

The Century Day - Accelerating Information, Not Just Data, From Drones

S. Micklethwaite¹

¹ School of Earth, Atmosphere and Environment, Monash University, Clayton, VIC 3800.
Steven.micklethwaite@monash.edu

In exploration, far more than rapid data we need rapid information. In this regard, drones have transformed aerial imagery and the generation of 3-D digital models, but the risk is a failure to obtain useful information that maximises their data. Here, using mine site and exploration datasets, we demonstrate pipelines that link digital data captured by drone to cloud computing. With this digital architecture we process and analyse the data rapidly, applying least-cost path algorithms and deep learning. We generate 3D geological maps, capture hundreds of structural orientations from inaccessible areas and extract useful secondary datasets such as digital elevation models and models of surface curvature. Processing times improve from 3-4 days to less than 1 day for ultra-high resolution models, and the outputs are visualised in Previz, which allows large models to be examined on standard laptops. The next step is to achieve scale, so that not only 3D models but geological information can be extracted in real-time, to help inform decision making by geologists in the field. Our laser scanning and hyperspectral sensor capabilities are also discussed. Using the Century mine site as an example, I ask if we could be capturing a century of information in a day?