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Earth History Visualization System

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ABSTRACT

Time Scale Creator (TSCreator), a geological chart generator, displays any portion of Earth history including chemo- magneto-, and other aspects. TSCreator is used by many universities, petroleum companies, and international geological surveys. In order to improve the quality of Time Scale Creator, tools were developed to provide users with friendlier graphical user interfaces (GUIs), accurate scaling of specific isotope, internationalization of data input and output, and smart depth scaling in wells to age conversion. To implement such tools, research for algorithm and common methods was basically done by searching articles online and reading posts on forums for Java developers. Toggle buttons indicating moving status of time lines were inserted into the tool bar of Crossplot frame. Internationalization was improved by accepting both European and American number formats in text boxes and entries of data packs. Strontium, an isotope used to interpret rates of mountain belt uplift and continental drift, was given four decimal place precision whereas other isotopes have standard two to three decimal places precision. Finally, an algorithm for naturally dividing depth range was inserted for depth scales in Depth/ Age Conversion. The Depth-Age system will be used with university lab modules. These developed tools enhance user experience and performance of Time Scale Creator. The improvements were already used by two university workshops in China, and will be used by petroleum-exploration workshops in Australia. An article about this system is planned for publication.

KEYWORDS

Software development, Data Visualization

REFERENCES

TS-Creator Home website - Purdue University (2014) <https://engineering.purdue.edu/Stratigraphy/tscreator/index/index.php>