Retraction Notice

Title of retracted article: **Temperature Trend over the Atlantic Ocean from 1996 to 2009 Derived from Radiosonde Soundings**

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Journal: Atmospheric and Climate Sciences
Year: 2014
Volume: 4
Number: 1
Pages (from - to): 42 - 46
DOI (to PDF): http://dx.doi.org/10.4236/acs.2014.41005
Paper ID at SCIRP: 4700239
Article page: http://www.scirp.org/journal/PaperInformation.aspx?PaperID=40949

Retraction date: 2014-03-25

Retraction initiative (multiple responses allowed; mark with **X**):
X All authors
☐ Some of the authors:
☐ Editor with hints from
  ○ Journal owner (publisher)
  ○ Institution:
  ○ Reader:
  ○ Other:

Date initiative is launched: 2014-03-18

Retraction type (multiple responses allowed):
☐ Unreliable findings
  ○ Lab error ○ Inconsistent data ○ Analytical error ○ Biased interpretation
  ○ Other:
☐ Irreproducible results
☐ Failure to disclose a major competing interest likely to influence interpretations or recommendations
☐ Unethical research

☐ Fraud
  ○ Data fabrication ○ Fake publication ○ Other:
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☐ Copyright infringement ☐ Other legal concern:

☐ Editorial reasons
  ○ Handling error ○ Unreliable review(s) ○ Decision error ○ Other:

X Other:

Results of publication (only one response allowed):
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☐ were found to be overall invalid.

Author's conduct (only one response allowed):
☐ honest error
☐ academic misconduct
X none (not applicable in this case – e.g. in case of editorial reasons)

* Also called duplicate or repetitive publication. Definition: "Publishing or attempting to publish substantially the same work more than once."

History
Expression of Concern:
☐ yes, date: yyyy-mm-dd
X no

Correction:
☐ yes, date: yyyy-mm-dd
X no

Comment:

The article has been retracted as it was wrongfully published without the proper authorization from the authors' institute. This paper published in Vol. 4, No. 1, 42-46, 2014, has been removed from this site.

Editor guiding this retraction: Prof. Shaocai Yu (EiC of ACS)

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Atmospheric and Climate Sciences, **2014, 4, 42-46**
Published Online January 2014 (http://www.scirp.org/journal/acs)
http://dx.doi.org/10.4236/acs.2014.41005

Temperature Trend over the Atlantic Ocean from 1996 to 2009 Derived from Radiosonde Soundings

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Received November 5, 2013; revised November 27, 2013; accepted December 5, 2013

ABSTRACT

Radiosonde, or weather balloon data, was used to analyze temperature trends over the tropical Atlantic Ocean from years 1996 to 2009. The observations focused on the standard pressure levels to better assess temperature trends throughout the troposphere and within the stratosphere. Results convey a near surface increase of temperature, while also revealing a minimal but decreasing troposphere temperature trend, and stratospheric cooling. Stratospheric cooling and near surface warming are consistent with the theory of anthropogenic climate change; contrastingly non-increasing temperatures within lower pressure areas of the troposphere are inconsistent with the anthropogenic climate change theory [1-5].

KEYWORDS

Radiosonde; Climate Change; Stratosphere; Troposphere; Remote Sensing; Global Warming; Atlantic Ocean

1. Introduction

A previous study revealing MOZAIC in-flight data conveyed an increase of temperature in the atmosphere over the Atlantic Ocean at the 250 hectopascal (Hpa) standardized pressure level, from the years 1994 to 2009. To observe the temperature trends within the atmosphere, radiosonde data were used. Radiosonde is a unit that is used in conjunction with weather balloons to record atmospheric pressures, temperatures, height, and a wide range of advantageous data [6]. When released, the balloon along with the attached radiosonde rises into the atmosphere recording pressure and temperatures at various heights. Eventually, as the balloon's height increases, the atmospheric pressure decreases, and attempts to maintain pressure equilibrium. The pressure difference causes the weather balloon to expand and burst. This breach triggers the radiosonde to no longer record data.

The objective is to determine if radiosonde data from the years of 1996 to 2009 can show any significant atmospheric temperature trends which support previous studies [7]. Specifically using radiosonde data sets at 32.37N 64.68W, Bermuda. Previous studies have shown the tropical Atlantic Ocean is the site of the highest increasing temperature trends over recent years [8]. Through the use of radiosonde data, temperature trends over various pressure levels within the atmosphere can be determined, focusing on the thirteen standard pressure levels. Typically temperatures decrease as pressure decreases within the troposphere. As the pressure levels reach the stratosphere, the temperatures begin to increase. The anthropogenic climate change model suggests that near surface and troposphere temperatures will increase over time, while the temperatures in the stratosphere will decrease [4,5]. This is due to the atmospheric principle which states, as the troposphere increases in temperature, the stratosphere will cool as a way to maintain balance.

2. Methodology

The National Oceanic and Atmospheric Administration (NOAA) and Earth System Research Laboratory (ESRL) collected the station data used for 32.37N 64.68W Bermuda. The ranges of data selected were from January 1996 to April 2009. The data set included on average one to two daily radiosonde recordings for temperature and pressure within the atmosphere at the given location. The scope of work only focused on data found within the stratosphere and troposphere. The data points found at the pressure levels were not consistent, meaning levels recorded varied in radiosonde soundings. To determine the temperature values at the standard pressure levels, interpolation of the nearest pressure values were conducted [9]. The computations performed were conducted using a step-type nearest interpolation, yielding a piecewise-constant interpolant.

The temperature values for each standard pressure level were chronologically organized, however due to seasonal oscillations no significant trend could be determined [9]. Seasonal oscillations were then removed using a method of de-seasonalization. This is a method by which the average temperature for each pressure level for each year was averaged. That value was then subtracted for each respective month. For example, the average of January temperatures at 1000 Hpa from 1996 to April 2009 is subtracted from each individual January to determine its difference from average values. **Figures 1** to **13** show the temperature values are the difference in Celsius from the months average temperatures compared to all the averages for that month throughout the years being observed. A linear regression line was fitted to determine any existing trends [10].

3. Results

Figures 1-3 show little to no trend, with **Figure 2**, 850 Hpa, being significantly low. **Figures 4-13** show slightly larger decreasing temperature trends, compared to **Figures 1-3** [2,11,12].

4. Discussion

Near the surface, 1000 Hpa, a positive temperature trend is occurring for the years collected. However, all other

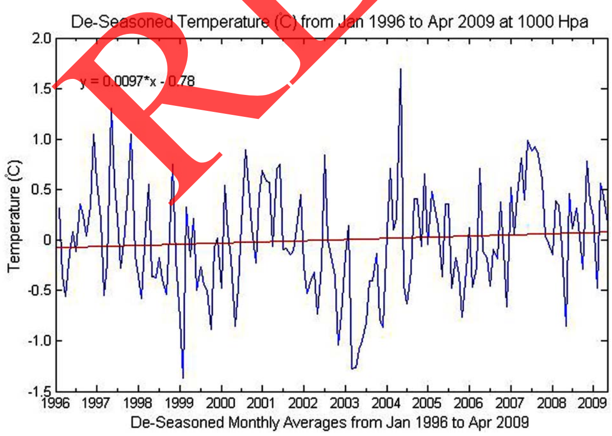

Figure 1. De-seasoned temperature values from January 1996 to April 2009, with a slope of 0.0097, at 1000 Hpa.

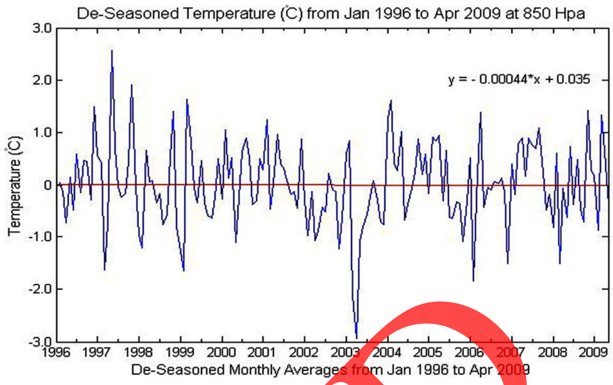

Figure 2. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.00044, at 850 Hpa.

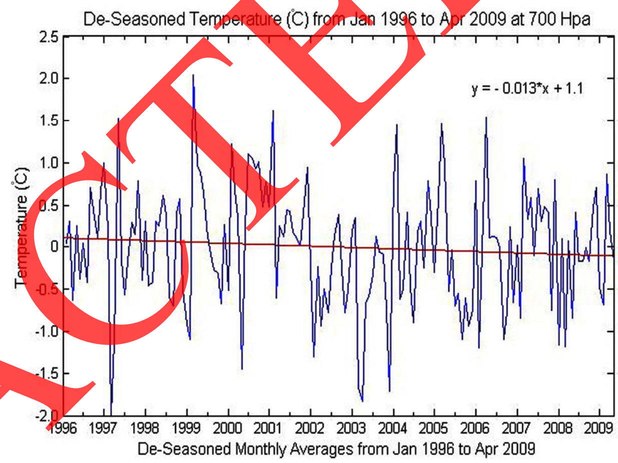

Figure 3. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.013, at 700 Hpa.

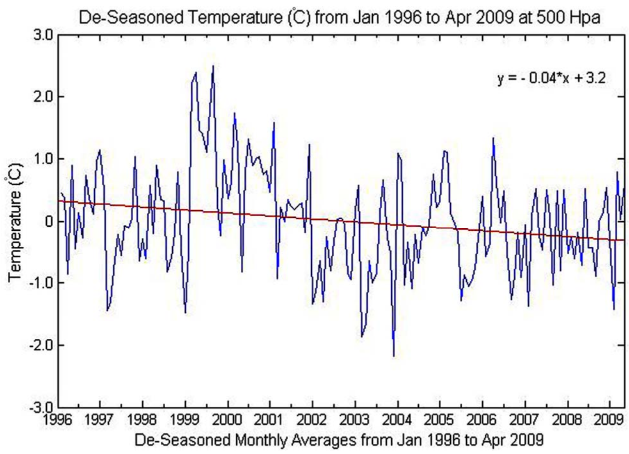

Figure 4. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.04, at 500 Hpa.

temperature trends at standard pressure levels show negative trends, furthermore a decrease in temperature is occurring within the troposphere at 850 Hpa and lower pressure levels, and within the stratosphere. The anthropogenic climate change model suggests warming occurs

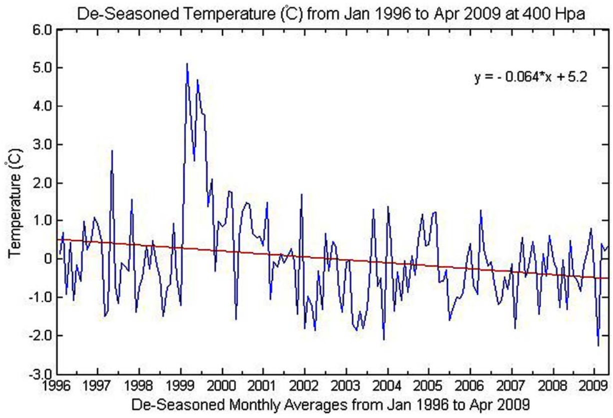

Figure 5. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.064, at 400 Hpa.

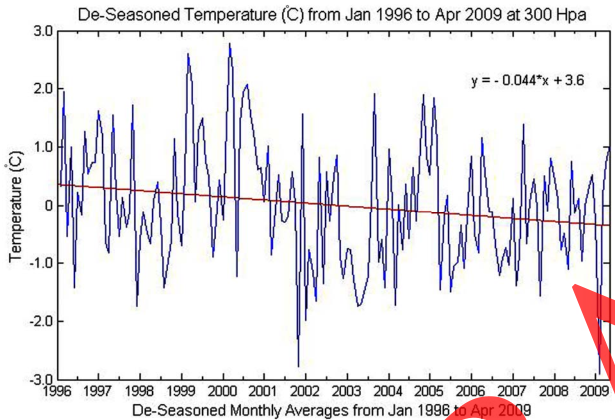

Figure 6. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.044, at 300 Hpa.

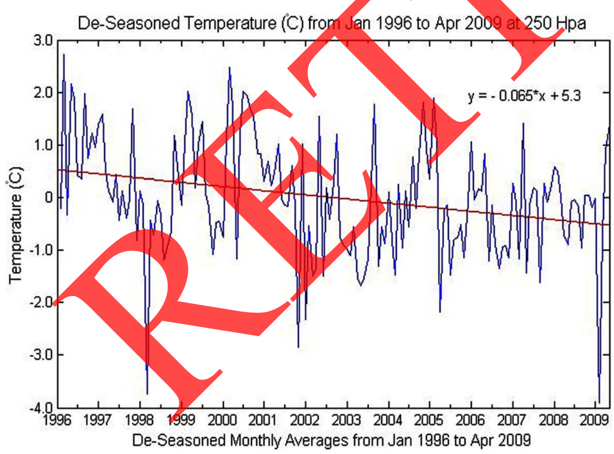

Figure 7. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.065, at 250 Hpa.

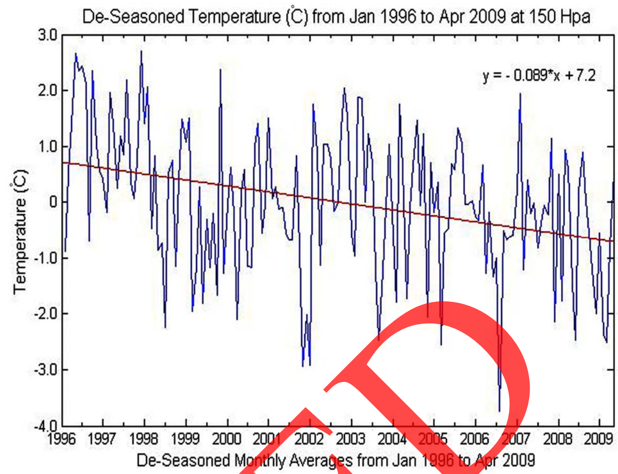

Figure 8. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.089, at 150 Hpa.

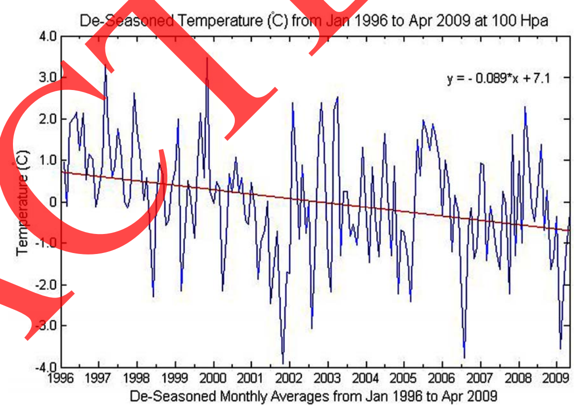

Figure 9. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.089, at 100 Hpa.

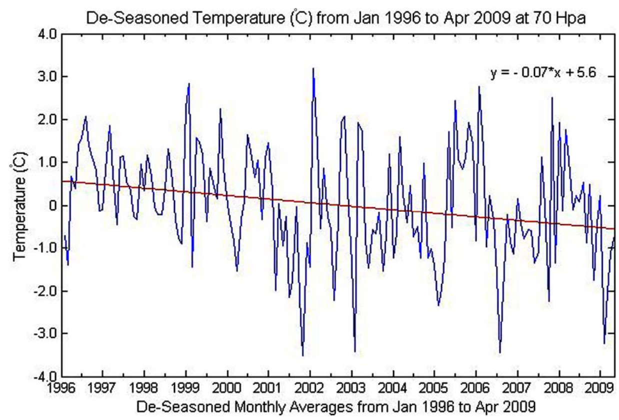

Figure 10. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.07, at 70 Hpa.

at the surface, near surface, and troposphere, while cooling occurs within the stratosphere [4,5]. Near the surface, 1000 Hpa, and the stratosphere, 100 Hpa and lower, are consistent with this model. However, the results show a cooling in the troposphere between 850 Hpa and 150 Hpa, which is not consistent with the anthropogenic climate change theory [4,5].

Possible reasons for these results can be due to oscillations that occur during longer periods of time. Further more the range of data analyzed had been limited to 1996

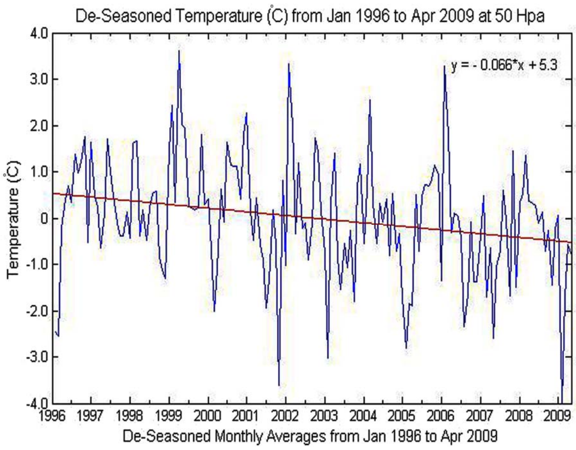

Figure 11. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.066, at 50 Hpa.

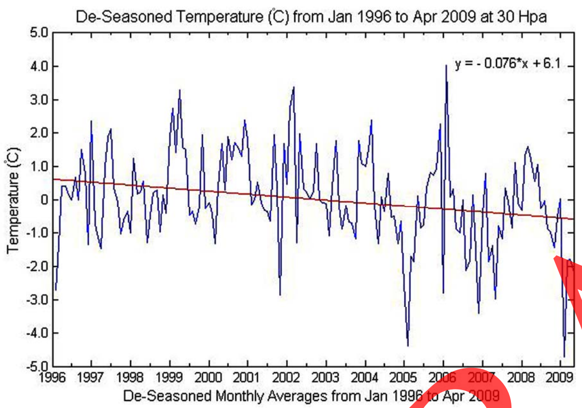

Figure 12. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.076, at 30 Hpa.

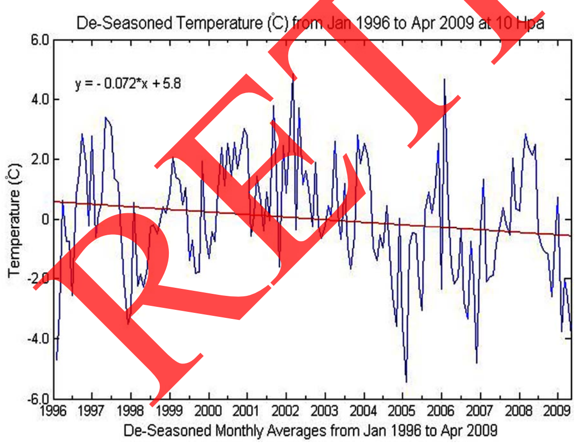

Figure 13. De-seasoned temperature values from January 1996 to April 2009, with a slope of −0.072, at 10 Hpa.

to 2009, observing the temperature trend over recent years would prove significant according to radiosonde data. A further investigation of previous years should be done to determine the temperature change over a longer span of radiosonde data.

Temperature (˚C) slope at each standard pressure level from January 1996 to April 2009.

Figure Number	Pressure Level (Hpa)	Slope
1	1000	0.0097
2	850	−0.00044
3	700	−0.013
4	500	−0.04
5	400	−0.064
6	300	−0.044
7	250	−0.065
8	150	−0.089
9	100	−0.089
10	70	−0.07
11	50	−0.066
12	30	−0.076
13	10	−0.072

Finally, errors in the results may be due to the radiosonde weather balloons travel when released into the atmosphere [8]. The issue is these recording devices cannot remain in the same coordinates due to wind speed and wind direction. This creates a range of undetermined errors as the balloon drifts into different coordinates as it ascends into the atmosphere [13]. Therefore, as the radiosonde weather balloon goes into lower pressures, the reliability of the temperature trends decreases as pressure levels decrease [8].

5. Conclusion

The MOZAIC in-flight study, which showed an increase in temperature over the Atlantic Ocean at 250 Hpa, does not coincide with the conclusion found in this experiment. Near the surface, 1000 Hpa, and the stratosphere, 100 Hpa and lower, are consistent with the anthropogenic climate theory [13,14]. However, the results show a cooling in the troposphere between 850 Hpa and 150 Hpa, which is not consistent with the anthropogenic climate change theory [13,14]. These values were obtained through the computable methods of interpolation and de-seasonalization. In conclusion, the near surface temperature trends were minimally increasing, while all other standard pressures were found to have a declining temperature trend.

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