

Discussion

Reply to the comment of C. Covey et al. on
“Thermal pollution causes global warming”, by B. Nordell
[Global Planet. Change 38 (2003), 305–312]

Bo Nordell

Division of Renewable Energy, Luleå University of Technology, SE-97187 Luleå, Sweden

I fully understand that my global warming explanation (Nordell, 2003) contradicts work performed during the last decades. However, my idea has some qualities that make it easy to verify or reject.

My theory suggests that heat dissipation from the global use of non-renewable energy sources has resulted in global warming, i.e. the heating of air, ground and water. By adding the energy required to cause this heating of air, land and ground, we get the total amount of accumulated heat (acc. heat) between 1880 and 2000.

$$\sum_{1880}^{2000} \text{acc. heat} = \sum_{1880}^{2000} \text{acc. heat}_{\text{air}} + \sum_{1880}^{2000} \text{acc. heat}_{\text{ground}} + \sum_{1880}^{2000} \text{acc. heat}_{\text{water}}$$

My idea should be rejected if the accumulated heat does not match available heat (avail. heat), i.e. the

total net heat generation minus the net outgoing long-wave radiation (OLR) emitted to space during the same period. The accumulated net heat in air, ground and water is given by:

$$\sum_{1880}^{2000} \text{avail. heat} = \sum_{1880}^{2000} \text{net heat generation} - \sum_{1880}^{2000} \text{net OLR}$$

My preliminary estimates show good agreement between accumulated and available net heat. Readers are encouraged to do similar estimations.

Reference

Nordell, B., 2003. Thermal pollution causes global warming. *Global and Planetary Change* 38, 305–312.

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E-mail address: bon@sb.luth.se.