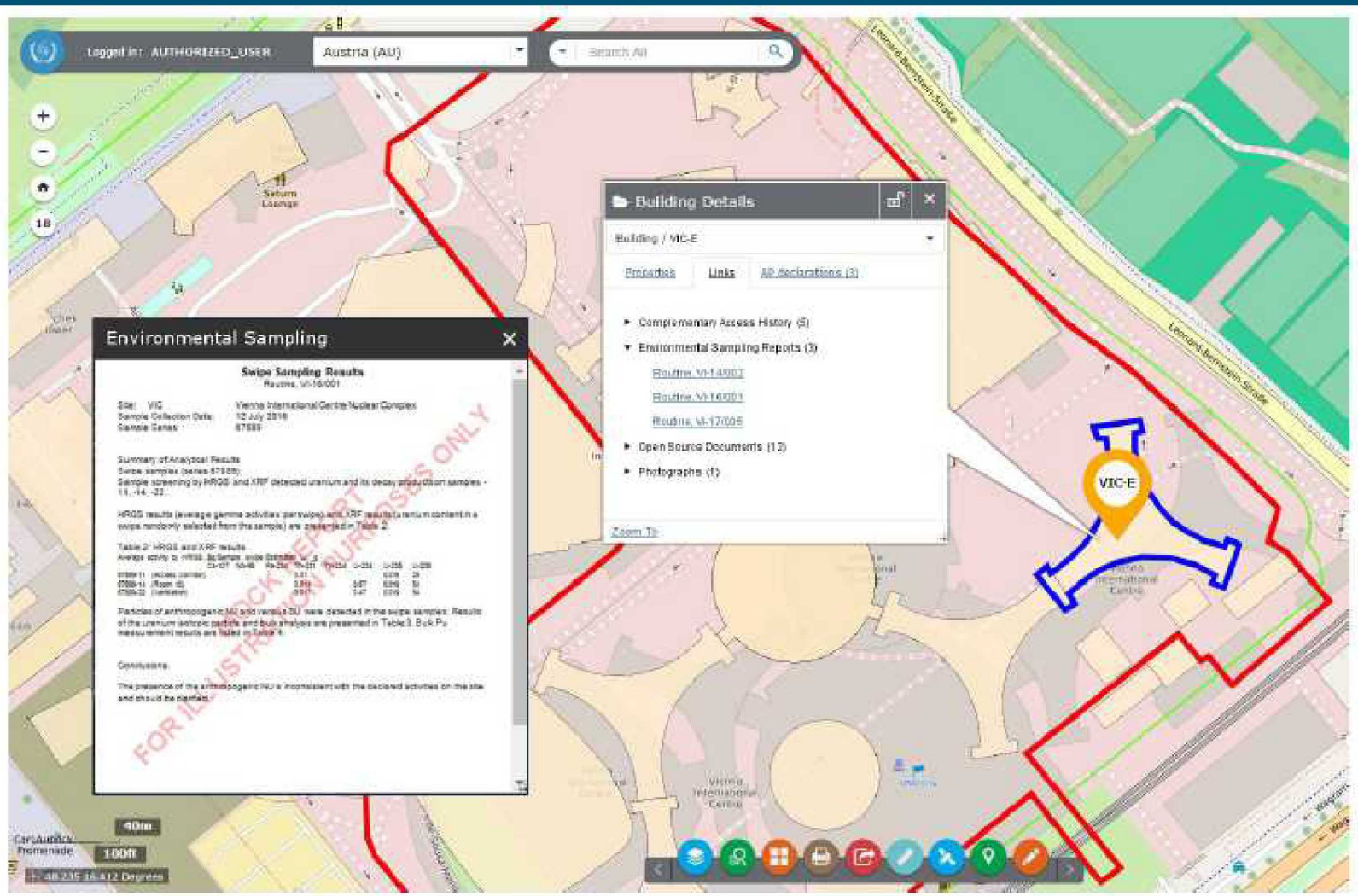

Figure 2. GDI can show site boundaries and building outlines and provide access to information from Additional Protocol declarations, environmental sampling analysis, and complementary access previously conducted on site.