



## **Certainties and uncertainties of orbitally tuned timescales**

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High precision timescales are often based on an integrated stratigraphical approach using several dating techniques. Because many records show an imprint of orbital climate forcing, these imprints can be used to obtain high resolution stratigraphies. However, uncertainties are hardly ever assigned to these timescales, mainly because uncertainties are not straightforward to quantify.

We discuss different sources of uncertainty (the uncertainty of the astronomical parameters used for the tuning procedure, climatic response time to orbital forcing, non-constant sedimentation rates) and discuss the assignment of realistic ages and (un)certainties for chronologies based on orbital tuning.

Besides discussing uncertainties, it is important to note that very most cyclostratigraphic studies are based on an integrated stratigraphic approach, and are not solely based on orbital tuning.