Supplemental Information for Beith et al Recurring photic zone euxinia in the northwest Tethys impinged end-Triassic extinction recovery

**Table S2. Biomarkers: their principal palaeoecological/environmental interpretations**

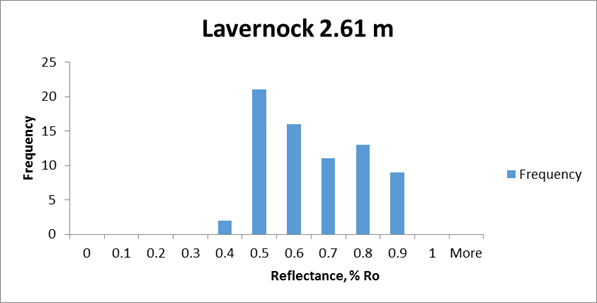
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| --- | --- | --- |
| **C40 carotenoids** | | |
| Isorenieratane | Brown-pigmented *Chlorobiaceae* | Summons and Powell, 1987; Koopmans et al, 1996a,b |
| Chlorobactane | Green-pigmented *Chlorobiaceae* | Grice et al, 1998 |
| Okenane | *Chromaticeae* | Brocks et al, 2005 |
| **Hopanes** | | |
| C35 Homohopane Index (%) | Redox conditions | Peters and Moldowan, 1991; Sinninghe Damsté et al, 1995 |
| Gammacerane Index (%) | Stratification | ten Haven et al, 1989; Harvey and McManus, 1991 |
| C31 2α-Methylhopane Index (%) | Aerobic cyanobacteria; other sources | Summons et al, 1999; Renoux and Rohmer, 1985 |
| C31 3β-Methylhopane Index (%) | Aerobic methanotrophs | Zundel and Rohmer, 1985; Farrimond et al, 2004 |
| **Steranes** | | |
| C27 Sterane Index (%) | Red algae; zooplankton | Patterson, 1971; Kodner et al, 2008 |
| C28 Sterane Index (%) | Prasinophytes; Chlorophyll *c* algae | Volkman et al, 1994; 1998 |
| C29 Sterane Index (%) | Green algae; land plants | Volkman et al, 1994; Kodner et al, 2008 |
| C30 Sterane Index (%) | Marine pelagophytes | Volkman, 2003 |
| C30 4-Methylsterane | Freshwater dinoflagellates | Curiale, 1987; Goodwin et al, 1988 |
| **Other Ratios** | | |
| Pristane/Phytane (Pr/Ph) | Redox conditions | Powell and McKirdy, 1973; Didyk et al, 1978 |
| Pr/*n*-C17 and Ph/*n*-C18 | Thermal maturity | ten Haven et al, 1987 |
| Aryl Isoprenoid Ratio (AIR) | Persistent vs Episodic photic zone euxinia | Schwark and Frimmel, 2004 |
| Odd over Even Predominance (OEP) | Terrestrial vs Marine input | Scalan and Smith, 1970; Peters et al, 2005 |

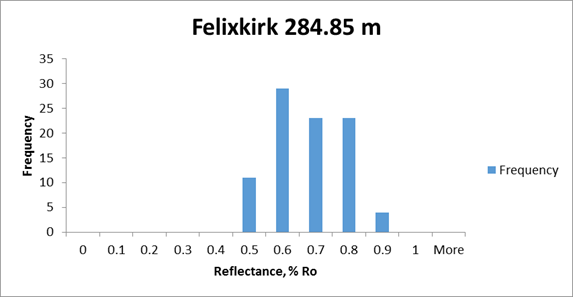
**GC-MS analytical difficulties**

Okenane and chlorobactane: GC-MS analyses were run in selected ion monitoring mode (SIM) using primary fragment ions 133 and 134 m/z and molecular ion 554 m/z. Due to low % TOC, Felixkirk samples showed very poorly resolved trace chromatographic peaks for okenane and chlorobactane which were well below the acceptable signal/noise ratio of 3. Quantification was not possible; molecular sieving was not done due to low TOC.

C30 4-methylsterane: Felixkirk samples were analysed using fragment ions 231 and 98 m/z on a separate DB-5 column from Lavernock samples. Lavernock samples showed a co-elution of C30 4-methylsteranes as an unresolved shoulder on a much larger hopane peak, prohibiting peak resolution and quantification.

**Figure S1. Vitrinite Reflectance Histograms**





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