Cosmic Microwaves: Absorption-Emission

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Mr. Tegmark,

My two simple questions were conveyed to you on 28 December 2013. As I suspected, it seems that you have decided to ignore my questions rather than account for yourself, contrary to Professor Pierre-Marie Robitaille who responded in detail in several emails following questions and criticisms put to him by Messrs. Sungenis, DeLano, and Bennet. Although Mr. Sungenis replied to a number of my simple questions, he actually answered none of them and ignored the question concerning absorbers and emitters, as you will recall. Mr. Tegmark, according to Sungenis, you appear in the cinema film 'The Principle', soon to be released, produced by Sungenis and DeLano, in which not only is the Geocentric Theory of the solar system sought to be reinstated, but the Earth is also placed at the centre of the Universe, because the Earth is alleged to be special. Since you have not done so, I will answer the questions (reiterated below), but first recall Mr. Sungenis' argument.

"*I would suggest here that if there is a microwave radiation from the oceans, it is certainly possible that the origin is not the oceans, rather, that the oceans are merely reflecting the microwave radiation from the cosmos*." (Sungenis)

(1) When you put a glass of water inside a microwave oven and turn it on does the water in the glass reflect the microwaves or does it absorb them?

Answer: The water absorbs the microwaves. Indeed, foodstuffs too, placed inside the microwave oven, absorb the microwaves. That is how the oven works and why it is called 'a microwave oven'.

(2) Is a powerful absorber of microwaves also a powerful emitter thereof?

Answer: It is very well known that a powerful absorber of microwaves is also a powerful emitter of microwaves.

Thus, by (1) and (2), water is a powerful emitter of microwaves.

CONSEQUENCES FOR THE SO-CALLED 'COSMIC MICROWAVE BACKGROUND'

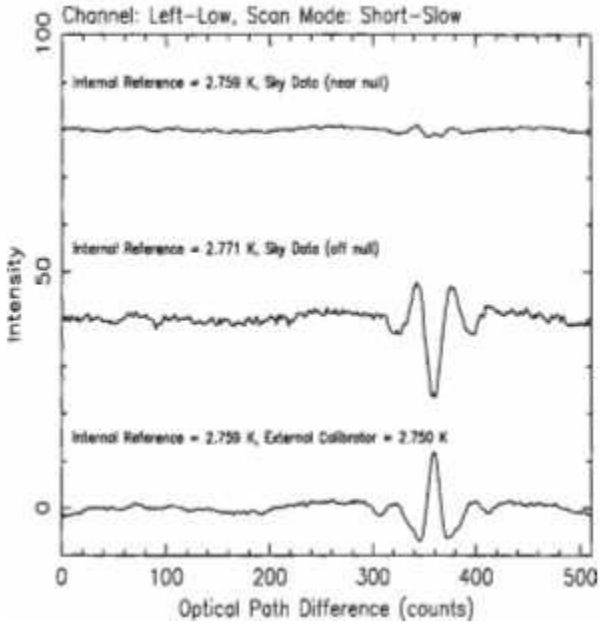
Approximately 70% of the Earth's surface is covered by water (oceans). The Earth's atmosphere also contains water in solid, liquid and gaseous phases. Oceanic and atmospheric water microwave and far-infrared emission is facilitated by a fundamental physical oscillator, the hydrogen bond (Robitaille 2009). These emissions are scattered by the Earth's atmosphere to produce an omnidirectional microwave and far-infrared isotropic bath under steady state conditions, that is independent of seasonal changes (Robitaille 2008, 2007), from an initial anisotropic source (reservoirs of water).

The Cosmic Microwave Background Explorer (COBE) satellite was in Earth orbit at an altitude of about 900 to 950 km. The Far Infrared-Red Absolute Spectrophotometer (FIRAS) aboard COBE was fitted with a shield to block extraneous radiation entering the detector and heating it. The COBE Team reported "*best blackbody curve ever measured*" is actually the difference between the sky and the calibrator aboard FIRAS. Although the FIRAS horn was designed as a broadband horn 30-3,000 GHz, it operated primarily from ~30-600 GHz. It is impossible to construct an effective shield to protect from extraneous signals over the entire range 30-3,000GHz. The FIRAS shield was NOT designed to shield for microwaves and so it was susceptible to microwave diffraction over it and into its detector. The

FIRAS team actually reported unexpectedly higher signal intensities at the lower frequencies and unexpectedly lower signal intensities at the higher frequencies – precisely what is expected with signal diffraction over the shield.

FIRAS was flooded with signal – indeed, the FIRAS team reported that the error bars on their reported blackbody curve were well within the width of the line of their curve – some 400 times smaller. Such powerful signals are known from laboratory experience to indicate proximal signal source, not distal signal source. The proximal source of the FIRAS signal is the microwave filled atmosphere of the Earth, not the Cosmos. The failure of the COBE-FIRAS team to report any interference from the Earth is precisely because the Earth is the source of the signal. As Robitaille has remarked, since the oceans and other water sources in the atmosphere must be emitting microwaves, where then is the Earth signal? It must be there! This is reinforced by the fact that the ESA PLANCK satellite at L2 has failed to report an absolute determination of a cosmic monopole signal at L2 despite being capable of an absolute detection of a monopole signal. That is because there is no cosmic monopole signal at L2. Moreover, for its fits the PLANCK Team uses the COBE ~2.7 K for the so-called temperature of the alleged 'CMB'. The PLANCK Team's anisotropy map bears only superficial resemblance to the WMAP anisotropy map. The maps are not the same because the PLANCK Team has altered the scales of their map. In addition WMAP is incapable of reproducing anisotropy maps from within its own datasets. The WMAP team varied its Integrated Linear Coefficients at will and weighted the V-band frequency arbitrarily to generate its anisotropy map. WMAP has no unique map. Nonetheless the PLANCK Team reports excellent correspondence with WMAP. One can only wonder how the PLANCK Team achieved this, with its additional change of scales. Something certainly does not smell right with PLANCK either. Tegmark et al's (2003) alternative method of 'cleaning' WMAP images to generate an anisotropy map also relies upon the validity of the COBE-FIRAS cosmic blackbody spectrum:

"*The only assumption, which is crucial, is that the CMB has the Blackbody spectrum determined by the COBE/FIRAS experiment*." (Tegmark et. al. 2003)



Interferograms obtained in flight with FIRAS.

From Mather et al. (1990) courtesy of NASA and the COBE Science Working Group. Reproduced by permission of the AAS. (Permissions previously granted to Stephen J. Crothers).

The COBE-FIRAS Team reported a set of three interferograms, obtained in-flight, in a single image (shown above). The top trace had the Internal Calibrator (ICAL) set at 2.759K and compared to the sky. The trace seems to contain only small deviations from the horizontal and is reported as "*near null*". The second trace has ICAL set at 2.771K and compared to the sky. It contains a significant vertical displacement and is reported as "*off null*". The third and final trace has ICAL set at 2.759 K and the External Calibrator (XCAL) set at 2.750K and contains a significant vertical displacement. Despite reporting a "*near null*" at 2.759K the FIRAS team ultimately reported a 'CMB' temperature of 2.725K. However, Robitaille has pointed out that the top and bottom traces are not drawn to the same scale. For the top and bottom traces to appear on the same scale as the middle trace, they must be amplified by a factor between 3 and 5. The result is that the "*near null*" report is far from near null. The top and bottom traces have had their amplitudes suppressed, apparently to give the impression that a near null was obtained. These traces are deceptive. The true scale of the top trace is ascertained by examining the corresponding noise powers (Robitaille 2009a). Nonetheless, Fixen has recently reported a tenfold accuracy increase in the FIRAS 'CMB' measurement at 2.7255K ± 0.0001K.

The WMAP Team, Tegmark et al, and the PLANCK Team must deal with the very same problem of extracting a signal that is some 1000 times weaker than the noise (the galactic foreground and the dipole signal are in mK whereas the alleged anisotropies are in μK). Laboratory experience attests that it is impossible to achieve this without either (1) *a priori* knowledge of the nature of the signal source, or (2) the ability to physically manipulate the signal source. Neither option is available to WMAP, Tegmark et al, or PLANCK. Yet the WMAP Team, Tegmark et al, and the PLANCK team claim to have achieved a feat which no radiometry laboratory on Earth can achieve.

The blackbody curve finally reported by the COBE-FIRAS team is world famous and, as previously mentioned above, is reported to have uncertainties that are many times smaller than the line thickness of the curve presented. However, this curve is very strangely presented. The COBE-FIRAS Team eliminated all data < $2cm^{-1}$ and this is disguised by an offset of the frequency axis. On top of that, all other deviations from the perfect blackbody curve were dumped into their ubiquitous 'calibration file'. Anything that did not work for FIRAS was either omitted or relegated to the calibration file. As Robitaille (2009a) has pointed out, "*Finally, in 2002, Fixsen and Mather [43] advance that* '*the measured deviation from this spectrum are 50 parts per million (PPM, rms) of the peak brightness of the CMBR spectrum, within the uncertainty of the measurement*'. *Using technology established in the 1970's, the FIRAS team reported a spectral precision well beyond that commonly achievable today in the best radiometry laboratories of the world*."

It is interesting to also note that when Smoot removed the galactic foreground and the dipole signal, his expected multipoles did not appear. So, on the spur of the moment he decided to remove the quadrupole signal. Lo and behold his multipoles appeared which he dubbed "*wrinkles on the fabric of time*". Smoot and his team shared a Noble Prize for this. However, as Robitaille (2009a) has clearly pointed out, when Smoot systematically processed out the quadrupole he systematically introduced ghost signals, mere artefacts of his processing methods, and mistook these artefacts for data! They are not real. "*Apparent anisotropy must not be generated by processing*" (Robitaille 2007b).

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