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Article 5. Why does Ocean between NZ and Australia Become A 'Hot spot' in Climate Change? And How to Measure Climate Change?/为什么新西兰与澳大利亚之间的海洋成为了气候变化的热点问题？如何衡量气候变化？

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Abstract

The climate change indicators external to our biosphere have been summarized by this article, illustrated by the 'hot spot' in the ocean between NZ and Australia.

Key words: Climate Change, Measurement of Climate Change, 'Hot Spot' in Climate Change, Solar Flare, Destruction of Atmospheric Boundary Layer.

1.Discussion

It is reported that the ocean between NZ and Australia has become the 'hot spot' in climate change [1]. There are several reasons to explain this finding: Firstly, the ozone depletion leads to higher radiation of UV-B in this region; Secondly, the ocean current in this region is the vortex form so that heat can be hardly transferred into other ocean area; thirdly, there would be more oceanic volcano in this regions than other regions, indicating more geothermal energy in this area.

Next it is to discuss how to measure climate changes: the indicators to measure climate change firstly include the intensity of sunlight radiation, then the intensity ratio of various frequencies in sunlight radiation, and finally the air temperature. If only the air temperature is high, it would not cause severe impact, just like the sauna, so this criterion is less important and less sensitive. However, it can be seen from the increase of the total intensity of the sunlight and the increase in the ratio of intensity at ultraviolet frequency that the solar celestial body is going for expansion and exhaustion, which would be supported by the increasing incidents of Solar Flare in astronomy observation [2].

Additionally, the destruction of atmospheric boundary layer (such as ozone depletion)

leads to the reduction of equipotential shielding effect, which is discussed in my another article [3], will causes the penetration of energetic charged particles, sourcing from solar wind, into biosphere and consequently becomes the threat to our living environment. It is concluded that the external indicators outside our biosphere, which measure the climate change, should mainly include: the total intensity of sunlight radiation, the intensity ratio of various frequencies in sunlight radiation, air temperature, incidents of Solar Flare, incidents of climatology disasters (such as NinoPhenomenon and LaNina), destruction of atmospheric boundary layer (such as ozone depletion), density of energetic charged particles from solar wind, etc (Table 1).

Table 1. Summary of external indicators measuring climate change outside our biosphere.

Indicators	Variation
The total intensity of sunlight radiation	---
The intensity ratio of various frequencies in sunlight radiation	---
Air temperature	---
Incidents of Solar Flare	---
Incidents of climatology disasters	---
Destruction of atmospheric boundary layer	---
Density of energetic charged particles from solar wind	---

2.译文

衡量气候变化的指标首先是太阳光辐射强度、其次是太阳光辐射中各频率的强度比例、最后才是气温。如果仅仅是气温高，还不至于造成大的危害性，就跟蒸桑拿一样的，所以更不重要与更不敏感。从太阳光强度的增加和紫外光频率的强度比例增加的情景看，是太阳天体正在走向膨胀、衰竭，这一观点可以从天文观测中增加的太阳耀斑发生事件得到支持[2]。

此外，大气边界层的破坏（例如臭氧层耗损）会导致等势屏蔽效应减弱，笔者已经在另一篇论文中探讨过等势屏蔽效应[3]，这将导致源自太阳风的高能带电粒子穿透生物圈，进而对我们的生存环境构成威胁。综上所述，用于衡量气候变化的、位于生物圈之外的外部观测指标应主要包括：太阳辐射总强度、太阳辐射中各频率成分的强度比、气温、太阳耀斑发生频率、气候灾害（如厄尔尼诺现象与拉尼娜现象）发生频率、大气边界层的破坏（例如臭氧层损耗）、来自太阳风的高能带电粒子密度等（表 1）。

References:

[1]. A public class from Jamie Morton, School of Environment. 2016. The University of Auckland.
[2]. 太阳耀斑。搜狗百科。
[3]. Liu Huan. (2021). The formation mechanism of substance boundary layers. Journal of Environment and Health Science (ISSN 2314-1628), 2021(2). https://doi.org/10.58473/JAES0004