



## **TETHYAN MAGNETOSTRATIGRAPHY FROM PIZZO MONDELLO AND CORRELATION TO THE LATE TRIASSIC NEWARK APTS**

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We present magnetostratigraphic data and preliminary 61540;C13 and 61540;O18 stable isotope data from an expanded ( $\approx 430\text{m}$ -thick) Upper Triassic marine section at Pizzo Mondello from the Sicani Basin of Sicily and review biostratigraphic data from the literature that can be used to define the location of the Carnian/Norian and Norian/Rhaetian boundaries. Pizzo Mondello offers good potentials for magnetostratigraphic correlation of marine biostratigraphic and chemostratigraphic data with the continental Newark astrochronological time scale (APTS) for development of an integrated Late Triassic time scale. The relatively stable average values of 61540;18O centered around 0‰ are a strong indication that the Cherty Limestone at Pizzo Mondello suffered very little diagenetic overprinting. The Carnian/Norian boundary at Pizzo Mondello seems to be associated with a positive shift of 61540;C13 although further work is necessary to evaluate its paleoenvironmental significance. A statistical approach was applied to evaluate various Pizzo Mondello to Newark magnetostratigraphic correlations. Two correlation options, neither unequivocal, have the highest and nearly equivalent correlation coefficients. Option #1 predicts the base of Pizzo Mondello to be correlative with the middle part of the Newark APTS, whereas in Option #2 the base of Mondello starts towards the early part of the Newark APTS. According to sampling density and average sediment accumulation rates of 20-30m/m.y., polarity intervals with durations equal to or less than  $\approx 170$  k.y. may have been undersampled at Pizzo Mondello. Accordingly, we filtered the high resolution Newark APTS and performed further statistical correlations from which we conclude that Option 2 is preferred. With this option, the Carnian/Norian boundary based on conodonts corresponds to basal Newark magnetozone E7 at about 228 Ma (adopting Newark as-

trochronology), implying a long Norian with a duration of 8776;20m.y. and a Rhaetian of about 6 m.y. duration. These ages are in fact not inconsistent with the few high quality radiometric dates that are available for Late Triassic time scale calibration. We suggest that Pizzo Mondello is a good candidate for a GSSP for the base of the Norian whereas we find that sections of the "Hallstatt" type, which may be more fossiliferous but have erratic and typically very low average rates of sediment accumulation, are more difficult to correlate with each other and with expanded sections such as Pizzo Mondello and the Newark.