Geophysical Research Abstracts
Vol. 12, EGU2010-7039, 2010
EGU General Assembly 2010

Earth History databases and visualization – the TimeScale Creator system

James Ogg (1), Adam Lugowski (2), and Felix Gradstein (3)

(1) Purdue University, Earth & Atmospheric Sciences, West Lafayette, United States (jogg@purdue.edu, 1-765-496-1210), (2) Computer Science Dept. , Univ. Calif. Santa Barbara , Santa Barbara, CA 93106 , alugowski@gmail.com , (3) Museum of Natural History, Univ of Oslo , P.O.Box 1172 , Blindern, Oslo, N-0318, , Norway , felix.gradstein@nhm.uio.no

The "TimeScale Creator" team (www.tscreator.org) and the Subcommission on Stratigraphic Information (stratigraphy.science.purdue.edu) of the International Commission on Stratigraphy (www.stratigraphy.org) has worked with numerous geoscientists and geological surveys to prepare reference datasets for global and regional stratigraphy. All events are currently calibrated to Geologic Time Scale 2004 (Gradstein et al., 2004, Cambridge Univ. Press) and Concise Geologic Time Scale (Ogg et al., 2008, Cambridge Univ. Press); but the array of intercalibrations enable dynamic adjustment to future numerical age scales and interpolation methods. The main "global" database contains over 25,000 events/zones from paleontology, geomagnetics, sea-level and sequence stratigraphy, igneous provinces, bolide impacts, plus several stable isotope curves and image sets. Several regional datasets are provided in conjunction with geological surveys, with numerical ages interpolated using a similar flexible inter-calibration procedure. For example, a joint program with Geoscience Australia has compiled an extensive Australian regional biostratigraphy and a full array of basin lithologic columns with each formation linked to public lexicons of all Proterozoic through Phanerozoic basins – nearly 500 columns of over 9,000 data lines plus hot-curser links to oil-gas reference wells. Other datapacks include New Zealand biostratigraphy and basin transects (ca. 200 columns), Russian biostratigraphy, British Isles regional stratigraphy, Gulf of Mexico biostratigraphy and lithostratigraphy, high-resolution Neogene stable isotope curves and ice-core data, human cultural episodes, and Circum-Arctic stratigraphy sets.

The growing library of datasets is designed for viewing and chart-making in the free "TimeScale Creator" JAVA package. This visualization system produces a screen display of the user-selected time-span and the selected columns of geologic time scale information. The user can change the vertical-scale, column widths, fonts, colors, titles, ordering, range chart options and many other features. Mouse-activated pop-ups provide additional information on columns and events; including links to external Internet sites. The graphics can be saved as SVG (scalable vector graphics) or PDF files for direct import into Adobe Illustrator or other common drafting software. Users can load additional regional datapacks, and create and upload their own datasets. The "Pro" version has additional dataset-creation tools, output options and the ability to edit and re-save merged datasets.

The databases and visualization package are envisioned as a convenient reference tool, chart-production assistant, and a window into the geologic history of our planet.