

GSA Connects 2021 in Portland, Oregon

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**TEMPORAL TOPOLOGY FOR NOMINAL AND NUMERICAL ENTITIES THE
DEEP-TIME KNOWLEDGE BASE**

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Insights into the complex evolution of the Earth will need the integration of various deep-time data. Although data facilities of many geoscience disciplines are made open access on the Web, many of them are short of clear, coherent, and structured attributes of deep time for the shared data. This makes it difficult to retrieve and synthesize data from multiple sources. In our work of a deep-time knowledge base, we are building a formal framework for representing various deep-time entities, harmonizing both global and regional geological time scales, and using the knowledge base in data-intensive mineral evolution study. Recently, we have incorporated the temporal topology from the W3C-OGC Time Ontology into the knowledge base and developed a few functions and demo applications in the R environment to run reasoning functions based on the temporal topology. Although the work is still in early stage, we can see it will pave the way for connecting various nominal and numerical entities in deep time and scaling up the integration and cleansing of deep-time data from multiple sources.

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Session No. 245

[T173. Machine Learning for Advancing Data Analysis Toolkit in Geoscience](#)

Wednesday, 13 October 2021: 1:30 PM-5:30 PM

B113/B114 (Hybrid Room) (Oregon Convention Center)

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