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Geospatial observations on tropical forest surface soil chemistry

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Abstract. At plot scales (<1 km^2) used to study tropical forest plant communities the causes of spatial heterogeneity of soils are disputed. We collected, georeferenced, and chemically analyzed a large spatial sample of soil cores ($n = 625$ sites, 6.25 cm diameter × 10 cm depth cores) on an approximately 28 m regular grid from the Barro Colorado Island (BCI) 50-ha (0.5 km^2) forest dynamics plot (FDP), Republic of Panama (9.15° N, 79.8° W). Here we present these data for general use. We also present differential GPS measurements of the plot corners for the BCI 50-ha FDP, which aid in geospatial research in one of the most studied tropical forests. Further, we present a free open source command line software program written in Python that allows point data referenced to the plot coordinate system to be converted to a projected coordinate reference system for geospatial research. Together, the data sets allow for testing the drivers of soil heterogeneity in a tropical tree community using a wide variety of geospatial data sources.

Key words: *Barro Colorado Island; biodiversity; biogeochemistry; Geographic Information Systems; nutrients; remote sensing; spatial projection; soil.*

The complete data sets corresponding to abstracts published in the Data Papers section of the journal are published electronically in *Ecological Archives* at http://esapubs.org/archive (the accession number for each Data Paper is given directly beneath the title).

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