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Mr. Phil Henshaw
167 W 87th St
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Dear Phil:

I'm pleased to offer you whatever help I can with regard to your ideas on structured convection currents. Your descriptions are a little unconventional, but I find what you say intriguing and plausible. As you know, the study of complex fluid flow is a very large and active field of inquiry---and often quite controversial because of the three-dimensional complexities, and the difficulty of providing clear scientific evidence of the intricacies of the processes involved. It is an important area of scientific investigation, and draws interest because there is steady progress being made, with the promise of further fundamental discoveries that can modify the ways we treat fluid behavior and interactions.

I have reviewed the description of your unusual convection current experiment, your original experimental setup, and the data of the thermal anomaly you described as evidence of it, which you published on your web page. I also reviewed the letter and calculations by Steve Green estimating the normally expected rate of flow for turbulent convection in similar circumstances.

The behavior Steve Green describes is a correct description of ordinary turbulent convection on a isolated flat plate, but his conclusion that this was what was occurring in your test is not necessarily correct. One thing I have learned through my thirty years of studying fluid behavior is that often small departures from established geometrical constraints can cause fluids to often behave in quite "abnormal" ways. The documented anomaly in your experiments, that the temperature in a passive solar convection cell suddenly shot up as the energy input from the sun began to decline, suggests a departure from that "normal" behavior for convection loops. Your reasoning of the evidence, on the other hand, could account for the anomaly, if a self-confined convection current of the kind you describe were present up until that point. If such a current existed--a wall-hugging, structured 'weather system' as you suggest--it would not be unexpected for such a system to suddenly destabilize once its driving force degrades. Such a sudden destabilization could have been stimulated by the saturation of the thermal mass, since it appears from you data that the thermal mass driving the convection in the cell was clearly approaching a situation of thermal saturation at the time of occurrence of the anomaly.

There seems little doubt that something out of the ordinary was occurring. Unfortunately, though I know of a great many special kinds of fluid flow, and have studied several of them, I don't recognize this one as having been investigated. I would like to be able to say more, since I do believe you have a good developed sense of how convection works and are accurate in describing what you observed. It also sounds like an experiment that, in a laboratory setting, would be fairly easy to build and verify, and should be pursued to examine this unusual structured convection behavior.

I understand your patent examiner has been quite skeptical regarding your claims. If it would be of any help I would be happy to speak with him.

Since we have a common interest in better understanding the "structure" of complicated fluid behavior, I thought you might be interested in a recent article I was asked to write for a publication for the geosciences industry, called "Geotimes," a copy of which I enclose. The article, titled "Pushing the Boundaries of Turbulençe," recounts some of my studies of turbulence, and my interpretations of the flow structure of such. I was struck by the similarity between several of the concepts I present in my article and your attempts at characterizing the visualized "structure" of your convection flows. I think there is a commonality to these ideas that may suggest a different paradigm for convecting flows that is not clearly understood. Let's keep in touch on our ideas.

Best regards,

C.R. Smith
Professor and Chair