

Biogeosciences Discuss., referee comment RC3  
<https://doi.org/10.5194/bg-2021-135-RC3>, 2021  
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## Reply on CC1

William Martin (Referee)

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Referee comment on "Comment on "Fundamental molecules of life are pigments which arose and co-evolved as a response to the thermodynamic imperative of dissipating the prevailing solar spectrum" by K. Michaelian and A. Simeonov (2015)" by Lars Olof Björn, Biogeosciences Discuss., <https://doi.org/10.5194/bg-2021-135-RC3>, 2021

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The critical comment by Björn should be published. His paper is carefully worded, polite and well argued. The response by Michaelian is unsatisfactory in my view, as is the 2015 paper that initiated Björn's comment. The teleological components in the original are not erased by Michaelian's glib formulations. The belief that solar radiation was required for life's origin is just that. Life is so short. There are papers explaining why chlorophyll based photosynthesis likely arose at hydrothermal vents, in line with the far red absorbance of dark green chlorosome containing bacteria that live there. No albedo at the bottom of the ocean. The critical comment by Björn should be published.