



## **Age-Depth Models in Integrated Stratigraphy - Value and Discussion Points**

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Age-depth models incorporate the relationships between stratigraphic depths and relative or absolute ages of geoarchives. For their construction, age-depth models commonly rely on specific methods and their assumptions. To derive the Earth's history from a geoarchive, age-depth models are a valuable tool, providing a more informative framework compared to a cluster of dates. Numerous possibilities to construct age-depth models are available, but no consensus exists about which method should preferably be used. Several conceptual differences and options (e.g., outlier (de)selection, uncertainty estimates) can cause differences in the results of age-depth models. Here, we present artificial examples demonstrating the potential of combining dates with rates (age information and information on the time between dates, i.e. a typical result of layer counting or cyclostratigraphy). Several real examples from the Palaeozoic to the Quaternary will be presented and discussed. These will show the value of age-depth models on different time scales ranging from several thousand to millions of years. Approaches for different types of sedimentation systems (terrestrial, deep marine) will be discussed. Our contribution is meant as platform, triggering further discussion, in addition to the short course 'Age Models and geochronology: An introductory course to different age-depth modelling approaches' (SC1.10/CL6.06/GM12.4/SSP2.20).'