

## ***Interactive comment on “Technical Note: Bimodality in Mesospheric OH Rotational Population Distributions and Implications for Temperature Measurements” by Konstantinos S. Kalogerakis***

**Anonymous Referee #2**

Received and published: 6 January 2019

Review of the Technical Note: "Bimodality in Mesospheric OH Rotational Population Distributions and Implications for Temperature Measurements" by Konstantinos S. Kalogerakis.

General comments.

The paper is devoted to explanation of the OH\* rotational temperatures dependence on vibrational numbers. Author found that the existence of bimodal OH\* rotational population distributions is an inherent feature of rotational relaxation. In the manuscript

C1

OH\* rotational temperatures dependence on vibrational numbers is explained by the bimodality of the OH\*(v) rotational population distributions. The result is obtained based on analysis of selected examples from former investigations. On my opinion the provided analysis is correct and author's conclusions are reasonable.

Specific comments.

Is the explanation of the temperature trend by bimodal rotational population distribution only one possible? If – not, please discuss other with corresponding references.

Page 4, line 12: “the fact that the OH(v) radiative lifetime decreases as the vibrational level increases” – add reference.

Technical corrections

I recommend for references in the manuscript to use unique style, i.e. ( ) or [ ] through the entire manuscript

Page 1, line 20: “von Savigny 2017” - add comma.

Page 2, line 26: “[Charters and Polanyi, 1962;” – please add into reference list.

Page 3, line 9: “Lucht et al, 1986” - point after al.

Page 3, line 10: “Fei et al. 1998” – al., “Funke et al., 2012,” – 2012; “Noll et al.,” – al.,

Page 3, line 19: “data of Kliner and Farrow” – add year.

Page 4, line 10: “highest vibrational levels,” – without the comma.

Page 4, line 20: “of a bimodal OH” – the (!? I am not sure).

Page 4, line 33: “Oliva et al. data” – add year.

Generally, after specific and technical corrections, I recommend this paper for publication in Atmospheric Chemistry and Physics.

C2

