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Linked Topographic Data

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Linked Data refers to the best practices related to the publication of data on the web in machine-readable RDF format, such that intended semantics are explicated, and the dataset is linked to other datasets through typed RDF assertions. Linked Topographic Data (LTD) is a specialization of Linked Data focused on making topography related datasets stored in various lexical, object, network, and field data models easily accessible and interoperable using ontologies and data modeling solutions. A special challenge for LTD is publishing fields in RDF format and establishing links between field and object data models because fields store measurements without reference to any identifiable object. In the author's opinion, the best approach to LTD is going to be hierarchical, with fields forming the lowest tier and complex topographic features corresponding to our intuition forming the highest tier. Object-fields, field-objects, surface networks, and generalized field model solutions are some theoretical frameworks that will allow fields to be treated at par with objects. Feature extraction, linked data storage techniques, and, most importantly, lightweight ontologies will be critical for LTD's success. LTD also aligns well with the public service goals of national mapping organizations, such as the USGS and the UK Ordnance Survey, which are developing topographic map ontologies for sharing and semantic search of their topographic databases. LTD is also essential to prepare for a Big Data approach to handling of vast volumes of topographic data of various kinds.