

## ***Interactive comment on “Novel hydrocarbon-utilizing soil mycobacteria synthesize unique mycocerosic acids at a Sicilian everlasting fire” by Nadine T. Smit et al.***

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The paper by Smit et al is a fine example of the ongoing quest to identify new lipid biomarkers from the environment, and linking these with their parent organisms. In this case, the authors specifically went to sample soils near a hydrothermal vent where they identified raised levels of Mycobacteria, a group most known for their pathogeny like Tuberculosis, but also for their capacity to grow on gaseous hydrocarbons. They used elegant manners to identify (tentatively until possibly some future NMR work) a range of unusual 'Mycoseroric' fatty acids that appear to be specific for these environments, on top they also investigated the  $^{13}\text{C}$  content of these lipids further substantiate whether

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methane and/or ethane acts as the carbon source. With this paper the field of organic geochemistry is again a little richer in the amount of diagnostic environmental lipids. The paper is well written and I could not detect any errors.

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C2