

## Petrogenesis of Zoozan pluton, NE of Lut, Eastern Iran

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The Zoozan pluton is one of the Tertiary plutonic bodies in the northeastern of the micro-continental Lut block in Eastern Iran. This pluton is composed of two geochemically unrelated mafic and granitoid units. All rocks are calc-alkaline, with LILE/REE and HFSE/REE compatible with arc magmas. Mafic phase consists of gabbro to quartz diorite and emplaced as small stocks and dykes. These rocks exhibit relatively high contents of incompatible elements, low Na<sub>2</sub>O and Mg#>44.0. These features suggest their origin from enriched lithospheric mantle above subducted slab.

Granitoid phase includes granite-granodiorites which show high-K calc-alkaline metaluminous to slightly peraluminous I-type granitoid characteristics. Their Chondrite-normalized REE patterns mark enrichment of LREE (La<sub>N</sub>/Lu<sub>N</sub>= 7.6-12.5) and small negative anomaly (Eu/Eu\* = 0.63-0.74). They have geochemical composition typical of volcanic arc granitoids and have been originated from metabasaltic to tonalitic sources. Furthermore, fractional crystallization may have played significant role during the formation of Zoozan granitoids.

## Variation in carbon stable isotope ratios of organic matter in Bay of Bengal during the last glacial episode

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We report here a high resolution total organic carbon content (TOC) and  $\delta^{13}\text{C}_{\text{TOC}}$  variations from a 30m long core from Bay of Bengal. The core (MD161-8, water depth: 1033 m) was collected on board *Marion Dufresne* as part of our on going gas hydrate exploration program in the Krishna-Godavari basin. TOC content is constrained within 1-2 wt%. Our studies show dependence of TOC content on grain size distribution. During the last glacial episode, the  $\delta^{13}\text{C}_{\text{TOC}}$  varied between 14 and 17‰ VPDB indicating a significant contribution of C4 vegetation. Within 16-18 mbsf we have observed presence of pentamethyl icosane with carbon isotope ratios <-100‰. Presence of PMI has resulted in the isotope excursion. Post LGM rise in pCO<sub>2</sub> resulted in the diminished C4 contribution. Most depleted C isotope ratio is noted at ~7-8 ky BP suggesting enhanced contribution of terrestrial organic matter. For rest of the Holocene contribution from marine productivity dominates.

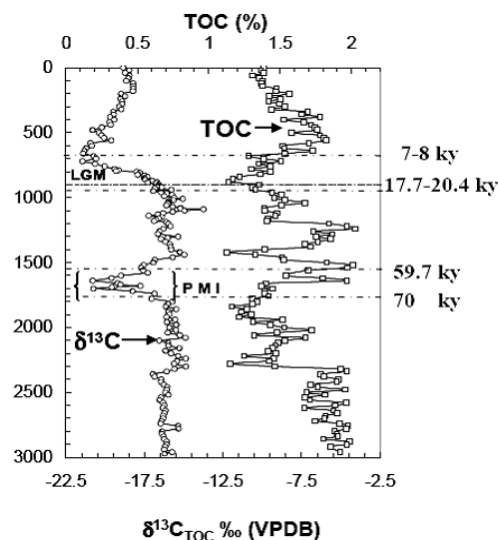


Figure 1: TOC and  $\delta^{13}\text{C}_{\text{TOC}}$  profile of MD161-8